T. L. Webster.

Tool for Drilling Metals.

No. 58,924. Patented Oct. 16, 1866.

Fig. 1.

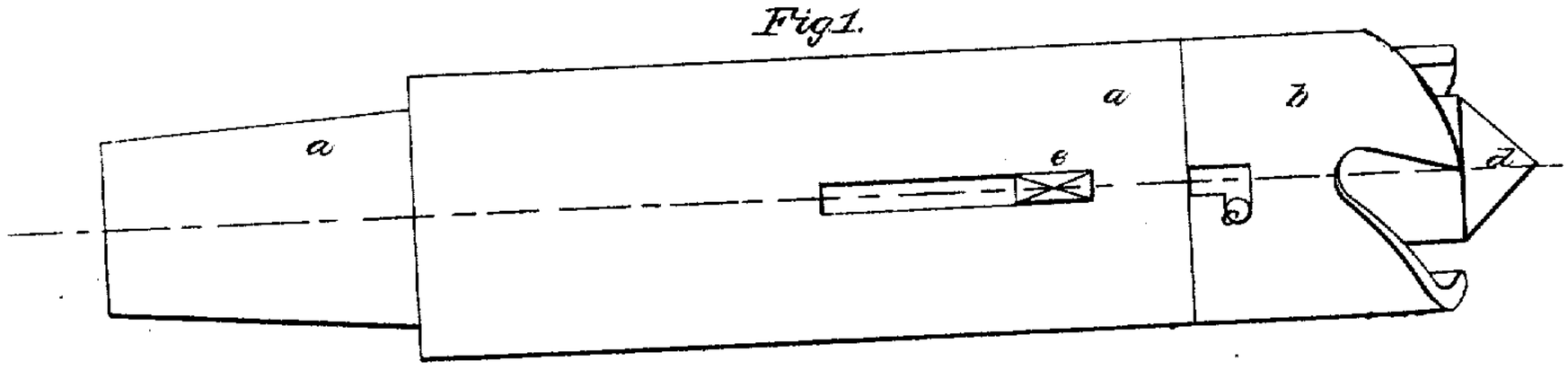


Fig. 2.

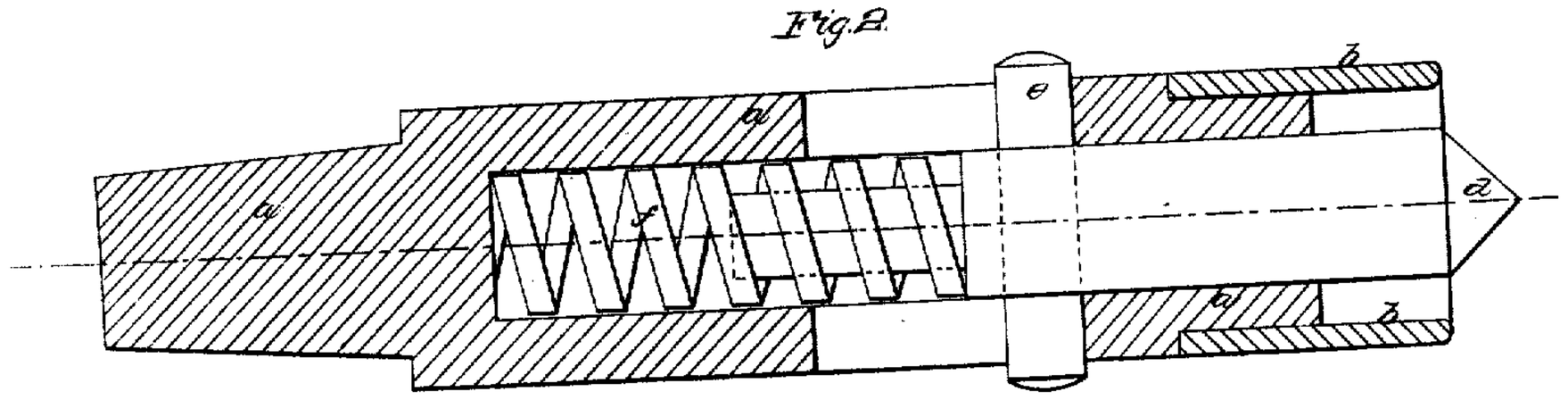
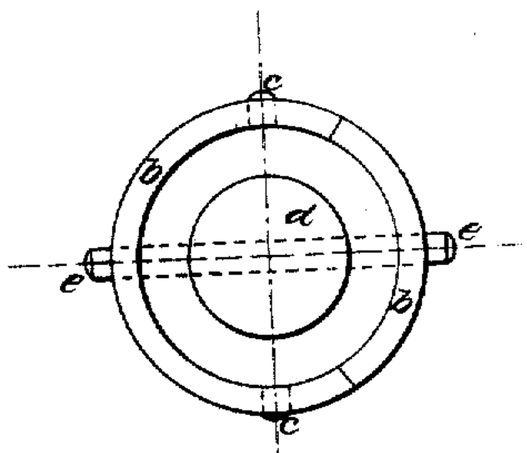


Fig. 3.



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UNITED STATES PATENT OFFICE.

THEODORE L. WEBSTER, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN TUBE-SHEET CUTTERS.

Specification forming part of Letters Patent No. **58,924**, dated October 16, 1866.

To all whom it may concern:

Be it known that I, THEODORE L. WEBSTER, of Brooklyn, in the county of Kings and State of New York, have invented a certain new and useful Improvement in Tube-Sheet Cutters for Steam-Boilers; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, and to the letters of reference marked thereon.

By the ordinary method of preparing the tube-sheets of steam-boilers for the reception of the tubes, after the sheets are laid out with lines that intersect at the points corresponding with the intended centers of the tubes, the centers are first marked with a punch, small holes are then drilled through the plate, and the plate is finally bored to the size required with a pin or teat drill. The first small holes are required for the steadiment of the teat-drill, making the larger holes for the tubes.

The object of my invention is to dispense with that portion of the labor hitherto required for the drilling of the preliminary small holes; and it is accomplished by means of a tool that may be centered in the center-punch or prick-punch markings, where it is held steadily while the holes for the reception of the tubes are being bored through the plate by the advance of the cutters.

To attain this end my invention consists of a new arrangement of a circular cutter and spring-center, by which the circular head forming the cutter is fitted to the tool-stock with a lantern-joint, and the spring-center works within the stock, and is retained by a key working in a slot.

When the center is placed in a center-punch marking, the drill may be fed down to the plate and passed through it, while the center remains in the marking and holds the cutter securely, the spring yielding gradually as the boring and the feeding progresses.

To enable others skilled in the arts to which it appertains to make and use my invention, I will proceed to describe its construction and operation with reference to the drawings.

Figure 1 is an outside view of the said improved tool, and Fig. 2 is a longitudinal section, and Fig. 3 an end view of the same.

The socket *a* may be fitted to a machine in the usual manner. It carries a circular cutter, *b*, which is secured by the lantern lock-pin *c*. This lock corresponds with the direction of the cutting-edges of the cutter, so that it remains fastened when the drill is being used or being withdrawn, and may be readily unfastened by simply turning it back when it is required to remove the cutter.

The center *d* is retained in the socket by the key *e*, that works in a suitable slot, and it is pressed outward by the spring *f*, which should have sufficient force to resist any tendency to lateral displacement. When the tool is pressed toward a sheet to be drilled the spring yields, and the center *d* remains in the center-punch marking, while the cutter advances and passes through the sheet.

By means, therefore, of the yielding center, in combination with the circular cutter, a circular disk may be cut at once from the sheet, instead of first drilling a small hole, and then cutting away all the rest of the metal with an ordinary pin-drill. A single socket may be fitted with several sizes of cutters made with offsets as may be required.

I claim—

As an article of manufacture, a tool for drilling metals, composed of a circular cutter and a yielding center, constructed and arranged in the manner described.

THEODORE L. WEBSTER.

Witnesses:

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WM. KEMBLE HALL.