S. D. & H. T. LATTY.

BOLT HEADING MACHINE.

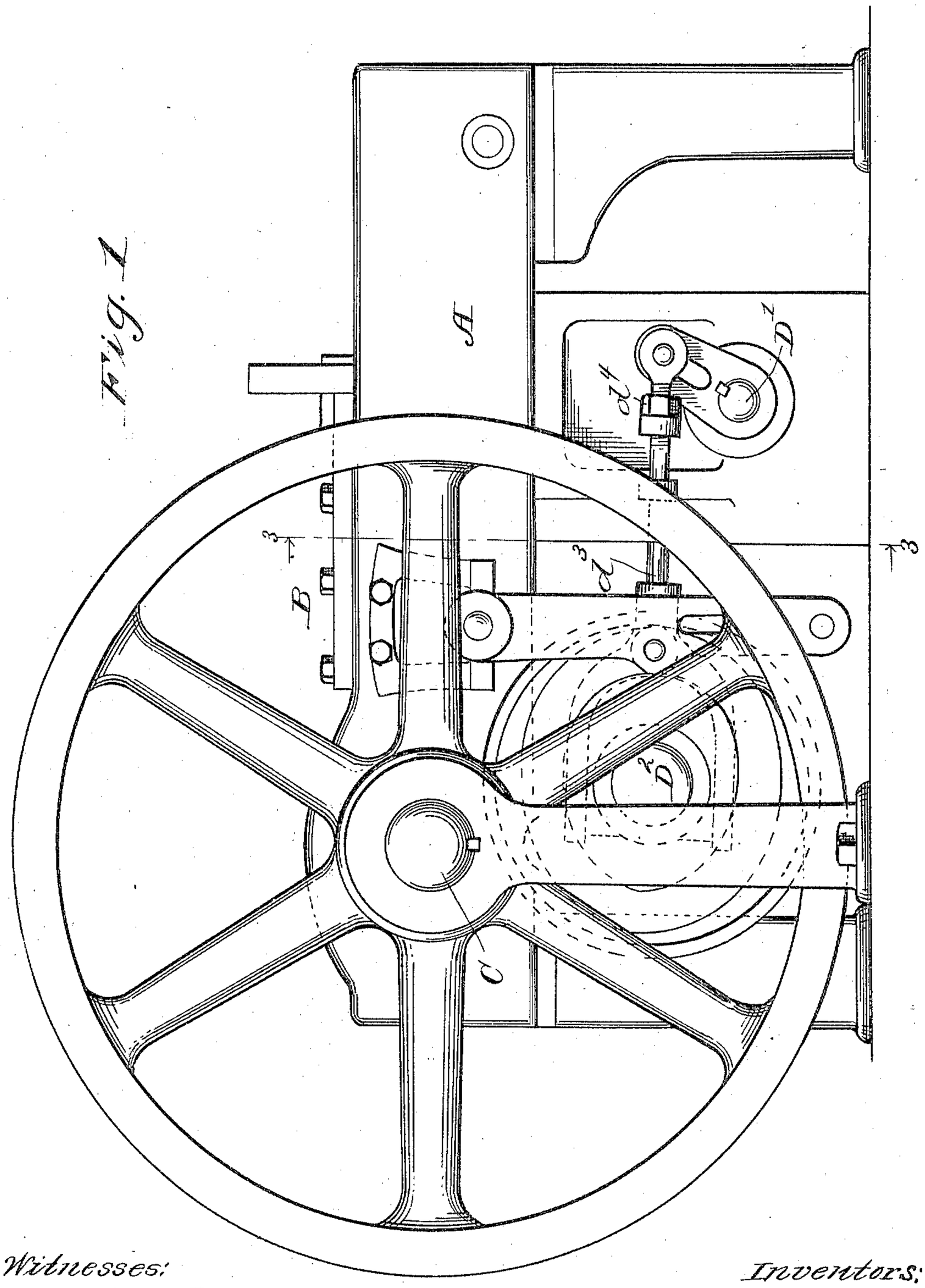
APPLICATION FILED MAR. 2, 1908.

948,060.

Patented Feb. 1, 1910.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses:

J. C. Turner

Jno. F. Oberlin

Inventors:

Samuel D. Latty

and

Henry T. Latty

by

J. B. Fay

Attorney.

S. D. & H. T. LATTY.

BOLT HEADING MACHINE.

APPLICATION FILED MAR. 2, 1908.

948,060.

Patented Feb. 1, 1910.

3 SHEETS—SHEET 2.

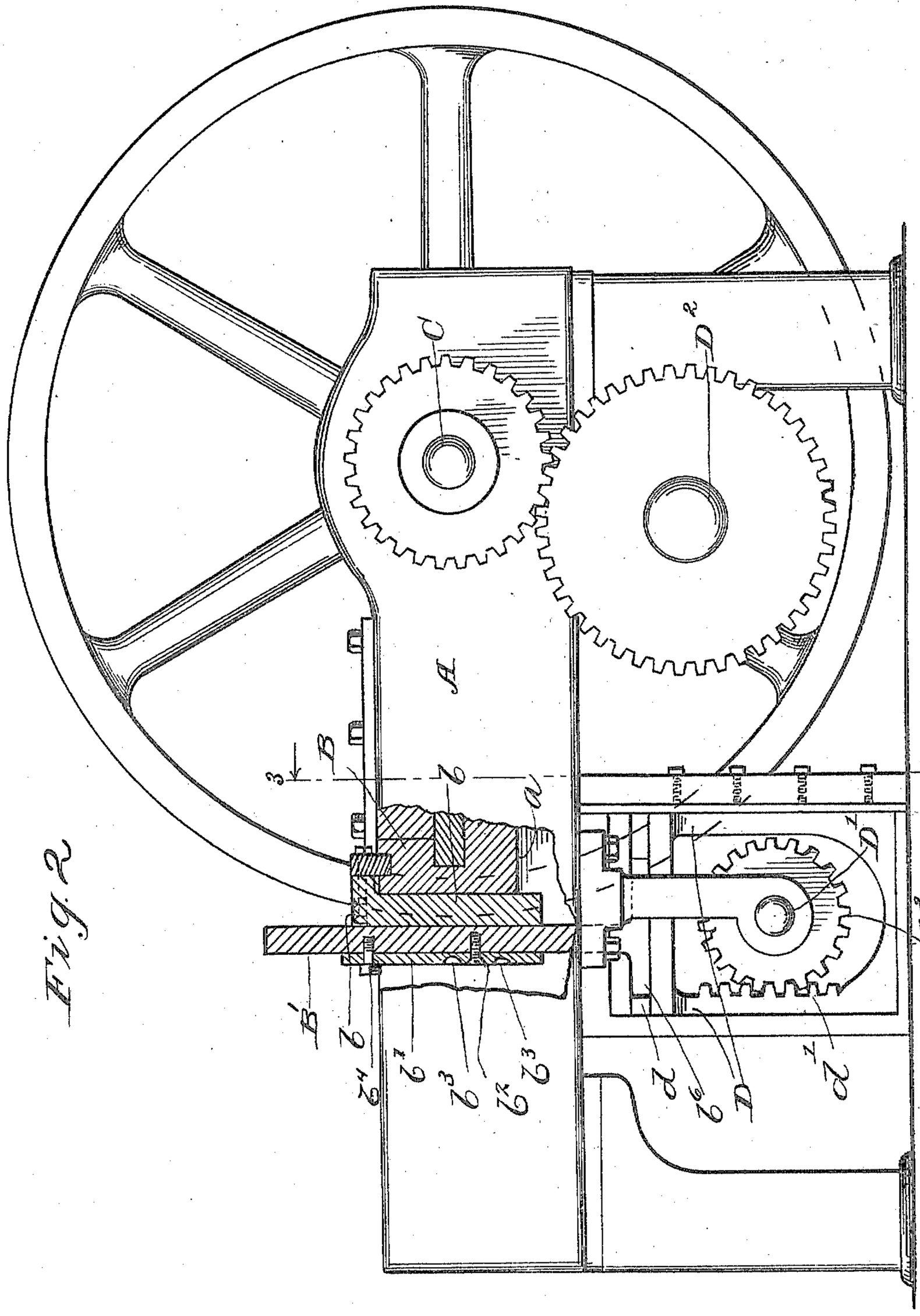


Fig. 2

Witnesses:

J. C. Turner

Jno. F. Oberlin

Inventors:

Samuel D. Latty

and

Henry T. Latty

J. B. Fay

Attorney.

S. D. & H. T. LATTY.

BOLT HEADING MACHINE.

APPLICATION FILED MAR. 2, 1908.

948,060.

Patented Feb. 1, 1910.

3 SHEETS—SHEET 3.

Fig. 3

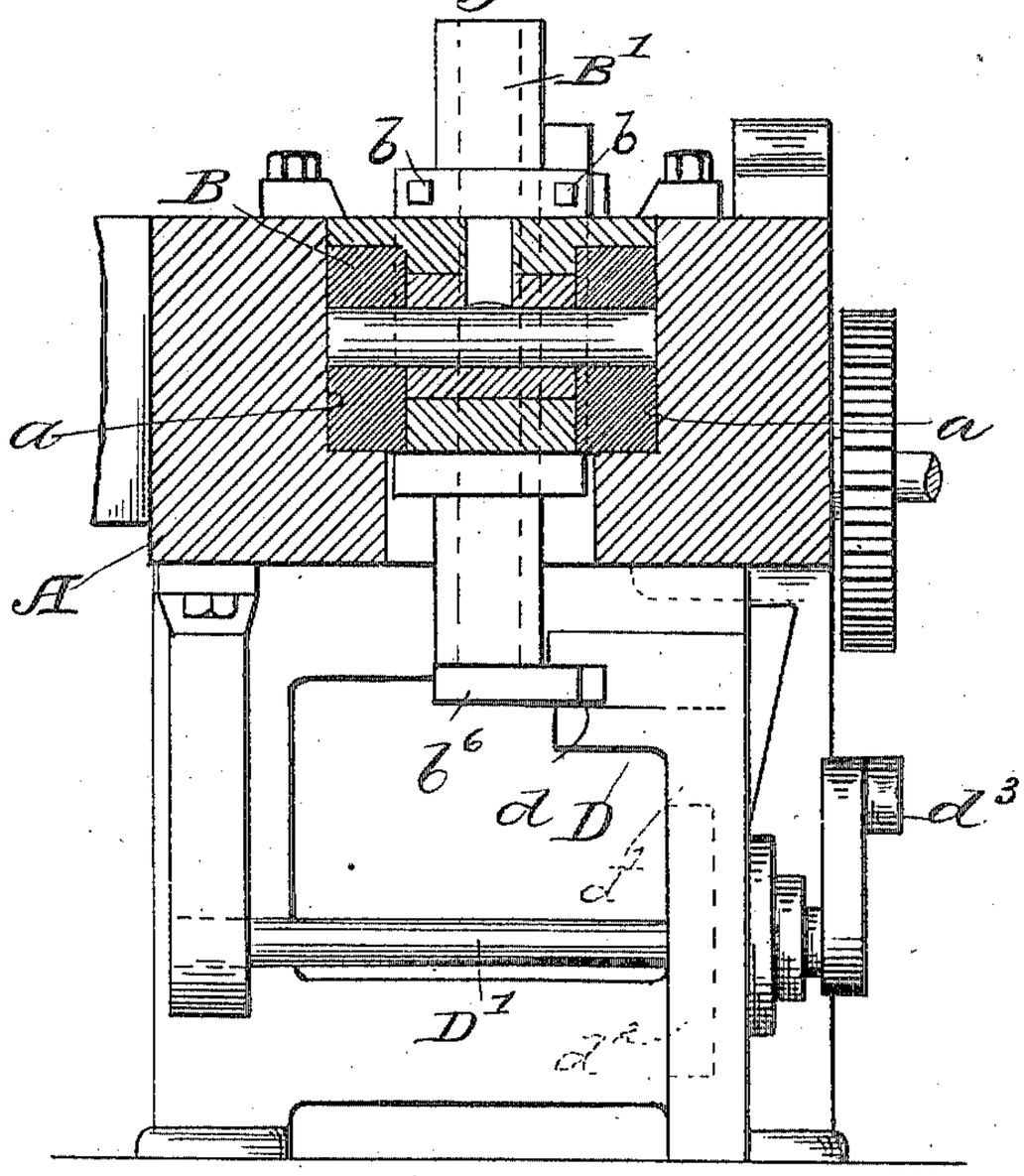
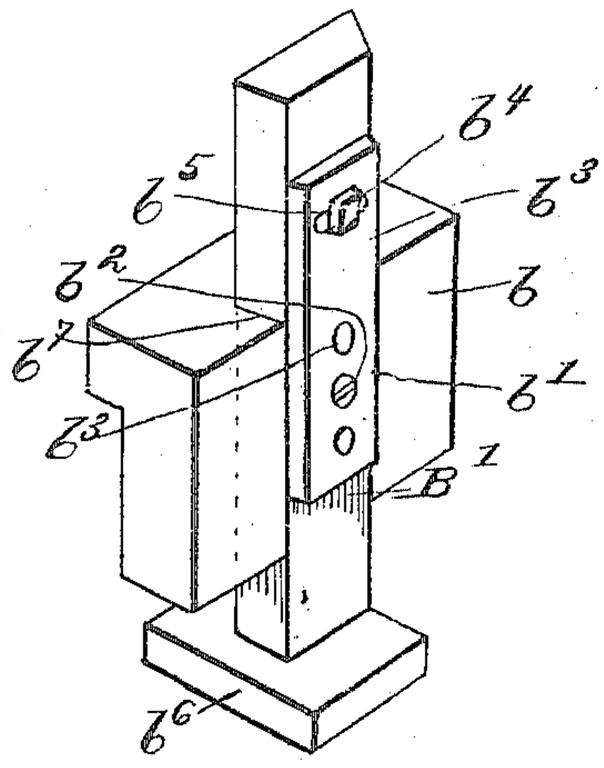


Fig. 4



Witnesses:

J. C. Turner

Jno. F. Oberlin

Inventors:

Samuel D. Latty

and Henry T. Latty

J. B. Fay

Attorney.

UNITED STATES PATENT OFFICE.

SAMUEL D. LATTY AND HENRY T. LATTY, OF CLEVELAND, OHIO.

BOLT-HEADING MACHINE.

948,060. Specification of Letters Patent. Patented Feb. 1, 1910.

Application filed March 2, 1908. Serial No. 418,740.

To all whom it may concern:

Be it known that we, SAMUEL D. LATTY and HENRY T. LATTY, both citizens of the United States, residents of Cleveland, county of Cuyahoga, and State of Ohio, have jointly invented a new and useful Improvement in Bolt-Heading Machines, of which the following is a specification, the principle of the invention being herein explained and the best mode in which we have contemplated applying that principle so as to distinguish it from other inventions.

This invention relates to metal working machinery of the class variously denominated upsetting machines, forging machines, or bolt headers, depending upon the specific character of the operation they are to perform.

The present invention relates more particularly to that type of the above class of machines wherein several successive blows of the ram are required to give the article being manufactured its final form. To this end the punch holder is ordinarily movably mounted on the face of the ram and its position then varied from one blow to another to present in succession a series of punches, or dies, as the case may be, in proper position for operating upon the stock, which is fixedly held pending the operations in question. In machines with which we are thus far acquainted, the mechanism for thus variously positioning the punch holder is more or less complicated and liable to get out of order, and it is with the object of providing more simple and effective mechanism for this purpose that the present invention is chiefly concerned. The means for effecting this and related ends will be hereinafter fully described, and particularly pointed out in the claims.

The annexed drawings and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings: Figure 1 is an elevation of one side of a bolt heading machine embodying our invention; Fig. 2 is an elevation of the other side of such machine, a portion, however, being broken away and parts appearing in section in order that the construction of the machine may more clearly appear; Fig. 3 is a transverse cross section of the machine on the line 3—3, Figs. 1 and 2; and Fig. 4 is a perspective detail view of the punch-holder and of the mounting whereby it is secured to the ram.

In the machine as illustrated in the several figures just described, it is shown, so far as possible, divested of all those accessory parts not concerned directly in the subject-matter of the invention, only those general features with which the invention is concerned appearing. Among such features will of course be included the bed A which is of usual form and construction, and the ram B reciprocably mounted in a suitable horizontal slideway *a* provided therein. Reciprocation of the ram is effected by a crank shaft C which, as will be presently seen, constitutes the driving element for the other operative parts of the machine as well. The punch-holder B′ consists essentially, Figs. 2 and 4, of an elongated block slidably held in a recessed way b^7 formed in the face of a cap *b* that is removably secured to the front end of the ram proper. The punch plate b' wherein are formed the punches or dies b^3 for actually operating upon the stock is in turn mounted on the face of such punch-holder being pivotally secured thereto by a pin b^2 about which it is angularly adjustable, a set screw b^5 passing through a slot b^4 cut on the arc of a circle having pin b^2 as its center, being adapted to secure such plate in desired angular position. By this means, it will be observed, the punches on the plate can be alined to bring them in proper operative relation with the stock. The number of punches borne by the plate it will be understood is wholly immaterial, there being two in the device as illustrated.

The lower end of punch holder B′ is provided with a laterally projecting foot b^6 that slidably engages a way *d* formed in a vertically reciprocable rack member D disposed below and to one side of the ram B whereby such punch holder is borne. The way *d* being parallel with the direction of movement of the ram, it will be obvious that by raising and lowering the rack member the vertical position of the punch holder can be varied irrespective of the longitudinal position of the ram. Movement of the rack member to effect this result is obtained through the medium of a rock-shaft D′ suitably supported from the frame, or bed, of the machine and bearing a pinion d^2 that meshes with the rack d' on the member. Oscillation of the rock-shaft is derived from

the crank-shaft C through the medium of a third shaft D^2 intergeared with the latter and connected with the former by an eccentric and rod d^3 as shown in Fig. 1. The length of this eccentric rod may be varied by adjustment of nuts d^4 to change the normal vertical position of the punch-holder, as will be easily understood. The character of the gear connections between the crank shaft and such third shaft are immaterial so long as the movement imparted therethrough to the punch-holder is correctly timed to bring the respective punches in the punch plate into proper operative position when successive blows of the ram are delivered.

By the foregoing means not only is accuracy in the timing of the operation of the punches secured, but by the fewness, and simplicity of construction, of the parts by which such movement is obtained, it will be seen that the machine is little liable to derangement and may be made heavy enough to endure rough usage and heavy work indefinitely.

Other modes of applying the principle of our invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any one of the following claims or the equivalent of such stated means be employed.

We therefore particularly point out and distinctly claim as our invention:—

1. In a machine of the character described, the combination of a reciprocatory ram, a punch-holder movable in said ram, a member movable in the same direction as said holder, and means adapted thus to move said member, said member being provided with a grooved way parallel with the direction of movement of said ram, and said holder being formed with a laterally projecting foot engaging such way, whereby said holder may be positively elevated and depressed, substantially as described.

2. In a machine of the character described, the combination of a reciprocable ram, a crank-shaft for reciprocating the same, a punch-holder movable in said ram, a member movable in the same direction as said holder, and means operatively connected with said crank-shaft for thus moving said member, said member being provided with a grooved way parallel with the direction of movement of said ram and said holder being formed with a laterally projecting foot slidably engaging such way, whereby said holder may be positively elevated and depressed, substantially as described.

3. In a machine of the character described, the combination of a reciprocable ram, a crank-shaft for reciprocating the same, a punch-holder movable in said ram, a rack member movable in the same direction as said holder, a rock-shaft provided with a pinion in mesh with said rack member, and means operatively connected with said crank-shaft for oscillating said rock-shaft, said rack-member being provided with a grooved way parallel with the direction of movement of said ram, and said holder being formed with a laterally projecting foot slidably engaging such way, whereby said holder may be positively elevated and depressed, substantially as described.

4. In a machine of the character described, the combination of a horizontally reciprocable ram, a crank-shaft for reciprocating the same, a punch-holder vertically movable in the face of said ram, a vertically reciprocable rack-member disposed alongside said ram and formed in its lateral face with a grooved way parallel with the direction of movement of said ram, said holder being formed with a laterally projecting foot slidably engaging such way, whereby the holder may be positively elevated and depressed, a rock-shaft provided with a pinion in mesh with the rack on said rack-member, a third shaft intergeared with said crank-shaft, and an eccentric connecting said third shaft with said rock-shaft for oscillating the latter.

Signed by us, this 29th day of February, 1908.

SAMUEL D. LATTY.
HENRY T. LATTY.

Attested by—
C. W. RAMPE,
WM. BATES.