(No Model.)

E. McARDLE.

PUNCH.

No. 306,413. Patented Oct. 14, 1884.

Fig. 1.

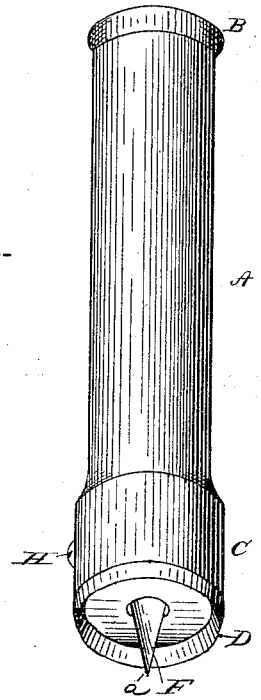


Fig. 2.

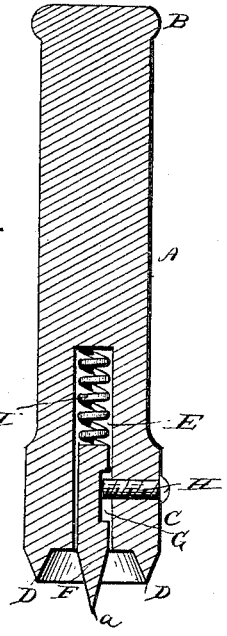
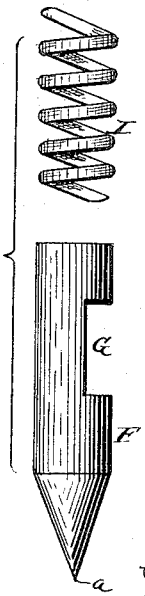


Fig. 3.



WITNESSES
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UNITED STATES PATENT OFFICE.

EDWARD McARDLE, OF KNOXVILLE, TENNESSEE, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO M. L. PATTERSON, OF SAME PLACE.

PUNCH.

SPECIFICATION forming part of Letters Patent No. 306,413, dated October 14, 1884.

Application filed March 5, 1884. (No model.)

To all whom it may concern:

Be it known that I, EDWARD McARDLE, a citizen of the United States, residing at Knoxville, in the county of Knox and State of Tennessee, have invented a new and useful Punch, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to punches; and it has for its object to cheapen the construction and provide a self-centering automatic punch which will force out each punching the moment the device is raised or withdrawn from the work.

In the ordinary hollow punches generally employed in working on sheet metal by hand, it involves a considerable loss of time to jar or knock out previous punchings, which gradually fill up the hollow interior within the circular cutting-edge. This constant battering on the sides, in connection with the extra severe blows required to make the punch penetrate when the interior is filled with punchings, injures and destroys the efficiency of the device. To avoid this defect and attain the aforesaid objects, the said invention consists in certain details of construction and combination of parts, as hereinafter set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of my improved punch. Fig. 2 is a vertical longitudinal section of the same. Fig. 3 is a detached view of the spring and spindle.

Like letters refer to corresponding parts in the several figures.

Referring to the drawings, A designates the shank of an ordinary punch, having the usual head, B, to receive blows from a hammer or like instrument, an enlarged barrel, C, being formed at the lower end of the shank, and provided with the cutting-edge D, which is circular in the present instance, but may be of any form desired. A longitudinal slot, E, is bored centrally in the shank, to receive a centering-spindle, F, formed on one side with a recess, G, a screw, H, passing through one side of the barrel C and engaging at its inner end with the said recess, so as to hold the spindle from dropping out and yet permit its free vertical movement. A spring, I, is interposed between the inner end of the spindle and the back wall of the slot E, and is arranged to be compressed when the punch is struck, the outer end of the spindle being tapered to a point, *a*, which projects a short distance beyond the cutting-edge of the punch.

The operation of my invention will be readily understood from the foregoing description, taken in connection with the annexed drawings. The punch is applied to the work in the usual manner, and a blow is given by a hammer or like instrument to cause the cutting-edge D to punch out a certain amount of the material equal to its form and size, the punched material fitting within the hollow interior of the barrel end of the shank. As the blow is given to the punch, the spindle F is forced inward, and when the operation has been performed the punch is withdrawn or raised from the work, permitting the spring I to exert its force and press the spindle outward, said spindle likewise forcing the punching or punched material out from within the hollow interior. It will be seen that the spindle acts automatically to force out each punching as soon as the punch is raised or withdrawn from the work, and thus all necessity of knocking on the sides of the device to force out the previous punchings contained within the hollow interior will be entirely avoided. By this means I prevent needless wear on the punch, and, besides, save the considerable loss of time which is employed in extracting the previous punchings. The screw H, fitting within a recess in the side of the spindle, prevents the latter from dropping out by gravity or under the action of the spring, and may be readily withdrawn should the said spring or spindle require renewal or repair. Since the end of the spindle projects beyond the cutting-edge, it will act as a self-centering point to guide the operation of the punch.

I will have it understood that I do not limit myself to the material used in the construction of the punch or any of its parts, nor do I limit myself to the precise details of construction, as various modifications in the arrangement and construction of the punch may be resorted to without departing from the spirit or scope of my invention.

My improved punch is simple and durable in construction, and will prove of great convenience and efficiency in use.

Having described my invention, I claim as new—

1. The herein-described punch, comprising a shank having its lower end provided with a cutting-edge, a recess formed at the lower end and inclosed by the said cutting-edge, and a vertically-movable spindle arranged within a slot of the shank and having its point projecting into the recess beyond the line of the cutting-edge, so as to center the work, and the means, substantially as described, for holding the spindle in place and allowing vertical movement thereof, as set forth.

2. The herein-described punch, comprising the shank having a recess at the lower end for the reception of the punchings, a cutting-edge inclosing the recess, and a spring-pressed spindle working in a slot of the shank, and having its end projecting into the recess a short distance beyond the line of the cutting-edge, and the means, substantially as described, for holding the spindle in place and yet allow vertical movement thereof, as set forth.

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

EDWARD McARDLE.

Witnesses:
LAURA HOFFAR,
BENJAMIN ARTHUR JENKINS.