

No. 873,790.

PATENTED DEC. 17, 1907.

J. ROOD & F. J. PERKINS.
LEATHER WORKING MACHINE.

APPLICATION FILED MAY 24, 1905.

3 SHEETS—SHEET 1.

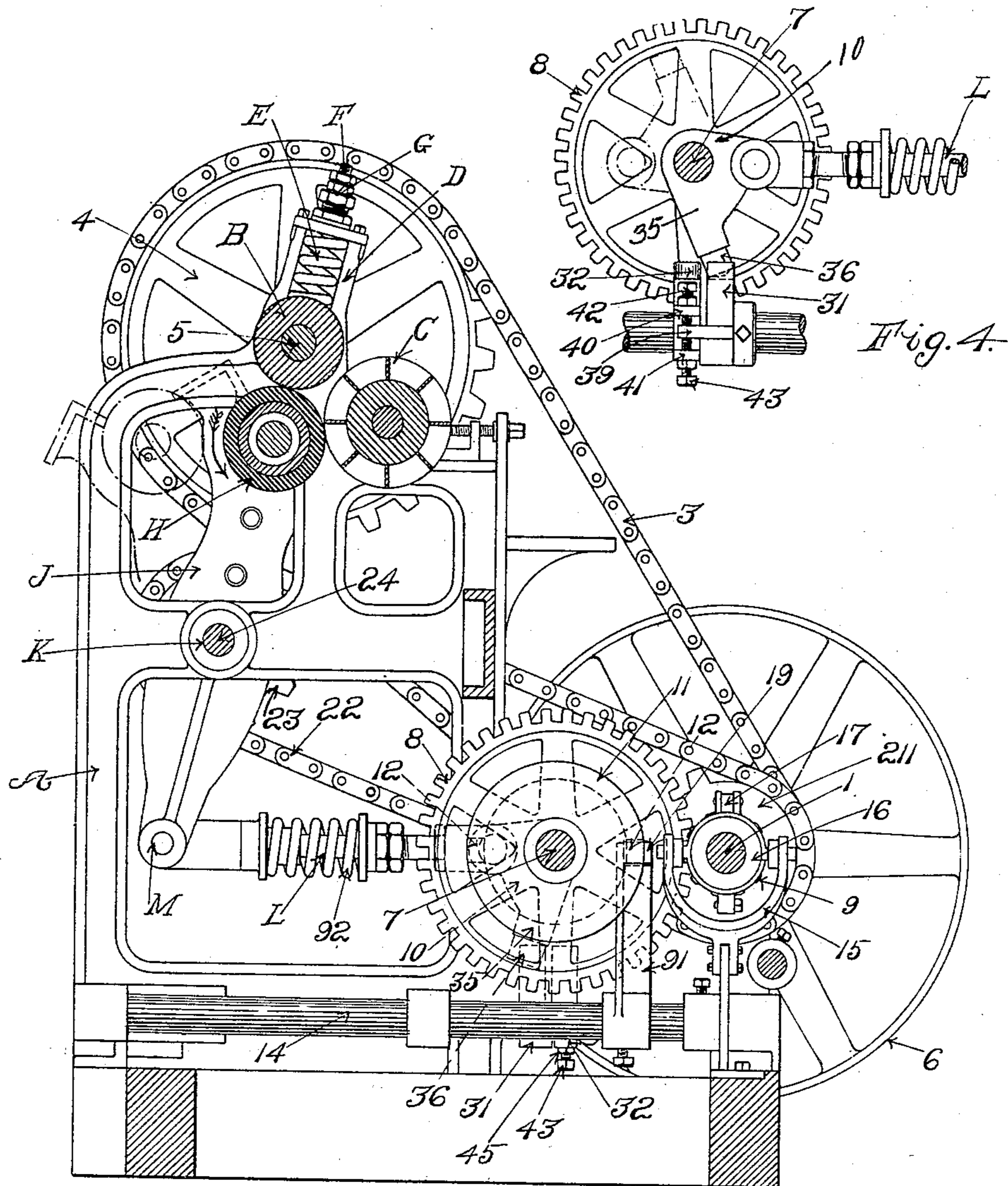


Fig. 1.

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3 SHEETS—SHEET 2.

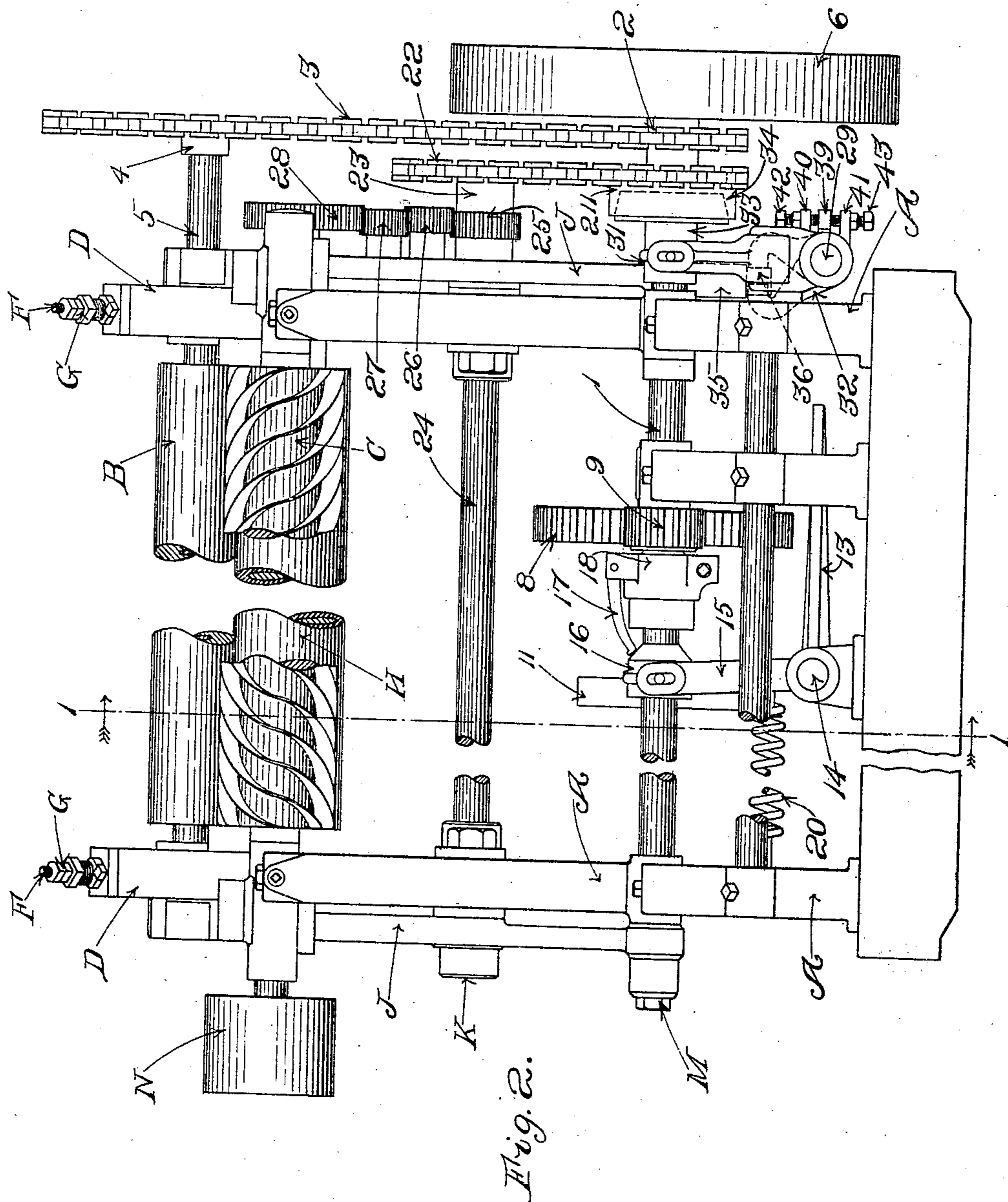


Fig. 2.

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3 SHEETS—SHEET 3.

Fig. 3.

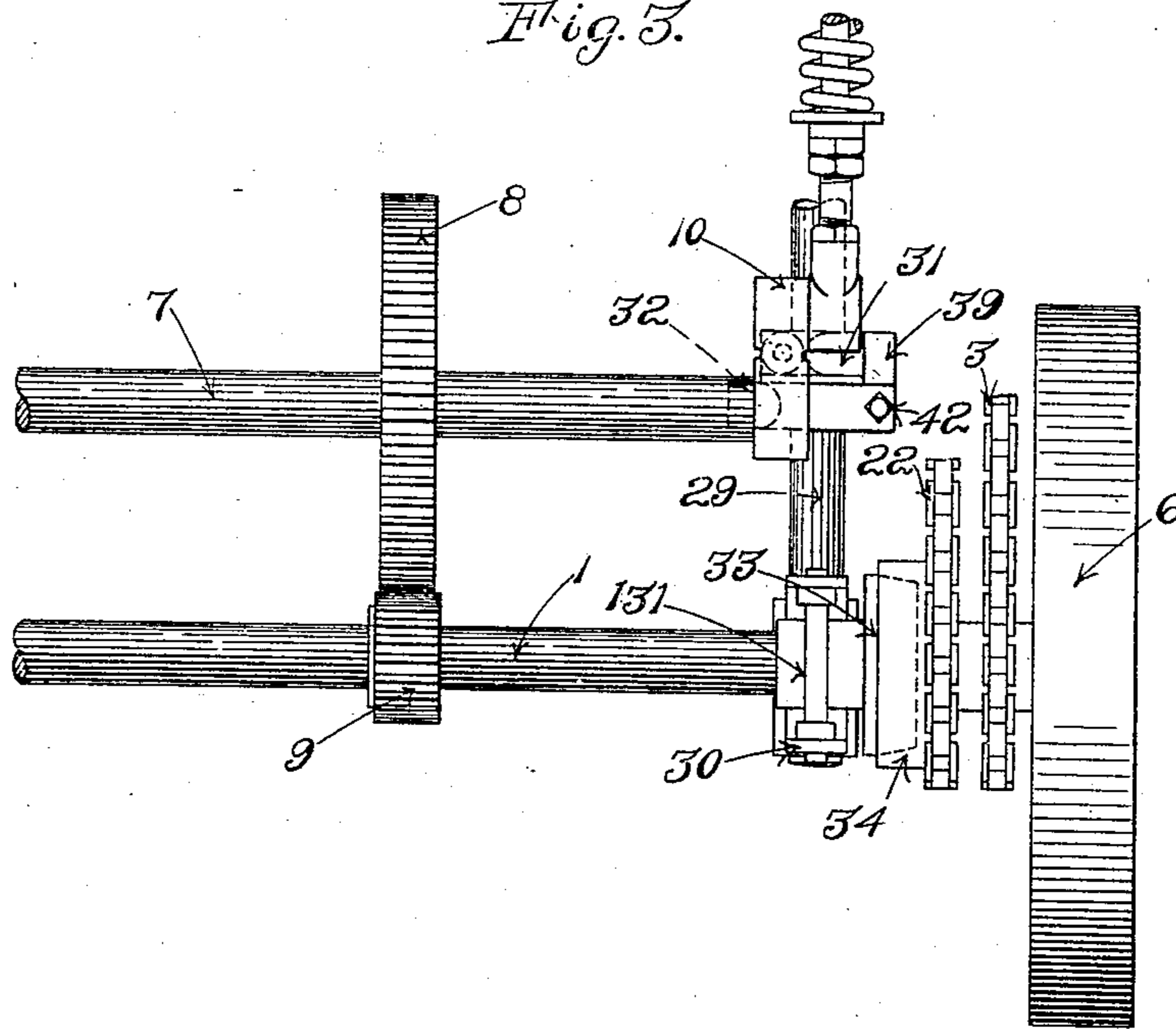


Fig. 5.

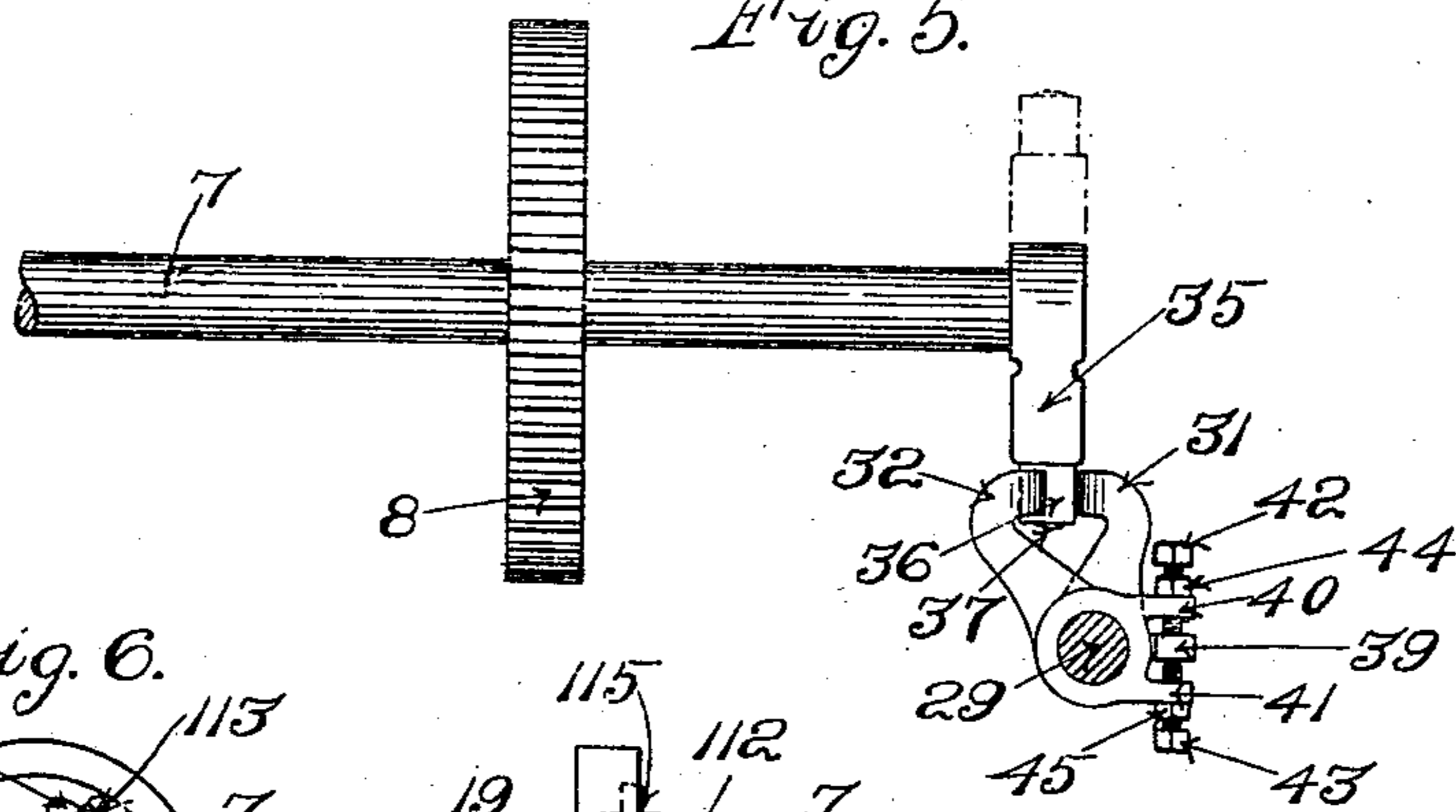


Fig. 6.

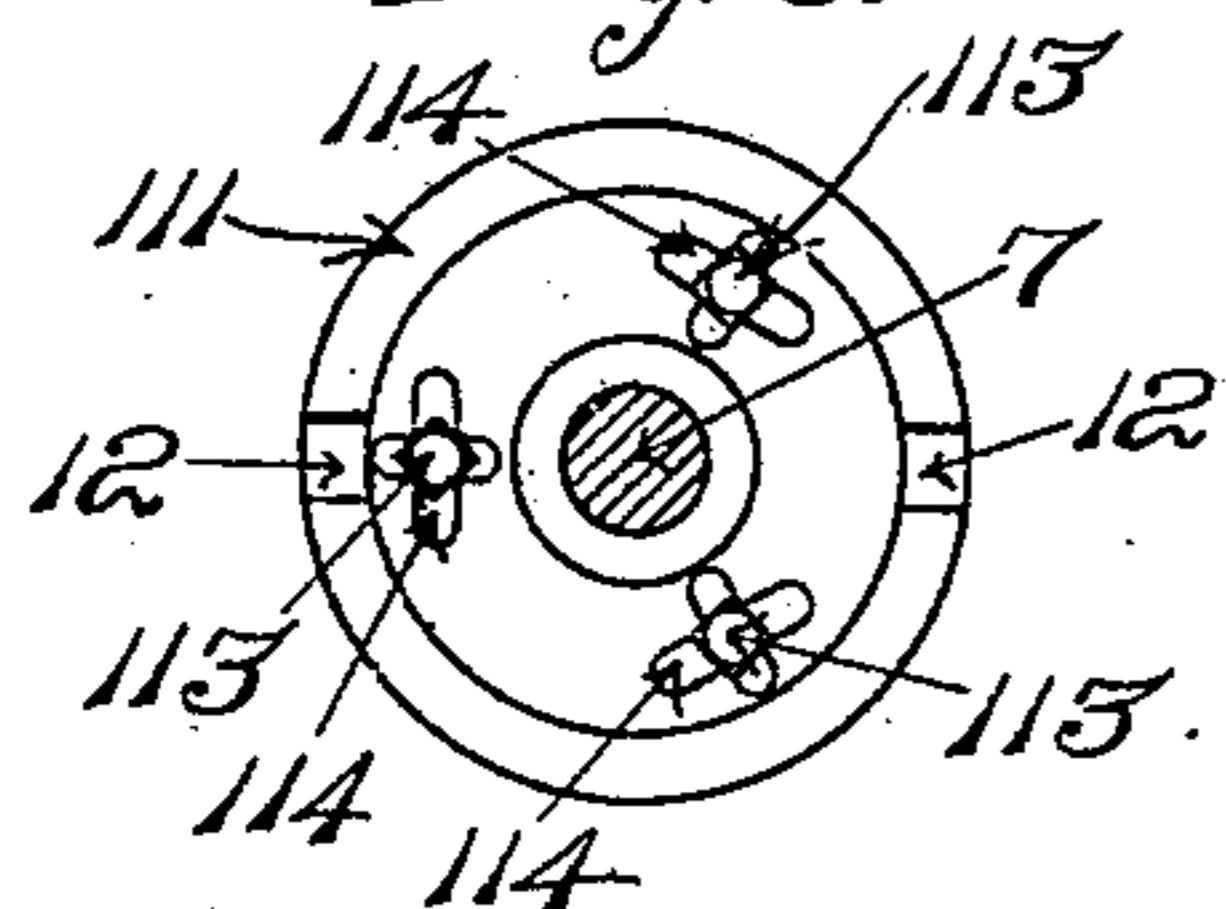
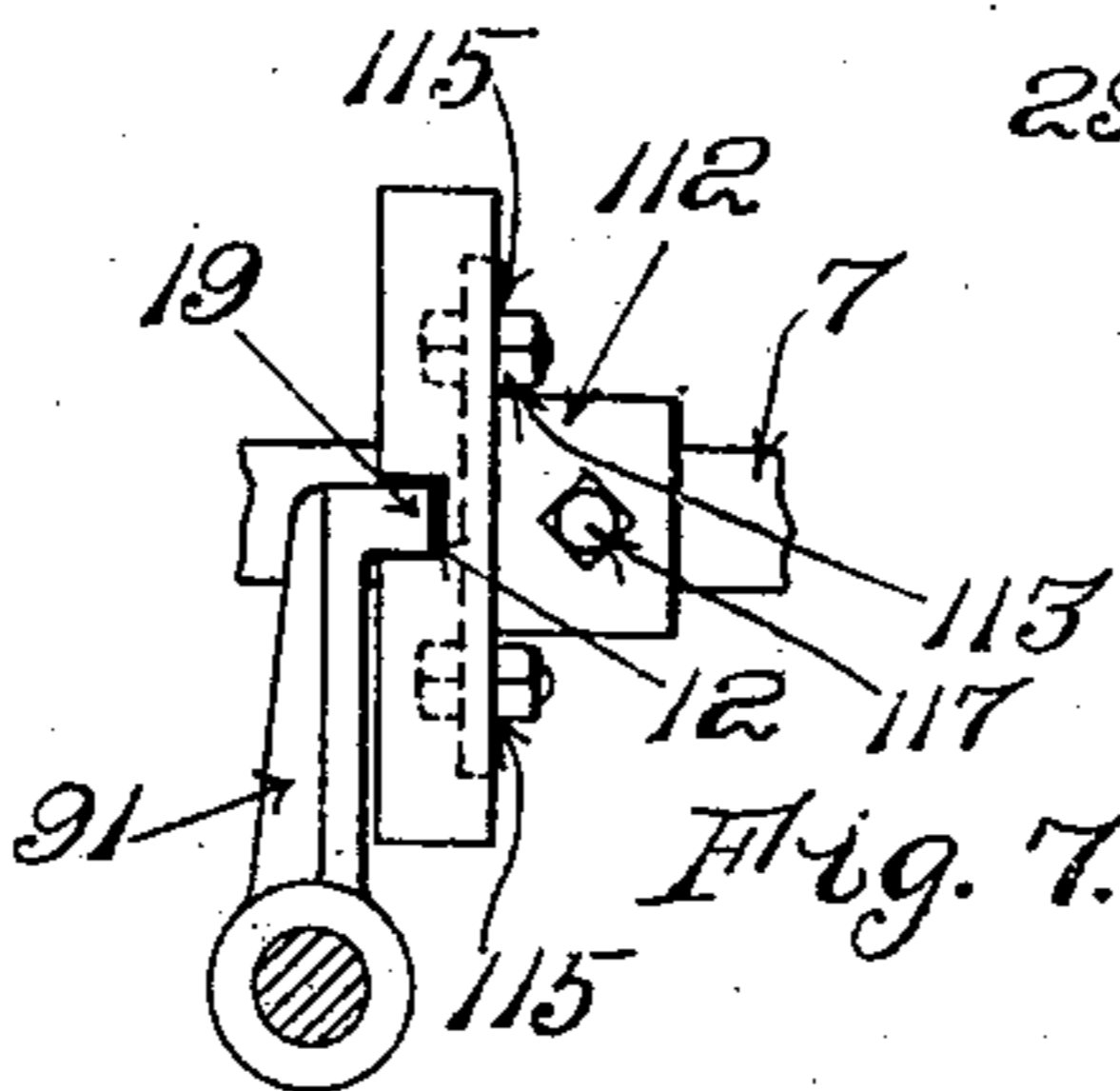


Fig. 7.



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UNITED STATES PATENT OFFICE.

JOHN ROOD, OF DANVERS, AND FRANKLIN J. PERKINS, OF WOBURN, MASSACHUSETTS,
ASSIGNORS, BY MESNE ASSIGNMENTS, TO TURNER TANNING MACHINERY COMPANY,
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LEATHER-WORKING MACHINE.

No. 873,790.

Specification of Letters Patent.

Patented Dec. 17, 1907.

Application filed May 24, 1905. Serial No. 262,014.

To all whom it may concern:

Be it known that we, JOHN ROOD and FRANKLIN J. PERKINS, citizens of the United States, residing at Danvers, in the county of Essex, and at Woburn, in the county of Middlesex, both in the State of Massachusetts, respectively, have invented a certain new and useful Improvement in Leather-Working Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

Our invention has for its object to provide an improved machine for unhairing and fleshing skins or hides as well as for performing other operations generally required of machines of this class.

Our invention relates particularly to that class of machines in which a bed roll is alternately moved into and out of operative position with relation to an operating roll or tool, the working of the hide taking place while the two rolls are in said operative position.

The invention also relates to certain new and improved means for controlling the movements of the various parts of the machine.

The invention will be fully understood from the accompanying specification taken in connection with the drawings and the novel features thereof are pointed out and clearly defined in the claims at the close of the specification.

In the drawings, Figure 1 is a vertical section of a machine embodying this invention. Fig. 2 is a rear elevation of the said machine. Fig. 3 is a detail of the controlling mechanism hereinafter referred to. Fig. 4 is a view in elevation of certain parts of the machine on the end thereof shown in Fig. 1. Fig. 5 is a detail of the adjustable dog hereinafter referred to. Figs. 6 and 7 are details of the stop disk.

Referring to the drawings, and more particularly to Fig. 1, the frame of the machine is shown at A, and there is supported thereon a feed or pinch-roll B and an operating roll or tool C, the said operating roll being provided with the usual spiral blades. The pinch-roll B is mounted in boxes moving in guides D in the frame of the machine and the said roll B is held down by means of springs E one of which only is seen in Fig. 1. Con-

venient adjustments for these springs are furnished by the bolt F and nuts G.

A bed-roll H upon which the hide or skin to be worked is thrown is supported upon the upper ends of lever arms J, one of which is shown in Fig. 1. The said lever arms are pivoted to the frame of the machine, as shown at K, and to a connecting rod L at M. By this means the said bed-roll H may be thrown into and out of contact with the pinch-roll B and the operating roll C, by operating means to be later described.

The bed-roll H is covered with some elastic substance, as for instance rubber, and the pinch-roll B is provided with longitudinal corrugations of suitable size and shape so that a hide placed between the bed-roll H and pinch-roll B is firmly gripped, the two rolls having substantially the same peripheral speed. The operating tool C is driven by a belt on a pulley N and its speed is independent of the speed of the other parts of the machine.

In general the operation of the machine is as follows: When the machine is in the position shown in dotted lines in Fig. 1, the bed-roll is standing still and the operator then throws the hide over the same. The bed-roll H is then moved into operative position as shown in full lines in Fig. 1, and the said bed-roll begins to rotate toward the operator just before the time when the hide is brought in contact with the pinch-roll B which rotates continuously. This operation continues until the hide is worked, when the bed-roll is moved out of contact with the pinch-roll, its rotation being stopped at the instant contact between the two rolls ceases.

The means by which the movements just outlined are imparted to the said bed-roll H and pinch-roll B will now be described. At the back of the machine is placed a main drive shaft 1, provided with a sprocket wheel 2. This sprocket 2 is engaged by a chain 3 which drives the large sprocket wheel 4 fast on the pinch-roll shaft 5. The rotation of the pinch-roll is therefore continuous and positive since the main shaft 1 is driven from a pulley 6. In front of the main shaft 1 is a crank or stop-shaft 7 upon which is mounted a large gear 8 meshing with a corresponding small gear 9 on the main shaft 1. Fast to the crank or stop-shaft 7 are cranks

10, one at each end of the machine to which are attached the connecting rods L. Each of said connecting rods L is provided with a spring cushion 92, not necessary to be described. Attached to the crank or stop-shaft 7 is a stop-disk 11, provided with two notches 12 in its periphery. A stop lever 91 provided with a tip or finger 19 (see Fig. 7) at right angles with the main part of the stop lever is fast to a treadle shaft 14 upon which is mounted the treadle 13. The finger 19 travels upon the rim of the said stop disk 11 and alternately enters each of the said notches 12 for a purpose to be later described.

The treadle shaft 14 is provided with a clutch yoke 15 which serves to move the clutch cone 16 see Fig. 2 slidably mounted on the main shaft 1, into and out of contact with the clutch lever 17 and to operate the clutch 18 which makes the gear 9 fast to the main shaft 1, and thus causes the said clutch and gear to rotate with the main shaft 1. The rotation of the gear 9, which meshes with the gear 8 on the crank or stop shaft 7, causes the stop shaft 7 and its connected parts to rotate. A spring 20 fast at one end to the stop arm 91 and at the other end to the frame A of the machine tends to hold the finger 19 of the stop arm 91 in contact with the rim of the stop disk 11 and insures the finger of the stop-arm entering one of the notches 12 when it reaches that point. When the finger 19 of the stop arm 91 drops into one of the notches 12, the clutch cone 16 releases the clutch 18, and movement of the gear 8 and the connected parts is caused to cease. The two notches 12 are so placed on the rim of the stop-disk that the gear 8 and connected parts are stopped in the two extreme positions shown respectively in dotted and full lines in Fig. 1. In order that the position of the notches in the stop wheel may be adjustable with relation to the position of the stop or crank shaft 7 upon which it is mounted, we make the stop wheel or disk in two parts viz., a face plate 111, (see Figs. 6 and 7) in which the two notches 12 are cut, and a hub 112 which is attached to the shaft 7 by a set screw 117. The two parts of the stop disk or wheel 11 are adjustably secured together by means of the bolts 113 in the slots 114 and 115 in the two parts 111 and 112 respectively of the stop wheel.

The bed-roll H is driven from a sprocket wheel 211 loose on the main shaft 1 through a chain 22, a sprocket wheel 23 fast on a counter-shaft 24 and the train of gears 25, 26, 27, and 28. This gives the bed-roll H movement in the direction indicated by the arrow in Fig. 1 and the parts are so proportioned that the peripheral speed of the bed roll H substantially equals that of the pinch-roll B.

The movement of the bed-roll H is stopped and started by the following train of mech-

anism: At right angles with the main shaft 1 heretofore referred to and at the end of the machine is placed a rock-shaft 29 fast upon which is a second clutch yoke 30 and a pair of dogs 31 and 32. The upper end of the clutch yoke 30 engages an annular groove 131 in a cone 33 slidably mounted on the main shaft 1. The cone 33 engages a corresponding cone 34 which is fast to the sprocket wheel 211 so that when the two are in engagement with each other the sprocket wheel 211 is caused to rotate as if fast upon the main shaft 1. The crank 10 on the crank shaft 7 which is at the left hand end of the machine is shaped to form a knocking arm 35 (see Fig. 4) at the lower end of which is located a roller 36 rotatable about the stud 37. A nut 38 holds the roller 36 in place. This knocking arm 35, it will be seen, makes one revolution about the crank or stop shaft 7 for each revolution of the said shaft and for each cycle of movement of the lever arm J upon the upper end of which is supported the bed-roll H, and said roll 36 contacts with each of the two dogs 31 and 32 once during each revolution. The shape of the two dogs 31 and 32 will be seen by reference to Figs 4 and 5. The dog 31 is loose upon the rock shaft 29 and is provided with an arm or tongue 39 extending longitudinally of the said rock shaft. The other dog 32 is fast on the said rock shaft 29 and is provided on the side toward the end of the machine with two lugs 40 and 41, through which are drilled and tapped holes for the reception of the bolts 42 and 43. These bolts 42 and 43 contact with opposite sides of the tongue or arm 39 and serve to adjust the position of the dog 31 with relation to that of the dog 32. Check nuts 44 and 45 keep the bolts 42 and 43 respectively from working loose.

The knocking arm 35 on the left hand crank 10 in its rotation with the crank or stop shaft 7 causes the roll 36 to engage the upper edge of the dog 31 and to move the dog out of its path, i. e. toward the right as seen in Fig. 5 and consequently to move the rock-shaft 29, and the attached clutch yoke 30. At this point the movement of the knocking arm 35 is stopped by the stop lever 91 which drops into one of the notches 12 in the periphery of the stop-disk 11 heretofore described. The rotation of the knocking arm 35 continues when the stop arm 91 is released from the notch in the periphery of the said stop-disk. By its continued movement the roll 36 passes out of engagement with the first dog 31 and comes into engagement with the corresponding portion of the second dog 32, thereby forcing the second dog out of its path of movement and rocking the said rock shaft 29 in the opposite direction. This movement releases the cone 33 from engagement with the annular cone 34 and causes the train of driving mech-

anism which operated the bed roll H to cease its movement.

When the stop arm 91 is in the second of the two notches 12 in the periphery of the stop-disk 11 the knocking arm 35 is in the position indicated in dotted lines in Fig. 5.

The operation of our machine beginning with the parts in the position shown in dotted lines in Fig. 1, is as follows: At that time the pinch-roll B and operating tool C are moving, their movement being continuous, while the bed-roll H is standing still, its rotation being intermittent. The operator then throws the skin or hide to be worked over the bed-roll H in the proper position, and depresses the treadle 13 to start the machine. The depression of the treadle 13 releases the finger 19 of the stop arm 91 from the notch 12 in the rim of the stop-disk 11 and also causes the clutch 18 to operate, thus making the gear 9 fast to the main shaft 1 and causing the same to rotate therewith. The rotation of the gear 9 puts the stop shaft 7 into movement through the gear 8. This movement of the stop shaft 7 moves the bed roll H up into the full line position so that the hide is pinched between the rubber covered bed roll H and the corrugated surface of the pinch roll B and the hide is brought into operative relation to the operating roll or tool C.

At the time when the operator presses down the treadle 13 as above described, the knocking arm or lever 35 was in the dotted line position shown in Fig. 4 and the said knocking arm or lever moves with the crank or stop shaft to which it is fast until it comes in contact with the first dog 31 which is just before the time when the hide upon the bed roll H is brought into contact with the pinch-roll B. The dog 31 is moved by the roll 36, and the crank or stop shaft 7 and consequently the knocking arm 35 thereon are stopped in their movement by means of the other notch 12 in the stop disk 11 before the roll 36 reaches the second dog 32. The movement of the first dog 31 sets in motion the train of elements which drives the bed roll H by causing the two cones 33 and 34 to engage each other. During this rest the operation of working the hide takes place. The skin or hide being drawn upwardly past the operating tool C by means of the pinch roll B and bed roll H. When the hide has passed out of contact with the operating tool C, the operator again depresses the treadle 13 and releases the stop disk at the same time causing the clutch 18 to operate. This starts the rotation of the stop or crank shaft again. As soon as the stop or crank shaft 7 begins to rotate again the roll 36 on the knocking arm 35 engages the second dog 32 and release the clutch members 33 and 34, thereby stopping the rotation of the bed-roll H. This rotation of the stop shaft also moves the bed roll from the operative or full

line position to the dotted line position shown in Fig. 1. When the dotted line position is reached the machine is stopped by the action of the stop disk 11, and the roll H is then in position to permit the operator to reverse the hide or put on a second hide and to continue the working operation.

We find in practice that the invention provides a leather working machine which may be used by relatively unskilled operatives, enabling them to turn out a very large amount of work within a given time and also that the work done upon our machine is performed in an excellent and thorough manner. It is also possible to work satisfactorily upon this machine hides of all varieties and in almost any condition.

What we claim is:

1. In a machine of the character described, in combination, an operating tool, a bed roll, vertically arranged levers pivoted intermediate their ends and in the upper ends of which said bed roll is mounted, a counter shaft, means for connecting the lower ends of said levers to said counter shaft to effect oscillation of said levers and bodily movement of said bed roll toward and from said operating tool, a main or driving shaft, means for connecting said main or driving shaft with said counter shaft, and means for effecting intermittent rotation of said counter shaft from said main shaft, substantially as described.

2. In a machine of the character described, the combination with an operating tool, a pinch-roll and a movable bed-roll, of a stop shaft, a knocking lever thereon, a pair of dogs alternately engaged by the said knocking lever, and means intermediate the said dogs and the said bed-roll whereby the rotation of the said bed-roll is alternately stopped and started by the engagement of the said knocking arm with the said dogs.

3. In a machine of the character described, the combination with an operating tool, a pinch-roll, and a movable bed-roll, of a stop shaft, a knocking lever thereon, a rock shaft, a pair of dogs and clutch operating means thereon, and driving means for the said bed-roll controlled by the said clutch operating means whereby the driving means is stopped or started upon the engagement of the knocking lever with the said dogs.

4. In a machine of the character described, the combination with an operating tool, a pinch-roll, and a movable bed-roll, of a stop shaft, a knocking lever thereon, a rock shaft, a pair of dogs and clutch operating means thereon, a clutch and driving means for the said bed-roll controlled by the said clutch, and clutch operating means whereby the said driving means is stopped or started upon the engagement of the knocking lever with the said dogs.

5. In a machine of the character described, the combination with an operating tool, a

pinch-roll, and a movable bed-roll, of a stop shaft, a knocking lever thereon, a rock shaft, a pair of dogs thereon one of which is adjustable with relation to the other, clutch operating means on the said rock shaft, and driving means for the said bed-roll controlled by the said clutch operating means whereby the driving means are stopped or started upon the engagement of the knocking lever with the said dogs.

6. In a machine of the character described, in combination, an operating tool, a bed roll, vertically arranged levers in which said bed roll is mounted, a counter shaft, cranks on said counter shaft, means for connecting said levers with said cranks, a main shaft, means for connecting said counter shaft with said main shaft, means for effecting intermittent rotation of said counter shaft, a rock shaft actuated from said counter shaft, and mechanism for rotating said bed roll controlled by said rock-shaft, substantially as described.

7. In a machine of the character described, in combination, an operating tool, a rotatable bed roll bodily movable toward and from said tool, a main shaft, a counter shaft driven from said main shaft and connected with said

bed roll to effect bodily movement thereof by rotation of said counter shaft, mechanism for rotating said bed roll, a rock shaft controlling the operation of said mechanism, and means actuated by said counter shaft for operating said rock shaft, substantially as described.

8. In a machine of the character described, in combination, a pinch roll, means to rotate the said roll continuously, a bed roll movable toward and from said pinch roll and cooperating therewith to feed the hide or skin, independent mechanism for rotating said bed roll when in its operative position, and an automatically operated coupling member controlling the driving mechanism for said bed roll and operating to effect rotation of said bed roll only when the latter is in its working position, substantially as described.

In testimony whereof we affix our signatures, in presence of two witnesses

JOHN ROOD.

FRANKLIN J. PERKINS.

Witnesses:

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GEORGE C. VAUGHN.