(No Model.)

2 Sheets—Sheet 1.

H. E. COY.

MACHINE FOR DRAWING BOLTS.

No. 303,363. Patented Aug. 12, 1884.

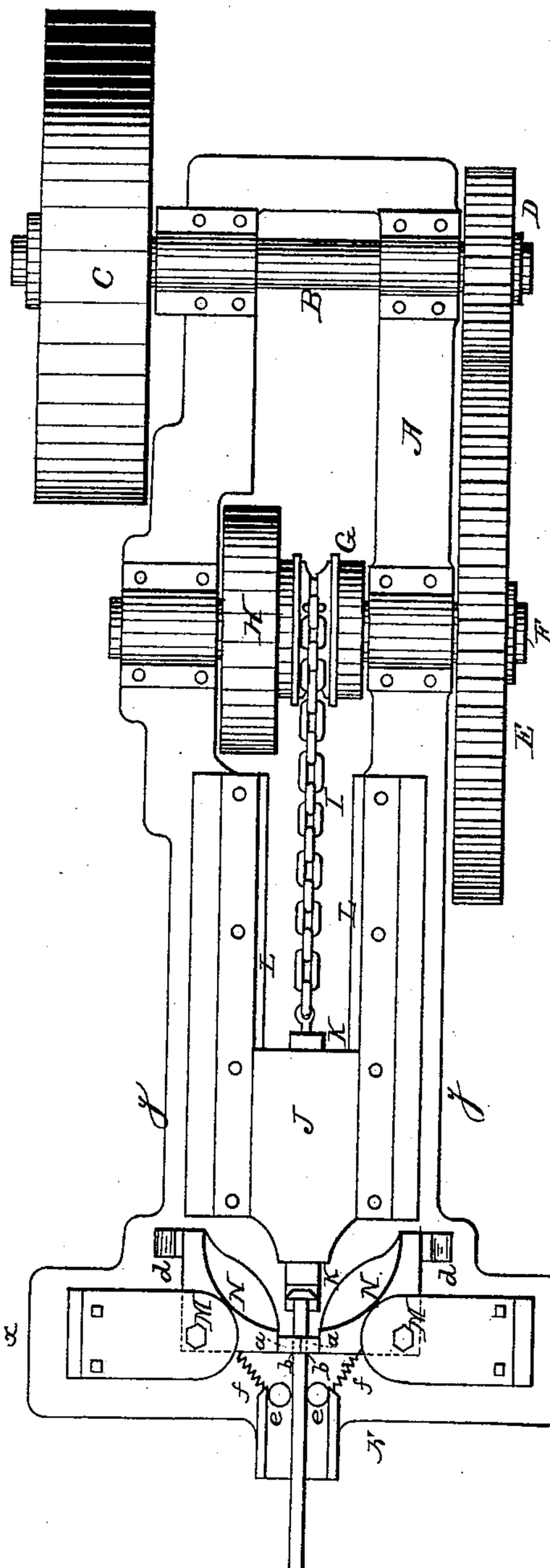

FIG. 1.

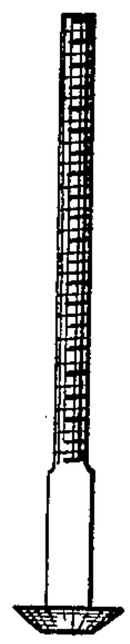

FIG. 6.

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

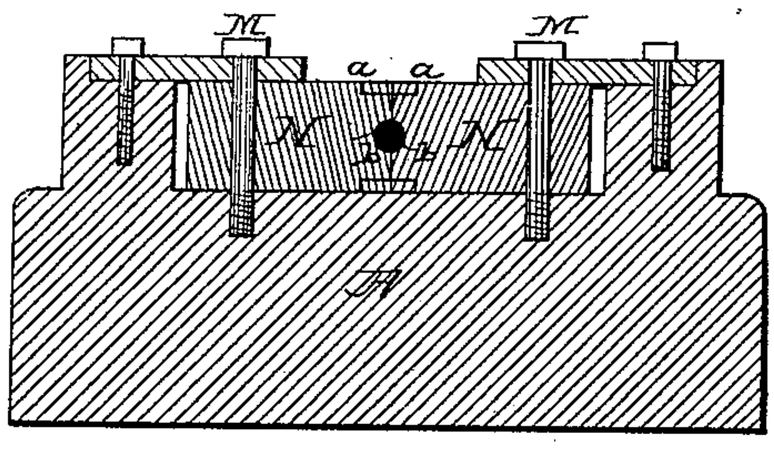


Fig. 4.

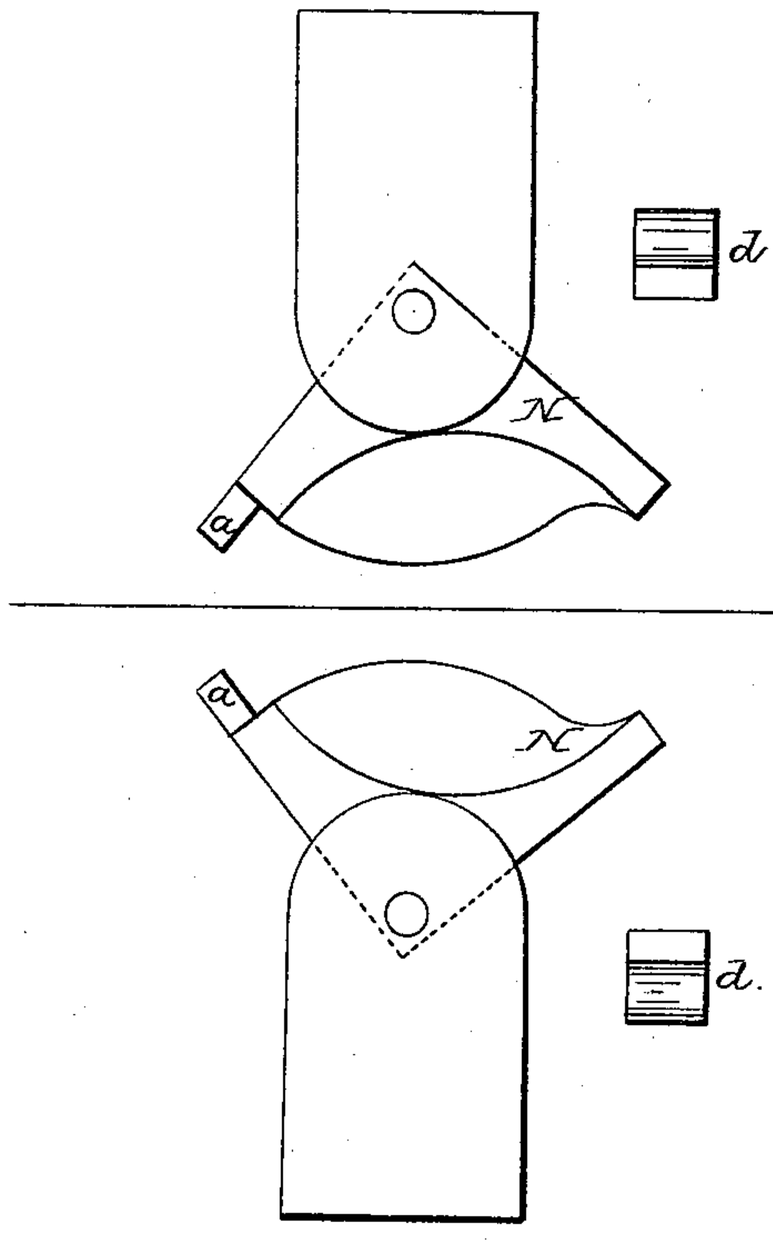


Fig. 5.

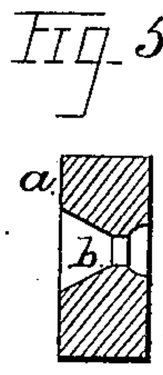
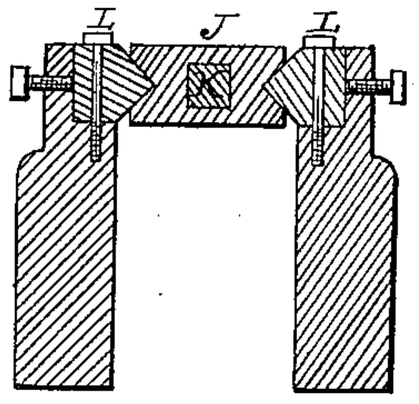


Fig. 3.



WITNESSES:

B. C. Lewridge

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UNITED STATES PATENT OFFICE.

HENRY E. COY, OF MANSFIELD, OHIO.

MACHINE FOR DRAWING BOLTS.

SPECIFICATION forming part of Letters Patent No. 303,363, dated August 12, 1884.

Application filed September 10, 1883. (No model.)

To all whom it may concern:

Be it known that I, HENRY E. COY, a citizen of the United States, and a resident of Mansfield, in the county of Richland and State of Ohio, have invented certain new and useful Improvements in Machines for Making Bolts, of which the following is a specification.

The invention relates to improvements in machines for making bolts; and it consists in dies of novel construction and arrangement combined with a suitable means for drawing the body of the bolt through the dies, whereby a die-drawn bolt may be formed.

The invention is illustrated in the accompanying drawings, wherein Figure 1 is a top view of an embodiment of the invention. Fig. 2 is a section on the line *x x* of Fig. 1. Fig. 3 is a similar view on the line *y y* of Fig. 1. Fig. 4 is an enlarged plan view of the dies, and Fig. 5 is a view showing the form of one-half of the matrix of the die. Fig. 6 is a view of the bolt.

In the drawings, A denotes the bed of the machine, having upon its rear portion suitable bearings, in which is journaled the driving-shaft B, upon one end of which is secured the belt-wheel C, to which power may be applied. Upon the other end of the shaft B is secured the pinion D, which meshes with the spur-gear wheel E, applied upon the end of the shaft F, upon which is loosely mounted the drum G and the clutch-box H, this latter being keyed upon the shaft. The clutch may be of any usual construction, its purpose being merely to cause the rotation of the drum G, or to permit it to remain idle upon the shaft, according to whether it is desired to wind the chain I, in the process of drawing the bolt, or allow the drawing mechanism to remain at rest. One end of the chain I is attached to the drum G, and the other end thereof is secured to the draw-head K, mounted in the slide J, which is arranged to move between the guides L, as indicated. The draw-head K passes through the slide J, and its front end is slotted to receive the square neck of the bolt.

Upon the front portion of the machine is pivotally secured, by means of the bolts M M, the dies N N, the form and general construction and arrangement of which are shown in Figs. 1 and 4. Upon the opposite facing ends, *a a*, of the dies is cut the matrix *b b*, the parts of which when united, as in Figs. 1 and 2, form a circular aperture, through which the bolt is drawn, and which imparts to the body of the bolt a cylindrical outline in cross-section. The dies N N may be swung apart, as shown in Fig. 4, to permit the introduction of the bolt, and then closed, as at Figs. 1 and 2, so as to firmly clasp the bolt in its matrix. Stops *d d* are provided, against which the dies N N may abut when closed. In front of the dies N N are mounted the guide-sheaves *e e*, between which the body of the bolt moves on its passage to and through the dies. The initial position of the dies N N is open, as shown at Fig. 4, and to thus retain them when idle I have supplied the springs *f f*. The bolts are made from square or angular rods of metal. One end of the rod is first subjected to a heading-machine, after which it is ready to be drawn by means of the apparatus hereinbefore described.

The operation of the invention is as follows: The slide J is moved to the front end of the guides L, whereupon the bolt is placed between the dies N N and the guide-rollers *e e*, its head being caught in the front end of the draw-head K. The dies N N are then closed upon the bolt, as indicated in Fig. 1, and power applied to the belt-wheel C, and the clutch H connected to the drum G, whereby the said drum is rotated and will wind the chain I upon itself and draw the slide J and the draw-head K toward the rear end of the guides L, in which operation the bolt will be drawn through the dies N and its body given a cylindrical form. Before the slide J is drawn toward the drum G, the space between the draw-head K and the meeting edges of the dies N N will determine the length of the square shoulder to be left upon the bolt, and it will appear obvious that by adjusting the relation of the said draw-head to the dies the length of the square neck on the bolt may be regulated at will. The invention is one of great simplicity and will be readily understood without a more detailed explanation.

I do not limit myself to the employment of the particular mechanism described for applying power to the chain I, nor to dies formed in two parts, as it will appear obvious to those skilled in the art that the dies may be formed of more than two parts, jointed and

operating in substantially the same manner as the dies herein described.

It will be understood that the operation of drawing the bolt will test the strength of the iron, and also show any defects or flaws which may be produced in forming the head—advantages which are to be appreciated.

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

1. In a machine for drawing bolts, the dies N N, pivoted at M M and adapted to have a swinging movement from each other and in a direction opposite to that of the movement of the bolt, said dies having matrices *b b*, and the machine being supplied with stops *d d*, against which the dies abut during the operation of drawing the bolt, substantially as set forth.

2. In a machine for drawing bolts, the pivotally-secured dies N N, having matrices *b b*, in combination with the springs *f f* and stops *d d*, substantially as set forth.

3. In a machine for drawing bolts, the dies N N, adapted to be closed upon the body of the bolt, in combination with a draw-head, a slide, and a means for moving the slide and draw-head from the dies, substantially as set forth.

4. In a machine for drawing bolts, the dies N N, adapted to be closed upon the body of the bolt, in combination with the draw-head, the slide, and a chain and drum, whereby the draw-head and slide may be moved from the dies, substantially as set forth.

Signed at Mansfield, in the county of Richland and State of Ohio, this 24th day of August, A. D. 1883.

HENRY E. COY.

Witnesses:
THOS. E. BARROW,
H. E. BELL.