J. B. FORD.

ART OF UPSETTING BOLT-HEADS.

No. 187,529. Patented Feb. 20, 1877.

Fig. 1.

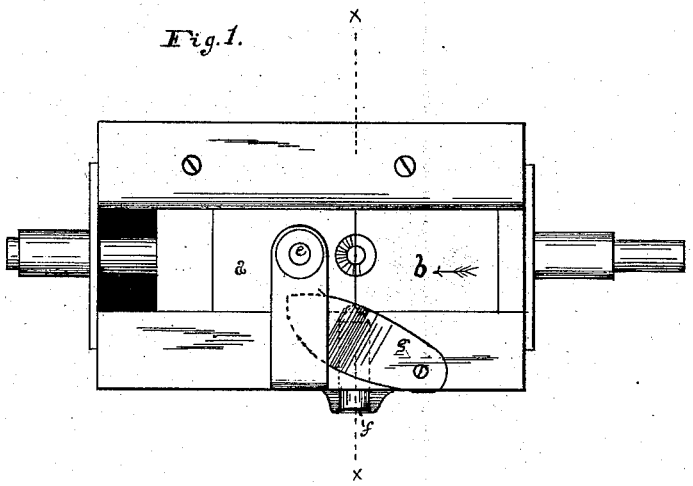
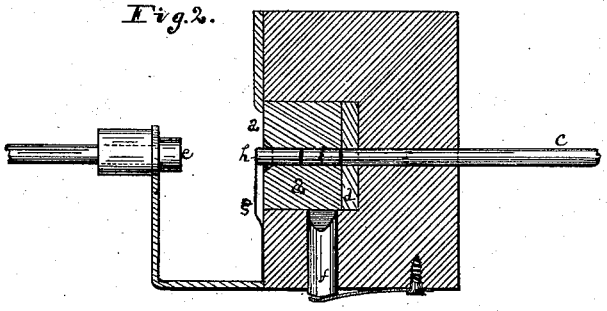


Fig. 2.



Witnesses.
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UNITED STATES PATENT OFFICE.

JEROME B. FORD, OF BURLINGTON, ASSIGNOR OF ONE-HALF HIS RIGHT TO WM. EDGAR SIMONDS, OF COLLINSVILLE, CONNECTICUT.

IMPROVEMENT IN ART OF UPSETTING BOLT-HEADS.

Specification forming part of Letters Patent No. **187,529**, dated February 20, 1877; application filed July 10, 1876.

To all whom it may concern:

Be it known that I, JEROME B. FORD, of Burlington, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements pertaining to the Upsetting of Bolt-Heads, of which the following is a specification, reference being had to the accompanying drawings, where—

Figure 1 is a front view of dies suitable for carrying my invention into practice. Fig. 2 is a view of the same in section on the plane *x x*, showing the stock as lying in one of the dies.

Blanks for bolts, screws, rivets, and the like are generally made in one of two kinds of dies, called, respectively, "open" and "solid" dies. The solid die consists of a counterbored hole in a solid block of metal. The open dies are in two or more parts, generally two corresponding duplicates, with the matrix for the reception of the blank, as well as the counterbore or countersink for forming the head, lying equally in the meeting ends or faces—that is, each die contains one-half the matrix.

I shall hereinafter refer to the so-called open dies as "partible," as I think the latter term more appropriate. In using such partible dies it has been difficult, if not impossible, to produce in them headed bolts of short lengths, as one-half inch, and shorter, it being impracticable to make dies of that thickness stand the strain put upon them by the header without breaking. This invention of mine wholly cures that difficulty.

The letters *a b* denote the two partible dies, each bearing one-half the matrix. While in position shown in Fig. 1, the stock *c* is fed into them from the rear. The dies then move to one side, as indicated by the arrow, and in so doing sever the stock that is within the dies from the stock-bar through the medium of the stationary shear *d*. The dies stop with the stock (which is in the dies) directly in front of the header *e*, which then moves up and heads the bolt, and again retreats. The dies now retreat sidewise to position shown in Fig. 1, the wedge *f* strikes in between them, separates them slightly, and loosens their hold on the bolt. The stock-bar now feeds from the rear, and ejects the headed bolt from the dies.

The letter *g* denotes a stop or gage, which, at the proper time, swings up in front of the path of the stock to fix the point at which the feed of the stock shall stop.

So far I have described the common mode of constructing and using partible dies. Heretofore, however, it has been the practice to make the dies of just the thickness of the length of the bolt—that is, a bolt one-half inch long required dies one-half inch thick. Now, dies one-half inch thick will not stand the heading process; in practice, their strength is not sufficient. I cure this trouble by a very simple but valuable method. For a short bolt, screw, or rivet, say one-half inch long, I make the dies of double that thickness or more. The feed of the stock is adjusted to throw into the dies each time the length of bar requisite to form a half-inch bolt, so that each blank, while being headed, lies upon a blank of the same length behind it, which, in its turn, comes forward to be headed the next in turn, thus enabling me to make the dies thick enough to have any desired strength. I have found in practice that I can thus use one set of dies for heading blanks of different lengths.

In the drawings, the letter *h* denotes the foremost blank, and *i* the blank behind it.

I claim—

As an improvement in the art of forming heads on blanks for short bolts or rivets, the use, substantially as specified, of a die substantially equal in depth to two or more blanks superposed endwise, one on the other, said die resting on a shear or die plate interposed between the die and die-support, and the die or the die-plate, or both die and die-plate, movable in relation one to the other, by which the blanks are severed from the stock, fed into the die through the die-support, as set forth.

JEROME B. FORD.

Witnesses:

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