C. & J. Kane.

Bolt Heading Mach.

No. 53,831. Patented Apl 10. 1866.

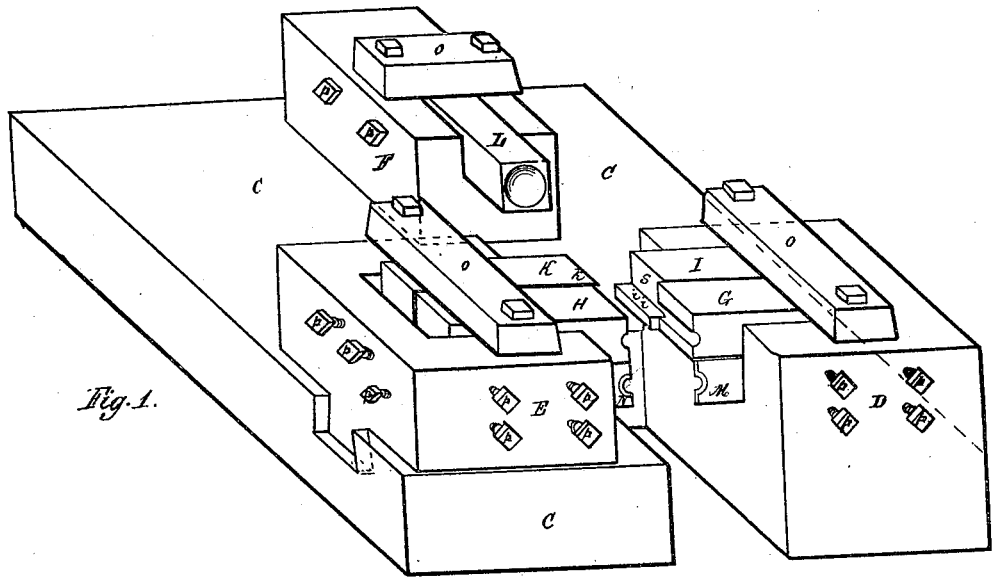

Fig. 1.

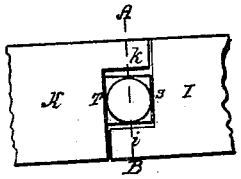

Fig 2.

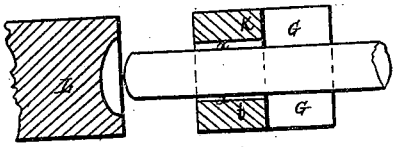

Fig. 5

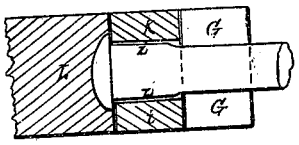

Fig. 6.

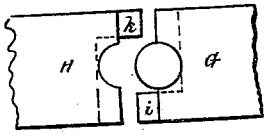

Fig. 3.

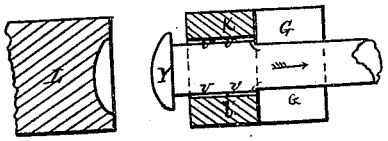

Fig. 7.

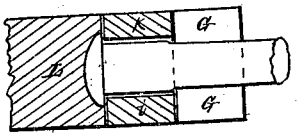

Fig 8

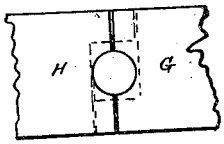

Fig. 4.

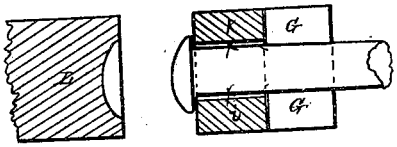

Fig. 9

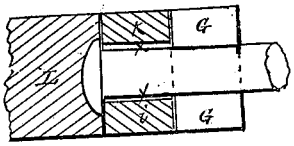

Fig. 10

Witnesses.

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UNITED STATES PATENT OFFICE.

CHAS. KANE AND JAMES KANE, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN BOLT-HEADING MACHINES.

Specification forming part of Letters Patent No. **53,831**, dated April 10, 1866.

To all whom it may concern:

Be it known that we, CHARLES KANE and JAMES KANE, of the city of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and Improved Bolt-Press; and we do hereby declare that the following is a full and exact description thereof, which will enable others skilled in the art to make and use our invention, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Figure 1 is a view, in perspective, of the part of the press showing the relative position of the dies. Fig. 2 is a front view of the pressing-dies when shut. Fig. 3 is a front view of the griping-dies when open, showing the pressing-dies behind. Fig. 4 is the same view as Fig. 3, with the dies shut; and Figs. 5, 6, 7, 8, 9, and 10 are sectional views through the line A B, showing the position of the dies and the shape that the heated iron assumes during the process of manufacture of the bolt.

The nature of our invention consists in a press for pressing bolts, in which the dies for pressing have their pressing-surface formed by a plane surface at right angles with the center of motion of said pressing-dies, and have a ledge, shelf, or projection having its sides formed by plane surfaces parallel to and at right angles with the pressing-surface, so that when the two pressing-dies are brought in contact or closed they leave between them a space having a parallelogrammic form.

Our invention furthermore consists in providing said press with two cutters placed under the griping-dies, for the purpose of cutting a bolt off from the bar, as hereinafter described.

C is the bed-plate. D is the stationary head. E is the movable head. F is the staving and heading movable head. G is the stationary griping-die. H is the movable griping-die. I is the stationary pressing-die. K is the movable pressing-die. *k* and *i* are the shelves or projections on the pressing-dies. L is the staving and heading die, of ordinary construction. M and N are the cutters and pointers. O O O are the clamps to secure the dies, and P P P P, &c., are set-screws to regulate the position of the dies and cutters in the ordinary manner.

The press can be made of any desired shape or mode of construction. The heads E and F can be moved by levers, cams, eccentrics, or be acted on by a ram or drop in any of the modes in use.

Operations: The dies being open, as in Figs. 3 and 5, a bar of iron of the proper size, and heated at and near the end, is placed between the griping-dies, as in Fig. 5. It is griped by the dies H and G, and the die L coming forward, it is staved in the way represented in Fig. 6. It will be observed that when the pressing-dies K and I are closed, Fig. 2, they leave between them a space which has the shape of a parallelogram, with its small side equal to the diameter of the round bar of iron worked, so that when the staving operation is going on the metal is shaped into flat surfaces against the two surfaces S and T, staving it perfectly in the center of said bar and forcing the excess of metal upward and downward. The dies open and the heated iron is turned one-quarter of a turn, when the griping-dies and pressing-dies again close, drawing the metal, as represented in Fig. 7. The square neck U of the bolt is now almost perfect. As the part V V of the metal, being partly chilled by its former contact with the pressing-dies I and K, will hardly expand in the spaces X X, and the part Z Z being now next to the surfaces T and S of the pressing-dies, they will by coming together press that part to the proper shape. The excess of metal will be forced in a longitudinal direction, and, as it is termed, it is "drawned" or "drawed," pushing the head in Y and the bolt in the direction of the arrow, (see Fig. 7,) making the square perfect. The header now comes again forward, and its pressure is so great that the metal is again crushed a little in the places X X, Fig. 8; but the bar is again turned one-quarter round, as in Fig. 9, and when the pressing-dies have griped it and the heading-die L staved it once more the bolt is perfect in shape. (Fig. 10.) It is next transferred to the cutters, which, by means of a guide where the head of the bolt touches, will cut and point the bolt of the exact length, and this finishes the operation.

Of course we can make bolts by cutting the bar first, and in that case will place the heated piece of iron in the griping-dies, where it will

undergo all the operations we have described except the cutting.

What we claim, and desire to secure by Letters Patent of the United States, is—

1. The dies I and K, having their pressing-surface at right angles with the center of their motion, and having projecting ledges or shelves *i i* and *k k*, so that when the dies come together they leave between them a parallelopipedic space, the dimension of which is greater in a direction perpendicular to the line of motion of the dies.

2. The cutters M and N, in combination with the pressing-dies I and K, arranged in the manner and for the purpose specified.

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Witnesses:
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