No. 620,449. Patented Feb. 28, 1899.

S. H. HART.

HAND TOOL FOR FORMING STUD SPIRALS.

(Application filed Aug. 2, 1898.)

(No Model.)

Fig. 1.

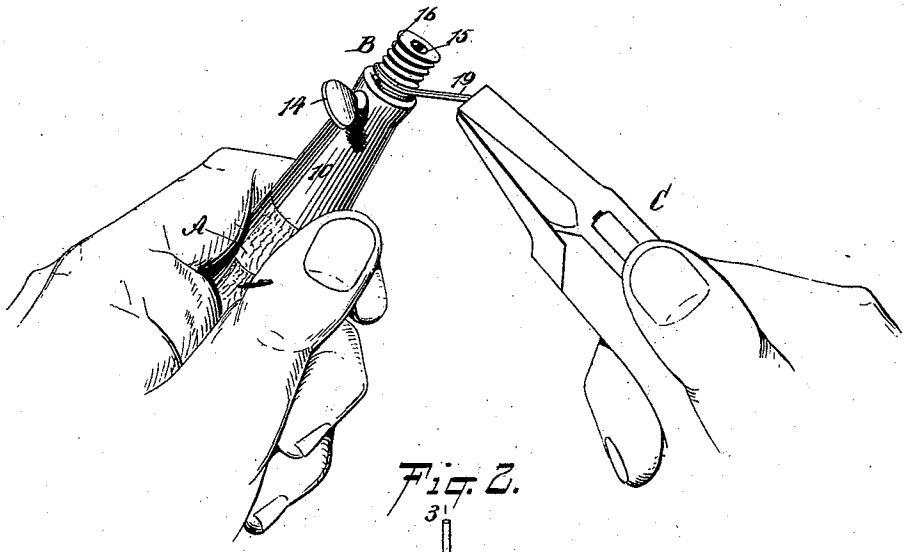


Fig. 2.

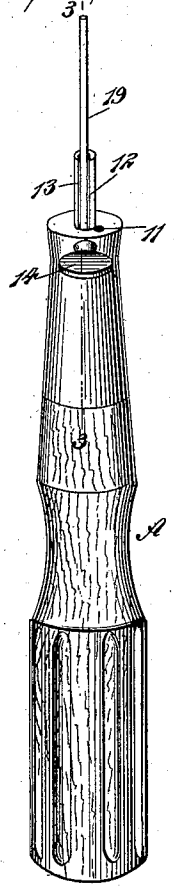


Fig. 3.

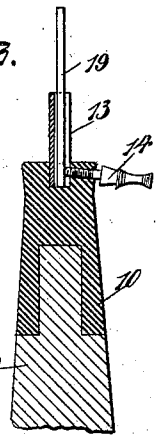


Fig. 4.

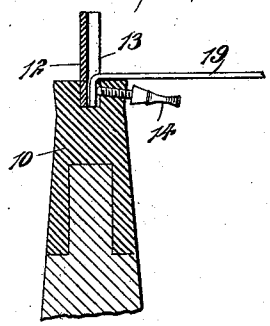


Fig. 8.

Fig. 5.

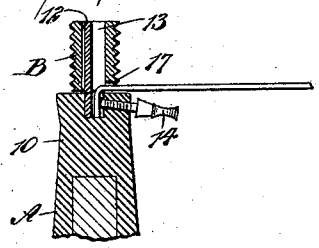


Fig. 6.

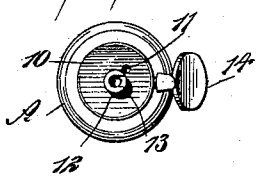
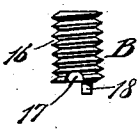


Fig. 7.



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UNITED STATES PATENT OFFICE.

SIDNEY H. HART, OF HOUSTON, TEXAS.

HAND-TOOL FOR FORMING STUD-SPIRALS.

SPECIFICATION forming part of Letters Patent No. 620,449, dated February 28, 1899.

Application filed August 2, 1898. Serial No. 687,523. (No model.)

To all whom it may concern:

Be it known that I, SIDNEY H. HART, of Houston, in the county of Harris and State of Texas, have invented a new and Improved Hand-Tool for Forming Stud-Spirals, of which the following is a full, clear, and exact description.

One object of my invention is to provide a hand-tool especially adapted for forming stud-spirals made from wire round, oval, or elliptical in cross-section.

A further object of the invention is to provide a tool of this description which will be exceedingly simple, durable, and economic, and upon which stud-spirals of any desired size may be expeditiously, conveniently, and accurately formed.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a perspective view of the improved tool, the said figure illustrating also the manner in which the tool is used. Fig. 2 is a perspective view of the tool, the wire being shown in the first position therein. Fig. 3 is a longitudinal section taken on the line 3 3 of Fig. 2, the wire being in the same position as shown in Fig. 2. Fig. 4 is a section similar to that shown in Fig. 3, illustrating the wire as carried to its second position or the position it is made to assume before the shaping-head is placed in position. Fig. 5 is a longitudinal section through a portion of the tool and likewise through the shaping-head, which is shown in position on the tool. Fig. 6 is a plan view of the tool, the shaping-head being removed. Fig. 7 is a side elevation of the improved shaping-head, and Fig. 8 is a side elevation of a spiral formed upon the said tool.

A represents a handle which may be of any desired character; but the handle is usually provided with a strong ferrule 10 at its upper or outer end, and in the top or outer face of this ferrule, at one side of the center, an aperture 11 is made, and a tube 12 is introduced into and secured to the said ferrule at its center, the tube being provided with a longitudinal groove 13, which groove extends from top to bottom, as shown in Fig. 3. A set-screw 14 is introduced into one side of the ferrule 10, the inner end of the set-screw being adapted to enter the slot 13 in the tube 12 at a point within the ferrule, as is shown in Figs. 3, 4, and 5.

A shaping-head B is employed in connection with the tool. This shaping-head may be of any desired diameter, and a number of shaping-heads of different diameters may be used in connection with the same tool. The shaping-head is best shown in Fig. 7 and is of cylindrical form, being provided with a bore 15, extending through from end to end, of sufficient size to receive the tube 12, and the exterior surface of the shaping-head is provided with a thread 16. In the bottom of the shaping-head a recess 17 is made, which extends to the bore 15, and preferably adjacent to this recess a pin 18 is located upon the bottom of the shaping-head. The pin 18 when the shaping-head is placed over or upon the tube 12 is adapted to enter the opening 11 in the ferrule, and according to the diameter of the shaping-head the pin 18 is placed nearer to or farther from the bore.

The wire 19, from which the spiral is to be formed, is slid into the ferrule through the tube 12, and the lower or inner end of the wire is held fast in the ferrule by the set-screw 14, as shown in Fig. 3. After the wire has been secured within the ferrule it is bent at a right angle to the upper face of the ferrule and to an engagement with the said upper face, as shown in Fig. 4. A shaping-head B, of desired size, is then slipped over the tube 12, and the pin is made to enter the opening 11, which will bring the recess 17 over the wire 19 at the ferrule, as illustrated in Fig. 5. The handle of the tool is then grasped by one hand, and the outer end of the wire is held by a pair of pliers C or a like device, and the handle is turned in a manner to cause the wire on the shaping-head, as shown in Fig. 1, to be turned around the head until the desired number of coils has been obtained, at which time the wire is cut, the set-screw 14 is loosened, and the shaping-head is removed from the tool, whereupon the completed spiral may be unscrewed from the head.

It should be explained that as the spirals are usually formed of spring-wire when a spiral has been completed on the tool its release will be facilitated by the expansion of the formed spiral, which increases in diameter, due to resilience of the material, after tensional strain is removed from it, so that the coils of the spiral will leave the thread of the shaping-head B and be readily removed from the implement.

The spiral in its completed form, as shown in Fig. 8, is designated as D, and the straight end *d* of the spiral, that was held by the set-screw 14, is that end to which the stud is to be secured.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A tool for forming spirals, comprising a handle, a guide fixed to the handle, a clamp for holding a wire, and a shaping-head through which the guide is designed to pass, the said head having a recess in its under face for the outward passage of the wire, substantially as described.

2. A hand-tool for forming stud-spirals, consisting of a handle, a guide for the wire, a clamping device for the wire entering the said guide, a shaping-head for the wire, and means substantially as described, for holding the shaping-head stationary upon the handle, for the purpose set forth.

3. A hand-tool for forming stud-spirals, consisting of a handle provided with a slotted tube extending within the handle, a set-screw carried by the handle extending within the slot of the said tube, a detachable shaping-head provided with a recess in its under face for the outward passage of the wire, and means, substantially as described, for holding the shaping-head stationary upon the handle, as set forth.

4. A hand-tool for forming stud-spirals, consisting of a handle, a slotted tube secured to the handle and extending within the same, the handle being provided with an opening adjacent to the slotted tube, a set-screw which extends through the handle into the slot of the said tube, and a shaping-head having a longitudinal bore adapted to receive the slotted tube, the shaping-head being provided also with a threaded exterior surface, a recess in its under face and a pin adapted to enter the said opening in the handle, for the purpose set forth.

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