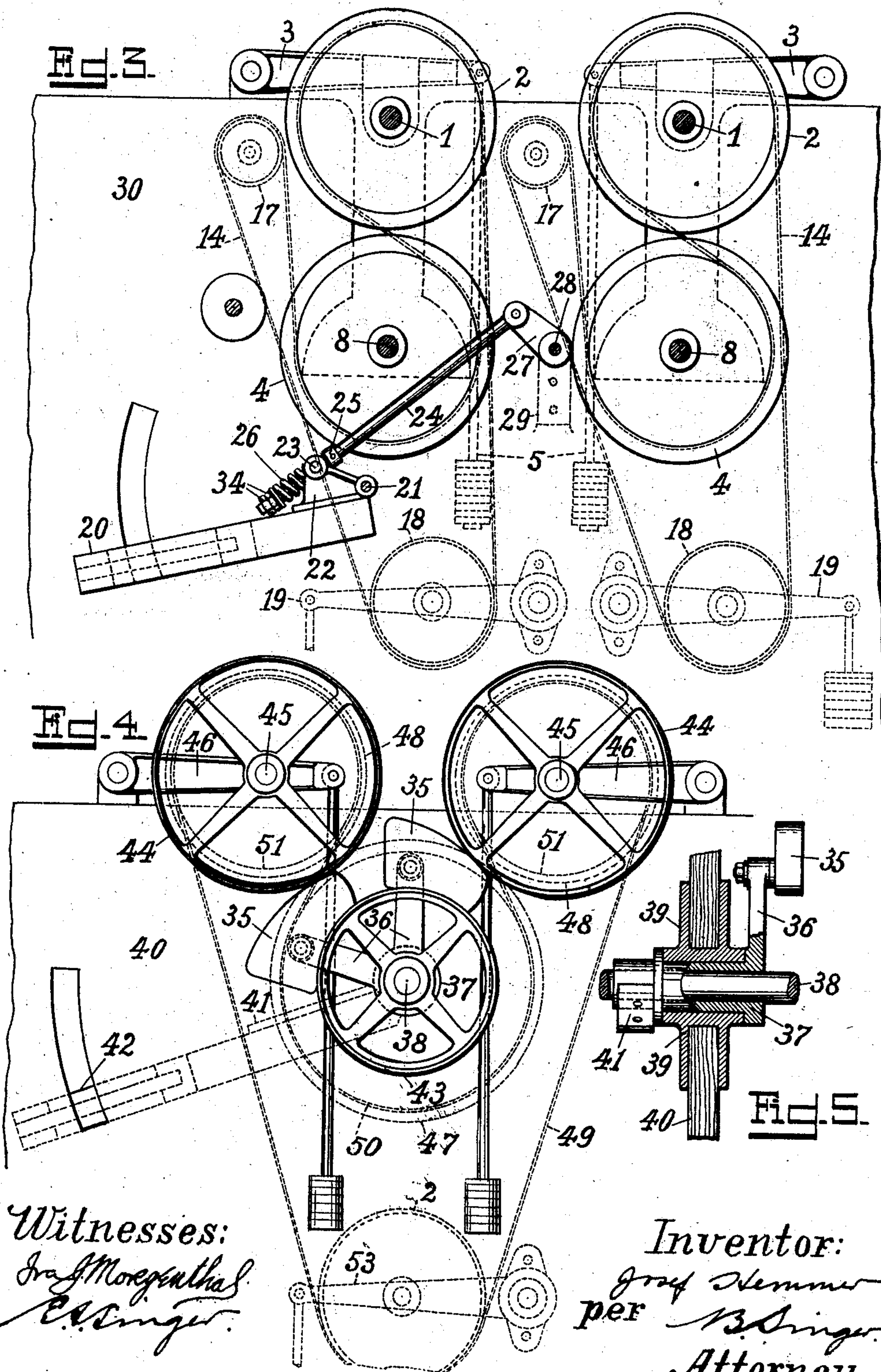


J. HEMMER.
THROW-OUT DEVICE FOR FULLING MACHINES.
APPLICATION FILED SEPT. 1, 1909.

992,770.

Patented May 23, 1911.

2 SHEETS-SHEET 2.



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Fig. 1.

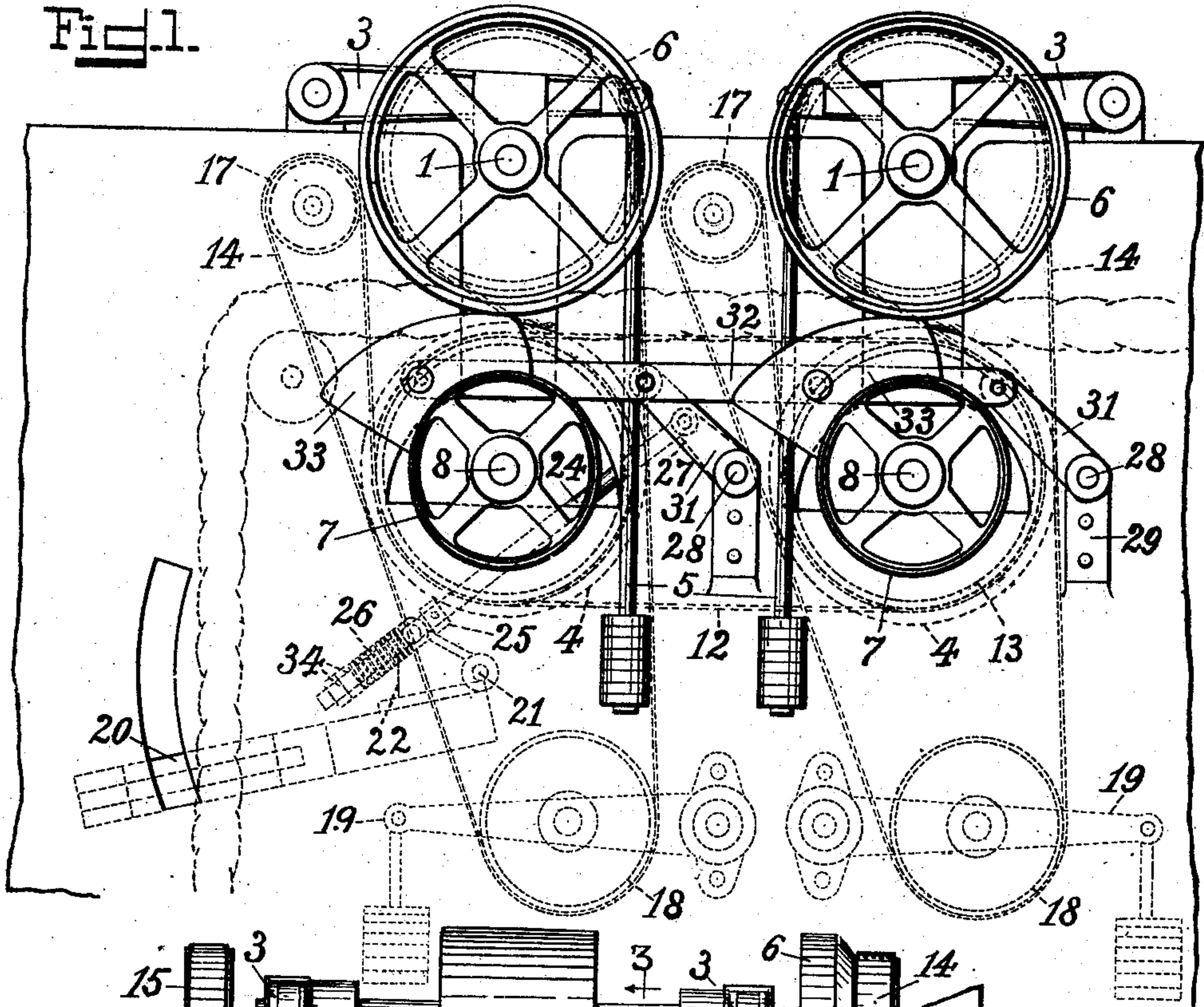
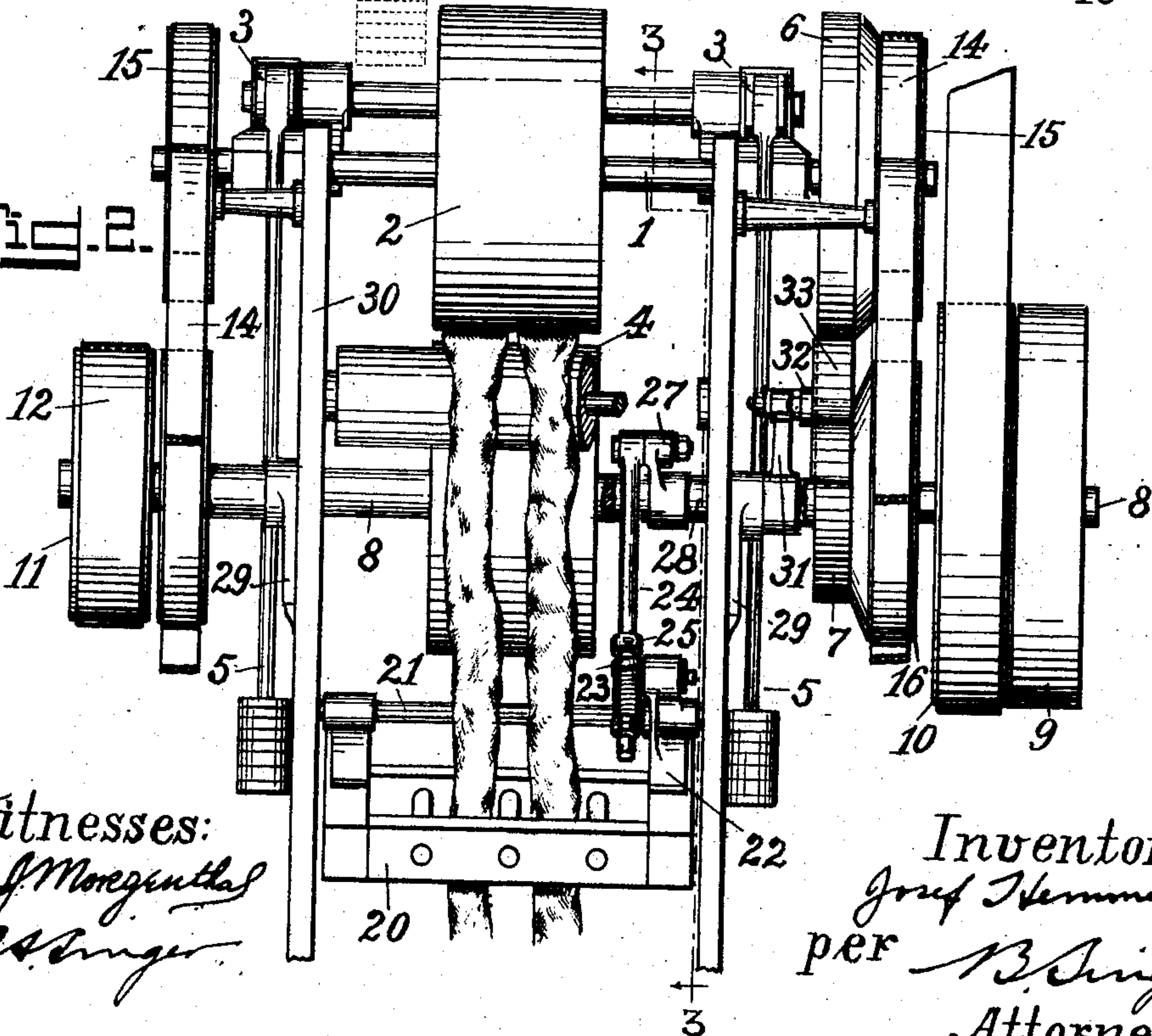


Fig. 2.



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UNITED STATES PATENT OFFICE.

JOSEF HEMMER, OF AIX-LA-CHAPELLE, GERMANY.

THROW-OUT DEVICE FOR FULLING-MACHINES.

992,770.

Specification of Letters Patent.

Patented May 23, 1911.

Application filed September 1, 1909. Serial No. 515,729.

To all whom it may concern:

Be it known that I, JOSEF HEMMER, machine manufacturer, a subject of the King of Prussia, residing at No. 40 Krugenofen, Aix-la-Chapelle, in the Kingdom of Prussia, Empire of Germany, have invented certain new and useful Improvements in Throw-Out Devices for Fulling-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

In fulling machines knots form in the goods to be fulled, and for this reason the goods become more or less damaged, since hitherto it was impossible to arrest the rotation of the working-cylinders quickly enough to prevent damaging the material by rubbing or tearing. The means hitherto employed to prevent this were devices by the aid of which the fulling machine was braked or cut out of gear as quickly as circumstances would permit, which generally could not be accomplished before considerable damage was done.

The object of my present invention is, to prevent such damage of the goods by utilizing the motion of the guide-frame to introduce a wedge-shaped throw-out block between two friction-disks or throw-out pulleys on the shafts of the upper and lower working-cylinders, to separate or raise but not to stop the upper working-cylinders. To this end the radius of the upper pulley is made as large as the radius of the lower pulley plus the thickness of the front end of said wedge-shaped block, so that at the beginning of contact between the upper pulleys and top-face of the blocks resting upon the lower brake-pulleys, the circumferential speed of all working-cylinders is the same.

In the accompanying drawings:—Figure 1 is a side view of a part of a fulling machine equipped with my invention. Fig. 2 is a rear-view of the machine. Fig. 3 is a sectional view taken on line 3—3 in Fig. 2. Fig. 4 is a modification of my present invention. Fig. 5 is a detailed view showing the connection between the guide-frame and the radial arms carrying the blocks, of the modification illustrated in Fig. 4.

As customary, the driving-shafts 1 of the

upper working-cylinders 2 are journaled in the swinging arms 3, and held in contact with the cooperating lower working-cylinders 4 by means of weighted rods 5. Upon the laterally projecting ends of the shafts 1, of the upper working-cylinders 2, throw out pulleys 6 are mounted, which are of a greater diameter than the throw-out pulleys 7 on the laterally extending driving-shafts 8, of the lower working-cylinders 4. One of the shafts 8 is provided at the one end with the usual fast and loose pulleys 9 and 10, respectively, (for the sake of clearness not shown in Fig. 1), and at the opposite end carries a pulley 11, which transmits the motion of the shaft 8, by means of the belt 12, to a pulley 13 mounted upon the other shaft 8. The rotation of the shafts 8, is imparted to the upper working-cylinders 2, by means of the belts 14, of which each is led over a pulley 15, over a pulley 16, and likewise over the idlers 17 and 18, of which the latter is mounted upon an oscillating arm 19, weighted in the usual manner to keep the belt 14 taut. The pulleys, idlers and belts employed for imparting motion to the different working-cylinders are, for the sake of clearness, indicated in Fig. 1 by dotted lines only.

Below the left lower working-cylinder 4, the guide-frame 20 is hinged to the shaft 21 and is provided with the bracket 22, in which an eye 23 is rotatably mounted. Through this eye 23 a rod 24 is passed, whose adjustable set-collar 25 is, under normal conditions, retained in more or less close proximity to said eye under the influence of the adjustable spring 26. The eyed end of the rod 24 is rotatably connected with a one-armed lever 27 seated upon one of the shafts 28, journaled in the brackets 29. Outside of the machine-frame 30 guide-arms 31 are seated upon the shafts 28 and carry in their upper ends the guide-bar 32, whereon the wedge-shaped brake-blocks 33 are rotatably secured.

When knots are formed in the goods to be fulled the guide-frame 20 will be raised and its motion almost instantaneously imparted to the blocks 33 by means of the bracket 22, set-collar 25, rod 24, lever 27, guide-arms 31 and guide-bar 32. The blocks 33 are hereby inserted between the pulleys 6 and 7, so that

the upper pulleys 6 will roll upon the blocks 33 and simultaneously rise and thus prevent the goods from being damaged.

As stated above, the diameter of the lower pulleys 7 is less than the diameter of the upper pulleys 6, but the radius of any one of the smaller brake-pulleys 7 plus the smaller end of a brake-block 33 is equal to the radius of any one of the upper pulleys 6 so that at the beginning of the raising of the upper pulleys both sets of pulleys will have the same speed and thus prevent damaging the goods at the critical moment.

To render it possible for the blocks 33 to act at the right moment, no matter whether the goods to be fulled are thick or thin, the end of the rod 24, which passes through the eye 23, is threaded, and the nuts 34 arranged below the spring 26 are adjustable, so that the narrow end of the blocks can be advanced to a greater or lesser extent between the pulleys 6 and 7 to suit the thickness of the goods to be fulled at the time being. After the causes of disturbance have been removed the blocks 33 are withdrawn, assisted by the weight of the guide-frame and the action of the spring 26.

The modification of my invention shown in Fig. 4 differs from the one shown in Figs. 1, 2 and 3 in this respect that the wedge-shaped blocks 35 are not attached to a common guide-bar, as shown in Fig. 1, but instead of this are rotatably secured to radial arms 36. The latter may be integrally or otherwise connected to the sleeve 37 which forms on the one hand the bearing of the driving-shaft 38 carrying it, and on the other hand is protected against lateral movement by the bearing 39 secured to the machine-frame 40. The inner end of the sleeve 37 is provided with a bracket 41 secured to the guide-frame 42. When the guide-frame 42 is raised by a knot or intricacy formed in the goods to be fulled, the radial arms 36 will be rotated in proportion to the angle through which the guide-frame is raised and thereby introduce the brake-blocks 35 between the smaller lower pulley 43 mounted upon the shaft 38 and the larger upper pulleys 44 mounted upon the driving-shafts 45, which like the shafts 1 of Fig. 1 are journaled in weighted arms 46. During this motion the shaft 38 which carries the single lower working cylinder 47 remains stationary whereas the shafts 45 which carry the cooperating upper working-cylinders 48 are raised and thus compel the latter to leave the goods to be fulled and prevent said goods from being damaged. As the pulley 43 bears the same relationship to the pulleys 44 as the pulleys 7 bear to the pulleys 6 in Figs. 1 and 2, the same results are obtained in both instances. The three working-cylinders 47, 48 receive their motion by means

of the same belt 49 which runs over the pulley 50 mounted upon the shaft 38, over the pulleys 51 mounted upon the shafts 45, and over the idler 52 carried by the weighted arm 53. In Fig. 4 the well-known driving-means are likewise indicated by dotted lines only, in order to more clearly show the parts belonging to the invention proper.

It will be clear from the foregoing that the object of my invention is not to arrest or stop rotation of the working cylinders because that could not be done sufficiently quickly to prevent damage to the material. The primary object of my invention is to throw the working cylinders out of operative relation with the material while the said cylinders are rotating and therefore it will be seen that my invention is a throw-out device and not a brake or stop motion. The cylinders are continuously driven even when thrown out of operative relation with the material.

I claim:—

1. A throw out device for fulling machines comprising in combination with continuously driven co-acting working cylinders and throw out pulleys for said cylinders, of a movable throw out wedge block arranged to enter between said pulleys to separate but not stop the same and said cylinder, and means actuated by knots in the material for actuating said block to operatively separate said cylinders during rotation thereof.

2. A throw out device for fulling machines comprising in combination with continuously driven co-acting working cylinders and throw out pulleys for said cylinders, of movable bearings for one cylinder and its pulley, a throw out wedge having one face curved corresponding to the periphery of one pulley, and means actuated by knots in the material for entering said wedge between the pulleys to throw said cylinders out of operative relation with the material during rotation of said cylinders.

3. A throw out device for fulling machines comprising in combination with co-acting working cylinders and throw out pulleys therefor, means for continuously driving said cylinders and permitting the same to be thrown out of operative relation with the material, a throw out wedge arranged to enter between and separate but not stop said pulleys, and means actuated by knots in the material to thrust said wedge between said pulleys and separate said cylinders during rotation thereof.

4. A throw out device for fulling machines comprising in combination with continuously driven upper and lower co-acting working rollers and throw out pulleys therefor, the pulley of the upper cylinder exceeding the diameter of the pulley of the lower

cylinder, a throw out wedge arranged with its small end adjacent said pulleys, the small end of said wedge having a depth equal to the difference in radii of said pulleys, and
5 means actuated by knots in the material for entering between said pulleys to separate said cylinders during rotation thereof.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOSEF HEMMER.

Witnesses:

HENRY QUADFLIEG,
WILLIAM J. REUTERS,

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
