A. WARD.

MACHINES FOR CUTTING THREADS ON BOLTS.

No. 180,681. Patented Aug. 1, 1876.

Fig 1

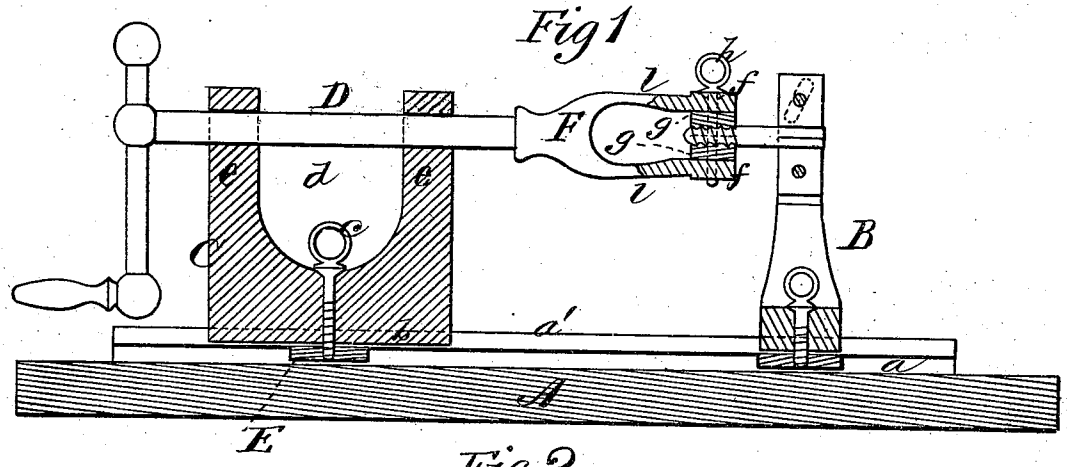


Fig 2

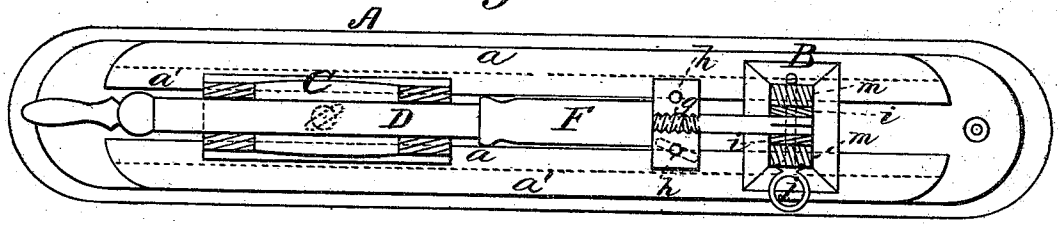
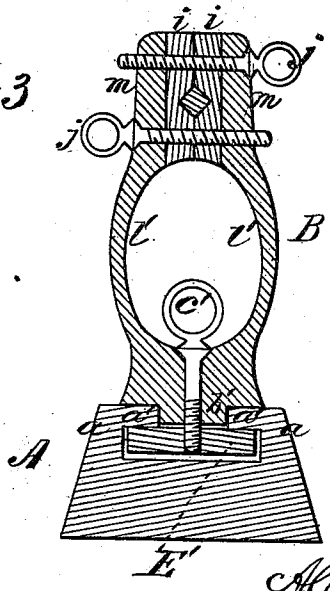


Fig 3



WITNESSES

Villette Anderson

Walter C Mason

INVENTOR

Alonzo Ward

by E. W. Anderson

ATTORNEY

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ALONZO WARD, OF BRUNSWICK, MAINE.

IMPROVEMENT IN MACHINES FOR CUTTING THREADS ON BOLTS.

Specification forming part of Letters Patent No. **180,681**, dated August 1, 1876; application filed April 22, 1876.

To all whom it may concern:

Be it known that I, ALONZO WARD, of Brunswick, in the county of Cumberland and State of Maine, have invented a new and valuable Improvement in Machine for Cutting Threads on Bolts; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a longitudinal vertical section of my machine. Fig. 2 is a top view thereof; and Fig. 3 is a vertical transverse section of the same, taken through the head-block B.

This invention has relation to improvements in apparatus for cutting the threads on bolts; and the nature of the invention consists in a sliding mandrel rotating in bearings, which are adjustable to or from the head, which mandrel is bifurcated at its end next the head, for the purpose of receiving the dies, which are clamped into the furcation by means of set-screws, which spring the arms of the fork inward upon the dies, holding the same firmly, and yet releasing them as soon as the said screws are reversed. It also consists in furcating the upper end of the head, and in clamping the bolt between its arms by clamp-screws, whereby the same useful results above described are obtained, as will be hereinafter more fully explained.

In the annexed drawings, the letter A designates the base of my improved machine for cutting threads on bolts, provided with longitudinal ways *a*, having an inwardly-projecting flange, *a'*, in which are mounted a head-block, B, and the bearing-block C of the mandrel D. Block C is provided with a tongue or tenon, *b*, as is also the head-block B, fitting snugly between flanges *a'* of the ways, which serve to guide it in its movements to and from the head-block, and it is adjusted firmly in any desired position by means of a clamp-plate, E, working between ways *a* under flanges *a'*, and a screw-bolt, *c*, which, when set up, will rigidly bind the said flanges between the plate and block, and hold the latter firmly against displacement. As shown in Fig. 1, the bearing-block consists of a base and two spaced arms, between which, in the recess *d* thus formed, is the set-screw *c*, which is thus made easily accessible for the purpose of manipulating the same. Arms *e*, above alluded to, afford bearings in their upper ends for the mandrel or shaft D, which has free endwise or sliding, as well as rotary, movement therein, and is provided upon its end next the head-block with a forked spring clamp-plate, F, provided upon its ends with jaws *f*, at right angles to the plane of the fork, between which are placed the sectional dies *g*, which are female-threaded, and cut the corresponding male thread upon the bolt arranged in the head-block. These dies are held in place between the jaws *f* by means of set-screws *h*, which pass from opposite directions through registering perforations in the jaws and dies, which screws, when set up, will cause the arms *l* of the clamp to spring inward upon the dies, and hold them firmly in position. When the screws are reversed, these arms will spring outward and allow the dies to be easily removed. The head-block is adjustable to or from the bearing-block in precisely the same manner as the latter—that is, by means of a guide-tongue, *b'*, a clamp-plate, E', and a screw-bolt, *c'*—and it is vertically forked, the said screw-bolt being between the arms *l'*, where it may be easily accessible. The upper ends of arms *l'* are provided with jaws *m*, the inner faces of which are rectilinear and adapted to hold between them the clamp-dies *i*, which hold the bolt to be threaded, the said dies being immovably clamped between the jaws by the setting up of the screws *j*, passing from opposite sides through registering perforations in the jaws and dies.

The operation of my improved bolt-cutter is as follows: The bolt to be threaded having been arranged between the dies in the jaws of the head-block, the bearing-block is adjusted toward the same until the end of the bolt enters the aperture between the cutting-dies. Rotation is now given to the shaft, it being pressed toward the bolt in the inception of such rotation until the cutting-dies bite upon the same, when, by continuing the movement of the shaft, the latter will automatically feed itself and its dies to the bolt without other effort than that required to turn the same.

It will be seen that the cutting-dies and the clamp-dies, or "bolt-holders," as they may be more properly called, are interchangeable—that is, the former may be used in connection with the jaws on the head-block, and the latter with the jaws on shaft D. In this case the bolt will rotate instead of the dies. In practice, where one end of the bolt is polygonal, the aperture in the holders will be of corresponding shape, the better to hold the bolt against rotation.

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

1. The shaft D, having bifurcated spring-clamp F upon its end, in combination with the sectional dies *g* and the clamp-screws *h*, whereby the said spring-clamp is sprung in upon the die, substantially as specified.

2. The combination of the bifurcated head-block B, having jaws *m*, with rectilinear inner faces, with the sectional bolt-holders *i i* and clamp-screws *j*, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

ALONZO WARD.

Witnesses:
N. T. WORTHLEY,
T. J. HALL.