

(No Model.)

3 Sheets—Sheet 1.

A. B. SHIPPEE.
ROLLING MACHINE.

No. 496,491.

Patented May 2, 1893.

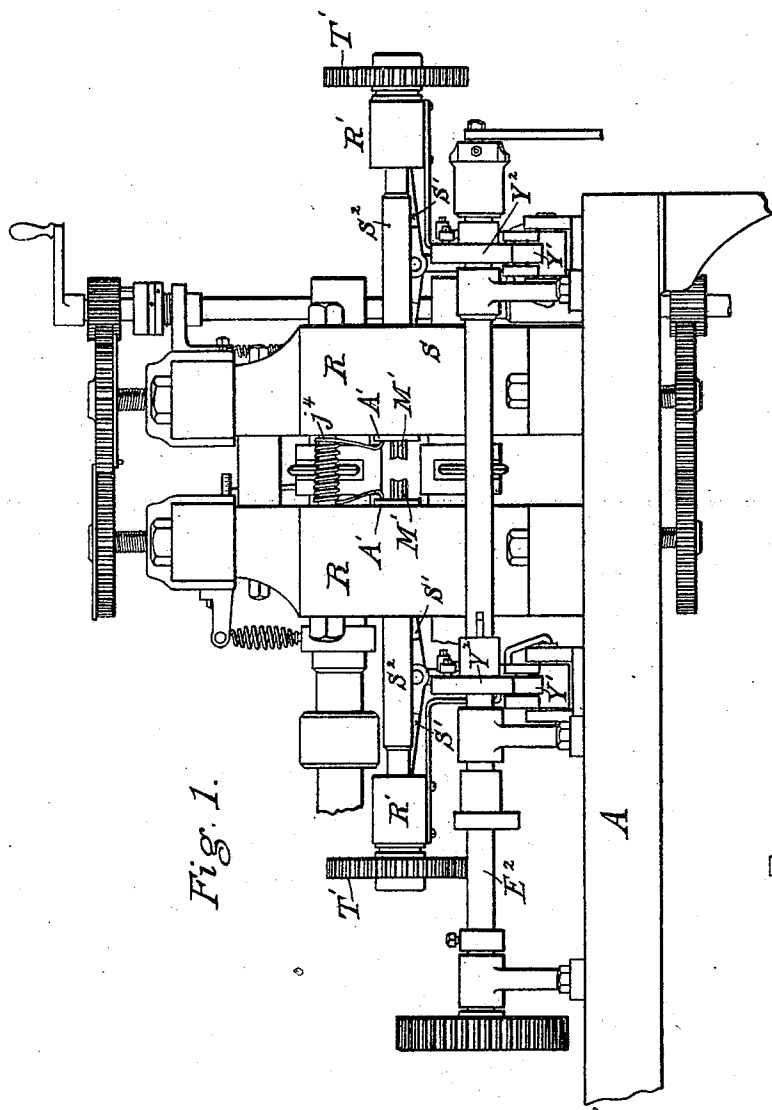


Fig. 1.

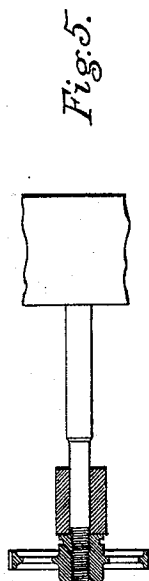


Fig. 5.

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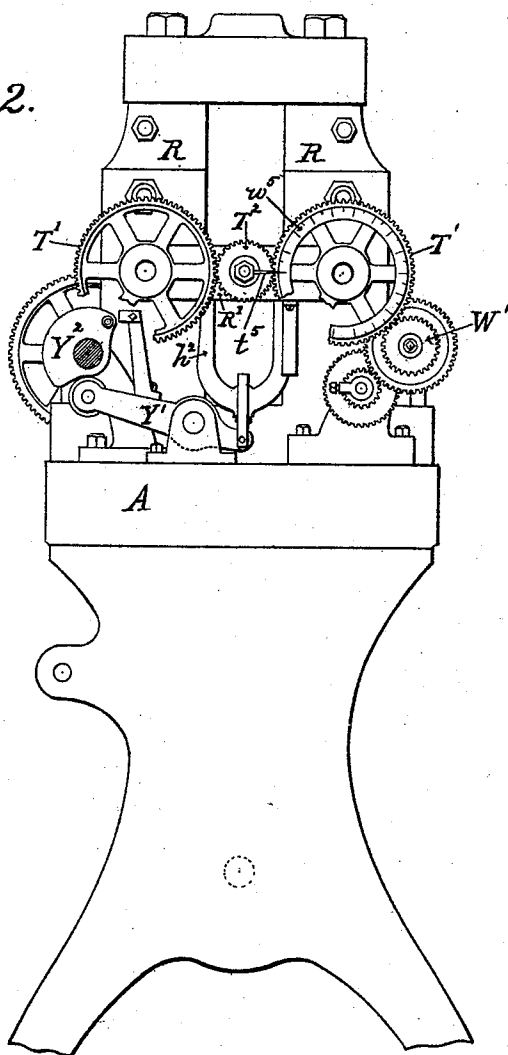
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Fig. 2.



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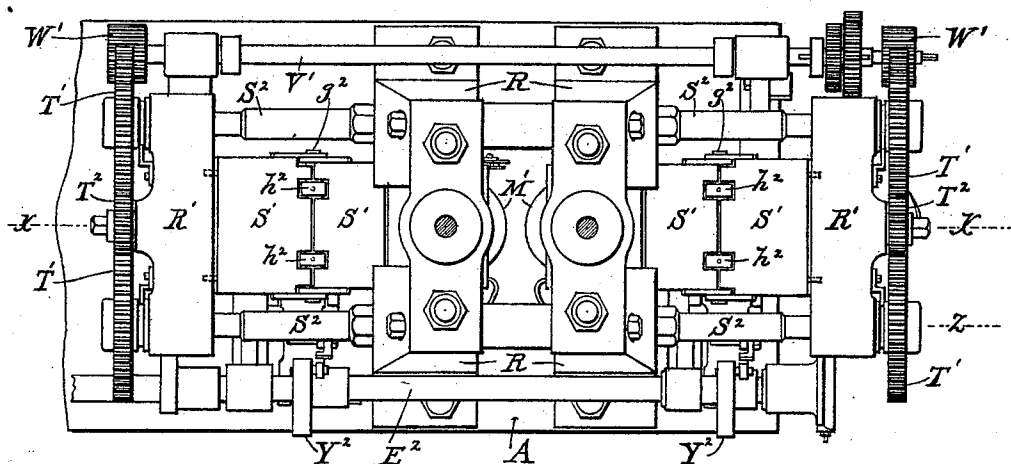


Fig. 3.

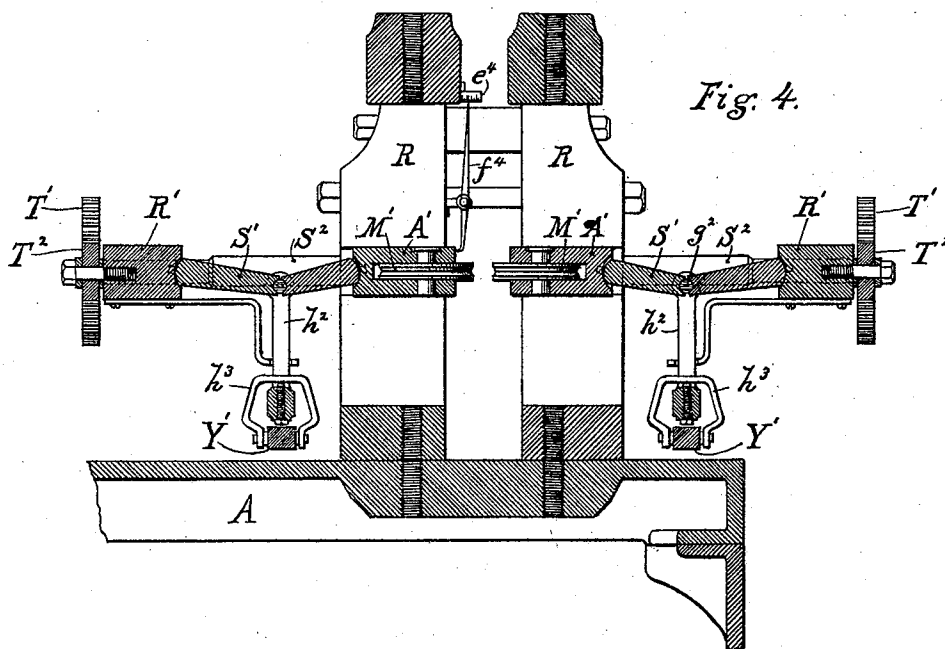


Fig. 4.

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UNITED STATES PATENT OFFICE.

AARON B. SHIPPEE, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO ALBERT W. CHAPMAN, OF SAME PLACE.

ROLLING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 496,491, dated May 2, 1893.

Application filed April 2, 1892. Serial No. 427,496. (No model.)

To all whom it may concern:

Be it known that I, AARON B. SHIPPEE, of Providence, in the county of Providence and State of Rhode Island, have invented certain
5 new and useful Improvements in the Arrangement and Operation of Dies in Rolling-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference
10 marked thereon, which form a part of this specification.

This invention relates to the class of machines used for rolling and grooving steel
15 blanks for drills and other like articles, and refers especially to closing the side dies, or bringing them closer together between the successive passages, of the blank.

In the drawings. Figure 1 is a front elevation of a part of a rolling machine in which
20 the side dies are used. Fig. 2 is an end view of the same. Fig. 3 is a top view of the same. Fig. 4 shows a vertical longitudinal section on line x, x , Fig. 3, of that portion of the machine having the dies. Fig. 5 is an elevation
25 of a supporting stud of the side dies, with screw wheel and bar in section, on line z , Fig. 3.

The part of a rolling machine shown to illustrate the application of the improvement,
30 consists of a part of a table A, having two uprights R, R, to hold bearings for rolls, as described in my application, Serial No. 427,494, filed April 2, 1892.

The two side rolls M', M' (see Fig. 4) are
35 held on pivots in blocks A', A' one in each standard R, in ways made for them in the sides of the opening in the stands. These blocks and rolls are for the purpose of rolling the sides of the blanks, and also to guide and
40 support them while the deep grooves are being rolled. They receive a motion toward and from each other, from the toggle plates S', S' which form powerful levers to force the roll against the blank. The outer edges of these
45 plates are held in bars R', R', secured to the outer sides of the roll stands R, R, by studs S², S², in which they slide. (See Fig. 4.) The outer edge of each outer plate S', is made round, and fitted to rock in a groove in the
50 inner face of each bar R', R', the inner edges of the inner plates S', are fitted to rock in

grooves in the outer edges of the blocks A'. The plates are coupled together in two sets, with a bar g^2 , between the parts of each pair, passing through the upper ends of stirrups
55 h^2 , which have recesses cut in the edges of the plates S', to receive them. (See Fig. 4.) The bars R', are crowded closer to the stands R, R, by screw threads made on the outer ends of the studs S², S², on which the gear wheels
60 T', are fitted to screw, and turn to press the bars R', in, so that when the plates S', are brought up to level, the blocks with rolls M', will be brought nearer together at each successive passage of the blank between the
65 rolls. Each pair of stud screw gears T', is connected by an intermediate gear T², held on studs on the bars R', and the two pairs are connected together so as to operate in unison, by the shaft V', held in bearings on the top
70 of the table A. (See Fig. 3.) Two gears W', fast on the shaft, engage with one of each of the pairs of stud screw gears T'. All this stud gear mechanism receives its motion from the shaft V', as described in my application
75 above cited. Between each successive passage of a blank between the rolls, the side rolls M', are drawn back to allow the blank to go in between the rolls. This is done and the rolls moved in again by means of the
80 stirrups h^2 , (see Figs. 4 and 2) which are connected with the levers Y', Y', by cross stirrups h^3 . These levers Y', are operated by cams Y², fast on the shaft E². (See Fig. 3.) These cams Y², are so shaped (see Fig. 2) as
85 to allow the outer ends of the levers Y', to rise and let the stirrups and plates S', drop, and release the blocks with the side rolls M', away from each other, and when a blank has entered between the rolls, they press down
90 the outer ends of the levers, and raise the plates S', by the stirrups, to a level again, thereby carrying the side rolls in against the blank with the immense pressure of the toggle joint.

In Fig. 1 a spring for holding back the die blocks A', A' is shown. j^4 is an open spiral spring held on a bolt passing through the
stands R, R, the ends of the spring resting against the blocks A', A', to press them back.
100 To ascertain readily the distance between the dies M', M', a lever f^4 , (see Fig. 4) is pivoted

to a stud in the inner face of the stand R, the lower end of the lever rests against the face of the die block A', and the upper end points to a graduated scale e^4 , attached to the stand
 5 R, showing the distance in thirty-seconds of an inch, and the same distance between the dies is shown micrometrically, by a scale w^5 , on the face of gear wheel T', having a fixed pointer t^5 , fast on a stud in bar R' and graduated
 10 to show one-thousandths of an inch in the space between the dies M', M'. (Fig. 2.)

Having thus described my improvements, I claim as my invention—

1. The combination of two sets of toggle
 15 plates operating in the same plane, supported at their outer ends by bars sliding on fixed studs having screw threads made on their outer ends, gear wheels fitted to screw thereon, said gears in each set being connected to
 20 work together, a pair of rolls, and means for operating said toggle plates, substantially as specified.

2. The combination of two sets of toggle
 25 plates operating in the same plane, supported at their outer ends by bars sliding on fixed studs having screw threads made on their outer ends and gear wheels fitted to screw thereon, said gears in each set being connected to work together, a shaft having two gear pin-

ions fast thereon, and engaging with a gear
 30 wheel of each set on said studs, rolls to be controlled substantially as described, and means for operating said toggle plates.

3. The combination of two sets of toggle
 35 plates operating in the same plane, supported at their outer ends by bars sliding on fixed studs having screw threads made on their outer ends and gear wheels fitted to screw thereon, said gears of each set connected to
 40 work together, a lever under the center joint of each set of toggle plates, a shaft having two cams fast thereon, and arranged to operate said levers and straighten both sets of toggle plates in unison with rolls to be operated thereby, substantially as set forth. 45

4. In a rolling machine, the combination of the rolls and the means for moving them, a lever held on a pivot in the side of one of the stands over the rolls, with its lower end resting against one of the roller blocks moved by
 50 the toggle plates, and its upper end pointing to a graduated scale, also attached to the inside of the stand, to indicate the position of the rolls, substantially as set forth.

AARON B. SHIPPEE.

Witnesses:

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