

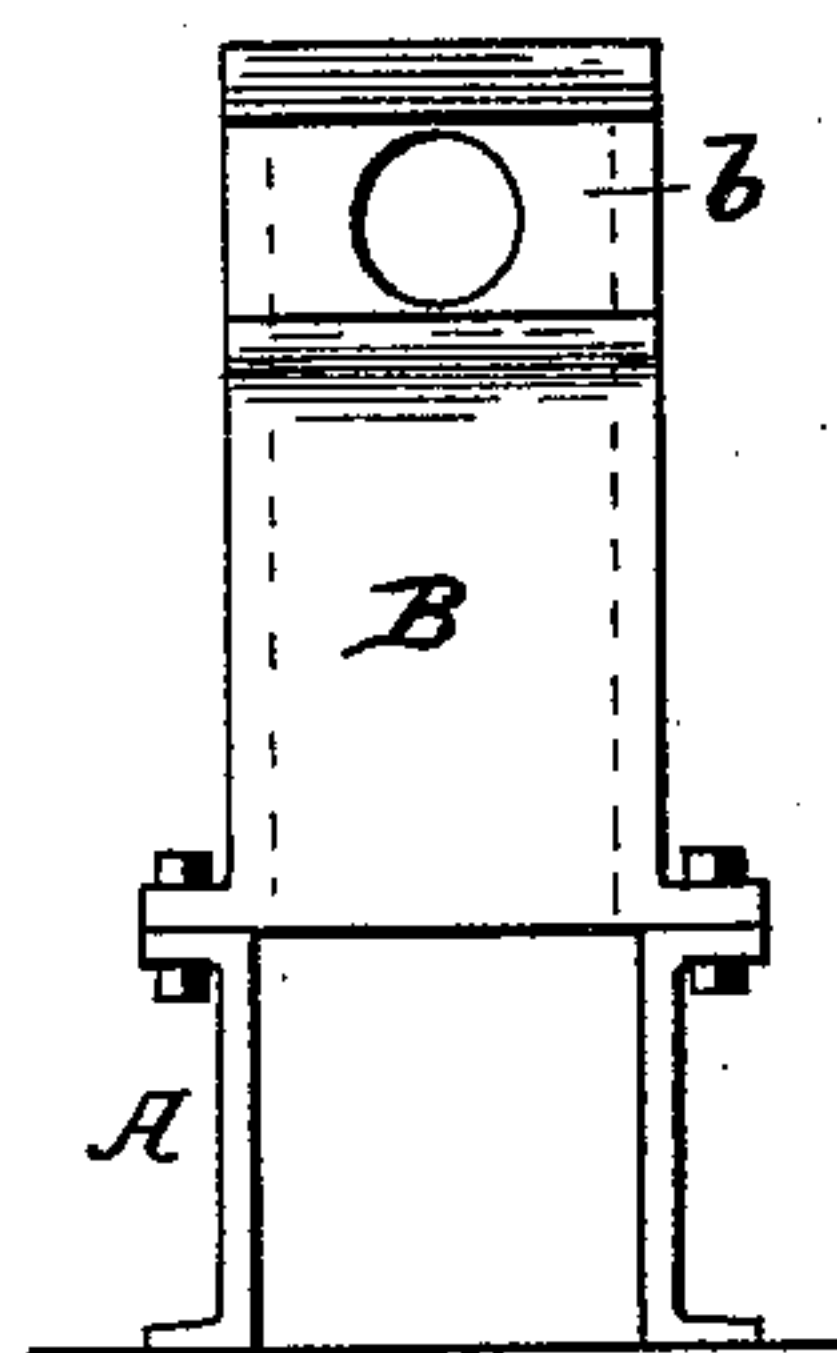
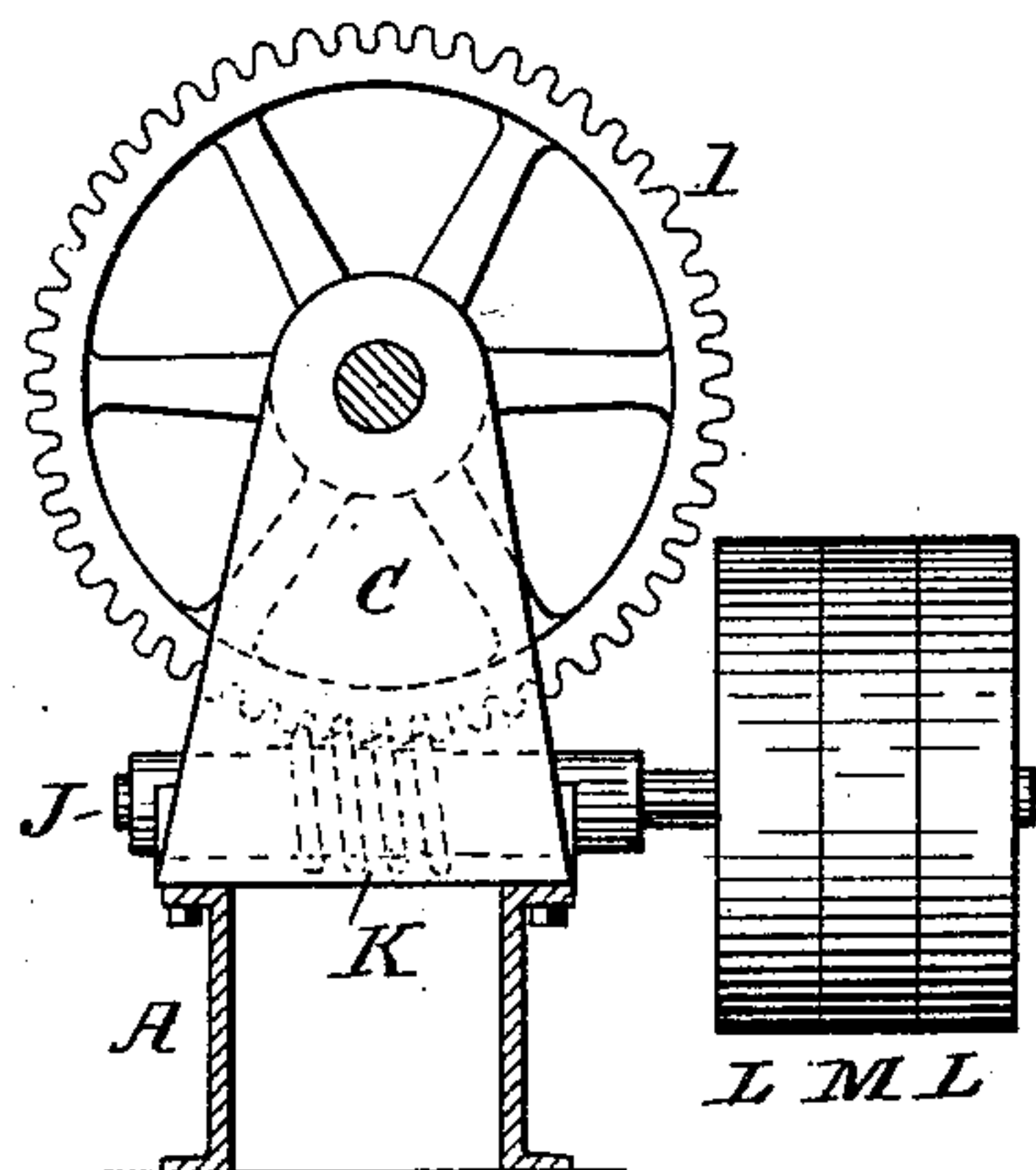
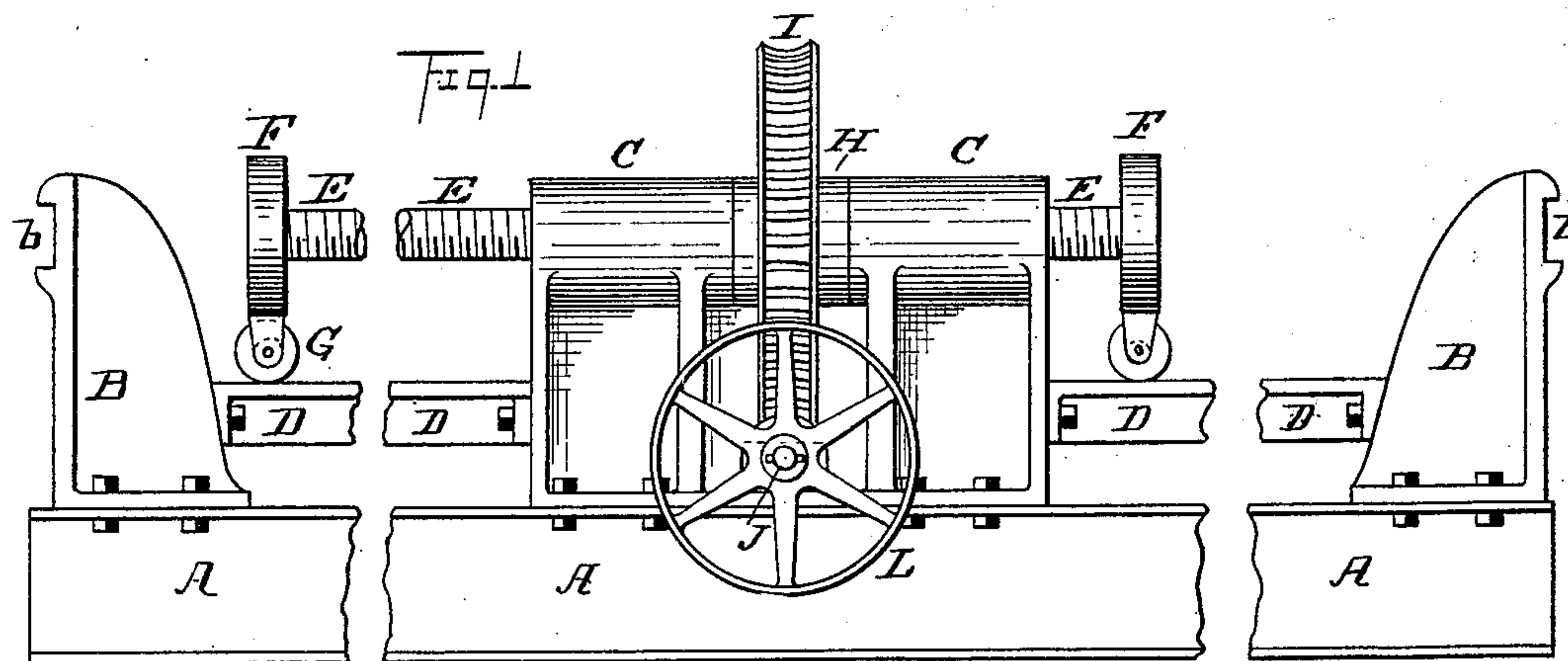
(No Model.)

T. J. BRAY.

MACHINE FOR DRAWING COLD METAL RODS OR SHAFTS.

No. 435,992.

Patented Sept. 9, 1890.



Witnesses.

Will S. Lowrie
C. E. Humphrey.

Inventor
Thomas J. Bray
by *C. E. Humphrey*
Attorney.

UNITED STATES PATENT OFFICE.

THOMAS J. BRAY, OF WARREN, OHIO.

MACHINE FOR DRAWING COLD-METAL RODS OR SHAFTS.

SPECIFICATION forming part of Letters Patent No. 435,992, dated September 9, 1890.

Application filed December 9, 1889. Serial No. 333,058. (No model.)

To all whom it may concern:

Be it known that I, THOMAS J. BRAY, a citizen of the United States, residing at Warren, in the county of Trumbull and State of Ohio, have invented a certain new and useful Improvement in Machines for Drawing Cold-Metal Rods or Shafting, of which the following is a specification.

My invention has relation to improvements in machines for cold-drawing heavy metallic rods, as shafting or tubing, for the purpose of reducing the diameter and compressing the metal on the outer surface. Heretofore it has been customary to draw such rods in one direction, returning the drawing mechanism and repeating the operation, by which process the time and power consumed in the return of the drawing mechanism are lost to the operative effect of the machine.

The objects of my invention are to utilize the return movement of the drawing mechanism to draw rods in an opposite direction, thereby securing a saving of time and power, to simplify the construction of the machine, reduce the number of parts, provide new devices for producing the draft, and present improved appliances for drawing the bars in a true line.

To this end my invention consists in the several matters hereinafter set forth, and pointed out in the appended claims.

In the accompanying drawings, which illustrate my invention and in which similar letters of reference indicate like parts, Figure 1 is a side elevation of one modification of my improved machine, showing the ends and center, the intermediate portion being broken out; Fig. 2, an end elevation of the drawing mechanism shown in Fig. 1, and Fig. 3 an end elevation of Fig. 1.

Referring to the construction shown in Figs. 1, 2, and 3, A is a bed, which may consist of parallel metallic beams, as shown, or other preferred construction, at each end of which are bolted upright brackets B B, having recesses *b b* for the reception of die-blocks, and in the center of which is attached a head-block C for the driving mechanism.

Between each bracket B B and the head-block C are guide-rails D D, attached at their

ends to one of the brackets and the head-block, respectively.

Extending through the head-block C is a screw-threaded shaft E, whose length substantially equals the length of the head-block and the distance between it and one of the brackets, and which bears at each end a draw-head F, to which the gripping devices for seizing the rod to be drawn are attached.

Each draw-head F has a friction or bearing wheel G, which runs on the guide-rails D D and supports the ends of the shaft E.

Mounted in the head-block C is a screw-threaded nut H, through which passes the shaft E, the screw-threads of which mesh with the internal screw-threads of said nut, and concentrically connected with which is a worm-wheel I.

Mounted in suitable bearings in the head-block C is a shaft J, bearing a worm K, which meshes in the worm-wheel I, and bearing tight pulleys L L and a loose pulley M.

Motion is communicated to the pulleys L L by straight and crossed belts from an overhead pulley in the usual manner of connecting planer-belts, the arrangement and operation of which, together with the device for alternately shifting the belts onto the loose pulley, is thought to be so well understood that further illustration and description are deemed unnecessary.

In operation the recesses *b b*, being provided with die-blocks, and the draw-heads F F with gripping devices, (neither of which has been shown, as no particular form or construction of either is essential to this invention,) the rods to be drawn are inserted in the die-blocks and alternately gripped and drawn inward as the shaft E is reciprocally moved by the worm.

I claim as my invention—

1. In a machine of the kind specified, the combination, with a supporting-frame bearing at each end supports for die-blocks, of a drawing-rod provided at each end with a draw-head arranged to move lengthwise reciprocally between said end supports, and means for actuating said rod, substantially as shown and described.

2. In a machine of the kind specified, the

combination, with a supporting-frame bearing at each end supports for die-blocks and a longitudinal guide-rail, of a drawing-rod arranged to move lengthwise reciprocally between said end supports, and draw-heads attached to each end of said drawing-rod and provided with bearing-rollers to run on said longitudinal guide-rail, substantially as shown and described.

10 3. In a machine of the kind specified, the combination of a supporting-frame having die-block supports attached to each end, a head-block mounted between said supports and bearing a revoluble screw-threaded nut, and a worm-wheel and worm to revolve said nut, of a screw-threaded shaft which meshes in said nut and having a draw-head at each end, substantially as shown.

20 4. In a machine of the kind specified, the combination, with a supporting-frame bearing at each end supports for die-blocks, and a central head-block bearing a vertically-revolving nut, of a screw-threaded shaft passing through said nut, arranged to be moved

reciprocally lengthwise of said machine and bear draw-heads at each end, and means, as gearing, to revolve said nut, substantially as shown and described.

5. In a machine of the kind specified, the combination, with a supporting-frame bearing at each end supports for die-blocks, a central head-block having a vertically-revolving nut mounted therein, and longitudinal guide-rails between said end supports and head-block, of a screw-threaded shaft meshing in said revolving nut, arranged to move lengthwise reciprocally between said end supports and bear draw-heads at each end, and provided with bearing-rollers to run on said longitudinal guide-rail, substantially as shown and described.

In testimony that I claim the above I hereunto set my hand.

THOS. J. BRAY.

In presence of—

E. B. MCCRUM, Jr.,
CHAS. C. PAIGE.