

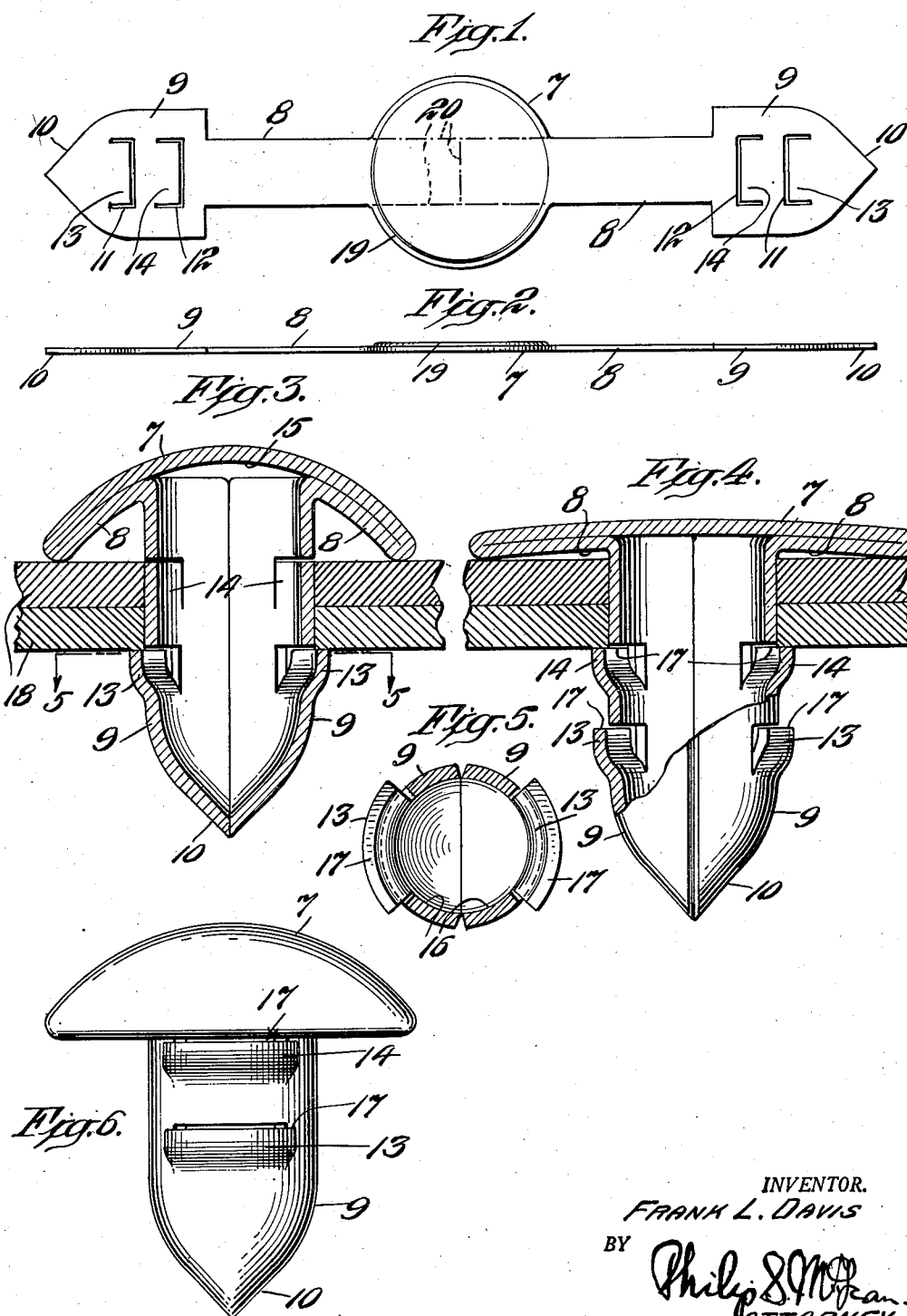
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F. L. DAVIS

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DRIVE FASTENER

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INVENTOR.
FRANK L. DAVIS
BY *Philip S. [Signature]*
ATTORNEY

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DRIVE FASTENER

Frank L. Davis, College Point, N. Y.

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5 Claims. (Cl. 85-5)

The invention herein disclosed relates to drive fastenings.

Particular objects of the invention are to provide a fastener of light, inexpensive construction which will be rigid for driving purposes and which will have spring qualities for yieldingly gripping and holding it and any parts that it fastens in place.

Other objects of the invention are to provide a fastener having the qualities mentioned, which may be produced rapidly in automatic machines from sheet metal stock.

Other desirable objects and the novel features by which the purposes of the invention are attained are set forth or will appear in the course of the following specification.

The drawing accompanying and forming part of the specification illustrates a present practical embodiment of the invention. Structure, however, may be modified and changed in certain respects, all within the true intent and broad scope of the invention as hereinafter defined and claimed.

Figs. 1 and 2 in the drawing are plan and edge views, respectively, of a sheet metal blank from which the fastener is made;

Figs. 3 and 4 are broken sectional views of the completed fastener showing it, respectively, in preliminary and final drive positions;

Fig. 5 is a cross sectional view as on substantially the plane of line 5-5 of Fig. 3;

Fig. 6 is a side view of the fastener.

One of the important special features of the invention is the making of the fastener of sheet metal strip stock and the shaping and forming of that stock to provide rigidity desirable for driving the shank of the fastener and yielding spring qualities for effecting the final firm engagement and holding of the fastener.

The blank, as shown in Figs. 1 and 2, may be cut from flat strip stock with a circular enlargement 7 at the center to form a head, narrow strap portions 8 connected with opposite edges of the head portion and wider end portions 9 connected with such straps. The wider end portions are shown as pointed at 10 and as each having U-shaped cuts 11, 12, spaced longitudinally to provide the partly severed ratchet tongue portions 13, 14.

In forming up the blank the head portion 7 is arched upwardly, as indicated at 15 in Fig. 3, the narrow connecting portions 8 are bent up into the arch, the wider end portions 9 are oppositely concaved in cross section, as indicated at 16 in Fig. 5, and the portions 13, 14 are struck

outwardly to form outwardly inclined ratchet teeth having abrupt arcuate gripping edges 17.

The bending of the connecting portions 8 upwardly into the arch locates the end of the hollow shank substantially in abutment with the under surface of the head 7 so that the fastener can be readily driven, as indicated in Fig. 3.

In driving through hard material such as the layers represented at 18, Fig. 3, the spring ratchet teeth will be forced inwardly and then spring back outwardly as they pass through or are released by surrounding material.

Fig. 3 shows the first set of spring grips 13 as having passed through the two layers of material and the second set of spring grips 14 as being still confined and held in the bore in the material. At this preliminary stage of driving, the rim of the crowned cap or head may engage the outer surface of the material to yieldingly retain the fastener in the partially driven or preliminary locating and holding position. The final blow or blows may then be applied to flatten down the arch of the head and to project the hollow stud further through the material to a point where the second set of ratchet teeth will be released and expand outwardly into gripping engagement with the inner surface of the material, as in Fig. 4. In this final position the arch of the spring head need not be fully flattened down and so be left in a sufficiently arched condition to apply tensioning pull to the holding shank or stud portion of the fastener.

The fastener may be struck out and formed up in automatic machines from sheet metal or other strip stock. The rounding of the shank portions and bringing them together into substantially abutting edge-to-edge relation provides a stiff, strong, rigid shank for driving purposes enabling this fastener to be used for heavy securing and holding purposes even though it is relatively light in weight.

The different sets of holding teeth may be spaced longitudinally apart on the shank a distance substantially equal to the height of the arch in the spring head, so that after one set of teeth have taken hold a further blow will suffice to bring the head to substantially flattened condition.

The circular head portion of the blank may be embossed or crimped as indicated at 19, Fig. 1, to give the head a more or less rounded edge when it is bowed or arched as in Fig. 3. If desired, the head may be weakened as by scoring, indenting or partly cutting it along the broken lines indicated at 20 in Fig. 1, so as to enable

breaking apart of the two side portions when necessary to remove the fastener.

What is claimed is:

1. A spring holding drive fastener comprising a strip of spring sheet metal having an intermediate arched head portion, narrow portions connected with opposite edges of said head portion and bent inwardly beneath the same and wider pointed end portions connected with said narrow portions, said wider end portions being oppositely concaved in cross section and brought together into substantially parallel edge-to-edge relation forming a substantially rigid, hollow, pointed, cylindrical drive shank and integral spring ratchet lugs partially severed and struck outwardly from said hollow shank forming portions.

2. A spring holding drive fastener comprising a strip of spring sheet metal having an intermediate arched head portion, narrow portions connected with opposite edges of said head portion and bent inwardly beneath the same and wider pointed end portions connected with said narrow portions, said wider end portions being oppositely concaved in cross section and brought together into substantially parallel edge-to-edge relation forming a substantially rigid, hollow, pointed, cylindrical drive shank and integral spring ratchet lugs partially severed and struck outwardly from said hollow shank forming portions, the narrow connecting portions being bent upwardly into the arch of the head portion to locate the inner end of the tubular shank in substantially abutting engagement with the arch of the head portion.

3. A spring holding drive fastener comprising a strip of spring sheet metal having an intermediate arched head portion, narrow portions connected with opposite edges of said head portion and bent inwardly beneath the same and

wider pointed end portions connected with said narrow portions, said wider end portions being oppositely concaved in cross section and brought together into substantially parallel edge-to-edge relation forming a substantially rigid, hollow, pointed, cylindrical drive shank and integral spring ratchet lugs partially severed and struck outwardly from said hollow shank forming portions, said out-struck spring ratchet lugs being spaced longitudinally of the hollow drive shank a distance approximately equal to the arch of the arched spring head portion.

4. A drive fastener having an arched spring head and a rigid shank provided with spurs to grip material through which the fastener is driven and composed of a single strip of sheet metal having an intermediate arched head portion, connecting portions doubled up under the arch of said head portion and reversely concave hollow stem portions in rigidly abutting edge-to-edge relation and said hollow stem portions having radially out-struck yielding ratchet teeth spaced longitudinally of the shank approximately the distance of the spring of the arched head.

5. A drive fastener having an arched spring head and a rigid shank provided with spurs to grip material through which the fastener is driven and composed of a single strip of sheet metal having an intermediate arched head portion, connecting portions doubled up under the arch of said head portion and reversely concave hollow stem portions in rigidly abutting edge-to-edge relation and said hollow stem portions having radially out-struck yielding ratchet teeth spaced longitudinally of the shank approximately the distance of the spring of the arched head and said arched head being weakened to facilitate breaking apart of the same for effecting removal of the fastener.

FRANK L. DAVIS.