

<b>7</b>	<b>Framställning eller bearbetning av plåt, tråd eller rör av metall; Valsning av metall</b>	<b>[-68]</b>
<b>7</b>	<b>(IPC: B21) Mechanical metal-working without essentially removing material; Punching metal</b>	<b>[68-]</b>
	<b>Notes:</b>	
	<b>1. Combinations of operations covered by different subclasses are dealt with in 49I. Combinations of operations covered by any particular subclass with operations covered by other classes, e.g. with operations involving removal of material, are also dealt with in 49I, except that if the operations covered by the other classes both are subsidiary to and performed in connection with the operations properly covered in a single subclass of 7 the combination is classified in that subclass.</b>	
	<b>2. Processes of a kind covered by this class but applied to non-metallic materials may be classified here if they are applicable to metal and cannot be classified fully in one other class.</b>	<b>[68-]</b>
<b>7a</b>	<b>Valsning av metall</b>	<b>[-68]</b>
<b>7a</b>	<b>(IPC: B21B) Rolling of metal</b>	<b>[68-]</b>
<b>7b</b>	<b>Framställning av plåt, metalltråd, metallstänger, metallrör, rörförbindningar e.d. genom dragning, strängpressning e.d.; Upplindning eller avlindning av tråd eller metallband</b>	<b>[-68]</b>
<b>7b</b>	<b>(IPC: B21C) Manufacture of metal sheets, wire rods, tubes or profiles, otherwise than by rolling; Auxiliary operations used in connection with metal-working without essentially removing material</b>	<b>[68-]</b>
<b>7c</b>	<b>Bearbetning av plåt eller rör; Anordningar för invalsnig eller avskärning av rör</b>	<b>[-68]</b>
<b>7c</b>	<b>(IPC: B21D) Working or processing of sheet metal or metal tubes, rods or profiles without essentially removing material; Punching</b>	<b>[68-]</b>
<b>7d</b>	<b>Trådbearbetning</b>	<b>[-68]</b>
<b>7d</b>	<b>(IPC: B21F) Working or processing of wire</b>	<b>[68-]</b>
<b>7e</b>	<b>Framställning av nålar eller spikar</b>	<b>[-68]</b>
<b>7e</b>	<b>(IPC: B21G) Making needles, pins or nails</b>	<b>[68-]</b>
<b>7f</b>	<b>Framställning av speciella alster genom valsning</b>	<b>[-68]</b>
<b>7f</b>	<b>(IPC: B21H) Making particular metal objects by rolling</b>	<b>[68-]</b>
<b>7g</b>	<b>(IPC: B21J) Forging; Hammering; Pressing; Riveting; Forge furnaces</b>	<b>[68-]</b>
<b>7h</b>	<b>(IPC: B21K) Making forged or pressed products</b>	<b>[68-]</b>
<b>7i</b>	<b>(IPC: B21L) Making chains</b>	<b>[68-]</b>
<b>7a</b>	<b>Valsning av metall</b>	<b>[-68]</b>
<b>7a-1</b>	<b>Valsning av metall i allmänhet</b>	<b>[-68]</b>

7a-2	Valsning av stavjärn, plattjärn eller rundjärn i duovalsverk, reversibla duovalsverk eller triovalsverk	[-68]
7a-3	Valsning av räls, balkar eller profiljärn i duovalsverk, reversibla duovalsverk eller triovalsverk	[-68]
7a-4	Tvärvalsning av metall, t.ex. med hjälp av skivor	[-68]
7a-5/01	Kontinuerliga valsverk för plåt, tråd eller band	[-68]
7a-5/02	Bromsanordningar för inlöpande material vid plåtvalsverk eller bandvalsverk	[-68]
7a-6	Stegvalsning av metall (pilgrimsvalsverk för rör 7a-16)	[-68]
7a-7	Valsning av metall i universalvalsverk eller multipelvalsverk (tråd eller band 7a-12; för framställning av speciella föremål 7f)	[-68]
7a-8	Valsning av metall på speciella sätt, t.ex. från flytande tillstånd	[-68]
7a-9/01	Valsning av plåt	[-68]
7a-9/02	Speciella hjälpanordningar för plåtvalsverk, bandvalsverk eller trådvalsverk	[-68]
7a-10	Anordningar för att dubblera och skilja plåt	[-68]
7a-11	Valsning av folier	[-68]
7a-12	Valsning av tråd, stångstål eller band; Anordningar för på lindning eller av lindning utan trummor (med trummor 7b-5/01, 7b-5/70)	[-68]
7a-13	Överföringsanordningar	[-68]
7a-14/01	Rörvalsverk	[-68]
7a-14/02	Längsvalsning av rör	[-68]
7a-14/03	Kontinuerliga valsverk för rör	[-68]
7a-15	Tvärvalsning eller snedvalsning av rör	[-68]
7a-16/01	Stegvalsning av rör; Pilgrimsvalsverk	[-68]
7a-16/02	Valsning av rör med inre förtjockningar	[-68]
7a-17/01	Matningsanordningar för pilgrimsvalsverk	[-68]
7a-17/02	Anordningar för att vrida matningsspindeln vid pilgrimsverk	[-68]
7a-17/03	Dornar, dornstånghållare eller dorninställningsanordningar för rörvalsverk	[-68]
7a-17/04	Speciella hjälpanordningar för rörvalsverk	[-68]
7a-18	Valsverk med stödda arbetsvalsar; Valslager	[-68]
7a-19	Valskonstruktioner	[-68]
7a-20	Valsverkskopplingar	[-68]
7a-21	Anordningar för att värma eller kyla valsar	[-68]
7a-22/01	Drivanordningar för valsverk	[-68]
7a-22/02	Drivanordningar för släpvalsverk	[-68]
7a-22/03	Andra valsverksdetaljer	[-68]
7a-23	Inställningsanordningar för valsar	[-68]
7a-24/01	Rullbanor för valsverk	[-68]
7a-24/02	Elektrisk separatdrift för rullbanerullar	[-68]
7a-25	Anordningar för att vända, kanta eller vrida valsgodset	[-68]
7a-26/01	Svalbäddar	[-68]
7a-26/02	Anordningar för att flytta valsgodset från rullbana till svalbädd	[-68]
7a-26/03	Anordningar för att flytta valsgodset från svalbädden	[-68]
7a-27/01	Andra valsverkstillbehör	[-68]
7a-27/02	Inledare, vridledare eller utledare för valsverk	[-68]
7a-27/03	Släpanordningar för valsgodset	[-68]
7a-27/04	Lyftbord eller andra lyftanordningar, t.ex. för plåtvalsverk	[-68]
7a-28	Mekanisk behandling av valsgodset, t.ex. anordningar för att avlägsna glödspån	[-68]
7a-29	Annan behandling av valsgodset, t.ex. genom smörjning eller infettning	[-68]

<b>7a</b>	<b>(IPC: B21B) Rolling of metal</b> (auxiliary operations used in connection with metal-working operations covered in 7, see 7b; bending by rolling 7c; manufacture of particular objects, e.g. screws, wheels, rings, barrels, balls, by rolling 7f; plating 49I-3/06) <b>[68-]</b>
	<b>Notes:</b> <b>[68-]</b> <b>In this subclass, the term "rolling" is understood to refer to operations in which plastic deformations occur.</b> <b>[68-]</b>
<b>7a-1/00</b>	<b>Metal rolling methods or mills for making semi-finished products of solid or profiled cross-section</b> (7a-17/00 to 7a-23/00 take precedence; with respect to composition of material to be rolled 7a-3/00; extending closed shapes of metal bands by simultaneous rolling at two or more zones 7a-5/00; metal-rolling stands as units 7a-13/00); <b>Sequence of operations in milling trains; Layout of rolling-mill plant, e.g. grouping of stands; Succession of passes or of sectional pass alternations</b> <b>[68-]</b>
7a-1/02	. for rolling heavy work, e.g. ingots, slabs or billets, in which the cross-sectional form is unimportant <b>[68-]</b>
7a-1/04	. . in a partly or wholly continuous process, i.e. in a mill train designed for the workpiece to enter one pair of rolls before leaving the preceding pair <b>[68-]</b>
7a-1/06	. . in a non-continuous process <b>[68-]</b>
7a-1/08	. for rolling work of special cross-section, e.g. rails, I-beams, U-irons or angle steel (rolling metal of indefinite length in repetitive shapes specially designed for the manufacture of particular objects 7f-8/00) <b>[68-]</b>
7a-1/10	. . in a single two-high or universal rolling mill <b>[68-]</b>
7a-1/12	. . in a partly or wholly continuous process, i.e. in a mill train designed for the workpiece to enter one pair of rolls before leaving the preceding pair <b>[68-]</b>
7a-1/14	. . in a non-continuous process <b>[68-]</b>
7a-1/16	. for rolling wire or material of like small cross-section <b>[68-]</b>
7a-1/18	. . in a partly or wholly continuous process, i.e. in a mill train designed for the workpiece to enter one pair of rolls before leaving the preceding pair <b>[68-]</b>
7a-1/20	. . in a non-continuous process <b>[68-]</b>
7a-1/22	. for rolling bands or sheets of indefinite length (7a-1/42 takes precedence) <b>[68-]</b>
7a-1/24	. . in a partly or wholly continuous process, i.e. in a mill train designed for the workpiece to enter one pair of rolls before leaving the preceding pair <b>[68-]</b>
7a-1/26	. . . by hot-rolling <b>[68-]</b>
7a-1/28	. . . by cold-rolling <b>[68-]</b>
7a-1/30	. . in a non-continuous process <b>[68-]</b>
7a-1/32	. . . in reversing mills, e.g. with intermediate storage reels for accumulating work <b>[68-]</b>
7a-1/34	. . . . by hot-rolling <b>[68-]</b>
7a-1/36	. . . . by cold-rolling <b>[68-]</b>
7a-1/38	. for rolling sheets of limited length, e.g. folded sheets or superimposed sheets <b>[68-]</b>
7a-1/40	. for rolling foils which present special problems, e.g. because of thinness <b>[68-]</b>
7a-1/42	. for step-by-step or planetary rolling (making tubes by pilgrim-step rolling 7a-21/00) <b>[68-]</b>
7a-1/44	. for rolling metal directly from melt (involving special machines 7a-13/22; melting technique 31b, e.g. continuous casting 31b2-11/00) <b>[68-]</b>
<b>7a-3/00</b>	<b>Rolling materials of special alloys so far as the composition of the alloy requires or permits special rolling methods or sequences</b> (altering special metallurgical properties of alloys, other than structure consolidation or mechanical properties resulting therefrom 18c, 40d) <b>[68-]</b>
7a-3/02	. Rolling special iron alloys <b>[68-]</b>
<b>7a-5/00</b>	<b>Extending closed shapes of metal bands by simultaneous rolling at two or more zones</b> (manufacture of circular shapes, e.g. wheel rims, 7f-1/06) <b>[68-]</b>
<b>7a-9/00</b>	<b>Measures for carrying out rolling operations under special conditions, e.g. in vacuum or inert atmosphere to prevent oxidation of work; Special measures for removing fumes from rolling mills</b> <b>[68-]</b>

<b>7a-11/00</b>	<b>Subsidising the rolling process by subjecting rollers or work to vibrations</b>	<b>[68-]</b>
<b>7a-13/00</b>	<b>Metal-rolling stands, i.e. an assembly composed of a stand frame, rolls, and accessories</b> (7a-17/00 to 7a-23/00 take precedence; details, component parts, accessories, auxiliary means, procedures in connection with metal rolling, see the relevant groups)	<b>[68-]</b>
7a-13/02	. with axes of rolls arranged horizontally	[68-]
7a-13/04	. . Three-high arrangement	[68-]
7a-13/06	. with axes of rolls arranged vertically	[68-]
7a-13/08	. with differently-directed roll axes, e.g. for the so-called "universal" rolling process	[68-]
7a-13/10	. . all axes being arranged in one plane	[68-]
7a-13/12	. . axes being arranged in different planes	[68-]
7a-13/14	. having counter-pressure devices acting on rolls to inhibit deflection of same under load (counter-pressure devices as such 7a-29/00)	[68-]
7a-13/16	. with alternatively operative rolls	[68-]
7a-13/18	. for step-by-step or planetary rolling (methods 7a-1/42; making tubes by pilgrim-step rolling 7a-21/00)	[68-]
7a-13/20	. . for planetary rolling	[68-]
7a-13/22	. for rolling metal directly from melt	[68-]
<b>7a-15/00</b>	<b>Arrangements for performing additional metal-working operations specially combined with or arranged in, or specially adapted for use in connection with, metal-rolling mills</b>	<b>[68-]</b>
7a-15/02	. in which work is subjected to permanent internal twisting, e.g. for producing reinforcement bars for concrete	[68-]
<b>Rolling methods or mills specially designed for making or processing tubes</b>		<b>[68-]</b>
<b>7a-17/00</b>	<b>Tube-rolling by rollers of which the axes are arranged essentially perpendicular to the axis of the work, e.g. "axial" tube-rolling</b>	<b>[68-]</b>
7a-17/02	. with mandrel rod	[68-]
7a-17/04	. . in a continuous process	[68-]
7a-17/06	. . in a discontinuous process	[68-]
7a-17/08	. with plug mandrel	[68-]
7a-17/10	. . in a continuous process	[68-]
7a-17/12	. . in a discontinuous process	[68-]
7a-17/14	. without mandrel	[68-]
<b>7a-19/00</b>	<b>Tube-rolling by rollers arranged outside the work and having their axes not perpendicular to the axis of the work</b> (straightening by rollers 7c)	<b>[68-]</b>
7a-19/02	. the axes of the rollers being arranged essentially diagonally to the axis of the work, e.g. "cross" tube-rolling	[68-]
7a-19/04	. . Rolling basic material of solid, i.e. non-hollow, structure; Piercing	[68-]
7a-19/06	. . Rolling hollow basic material (7a-19/04 takes precedence; separating work from mandrel 7b-45/00)	[68-]
7a-19/08	. . . Enlarging tube diameter	[68-]
7a-19/10	. . . Finishing, e.g. smoothing, sizing	[68-]
7a-19/12	. the axes of the rollers being arranged essentially parallel to the axis of the work	[68-]
7a-19/14	. . Rolling tubes by means of additional rollers arranged inside the tubes	[68-]
7a-19/16	. . Rolling tubes without additional rollers arranged inside the tubes	[68-]
<b>7a-21/00</b>	<b>Pilgrim-step tube-rolling</b>	<b>[68-]</b>
7a-21/02	. Rollers therefor	[68-]
7a-21/04	. Pilgrim-step feeding mechanisms (7a-21/06 takes precedence)	[68-]
7a-21/06	. Devices for revolving work between the steps	[68-]
<b>7a-23/00</b>	<b>Tube-rolling not restricted to methods mentioned in only one of groups 7a-17/00 to 7a-21/00, e.g. combined processes</b> (7a-25/00 takes precedence)	<b>[68-]</b>

<b>7a-25/00</b>	<b>Mandrels for metal tube rolling mills, e.g. mandrels of the types used in the methods covered by group 7a-17/00; Accessories or auxiliary means therefor</b>	<b>[68-]</b>
7a-25/02	. Guides, supports, or abutments for mandrels, e.g. carriages; Adjusting devices for mandrels	[68-]
7a-25/04	. Cooling mandrels during operation	[68-]
7a-25/06	. Interchanging mandrels, with or without cooling	[68-]
<b>7a-27/00</b>	<b>Shape or construction of rolls (shape of working surfaces required by special processes 7a-1/00); Maintaining rolls in effective condition</b>	<b>[68-]</b>
7a-27/02	. Shape or construction of rolls (for rolling metal of indefinite length in repetitive shapes specially designed for the manufacture of particular objects 7f-8/02)	[68-]
7a-27/04	. Devices for reconditioning rolls	[68-]
7a-27/06	. Lubricating, cooling, or heating rolls	[68-]
7a-27/08	. . internally	[68-]
7a-27/10	. . externally	[68-]
<b>7a-29/00</b>	<b>Counter-pressure devices acting on rolls to inhibit deflection of same under load, e.g. backing rolls</b>	<b>[68-]</b>
<b>7a-31/00</b>	<b>Rolling stand structures; Mounting, adjusting, or interchanging rolls, roll mountings, or stand frames</b>	<b>[68-]</b>
7a-31/02	. Rolling stand frames; Roll mountings	[68-]
7a-31/04	. . with tie rods, e.g. prestressed tie rods	[68-]
7a-31/06	. . Fastening stands or frames to foundation, e.g. to the sole plate (in general 47a2)	[68-]
7a-31/08	. Interchanging rolls, roll mountings, or stand frames in rolling stands with alternatively-operative rolls 7a-13/16)	[68-]
7a-31/10	. . by horizontally displacing	[68-]
7a-31/12	. . by vertically displacing	[68-]
7a-31/14	. . by pivotally displacing	[68-]
7a-31/16	. Adjusting rolls (control devices 7a-37/00)	[68-]
7a-31/18	. . by moving rolls axially	[68-]
7a-31/20	. . by moving rolls perpendicularly to roll axis	[68-]
7a-31/22	. . . mechanically	[68-]
7a-31/24	. . . . by screws	[68-]
7a-31/26	. . . . Adjusting eccentrically-mounted roll bearings	[68-]
7a-31/28	. . . . by toggle-lever mechanisms	[68-]
7a-31/30	. . . . by wedges or their equivalent	[68-]
7a-31/32	. . . by liquid pressure	[68-]
7a-31/34	. Pass indicators, i.e. indicating gap between rolls	[68-]
<b>7a-33/00</b>	<b>Safety devices preventing fracture of rolls (safety devices in general 47a4); Breaker blocks; Devices for freeing jammed rolls</b>	<b>[68-]</b>
<b>7a-35/00</b>	<b>Drives for metal-rolling mills</b>	<b>[68-]</b>
7a-35/02	. for continuously-operating mills (7a-35/10, 7a-35/12 take precedence)	[68-]
7a-35/04	. . each stand having its own motor or motors	[68-]
7a-35/06	. for non-continuously-operating mills or for single stands (7a-35/10, 7a-35/12 take precedence)	[68-]
7a-35/08	. . for reversing rolling mills	[68-]
7a-35/10	. Driving arrangements for rolls which have only a low-power drive; e.g. for idler rolls; Driving arrangements for rolls which receive power from the shaft of another roll	[68-]
7a-35/12	. Toothed-wheel gearings specially adapted for metal-rolling mills; Housings or mountings therefor	[68-]
7a-35/14	. Couplings, driving spindles, or spindle carriers specially adapted for or specially arranged in metal-rolling mills (couplings or shafts in general 47)	[68-]
<b>7a-37/00</b>	<b>Control or regulating devices for metal-rolling mills as far as specially adapted for such mills</b>	<b>[68-]</b>
7a-37/02	. responsive to thickness of material	[68-]

7a-37/04	. responsive to slack or deflection of the material (arrangements for control specially associated with devices for guiding or accumulating easily-flexible work in loops or curves 7a-41/00)	[68-]
7a-37/06	. responsive to tension of the material (7a-37/04 takes precedence)	[68-]
7a-37/08	. responsive to rolling pressure, or roll gap responsive	[68-]
7a-37/10	. responsive to temperature, e.g. of the material	[68-]
7a-37/12	. for maintaining automatically constant thickness of product, not fully provided for in one of the groups 7a-37/02 to 7a-37/10	[68-]
7a-37/14	. for automatically varying thickness of product according to a predetermined programme	[68-]
<b>7a-39/00</b>	<b>Arrangements for moving, supporting, or positioning work, or controlling its movement, combined with or arranged in, or specially adapted for use in connection with, metal-rolling mills</b> (guiding, conveying, or accumulating easily-flexible work in loops or curves 7a-41/00; specially associated with cooling-beds 7a-43/00; conveying or transporting in general 81e)	<b>[68-]</b>
7a-39/02	. Feeding or supporting work; Braking or tensioning arrangements	[68-]
7a-39/04	. . Lifting or lowering work for conveying purposes, e.g. tilting tables arranged immediately in front of or behind the pass (turn-over or like manipulating means as such 7a-39/20)	[68-]
7a-39/06	. . Pushing or forcing work into pass	[68-]
7a-39/08	. . Braking or tensioning arrangements	[68-]
7a-39/10	. . Arrangement or installation of feeding rollers in rolling stands	[68-]
7a-39/12	. . Arrangement or installation of roller tables in relation to a roll stand	[68-]
7a-39/14	. Guiding, positioning or aligning work (7a-43/12 takes precedence; guides in which work is subjected to permanent internal twisting 7a-15/02)	[68-]
7a-39/16	. . immediately before entering or after leaving the pass	[68-]
7a-39/18	. . Switches for directing work in metal-rolling mills or trains	[68-]
7a-39/20	. Revolving, turning-over, or like manipulation of work (guides in which work is subjected to permanent internal twisting 7a-15/02)	[68-]
7a-39/22	. . by tipping, e.g. by lifting one side by levers or wedges (7a-39/26, 7a-39/28 take precedence)	[68-]
7a-39/24	. . by tongs or grippers	[68-]
7a-39/26	. . by members, e.g. grooved, engaging opposite sides of the work and moved relatively to each other to revolve the work	[68-]
7a-39/28	. . by means of guide members shaped to revolve the work during its passage	[68-]
7a-39/30	. . by lodging it in a rotating ring manipulator or ring segment manipulator	[68-]
7a-39/32	. Devices specially adapted for turning sheets	[68-]
7a-39/34	. Arrangements or constructional combinations specifically designed to perform functions covered by more than one of groups 7a-39/02, 7a-39/14, 7a-39/20	[68-]
<b>7a-41/00</b>	<b>Guiding, conveying, or accumulating easily-flexible work, e.g. wire, sheet or metal bands, in loops or curves; Loop lifters</b>	<b>[68-]</b>
7a-41/02	. Returning work to repeat the pass or passes	[68-]
7a-41/04	. . above or underneath the rolling stand or rolls	[68-]
7a-41/06	. in which the direction of movement of the work is turned through approximately 180°	[68-]
7a-41/08	. without overall change in the general direction of movement of the work	[68-]
7a-41/10	. . Loop deflectors	[68-]
7a-41/12	. Arrangements of interest only with respect to provision for indicating or controlling operations	[68-]
<b>7a-43/00</b>	<b>Cooling beds, whether stationary or moving; Means specially associated with cooling beds, for braking work or for transferring it to or from the bed</b> (conveying means in general 81e)	<b>[68-]</b>
7a-43/02	. Cooling beds comprising rakes (7a-43/10 takes precedence)	[68-]
7a-43/04	. Cooling beds comprising rolls or worms	[68-]
7a-43/06	. Cooling beds comprising carriages (7a-43/08 takes precedence)	[68-]
7a-43/08	. Cooling beds comprising revolving drums or recycling chains	[68-]
7a-43/10	. Cooling beds with other work-shifting elements projecting through the bed	[68-]

7a-43/12	. Devices for positioning workpieces "flushed", i.e. with all their axial ends arranged in line on cooling beds or on co-operating transverse conveyers	[68-]
<b>7a-45/00</b>	<b>Devices for surface treatment of work, specially combined with or arranged in, or specially adapted for use in connection with, metal-rolling mills</b> (7a-15/00 takes precedence; technical features of scaling-off devices 7b-43/00)	<b>[68-]</b>
7a-45/02	. for lubricating, cooling or cleaning	[68-]
7a-45/04	. for de-scaling	[68-]
7a-45/06	. . of strip material (7a-45/08 takes precedence)	[68-]
7a-45/08	. . hydraulically	[68-]
<b>7a-47/00</b>	<b>Auxiliary arrangements, devices or methods in connection with rolling of multi-layer sheets of metal</b>	<b>[68-]</b>
7a-47/02	. for folding sheets before rolling	[68-]
7a-47/04	. for separating layers after rolling	[68-]

<b>7b</b>	<b>Framställning av plåt, metalltråd, metallstänger, metallrör, rörförbindningar e.d. genom dragning, strängpressning e.d.; Upplindning eller avlindning av tråd eller metallband</b> (valsning av metall 7a; bearbetning av plåt eller rör 7c; av tråd 7d; centrifugal gjutning, stränggjutning e.d. 31c-18/01, 31c-19/01, 31c-21; hålning 49h-2; böjning 49h-12 – 49h-24; glödningsugnar 18c; framställning av isolerrör 21c-18; rör kännetecknade av konstruktion eller material 47f-3)	<b>[-68]</b>
	Speciella förfaranden (valsning från flytande tillstånd 7a-8; gjutning 31c-18 – 31c-21; galvanoplastisk framställning 48a-8, 48a-9, 48a-7/00; borrdon 49a), t.ex. sönderskärning av ämnen	[68]
7b-1	för framställning av plåt	[68]
7b-2/01	för framställning av tråd	[68]
7b-2/50	för framställning av metallrör	[68]
7b-3/01	Dragning eller sträckning av tråd med hjälp av dragtrummor; Tråddragningsmaskiner	[68]
7b-3/05	Reglering av dragtrummans hastighet; Automatisk urkoppling av tråddragningsmaskiner e.d. (reglering av upplindningstrummans hastighet 7b-5/10; kopplingar för dragtrummor 7b-3/08; styrning av elektromotorer vid tråddragningsmaskiner 21c-62/60)	[68]
7b-3/08	Dragtrummor för tråddragningsmaskiner; Gripanordningar; Trumkopplingar (dragvagnar 7b-3/35)	[68]
7b-3/30	Dragning eller sträckning av metallstänger eller sömlösa metallrör i stångdragbänkar eller rördragbänkar (dragbänkar för rundning av plåt 7b-8/01; för svetsning 7b-7/01; för profilering av plåt 7c-6)	[68]
7b-3/35	Dragvagnar för stångdragbänkar eller rördragbänkar; Gripanordningar för sådana (gripanordningar för dragtrummor för tråd 7b-3/08)	[68]
7b-3/50	Dragning eller sträckning av sömlösa metallrör genom innerdragning	[68]
7b-3/70	Dragning eller sträckning av sömlösa metallrör på röstötbänkar (hålning av ämnen 49h-2; dragpressning för dragning av behållare e.d. av plåt 7c-15, 7c-16)	[68]
7b-4/01	Andra detaljer vid tråddragerier, t.ex. anordningar för att räkna arbetsstycken	[68]
7b-4/02	Spetsning av draggodset; Formning av dragkrokar (spetsning av spik 7d-10)	[68]
7b-4/03	Anordningar för att införa det spetsade draggodset i dragringen (gripanordningar 7b-3/08)	[68]
7b-4/10	Dragringar; Dragskivor; Dragstenar (legeringar för dragringar 18d-2/30, 40b-15 – 40b-17; gjutning av dragstenar 31c-23/03; slipning 67a-31/10; borring 80d-9; matriser för strängpressning 7b-10/80; dragringar för profilering av plåt 7c-6)	[68]
7b-4/15	Dragringshållare; Dragringsfattningar (fattningar för verktygsdiamanter i allmänhet 49l-6)	[68]

7b-4/18	Ställbara dragöppningar (för framställning av koniska arbetsstycken 7b-18)	[-68]
7b-4/19	Dragöppningar bestående av roterbara kulor eller valsar	[-68]
7b-4/30	Dragdornar (svetsdornar 7b-7/01, 7b-7/20; pressdornar 7b-10/80, 7b-11/80; valsdornar 7a; håldornar 49h-2; legeringar för dornar 18d-2/30, 40b-15 – 40b-17)	[-68]
7b-4/40	Lösgörande av dragna rör från dornen (lösgörande av valsade rör 7a)	[-68]
7b-4/50	Detaljer vid smörjning eller kylning av draggodset; Glidmedel av metall (smörjning eller kylning av dragjärn 7b-4/10, 7b-4/15; dragtrummor 7b-3/08; glidmedel av fett, smörjmedel i allmänhet 23c-1; metallöverdrag i allmänhet 48a, 48b; för valsning 7a-29; betning 48a-16, 48a-1/00, 48d-2, 48d2)	[-68]
7b-5/01	Upplindning av tråd eller metallband, t.ex. bandjärn; Hasplar för valsverk (anordningar för upplindning eller avlindning utan trummor för bandvalsverk 7a-12; anordningar för upplindning vid trådbearbetningsmaskiner 7d; haspelugnar 18c-6/70; buntning, bindning 81a-13; lindring av elektriska spolar 21g-1/01; transportabla kabelhasplar 21c-19/06; upplindningsanordningar för spel 35a – 35c; för överdrag på tråd 48b; för talmaskiner 42g-18; upplindning av garn e.d. 8f, 25c, 29a-6/13, 76d; 86c-19; av snören 34l-33; av slangar 45f-24, 61a-15/03; av papper 55e-7, 70d-11/30; av film 57a-48)	[-68]
7b-5/10	Reglering av hastigheten eller automatisk frånslagning av drivkraften vid upplindning av tråd e.d. (anordningar för upplindning eller avlindning utan trummor för bandvalsverk 7a-12; reglering av dragtrummans hastighet 7b-3/05; anordningar för upplindning vid trådbearbetningsmaskiner 7d; reglering av elektromotorer 21c-62/30, 21c-62/60)	[-68]
7b-5/20	Avskjutning av trådbuntar från upplindningstrummor eller liknande	[-68]
7b-5/30	Trummor eller spolar för upplindning av tråd eller metallband (kabeltrummor 21c-19; förpackningstrummor för tråd 81c-27; anordningar för att skjuta av bunten 7b-5/20, anordningar för upplindning eller avlindning utan trummor för bandvalsverk 7a-12; anordningar för upplindning vid trådbearbetningsmaskiner 7d; haspelugnar 18c-6/70; buntning, bindning 81a-13; lindring av elektriska spolar 21g-1/01; transportabla kabelhasplar 21c-19/06; upplindningsanordningar för spel 35a – 35c; för överdrag på tråd 48b; för talmaskiner 42g-18; upplindning av garn e.d. 8f, 25c, 29a-6/13, 76d; 86c-19; av snören 34l-33; av slangar 45f-24, 61a-15/03; av papper 55e-7, 70d-11/30; av film 57a-48)	[-68]
7b-5/60	Andra detaljer vid upplindning av metalltråd eller metallband, t.ex. kylning vid upplindningen	[-68]
7b-5/70	Avlindning av tråd eller metallband (anordningar för upplindning eller avlindning utan trummor för bandvalsverk 7a-12; anordningar för upplindning vid trådbearbetningsmaskiner 7d; haspelugnar 18c-6/70; buntning, bindning 81a-13; lindring av elektriska spolar 21g-1/01; transportabla kabelhasplar 21c-19/06; upplindningsanordningar för spel 35a – 35c; för överdrag på tråd 48b; för talmaskiner 42g-18; upplindning av garn e.d. 8f, 25c, 29a-6/13, 76d; 86c-19; av snören 34l-33; av slangar 45f-24, 61a-15/03; av papper 55e-7, 70d-11/30; av film 57a-48)	[-68]
7b-6/01	Hjälpförfaranden vid framställning av tråd eller metallrör, t.ex. riktning (riktning av tråd i allmänhet 7d-1; av stänger eller rör 49h-21, 49h-22; förädling 18c, 40d)	[-68]
7b-6/20	Anordningar för rengöring e.d. av tråd (betning 48a-16, 48d-2)	[-68]
	Framställning av plåtrör med rak, svetsad eller lödd längdsöm	[-68]
7b-7/01	svetsade genom dragning, hamring e.d. (vällugnar 18c-10; rundning av plåt även 7b-8/01; dragning av sömlösa rör 7b-3/30)	[-68]
7b-7/20	gassvetsade eller lödda (svetsning eller lödning i allmänhet 49h-25 – 49h-36; elektrisk rörsvetsning 21h-32/10; rundning av plåt även 7b-8/01)	[-68]
7b-8/01	Rundning av plåt till rör med rak öppen längdsöm genom böjning, valsning, dragning e.d. (rundning eller svetsning 7b-7/01, 7b-7/20; böjning eller profilering av plåt i allmänhet 7c-4 – 7c-6; dragning av sömlösa rör 7b-3/30; framställning av isolerrör 21c-18)	[-68]
7b-8/20	Falsning av raka längsgående rörsömmar (falsning av plåtburkar 7c-7; av isolerrör 21c-18)	[-68]
7b-8/30	Tillslutning av raka längsgående rörsömmar med hjälp av spånt och not, fjäderlister e.d. (nitdon 49g-16)	[-68]



7b-9/01	Framställning av plåtrör med skruvlinjeformad söm	[68]
7b-9/20	Framställning av metallslangar av plåt med skruvlinjeformad söm (med tvärveck 7b-15/10; konstruktion 47f-5, 81e-74; framställning av böjliga axlar av tråd 7d-16)	[68]
	<b>Strängpressning (av ventiler e.d. 49i-16; homogenisering 40d)</b>	<b>[68]</b>
7b-10/01	av plåt	[68]
7b-10/10	av tråd eller metallrör i allmänhet (av höljen 7b-11/01)	[68]
7b-10/20	av tråd eller metallrör enligt hålstämpelförfarandet d.v.s. det indirekta eller omvända förfarandet	[68]
7b-10/30	av tråd eller metallrör med hjälp av frammatningssnäckor e.d. (kabelhöljen 7b-11/20; centrifugaljutning eller strängjutning 31c-18 – 31c-21)	[68]
7b-10/40	av böjda metallrör, vattenlås e.d. (böjning 49h-17, 49h-18, 49h-24)	[68]
7b-10/50	av tuber (framställning ur plåt 7c-26; konstruktion 81c-15)	[68]
7b-10/70	Avskärning av pressresten efter strängpressning, avlägsnande av pressresten e.d.	[68]
7b-10/80	Detaljer vid metallsträngpressning, t.ex. recipienter, matriser eller dornar (för blykabelpressar e.d. 7b-11/80; dragmatriser 7b-4/10; dragdornar 7b-4/30; håldornar 49h-2; legeringar för pressverktyg 18d-2/30, 40b-15 – 40b-17)	[68]
	<b>Strängpressning av metallhöljen för kablar, trådar eller rör (anordningar för torkning eller impregnering av kablar 21c-7/06; speciella anordningar vid pressning för framställning av elektriska ledningar 21c-7/07; ommantling genom dragning e.d. 7b-12)</b>	<b>[68]</b>
7b-11/01	med periodiskt arbetande pressar, t.ex. blykabelpressar	[68]
7b-11/20	med kontinuerligt arbetande pressar, t.ex. blykabelpressar (pressning med hjälp av frammatningssnäckor även 7b-10/30)	[68]
7b-11/60	Strängpressning av trådar eller rör med metallhöljen under samtidig utpressning av olika metaller; Strängpressning av metallrör fyllda med stelmande massa e.d.	[68]
7b-11/80	Detaljer vid blykabelpressar e.d., t.ex. recipienter, matriser eller dornar (för strängpressar i allmänhet 7b-10/80)	[68]
7b-12	Ommantling av trådar eller rör med metall genom dragning e.d., Vidgning av metallfoder i rör e.d. (strängpressning av höljen 7b-11/01, 7b-11/60; framställning av lödtråd 7b-14/60; neddopning i smält överdragsmetall, påföring av förstoftad metall e.d. 48b; plätering, påvalsning eller påsvetsning av ett metallskikt 49i-5; dubbelväggiga rör kännetecknade av konstruktion eller material 47f-3/02; slitstarka rör 5d-14, 5d-15; 81e-73, 81e-74; syrafasta rör 12f-3)	[68]
7b-13	Framställning av metallrör genom öppning av valsade dubbelväggiga plattstänger	[68]
	<b>Framställning av speciellt formade metalltrådar, metallrör e.d.</b>	<b>[68]</b>
7b-14/01	Framställning av tråd av speciell form, profilerad tråd e.d. (konisk 7b-18; strängpressning 7b-10/10)	[68]
7b-14/50	Framställning av tråd av svårsmälta metaller, t.ex. volfram (framställning av tråd för glödlampor 21f-32; förädling eller framställning av enkristaller 40d)	[68]
7b-14/60	Framställning av lödtråd eller svetstråd (utformning eller material 7d-6, 49h-26)	[68]
7b-15/01	Framställning av vågrör för eldrörspannor e.d. (konstruktion 13a-2 – 13a-5; korrugering av plåt i allmänhet 7c-2, 7c-3)	[68]
7b-15/10	Framställning av metallslangar e.d. med tvärvågor (med skruvlinjeformad söm 7b-9/20; konstruktion 47f-5, 81e-74)	[68]
7b-15/20	Framställning av metallrör med längsräfflor eller längsvågor; Räffling av metallmaster e.d. (framställning av metallmaster även 7b-18, 7b-21; konstruktion 37b-3/01)	[68]
7b-15/30	Framställning av vågformade delkamrar för vattenrörspannor e.d. (konstruktion 13a-6 – 13a-21)	[68]
	<b>Framställning av kamflänsrör (konstruktion 17f, 36c, 46c4, 47f-3/03)</b>	<b>[68]</b>
7b-16/01	med tvärfjänsar	[68]
7b-16/20	med skruvformigt gående fjänsar	[68]
7b-16/40	med längsfjänsar	[68]

7b-17	Framställning av knärör eller rörkrökar av plåt, t.ex. knärör för kaminer (konstruktion 36a-14/11, 47f-3/51)	[-68]
7b-18	Framställning av koniska trådar eller metallrör (framställning av koniska vävspolar 7c-47; framställning av master även 7b-15/20, 7b-21; konstruktion av master 37b-3/01; konstruktion av rör för golvklubbor 77a-21/11)	[-68]
7b-19	Framställning av röstudsar; Framställning av L-formade, T-formade eller korsformade röststycken; Framställning av rörförbindningar (konstruktion 47f-3/51, 47f-3/52)	[-68]
7b-20	Framställning av omböjda rör, U-formiga rör för överhettare e.d. (konstruktion 13d, 36c, 36e)	[-68]
7b-21	Framställning av andra speciellt utformade metallrör, rör med växlande tvärsnitt, rör omlindade med tråd e.d. (stukning av rörändar 49h-1; utvalsning av rörändar e.d. 7c-21; konstruktivt utförande av stegvis avsmalnande master 37b-3/01; framställning av master även 7b-15/20, 7b-18)	[-68]

**7b (IPC: B21C) Manufacture of metal sheets, wire, rods, tubes or profiles, otherwise than by rolling; Auxiliary operations used in connection with metal-working without essentially removing material** **[68-]**

**Metal drawing** (continuous casting 31b2-11/00; plating 49l-3/00) **[68-]**

**7b-1/00 Manufacture of metal sheets, metal wire, metal rods or metal tubes by drawing** **[68-]**

7b-1/02	. Drawing metal wire or like flexible metallic material by drawing machines or apparatus in which the drawing action is effected by drums	[68-]
7b-1/04	. . with two or more dies operating in series	[68-]
7b-1/06	. . . in which the material slips on the drums	[68-]
7b-1/08	. . . in which the material does not slip on the drums	[68-]
7b-1/10	. . . . with accumulation of material between consecutively-arranged dies	[68-]
7b-1/12	. . Regulating or controlling speed of drawing drums, e.g. to influence tension; Drives; Stop or relief mechanisms (couplings for drums 7b-1/14; design or construction of electrical equipment, see the relevant classes)	[68-]
7b-1/14	. . Drums, e.g. capstans (capstans or winches in general 35c); Connection of grippers thereto; Grippers specially adapted for drawing machines or apparatus of the drum type; Couplings specially adapted for these drums	[68-]
7b-1/16	. Metal drawing by machines or apparatus in which the drawing action is effected by other means than drums, e.g. by a longitudinally-moved carriage pulling or pushing the work or stock, for making metal sheets, bars, or tubes	[68-]
7b-1/18	. . from stock of limited length (7b-1/22 takes precedence)	[68-]
7b-1/20	. . from stock of essentially unlimited length (7b-1/22 takes precedence)	[68-]
7b-1/22	. . specially adapted for making tubular articles (bending sheet metal into tubular form by drawing 7c-5/10)	[68-]
7b-1/24	. . . by means of mandrels (mandrels 7b-3/16)	[68-]
7b-1/26	. . . . Push-bench drawing	[68-]
7b-1/27	. . Carriages; Drives	[68-]
7b-1/28	. . . Carriages; Connections of grippers thereto; Grippers (for drawing machines of the drum type 7b-1/14)	[68-]
7b-1/30	. . . Drives, e.g. carriage-traversing mechanisms; Driving elements, e.g. drawing chains; Controlling the drive	[68-]
7b-1/32	. . Feeding or discharging the material or mandrels	[68-]
7b-1/34	. . Guiding or supporting the material or mandrels	[68-]

**7b-3/00 Profiling tools for metal drawing; Combinations of dies and mandrels** **[68-]**

7b-3/02	. Dies; Selection of material therefor; Cleaning thereof	[68-]
7b-3/04	. . with non-adjustable section (7b-3/08 takes precedence)	[68-]
7b-3/06	. . with adjustable section (7b-3/08 takes precedence)	[68-]
7b-3/08	. . with section defined by rollers, balls, or the like	[68-]
7b-3/10	. . with hydraulic forces acting immediately on work	[68-]
7b-3/12	. . Die holders; Rotating dies	[68-]

7b-3/14	. . . Die holders combined with devices for guiding the drawing material or combined with devices for cooling, heating, or lubricating	[68-]
7b-3/16	. Mandrels (separating mandrels from work 7b-45/00); Mounting or adjusting same	[68-]
7b-3/18	. Making tools by operations not covered by a single other subclass; Repairing	[68-]
<b>7b-5/00</b>	<b>Pointing; Push-pointing</b>	<b>[68-]</b>
<b>7b-9/00</b>	<b>Cooling, heating or lubricating drawing material (7b-3/14 takes precedence)</b>	<b>[68-]</b>
7b-9/02	. Selection of compositions therefor	[68-]
<b>7b-19/00</b>	<b>Devices for straightening wire or like work combined with or specially adapted for use in connection with drawing or winding machines or apparatus</b>	<b>[68-]</b>
<b><u>Metal extruding (continuous casting 31b2-11/00)</u></b>		<b>[68-]</b>
<b>7b-23/00</b>	<b>Extruding metal; Impact extrusion</b>	<b>[68-]</b>
7b-23/01	. starting from material of particular form or shape, e.g. mechanically pre-treated (7b-23/22 takes precedence; heat treatment or combinations thereof with mechanical treatments, see appropriate classes)	[68-]
7b-23/02	. Making uncoated products	[68-]
7b-23/03	. . by both direct and backward extrusion	[68-]
7b-23/04	. . by direct extrusion	[68-]
7b-23/06	. . . Making sheets	[68-]
7b-23/08	. . . Making wire, bars, tubes	[68-]
7b-23/10	. . . . Making finned tubes	[68-]
7b-23/12	. . . . Extruding bent tubes or rods	[68-]
7b-23/14	. . . Making other products	[68-]
7b-23/16	. . . . Making turbo blades or propellers	[68-]
7b-23/18	. . . . by impact extrusion	[68-]
7b-23/20	. . by backward extrusion	[68-]
7b-23/21	. Presses specially adapted for extruding metal (extrusion presses in general 58a-11/22)	[68-]
7b-23/22	. Making metal-coated products; Making products from two or more metals	[68-]
7b-23/24	. . Covering indefinite lengths of metal or non-metal material with a metal coating	[68-]
7b-23/26	. . . Applying metal coats to cables, e.g. to insulated electric cables	[68-]
7b-23/28	. . . . on intermittently-operating extrusion presses	[68-]
7b-23/30	. . . . on continuously-operating extrusion presses	[68-]
7b-23/32	. Lubrication of metal being extruded or of dies, etc., e.g. physical state of lubricant or location where lubricant is applied (chemical composition, see appropriate classes)	[68-]
<b>7b-25/00</b>	<b>Profiling tools for metal extruding</b>	<b>[68-]</b>
7b-25/02	. Dies	[68-]
7b-25/04	. Mandrels	[68-]
7b-25/06	. Press heads, dies, or mandrels for coating work	[68-]
7b-25/08	. Dies or mandrels with section variable during extruding, e.g. for making tapered work; Controlling variation	[68-]
7b-25/10	. Making tools by operations not covered by a single other subclass	[68-]
<b>7b-27/00</b>	<b>Containers for metal to be extruded (7b-29/02 takes precedence)</b>	<b>[68-]</b>
7b-27/02	. for making coated work	[68-]
7b-27/04	. Venting metal-container chamber	[68-]
<b>7b-29/00</b>	<b>Cooling or heating work or parts of the extrusion press</b>	<b>[68-]</b>
7b-29/02	. of containers for metal to be extruded	[68-]
7b-29/04	. of press heads, dies or mandrels	[68-]
<b>7b-31/00</b>	<b>Control devices, e.g. for regulating the pressing speed or temperature of metal (7b-25/08 takes precedence); Measuring devices, e.g. for</b>	

	<b>temperature of metal, combined with or specially adapted for use in connection with extrusion presses</b>	<b>[68-]</b>
<b>7b-33/00</b>	<b>Feeding extrusion presses with metal to be extruded</b>	<b>[68-]</b>
7b-33/02	. the metal being in liquid form	[68-]
<b>7b-35/00</b>	<b>Removing work or waste from extruding presses; Drawing-off extruded work</b> (in connection with the extruding of bent tubes or rods 7b-23/12); <b>Cleaning dies, ducts or mandrels</b>	<b>[68-]</b>
7b-35/02	. Removing or drawing-off work	[68-]
7b-35/03	. . Straightening the work	[68-]
7b-35/04	. Cutting-off or removing waste	[68-]
7b-35/06	. Cleaning dies, ducts or mandrels	[68-]
<b>7b-37/00</b>	<b>Manufacture of metal sheets, bars, wire, tubes or like semi-manufactured products, not otherwise provided for</b> (by drawing or extruding, in the relevant groups; by rolling 7a; by working or processing ready-manufactured sheet metal, profiles, tubes, or wire 7c or 7d; by casting 31b; by material-removing machine tools 49; plating 49I-3/00; by grinding or polishing 67; by electroforming 48a-7/00); <b>Manufacture of tubes of special shape</b>	<b>[68-]</b>
7b-37/02	. of sheets	[68-]
7b-37/04	. of bars or wire	[68-]
7b-37/06	. of tubes or metal hoses; Combined procedures for making tubes (bending sheets for making tubes 7c-5/00; seaming by folding 7c-39/02)	[68-]
7b-37/08	. . Making tubes with welded or soldered seams (involving only a soldering or welding operation 49h)	[68-]
7b-37/083	. . . Supply, or operations combined with supply, of strip material	[68-]
7b-37/087	. . . using rods or strips of soldering material	[68-]
7b-37/09	. . . of coated strip material	[68-]
7b-37/10	. . Making tubes with riveted seams	[68-]
7b-37/12	. . Making tubes or metal hoses with helically arranged seams	[68-]
7b-37/14	. . Making tubes from doubled flat material	[68-]
7b-37/15	. . Making tubes of special shape; Making tube fittings	[68-]
7b-37/16	. . . Making tubes with varying diameter in longitudinal direction	[68-]
7b-37/18	. . . . conical tubes	[68-]
7b-37/20	. . . Making helical or similar guides in or on tubes without removing material, e.g. by drawing same over mandrels, by pushing same through dies	[68-]
7b-37/22	. . . Making finned or ribbed tubes by fixing strip or like material to tubes (making heat exchangers 7c-53/02)	[68-]
7b-37/24	. . . . annularly-ribbed tubes	[68-]
7b-37/26	. . . . helically-ribbed tubes	[68-]
7b-37/28	. . . Making tube fittings for connecting pipes, e.g. U-pieces	[68-]
7b-37/29	. . . . Making branched pieces, e.g. T-pieces	[68-]
7b-37/30	. . Finishing tubes, e.g. sizing, burnishing (finishing operations per se, see the relevant classes)	[68-]
<b>7b-43/00</b>	<b>Devices for cleaning metal products combined with or specially adapted for use with machines or apparatus provided for in this subclass</b>	<b>[68-]</b>
7b-43/02	. combined with or specially adapted for use in connection with drawing or winding machines or apparatus	[68-]
7b-43/04	. . Devices for de-scaling wire or like flexible work	[68-]
	<b><u>Auxiliary operations used in connection with metal working without essentially removing material</u></b>	<b>[68-]</b>
<b>7b-45/00</b>	<b>Separating mandrels from work or vice versa</b>	<b>[68-]</b>
<b>7b-47/00</b>	<b>Winding-up, coiling or winding-off metal wire, metal band or other flexible metal material characterised by features relevant to metal processing only</b> (coiling wire into particular forms 7d-3/00; winding or unwinding in general, regulating or controlling winding speed controlling of	

	tension of material, drives 47k; hot coilers in connection with heat-treatment apparatus 18c-9/68)	[68-]
7b-47/02	. Winding-up or coiling	[68-]
7b-47/04	. . on or in reels or drums, without using a moving guide (reels or drums 7b-47/28)	[68-]
7b-47/06	. . . with loaded rollers, bolts, or equivalent means holding the material on the reel or drum	[68-]
7b-47/08	. . without making use of a reel or drum, the first turn being formed by a stationary guide	[68-]
7b-47/10	. . by means of a moving guide	[68-]
7b-47/12	. . . the guide moving parallel to the axis of the coil (7b-47/14 takes precedence)	[68-]
7b-47/14	. . . by means of a rotating guide, e.g. laying the material around a stationary reel or drum	[68-]
7b-47/16	. Unwinding or uncoiling	[68-]
7b-47/18	. . from reels or drums	[68-]
7b-47/20	. . . the unreeled material moving transversely to the tangent line of the drum, e.g. axially, radially	[68-]
7b-47/22	. . Unwinding coils without reels or drums	[68-]
7b-47/24	. Transferring coils to or from winding apparatus or to or from operative position therein; Preventing uncoiling during transfer	[68-]
7b-47/26	. Special arrangements with regard to simultaneous or subsequent treatment of the material	[68-]
7b-47/28	. Drums or other coil-holders (gripping means 7b-47/32)	[68-]
7b-47/30	. . expansible or contractible	[68-]
7b-47/32	. Tongs or gripping means specially adapted for reeling operations	[68-]
7b-47/34	. Feeding or guiding devices not specially adapted to a particular type of apparatus	[68-]
<b>7b-49/00</b>	<b>Devices for temporarily accumulating material</b> (in general 47k)	<b>[68-]</b>
<b>7b-51/00</b>	<b>Measuring, gauging, indicating, counting, or marking devices specially adapted for use in the production or manipulation of material in accordance with subclasses 7a to 7d</b>	<b>[68-]</b>
<b>7c</b>	<b>Bearbetning av plåt eller rör; Anordningar för invalsnig eller avskärning av rör</b> (framställning av vågrör, rörförbindningar e.d. 7b-15 – 7b-21; plåtsaxar 49c; lödning 49h)	<b>[-68]</b>
	<b>Riktning, böjning, rundning, kantvikning, falsning eller vikning av plåt; Kantböjning av delar till plåtbehållare eller rör</b>	<b>[-68]</b>
7c-1	Riktning eller glättning av plåt; Plåtspännmaskiner	[-68]
7c-2	Korrugering av plåt genom pressning	[-68]
7c-3	Korrugering av plåt utom genom pressning	[-68]
7c-4/02	Böjning av plåt utom genom valsning (av rör 49h-17)	[-68]
7c-4/03	Kantvikning av plåt; Kombinerade kantviktningmaskiner; Rundningmaskiner; Vultmaskiner	[-68]
7c-4/04	Kantböjning av plåt eller rörformiga kroppar	[-68]
7c-4/05	Falsning eller vikning av plåt (framställning av rör av plåt 7b-8, 7b-9)	[-68]
7c-4/06	Sickning eller randning av plåt eller rörformiga kroppar	[-68]
7c-5	Rundning eller vultning av plåt; Valsböjningmaskiner (för framställning av rör 7b-8/01); Gesimsmaskiner; Trådinläggningsmaskiner	[-68]
7c-6	Profilering av plåtremsor med hjälp av dragskivor eller dragvalsar (7b-8/01)	[-68]
	<b>Falsning av plåtburkar</b>	<b>[-68]</b>
7c-7	Falsning av längssömmar vid konservburkar av plåt; Framställning av burkmantlar (lödning av längssömmar 49h-32/01)	[-68]
7c-8	Falsning av tvärsömmar vid konservburkar av plåt med hjälp av valsar; Tillslutningsmaskiner med falsningsvalsar för konservburkar (7c-25; konservburkar eller tillslutningsanordningar 64a-56 – 64a-64; anordningar för att tillsluta	

	konservburkar under inverkan av vakuum 64b-22; lödning av tvärsömmar 49h-32/02)	[68]
7c-9	Falsning av tvärsömmar på konservburkar av plåt med hjälp av stämpel; Tillslutningsmaskiner med falsstämpel för konservburkar	[68]
	<b>Utstansning, tryckning eller drivning av plåt eller rör; Pressning, dragning eller uppdragning av plåt</b>	<b>[68]</b>
7c-10	Utstansning av plåt eller rör i allmänhet (49c-17, 49c-18)	[68]
7c-11	Framställning av plåt eller rör med fina hål genom stansning (perforeringsanordningar för tryckningsmaskiner 15e-2; hålning av papper, papp e.d. 54d-3)	[68]
7c-12	Tryckning eller drivning av plåt eller rör; Tryckbänkar (framställning av vågrör 7b-15/01)	[68]
7c-13	Pressning av plåt eller rör med hjälp av stel stämpel; Plåtpressar (pressar i allmänhet 58a, 58b; pressning av vattenkammare 7b-15/30)	[68]
7c-14	Pressning av plåt eller rör med hjälp av vatten, sand, plastiska massor e.d.; Pressanordningar enligt Huber (framställning av vågrör 7b-15/01)	[68]
7c-15	Dragning av ihåliga föremål av plåt eller rör; Dragpressar utom sådana som omfattas av 7c-13 eller 7c-16	[68]
7c-16	Hydrauliska dragpressar för plåt (hydrauliska pressar i allmänhet 58a; för rörframställning 7b-3/20, 7b-3/70)	[68]
7c-17	Skyddsanordningar vid pressar som omfattas av 7c-13 – 7c-16 (47a-18; 58b-16)	[68]
7c-18	Detaljer vid plåtpressar eller plåtstansar, t.ex. anordningar för matning, fasthållning eller borttagning, stämplor, matriser, kopplingar e.d. (15e-5 – 15e-11, 49c-30, 58b-17)	[68]
	<b>Speciella rörbearbetningsförfaranden</b>	<b>[68]</b>
7c-19	Rörskärare eller röravskärare för handbruk (avstickningssvarvar, t.ex. med skärtrissor, 49c-20, 49c-21)	[68]
7c-20	Verktyg för utvalsning, kantbockning eller invalsnings av rörändar (13f-1); Påföring av styrningar på projektiler	[68]
7c-21	Bearbetning av rörändar för förbindning av rör (rörförbindningar 47f; stukning av rörändar 49h-1)	[68]
7c-22	Sammanfogning av plåt utom genom falsning (7c-4/05), svetsning (21h-29 – 21h-32; 49h-25 – 49h-35) eller nitning (49g-13 – 49g-17)	[68]
7c-23	Plåtbearbetningsförfaranden vid beklädnad eller förstuvning av föremål med plåt	[68]
	<b>Anordningar eller förfaranden för bearbetning av plåt eller rör</b>	<b>[68]</b>
7c-24	Framställning av ihåliga kroppar av plåt i allmänhet, t.ex. plåtburkar, värmeelement, kar, tråg eller metallkärl	[68]
7c-25/01	Framställning av tillslutningsanordningar eller öppningsanordningar på plåtburkar (7c-8, 7c-9; konservburkar, tillslutningsanordningar därför 64a-56 – 64a-64; maskiner för påsättning av kapsyler eller tråd på flaskor 64b-23, 64b-24)	[68]
7c-25/02	Maskiner för påföring av tätningsmassa eller för pressning av tätningsringar på plåtlock	[68]
7c-26	Framställning av tuber, hylsor, ihåliga nitar eller kapsyler av plåt (patronhylsor 7c-28; pressning av tuber 7b-10/50; framställning av zinkkärl för galvaniska element 21b; tuber 81c-15)	[68]
7c-27	Framställning av flaskkapsyler av plåt	[68]
7c-28	Framställning av patronhylsor (konstruktion 72d-2, 72d-3) eller patronhållare av plåt (pressning av patronbottnar 49i-16)	[68]
7c-29	Framställning av knappor av plåt (av tråd 7d-14)	[68]
7c-30	Framställning av plåtgaller eller gallerdelar av plåt (galler 37d-36)	[68]
7c-31	Framställning av notblad av plåt; Stansmaskiner för notblad (51e-4, 51e-5)	[68]
7c-32/01	Framställning av ringar, skivor eller hjulringar av plåt (hjulringar eller hjulkranor 7c-33, fingerringar 7c-38)	[68]
7c-32/02	Framställning av hjul, rullar eller remskivor av plåt eller rör (åkdonsdjul 63d)	[68]

7c-33	Framställning av hjulfälgar eller hjulkransar av plåt eller rör (konstruktion 63d)	[68-]
7c-34	Framställning av klämmor, klämremсор eller remlås av plåt (kombinerade framställningsmaskiner och hopslagningsmaskiner för kartongindustrin 54a-8 – 54a-11)	[68-]
7c-35	Framställning av beslag eller skoningar av plåt	[68-]
7c-36	Framställning av scharner, gångjärn eller bladgångjärn av plåt	[68-]
7c-37	Framställning av nycklar eller låsdelar av plåt (genom smide 49i; konstruktion 68a-83)	[68-]
7c-38	Framställning av fingerringar av plåt eller rör	[68-]
7c-39	Framställning av prydnadsföremål av plåt eller rör	[68-]
7c-40	Framställning av skrivmateriel eller ritmateriel, t.ex. skrivpennor, dragstift eller passare, av plåt eller rör	[68-]
7c-41	Framställning av knivar, gafflar, skedar, skyfflar, hackor, krattor eller spadar av plåt (framställning genom valsning 7f-3; hackor e.d. för jordbearbetning 45a; krattor eller grepar för lantbruk 45c)	[68-]
7c-42	Framställning av liar eller skärar av plåt (valsning 7f-5; konstruktion 45c-3/10)	[68-]
7c-43	Framställning av cykeldelar eller bildelar av plåt eller rör (hjul 7c-32/02; hjulfälgar eller hjulkransar 7c-33; konstruktion 63c-37, 63c-38, 63c-43, 63c-47)	[68-]
7c-44	Framställning av fönsterramar eller dörramar, spegelfattningar e.d. av plåt (konstruktion 37d)	[68-]
7c-45/01	Framställning av spännen, snörhakar, snöröglor eller snörlivsknäppningar av plåt (tillslutningsdelarnas konstruktion 71b)	[68-]
7c-45/02	Framställning av draghäktanordningar eller blixtlås (konstruktion av draghäktanordningar eller stoppanordningar 3c)	[68-]
7c-46	Framställning av plåtspetsar på snörremmar eller snörband	[68-]
7c-47	Framställning av andra föremål av plåt	[68-]

**7c (IPC: B21D) Working and processing of sheet metal and metal tubes, rods or profiles without essentially removing material; Punching** (operations of the kind involved in the manufacture of such products per se 7a, 7b; working or processing of wire 7d; cutting or severing devices or machines in general 49) **[68-]**

**Straightening; Bending; Corrugating; Flanging** **[68-]**

**7c-1/00 Straightening, restoring form or removing local distortions of sheet metal or specific articles made therefrom** (7c-3/00 takes precedence); **Stretching sheet metal** (stretch-forming 7c-11/02; by localised hammering 7c-31/06) **[68-]**

- 7c-1/02 . by rollers (7c-1/04, 7c-1/06 take precedence) [68-]
- 7c-1/04 . Stretching [68-]
- 7c-1/05 . . combined with rolling [68-]
- 7c-1/06 . Removing local distortions [68-]
- 7c-1/08 . . of hollow bodies made from sheet metal (of substantially open bodies 7c-1/10) [68-]
- 7c-1/10 . . of specific articles made from sheet metal, e.g. mudguards [68-]
- 7c-1/12 . Straightening vehicle body parts or bodies (7c-1/14 takes precedence) [68-]
- 7c-1/14 . Straightening frame structures [68-]

**7c-3/00 Straightening or restoring form of metal rods, metal tubes, metal profiles, or specific articles made therefrom, whether or not in combination with sheet metal parts** (straightening of well casings in situ 5a) **[68-]**

- 7c-3/02 . by rollers [68-]
- 7c-3/04 . . arranged on stationary axes skew to the path of the work [68-]
- 7c-3/06 . . arranged inclined to a revolving flier rolling frame [68-]
- 7c-3/08 . . which move in an orbit without rotating round the work [68-]
- 7c-3/10 . between rams and anvils or abutments [68-]
- 7c-3/12 . by stretching with or without twisting (by twisting only 7c-11/14) [68-]

7c-3/14	. Recontouring	[68-]
7c-3/16	. of specific articles made from metal rods, tubes, or profiles, e.g. crankshafts, by specially-adapted methods or means	[68-]
<b>7c-5/00</b>	<b>Bending sheet metal along straight lines, e.g. to form simple curves</b> (7c-11/02 to 7c-11/18 take precedence; as edge treatment 7c-19/00)	<b>[68-]</b>
7c-5/01	. between rams and anvils or abutments	[68-]
7c-5/02	. on press brakes without making use of clamping means	[68-]
7c-5/04	. on brakes making use of clamping means on one side of the work	[68-]
7c-5/06	. by drawing procedure making use of dies or forming-rollers, e.g. making profiles	[68-]
7c-5/08	. . making use of forming-rollers (7c-5/12 takes precedence)	[68-]
7c-5/10	. . for making tubes	[68-]
7c-5/12	. . . making use of forming-rollers	[68-]
7c-5/14	. by passing between rollers (7c-5/06 takes precedence)	[68-]
7c-5/16	. Folding; Pleating	[68-]
<b>7c-7/00</b>	<b>Bending rods, profiles, or tubes</b> (7c-11/02 to 7c-11/18 take precedence; using mandrels or the like 7c-9/00)	<b>[68-]</b>
7c-7/02	. over a stationary forming member; Bending by use of a swinging forming-member or abutment	[68-]
7c-7/023	. . over a stationary forming member	[68-71]
7c-7/024	. . by a swinging forming member	[68-]
7c-7/025	. . . and pulling or pushing the ends of the work	[68-]
7c-7/028	. . . and altering the profile at the same time, e.g. forming bumpers	[68-]
7c-7/03	. Apparatus with means to keep the profile in shape	[68-]
7c-7/04	. over a movably-arranged forming member (7c-7/02 takes precedence)	[68-]
7c-7/06	. in press brakes or between rams and anvils or abutments; Pliers with forming dies	[68-]
7c-7/08	. by passing between rollers or through a curved die	[68-]
7c-7/10	. by abutting members and flexible bending means, e.g. with chains or ropes	[68-]
7c-7/12	. with programme control	[68-]
7c-7/14	. combined with measuring of bends or lengths	[68-]
7c-7/16	. Auxiliary equipment, e.g. for heating or cooling of bends	[68-]
<b>7c-9/00</b>	<b>Bending tubes using mandrels or the like</b> (7c-11/02 to 7c-11/18 take precedence)	<b>[68-]</b>
7c-9/002	. using filling material, e.g. sand	[68-71]
7c-9/004	. with a non-flexible mandrel	[68-71]
7c-9/01	. the mandrel being flexible and engaging the entire tube length	[68-]
7c-9/03	. . and built-up from loose elements, e.g. series of balls	[68-]
7c-9/05	. co-operating with forming-members	[68-]
7c-9/07	. . with one or more swinging forming members engaging tube ends only	[68-]
7c-9/08	. in press brakes or between rams and anvils or abutments; Pliers with forming dies	[68-]
7c-9/10	. by passing between rollers	[68-]
7c-9/12	. by pushing over a curved mandrel; by pushing through a curved die	[68-]
7c-9/14	. Wrinkle-bending, i.e. bending by corrugating	[68-]
7c-9/16	. Auxiliary equipment, e.g. machines for filling tubes with sand	[68-]
7c-9/18	. . for heating or cooling of bends	[68-]
<b>7c-11/00</b>	<b>Bending not restricted to materials mentioned in only one of groups 7c-5/00, 7c-7/00, 7c-9/00; Bending not provided for in groups 7c-5/00 to 7c-9/00</b> (corrugating or bending into wave form 7c-13/00, 7c-15/00; flanging 7c-19/00)	<b>[68-]</b>
7c-11/02	. by stretching or pulling over a die (deep-drawing 7c-22/20)	[68-]
7c-11/04	. Clamping arrangements	[68-]
7c-11/06	. Bending into helical or spiral form; Forming a succession of return bends, e.g. serpentine form (making helically seamed tubing 7b-37/12)	[68-]
7c-11/07	. . Making serpentine-shaped articles by bending essentially in one plane	[68-]
7c-11/08	. by altering the thickness of part of the cross-section of the work (7c-11/06 takes precedence)	[68-]



7c-11/10	. Bending specially adapted to produce specific articles, e.g. leaf springs	[68-]
7c-11/12	. . the articles being reinforcements for concrete	[68-]
7c-11/14	. by twisting	[68-]
7c-11/15	. . reinforcing rods for concrete	[68-]
7c-11/16	. . crankshafts	[68-]
7c-11/18	. Jogging	[68-]
7c-11/20	. Bending sheet metal, not otherwise provided for	[68-]
7c-11/22	. Auxiliary equipment, e.g. positioning devices	[68-]
<b>7c-13/00</b>	<b>Corrugating sheet metal, rods or profiles; Bending sheet metal, rods or profiles into wave form (tubes 7c-15/00)</b>	<b>[68-]</b>
7c-13/02	. by pressing	[68-]
7c-13/04	. by rolling	[68-]
7c-13/06	. by drawing	[68-]
7c-13/08	. by combined methods	[68-]
7c-13/10	. into a peculiar profiling shape	[68-]
<b>7c-15/00</b>	<b>Corrugating tubes (wrinkle-bending 7c-9/14); Bending tubes into wave form</b>	<b>[68-]</b>
7c-15/02	. longitudinally	[68-]
7c-15/03	. . by applying fluid pressure	[68-]
7c-15/04	. transversely, e.g. helically	[68-]
7c-15/06	. . annularly	[68-]
7c-15/10	. . by applying fluid pressure	[68-]
7c-15/12	. Bending tubes into wave form	[68-]
<b>7c-17/00</b>	<b>Forming single grooves in sheet metal or tubular or hollow articles</b>	<b>[68-]</b>
7c-17/02	. by pressing (grooving or notching of bolts, studs, or the like 7h-1/54)	[68-]
7c-17/04	. by rolling	[68-]
7c-17/06	. Forming helical grooves by pressing or rolling	[68-71]
<b>7c-19/00</b>	<b>Flanging or other edge treatment, e.g. of tubes (connecting by making use of folds 7c-39/00; flaring out tube ends 7c-41/02)</b>	<b>[68-]</b>
7c-19/02	. by continuously-acting tools moving along the edge (edge-curling 7c-19/12)	[68-]
7c-19/04	. . shaped as rollers	[68-]
7c-19/06	. . . working inwardly	[68-]
7c-19/08	. by single or successive action of pressing tools, e.g. vice jaws	[68-]
7c-19/10	. . working inwardly	[68-]
7c-19/12	. Edge-curling	[68-]
7c-19/14	. . Reinforcing edges, e.g. armouring	[68-]
7c-19/16	. Reverse flanging of tube ends	[68-]
<b>7c-21/00</b>	<b>Combined processes according to methods covered by groups 7c-1/00 to 7c-19/00</b>	<b>[68-]</b>
<b><u>Stamping; Spinning; Deep-drawing; Punching</u></b>		<b>[68-]</b>
<b>7c-22/00</b>	<b>Shaping without cutting, by stamping, spinning, or deep-drawing (otherwise than using rigid devices or tools or yieldable or resilient pads 7c-26/00)</b>	<b>[68-]</b>
7c-22/02	. Stamping using rigid devices or tools	[68-]
7c-22/04	. . for dimpling (combined with perforating 7c-28/24)	[68-]
7c-22/06	. . having relatively-movable die parts	[68-]
7c-22/08	. . with die parts on rotating carriers	[68-]
7c-22/10	. Stamping using yieldable or resilient pads	[68-]
7c-22/12	. . using enclosed flexible chambers	[68-]
7c-22/14	. Spinning	[68-]
7c-22/16	. . over shaping mandrels or formers	[68-]
7c-22/18	. . using tools guided to produce the required profile	[68-]
7c-22/20	. Deep-drawing (special deep-drawing arrangements in, or in connection with, presses 7c-24/00)	[68-]

7c-22/22	. . with devices for holding the edge of the blanks (7c-22/24 to 7c-22/30 take precedence; shaping over a die without external former 7c-11/02)	[68-]
7c-22/24	. . involving two drawing operations having effects in opposite directions with respect to the blank	[68-]
7c-22/26	. . for making peculiarly, e.g. irregularly, shaped articles	[68-]
7c-22/28	. . of cylindrical articles using consecutive dies	[68-]
7c-22/29	. . Stretch forming	[68-71]
7c-22/30	. . to finish articles formed by deep-drawing	[68-]
<b>7c-24/00</b>	<b>Special deep-drawing arrangements in, or in connection with, presses</b>	<b>[68-]</b>
7c-24/02	. Die-cushions	[68-]
7c-24/04	. Blank holders; Mounting means therefor	[68-]
7c-24/06	. . Mechanically spring-loaded blank holders	[68-]
7c-24/08	. . Pneumatically or hydraulically loaded blank holders	[68-]
7c-24/10	. Devices controlling or operating blank holders independently, or in conjunction with dies	[68-]
7c-24/12	. . mechanically	[68-]
7c-24/14	. . pneumatically or hydraulically	[68-]
7c-24/16	. Additional equipment in association with the tools, e.g. for shearing or trimming	[68-]
<b>7c-26/00</b>	<b>Shaping without cutting otherwise than using rigid devices or tools or yieldable or resilient pads namely, applying direct pressure or magnetic forces</b>	<b>[68-]</b>
7c-26/02	. by applying direct pressure	[68-]
7c-26/04	. . low pressure, e.g. fluid pressure	[68-]
7c-26/06	. . by shock waves	[68-]
7c-26/08	. . . generated by explosives, e.g. chemical explosives	[68-]
7c-26/10	. . . generated by evaporation, e.g. of wire or liquids	[68-]
7c-26/12	. . . . initiated by spark discharge	[68-]
7c-26/14	. applying magnetic forces	[68-]
<b>7c-28/00</b>	<b>Shaping by press-cutting; Perforating</b>	<b>[68-]</b>
7c-28/02	. Punching blanks or articles with or without obtaining scrap (cutting nails or pins from strips or sheet material 7e-3/26); Notching	[68-]
7c-28/04	. . Centering the work; Positioning the tools	[68-]
7c-28/06	. . Making more than one part out of the same blank; Scrapless working	[68-]
7c-28/08	. . . Zig-zag sequence working	[68-]
7c-28/10	. . Incompletely punching in such a manner that the parts are still coherent with the work	[68-]
7c-28/12	. . Punching using rotatable carriers	[68-]
7c-28/14	. . Dies (ejecting or stripping-off devices arranged in punching machines or tools 7c-45/00)	[68-]
7c-28/16	. . Shoulder or burr prevention	[68-]
7c-28/18	. . Yieldable, e.g. rubber, punching pads	[68-]
7c-28/20	. . Applications of drives	[68-]
7c-28/22	. . Notching the peripheries of circular blanks, e.g. laminations for dynamo-electric machines	[68-]
7c-28/24	. Perforating, i.e. punching holes	[68-]
7c-28/26	. . in sheets or flat parts	[68-]
7c-28/28	. . in tubes or other hollow bodies	[68-]
7c-28/30	. . in annular parts, e.g. rims	[68-]
7c-28/32	. . in other articles of special shape	[68-]
7c-28/34	. . Perforating tools; Die holders	[68-]
7c-28/36	. . using rotatable work or tool holders	[68-]

<b>7c-31/00</b>	<b>Other methods for working sheet metal, metal tubes, metal profiles</b> (deforming one surface of tubes helically by rolling 7f-3/00; upsetting 7g-5/08; working metal by removing material therefrom 49; embossing 75a-2, 75b-19)	<b>[68-]</b>
7c-31/02	. Stabbing or piercing, e.g. for making sieves (dimpling 7c-22/04; perforating by punching 7c-28/24)	[68-]
7c-31/03	. . Expanding of holes	[68-71]
7c-31/04	. Expanding other than provided for in groups 7c-1/00 to 7c-28/00, e.g. for making open mesh (enlarging tube ends 7c-41/02; in making statical constructions 7c-47/00)	[68-]
7c-31/06	. Deforming sheet metal, tubes or profiles by sequential impacts, e.g. hammering or beating (forging hammers 7g-7/00)	[68-]
<b>7c-33/00</b>	<b>Special measures in connection with working metal foils, e.g. gold foil</b>	<b>[68-]</b>
<b>7c-35/00</b>	<b>Combined processes according to methods covered by groups 7c-1/00 to 7c-31/00</b> (7c-21/00 takes precedence)	<b>[68-]</b>
<b>7c-37/00</b>	<b>Tools as parts of machines dealt with in this subclass</b> (forms or constructions of tools uniquely adapted for particular operations in the relevant groups for the operations)	<b>[68-]</b>
7c-37/02	. Die constructions enabling assembly of the die parts in different ways (7c-37/06 takes precedence)	[68-]
7c-37/04	. Movable or exchangeable mountings for tools	[68-]
7c-37/06	. . Pivotaly-arranged tools, e.g. disengageable (die sets with dies pivoted to one another 7c-37/12)	[68-]
7c-37/08	. Dies with different parts for several steps in a process	[68-]
7c-37/10	. Die sets; Pillar guides	[68-]
7c-37/12	. . Particular guiding equipment, e.g. pliers; Special arrangements for interconnection or co-operation of dies	[68-]
7c-37/14	. Peculiar arrangements for handling and holding in place complete dies	[68-]
7c-37/16	. Heating or cooling	[68-]
7c-37/15	. for rods, profiles or tubes	[68-71]
7c-37/18	. Lubricating	[68-]
7c-37/20	. Making tools by operations not covered a single other subclass	[68-]
<b>7c-39/00</b>	<b>Application of procedures in order to connect objects or parts, e.g. coating with sheet metal otherwise than by plating</b> (riveting 7g; uniting components by forging or pressing to form integral members 7h-25/00; welding 49h; press-fitting, force-fitting, or shrinking in general 49l-11/00, 49l-19/00; by adhesives 47a1-11/00); <b>Tube expanders</b>	<b>[68-]</b>
7c-39/02	. of sheet metal by folding, e.g. connecting edges of a sheet to form a cylinder	[68-]
7c-39/03	. of sheet metal otherwise than by folding	[68-71]
7c-39/04	. of tubes with tubes; of tubes with rods	[68-]
7c-39/06	. of tubes in openings, e.g. rolling-in	[68-]
7c-39/08	. . Tube expanders	[68-]
7c-39/10	. . . with rollers for expanding only	[68-]
7c-39/12	. . . with rollers for expanding and flanging	[68-]
7c-39/14	. . . with balls	[68-]
7c-39/16	. . . with torque limiting devices	[68-]
7c-39/18	. . . Rollers of special shape	[68-]
7c-39/20	. . . with mandrels or expanding mandrels	[68-71]
<b>7c-41/00</b>	<b>Application of procedures in order to alter the diameter of tube ends</b> (7c-39/00 takes precedence)	<b>[68-]</b>
7c-41/02	. Enlarging	[68-]
7c-41/04	. Reducing; Closing	[68-]
<b>7c-43/00</b>	<b>Feeding, aligning or storing devices combined with, or arranged in, or specially adapted for use in connection with, apparatus for working and</b>	

	<b>processing sheet metal, metal tubes, metal profiles or metal blanks; Associations therewith of cutting devices</b> (cutting devices associated with the tool, see the relevant group for the tool)	<b>[68-]</b>
7c-43/02	. Advancing work in relation to the stroke of the die or tool	[68-]
7c-43/04	. . by means in mechanical engagement with the work	[68-]
7c-43/05	. . . specially adapted for multi-stage presses	[68-]
7c-43/06	. . . by positive or negative engaging parts co-operating with corresponding parts of the sheet or the like to be processed, e.g. carrier bolts or grooved section in the carriers	[68-]
7c-43/08	. . . by rollers	[68-]
7c-43/10	. . . by grippers	[68-]
7c-43/12	. . . by chains or belts	[68-]
7c-43/14	. . . by turning devices, e.g. turn-tables	[68-]
7c-43/16	. . by gravity, e.g. chutes	[68-]
7c-43/18	. . by means in pneumatic or magnetic engagement with the work	[68-]
7c-43/20	. Storage arrangements; Piling or unpling (in general 81e)	[68-]
7c-43/22	. . Devices for piling sheets	[68-]
7c-43/24	. . Devices for removing sheets from a stack	[68-]
7c-43/26	. Stops	[68-]
7c-43/28	. Associations of cutting devices therewith	[68-]
7c-43/30	. for rods, profiles or tubes	[68-71]
<b>7c-45/00</b>	<b>Ejecting or stripping-off devices arranged in machines or tools dealt with in this subclass</b>	<b>[68-]</b>
	<b><u>Processing sheet metal or metal tubes, or processing metal profiles according to any of the preceding groups, in the manufacture of finished or semi-finished articles</u></b>	<b>[68-]</b>
<b>7c-47/00</b>	<b>Making statical construction e.g. honeycomb structures</b>	<b>[68-]</b>
7c-47/02	. Making beams or pillars by expanding	[68-]
7c-47/04	. Making composite sheet metal profiles	[68-]
7c-47/06	. Making perforated sheet, e.g. expanded metal	[68-71]
7c-47/08	. . by making parallel slits and stretching	[68-71]
7c-47/10	. . by making angled slits and stretching	[68-71]
<b>7c-49/00</b>	<b>Sheathing or stiffening objects</b> (by winding wire or tape thereon 25c-1/01 – 25c-1/10; specially adapted for manufacturing conductors or cables 21c-7)	<b>[68-]</b>
<b>7c-51/00</b>	<b>Making hollow objects</b> (from thick-walled or non-uniform tubes 7h-21/00)	<b>[68-]</b>
7c-51/02	. not characterised by the particular use (cans or tins 7c-51/26)	[68-]
7c-51/04	. . built-up objects, e.g. objects with rigidly-attached bottom or cover	[68-]
7c-51/06	. . folded objects	[68-]
7c-51/08	. . ball-shaped objects	[68-]
7c-51/10	. . conically or cylindrically shaped objects	[68-]
7c-51/12	. . objects with corrugated walls	[68-]
7c-51/14	. . Flattening hollow objects for transport or storage; Re-forming same (making tubes from doubled flat material 7b-37/14)	[68-]
7c-51/16	. characterised by the particular structure or use	[68-]
7c-51/18	. . vessels, e.g. tubs, vats, tanks or sinks	[68-]
7c-51/20	. . . barrels	[68-]
7c-51/22	. . . pots, e.g. for cooking	[68-]
7c-51/24	. . high-pressure containers, e.g. boilers or bottles	[68-]
7c-51/26	. . cans or tins; Closing same in a permanent manner (closing outlets 7c-51/38)	[68-]
7c-51/28	. . . Folding the longitudinal seam	[68-]
7c-51/30	. . . Folding the circumferential seam	[68-]
7c-51/32	. . . . by rolling	[68-]
7c-51/34	. . . . by pressing	[68-]
7c-51/36	. . collapsible or like thin-walled tubes, e.g. for toothpaste	[68-]

7c-51/38	. . Making inlet or outlet arrangements of cans, tins, baths, bottles or other vessels	[68-]
7c-51/40	. . . Making outlet openings, e.g. bung holes	[68-]
7c-51/42	. . . . Making or attaching spouts	[68-]
7c-51/44	. . . Making closures, e.g. caps (folded of thin metal foils in the way of making paper caps 54a3-5/00; making closures in conjunction with applying same 64a, 81a)	[68-]
7c-51/46	. . . . Placing sealings or sealing material	[68-]
7c-51/48	. . . . Making crown caps	[68-]
7c-51/50	. . . . Making screw caps	[68-]
7c-51/52	. . boxes, cigarette cases or the like	[68-]
7c-51/54	. . cartridge cases, e.g. for ammunition, for letter carriers in pneumatic-tube plants	[68-]
<b>7c-53/00</b>	<b>Making other particular articles (making chains or chain parts 7i)</b>	<b>[68-]</b>
7c-53/02	. heat exchangers, e.g. radiators or condensers (by inflating sheets or strips secured together locally, e.g. along lines defining passages 7c-26/02; making finned or ribbed tubes by fixing strip material or like to tubes 7b-37/22)	[68-]
7c-53/04	. . of sheet metal	[68-]
7c-53/06	. . of metal tubes	[68-]
7c-53/08	. . of both metal tubes and sheet metal (connecting tubes in openings 7c-39/06)	[68-]
7c-53/10	. parts of bearings; sleeves; valve seats or the like	[68-]
7c-53/12	. . cages for bearings	[68-]
7c-53/14	. belts, e.g. machine-gun belts	[68-]
7c-53/16	. rings, e.g. barrel hoops	[68-]
7c-53/18	. . of hollow or C-shaped cross-section, e.g. for curtains or eyelets	[68-]
7c-53/20	. . washers, e.g. for sealing	[68-]
7c-53/22	. . . with means for preventing rotation	[68-]
7c-53/24	. nuts or like thread-engaging members	[68-]
7c-53/26	. wheels or the like	[68-]
7c-53/28	. . gear wheels	[68-]
7c-53/30	. . wheel rims	[68-]
7c-53/32	. . wheel covers	[68-]
7c-53/34	. . brake drums	[68-]
7c-53/36	. clips, clamps, or like fastening or attaching devices, e.g. for electric installation	[68-]
7c-53/38	. locksmith's goods, e.g. handles	[68-]
7c-53/40	. . hinges, e.g. door hinge plates	[68-]
7c-53/42	. . keys	[68-]
7c-53/44	. fancy goods, e.g. jewellery products (making wire fabrics 7d)	[68-]
7c-53/46	. haberdashery, e.g. buckles; combs; pronged fasteners, e.g. staples	[68-]
7c-53/48	. . buttons, e.g. press-buttons or snap fasteners	[68-]
7c-53/50	. . metal slide-fastener parts	[68-]
7c-53/52	. . . fastener elements; Attaching such elements so far as this procedure is combined with the process for making the elements	[68-]
7c-53/54	. . . slides	[68-]
7c-53/56	. . . stops	[68-]
7c-53/58	. end-pieces for laces or ropes	[68-]
7c-53/60	. cutlery wares; garden tools or the like	[68-]
7c-53/62	. . spoons; table forks	[68-]
7c-53/64	. . knives; scissors; cutting blades (7c-53/72 takes precedence; handle portions 7c-53/70)	[68-]
7c-53/66	. . spades; shovels (handle portions 7c-53/70)	[68-]
7c-53/68	. . rakes, garden forks or the like (handle portions 7c-53/70)	[68-]
7c-53/70	. . handle portions (7c-53/72 takes precedence)	[68-]
7c-53/72	. . sickles; scythes	[68-]
7c-53/74	. frames for openings, e.g. for windows, doors or handbags	[68-]
7c-53/76	. writing or drawing instruments, e.g. writing pens or erasing pens	[68-]
7c-53/78	. propeller blades; turbine blades	[68-]
7c-53/80	. dustproof covers; safety covers	[68-]
7c-53/82	. perforated music sheets; pattern sheets, e.g. for control purposes; stencils	[68-]
7c-53/84	. other parts for engines, e.g. connecting-rods	[68-]

7c-53/86	. other parts for bicycles or motorcycles	[68-]
7c-53/88	. other parts for vehicles, e.g. cowlings or mudguards	[68-]
7c-53/90	. . axle-housings	[68-]
7c-53/92	. other parts for aircraft	[68-]
<b>7c-55/00</b>	<b>Safety devices protecting the machine or the operator, specially adapted for apparatus or machines dealt with in this subclass</b> (for presses in general 58a; safety devices in general 47a4)	<b>[68-]</b>
<b>7d</b>	<b>Trådbearbetning</b>	<b>[-68]</b>
	<b>Bearbetning av tråd i allmänhet</b>	<b>[-68]</b>
7d-1	Böjning av tråd (49h-12 – 49h-24); Riktning av tråd; Framställning av vågformig tråd	[-68]
7d-2	Lindning av tråd; Framställning av spiraltråd eller skruvtråd (49h-20); Framställning av fjädrar av tråd eller band (7d-7; upplindning av tråd 7b-5/01)	[-68]
7d-3	Framställning av trådskarvar; Skarvning av tråd med plåt	[-68]
7d-4	Framställning av taggtråd	[-68]
7d-5	Stukning, sträckning, avklippning, klyvning eller matning av tråd (7e-10, 7e-18); Särskild trådbearbetning; Beklädnad eller förstyvning av föremål med tråd	[-68]
	<b>Bearbetning av tråd till speciella föremål</b>	<b>[-68]</b>
7d-6	Framställning av trådgaller av reveteringsnät av tråd; Framställning av prydnadsflätverk (utformning 33b-5) eller prydnadskedjor; Lödning av prydnadsflätverk eller prydnadskedjor (madrasser 34g-17; galler eller staket 37d-36; trådvävning 86f)	[-68]
7d-7	Framställning av resårer; Maskiner för lindning eller fästning av resårer (resårer för stoppade möbler 34g-18)	[-68]
7d-8	Framställning eller förbättring av solf av metalltråd eller av solfögon (utförande 86c-7, 86g-2)	[-68]
7d-9	Framställning av kardor av tråd (kardor 76b-15)	[-68]
7d-10	Framställning av trådbygglar eller virad tråd för tillslutningsanordningar för flaskor	[-68]
7d-11	Framställning av cykelekrar av tråd	[-68]
7d-12	Framställning av paraplyställningar av tråd	[-68]
7d-13	Framställning av trådspetsar för snörremmar eller snörband	[-68]
7d-14	Framställning av spännen, snörhakar, snörlivsknäppningar, hakar, karbinhakar, hyskor eller knappar av tråd; Framställning av fjädrar för tryckknappar eller fjäderinlägg (maskiner för stansning av hål eller fästning av hyskor, verktyg för allmän användning därför 71c-60; tillslutningsanordningar för klädesplagg 3c-1; snörlivsknäppningar 3c-6; framställning av plåtknappar 7c-29; knappar av horn, celluloid e.d. 39a; knappar i allmänhet 44a-1 – 44a-14)	[-68]
7d-15	Framställning av metallband eller fjädrar för snörliv av tråd (utformning 3a-16; 3c-6; korsettfjädrar av tråd 3f-1/16)	[-68]
7d-16	Framställning av andra föremål av tråd	[-68]
<b>7d</b>	<b>(IPC: B21F) Working and processing of wire</b> (reducing diameter by rolling 7a; by drawing, auxiliary operations used in connection with metal-working without essentially removing material 7b)	<b>[68-]</b>
<b>7d-1/00</b>	<b>Bending wire other than coiling; Straightening wire</b>	<b>[68-]</b>
7d-1/02	. Straightening	[68-]
7d-1/04	. Undulating	[68-]
7d-1/06	. Bending wire-eyes	[68-]
<b>7d-3/00</b>	<b>Coiling wire into particular forms</b>	<b>[68-]</b>
7d-3/02	. helically	[68-]
7d-3/027	. . with extended ends formed in a special shape, e.g. for clothes-pegs	[68-]
7d-3/04	. . externally on a mandrel or the like	[68-]

7d-3/06	. . internally on a hollow form	[68-]
7d-3/08	. to flat spiral	[68-]
7d-3/10	. to spirals other than flat, e.g. conical	[68-]
7d-3/12	. of interconnected helical springs	[68-]
<b>7d-5/00</b>	<b>Upsetting wire</b> (in the manufacture of nails or pins 7e-3/12)	<b>[68-]</b>
<b>7d-7/00</b>	<b>Twisting wire; Twisting wire together</b> (for connections of limited size 7d-15/04)	<b>[68-]</b>
<b>7d-9/00</b>	<b>Straining wire</b> (straining prestressing wires for concrete 37e-21/12; connections or attachments adapted for straining 47d-11/00)	<b>[68-]</b>
7d-9/02	. by tools adapted also for making connections	[68-]
<b>7d-11/00</b>	<b>Cutting wire</b> (hand cutting tools 69)	<b>[68-]</b>
<b>7d-13/00</b>	<b>Splitting wire</b>	<b>[68-]</b>
<b>7d-15/00</b>	<b>Connecting wire to wire or other metallic material or objects; Connecting parts by means of wire</b> (tools for both straining and connecting 7d-9/00; jacketing or reinforcing 7d-17/00; manufacture of wire network 7d-27/00; in making bands 7d-43/00)	<b>[68-]</b>
7d-15/02	. wire with wire	[68-]
7d-15/04	. . without additional connecting elements or material, e.g. by twisting	[68-]
7d-15/06	. . with additional connecting elements or material	[68-]
7d-15/08	. . . making use of soldering or welding	[68-]
7d-15/10	. wire with sheet metal	[68-]
<b>7d-17/00</b>	<b>Jacketing or reinforcing articles with wire</b> (by winding 25c-1/01 – 25c-1/10; by braiding 25b)	<b>[68-]</b>
<b>7d-19/00</b>	<b>Metallic coating of wire</b> (by extruding 7b-23/24; by welding technique 49h; electroplating 48a; by other non-mechanical means 48)	<b>[68-]</b>
<b>7d-21/00</b>	<b>Working or processing wire not otherwise provided for</b>	<b>[68-]</b>
<b>7d-23/00</b>	<b>Feeding wire in wire-working machines or apparatus</b> (applicable also to feeding rods or strips 7c-43/00)	<b>[68-]</b>
<b><u>Wire working characterised by the particular articles produced</u></b>		<b>[68-]</b>
<b>7d-25/00</b>	<b>Making barbed wire</b>	<b>[68-]</b>
<b>7d-27/00</b>	<b>Making wire network; Wire nettings</b> (meshed-ring network 7d-31/00; in making bands 7d-43/00; using looms 86f)	<b>[68-]</b>
7d-27/02	. without additional connecting elements or material at crossings, e.g. connected by knitting	[68-]
7d-27/04	. . Manufacturing on machines with rotating blades or formers	[68-]
7d-27/06	. . Manufacturing on twister-gear machines	[68-]
7d-27/08	. with additional connecting elements or material at crossings	[68-]
7d-27/10	. . with soldered or welded crossings	[68-]
7d-27/12	. Making special types or portions of network by methods or means specially adapted therefor	[68-]
7d-27/14	. . Specially bending or deforming free wire ends	[68-]
7d-27/16	. . for spring mattresses	[68-]
7d-27/18	. . of meshed work for filters or sieves	[68-]
7d-27/20	. . of plaster-carrying network	[68-]
7d-27/22	. . of network for wire-reinforced glass or the like	[68-]
<b>7d-29/00</b>	<b>Making other fencing or like material made partly of wire</b>	<b>[68-]</b>
7d-29/02	. comprising bars or the like connected by wires	[68-]
<b>7d-31/00</b>	<b>Making meshed-ring network from wire</b>	<b>[68-]</b>

<b>7d-33/00</b>	<b>Tools or devices specially designed for handling or processing wire fabrics or the like</b>	<b>[68-]</b>
7d-33/02	. Mounting of wire network on frames	[68-]
7d-33/04	. Connecting ends of helical springs for mattresses	[68-]
<b>7d-35/00</b>	<b>Making springs from wire</b> (by coiling wire 7d-3/00; making resilient rings 7d-37/02)	<b>[68-]</b>
7d-35/02	. Bending or deforming ends of coil springs to special shape	[68-]
7d-35/04	. Making flat springs, e.g. sinus springs	[68-]
<b>7d-37/00</b>	<b>Manufacture of rings from wire</b> (in chain making 7i; making of tyre beads 39a6-17/32)	<b>[68-]</b>
7d-37/02	. or resilient rings, e.g. key-rings	[68-]
7d-37/04	. of washers (7d-37/02 takes precedence)	[68-]
<b>7d-39/00</b>	<b>Making wheel spokes from wire</b>	<b>[68-]</b>
<b>7d-41/00</b>	<b>Making umbrella frames or members from wire</b>	<b>[68-]</b>
<b>7d-43/00</b>	<b>Making bands, e.g. bracelets, or wire</b> (making chains 7i; using looms 86f)	<b>[68-]</b>
<b>7d-45/00</b>	<b>Wire-working in the manufacture of other particular articles</b> (of pins, needles, nails, hairpins 7e; of chains 7i)	<b>[68-]</b>
7d-45/02	. of clothes hangers	[68-]
7d-45/04	. of elements, e.g. levers or links, for bottle stoppers	[68-]
7d-45/06	. of flexible shafts or hollow conduits, e.g. for Bowden mechanisms	[68-]
7d-45/08	. of loom heddles	[68-]
7d-45/10	. of cards for fabric-napping machines	[68-]
7d-45/12	. of fishing hooks	[68-]
7d-45/14	. of end-pieces for laces or ropes	[68-]
7d-45/16	. of devices for fastening or securing purposes	[68-]
7d-45/18	. . of slide fastener elements	[68-]
7d-45/20	. . of spring hooks; of spring safety hooks	[68-]
7d-45/22	. . of paper fasteners or clips (staples 7d-45/24)	[68-]
7d-45/24	. . of staples; of belt-fastening elements	[68-]
7d-45/26	. . of buttons	[68-]
7d-45/28	. . . of "patent-fastener" or press-button type	[68-]
<b>7e</b>	<b>Framställning av nålar eller spikar, t.ex. genom pressning, valsning eller utskärning</b> (bröstrålar, hårnålar, hattnålar, knappålar, säkerhetsnålar 44a-21 – 44a-26; synålar eller nålar för symaskiner 52a-40; nålar för virkmaskiner eller stickmaskiner 25a-19; spikar 47a-4)	<b>[-68]</b>
	<b>Framställning av nålar</b>	<b>[-68]</b>
7e-1	Framställning av knappålar eller säkerhetsnålar, utom 7e-5, 7e-6	[-68]
7e-2	Framställning av synålar, stoppnålar, packnålar eller sylar; Nålstansmaskiner eller hålmaskiner, utom 7e-5, 7e-6	[-68]
7e-3	Framställning av nålar för maskiner, t.ex. symaskiner eller stickmaskiner, utom 7e-5, 7e-6	[-68]
7e-4	Framställning av speciella nålar, t.ex. sticknålar, virknålar, hårnålar eller hattnålar, utom 7e-5, 7e-6	[-68]
7e-5	Skavning, gradborttagning, polering, slipning eller sortering av nålar (slipmaskiner för nålar 67a-22)	[-68]
7e-6	Andra speciella förfaranden vid bearbetning av nålar, t.ex. riktning	[-68]
	<b>Framställning av vanliga spikar</b>	<b>[-68]</b>
7e-7	Framställning av trådspikar, stift eller nubbe, utom 7e-8, 7e-9, 7e-10	[-68]
7e-8	Framställning av två eller flera trådspikar samtidigt	[-68]
7e-9	Framställning av i trådform sammanhängande spikar	[-68]



7e-10	Detaljer vid maskiner för framställning av trådspikar, t.ex. anordningar för matning, avskärning, pressning eller spetsning	[68-]
7e-11	Framställning av klippspikar eller klippta spikämnen (ämnen för hästskosöm 7e-14)	[68-]
7e-12	Valsning av spikar (hästskosöm 7e-17)	[68-]
7e-13	Pressning av spikar (hästskosöm 7e-15)	[68-]
	<b>Framställning av speciella spiksorter, t.ex. hästskosöm</b>	<b>[68-]</b>
7e-14	Framställning av ämnen för hästskosöm genom skärning	[68-]
7e-15	Framställning av hästskosöm genom pressning	[68-]
7e-16	Framställning av hästskosöm genom smidning; Maskiner för hamring eller slagvalsning	[68-]
7e-17	Framställning av hästskosöm genom valsning	[68-]
7e-18	Detaljer vid maskiner för framställning av hästskosöm, t.ex. anordningar för matning, vändning, avskärning, pressning eller spetsning	[68-]
7e-19	Framställning av hakar, krampor eller dubbar för bänkar eller fönster; Framställning av rälsspik (hakar för gardinstänger 34e-3; hakar för lastkedjor e.d. 47d-16; krampor 68b-29)	[68-]
7e-20	Framställning av speciella spikar av plåt eller tråd; Framställning av spikar med huvudplattor, häftstift, möbelspikar e.d.; Framställning av slitsade nitar (49i-6)	[68-]
<b>7e</b>	<b>(IPC: B21G) Making needles, pins, or nails</b>	<b>[68-]</b>
<b>7e-1/00</b>	<b>Making needles used for performing operations (U-shaped hairpins 7e-7/04)</b>	<b>[68-]</b>
7e-1/02	. of needles with eyes, e.g. sewing-needles or sewing-awls (7e-1/12 takes precedence)	[68-]
7e-1/04	. . of needles specially adapted for use in machines or tools (7e-1/12 takes precedence)	[68-]
7e-1/06	. of needles with hook or barb, e.g. crochet hooks (7e-1/12 takes precedence)	[68-]
7e-1/08	. of hollow needles or needles with hollow end, e.g. hypodermic needles or larding-needles (7e-1/10, 7e-1/12 take precedence)	[68-]
7e-1/10	. equipped with locking means for the material to be drawn through, e.g. for repairing tubeless tyres (7e-1/12 takes precedence)	[68-]
7e-1/12	. Securing; Cleaning-off burrs; Reconditioning; Polishing; Grinding	[68-]
<b>7e-3/00</b>	<b>Making pins or nails (of pins with individual caps 7e-5/00; of U-like shape 7e-7/00; of split-pins 7e-7/08)</b>	<b>[68-]</b>
7e-3/02	. of pins of the kind used in the tailoring trade or the household	[68-]
7e-3/04	. . with locking or shielding device for the pin point, e.g. safety-pins	[68-]
7e-3/06	. of nails with shoulders	[68-]
7e-3/08	. of nails with head and two or more shanks or split shanks	[68-]
7e-3/10	. of undulated nails or pins	[68-]
7e-3/12	. Upsetting; Forming heads	[68-]
7e-3/14	. Reducing diameter of parts otherwise than by rolling	[68-]
7e-3/16	. Pointing with or without cutting	[68-]
7e-3/18	. by operations not restricted to one of the groups 7e-3/12 to 7e-3/16 (7e-3/06 to 7e-3/10 take precedence)	[68-]
7e-3/20	. . from wire of indefinite length (by rolling 7e-3/30)	[68-]
7e-3/22	. . . in pairs arranged head to head	[68-]
7e-3/24	. . . by simultaneously forming the head of one nail and the adjacent point of another	[68-]
7e-3/26	. . by cutting from strip or sheet material	[68-]
7e-3/28	. . by forging or pressing	[68-]
7e-3/30	. . by rolling	[68-]
7e-3/32	. Feeding material to be worked to nail or pin making machines	[68-]
<b>7e-5/00</b>	<b>Making pins or nails with attached caps or with coated heads</b>	<b>[68-]</b>
7e-5/02	. of drawing-pins or pins of drawing-pin type	[68-]

<b>7e-7/00</b>	<b>Making pins of U-like shape or split-pins</b> (of paper fasteners or staples 7c-53/46, 7d-45/16)	<b>[68-]</b>
7e-7/02	. of U-like shape	[68-]
7e-7/04	. . of hairpins	[68-]
7e-7/06	. . . of undulated hairpins	[68-]
7e-7/08	. of split-pins, e.g. cotter-pins	[68-]
<b>7f</b>	<b>Framställning av speciella alster genom valsning, t.ex. skruvar, hjul, ringar, skivor, fat eller kulor</b>	<b>[-68]</b>
7f-1	Valsning av hjul, ringar, hjulringar eller skivor	[-68]
7f-2	Valsning av tunnformade välvda ringar	[-68]
7f-3	Valsning av skovlar, spadar, hackor eller plogbillar	[-68]
7f-4	Valsning av gafflar eller krattor	[-68]
7f-5	Valsning av knivar, skäror eller liar (framställning ur plåt 7c-41, 7c-42; 45c-3)	[-68]
7f-6	Valsning av kulor	[-68]
7f-7	Valsning av hästskor eller hästskoämnen (framställning genom smidning eller pressning 49i-1)	[-68]
7f-8	Valsning av snäckformade eller skruvformade metallremsor, t.ex. av snäckor eller spiralborrar av plattskenor (framställning av borrar genom smidning eller pressning 49i-10)	[-68]
7f-9	Valsning av skruvgångor	[-68]
7f-10	Valsning av andra föremål, t.ex. roststavar, underläggsplattor, kilar, skenstöd eller syllar för järnvägsöverbyggnad	[-68]
<b>7f</b>	<b>(IPC: B21H) Making particular metal objects by rolling, e.g. screws, wheels, rings, barrels, balls</b> (essentially from sheet metal 7c)	<b>[68-]</b>
	<b>Note:</b>	<b>[68-]</b>
	<b>This subclass includes only rolling operations which are specially adapted for use in the manufacture of particular objects and which, so far as the invention is concerned, are not combined with any different metal-working operation unless the latter is a subsidiary operation performed in the same machine.</b>	<b>[68-]</b>
<b>7f-1/00</b>	<b>Making articles shaped as bodies of revolution</b> (rolling tubes 7a-17/00 to 7a-25/00)	<b>[68-]</b>
7f-1/02	. discs; disc wheels	[68-]
7f-1/04	. . with rim, e.g. railway wheels	[68-]
7f-1/06	. rings of restricted axial length (extending closed shapes of metal bands by simultaneous rolling at two or more zones 7a-5/00)	[68-]
7f-1/08	. . railway wheel rims	[68-]
7f-1/10	. . rims for pneumatic tyres	[68-]
7f-1/12	. . rings for ball or roller bearings	[68-]
7f-1/14	. balls, rollers, cone rollers or like bodies	[68-]
7f-1/16	. . for bearings	[68-]
7f-1/18	. cylinders, e.g. rolled transversely	[68-]
7f-1/20	. . rolled longitudinally	[68-]
<b>7f-3/00</b>	<b>Making helical bodies or bodies having parts of helical shape</b> (helical gears 7f-5/00; forming tubes or tube walls into helical shape 7c-11/06, 7c-15/04)	<b>[68-]</b>
7f-3/02	. external screw-threads	[68-]
7f-3/04	. . Making by means of profiled rolls	[68-]
7f-3/06	. . Making by means of profiled members other than rolls, e.g. jaws, moved longitudinally or curvilinearly with respect to each other	[68-]
7f-3/08	. internal screw-threads	[68-]
7f-3/10	. twist-drills; screw-taps	[68-]
7f-3/12	. articles with helicoidal surface (bending strip or the like helically 7c-11/06)	[68-]

<b>7f-5/00</b>	<b>Making gear wheels</b>	<b>[68-]</b>
7f-5/02	. with cylindrical outline	[68-]
7f-5/04	. bevel gears	[68-]
<b>7f-7/00</b>	<b>Making articles not provided for in the preceding groups, e.g. agricultural tools, dinner forks, knives, spoons (nails, pins 7e-3/30)</b>	<b>[68-]</b>
7f-7/02	. spades; shovels	[68-]
7f-7/04	. hoes	[68-]
7f-7/06	. ploughshares; axes	[68-]
7f-7/08	. forks; rakes	[68-]
7f-7/10	. knives; sickles; scythes	[68-]
7f-7/12	. horse-shoes; articles of like shape, e.g. wear-resisting attachments for shoes	[68-]
7f-7/14	. knurled articles	[68-]
7f-7/16	. turbine blades; compressor blades; propeller blades	[68-]
7f-7/18	. grooved pins; Rolling grooves, e.g. oil grooves, in articles	[68-]
<b>7f-8/00</b>	<b>Rolling metal of indefinite length in repetitive shapes specially designed for the manufacture of particular objects</b>	<b>[68-]</b>
7f-8/02	. Rolls of special shape	[68-]
<b>7f-9/00</b>	<b>Feeding arrangements for rolling machines or apparatus manufacturing articles dealt with in this subclass</b>	<b>[68-]</b>
7f-9/02	. for screw-rolling machines	[68-]
<b>7g</b>	<b>(IPC: B21J) Forging; Hammering; Pressing; Riveting; Forge furnaces (making particular products by forging or pressing 7h; plating or pressure finishing or surfaces 49l-3/00; general features of presses, presses for consolidating scrap 58a; furnaces in general 31)</b>	<b>[68-]</b>
7g-1/00	Preparing metal stock	[68-]
7g-1/02	. Preliminary treatment of metal stock without particular shaping, e.g. salvaging segregated zones, forging or pressing in the rough (modifying the physical properties by deformation 18c-7/00, 40d-1/00)	[68-]
7g-1/04	. Shaping in the rough solely by forging or pressing	[68-]
7g-1/06	. Heating or cooling methods or arrangements specially adapted for performing forging or pressing operations	[68-]
<b>7g-3/00</b>	<b>Lubricating during forging or pressing (lubricating in general 47e)</b>	<b>[68-]</b>
<b>7g-5/00</b>	<b>Methods for forging, hammering, or pressing (for working sheet metal or metal tubes, rods, or profiles 7c; for working wire 7d); Special equipment or accessories therefor</b>	<b>[68-]</b>
7g-5/02	. Die forging; Trimming by making use of special dies	[68-]
7g-5/04	. by directly applied fluid pressure or explosive action	[68-]
7g-5/06	. for performing particular operations	[68-]
7g-5/08	. . Upsetting	[68-]
7g-5/10	. . Piercing billets (in combination with extrusion 7b-23/00)	[68-]
7g-5/12	. . Forming profiles on internal or external surfaces (making screw-thread by forging, pressing or hammering 7h)	[68-]
<b>7g-7/00</b>	<b>Hammers; Forging machines with hammers or die jaws acting by impact (hand hammers 87b-1; electrical features 21d)</b>	<b>[68-]</b>
7g-7/02	. Special design or construction	[68-]
7g-7/04	. . Power hammers	[68-]
7g-7/06	. . Drop hammers	[68-]
7g-7/08	. . . with rigidly-guided hammer	[68-]
7g-7/10	. . with both drive and hammer connected to a fulcrumed lever, e.g. tail hammers	[68-]
7g-7/12	. . . the lever being a spring, i.e. spring hammers	[68-]
7g-7/14	. . Forging machines working with several hammers	[68-]
7g-7/16	. . . in rotary arrangements	[68-]
7g-7/18	. . Forging machines working with die jaws, e.g. pivoted, movable laterally of the forging or pressing direction, e.g. for swaging	[68-]
7g-7/20	. Drives for hammers; Transmission means therefor	[68-]

7g-7/22	. . for power hammers	[68-]
7g-7/24	. . . operated by steam, air or other gaseous pressure	[68-]
7g-7/26	. . . . operated by internal combustion	[68-]
7g-7/28	. . . operated by hydraulic or liquid pressure	[68-]
7g-7/30	. . . operated by electro-magnets	[68-]
7g-7/32	. . . operated by rotary drive, e.g. by electric motor	[68-]
7g-7/34	. . . operating both the hammer and the anvil, so-called counter-tup	[68-]
7g-7/36	. . for drop hammers	[68-]
7g-7/38	. . . driven by steam, air or other gaseous pressure	[68-]
7g-7/40	. . . driven by hydraulic or liquid pressure	[68-]
7g-7/42	. . . operated by rotary drive, e.g. electric motors	[68-]
7g-7/44	. . . . equipped with belts, ropes, cables or chains	[68-]
7g-7/46	. . Control uniquely specially adapted to forging hammers, not restricted to one of the preceding subgroups	[68-]
<b>7g-9/00</b>	<b>Forging presses</b>	<b>[68-]</b>
7g-9/02	. Special design or construction	[68-]
7g-9/04	. . Piercing presses	[68-]
7g-9/06	. . Sawing presses; Upsetting presses	[68-]
7g-9/08	. . . equipped with devices for heating the workpiece (electric heating elements 21h)	[68-]
7g-9/10	. Drives for forging presses	[68-]
7g-9/12	. . operated by hydraulic or liquid pressure	[68-]
7g-9/14	. . . in conjunction with electric power	[68-]
7g-9/16	. . . in conjunction with steam or gas power	[68-]
7g-9/18	. . operated by making use of gearing mechanisms, e.g. levers, spindles, crankshafts, eccentrics, toggle-levers or rack bars	[68-]
7g-9/20	. . Control devices specially adapted to forging presses not restricted to one of the preceding subgroups	[68-]
<b>7g-11/00</b>	<b>Forging hammers combined with forging presses; Forging machines with provision for hammering and pressing</b>	<b>[68-]</b>
<b>7g-13/00</b>	<b>Details of machines for forging, pressing, or hammering</b>	<b>[68-]</b>
7g-13/02	. Dies; Mountings	[68-]
7g-13/04	. Frames; Guides	[68-]
7g-13/06	. Hammer tups; Anvils; Anvil blocks	[68-]
7g-13/08	. Accessories for handling work or tools	[68-]
7g-13/10	. . Manipulators (in general 87a)	[68-]
7g-13/12	. . . Turning means	[68-]
7g-13/14	. . Ejecting devices	[68-]
<b>7g-15/00</b>	<b>Riveting</b>	<b>[68-]</b>
7g-15/02	. Riveting procedures	[68-]
7g-15/04	. . Riveting hollow rivets mechanically	[68-]
7g-15/06	. . Riveting hollow rivets by means of hydraulic, liquid or gas pressure	[68-]
7g-15/08	. . Riveting by applying heat to the end parts of the rivets to enable heads to be formed	[68-]
7g-15/10	. Riveting machines (electric heating elements 21h)	[68-]
7g-15/12	. . with tools or tool parts having a movement additional to the feed movement, e.g. spinning	[68-]
7g-15/14	. . uniquely adapted for riveting specific articles, e.g. brake lining machines	[68-]
7g-15/16	. . Drives for riveting machines; Transmission means therefor	[68-]
7g-15/18	. . . operated by air pressure or other gas pressure	[68-]
7g-15/20	. . . operated by hydraulic or liquid pressure	[68-]
7g-15/22	. . . operated by both hydraulic or liquid pressure and gas pressure	[68-]
7g-15/24	. . . operated by electro-magnets	[68-]
7g-15/26	. . . operated by rotary drive, e.g. by electric motor	[68-]
7g-15/28	. . Control devices specially adapted to riveting machines not restricted to one of the preceding subgroups	[68-]
7g-15/30	. . Particular items, e.g. supports; Suspension equipment uniquely adapted for portable riveters	[68-]

7g-15/32	. . . Devices for inserting or holding rivets in position with or without feeding arrangements	[68-]
7g-15/34	. . . . for installing tubular rivets	[68-]
7g-15/36	. . Rivet sets, i.e. tools for forming heads; Mandrels for expanding parts of hollow rivets	[68-]
7g-15/38	. Accessories for use in connection with riveting, e.g. pliers for upsetting; Hand tools for riveting	[68-]
7g-15/40	. . for forming rivet heads	[68-]
7g-15/42	. . Special clamping devices for workpieces to be riveted together, e.g. operating through the rivet holes	[68-]
7g-15/44	. . Rivet hole positioners	[68-]
7g-15/46	. . Positioners for rivets for making tube joints	[68-]
7g-15/48	. . Devices for caulking rivets	[68-]
7g-15/50	. . Removing or cutting devices for rivets	[68-]
<b>7g-17/00</b>	<b>Forge furnaces</b> (furnaces for heat treatment 18c-9/00; furnaces in general 31)	<b>[68-]</b>
7g-17/02	. electrically heated (electric heating elements 21h)	[68-]
<b>7g-19/00</b>	<b>Blacksmiths' requisites not otherwise provided for</b>	<b>[68-]</b>
7g-19/02	. Hearths; Air supply arrangements specially adapted therefor	[68-]
7g-19/04	. Anvils; Associated items	[68-]
<b>7h</b>	<b>(IPC: B21K) Making forged and pressed products, e.g. horse-shoes, rivets, bolts, wheels</b> (processing wire 7d; making pins, needles or nails 7e; forging machines, pressing machines, hammering machines, in general 7g; making chains 7i; plating 49I-3/00)	<b>[68-]</b>

**Note:** [68-]  
**This subclass includes only forging, pressing, or hammering operations which are specially adapted for use in the manufacture of particular objects and which, so far as the invention is concerned, are not combined with any different metal-working operation unless the latter is a subsidiary operation performed in the same machine.** [68-]

**Making particular articles by forging, pressing, or hammering; Equipment therefor [68-]**

<b>7h-1/00</b>	<b>Making machine elements</b>	<b>[68-]</b>
7h-1/02	. balls, rolls or rollers, e.g. for bearings	[68-]
7h-1/04	. ball-races	[68-]
7h-1/06	. axles or shafts	[68-]
7h-1/08	. . crankshafts	[68-]
7h-1/10	. . of cylindrical form	[68-]
7h-1/12	. . of specially-shaped cross-section	[68-]
7h-1/14	. fittings	[68-]
7h-1/16	. . parts of pipe or hose couplings	[68-]
7h-1/18	. pistons or plungers	[68-]
7h-1/20	. valve parts	[68-]
7h-1/22	. . poppet valves, e.g. for internal-combustion engines	[68-]
7h-1/24	. . valve bodies; valve seats	[68-]
7h-1/26	. housings or supporting parts, e.g. axle housings, engine mountings	[68-]
7h-1/28	. wheels; discs	[68-]
7h-1/30	. . with gear-teeth	[68-]
7h-1/32	. . discs, e.g. disc wheels	[68-]
7h-1/34	. . wheels with spokes	[68-]
7h-1/36	. . with blades	[68-]
7h-1/38	. . rims; tyres	[68-]
7h-1/40	. . hubs	[68-]
7h-1/42	. . pulleys, e.g. cable pulleys	[68-]
7h-1/44	. bolts, studs, or the like (making screw-thread 7h-1/56; making U-bolts 7h-1/74)	[68-]
7h-1/46	. . with heads	[68-]

7h-1/48	. . . Machines working with hammers, e.g. beating in a radial direction, for forming heads	[68-]
7h-1/50	. . . Trimming or shearing formed heads, e.g. working with dies	[68-]
7h-1/52	. . double-ended, e.g. with heads on both ends (forming heads 7h-1/46)	[68-]
7h-1/54	. . with grooves or notches	[68-]
7h-1/56	. Making screw-thread (by rolling 7f-3/02)	[68-]
7h-1/58	. rivets	[68-]
7h-1/60	. . hollow or semi-hollow rivets	[68-]
7h-1/62	. . special rivets, e.g. with electrical contacts	[68-]
7h-1/64	. nuts (making screw-thread 7h-1/56)	[68-]
7h-1/66	. . from strip bars	[68-]
7h-1/68	. . from round or profiled bars	[68-]
7h-1/70	. . of special shape, e.g. self-locking nuts or wing nuts	[68-]
7h-1/72	. hooks, e.g. crane hooks or railway track spikes (making nails in general 7e)	[68-]
7h-1/74	. forked members or members with two or more limbs, e.g. U-bolts or anchors	[68-]
7h-1/76	. elements not mentioned in one of the preceding groups	[68-]
<b>7h-3/00</b>	<b>Making engine or like machine parts not covered by subgroups of 7h-1/00; Making propellers or the like</b>	<b>[68-]</b>
7h-3/02	. cylinder heads	[68-]
7h-3/04	. blades, e.g. for turbines; Upsetting of blade roots	[68-]
<b>7h-5/00</b>	<b>Making tools or tool parts, e.g. pliers</b>	<b>[68-]</b>
7h-5/02	. drilling-tools or other tools for making or working on holes	[68-]
7h-5/04	. . twisting-tools, e.g. drills or reamers	[68-]
7h-5/06	. . Dressing, e.g. sharpening rock drills	[68-]
7h-5/08	. . drifting tools	[68-]
7h-5/10	. . Forming drill-bit shanks	[68-]
7h-5/12	. other cutting tools (cutlery wares 7h-11/00)	[68-]
7h-5/14	. hand hammers	[68-]
7h-5/16	. tools for turning nuts	[68-]
7h-5/18	. handles or parts therefor	[68-]
7h-5/20	. Making working faces of dies, either recessed or outstanding	[68-]
<b>7h-7/00</b>	<b>Making railway appurtenances</b>	<b>[68-]</b>
7h-7/02	. parts for permanent way (spikes 7h-1/72)	[68-]
7h-7/04	. . switch tongues	[68-]
7h-7/06	. . sleepers	[68-]
7h-7/08	. . base plates for rails, e.g. chairs	[68-]
7h-7/10	. . rail joints	[68-]
7h-7/12	. parts for locomotives or vehicles, e.g. frames, underframes	[68-]
7h-7/14	. . brake rigging	[68-]
<b>7h-9/00</b>	<b>Reconditioning railroad accessories, e.g. rails</b>	<b>[68-]</b>
<b>7h-11/00</b>	<b>Making cutlery wares; Making garden tools or the like</b>	<b>[68-]</b>
7h-11/02	. knives	[68-]
7h-11/04	. spoons; table forks	[68-]
7h-11/06	. scissors	[68-]
7h-11/08	. sickles; scythes	[68-]
7h-11/10	. axes; picks	[68-]
7h-11/12	. spades; shovels	[68-]
7h-11/14	. rakes; garden forks	[68-]
<b>7h-13/00</b>	<b>Making locksmiths' goods, e.g. handles for cases</b>	<b>[68-]</b>
7h-13/02	. hinges	[68-]
<b>7h-15/00</b>	<b>Making blacksmiths' goods</b>	<b>[68-]</b>
7h-15/02	. horse-shoes; appurtenances therefor	[68-]
7h-15/04	. . caulks	[68-]
7h-15/06	. metal attachments for footwear, e.g. wear-resisting plates	[68-]
<b>7h-17/00</b>	<b>Making sport articles, e.g. skates</b>	<b>[68-]</b>

<b>7h-19/00</b>	<b>Making articles for agricultural machinery</b>	<b>[68-]</b>
7h-19/02	. plough blades; ploughshares	[68-]
<b>7h-21/00</b>	<b>Making hollow articles not covered by a single preceding subgroup</b> (essentially from sheet-metal or uniform thin-walled tubes 7c, e.g. 7c-41/00, 7c-51/00)	<b>[68-]</b>
7h-21/02	. Producing blanks in the shape of discs or cups as semi-finished articles for making hollow articles, e.g. to be deep-drawn or extruded	[68-]
7h-21/04	. Shaping thin-walled hollow articles, e.g. cartridges	[68-]
7h-21/06	. Shaping thick-walled hollow articles, e.g. projectiles	[68-]
7h-21/08	. Shaping hollow articles with different cross-section in longitudinal direction, e.g. nozzles or spark-plugs	[68-]
7h-21/10	. . cone-shaped or bell-shaped articles, e.g. insulator caps	[68-]
7h-21/12	. Shaping end portions of hollow articles	[68-]
7h-21/14	. . closed or substantially-closed ends, e.g. cartridge bottoms	[68-]
7h-21/16	. Remodelling hollow bodies with respect to the shape of the cross-section (remodelling end portions only 7h-21/12)	[68-]
<b>7h-23/00</b>	<b>Making other articles</b>	<b>[68-]</b>
7h-23/02	. members of endless tracks, e.g. track guides or shoes (making from sheet-metal 7c)	[68-]
7h-23/04	. flanged articles (7f-1/28 takes precedence; flanging tubes 7c)	[68-]
<b>7h-25/00</b>	<b>Uniting components to form integral members, e.g. turbine wheels and shafts or caulks with inserts, with or without shaping of the components</b> (uniting by interference-fitting or press-fitting 49l-11/02, 49l-19/02)	<b>[68-]</b>
<b><u>Accessories; Auxiliary devices</u></b>		<b>[68-]</b>
<b>7h-27/00</b>	<b>Handling devices, e.g. for feeding, aligning or discharging; Cutting-off means; Arrangement thereof</b>	<b>[68-]</b>
7h-27/02	. Feeding devices for rods, wire or strips	[68-]
7h-27/04	. . allowing successive working steps	[68-]
7h-27/06	. Cutting-off means; Arrangement thereof	[68-]
<b>7h-29/00</b>	<b>Arrangements for heating or cooling during processing</b> (for preparing metal stock to be forged or pressed 7g-1/06; heating equipment per se, see the appropriate subclasses, e.g. 21h)	<b>[68-]</b>
<b>7h-31/00</b>	<b>Control devices specially adapted for positioning tool carriers</b>	<b>[68-]</b>
<b>7i</b>	<b>(IPC: B21L) Making chains</b>	<b>[68-]</b>
<b>7i-1/00</b>	<b>Making chains or chain links by bending workpieces of rod, wire or strip to form links of oval or other simple shape</b> (7h-3/00, 7h-7/00 take precedence)	<b>[68-]</b>
7i-1/02	. by bending the ends of the workpieces to abut	[68-]
7i-1/04	. by bending and interconnecting the ends of the workpieces with or without separate jointing members	[68-]
<b>7i-3/00</b>	<b>Making chains or chain links by bending the chain links or link parts and subsequently welding or soldering the abutting ends</b> (7h-7/00 takes precedence)	<b>[68-]</b>
7i-3/02	. Machines or devices for welding chain links	[68-]
7i-3/04	. . by making use of forge or pressure welding	[68-]
<b>7i-5/00</b>	<b>Making chains or chain links by working the starting material in such a way that integral, i.e. jointless, chain links are formed</b>	<b>[68-]</b>
7i-5/02	. in such a way that interconnected links are formed	[68-]
<b>7i-7/00</b>	<b>Making chains or chain links by cutting single loops or loop-parts from coils, assembling the cut parts and subsequently subjecting same to twisting with or without welding</b>	<b>[68-]</b>

<b>7i-9/00</b>	<b>Making chains or chain links, the links being composed of two or more different parts, e.g. drive chains</b> (7h-1/04, 7h-7/00, 7h-11/14, 7h-13/00 take precedence)	<b>[68-]</b>
7i-9/02	. of roller-chain or other plate-link type	[68-]
7i-9/04	. . Punching or bending the different parts of the chain links	[68-]
7i-9/06	. . Sorting, feeding, assembling, riveting or finishing parts of chains	[68-]
7i-9/08	. . Combining the chain links with auxiliary parts, e.g. welding-on wear-resistant parts	[68-]
<b>7i-11/00</b>	<b>Making chains or chain links of special shape</b>	<b>[68-]</b>
7i-11/02	. each link being formed of a single member of which both ends are bent or shaped to engage the middle portion of the next link	[68-]
7i-11/04	. . the ends being pierced or punched to form eyes	[68-]
7i-11/06	. . . the workpiece being of thin strip metal	[68-]
7i-11/08	. . the ends being interengaged with other parts of the same link	[68-]
7i-11/10	. the chain links having opposed correspondingly shaped cylindrical and hook-like parts of which one part forms a hinge-like support for the adjacent link (7h-11/02 takes precedence)	[68-]
7i-11/12	. forming bead chains	[68-]
7i-11/14	. making chain links with inserted or integrally-formed studs	[68-]
<b>7i-13/00</b>	<b>Making terminal or intermediate chain links of special shape; Making couplings for chains, e.g. swivels, shackles</b>	<b>[68-]</b>
<b>7i-15/00</b>	<b>Finishing or dressing chains or chain links, e.g. removing burr material, calibrating</b> (7i-9/06 takes precedence)	<b>[68-]</b>
7i-15/02	. Twisting already closed links	[68-]
<b>7i-17/00</b>	<b>Making chains or chain links not covered by one of the preceding main groups</b> (by casting 31b2-25/02)	<b>[68-]</b>
<b>7i-19/00</b>	<b>Appurtenances for chain-making not restricted to any particular process</b>	<b>[68-]</b>
<b>7i-21/00</b>	<b>Tools or implements for repairing chains using metal-working operations, e.g. for detaching deformed chain links</b>	<b>[68-]</b>