

No. 607,730.

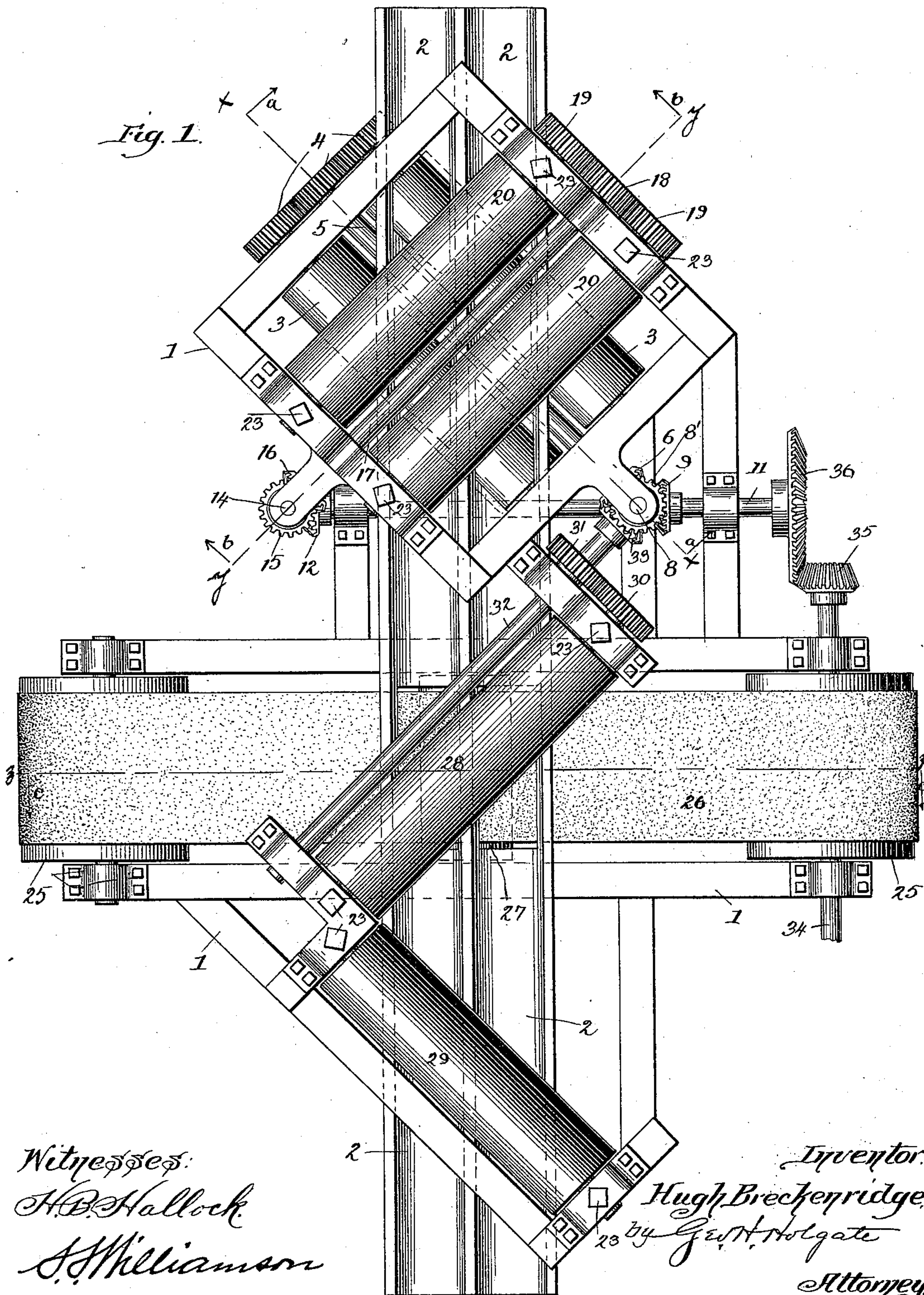
Patented July 19, 1898.

H. BRECKENRIDGE.
POLISHING MACHINE FOR BROOM HANDLES.

(Application filed Sept. 27, 1897.)

(No Model.)

3 Sheets—Sheet 1.



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3 Sheets—Sheet 2.

Fig. 2.

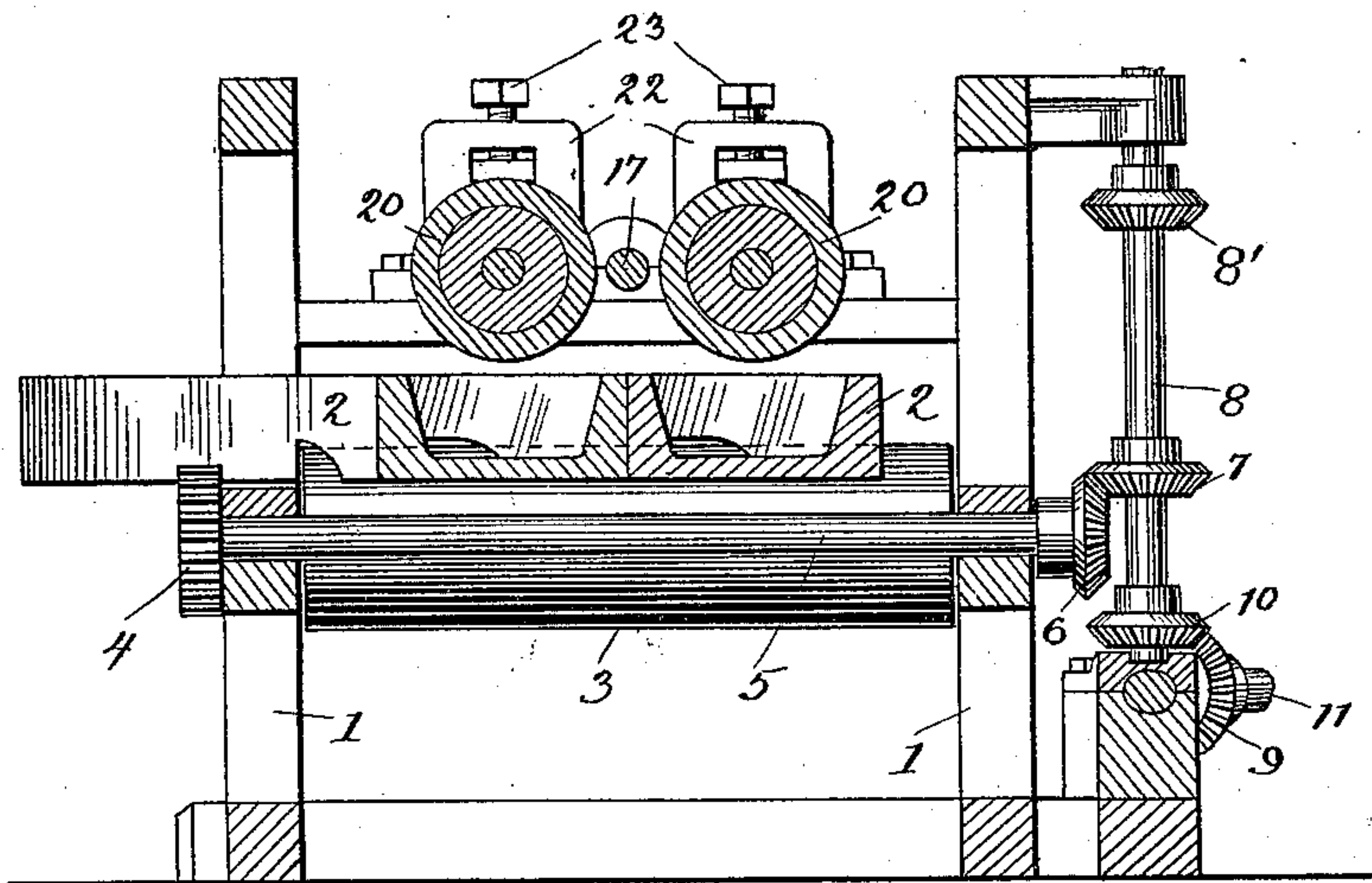
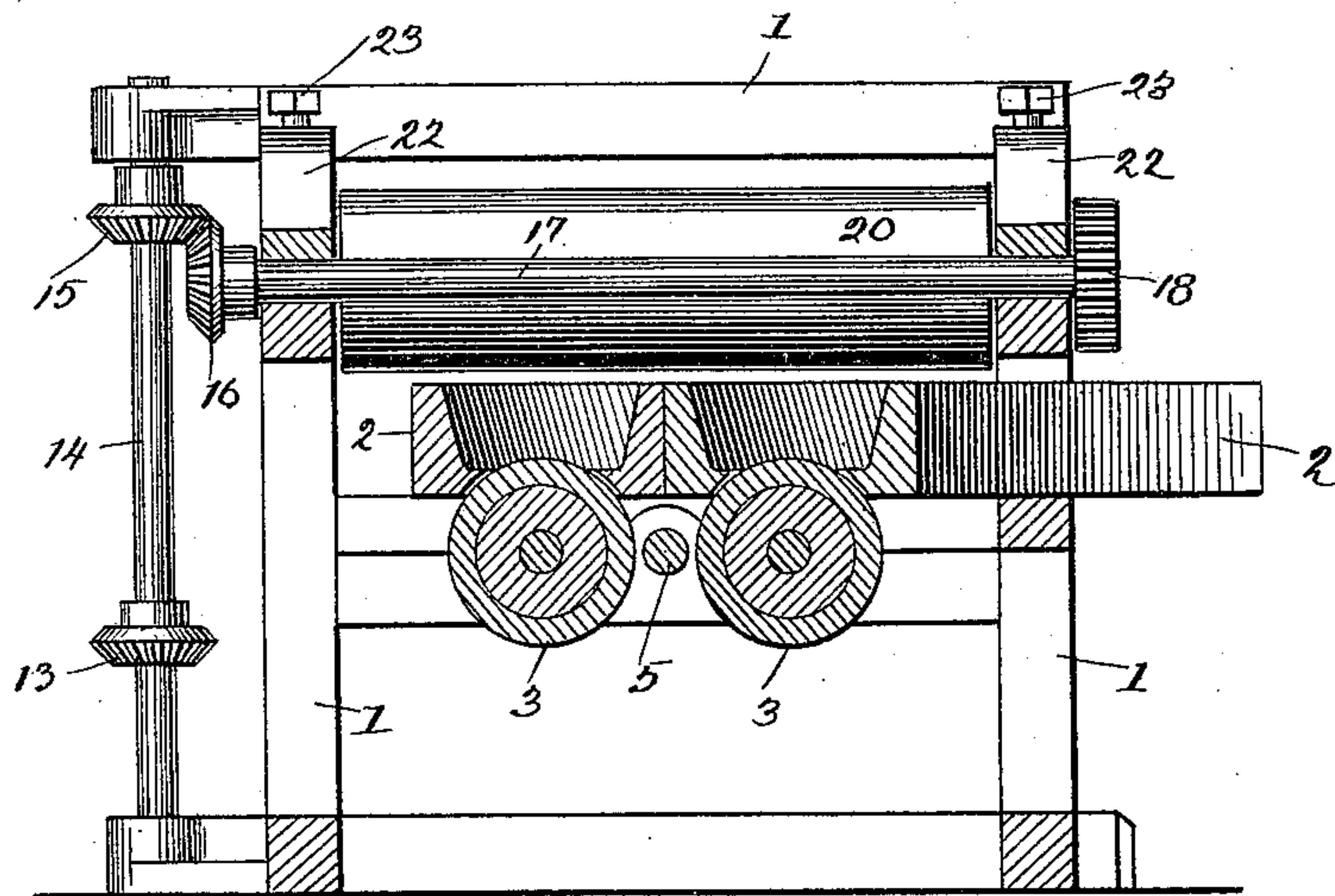


Fig. 3.



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3. Sheets—Sheet 3.

Fig. 4.

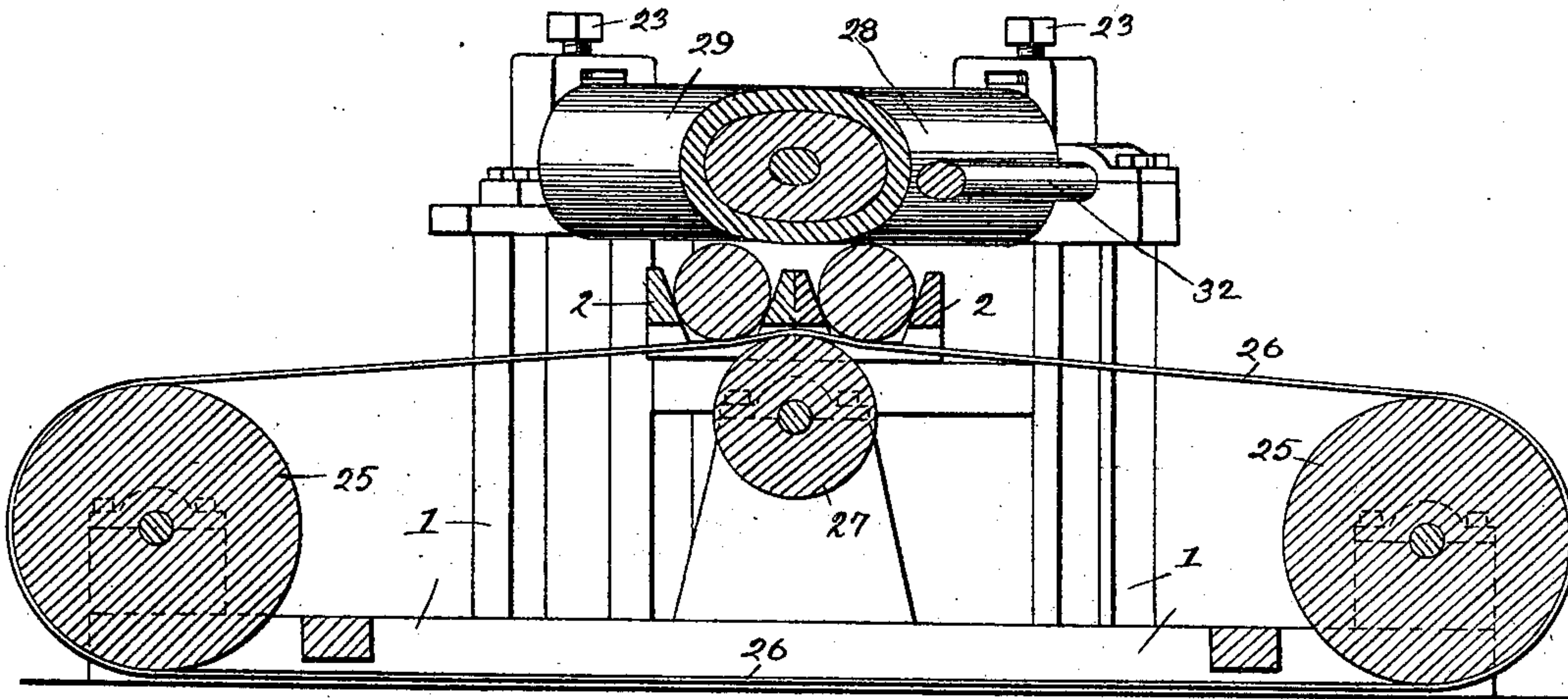
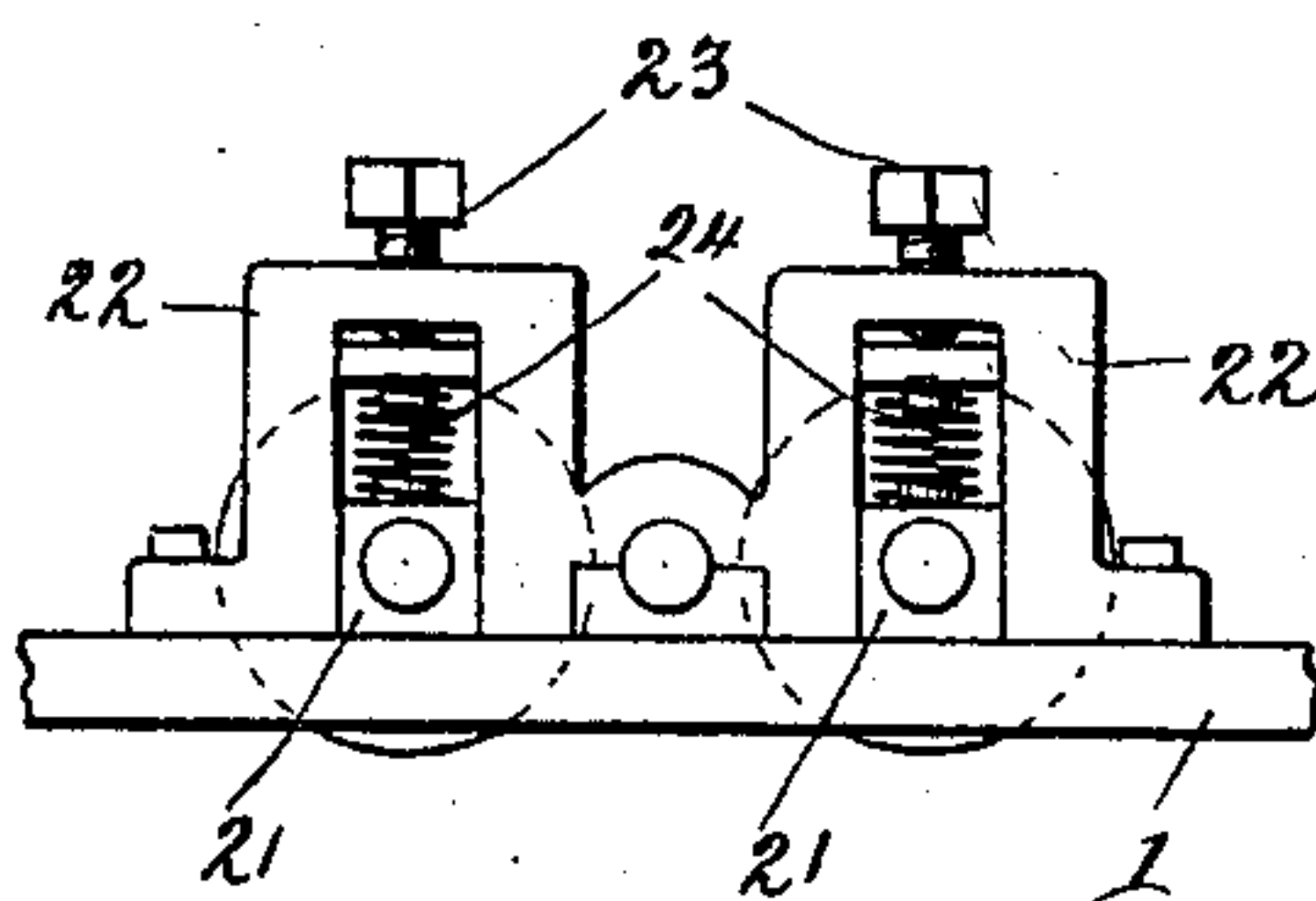


Fig. 5.



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UNITED STATES PATENT OFFICE.

HUGH BRECKENRIDGE, OF LYNDEN, WASHINGTON.

POLISHING-MACHINE FOR BROOM-HANDLES.

SPECIFICATION forming part of Letters Patent No. 607,730, dated July 19, 1898.

Application filed September 27, 1897. Serial No. 653,090. (No model.)

To all whom it may concern:

Be it known that I, HUGH BRECKENRIDGE, a citizen of the United States, residing at Lynden, in the county of Whatcom and State of Washington, have invented a certain new and useful Improvement in Polishing-Machines for Broom-Handles and the Like, of which the following is a specification.

My invention relates to a new and useful improvement in polishing-machines for broom-handles and similar round work, and has for its object to provide a simple and effective machine of this description which will so operate upon broom-handles when fed thereto as to give to said handles a combined progressive and rotary motion, thus bringing about a spiral motion relative to any fixed point along the travel of said handles, and during this progressive rotary motion to subject the handles to the action of an abrading-belt arranged at right angles to the travel of the handles, thereby polishing said handles and fitting them for commercial use.

A further object of my invention is to provide for the operation upon two or more handles at the same time, thus increasing the capacity of the machine without materially increasing its size or the expense of manipulating the same.

With these ends in view this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, the construction and operation will now be described in detail, referring to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a plan view of a machine made in accordance with my improvement; Fig. 2, a section at the line $x x$ of Fig. 1, looking in the direction of the arrows a ; Fig. 3, a similar view upon the line $y y$ of Fig. 1, looking in the direction of the arrows b ; Fig. 4, a section at the line $z z$, looking in the direction of the arrows c ; and Fig. 5, a detail elevation of the spring-actuating boxes for holding the feed-rolls in contact with the work.

In carrying out my invention as here embodied 1 represents the frame of the machine,

which may be of any shape or size convenient for the support of the operating parts, and mounted upon this frame are the chutes 2, arranged side by side and here shown as two in number, but which may be more or less, as occasion may require, and a pair of feed-rolls 3 are journaled immediately below the forward portion of these chutes and are preferably set at an angle of forty-five degrees to the longitudinal axis of the chutes for the purpose hereinafter set forth, and these rolls are here shown as geared together by the nest of gear-wheels 4, by means of which they will be caused to move in unison. The central gear-wheel of this nest is secured upon a shaft 5, which extends parallel with the rolls passing through the opposite side of the frame and there carries a bevel-gear 6, which meshes with a corresponding gear 7, secured upon the vertical shaft 8, whereby the rolls receive their rotation from this vertical shaft, which latter is driven by the meshing of the bevel-gear 9 with the bevel-gear 10, the latter being secured upon the vertical shaft, while the former is secured upon the cross-shaft 11. This cross-shaft has a bevel-gear 12, secured upon its opposite end, which meshes with the bevel-gear 13, secured upon the vertical shaft 14, which latter also carries the bevel-gear 15, which in turn meshes with the corresponding gear 16. The gear 16 is secured upon a shaft 17, which is journaled in the frame at right angles to the shaft 5 and in a higher horizontal plane and has secured upon its opposite end a gear-wheel 18, meshing with the gears 19, the latter being carried by the shafts of the feed-rolls 20, said rolls also being journaled at right angles to the feed-rolls 3 and so arranged as to act upon the upper side of the work as it passes through the chutes, while the lower feed-rolls act upon the under side thereof, and as these two sets of rolls revolve in the proper direction to give the work a forward progressive movement and are also set at right angles to each other it follows that the work will be given a rotary movement at the same time it is fed forward and by the construction here shown at the same rate; but of course this rate may be changed relative to the feeding by the angle at which the feed-rolls are set to the longitudinal axis of the chutes.

In order that compensation may be had for the varying thickness of the work fed to the machine and also that the proper pressure may be maintained upon the work by the feed-rolls, the shafts of the rolls 20 are journaled in sliding boxes 21, and these boxes are guided by the housings 22, in which are threaded the adjusting-bolts 23, arranged to vary the tension of the springs 24, interposed therebetween and the boxes, from which it will be evident that pressure will at all times be maintained upon the work, and yet the upper set of feed-rolls will be capable of rising and falling with a slight variance which may occur in the handles fed through the chutes. Two drums 25 are journaled in extensions of the frame and adapted to receive the polishing-belt 26, so that when these rolls are revolved the belt will travel thereon, and this belt is adapted to have secured thereto an abrading material, such as sandpaper, so that when the belt travels the surface thereof which passes through the chutes will act upon the handles when reaching this point, and the belt is supported at the point where it comes in contact with the handles by an idle-roll 27, journaled beneath the chutes and in the center thereof, so as not to interfere with the passage of the handles, yet at the same time to permit the belt to be deflected to either side. The principal object of this is to give the belt at this point a greater bearing around the periphery of the handles, and thus facilitate the abrading action of the belt and prevent the spotting of said handles.

The action of the abrading-belt upon the work will tend to force the latter upward within the chutes, and to avoid this I journal the rolls 28 and 29 in the frame, the former immediately above the idle-roll, yet at an angle of forty-five degrees thereto, while the latter stands at an angle to the roll 28, from which it will be seen that as the work passes over the belt it will be firmly held in place, and yet this spiral motion will in no wise be interfered with, since these rolls will act in the same manner as the feed-rolls, and in practice I prefer that the roll 28 shall be given a positive motion, which I provide for by securing the gear-wheels 30 upon the shaft thereof and meshing therewith the gear-wheel 31, which is secured upon the shaft 32, and giving motion to the last-named shaft by the bevel-gear 33, secured thereon and meshing with the bevel-gear 8'; but I have found that it is best to permit the roll 29 to receive its motion from the work itself, so that it merely acts as a presser-roll and is idle when the work is not passing thereunder.

Power is transmitted to the machine through the shaft 34, upon which one of the rolls 25 is secured, and this power may be derived from any suitable source by belt or gearing, while the opposite end of this power-shaft has secured thereon a bevel-pinion 35, which meshes with the bevel-gear 36, secured upon

the shaft 11, and thus motion is imparted to the last-named shaft, through which the remaining parts of the machine are operated, as before set forth, and the relative size of the pinion 35 and gear 36 should be such as to bring about the proper relative movements of the feed mechanism and travel of the abrading-belt.

From this description the operation of my improvement will be obviously as follows: A machine having been set in motion, after the proper abrading material has been placed upon the belt it is only necessary to feed the handles to be treated to the chutes, when they will be acted upon by the feed-rolls to force them forward and give to them at the same time a rotary movement, and passing forward from these feed-rolls they will be brought into contact with the abrading-belt and the roll 28 will further facilitate the spiral feeding thereof, while at the same time holding them in firm contact with the abrading-belt, and this process will continue until the handles have been fed throughout their entire length across the belt, after which they will be expelled from the chutes by the following handles, and it is to be noted that the operation will be continued so long as handles are fed to the chutes one after the other in immediate contact, so that there is no necessity of any loss of time or break in the operation, as the only necessity is the constant feeding of the work to the machine.

One of the principal advantages of my improvement is that it will perform its work perfectly upon handles of all grades regardless of the kind of material from which they are made, and this is of great importance, since heretofore by the old methods it has been impossible to operate upon coarse-grain woods, which tend to splinter and split away. Another advantage of my improvement is that a much finer finish is had by a single operation and without any hand labor than has heretofore been possible.

I am aware that slight modifications might be made in the construction here shown without departing from the spirit of my invention, and I therefore do not wish to be limited to these exact details of construction, since the gist of my invention rests in the broad idea of automatically feeding the work by a spiral progression to an abrading-belt, and it is especially to be noted that the feed-rolls of this machine should be made of rubber after the manner of a clothes-wringer, since such construction gives the best result in the feeding of the handles without marring the same.

Having thus fully described my invention, what I claim as new and useful is—

1. In a machine of the character described, a frame, chutes arranged horizontally thereof, an abrading-belt adapted to travel at right angles to said chutes, frames mounted above and below said chutes at an acute angle thereto, presser-rolls journaled in sliding boxes in

said frames and means for transmitting motion to the presser-rolls, substantially as described and shown.

2. In a machine of the character described,
5 a frame, chutes arranged longitudinally thereof, an abrading-belt adapted to travel at right angles to the chutes, frames mounted above and below said chutes at an acute angle thereto and at right angles to each other, presser-
10 rolls journaled in sliding boxes in the chutes, spring pressing said boxes toward the chutes, a shaft journaled beside each of said rolls, intermeshing gears on the ends of said rolls and the shaft adjacent thereto and means for
15 rotating said shafts to act in unison, substantially as shown and described.

3. The herein-described combination of a suitable frame, two chutes arranged lengthwise thereof, two rolls journaled beneath said
20 chutes and at forty-five degrees thereto, two rolls journaled above said chutes at forty-five degrees thereto and at right angles to the

first-named rolls, suitable gearing for transmitting motion to both sets of rolls so as to cause them to act in unison, two drums jour- 25
naled in extensions in the frame, an endless belt running over said drums, said belt being adapted to carry abrading material, means for transmitting power to the drums, a roll
28 journaled at forty-five degrees to the 30
chutes and above the same, means for transmitting motion to the last-named roll, and a roll 29 also journaled at forty-five degrees to the chutes and above the same but at right
angles to the roll 28, substantially as and for 35
the purpose set forth.

In testimony whereof I have hereunto affixed my signature in the presence of two subscribing witnesses.

HUGH BRECKENRIDGE.

Witnesses:

BARNES LORING,
E. EDSON.