



# Standard Terminology of Collated and Cohered Fasteners and Their Application Tools<sup>1</sup>

This standard is issued under the fixed designation F592; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## INTRODUCTION

The terms included in these definitions are listed in alphabetical order to facilitate quick reference. They are intended to apply to collated and cohered nails, staples, and pins driven by strike, pneumatic, electric, manual, and spring tools. Omitted from consideration are terms relating to the testing and the performance of fasteners, that is, their drivability, withdrawal resistance, pull-through resistance, lateral load transmission, creep, protrusion resistance, splitting, and methods of use, such as face, toe, side, and end-nailing, spacing, loading conditions, etc. Reference is made to ASTM Terminology F547, Terminology of Nails for Use with Wood and Wood-Base Materials,<sup>2</sup> for terms that are applicable to related fasteners that may or may not be collated or cohered.

Common acceptance and usage are the basis for most of the definitions listed. In some instances, this common usage results in more than one definition for a given term. In other cases, registered trademarks have become generic in nature; hence, are included among the terms listed.

Any such listing cannot be complete. As additional terms are referred to the Society's attention, they will be considered for inclusion in this standard.

This listing of definitions of terms is in agreement so far as feasible with and supplementary to Terminology F547.

The definitions are listed under the following headings:

- Collated and Cohered Fasteners
- Tools for Driving Collated and Cohered Fasteners

<sup>1</sup> These definitions are under the jurisdiction of ASTM Committee F16 on Fasteners and are the direct responsibility of Subcommittee F16.05 on Driven and Other Fasteners.

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

## COLLATED AND COHERED FASTENERS

**bevel point**—point sheared obliquely to staple-leg axis, with beveled face across staple-leg end; used to produce an outward clinch or to provide additional penetration, or both, in thin stapling member (see Fig. 1(A)).

**blind clinch**—clinch between the layers of corrugated boards, usually buried with wide-crown retractable anvil tools.

**bookbinder's wire**—wire used in stitchers to fasten paper; measured according to AWG sizes.

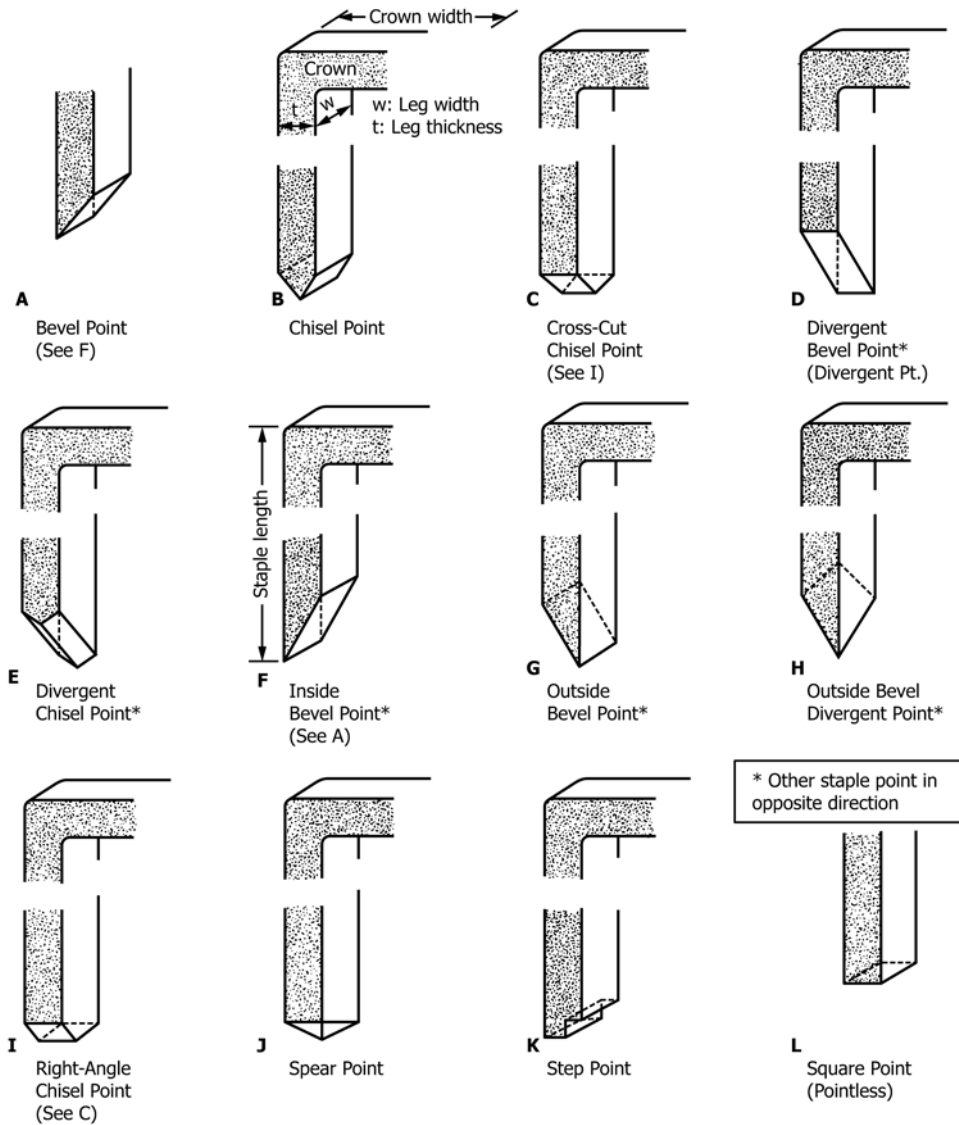
**box stay wire**—wire used in stitchers for assembly of containers; with dimensions measured in thousandths of inches.

**breakaway staple**—staple with its crown designed to break off if removal is attempted; used to discourage pilfering and shop-lifting.

**by-pass clinch**—clinch with legs paralleling and adjacent to each other.

**calendar staple**—staple formed to provide a hanger for use with calendars or booklets.

**chisel point**—point with two symmetrically beveled planes forming “V” at end of staple leg, resulting in straight penetration (see Fig. 1(B)). (See **cross-cut chisel point**.)



NOTE 1—Staple chisel point has two faces, forming rectangular cross section; whereas nail chisel point (except collated T-nail chisel point and collated round-head nail chisel point) has six faces, forming hexagonal cross section, that is, two major planes forming a “V” and pair of minor planes on each flank (see ASTM Definitions F547).

FIG. 1 Various Types of Staple Points

**clinch**—protruding point end turned over or flattened when driven or driven against clinching plate.

**clinch point**—point designed to facilitate clinching when driven against clinching plate. (See **step point**.)

**clip**—See **strip**.

**clipped head**—misnomer for D head. (See **notched head**.)

**coated fastener**—a fastener with appropriate material applied to its surface to increase the fastener-withdrawal resistance.

**cohered**—assembled in strip, coil, or other predetermined form as defined in Terminology F547.

**coiled**—assembled in coil form.

**collated**—assembled in strip or other predetermined form.

**cross-cut chisel point**—chisel point with beveled point faces parallel to staple-crown axis (see Fig. 1(C)). (See **right-angle chisel point**.)

**crown**—staple end opposite staple point, connecting both staple legs and providing bearing area.

**crown width**—overall width of staple including both staple legs.

**D head**—nail head with semi-circular rim and head segment omitted during heading, with omitted segment reaching from rim to shank projection, to allow tight collating of nails in strip form.

**divergent point**—See **divergent bevel point**.

**divergent bevel point**—points sheared obliquely to staple-leg axis, with beveled face in opposite direction on each leg, across thick leg side leading from lower to upper thick face; designed to lead staple legs into opposite directions perpendicular to staple plane during driving (see Fig. 1(D)).

**divergent chisel point**—chisel point with beveled point faces at angle to staple crown in plane perpendicular to staple crown axis; designed to lead staple legs into opposite directions perpendicular to staple plane during driving (see Fig. 1(E)).

**flat clinch**—clinch formed by folding staple legs parallel to crown with movable clincher.

**flared**—staple legs spread into outward opposite directions 90° with crown plane.

**flat crown**—straight staple crown in contrast to rounded, formed, or offset staple crown.

**formed crown**—staple crown formed during driving, for example, for carding or fastening wire.

**high crown**—staple crown with inverted “V” wire cross-section prior to staple driving; designed to provide rigidity during driving and flattened when fully driven. (see “V” Crown.)

**hog ring, hog-ring staple**—open-ended, rounded, ring, or rectangular “U”-formed staple; used for encircling applications, that is, for attaching materials to rounded or rectangular base material by closing or wrapping hog ring around base material.

**hybar wire**—flat wire normally used in box stitching. Specifically:

Gage No.	Cross-Sectional Dimensions, in. (mm)
000	0.060 by 0.017 (1.52 by 0.43)
00	0.060 by 0.018 (1.52 by 0.46)
0	0.060 by 0.019 (1.52 by 0.48)
1	0.060 by 0.020 (1.52 by 0.51)
2	0.060 by 0.024 (1.52 by 0.61)
3	0.060 by 0.028 (1.52 by 0.71)

**incomplete head**—nail head with semi-circular rim and portion of head omitted during heading, to allow tight collating of nails in strip form. (See **D head, notched head.**)

**in-line clinch**—flat clinch with both staple legs in straight alignment.

**inside bevel point**—bevel point with its beveled face on staple inside; used to produce an outward clinch or to provide additional penetration in the base material, or both (see Fig. 1(F)).

**leg**—staple part connecting staple crown with staple point; driven through and into or through materials being fastened.

**leg thickness**—maximum dimension of staple-leg cross section measured parallel to staple-crown axis.

**leg width**—maximum dimension of staple-leg cross section measured perpendicular to staple-crown axis.

**lock stitch**—a double stitch used at beginning and end of manufacturer’s seam on corrugated boxes.

**manufacturer’s seam**—joint produced by corrugated box manufacturer during container fabrication.

**medium crown**—staple crown usually larger than  $\frac{5}{16}$  in. (8 mm) and up to and including  $\frac{11}{16}$  in. (17 mm) in width.

**narrow crown**—staple crown usually  $\frac{5}{16}$  in. (8 mm) in width or smaller.

**notched head**—nail head with semi-circular rim and “V”-notch, having rounded “V” corners, wide notch part at rim, and narrow notch part at nail-shank projection, formed during heading, to allow tight collating of nails in strip form.

**outside bevel point**—bevel point with its beveled face on staple outside (see Fig. 1(G)).

**outside bevel divergent point**—staple point with two-plane beveled face on staple outside and along thick leg side; designed to lead staple legs into opposite directions and to result at the same time in their crossing during driving (see Fig. 1(H)).

**outward clinch**—clinch with both staple legs flared outwardly during driving.

**partially preformed**—not fully formed prior to driving.

**preformed**—formed prior to driving.

**rack**—longitudinal offset between adjacent fasteners within strip of collated fasteners.

**racked fastener**—fastener offset in strip.

**ribbon wire**—box stay wire of nominal 0.103 in. (2.62 mm) in width.

**right-angle chisel point**—chisel point with beveled point faces parallel to staple-crown axis (see Fig. 1(I)). (See **cross-cut chisel point.**)

**rolled clinch**—clinch formed by solid clincher against which staple point is driven; obtained normally with desk stapler.

**round or rounded crown**—curved staple crown used in wiring, carding, and encircling operations; also, in spring-up applications in furniture manufacturing.

**saddle stapling**—pamphlet or book stapling on a “V”-shaped table, which permits placement of staple in center fold.

**saddle stitching**—Similar to saddle stapling; however, accomplished with wire stitcher.

**spear point**—symmetrical point with four bevel faces meeting at point center (see Fig. 1(J)).

**spring-clip staple**—staple for fastening flat metal clip holding undulated upholstery spring. Also, staple used to attach coiled springs to frame in bedding manufacture where staple serves as clip.

**spring crown**—hip crown; designed to flatten during driving in order to provide optimum lateral guidance in driving channel of stapler. (See **high crown**; “**V**” **crown**.)

**square point**—point sheared perpendicular to staple-leg axis to form a pointless staple-leg end; known as blunt point (see Fig. 1(K)).

**standard staple**—staple with nominal ½ in. (13 mm)-wide crown, ¼ in. (6 mm)-long legs, made of 0.019 in. (0.48 mm) wire, commonly used in desk-type staplers.

**staple**—“U”-shaped wire fastener usually with two same-size pointed or pointless legs connected by crown located opposite staple-point ends; designed to be driven by strike, pneumatic, electric, manual or spring tools through or through and into layers of penetrable material and to hold two or more pieces together.

**staple length**—distance from top of staple crown to tip of staple point (see Fig. 1(F)). Also referred to as leg length. In contrast, length of bulk staple, driven by hand-hammer, is measured from bottom of staple crown to tip of staple point.

*staple point*—See **bevel point**, **chisel point**, **clinch point**, **cross-cut chisel point**, **divergent point**, **inside bevel point**, **outside bevel point**, **outside bevel divergent point**, **right-angle chisel point**, **spear point**, **step point**.

**staple spacing**—dimension used to describe the relative location of staple or staples in workpiece; often, the dimension to center or center-to-center of staple.

**step point**—notched point with step faces perpendicular to staple crown; designed to facilitate self-clinching of staple legs when driven against clinching plate (see Fig. 1(L)).

*stick*—See **strip**.

**stitch**—staple cut and formed from wire immediately prior to driving by same machine.

**strip**—staples, nails, or pins collated and cohered to facilitate automatic driving with appropriate tool.

*tie stitch*—See **lock stitch**.

**tube terminal staple**—staple designed for use as a wiring terminal in electronic assembly.

**undulated staple**—staple with curves in crown for better driving stability.

“**V**”-**crown**—staple crown with inverted “V” cross section on staple; used in spring-up work in furniture and bedding.

**wide crown**—staple crown usually larger than 1¼ in. (17 mm) in width.

## **TOOLS FOR DRIVING COLLATED AND COHERED FASTENERS**

**anvil**—tool arm against which staple legs are driven to form clinch.

**arm**—cantilever part of tool to hold the clinching mechanism, permitting placement of fastener away from edges of the work.

**automatic trip**—machine-activated tool mechanism providing continuous cycling while trip is in contact with the work.

**blade clincher**—thin clinching arm; usually designed for insertion between layers of corrugated boards.

**bottom trip**—tool activation by tool nose touching the work, while at the same time activating trigger trip.

**button clincher**—circular clincher.

“**C**” **blade**—blade clincher resembling the letter “C”; designed to fasten partially overlapping container panels.

**clincher**—part of tool that folds fastener legs to form clinch.

**clinching plate**—(See **anvil**.) Also, hardened flat metal plate; used in clinching nails and staples designed for clinching.

**coil-fed tool**—tool utilizing a coil of collated fasteners or a coil or wire.

*contact trip*—See **bottom trip**.

*core*—See **rail**.

**door**—combination nose and closure for nose-loading stapler.

**driver**—tool component that pushes fastener from the driving chamber of the tool into the members being assembled.

*feeder shoe*—See **pusher**.

*follower*—See **pusher**.

**forked blade clincher**—special clincher (anvil) for hooking plastic bags to facilitate placement of encircling staple.

**grooved guide body**—formed guiding device used for placing staple over work as in carding or wiring.

**guide body**—tool component that aligns and supports staple during driving.

**lip**—overhang of tool nose when magazine rests flush with work surface.

**long magazine**—magazine providing space for more than regular capacity of a particular tool style.

**magazine**—mechanism for storing and feeding fasteners.

**mattress blade**—special clinching blade for fastening sisal pads in bedding plants, permitting stapling inside edging wire.

**movable by-pass clincher**—clinching mechanism for forming a by-pass clinch.

**movable in-line clincher**—clinching mechanism for forming an in-line clinch.

**nose**—guide-body area where fastener is driven from tool.

*nose extension*—See **lip**.

*overhang*—See **lip**.

**plier**—portable stapler with attached clincher for placing staples away from edges of work.

*pointed blade*—See **pointed clincher**.

**pointed clincher**—blade clincher with sharp point to facilitate piercing of corrugated board.



**post**—post holding clincher to facilitate assembly of container bottoms.

**pusher**—tool mechanism for forcing fastener into driving channel.

**rail**—magazine component required for alignment of fastener and directing it into driving channel.

**remote fire tool**—remotely controlled tool.

**retractable anvil**—curved clincher used in stapling from outside of container.

**safety mechanism**—a device intended to prevent accidental actuation of tool.

*sealing blade*—See **blade clincher**.

**sidestrike**—activation of stapling head resulting from forcing container resting on table against head.

*sisal plier*—See **plier; mattress blade**.

**slanted magazine**—a magazine attached at an angle to tool; used for storing clips of slanted nails or staples.

**solid clincher**—non-moving clincher.

*stick-fed tool*—See **strip-fed tool**.

**strike tacker**—stapler activated by striking it with hand or mallet.

**stitcher**—machine that cuts, forms, and drives wire stitches.

*stitching wire*—See **box stay wire**.

**strip-fed tool**—tool using staples or nails that are collated and cohered in strip form.

**supporter**—cam mechanism, especially spring-loaded; designed to provide crown and lateral guidance for staple in driving channel of stapler.

*sword-point anvil*— See **pointed clincher**.

**tacker**—electric, manual, or pneumatic tool for driving light-wire staples without clinching.

**throat depth**—distance at which a tool may place fastener from edge of the work.

**tool**—machine for driving fasteners.

*touch trip*—See **bottom trip**.

*track*—See **rail**.

**trigger trip**—tool activation by trigger operation in conjunction with bottom trip activation.

**walking stick**—long arm attached to tool allowing operator to use it without bending over.

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