No. 648,394. Patented May 1, 1900.

A. N. DANLEY.

COUNTERSINKING TOOL.

(Application filed Mar. 1, 1899.)

(No Model.)

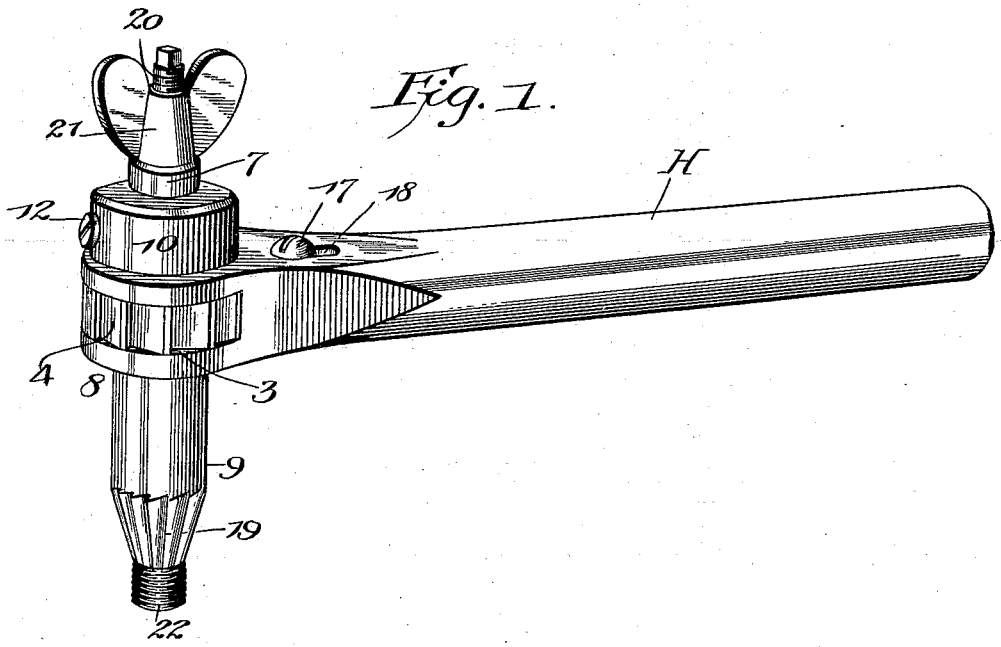

Fig. 1.

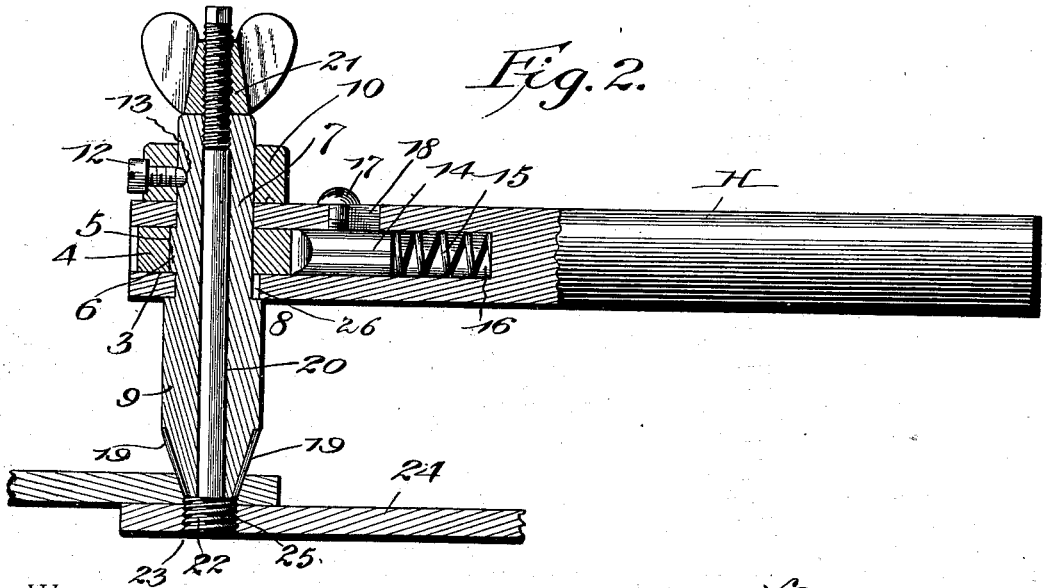

Fig. 2.

Witnesses
A. Roy Appleman Jr.
Heath Sutherland

Albert N. Danley, Inventor.
By his Attorneys,
C. A. Snow & Co.

UNITED STATES PATENT OFFICE.

ALBERT N. DANLEY, OF NEBRASKA CITY, NEBRASKA.

COUNTERSINKING-TOOL.

SPECIFICATION forming part of Letters Patent No. 648,394, dated May 1, 1900.

Application filed March 1, 1899. Serial No. 707,247. (No model.)

To all whom it may concern:

Be it known that I, ALBERT N. DANLEY, a citizen of the United States, residing at Nebraska City, in the county of Otoe and State of Nebraska, have invented a new and useful Countersinking-Tool, of which the following is a specification.

This invention relates to countersinking-tools; and the object of the invention is to provide a simple and easily-operable device of this character which will form clean and smooth countersinks at the ends of bolt-openings in boilers and the like, so that the heads of the bolts fitted in the openings can abut snugly and squarely against said countersinks, thereby insuring tight steam and air joints, and this same peculiarity follows even though the threaded openings in the boiler should be slightly off the perpendicular.

With these and other objects in view the invention consists in the novel combination of elements and in the construction and arrangement of parts, which will be hereinafter fully described and claimed.

To enable others to understand the invention, I have illustrated the preferred embodiment thereof in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a perspective view of a countersinking-tool constructed in accordance with my invention. Fig. 2 is a longitudinal central section of the same, illustrating it in connection with a boiler and showing the positions occupied by the parts in the act of forming a countersink.

Like characters denote like and corresponding parts in both figures of the drawings.

The device includes in its construction a handle, as H, by which the countersink-tool, hereinafter more particularly described, can be turned into a bolt-opening, and the same is furcated or branched at 3 to receive the ratchet 4 in the form of a ring having peripheral angular teeth and which has upon its inner surface the keyway 5, adapted to receive the square key 6 upon the shank 7 of the countersinking-tool 8, so that upon the rotation of the ratchet by a suitable pawl the countersinking-tool 8 will be turned to cause the cutting end thereof to form a countersink-opening. The shank 7 is of less cross-sectional area or diameter than the head 9 of the tool, whereby said head forms, in effect, a shoulder which is adapted to abut against the handle when the parts are in assembled relation, and the tool is held in place in the handle by a collar or ring 10, encircling the shank and held in proper position thereon and contiguous to the handle by the screw 12 or equivalent device in threaded engagement with said collar and extending into the depression or opening 13 in the shank. The pawl for operating the ratchet is designated by 14, and it is held in working position by the coiled spring 15, fitting in the socket 16 of the handle H and bearing against the end of the pawl. The motion of the pawl is limited by the stop screw or pin 17 in threaded engagement with said pawl and extending through the longitudinal slot 18, formed in the handle H above the socket 16. The under side of the handle is provided with a slot or recess 26 in the wall of the perforation, through which the key 5 passes when the parts are being assembled. This permits of the key being formed integral with the tool 9, thereby securing great strength of the parts and also avoiding the use of separate pieces, which are liable to be lost and which require the tool to be slotted and weakened.

The head 9 of the tool is provided along its working edge with a series of angular cutting edges 19, adapted on the rotation of said tool to bite into the metal of the boiler or other structure for the purpose of forming the countersink, and said tool is tubular to receive the longitudinal guide-pin 20, the upper end of which is squared or otherwise adapted for the reception of a wrench or other means for screwing the guide-pin into the hole to be operated upon. The portion immediately adjacent thereto is threaded to receive the wing-nut 21, while the lower end is threaded, as at 22, and it will be observed that the diameter of the thread 22 exceeds the diameter of the pin, thereby forming a shoulder which can fit against the cutting end of the tool 8, so that when the wing or equivalent nut 21 is in proper position and against the upper end of the shank 7 the guide-pin can be held in place without fear of losing the same. To form a countersink, an opening, as 23, will be drilled or otherwise formed through the plates of a

boiler or other structure, as at 24, and one end of said opening will be tapped, as at 25, to receive the enlarged threaded end 22 of the guide-pin 20, the latter having been previously removed from the tool. The tool will then be introduced over the upper end of the guide-pin until the cutting edges 19 are in contact with the metal of the boiler, after which the nut 21 is turned onto the threaded upper end of the guide-pin 20 and until it firmly fits against the upper end of the shank 7. By turning the handle H the pawl and ratchet will serve to rotate the tool 8, whereby the cutting edges 19 can enter the boiler, and as the cutting operation progresses the nut 21 will be turned, so as to maintain the tight relation between the same and the upper end of the shank 7, so as to advance the tool as the cutting operation proceeds.

Changes in the form, proportion, size, and the minor details of construction within the scope of the appended claims may be resorted to without departure from the spirit or sacrificing any of the advantages of this invention.

Having thus described the invention, what I claim is—

In a countersinking-tool, the combination with a guide-pin, one end of which is provided with an enlarged screw-threaded head and the opposite end is squared and screw-threaded adjacent thereto, of a tubular tool upon the pin, the end of which adjacent to the head is tapered and provided with cutting edges and the intermediate portion is provided with a shoulder and an integral key above the shoulder, a bifurcated ratchet-handle, each division of which is perforated to fit the tool above the handle, the wall of the lower perforation being recessed to fit over the key on the tool an annular ratchet on the tool between the divisions of the handle, the inner wall of which is recessed to engage with the key upon the tool, a ring upon the tool above the handle, and a feeding-nut upon the screw-threaded portion of the guide-pin above the top of the tool.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence two witnesses.

ALBERT N. DANLEY.

Witnesses:
W. C. SLOAN,
FRANK EMERICK.