

No. 665,546.

Patented Jan. 8, 1901.

G. G. PLACE.  
MANGLE.

(Application filed Aug. 12, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

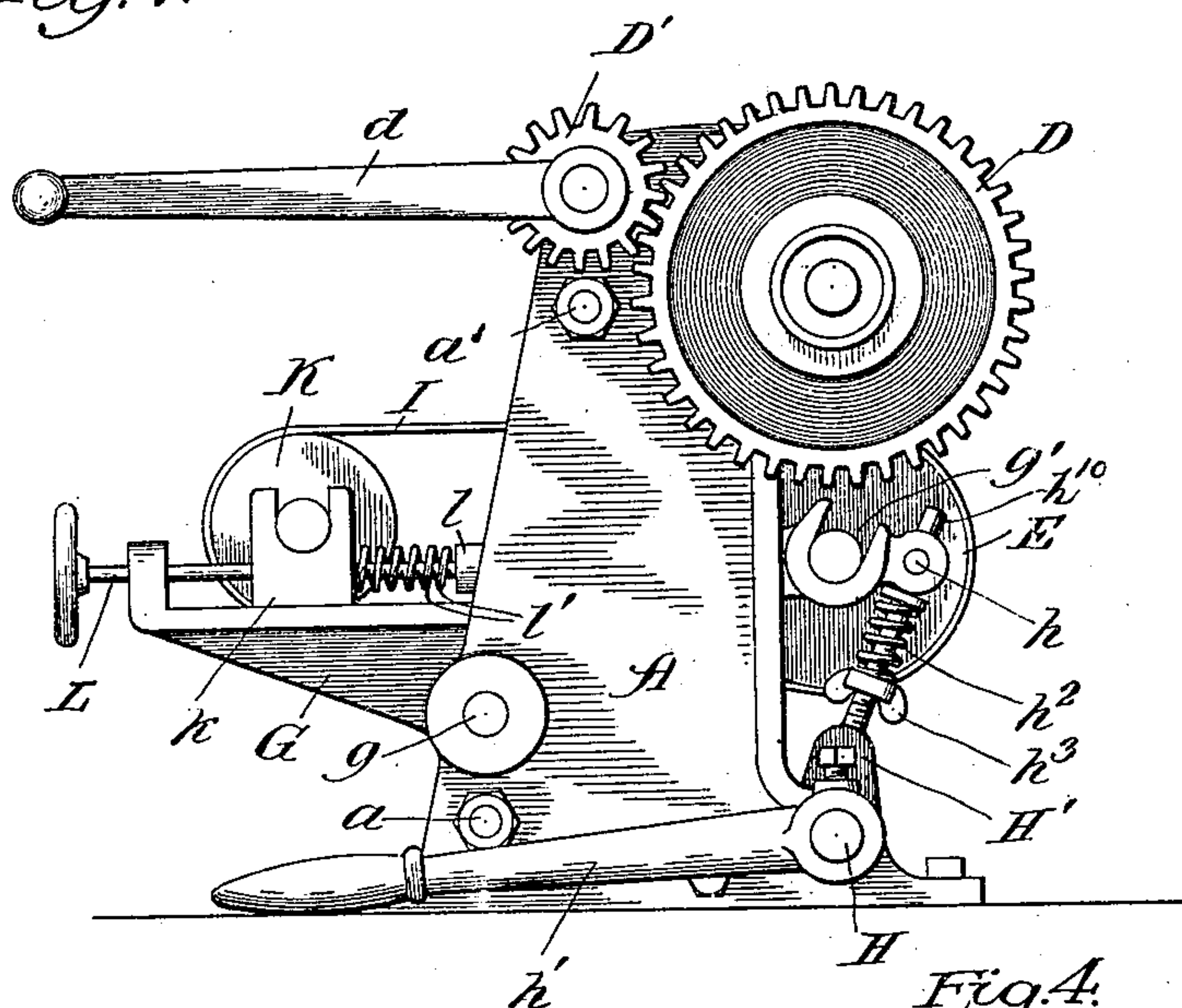


Fig. 4.

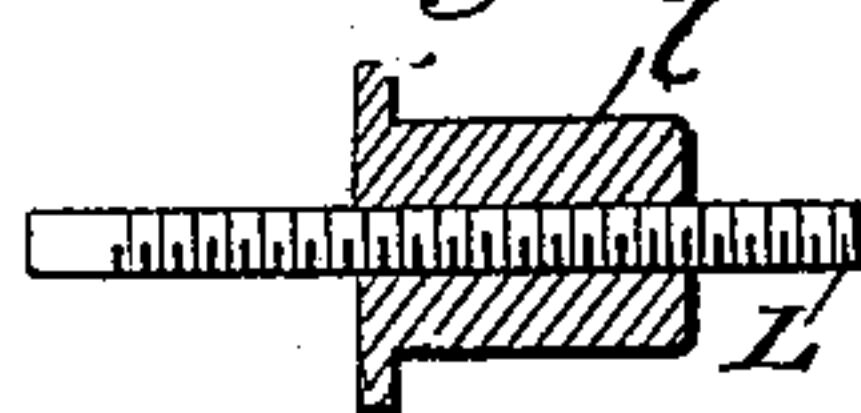


Fig. 5.

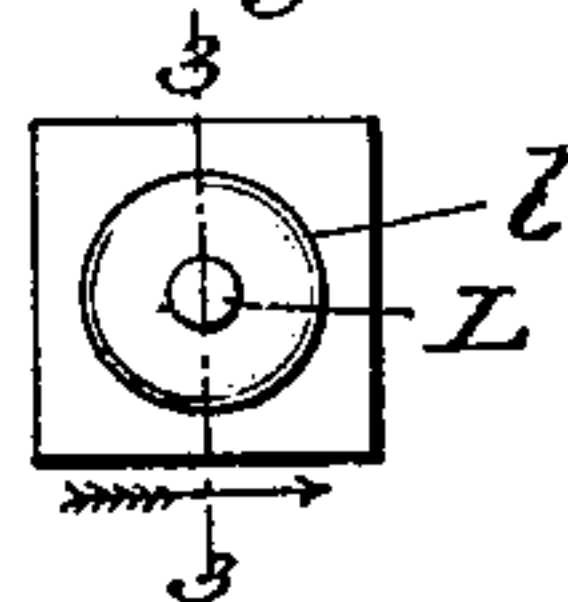
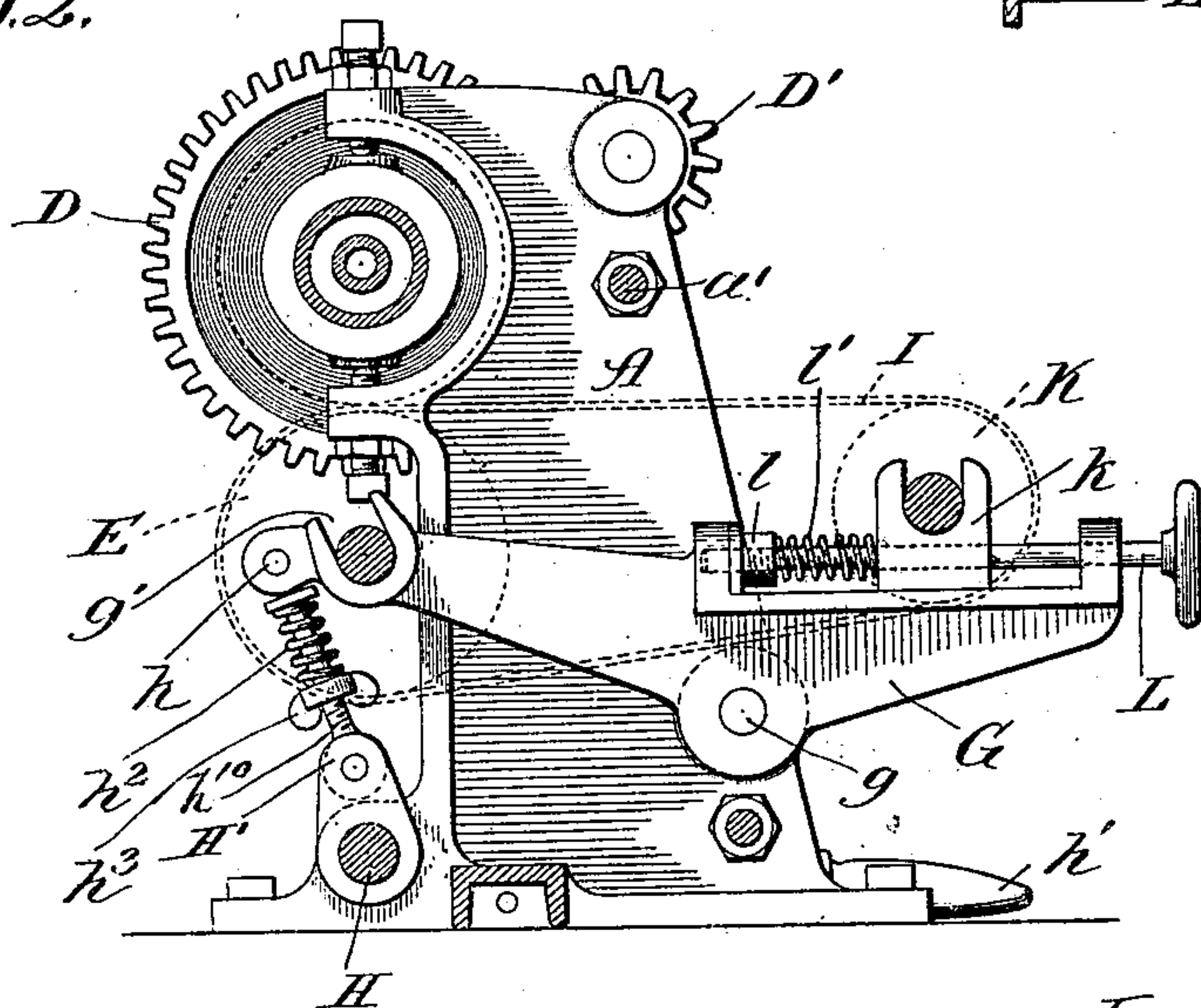


Fig. 2.



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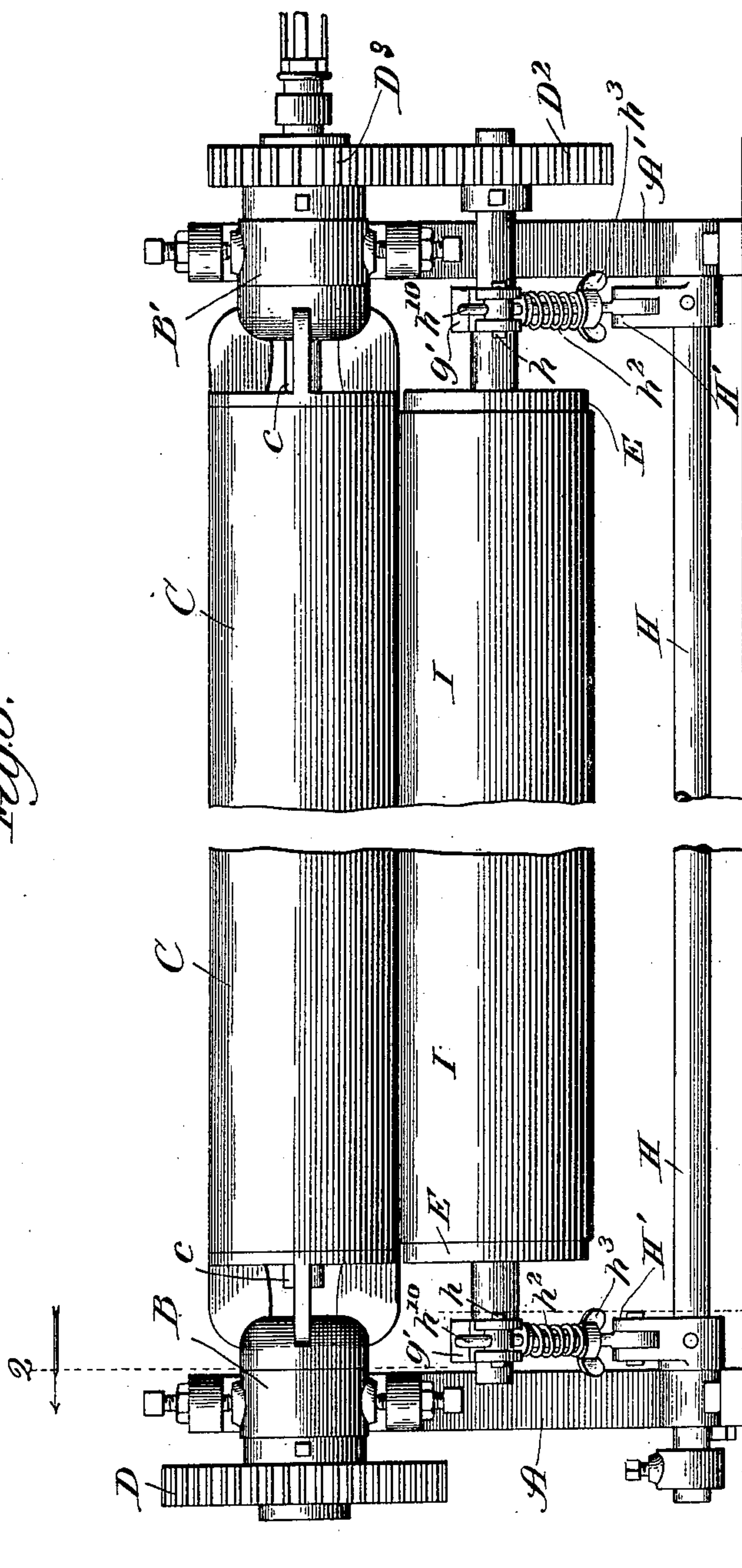
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2 Sheets—Sheet 2.

Fig. 3.



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# UNITED STATES PATENT OFFICE.

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## MANGLE.

SPECIFICATION forming part of Letters Patent No. 665,546, dated January 8, 1901.

Application filed August 12, 1899. Serial No. 727,004. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE G. PLACE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Mangles, of which the following is a specification.

The invention relates particularly to that class of mangles known as "steel-roll" mangles, in which there is a main hollow metal roll adapted to be heated and rotatably mounted in a frame portion and provided with supplementary and idler roll mechanism and an endless apron for carrying the clothes to be ironed and pressed into contact with the heated roll.

The invention relates particularly to the means by which the supplementary-roll mechanism and apron are carried into and removed from contact with the heating-roll, all of which will more fully hereinafter appear.

The principal object of the invention is to provide a simple, economical, and efficient mangle; and the invention consists in the features, combinations, and details of construction hereinafter described and claimed.

In the accompanying drawings, Figure 1 is an end elevation of a mangle constructed in accordance with my improvements; Fig. 2, a cross-sectional view taken on the line 2 of Fig. 3 looking in the direction of the arrow; Fig. 3, a broken elevation of the mangle looking at it from the right side of Fig. 1; Fig. 4, an enlarged sectional view of a sliding nut taken on line 3 of Fig. 5 looking in the direction of the arrow, showing the connection of the nut and tension-screw; and Fig. 5, an end view of the nut shown in Fig. 4.

In constructing a mangle in accordance with my improvements I make a suitable frame portion which comprises a base part, to which are secured two standards A A' and which are bolted together by means of tie-bolts a a' and are of a suitable size and shape and strength to hold and sustain the operative and other parts in condition for use.

Rotatably mounted in suitable bearings B and B' is a hollow metal heating-roll C, provided with a gas-burner c, extending axially therein. This main roll is provided with a spur-gear D, meshing with a spur-pinion D',

which pinion has its shaft or spindle provided with a crank-lever d, so that the rotations of the crank may impart the necessary rotary movement to the heating-roll. At the opposite end of the main roll is mounted a gear D<sup>3</sup>, which meshes with a gear D<sup>2</sup> upon a supplementary roll, hereinafter described, so that when the pinion D' is rotated by means of the lever d it rotates the gears D and D<sup>3</sup> on the main roll and the gear D<sup>3</sup> meshes with the gear D<sup>2</sup> of the supplementary roll and causes it to rotate.

It is highly desirable that a set of rolls and an apron, or, in other words, an endless flexible belt, be provided for the purpose of carrying the articles to be ironed into contact with the heating-roll and exert the necessary pressure thereon for the purpose of ironing the clothes and, further, that suitable mechanism may be provided by which the supplementary roll and belt are removed from contact with the ironing or heating roll, so that the articles may be easily removed whenever it is necessary or desirable and the supplementary roll and apron also be removed from contact with the ironing-roll, and thus prolong the efficiency and life of the machine. In order to accomplish this result, a supplementary roll E is provided and arranged immediately under the heating or ironing roll. This supplementary roll is rotatably mounted in a frame pivoted to the main frame of the machine, so as to swing the supplemental roll toward and away from the heating-roll. This swinging frame consists of two arms or brackets G, mounted upon and secured to a rock-shaft g, which in turn is rotatably mounted in the frame of the machine. Both of these brackets at one end are provided with U-shaped bearings g', in which the shaft of the supplementary roll is journaled, so that such roll may be inserted in its position or removed therefrom in as simple a manner as possible.

It is desirable to raise the supplementary roll and hold it with a yielding tension in operative connection with the heating-roll, so that while thus held the material to be operated upon may pass between the rolls and be ironed and the supplementary roll may be moved without injury to the other parts. To accomplish this and for other purposes read-



ily apparent, the rock-shaft H is mounted in the frame beneath the main and supplementary rolls and arms H' and a handle h' are secured thereto. Pivoted at the outer end of each arm is a screw-threaded rod  $h^{10}$ . (See Fig. 3.) The upper end of this rod is passed slidably through a horizontal pivot  $h$  at right angles with the axis of the pivot, which is rotatably mounted in lugs on the frame G near the end which holds the supplementary roll. This pivot is perforated and slidably admits the screw-threaded rod therethrough between the lugs on the frame. Upon this rod and in threaded connection therewith is a thumb-nut  $h^3$ , and between the thumb-nut and the swinging frame a compressible helical tension-spring  $h^2$  is mounted on the rod  $h^{10}$ , so as to loosely encircle the same. The lower end of the spring is in constant contact with the thumb-nut, by means of which it can be raised and lowered upon the rod as desired. The spring being mounted on the rod, as described, is between the thumb-nut and the swinging frame and raises the frame when the rod is raised. When the rod is lowered with the spring, the supplementary roll returns by force of gravity to its original position. With these appliances thus arranged a connection is furnished between the rock-shaft H and the swinging frame G, whereby upon turning the rock-shaft in one direction the swinging frame and supplementary roll are raised into operative connection with the heating-roll, and by turning it in the opposite direction the supplementary roll is permitted to swing out of connection with the heating-roll. The turning of the thumb-nut will raise or lower the spring upon the rod as desired to the position on the rod necessary to raise the supplementary roll the desired distance and hold it with a yielding tension in operative connection with the heating-roll and permit it to return when the rod is lowered. As will be readily seen, these springs permit the swinging frame and the supplementary roll to move against the tension of the springs while in their raised position, so as to admit between the rolls material of unequal thickness subject to a practically uniform tension supplied by the springs.

In the process of ironing it is desirable and economical to use an apron formed of a woven fabric, such as "duck" or the like, to carry the material to be ironed into contact with the heating-roll and to protect it from being soiled by the supplementary roll. In order to provide for this, an endless apron I is used, of nearly the same width as the supplementary roll, made in the form of an endless belt and passed around the supplementary and idler rolls E and K. The idler-roll K is rotatably mounted in sliding blocks  $k$ , so that the desired tension can be placed on the apron. In order to move the sliding blocks backwardly and forwardly on the swinging brackets, adjusting-screws L are provided and rotatably mounted in brackets or up-

right lugs opposite the supplementary roll at the free end of each of the swinging arms on the swinging frame and passed through the smooth perforation in the sliding blocks, one of which is between each pair of lugs. The inner end or stem of each adjusting-screw is screw-threaded and has mounted thereon a screw-threaded sliding nut  $l$ , provided with shoulders which prevent it from turning with the screw and cause it to slide when the screw is turned. A compressible coil-spring  $l'$  is inserted around the stem of each adjusting-screw between the sliding nut and the sliding block. Turning this screw in the one direction causes the sliding nut to move backward and increases the tension of the spring, and turning it in the opposite direction causes it to move forward and decreases the tension of the spring, allowing the sliding block in which the idler-roll is mounted to move toward the supplementary roll in response to the tension of the endless apron. The springs thus mounted and held at a tension serve to yieldingly hold the sliding blocks in the desired position and keep the endless apron under proper tension.

In operation the heating-roll is first heated by igniting the gas or gasoline burner, and the operating-lever is moved to the position shown in Figs. 1 and 2, which action, through the rock-shaft and toggle-levers, throws the swinging frame, with its supplementary roll and endless apron, up into contact with the heating-roll. The material to be ironed is placed on the apron and the heating-roll rotated by means of the crank-lever  $d$ , which, through the gearing D, D', D<sup>3</sup>, and D<sup>2</sup>, rotates the supplementary roll as well and carries the material into and between the heating and supplementary rolls. By raising the operating-lever  $h'$  the toggle-levers are operated and the supplementary roll, with its swinging frame, swung downwardly and away from contact with the heating-roll.

I claim—

1. In a mangle of the class described, the combination of a main frame, a heating-roll rotatably mounted in such frame, a swinging frame pivotally mounted on the main frame, supplementary and idler rolls rotatably mounted in the swinging frame and an apron passed around the supplementary and idler rolls, and means for rocking the swinging frame to throw the supplementary roll into and out of contact with the heating-roll, substantially as described.

2. In a mangle of the class described, the combination of a main frame, a heating-roll rotatably mounted in the main frame, a swinging frame pivotally mounted on the main frame, a supplementary roll rotatably mounted at or near one end of the swinging frame, an idler-roll mounted at or near the other end of the swinging frame, an endless apron passed around both of the last-named rolls, a rock-shaft and toggle-levers connecting the rock-shaft with the swinging frame whereby the



movements of the rock-shaft operate such swinging frame, substantially as described.

3. In a mangle of the class described, the combination of a main frame, a heating-roll  
5 rotatably mounted in the main frame, a swinging frame pivotally mounted on the main frame, a supplementary roll rotatably mounted at or near one end of the swinging frame, an  
10 idler-roll mounted at or near the other end of the swinging frame, an endless apron passed around both of the last-named rolls, a rock-shaft and toggle-levers connecting the rock-shaft with the swinging frame whereby the  
15 movements of the rock-shaft operate such swinging frame, tension-springs interposed between the toggle-levers and the swinging frame to yieldingly hold such frame and its supplementary roll against the main roll so  
20 as to permit the vibrations of the same when in operation, substantially as described.

4. In a mangle of the class described, the combination of a main frame, a heating-roll rotatably mounted in said frame, a swinging  
25 frame pivotally mounted on the main frame, a rock-shaft and toggle-lever mechanism for operating the swinging frame, a supplementary roll rotatably mounted in the swinging frame adjacent to the heating-roll, sliding  
30 bearing-blocks *k* mounted on the swinging frame, an idler-roller rotatably mounted in the sliding bearing-blocks, an endless apron passed around the idler and supplementary rolls, and screw and spring mechanisms for  
35 moving and holding the sliding blocks under a yielding tension, substantially as described.

5. In a mangle of the class described, the combination of a frame, heating mechanism mounted in the frame, an endless apron,  
40 smoothing mechanism between the heating mechanism and the endless apron a swinging

frame mounted in the main frame, an apron-carrying roll mounted on the swinging frame adjacent to and movable toward and from the  
smoothing mechanism, an idler-roll on which  
45 and the apron-carrying roll the endless apron travels, movable bearings carrying the idler-roll, tension-spring mechanism in operative connection with the movable bearings and  
50 idler-roll mounted therein and holding the endless apron under tension, means for moving the apron-carrying roll toward and away from the heating and smoothing mechanism, and means for rotating the apron-carrying  
55 roll whereby the endless apron is caused to move between the apron-carrying roll and the heating and smoothing mechanism, substantially as described.

6. In a machine of the class described, the combination of a frame, heating mechanism mounted in the frame, an endless apron,  
60 smoothing mechanism between the heating mechanism and the endless apron a swinging frame mounted in the main frame, an apron-carrying roll mounted on the swinging frame  
65 adjacent to and movable toward and from the heating and smoothing mechanism, an idler-roll mounted on the swinging frame upon which roll and the apron-carrying roll the  
70 endless apron travels, means for moving the apron-carrying roll toward and away from the heating and smoothing mechanism, and means for rotating the apron-carrying roll whereby the endless apron is caused to move  
75 between the apron-carrying roll and the smoothing mechanism, substantially as described.

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