S. Z. Hall.

Metal Punch Centerer.

No. 48,018. Patented May 30, 1865.

Fig. 2.

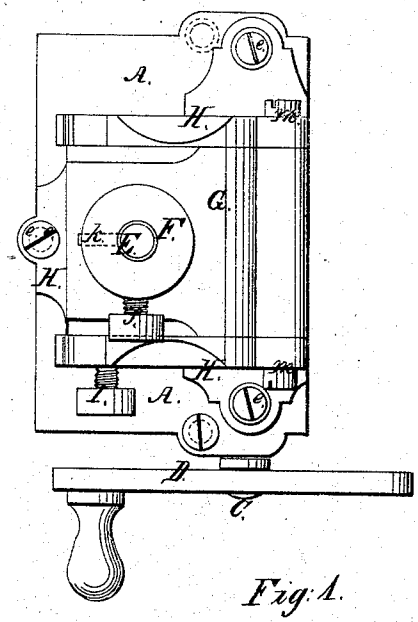


Fig. 3.

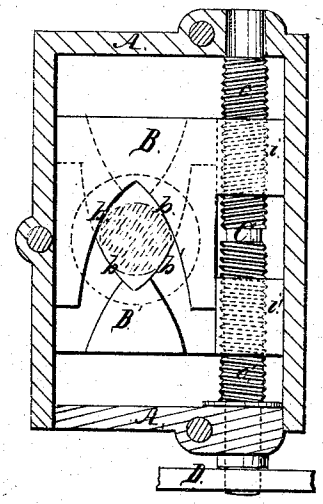
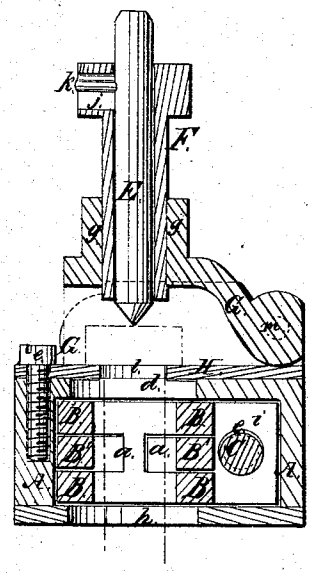


Fig. 1.



Witnesses:

H. M. Strever

Geo. W. Reed

Inventor:

Sam'l J. Hall.

by Brown Coomber &

Attorneys.

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

SAML. Z. HALL, OF CAMDEN, ASSIGNOR TO HIMSELF AND GEORGE MOTT, OF HOBOKEN, NEW JERSEY.

IMPROVEMENT IN SELF-CENTERING PUNCHES.

Specification forming part of Letters Patent No. **48,018**, dated May 30, 1865; antedated May 16, 1865.

To all whom it may concern:

Be it known that I, SAMUEL Z. HALL, of Camden, in the county of Camden and State of New Jersey, have invented a new and useful Improvement in Self-Centering Center-Punches; 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, forming part of this specification, in which—

Figure 1 is a central vertical section of a self-centering center-punch constructed according to my invention. Fig. 2 is a top view of the same. Fig. 3 is a horizontal section of the same.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to the arrangement of a center-punch in a guide-socket, which is so applied, in combination with a centering-clamp, that on applying said clamp to a shaft, bolt, or other article to be centered, with the clamp open, the punch may be brought to a position concentric with the said article by the closing of the centering-clamp upon the said article.

It consists in the arrangement of the guide-socket which contains the center-punch within a hinged frame, so applied, in combination with the box or its equivalent which contains the centering-clamp, as to provide for the insertion within the said clamp of a bolt or other article having a head in such manner as to enable the true centering of the head of the said article to be effected.

It also consists in so applying the guide-socket within the said hinged frame as to provide for its adjustment to suit the thickness or depth of the head of the bolt.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A is a box of cast-iron or other metal, of oblong quadrangular form, containing the centering-clamp, which is fitted to slide rectilinearly between the front and back of the said box. This clamp is composed of two pieces, B and B′, and parts of B′ are fitted to slide in grooves *a a* in the sides of B. These pieces B and B′ are made with concave-sided V-shaped jaws *b b* and *b′ b′* for the reception of the shaft, bolt, or other article to be centered, which is represented in red color in Figs. 1 and 3, the inner faces of the two jaws being of corresponding form. The piece B is made with a lug, *i*, on its back side, and in this lug there is a hole, in which is cut a right-hand female screw-thread. The other piece, B′, is made with a similar lug, *i′*, in which there is a hole exactly opposite and in line with that in *i*, and in this hole there is a left-hand female screw-thread.

In the back part of the box there is arranged in suitable bearings, parallel with the sliding movement of the jaws, a shaft, C, in the exterior of which there is a right-hand screw-thread, *c*, which works in the tapped hole of the lug *i*, and a left-hand screw-thread, *c′*, which works in the tapped hole of the lug *i′*, and this screw-shaft is furnished outside of the box with a hand-crank or handle, D, by which to turn it, for the purpose of producing a longitudinal movement of the jaws toward and from the center of the box for the purpose of grasping a shaft, bolt, or other article inserted into the box, either through a hole, *d*, in the top, or a hole, *h*, in the bottom of the box, by the movement of the screws *c c′* in the tapped lugs *i i′*. The two screws are of the same pitch, so that the jaws move equally, and whatever may be the diameter of the bolt, shaft, or other article inserted between them, its axis will always be brought exactly in the center of the box, or directly in line with the axis of the punch E, which is fitted to slide longitudinally in the guide-socket F, arranged on the top of the box.

G is the hinged frame, which holds the guide-socket F. This frame is hinged at its back, as shown at *m m*, to a plate, H, which is firmly secured to the top of the box A by screws *e e*. The guide-socket F is secured by a set-screw, *f*, in a second socket, *g*, provided for its reception in the hinged frame G. The said hinged frame is so constructed that it may come to a firm bearing on the top of the plate H, with the axis of the punch directly in line with the axis of a shaft, bolt, or other article held between the centering-jaws *b b*, as shown in Fig. 1, and a hole is provided in one side of the said frame for the purpose, when it is in this position, of receiving the end of a set-screw, I, which screws through a vertical pro-

jection on one side of the plate H, the said set-screw serving to secure the said frame and keep the socket-guide in proper position for the operation of the punch. In the upper part of the guide-socket there is a vertical slot, *j*, through which a pin, *k*, is screwed, or otherwise tightly inserted into a hole in the punch. This pin serves to prevent the punch from dropping out when the hinged frame is turned back, as will be presently described, or when the whole apparatus is thrown aside carelessly on a bench. The plate H has provided in it a hole, *l*, opposite the hole *d*, for the punch to pass through, or for the passage of a bolt or other article through it from the upper side.

For centering shafting or other articles which have not heads larger than the other parts, the frame G is kept secured by the set-screw I in the position represented, with the punch perpendicular to the sliding movement of the jaws B B′, and the box, with the centering-jaws open, is placed over the end of the shaft or other article, which passes through the opening *h* in the bottom of the box A and between the centering-jaws. The jaws are then closed tightly upon the said article by turning the crank D and screw-shaft C, and the punch thus brought exactly opposite the true center. The punch is then struck on the head with a hammer, and the centering of the end of the article is effected. The jaws are afterward slackened by turning back the screw-shaft, and the box removed and applied to the other end of the shaft or other article, which is then treated in like manner. The centering operation may be performed while the shaft or other article is in a vertical, horizontal, or any other position.

For centering a bolt or other article having a head larger than the other part, such as shown in red outline in Fig. 1, the set-screw I is unscrewed, and the frame G, with the contained guide-socket and punch, turned back on the hinge *m* far enough to permit the smaller part of the article to be inserted through the holes *l* and *d* and between the centering-jaws. The head is allowed to rest upon the plate H. The set-screw *f* is then unscrewed to liberate the guide-socket, and the frame G brought forward to the position shown in Fig. 1, and the set-screw I screwed up to secure it. The guide-socket F is next adjusted in the outer socket, *g*, to the proper distance from the top of the article to be centered, and secured by the set-screw *f*, and the head of the punch then struck with a hammer to effect the centering.

For centering the heads of a number of bolts or other articles having heads of uniform thickness, but one adjustment of the socket F in the socket *g* is required; but the hinged frame G requires to be turned back after each centering operation to allow the centered article to be taken out.

I do not claim of themselves the two centering-jaws operated by a right and left handed screw, as I am aware that such jaws so operated have been used in a drilling-machine; but

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The arrangement of the guide-socket F, which contains the center-punch within a hinged frame, G, applied in combination with the box or its equivalent which contains the centering-clamp, substantially as and for the purpose herein set forth.

2. The arrangement of the guide-socket within the said hinged frame to provide for its adjustment, substantially as herein described, to suit the thickness or depth of the head of a bolt or other headed article.

SAML. Z. HALL.

Witnesses:
M. A. COFFMAN,
M. E. ANDREWS.