

This heading comprises only the following subject matter:

- . metal perforating processes *not otherwise provided for*
- . metal sheet feeds of general and unspecified application
- . presses and press actuating mechanism specially adapted and arranged for use in metal shearing, punching and like dividing
- . quincunx and like staggered feeds for metal stamping and embossing apparatus
- . shearing, punching and like dividing metals
- . wheel cutter tools

and embraces:

- . barbing by cutting
- . bevelling by shearing
- . bolt-cutters and wire-cutters
- . machines for cutting both metal and other (unspecified) materials
- . sizing or trueing a hole during punching by a single shoulder on the punch
- . trimming whole periphery of blank by forcing through a single cutting die by shaped punch

but does not include the following subject matter, which is to be found in the headings indicated:

- . copying and reproducing mechanism for relatively positioning work and punch—B3B, Machine tool details
- . internal pipe cutters with radially adjustable cutting means—B3C, Drilling and boring (*cutting tools*); B3J, Seaming & metal sheets (*pressure wheels*)
- . drop hammers for punching—B3H, Power hammers &c
- . power hammers of interest apart from shearing, punching and similarly dividing metals—B3H, Power hammers &c
- . presses and press actuating mechanism applicable for other metal working operations—B3H, Power hammers &c
- . shearing metals by the rolls of rolling mills—B3M, Rolling metals
- . cutting foil—B4B, Cutting &c
- . hand shears with two movable cutters—B4B, Cutting &c
- . hand-grip punching and cutting tools—B4W, Gripping-tools &c
- . punching pliers—B4W, Gripping-tools &c
- . constructions of presses and press actuating mechanism of interest apart from working metals—B5F, Presses
- . cable cutting attachments for anchors and grapnels—B7V, Propelling ships &c
- . cutting glass tubes—C1M, Glass and vitreous enamels
- . positional control systems for parts of machine tools involving fluid logic and switching circuits—F1P, Fluid pressure apparatus
- . guards and protectors, and safety devices controlling or controlled by machinery, for preventing injury to persons by presses and other machines—F2J, Machinery guards &c

The exclusion references listed in this heading are not exhaustive. Reference should be made to the appropriate general heading/s for processes, materials, elements or devices which may be more widely applicable than can appropriately be classified in this heading

Relationship with the Universal Indexing Schedules (heading U1S)

In addition to recording the nature of broader processes and apparatus with or in which inventions classified here may be used, U1S is used subject to its indexing rules, to index useful products obtained (except for unspecified metal articles or sheets which are regarded as commonplace)

Operative date for Key entries

The operative date of the terms in this heading is earlier than that of Edition A

To facilitate searches for combinations of features, throughout this heading each feature is indexed for which a coded term is available, irrespective of novelty

The scheme according to which matter falling under this heading is handled comprises three Parts. Part A sets out the manner in which working and handling apparatus (other than apparatus for special work) is indexed; Part B sets out the indexing provisions of controlling-means for, and of arrangements, attachments, constructions and facilities associated with, the apparatus in Part A; Part C sets out the indexing provisions of special processes and of apparatus and processes for special work

Part A comprises three Schedules. Schedule 1 sets out the manner in which the apparatus is indexed according to its function; Schedules 2 and 3 set out the indexing terms respectively for primary power sources (actuators) and for means for transmitting the power from the source to the operative part of the apparatus. Except when using the code marks W10A, W10B, W10E, W10G, W10P and W10Q, which are referred to further below, the index of a machine or piece of apparatus in this Part is carried out in each of two ways: (a) by adding the letter "Y" to the part code mark taken from Schedule 1, and (b) by adding the appropriate part code marks from Schedules 2 and 3 to that from Schedule 1. Thus a shearing machine having a reciprocating cutter driven by an hydraulic cylinder connected to the cutter by a toggle mechanism is indexed as (a) W10 LY and (b) W10L4J. The incomplete part code marks are identified by the symbol—preceding or following the mark and indicating that a prefix or suffix is required. Where appropriate, a machine or piece of apparatus is indexed also under one or more of the six code marks W10A, W10B, W10E, W10G, W10P and W10Q referred to above. Each of these code marks is complete and does not require the addition of the suffix "Y" or part code marks from Schedules 2 and 3

PART A: Working and handling apparatus, other than apparatus for special work

Schedule 1 Indexing terms for functions

- ejectors, hold-downs, strippers and waste-removers—
- W7A— . ejectors
- W7B— . hold-downs
- W7C— . strippers
- W7D— . waste-removers
- feeds (including quincunx and like staggered feeds for metal stamping and embossing apparatus and metal sheet feeds of general and unspecified application)—
- . feeds not provided for by the subdivisions below. See Part B (other devices) (W31—)
- . turning over plates and sheets, devices for. See B3M, Rolling metals (feeding &c)
- W8A— . blanks, transferring
- . . by ejectors. See ejectors &c
- . . by gravity. See Part B (other devices) (W31D)
- . . by rotary carrier. See Part B (other devices—rotary work &c) (W53)
- . . feeding separate like articles in succession automatically from hoppers by picker arms or shoots and from conveyers, magazines, and shoots by escapement and like controlling-devices. See B8A, Conveyers &c; B8U, Dispensing discrete articles
- . . separating and feeding sheets from a pile, apparatus for. See B8R, Handling thin material
- W8B— . carrier, intermittently advanced (otherwise than by gravity)
- . . continuously advanced carrier. See Part B (other devices—feeds &c) (W31B)
- W8C— . endless track, comprising two co-operating members acting on opposite sides of the work
- W8D— . finished work, removing
- W8E— . nail-plate
- W8F— . quincunx and like staggered feeds
- W8G— . reciprocating gripper, power gripping
- W8H— . reciprocating gripper, self-engaging
- W8J— . roller, having continuously rotating coacting pairs or series of rollers
- W8K— . roller, having intermittently rotating coacting pairs or series of rollers
- W8L— . roller tables (comprising only devices having driven rollers)
- W8M— . worm or toothed roller or belt engaging recesses in work
- punching machines—
- . features not provided for by the subdivisions below. See Part B (other devices)
- W9A— . blank-punching
- . . punching and shaping blanks by a single punch or by coaxially-arranged punches See B3Q, Stamping and embossing metals
- W9B— . punches, travelling, ("flying" cutters moving at speed of work during cut)
- . . The two subdivisions from Schedules 2 and 3 completing the effective index relate to the mechanism producing the flying motion
- W9C— . roller

Part A—cont

Schedule 1—cont

shearing-machines—

- . features *not provided for by the subdivisions below. See Part B (other devices)*
- W10A . apertured-cutter, having two co-operating apertured cutters
- W10B . apertured-cutter, wherein an apertured cutter co-operates with an uninterrupted cutter
- W10C . disc-cutter, having two or more co-operating discs with circumferential cutting edges
- W10D . disc-cutter, wherein a disc cutter co-operates with a straight cutter or the end of a mandrel
- W10E . dividing by a single blade
- W10F . flying shears
- . . *The two subdivisions from Schedules 2 and 3 completing the effective index relate to the mechanism producing the flying motion*
- W10G . nipping
- W10H . orbital movement
- W10J . pivoted-cutter, with pivotal axis parallel to the cutting edge, *other than* roller-cutter
- W10K . pivoted-cutter, with pivotal axis transverse to the cutting edge, *other than* disc-cutter
- W10L . reciprocating cutter
- W10M . roller-cutter having two co-operating roller cutters
- W10N . roller-cutter, wherein a roller cutter co-operates with a straight cutter
- W10P . slot-cutting
- W10Q . stationary-cutter
- W10R . wheel-cutter tools

Schedule 2 Indexing terms for primary power sources

Electric motors and other means acting only to rotate an input shaft or to drive a pump providing fluid pressure are not indexed as primary power sources. Thus an electric motor driving a shaft carrying a cam is indexed under cam (part code mark —1—). Similarly an electric motor driving a pump to provide oil under pressure for an hydraulic motor is indexed under fluid & c (part code mark —4—). Where an actuator is unspecified the part code mark —20— is used

actuators—

- 1— . cam, *including* Geneva mechanism
- 2— . cartridge
- . . cartridge-actuated hand-supported apparatus, pistol and like locks and actions for *See* B4C, Impelling-tools & c
- 3— . crank and eccentric (*including both* the crank or eccentric itself *and* the connecting rod)
- 4— . fluid (*including* suction *and* air blast), *other than* cartridge
- . . hydraulic apparatus of interest apart from metal punching and shearing and like dividing machines.
See F1P, Fluid pressure apparatus
- 5— . hand or foot operated
- 6— . magnetic
- . . solenoid. *See* B3H, Power hammers & c
- 7— . power derived from movement of work
- 8— . screw
- 9— . spring
- 20— . unspecified

Schedule 3 Indexing terms for the means for transmitting the power from the source to the operative part of the apparatus. Where the transmission means is unspecified the part code mark—U is used

transmissions—

- A . cam, *including* Geneva mechanism
- B . chain or belt
- C . direct (*including* specified but unimproved indirect transmissions)
- D . gearing, circular
- E . gearing, non-circular
- F . linkage
- G . pawl-and-ratchet
- H . rack (*or* sector) and pinion
- J . toggle
- U . unspecified

PART B: Controlling means for, and arrangements, attachments, constructions and facilities associated with, the apparatus in Part A

- devices for adjusting relative positions of work and tools—
- W11A . gauging stops, *including* pilot pins
 - W11B . guides arranged to be positively moved to a selected position while the machine is operating
 - W11C . guides biased resiliently against work (to move substantially at right-angles to the direction of work travel)
 - W11D . guides fixed, *including* guides which are adjustable only when the machine is not operating
 - W11E . guides moving parallel to the direction of work travel
 - W11F . guides, unclassified
 - W11G . multiple gauging stops, individually selected
 - W11H . spacing racks and like bars
 - W11J . templets
 - W11K . work fixed, tool position adjusted
- devices for controlling operation of machine—
- W20A . electric switches (*including* direct bridging of contacts by the work and direct operation of electric switches by the work)
 - W20B . loop formed in work
 - W20C . mechanical switches
 - W20D . photo-electric cells
 - W20E . pre-set programme and calculating machine
 - W20F . safety devices (*including* one revolution clutches in machine drives)
 - W20G . sequence-controlled (initiation or continuation of a pre-determined cycle of operation of the apparatus dependent upon the proper conclusion of a preceding stage), *other than* safety devices *but including* stop mechanisms and pressure build-up in hydraulically operated hold-downs
 - W20H . speed-adjusting
 - W20J . stroke-adjusting, feeds
 - W20K . stroke-adjusting, presses, (*including* adjusting tool in direction of stroke)
- other devices—
- W21 . adjusting clearance between cutter blades and tilt of blade in shears
 - W22 . apparatus for performing punching and shearing and like dividing and also one or more other operations (*other than* mere attachments designed for separation from the machine)
 - W24 . attachments to machines for punching and shearing
 - . . cutting-out and stamping a blank by a single punch or by a stamping die axially movable within a blanking punch. *See* B3Q, Stamping and embossing metals
 - W25 . bending-cutters
 - W27 . combined punching and shearing or like dividing machines
 - W28 . counting (articles and cycles of operation)
 - W30 . cutter vibrated parallel to direction of cut during working stroke
 - . feeds, *other than those provided for* in Part A, Schedule 1—
 - . . by winding drums
 - . . continuously advanced carrier
 - . . conveyer
 - . . gravity
 - . . gripper carried by rotating disc
 - . . helical or spiral
 - . . wire carried forward by air current
 - . . work-rotating mechanism other than rotary work-carrier
 - W31 . framings and tables, *including* free running roller tables
 - . . stands or supports for portable machines. *See* B3B, Machine tool details
 - . . tables with driven rollers. *See* Part A, Schedule 1 (feeds—roller tables &c)(W8L—)
 - . heating work—
 - . . electrically
 - . . other than electrically
 - W36A . ingots, apparatus for manipulating
 - W36B . length-measuring devices actuated by movement of work
 - W37
 - W38

Part B—cont

- . lubricating and cooling—
- W39A . . machines
- W39B . . tools and work
- W40 . machine fed, work stationary
- . miscellaneous—
- W41X1 . . guide bush with working surface formed in situ by tool to be guided
- W42 . miss-cut devices
- W43 . portable
- W45 . punch head reciprocated laterally to punch two or more rows of holes at one traverse of the work
- . punches (*other than* trimming-punches)—
- . . drifting-cutters. *See* B3L, Planing metals &c
- . . stilettos. *See* B4B, Cutting &c
- W46A . . construction of
- W46B . . mounting on and adjusting relative to holders, single punches
- W46C . . mounting on and adjusting relative to holders, two or more punches
- W48 . relieving movement of cutter on return stroke
- W49 . retrograde movement of work prevented by independent means
- W51 . return stroke of cutter effected by independent means
- W52 . rotary tool carrier
- W53 . rotary work carrier
- W54 . scrap cutters
- . . *This subdivision comprises only devices for cutting-up webbing and trimmings produced by apparatus falling within the scope of this heading*
- . shear blades and cutters—
- W55A . . constructions of
- W55B . . mounting on and adjusting relative to holders
- . . . adjusting clearance between cutter blades and tilt of blades in shears. *See* adjusting &c (W21)
- W57 . sub-press mechanism (*including* like punch and die assemblages in which alignment is secured independently of the main press guides)
- . tool sets, types of—
- W58A . . ganged
- W58B . . progressive
- W58C . . selective
- W59 . trimming dies and punches, *including* only tools operating on previously sheared surfaces
- . . broaching-tools. *See* B3L, Planing metals &c
- . . cutting-dies encircling stamping and embossing dies. *See* B3Q, Stamping and embossing metals
- . . forging-dies which also trim. *See* B3H, Power hammers &c
- W60 . two machines on the same bed to shear four edges without rotating the work
- W61 . two machines relatively adjustable on the same bed
- W63 . two moving blades (*other than* roller and disc cutters)
- W64 . work clamped by one cutter before the other cutter operates
- W66 . work clamped round cut to prevent flow
- W67 . work holders (*other than* ejectors, hold-downs and strippers)

PART C: Special processes, and apparatus and processes for special work

special processes—

. *This subheading comprises only processes independent of the construction of the apparatus*

- . special work, for. *See* special work &c
- W70A . dividing
- W70B . perforating
- . . by combined punching and drifting or like forging operations. *See* B3H, Power hammers &c
- . . cartridge-operated tools for firing bolts, nails, spikes, and the like into structures. *See* B4C, Impelling-tools &c
- . . removing metal by arcs and other electric discharges. *See* B3V, Miscellaneous working of metals &c
- W70C . workpiece used as a tool to operate on another workpiece
- special work, apparatus and processes designed for—
- . opening cans and boxes. *See* B8D, Portable containers &c
- W71A . barbing by cutting
- W71B . bevelling by shearing
- W71C . chains
- W71D . expanded and like open-work metal
- W71E . girder and like profile-bar cutting
- W71F . nail cutting
- W71G . nibbling
- W71H . nuts and washers