

SECTION B — PERFORMING OPERATIONS; TRANSPORTING

B21 MECHANICAL METAL-WORKING WITHOUT ESSENTIALLY REMOVING MATERIAL; PUNCHING METAL

B21J FORGING; HAMMERING; PRESSING METAL; RIVETING; FORGE FURNACES (rolling of metal B21B; making particular products by forging or pressing B21K; cladding or plating B23K; finishing surfaces by hammering B23P 9/04; compacting surfaces by blasting with particulate material B24C 1/10; general features of presses, presses for consolidating scrap B30B; furnaces in general F27)

Subclass index

PREPARING METAL STOCK.....	1/00
FORGING; HAMMERING; PRESSING	
General methods, equipment therefor.....	5/00
Machines, presses, hammers.....	7/00-13/00
Lubrication.....	3/00
Furnaces.....	17/00
RIVETING.....	15/00
OTHER BLACKSMITHS' REQUISITES.....	19/00

1/00	Preparing metal stock [1, 2006.01]	7/10	• • with both drive and hammer connected to a fulcrumed lever, e.g. tail hammers [1, 2006.01]
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 C21D 7/00, C22F 1/00) [1, 2006.01]	7/12	• • • the lever being a spring, i.e. spring hammers [1, 2006.01]
1/04	• Shaping in the rough solely by forging or pressing [1, 2006.01]	7/14	• • Forging machines working with several hammers [1, 2006.01]
1/06	• Heating or cooling methods or arrangements specially adapted for performing forging or pressing operations [1, 2006.01]	7/16	• • • in rotary arrangements [1, 2006.01]
		7/18	• • Forging machines working with die jaws, e.g. pivoted, movable laterally of the forging or pressing direction, e.g. for swaging [1, 2006.01]
		7/20	• Drives for hammers; Transmission means therefor [1, 2006.01]
3/00	Lubricating during forging or pressing (lubricating in general F16N) [1, 2006.01]	7/22	• • for power hammers [1, 2006.01]
		7/24	• • • operated by steam, air, or other gaseous pressure [1, 2006.01]
5/00	Methods for forging, hammering, or pressing (for working sheet metal or metal tubes, rods, or profiles B21D; for working wire B21F); Special equipment or accessories therefor [1, 2006.01]	7/26	• • • • operated by internal combustion [1, 2006.01]
5/02	• Die forging; Trimming by making use of special dies [1, 2006.01]	7/28	• • • operated by hydraulic or liquid pressure [1, 2006.01]
5/04	• by directly applied fluid pressure or explosive action [1, 2006.01]	7/30	• • • operated by electro-magnets [1, 2006.01]
5/06	• for performing particular operations [1, 2006.01]	7/32	• • • operated by rotary drive, e.g. electric motor [1, 2006.01]
5/08	• • Upsetting [1, 2006.01]	7/34	• • • operating both the hammer and the anvil, so-called counter-tup [1, 2006.01]
5/10	• • Piercing billets (in combination with extrusion B21C 23/00) [1, 2006.01]	7/36	• • for drop hammers [1, 2006.01]
5/12	• • Forming profiles on internal or external surfaces (making screw-thread by forging, pressing, or hammering B21K) [1, 2006.01]	7/38	• • • driven by steam, air, or other gaseous pressure [1, 2006.01]
		7/40	• • • driven by hydraulic or liquid pressure [1, 2006.01]
		7/42	• • • operated by rotary drive, e.g. electric motors [1, 2006.01]
7/00	Hammers; Forging machines with hammers or die jaws acting by impact (hand hammers B25D; electrical features section H) [1, 2006.01]	7/44	• • • • equipped with belts, ropes, cables, chains [1, 2006.01]
7/02	• Special design or construction [1, 2006.01]	7/46	• • Control devices specially adapted to forging hammers, not restricted to one of the preceding subgroups [1, 2006.01]
7/04	• • Power hammers [1, 2006.01]		
7/06	• • Drop hammers [1, 2006.01]		
7/08	• • • with rigidly-guided hammer [1, 2006.01]	9/00	Forging presses [1, 2006.01]

- 9/02 • Special design or construction [1, 2006.01]
- 9/04 • • Piercing presses [1, 2006.01]
- 9/06 • • Swaging presses; Upsetting presses [1, 2006.01]
- 9/08 • • • equipped with devices for heating the workpiece (electric heating elements H05B) [1, 2006.01]
- 9/10 • Drives for forging presses [1, 2006.01]
- 9/12 • • operated by hydraulic or liquid pressure [1, 2006.01]
- 9/14 • • • in conjunction with electric power [1, 2006.01]
- 9/16 • • • in conjunction with steam or gas power [1, 2006.01]
- 9/18 • • operated by making use of gearing mechanisms, e.g. levers, spindles, crankshafts, eccentrics, toggle-levers, rack bars [1, 2006.01]
- 9/20 • • Control devices specially adapted for forging presses not restricted to one of the preceding subgroups [1, 2006.01]
- 11/00 Forging hammers combined with forging presses; Forging machines with provision for hammering and pressing [1, 2006.01]**
- 13/00 Details of machines for forging, pressing, or hammering [1, 2006.01]**
- 13/02 • Dies or mountings therefor [1, 2, 2006.01]
- 13/03 • • Die mountings [2, 2006.01]
- 13/04 • Frames; Guides [1, 2006.01]
- 13/06 • Hammer tups; Anvils; Anvil blocks [1, 2006.01]
- 13/08 • Accessories for handling work or tools [1, 2006.01]
- 13/10 • • Manipulators (in general B25J) [1, 2006.01]
- 13/12 • • • Turning means [1, 2006.01]
- 13/14 • • Ejecting devices [1, 2006.01]
- 15/00 Riveting [1, 2006.01]**
- 15/02 • Riveting procedures [1, 2006.01]
- 15/04 • • Riveting hollow rivets mechanically [1, 2006.01]
- 15/06 • • Riveting hollow rivets by means of hydraulic, liquid, or gas pressure [1, 2006.01]
- 15/08 • • Riveting by applying heat to the end parts of the rivets to enable heads to be formed [1, 2006.01]
- 15/10 • Riveting machines (electric heating elements H05B) [1, 2006.01]
- 15/12 • • with tools or tool parts having a movement additional to the feed movement, e.g. spin [1, 2006.01]
- 15/14 • • specially adapted for riveting specific articles, e.g. brake lining machines [1, 2006.01]
- 15/16 • • Drives for riveting machines; Transmission means therefor [1, 2006.01]
- 15/18 • • • operated by air pressure or other gas pressure, e.g. explosion pressure [1, 2006.01]
- 15/20 • • • operated by hydraulic or liquid pressure [1, 2006.01]
- 15/22 • • • operated by both hydraulic or liquid pressure and gas pressure [1, 2006.01]
- 15/24 • • • operated by electro-magnets [1, 2006.01]
- 15/26 • • • operated by rotary drive, e.g. by electric motor [1, 2006.01]
- 15/28 • • Control devices specially adapted to riveting machines not restricted to one of the preceding subgroups [1, 2006.01]
- 15/30 • • Particular elements, e.g. supports; Suspension equipment specially adapted for portable riveters [1, 2006.01]
- 15/32 • • • Devices for inserting or holding rivets in position with or without feeding arrangements [1, 2006.01]
- 15/34 • • • for installing tubular rivets [1, 2006.01]
- 15/36 • • Rivet sets, i.e. tools for forming heads; Mandrels for expanding parts of hollow rivets [1, 2006.01]
- 15/38 • Accessories for use in connection with riveting, e.g. pliers for upsetting; Hand tools for riveting [1, 2006.01]
- 15/40 • • for forming rivet heads [1, 2006.01]
- 15/42 • • Special clamping devices for workpieces to be riveted together, e.g. operating through the rivet holes [1, 2006.01]
- 15/44 • • Rivet hole positioners [1, 2006.01]
- 15/46 • • Positioners for rivets for making tube joints [1, 2006.01]
- 15/48 • • Devices for caulking rivets [1, 2006.01]
- 15/50 • • Removing or cutting devices for rivets [1, 2006.01]
- 17/00 Forge furnaces (furnaces for heat treatment C21D 9/00; furnaces in general F27) [1, 2006.01]**
- 17/02 • electrically heated (electric heating elements H05B) [1, 2006.01]
- 19/00 Blacksmiths' requisites not otherwise provided for [1, 2006.01]**
- 19/02 • Hearths; Air supply arrangements specially adapted therefor [1, 2006.01]
- 19/04 • Anvils; Associated items [1, 2006.01]