

# APPENDIX—PART II.

## DICTIONARY OF WORKSHOP TERMS.

### A

**Addendum.** That part of a gear wheel tooth that extends beyond or outwards from the pitch line.

**Addendum-circle.** The circle representing the full or greatest circumference of a gear wheel.

**Adjustable reamer.** A reamer whose teeth may be adjusted to the required diameter.

**Angle-iron.** A shape of wrought iron or steel having two flanges at a right angle; thus, L.

**Angle-plate.** A plate having surfaces at a right angle, one to bolt to the machine work-table, the work being bolted to the other.

**Angle-tooth.** A gear wheel tooth that runs across the face of the wheel in a line that envelops part of the wheel circumference.

**Angular cutters.** Cutters, whose teeth are on a circumferential surface, that is, at an angle to the cutter axis, such angle not being that of 90° to either the side face nor to the axis of the cutter.

**Angular velocity.** Velocity measured in degrees of angle.

**Annular.** In the form of a ring.

**Apron.** 1. The piece that carries the tool port or clamp on an iron planing machine. 2. The front plate of a lathe carriage.

**Arbor.** 1. A mandrel used to drive work upon. 2. A spindle or shaft of a machine.

**Arc.** A portion of a circle.

**Archimedean drill**(är-kî-m-ë dē'an) A drilling device in which a nut moved endwise on a stock or handle causes the drill to revolve back and forth.

**Arc of approach.** That part in the revolution of a pair of gear wheels in which the teeth in contact approach the line of centres of the two wheels.

**Arc of recess.** That part in the revolution of a pair of gear wheels in which the teeth in contact recede from the line of centres of the two wheels.

**Arc-pitch.** The pitch of gear wheel teeth when measured around the pitch circle.

**Attachment.** A work-holding device that may be attached to a machine.

**Auger.** A wood-boring tool having two spiral plates and a pointed screw to feed it, the cutting edge being at the end of the tool.

**Axle-box.** The bearing in which an axle revolves.

### B

**Back-gear.** The toothed wheels on the spindle of a lathe and at the back of the lathe-head, by means of which the speed of the lathe is reduced.

**Back-gear lathe.** A lathe having a back gear to reduce its motion.

**Back-knife gauge-lathe.** A lathe in which the work is finished and cut to size and shape by a knife at the back of the lathe.

**Balanced pulley.** A pulley whose weight is so equally distributed that it will run steadily and smoothly at the speed for which it is balanced.

**Balanced valve.** A valve so constructed as to move with equal force in either direction.

**Ball and socket joint.** A universal joint consisting of a ball on the end of a shaft and in a casing that envelops it and yet permits it to be moved in its casing.

**Ball-cutter.** A tool for finishing metal balls.

**Ball-pene.** A spherical pene of a hammer.

**Band-saw.** A continuous ribbon of steel having saw teeth on one of its edges.

**Band-saw machine.** A machine for operating a band-saw.

**Bastard file.** A file whose teeth are one degree or grade coarser than a *second* cut file and one degree finer than a *coarse* cut file.

**Belt.** A leather band employed to drive pulleys, for transmitting motion.

**Belt-clamp.** A clamp for pulling the ends of a belt together, to lace it, while the belt is upon the pulleys.

**Belt-hook.** A hook employed to fasten the ends of belts together.

**Belt-pulley.** A wheel that drives or is driven by a belt.

**Belt-shipper.** A device for moving a belt from one pulley to another.

**Belt-tightener.** A pulley employed to cause a belt to tighten upon another pulley to enable it to transmit motion periodically instead of continuously.

**Bevel-sawing machine.** A wood-working machine in which the saw or the work-table may be set to cut a surface at other than a right angle to the face of the work that rests against the work table or the fence as the case may be.

**Bevel-square.** A square whose blade may be set to any required angle to the stock that holds it.

**Bevel-wheel, or bevel-gear.** A gear wheel with its teeth at an angle to its shaft.

**Bit.** 1. A boring tool. 2. A tool that is carried in a holder.

**Blank.** A piece of material roughly formed and ready to be formed into some definite shape.

**Blast-pipe.** 1. The pipe conveying the blast or air to a fire furnace or cupola. 2. A small pipe through which steam escapes up a locomotive chimney to increase the draught of the fires.

**Blot.** An extremely loose place in a plate or saw blade.

**Block-plane.** A short plane.

**Boiler-shell.** The outer casing of a steam-boiler.

**Bolt.** 1. A holding device having a head at one end and at the other a threaded stem to receive a nut. 2. A short piece of a round log.

**Bolt-cutter.** A machine for cutting screw threads upon bolts or similar work.

**Boring-bar.** A bar that carries boring tools.

**Boring-machine.** A machine for boring holes in metal or wood.

**Boring-mill.** A form of lathe used mainly for boring.

**Boring-tool.** A tool for cutting out and enlarging a bore or hole.

**Boss.** An enveloping piece on an axle or shaft and having upon it an arm, arms, or spokes.

**Bottoming-tap.** A tap having a full thread up to its very end so that it will cut a full thread to the bottom of a hole.

**Box-chuck.** A rectangular two-jawed chuck used by brass finishers.

**Box-tool.** A tool used in screw machines and turret heads, and which guides the work while it is being operated upon. A box tool in many cases carries more than one cutting tool.

**Box-wrench.** A wrench which fits over the head of the bolt and passes endways upon it.

**Brace.** 1. A rod, bar, or beam that braces or supports. 2. A device for revolving cutting tools.

**Bracket.** A projecting frame that is bolted to its supporting pieces or frame.

**Brad-awl.** An awl for piercing small holes in wood and having a wedge-shaped end.

**Branch-pipe.** A pipe leading out of another.

**Brass-and-brass.** A term used to denote that the two brasses or boxes of a bearing are locked together by the key, cap, or set-screw.

**Brasses.** Pieces fitted into a frame and intended to afford a bearing for a journal.

**Break-lathe or gap-lathe.** A lathe having a break or gap in the bed and beneath the face plate to let chucked work of large diameter pass.

**Broach.** A toothed tool for cutting the walls of a hole.

**Broaching-press.** A machine that forces a broach to its cut.

**Bunter-dog.** A work-gripping device for a planing machine, and consisting of a piece having a hook end to engage in the T-slot of the table, and a set-screw to bind the work.

**Butt-joint.** A riveted joint in which the ends of the plate abut fair, one against the other.

**Butt-strap.** A strip or band of iron employed to hold the joint together in a butt-joint.

**Butt-weld.** A weld in which the end of one piece merely abuts against the other when the two pieces are put together to weld.

**Butt-planer.** A wood-planing machine in which the work is fed by hand.

### C

**Calender-roll.** A roll for calendering paper.

**Caliper-gauge.** A gauge in the form of a solid caliper.

**Calipers.** A hinged tool for measuring work.

**Cam.** A revolving disc whose actuating surface is not a true circle.

**Cam-motor.** A cam together with the rod it actuates.

**Cap.** The plate or upper part of a bearing that holds the top half of the box or brasses in place.

**Cape-chisel.** A narrow machinist's chisel.

**Caps.** The backward curves on the points of file teeth.

**Cap-screw.** A screw with a collar and a square head.

**Carrier.** A device for driving lathe work.

**Case hardening.** A process of hardening the surface of wrought iron, the hardening usually extending about  $\frac{3}{8}$  inch in depth.

**Cat-head.** A sleeve fastened by set-screws to slender lathe work and running in a bearing so as to steady the work.

**Caulking-tool.** A tool used for caulking riveted joints and in making rust-joints.

**Centre-bit.** A bit having a triangular conical point with its cutting edge on one-half of the end and a spur on the other half.

**Centre-punch.** A tool having a coned point for marking the centres to work.

**Chamfer.** A facet that removes the corner of a right angle.

**Change-gears or change-wheels.** The gear wheels employed to change the revolutions of a lead screw or feed motion.

**Chaser.** A toothed tool for cutting threads by hand in a lathe.

**Check.** A crack.

**Check nut.** A second nut screwed against the first to check it from slackening back.

**Chip-break.** A piece that rests upon the work of a wood-working machine and prevents the cutter from splitting out the wood as the cut leaves the surface.

**Chipping-hammer.** A machinist's hand hammer.

**Chips.** 1. The cutting from a metal cutting machine tool. 2. The thick cuttings from a wedge-shaped wood-working tool, as from an axe or adz.

**Chisel.** A wedge-shaped tool.

**Chisel-tooth saw.** A saw having inserted teeth with a maximum of front rake.

**Chop or hammer-sink.** A mark left on a plate by a sawmaker's or plate straightener's hammer.

**Chord-pitch.** The pitch of gear wheel teeth measured in a straight line.

**Chuck.** A work-holding or tool-holding device.

**Chucked.** Held in a chuck.

**Chucking-lathe.** A lathe having a large face plate for chucking purposes, and usually a short bed.

**Chuck-plate.** A large face plate on which work may be chucked.

**Circular saw.** A saw having its teeth arranged around its circumference.

**Clamp.** A device for fastening or holding work together or to some other part.

**Clearance.** 1. The amount to which one piece clears or escapes another. 2. On a lathe tool, clearance is the amount to which the back face of the tool escapes the metal it is cutting.

**Clements driver.** A device for driving work in a lathe, and that places an equal strain on each end of the lathe dog or carrier.

**Clutch.** A device for engaging or disengaging so as to cause the motion of one piece to be communicated to another, or to stop such communication.

**Cock.** A device for opening or closing the bore of a pipe.

**Cog.** A wooden tooth for a gear wheel.

**Collapsing-taps.** A tap that is so formed that its teeth close inwards when the thread is cut so that the tap can be withdrawn without winding it backwards.

**Collar.** 1. A disc-shaped enlargement on a cylindrical piece. 2. A hollow cylindrical piece containing a set screw, to prevent a shaft from end motion.

**Collet.** A casing for holding tools or drawers in position.

**Combination-chuck.** A chuck in which the jaws may be moved simultaneously or independently.

**Comparator.** A machine for comparing measurements, for testing them and originating sub-divisions.

**Compass-callipers.** A pair of callipers having one bent leg and one leg with compass joint.

**Compasses.** A tool answering the same purpose as dividers, but with longer legs and a set screw to secure the position of the legs.

**Compass-plane.** A plane whose sole or bottom is curved in its length.

**Compound gears.** A train of gear wheels in which there are two wheels fixed on the same shaft but of different diameters so as to vary the velocity.

**Compound slide-rest.** A slide-rest having two slides, one above the other.

**Cone-bearing.** A bearing (for a journal) that contains a coned sleeve that may be moved endways to take up wear.

**Cone-mandrel.** A mandrel that holds hollow work by means of two cones.

**Cone-plate.** A device for steadying work in the lathe by supporting one end in a coned mouth.

**Cone-pulley.** A pulley having steps of different diameters.

**Cone-shaft.** The shaft for a cone-pulley.

**Cook's auger.** An auger rounded at the end for cutting end-grain wood.

**Cope-cutter.** A cutter for under-cutting the shoulder of a tenon on wood-work.

**Cope-head.** A head for a cope-cutter in a tenoning machine.

**Core.** A body of sand that produces a hole or cavity in a casting.

**Core-box.** The box in which a core is made.

**Cored.** Containing a hole or recess.





**Saw-bench.** A circular saw machine.

**Saw-gummer.** A machine for deepening the spaces between saw teeth.

**Saw-packing.** Plaited hemp that is packed on both sides of a circular saw to warm it and equalize its tension when it is running.

**Scale.** 1. A rule or measuring device having lines of division upon it. 2. Proportion of size.

**Scarf.** The bevel of a piece of metal that is to be lap welded.

**Scraper.** A hand tool that scrapes rather than cuts the metal.

**Screw-cutting lathe.** A lathe that has a screw feed with change gears to enable it to cut threads or screws upon the work.

**Screw-cutting lathe with independent feed.** A lathe that has a lead screw for cutting threads and a separate feed motion for ordinary tool traverses.

**Screwing-machine.** A machine used to cut screw threads.

**Screw-machine.** A form of lathe in which the spindle is hollow and a revolving head or turret is employed to carry the cutting tools.

**Screw-plate.** A tool for cutting external threads on small work.

**Screw-thread.** The thread upon a screw or other piece of work.

**Screw-tool.** Another name for a chaser.

**Scribing-block or surface-gauge.** A tool that carries a needle or scriber for marking on work lines denoting its finished size or the amount of metal that is to be cut off, and that is also used for setting work.

**Second-cut file.** A file whose teeth are coarser than a smooth file and finer than a bastard file.

**Sector.** A device used in connection with an index plate to denote the holes to be used in any particular division of a circle.

**Segment.** A piece having the shape of a segment of a circle, used for building up a hollow cylinder.

**Segmental saw.** A saw that is composed of parts secured to a frame or disc.

**Self-acting lathe.** A lathe having an automatic feed motion for the cutting tool.

**Set.** 1. The bend to one side of the body of the blade of the teeth of saws. 2. Adjustment or alignment. 3. Binding two pieces together.

**Set-screw.** A screw that binds or secures two pieces together by being screwed through one piece and against the other.

**Shafting-rest.** A slide rest carrying several cutting tools and usually employed for turning shafting in the lathe.

**Shake.** A crack in timber.

**Shank-mill.** A milling machine cutter that is provided with a shank or stem.

**Shaper-centres.** A chuck in which the work is held between centres.

**Shaper or shaping-machine.** 1. A machine for cutting such surfaces on iron work as can be cut by a tool travelling in a straight line. 2. A wood-working machine in which cutting tools are revolved on an upright spindle projecting above a work table.

**Shavings.** The cuttings from a paring tool.

**Shell.** 1. The body of a steam-boiler. 2. An outer casing.

**Shell-reamer.** A short reamer that is driven by fitting to a coned mandrel.

**Shimer-heads.** A form of cutter head for wood-working machines, in which circular cutters are used.

**Shingle saw.** A saw thick in the body and beveled off for about two or three inches of its outer diameter.

**Shooting-board.** A device upon which pieces are held when required to have their ends dressed to exact shape or angle.

**Shrinkage-fit or contraction-fit.** A means of securing two pieces together by leaving the hole of one too small to receive the other, and then expanding the piece containing the hole so that it will go on and bind fast as it cools and contracts.

**Side-chisel.** A machinist's chisel shaped to cut on the sides of slots or keyways, and having its cutting edge on one side of the end facet.

**Side-tool.** A tool used to cut the ends of lathe work that is held between the lathe centres.

**Single-gear lathe.** A lathe in which there is no back gear.

**Single-riveted joint.** A joint having but one row of rivets in a lap joint and one row of rivets on each side of the plate joint in a butt joint.

**Single-thread.** A screw thread having a single spiral.

**Skew-bevel.** A bevel gear wheel in which the teeth sides do not form lines radiating from the wheel centre, but point to one side of it.

**Skew-chisel.** A carpenter's chisel in which the cutting edge is not at a right angle to the body of the tool.

**Skew-cutter.** A cutter in which the cutting edge does not stand parallel to the axis of the shaft that drives it.

**Slab.** 1. A rough square piece of iron forged from scrap. 2. The first piece cut from the side of a log of wood.

**Sleeve.** An enveloping piece that is usually cylindrical and too long to be termed a ring.

**Slide-valve.** The valve that governs the admission of steam into and its exhaust out of a cylinder.

**Slot.** A rectangular passage or hole passing entirely through the material.

**Slotting-machine.** A machine having a vertical bar or ram that carries the cutting tool on its lower end and has a vertical reciprocating motion.

**Smooth-file.** The finest cut of file that is made for ordinary use.

**Smoothing-plane.** A carpenter's short plane for producing a smooth surface.

**Socket.** A piece that is hollow and receives another.

**Socket-wrench.** A wrench that envelops the whole of the head of a bolt.

**Solid milled cutters.** Cutters for wood-work, in which an irregular shaped cutting edge is obtained by recesses cut in the flat face of the cutter.

**Space or spaces.** The opening between the teeth of gear wheels.

**Spanner.** A form of wrench.

**Spindle.** A shaft that is used to transmit purely rotary motion, and that is usually of small diameter in proportion to its length.

**Spiral cutter.** A milling cutter having its teeth cut spirally and not parallel to the axis of its bore.

**Spiral head.** A device for holding work and revolving it in a milling machine.

**Spirit-level.** An instrument in which an air-space or bubble is utilized to disclose whether the surface upon which the spirit level is laid is horizontal.

**Spine.** A long feather-rod.

**Split-pin.** A pin that is split so that its end can be opened out to prevent its coming out of place.

**Spoke.** The arm that connects the hub of a wheel to its rim or felloe.

**Spoon-bit.** A wood-boring tool that is shaped somewhat like a gouge.

**Spring.** 1. A piece of elastic metal. 2. The movement or deflection of a piece of metal on a tool, by its own weight or from the strain placed on it.

**Spring-tool.** A tool so formed as to have a slight give or spring to it.

**Spur.** A sharp cutting edge placed on some kind of wood-cutting tools to sever the fibre before the cutting edge removes the wood cuttings.

**Spur-wheel.** A gear-wheel having its teeth upon its circumferential surface.

**Square-centre.** A lathe centre having four cutting edges at its coned end.

**Square thread.** A screw-thread that is rectangular in cross-section.

**Stanchion (stán'shun).** A vertical frame.

**Standard.** An upright piece.

**Standing-bolt.** A bolt that screws into the work, and does not therefore require a nut.

**Stave.** 1. A piece that forms part of a hollow wooden casing. 2. A pin on a gear-wheel that has pins instead of teeth.

**Steady-rest or back-rest.** A device for steadying work in the lathe.

**Steam-boiler.** A boiler used to generate steam and hold it at a pressure above that of the atmosphere.

**Steam-hammer.** A forging machine in which the hammer is raised or lifted by steam, and is sometimes also forced downwards by steam.

**Steam-space.** That part of the boiler that is above the level of the water.

**Sticker.** A machine that operates on wood of small cross-sectional area in proportion to its length, such as picture frame moulding.

**Stock.** Material.

**Stocks-and-dies.** Tools for cutting external threads by hand.

**Stop.** 1. A piece that arrests the motion of another piece. 2. A part of a gauge, against which the work abuts.

**Stop-motion.** A device for preventing the overwinding of clocks and watches.

**Straddle-mills.** Milling-machine cutters that are used in pairs and straddle the work, both cutters being of the same diameter.

**Straight edge.** A piece or strip having one or both edges made straight to use as a guide in testing work.

**Stub end.** The end of a connecting rod.

**Stud.** 1. A bolt that screws into the work at one end and receives a nut at the other. 2. A piece that screws into the work at one end.

**Stuffing-box.** The box in which a gland fits.

**Surface-plate.** A plate having a true flat surface to test the flatness of work by.

**Swage.** A blacksmith's tool for smoothing and shaping surfaces.

**Swing-frame.** A frame having a movable stud for carrying the change gears of a lathe.

**Swing-saw.** A saw that is suspended in a swinging frame.

**Swivel-vise.** A vise that may be swiveled or revolved upon its base plate.

## T

**T or tee.** A pipe fitting having two bores at a right angle, one to the other.

**Tailstock or tailblock.** That part of a lathe that carries the dead centre.

**Tangent-wheel.** A wheel whose teeth are formed to work with a screw or worm.

**Tap.** 1. A tool for cutting threads in holes or bores. 2. A device for shutting off or turning on the flow of water through a pipe.

**Taper-tap.** A tap that has part of the thread turned off in order that it may enter the hole easily and start to cut the thread. It is sometimes termed the first tap.

**Tapped.** 1. Threaded internally. 2. Having a connection that branches from the main pipe or flow.

**Target.** A frame used in setting shafting in line.

**Temper.** 1. The degree of hardness that has been imparted to steel by heating and suddenly cooling it. 2. A term employed by steel makers with reference to the percentage of carbon contained in steel.

**Tempering.** Tempering consists in reheating hardened steel and thus modifying or reducing its degree of hardness.

**Template or Templet.** A piece of metal made to shape, to serve as a pattern for one or more of the work surfaces.

**Thread-gauge.** A threaded cylinder or bore that serves as a standard of reference for the shape and diameter of a screw thread.

**Threading-tool.** A tool for cutting screws in the lathe.

**Throw-line.** The travel of a piece, moved by an eccentric.

**Thumb-nut.** A nut so shaped that it may be screwed up or unscrewed by hand.

**Tight.** A term used to denote those parts of a plate or saw that are under undue tension, and prevent the other parts of the plate from lying flat.

**Timber-planer.** A wood-planing machine for thick work, usually having side heads as well as cutter bars.

**Tire.** The iron band surrounding a wheel rim.

**Tit-drill.** A drill having a point or teat, and employed to cut flat-bottomed holes.

**Tool-post.** The device employed in a slide-rest to grip the cutting tool.

**Train.** An arrangement of gear wheels in which there are more than two gear wheels employed.

**Trammels or tram.** A device for measuring distances too great to be measured by ordinary compasses.

**Trip-hammer.** A forging machine in which the helve or hammer holding beam is tripped by a revolving cam.

**Tundle.** A gear-wheel having rungs in place of teeth.

**Trying-up.** A term usually employed to indicate that the work is accurately done or fitted.

**Try-square.** A tool having a rectangular back, and a blade whose edges are a right angle to the edges of the back.

**T Slot.** A slot or groove, shaped to receive a bolt head and prevent it from turning when the nut is screwed up.

**Turnbuckle.** A socket that receives and holds the ends of two rods and permits either to be revolved independently of the other or the socket to be revolved without revolving either rod.

**Turret-lathe.** A lathe in which a revolving head or turret carries the cutting tools.

**Tuyere (twé'ar).** The nozzle through which air is forced into a blacksmith's fire, a furnace or a cupola.

**Twin-mills.** Milling cutters that are used in pairs, and have teeth on their side faces as well as upon the circumference.

**Twist-drill.** A drill having a spiral flute along it.

**Twist-hammer.** A sawmaker's hammer having its two faces parallel, so that by turning it over in the hand its marks will be in opposite directions.

**Two-jawed chuck.** A chuck having two jaws.

## U

**Universal chuck.** A chuck in which the jaws move simultaneously.

**Universal joint.** A joint or connection that permits a piece to be moved about in any required direction.

**Universal milling-machine.** A milling-machine that is capable of cutting spirals, and is provided with an index head.

**Upright.** A vertical post or frame.

**U. S. standard thread.** A V-shaped thread having a flat place at the top and bottom.

## V

**Verneer (vër'ni-er).** A measuring device in which two sets of lines of division are employed, one set being narrower spaced than the other, but so spaced that in a certain number of divisions the two end lines of each piece measure exactly alike: this provides a means of making a minute measurement.

**Vise.** A work-holding device in which one jaw is movable and the other stationary.

**Vise-clamp.** A piece of metal placed on the vise jaw and passing between it and the work to prevent the jaw teeth from indenting the work.

**V-thread.** A V-shaped thread, sharp at the top and bottom.

## W

**Warding file.** A thin file suitable for filing out the wards of the keys of door locks, etc.

**Washer.** A perforated disc of metal, usually forming a seating for some other piece as a rest or a pin.

**Wheel lathe.** A lathe for turning wheels.

**Whitworth's quick-return motion.** A mechanism employed to move a cutting tool faster on its return than on its cutting stroke.

**Whitworth's thread.** A screw thread designed by Sir Joseph Whitworth, and having a rounded top and bottom.

**Winding strips.** A pair of straight edges, used to detect any wind or twist in surfaces that ought to be parallel.

**Wing-nut.** A nut having wings so that it may be screwed up with the fingers.

**Wire-gauge.** A gauge having notches in it that are standards of size for wire, for the thickness of sheet metal, for screws, etc., etc.

**Worm-wheel.** A wheel whose teeth are formed to work with a worm or screw.

**Wrench.** A tool for turning nuts, etc.

## Y

**Yoke.** A piece that embraces two other pieces to hold them together, or adjust their distance apart.