

No. 815,820.

PATENTED MAR. 20, 1906.

G. HATCH.
MANGLE.

APPLICATION FILED MAY 2, 1904.

2 SHEETS—SHEET 1.

Fig. 2.

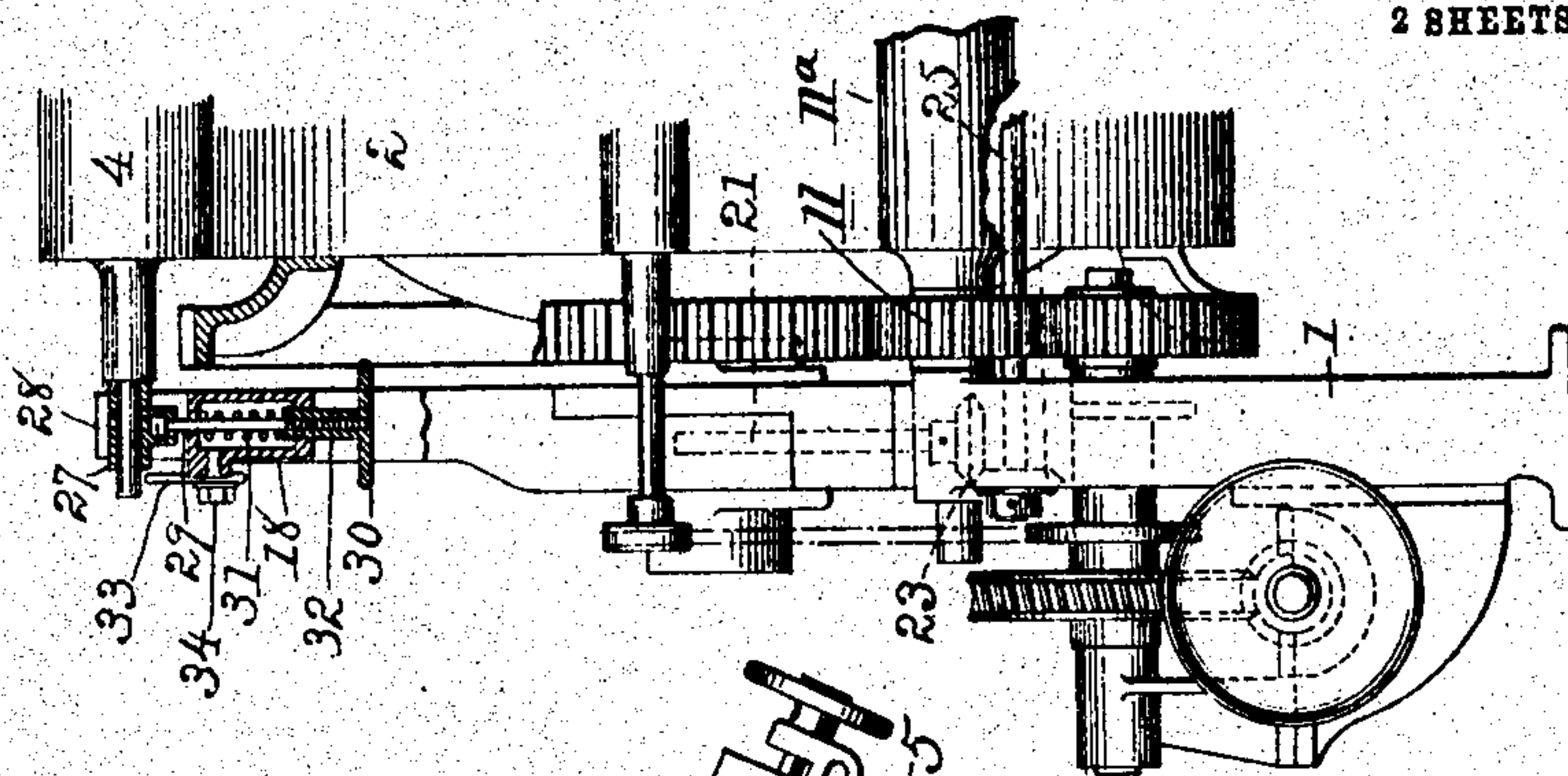
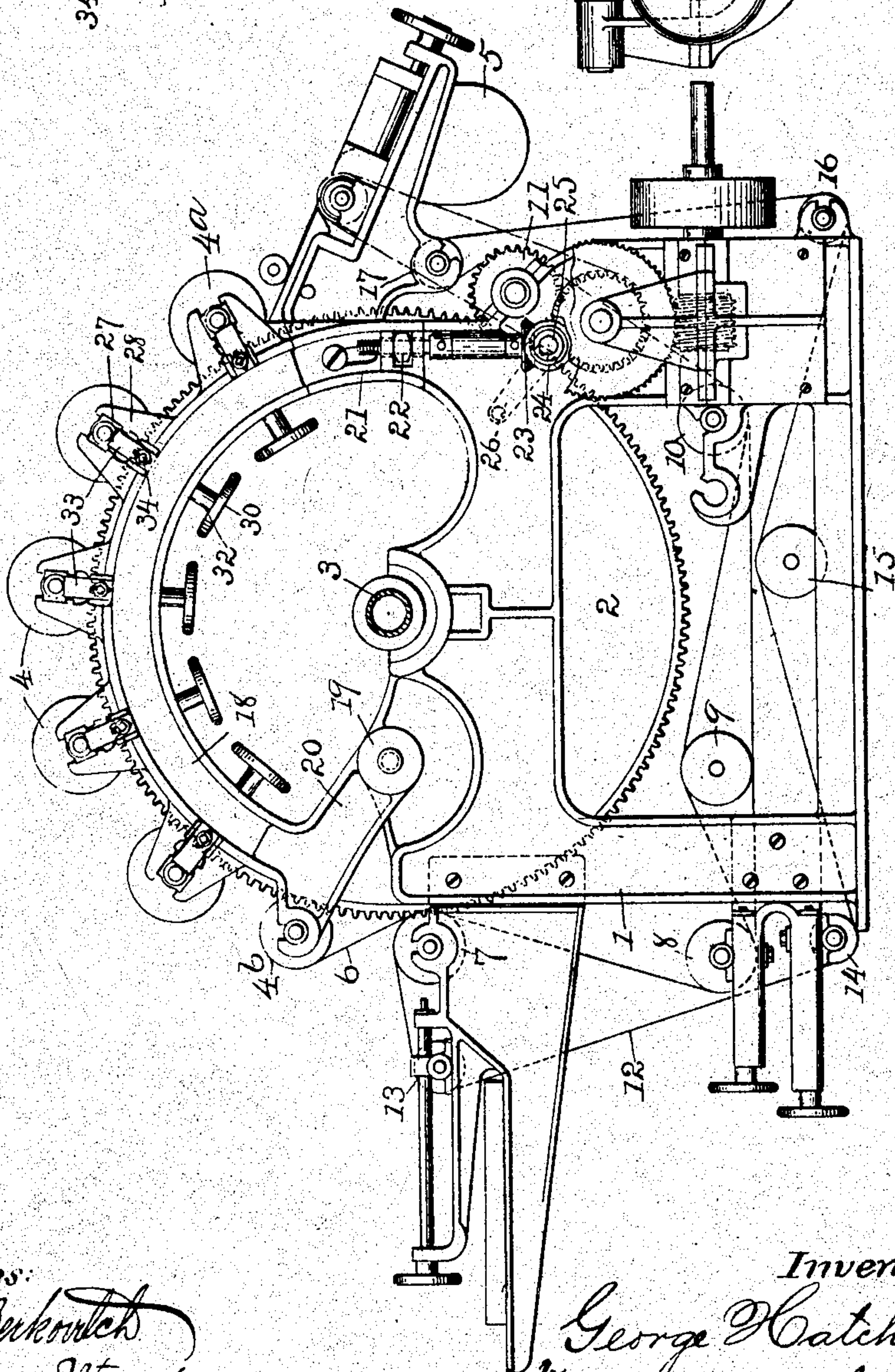


Fig. 1.



Witnesses:

Geo. O. Burkovich
John MacArthur

Inventor:

George Hatch,
Jenkins H. Barker,
Attorneys.

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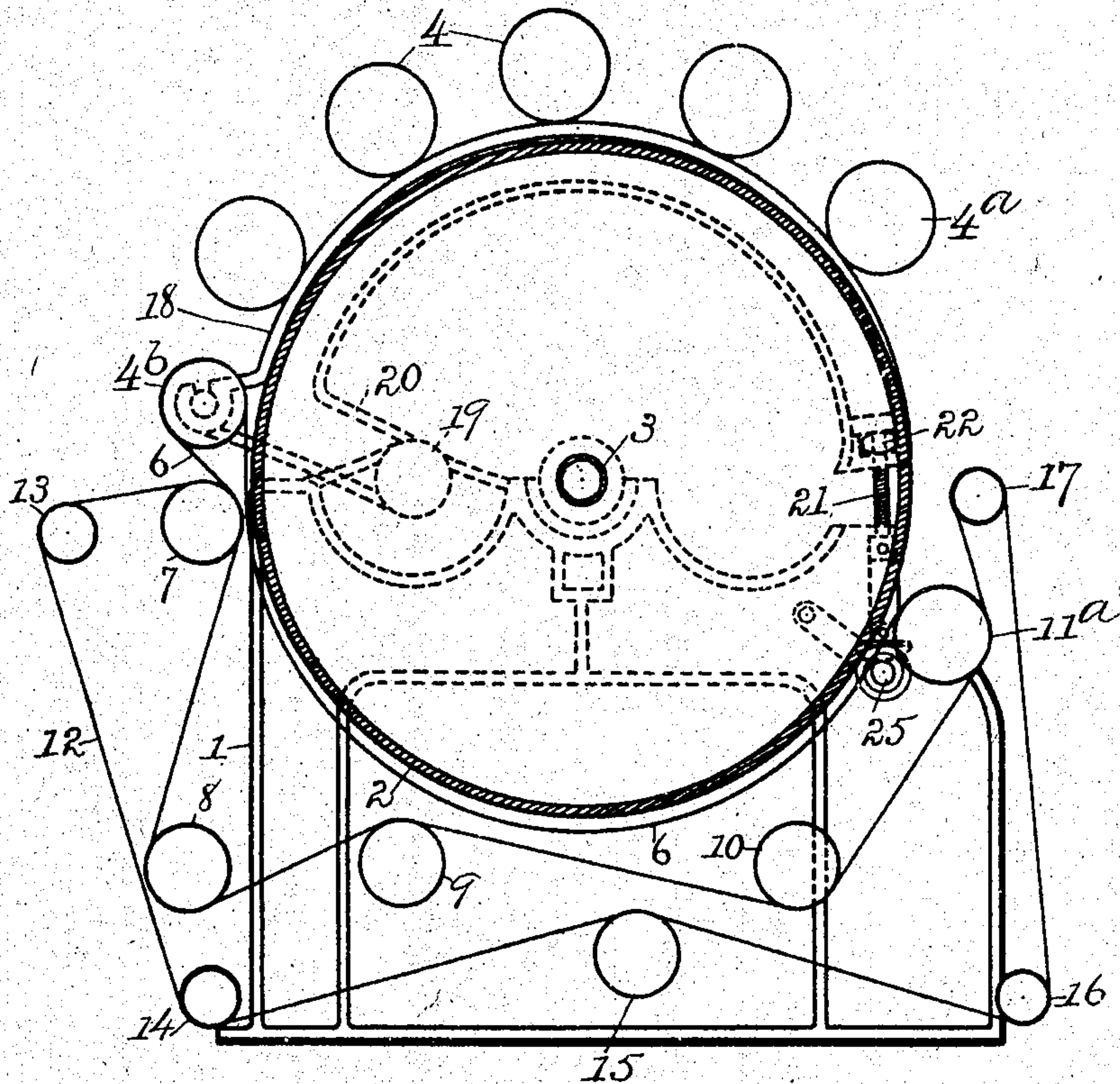
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2 SHEETS—SHEET 2.

Fig. 3.



Witnesses:
C. E. Johnson
J. E. Cohen

Inventor:
George Hatch.
Jenkins & Barker,
Attorneys.

UNITED STATES PATENT OFFICE.

GEORGE HATCH, OF SOUTH WINDHAM, CONNECTICUT.

MANGLE.

No. 815,820.

Specification of Letters Patent.

Patented March 20, 1906.

Application filed May 2, 1904. Serial No. 205,896.

To all whom it may concern:

Be it known that I, GEORGE HATCH, a citizen of the United States, and a resident of South Windham, in the county of Windham and State of Connecticut, have invented a new and Improved Mangle, of which the following is a specification.

My invention relates to the class of machines that are used for laundry purposes in the smoothing of fabrics; and the object of my invention is to provide a device of this class that shall preserve the covering or jackets of the different rolls and that shall also preserve the aprons and that shall prevent injury of said parts by contact with the heated cylinder when the machine shall be stopped for any purpose. A device in the use of which these objects may be attained is illustrated in the accompanying drawings, in which—

Figure 1 is a view in end elevation of a machine embodying my invention with parts broken away to show construction. Fig. 2 is a view in front elevation of one end of said machine, parts being in section and the table and aprons not being shown. Fig. 3 is a diagrammatic view showing part of the elements of the machine in section, and illustrating the position of the apron and its supporting rolls when the apron is dropped away from the cylinder.

In the accompanying drawings the numeral 1 indicates the frame of the machine in which the shaft 3 is mounted at each end thereof. This shaft is hollow for the admission of steam or like heating medium, and a cylinder 2 is mounted upon or secured to the shaft. This cylinder is hollow for the reception of steam or the like supplied through the shaft 3 for the purpose of heating the cylinder to the required degree for the purposes required. Rollers 4 and 4^a are mounted about the circumference of the cylinder and are held in yielding contact with the cylinder. The basket or table 5 is provided for the reception of articles to be operated upon by the machine, and these articles are introduced to the cylinder between the roll 4^a and the cylinder and are carried around the cylinder to the point where the roll 4^b is located.

An apron or endless belt 6 passes around the under surface of the cylinder from the roll 4^b to the roll 11^a, carrying the gear 11, then leaving the cylinder returns to the rear of the machine, passing over the rolls 10, 9, 8,

and 7 to the roll 4^b. A second apron 12 passes around the roll 7 and thence in contact with the rolls 13, 14, 15, 16, and 17, and thence in contact with the apron on the rolls 11^a, 10, 8, and 7. The fabric being operated upon after it reaches the point of location of the roll 4^b in its travel over the cylinder passes underneath said roll and is then carried between the apron 6 and the cylinder around underneath the cylinder to the roll 11^a. At this point it is carried away from contact with the cylinder and delivered between the aprons 6 and 12, being carried downward and backward and then upward, where it is delivered from between the aprons at the point where said aprons separate at the roll 7.

The machine thus far described is of old and well-known construction and forms no part of my invention, except in combination with elements hereinafter to be described. The rolls located in contact with the cylinder are covered with a felt or like material, and in these old machines, prior to my invention, in which the rolls are maintained in contact with the cylinder, a serious difficulty has been experienced from the fact that when the machine is stopped the rolls and apron in contact with the surface of the heated cylinder are injured by reason of the extreme heat. In such machines it has been customary before the machine was stopped to pass a thick fabric into the machine and allow it to wrap about the cylinder and be interposed between the rolls and apron to prevent injury to said rolls and apron. This method has caused great annoyance from the fact that time enough must be allowed before the machine could be stopped to introduce this material between the rolls and apron. If for any reason a sudden stopping of the machine was required and without time to introduce the material to prevent injury to the rolls and apron, these parts would become injured by contact with the heated surface of the cylinder. By my improvement I have avoided the disadvantages inherent in prior machines and have provided means whereby the machine may be stopped at any time without annoyance and trouble and without injury to the rolls and aprons.

In carrying out my invention the frame 1 is constructed in two parts, the part which I will term the "roll-bearing" portion being pivoted to the lower part, as at 19. This roll-bearing portion 18 of the frame conforms

practically to the shape of the upper half of the cylinder and has an inward-projecting part 20, which forms the bearing on the pivot 19. The end of the roll-bearing portion 18 of the frame opposite the pivot 19 is engaged with the lower or rigid portion of the frame, the two parts being halved together, as shown in Fig. 2 of the drawings. A screw-shaft 21 is borne in the lower or rigid portion of the frame, and this shaft engages with a nut 22, located in a recess in the upper or swinging portion 18 of the frame. The lower end of the shaft bears a bevel-gear 23, in mesh with the bevel-gear 24, secured to the shaft 25, the latter having a crank 26 secured thereto.

It will be understood that there is a roll-bearing portion 18 located at each end of the frame and a screw-shaft and intermeshing bevel-gears appurtenant to the roll-bearing portion of the frame at each end of the machine, the shaft 25 extending across from end to end of the machine and bearing the bevel-gears in mesh with the bevel-gears on the screw-shafts.

It will be seen that by rotating the shaft 25 by means of the crank 26 the portions 18 of the frame will be swung on the pivot 19. The shafts 21 and bearings are made of sufficient looseness to permit this swinging movement of the frame without binding or cramping the shafts. It will be noted that this swinging movement of the frame parts carries each of the rollers 4, 4^a, and 4^b away from the cylinder, so that as the portions 18 of the frame are swung on their pivots the rollers will be carried out of contact with the heated surface of the cylinder. By constructing these parts of the frame with bends or arms 20, located in the position as shown in Fig. 1, it will be noted that the roll 4^b is carried downward and also away from the surface of the cylinder. This downward movement of the roll causes a portion of the apron 6 to be moved downward away from contact with the surface of the cylinder. This is shown in Fig. 3, in which the roll 4^b, moving on the pivot 19, causes the apron to assume the position illustrated in full lines in said figure.

The rolls 4 and 4^a are carried in bearings 27, located at each end of each roll and slidable in the supports 28. A rod 29 projects from each journal-bearing, and its screw-threaded end engages a screw-threaded hand-wheel 30. Springs 31 bear with one end against the frame supporting the rolls, and a sleeve 32 is interposed between the opposite end of each spring and the hand-wheels 30. It will be noticed that by this construction each of the rolls 4 and 4^a is held with a yielding pressure against the surface of the cylinder, the springs yielding sufficiently to allow fabrics of different thickness to be passed between the surface of the cylinder and said rolls. The tension of the springs may be regulated by means of the hand-wheels.

Supporting-plates 33 are mounted on the frames supporting each end of the rolls, one end of each plate lying normally close to the bearing of a roll 4 and 4^a, it of course being understood that a plate is provided for each end of each roll. These plates are secured in place by means of bolts 34 passing through slots in the plates, by means of which the latter may be adjusted with reference to the axis or bearing of each of said rolls. As the frame parts 18 are swung away from the cylinder on their pivots the natural tendency of the springs 31 is to draw each roll toward the cylinder, and these stop-plates 33 prevent inward movement of the rolls beyond a certain limit and compel them to be carried outward from contact with the surface of the cylinder, the ends of the plates coming in contact with the journals of the rolls.

While I have shown and described herein one means of carrying out my invention, it is obvious that the invention does not reside in such details, but that they may be departed from to a greater or less extent without departing from the invention, which is present in any structure having aprons and a series of rolls mounted in a pivoted frame arched over a portion of the cylinder, the structure having means for raising and retaining the frame with the rolls or aprons, either or both, out of contact with the surface of the cylinder.

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

1. In a mangle, in combination with a cylinder, a pivoted frame arched over a portion of the cylinder and bearing a series of rolls, supported in contact with the surface of the cylinder, and means for swinging said frame to carry the rolls supported thereon away from the surface of the cylinder and for holding the frame in said position with the rolls out of contact with the cylinder.

2. In a mangle, in combination with a cylinder, a pivoted frame arched about a portion of said cylinder, a series of rolls mounted in said frame, an apron-supporting roll mounted adjacent to said cylinder and supporting an apron, and means for swinging said frame to remove the rolls, including the apron-supporting roll and the apron thereon, from contact with said cylinder.

3. In a mangle, in combination with a supporting-frame, a cylinder mounted on the frame, a swinging frame pivoted to the cylinder-supporting frame, a series of rolls mounted on the swinging frame and including a roll acting as a support for an apron, and means for swinging said frame to carry all of said rolls away from the surface of said cylinder.

4. In a mangle, in combination with a frame, a cylinder mounted on the frame, a roll-supporting frame arched about the cylinder and pivoted at one end to the machine-frame, a series of rolls mounted in the swinging frame, and means for raising one end of

the swinging frame to carry all of said rolls out of contact with the surface of the cylinder and for holding the frame in said position.

5. In combination in a mangle, a frame, a cylinder mounted on the frame, a swinging frame having an offset at one end pivotally secured to the frame supporting the cylinder, a series of rolls mounted in the swinging frame and including an apron-supporting roll, and means for raising the swinging frame at its end opposite the pivot and retaining it in its raised position.

6. In a mangle, in combination with a supporting-frame, a cylinder mounted on the frame, a swinging frame arched over a portion of the cylinder and having offset portions each provided with a bearing for a pivot, pivots for securing the frame to the cylinder-supporting frame, a series of rolls supported by the swinging frame in contact with the cylinder, and means for swinging said frame to carry the rolls away from the cylinder and for retaining the frame in said position.

7. In a mangle, in combination with a cylinder, a pivoted frame arched over a portion of the cylinder, and bearing a series of rolls supported in contact with the surface of the cylinder, means for forcing the rolls toward the cylinder, means for limiting the movement of the rolls in the frame toward the cylinder in a swinging movement of said frame and means for swinging said frame to carry the rolls supported thereon away from the surface of the cylinder.

8. In a mangle, in combination with a cylinder, a pivoted frame arched over a portion of the cylinder and bearing a series of rolls, guides for the ends of said rolls, slidable end supports therefor in the frame, means for forcing the rolls toward the cylinder, plates for limiting the movement of the rolls toward said cylinder, and means for swinging said frame to carry the rolls supported thereon away from the surface of the cylinder.

9. In a mangle, in combination with a cylinder, a pivoted frame arched over a portion of the cylinder, a series of rolls mounted in said frame, one of said rolls supporting an apron and the other rolls being movable in the frame toward the cylinder, means for moving said rolls toward the cylinder, means

for limiting the movement of said rolls in the frame toward the cylinder, and means for swinging the frame to carry the rolls away from the surface of the cylinder including the apron-supporting roll and the apron out of contact with said cylinder.

10. In a mangle, in combination with a cylinder, a pivoted frame arched over a portion of the cylinder and bearing a series of rolls supported in contact with the surface of the cylinder, means borne on said frame for forcing the rolls toward the surface of the cylinder, means borne on the frame for adjusting the degree of pressure of the rolls upon the cylinder, and means for swinging said frame to carry the rolls supported thereon away from the surface of a cylinder.

11. In a mangle, in combination with a cylinder, a pivoted frame arched over a portion of the cylinder, and bearing a series of rolls supported in contact with the surface of the cylinder, one of said rolls being located at a point on the arch located on the opposite side of a vertically-extended line through the pivot from that on which the raised ends of the arch are located whereby in the swinging movement of the frame said roll is carried downward to move the apron out of contact with said cylinder, and means for swinging the frame to carry the rolls supported thereon away from the surface of the cylinder.

12. In a mangle, in combination with a cylinder, a pivoted frame arching over a portion of the cylinder and having an inwardly-extending offset portion in which said pivot is located, a series of rolls supported by said frame in contact with the surface of the cylinder, an apron-supporting roll located on the outer surface of the frame opposite the offset portion bearing the pivot, and at a point near a plane passing through the horizontal center of the cylinder and supporting an apron, and means for swinging said frame to carry the rolls supported thereon away from the surface of the cylinder including the apron-supporting roll and the apron out of contact with said cylinder.

GEORGE HATCH.

Witnesses:

ARTHUR B. JENKINS,
L. F. MIDDLEBROOK.