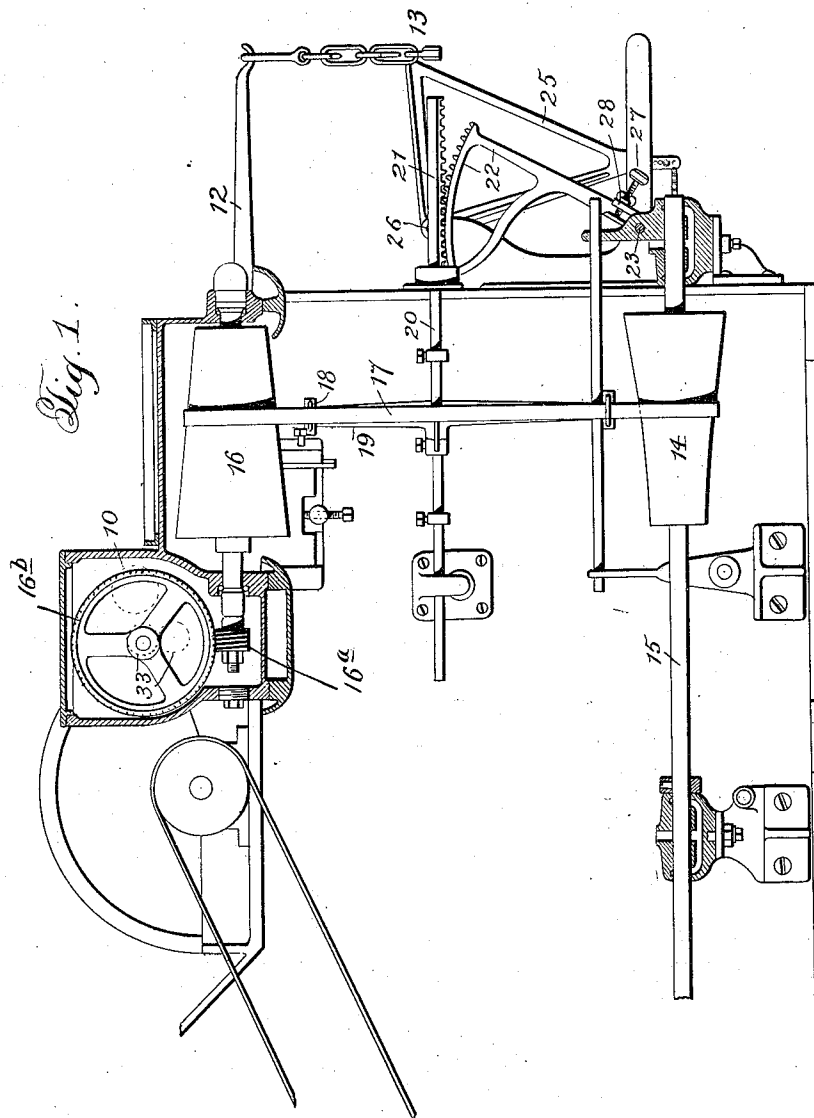


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 EVENER FOR COTTON OPENING AND OTHER COTTON WORKING MACHINES.
 APPLICATION FILED JULY 3, 1909.

1,015,508.

Patented Jan. 23, 1912.
 3 SHEETS—SHEET 1.



Witnesses:

Jas E Hutchinison
W L Pugh

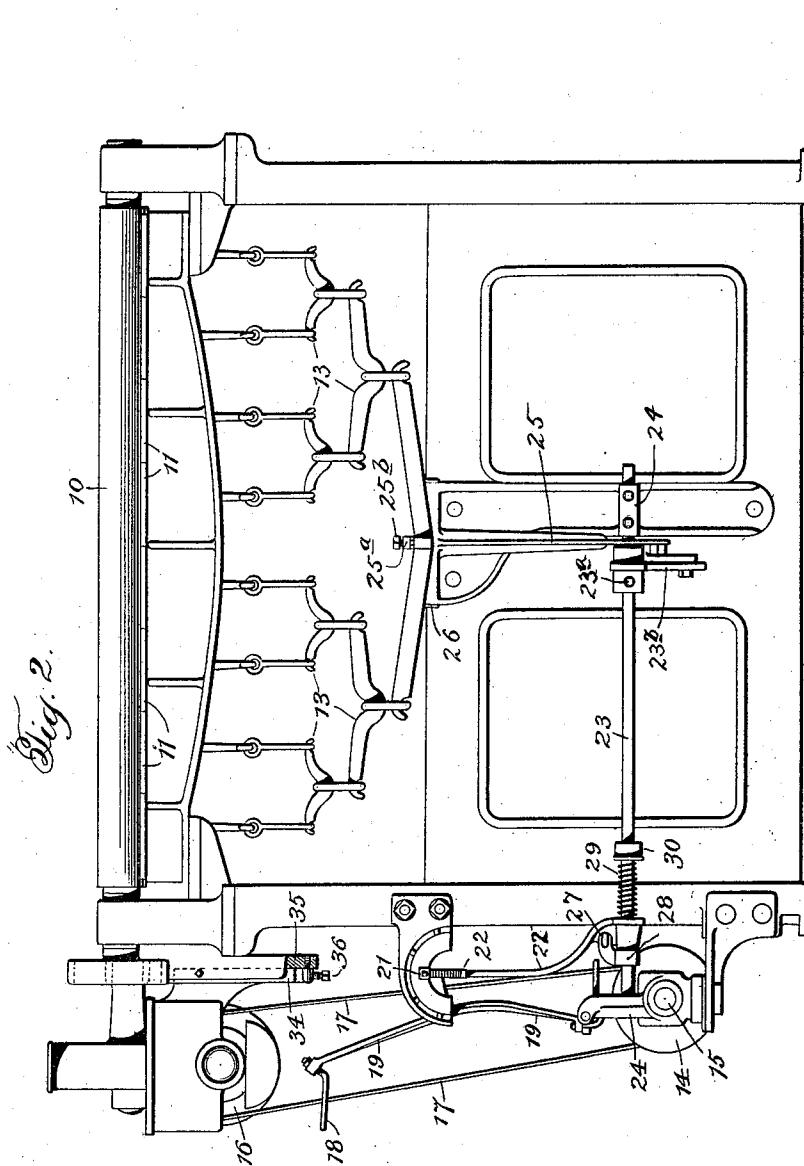
Inventor:
James C. Potter
 By *Chas J Williamson* Attorney

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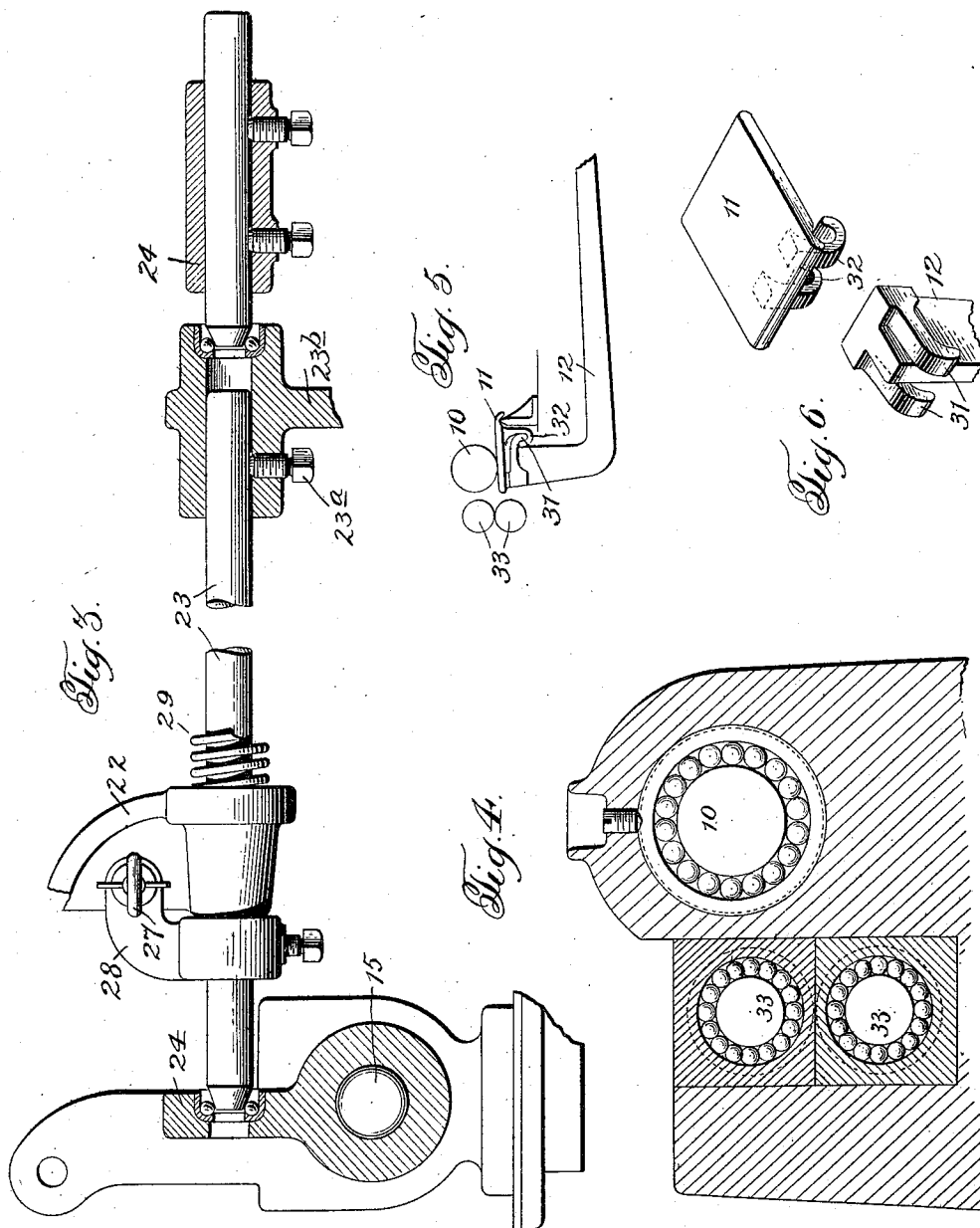
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UNITED STATES PATENT OFFICE.

JAMES CHARLES POTTER, OF PAWTUCKET, RHODE ISLAND, ASSIGNOR TO POTTER & JOHNSTON MACHINE CO., OF PAWTUCKET, RHODE ISLAND.

EVERNER FOR COTTON-OPENING AND OTHER COTTON-WORKING MACHINES.

1,015,508.

Specification of Letters Patent.

Patented Jan. 23, 1912.

Application filed July 3, 1909. Serial No. 505,878.

To all whom it may concern:

Be it known that I, JAMES C. POTTER, of Pawtucket, in the county of Providence and in the State of Rhode Island, have invented

5 a certain new and useful Improvement in Eveners for Cotton-Opening and other Cotton-Working Machines, and do hereby declare that the following is a full, clear, and exact description thereof.

10 My invention relates to everner mechanisms for cotton openers or cotton working machines for preparing the cotton for spinning, and primarily my object is to render the

15 feed-roll speed-changing devices exceedingly sensitive of operation, so as to render the product of the machine as uniform as possible.

Other objects are to render more convenient of adjustment, and inexpensive of construction, the members of the everner mechanism.

For the attainment of the objects of my invention, said invention consists of the everner mechanism having the construction

25 substantially as hereinafter specified and claimed.

Referring to the accompanying drawings, Figure 1 is a view in side elevation, with parts in section, of the receiving end portion

30 of a cotton lapper or opener embodying my invention; Fig. 2 an end elevation thereof; Fig. 3 a detail view partly in section and partly in elevation illustrating the bearing for the rock shaft forming a part of the

35 means for transmitting motion from the everner plates to the belt shifter; Fig. 4 is a detail view in section of the bearings of the everner and feed rolls; Fig. 5 a detail view showing one of the everner plates and its arm associated in working relation with the

40 everner and feed rolls; and Fig. 6 a detail view in perspective of an everner plate and a portion of its arm separated from each other.

45 In its general construction, the everner mechanism forming the subject of this patent is similar to the everner mechanism forming the subject of my Patents No. 375,301, Dec. 20, 1887, and No. 399,076, Mar.

50 5, 1889, in that there is an everner roll 10 beneath which are everner plates 11 carried by the ends of arms 12, whose other ends, by a system of scale levers 13, are made to act upon the belt of a cone gearing, through

55 which power is transmitted to the everner

roll 10, and to cause the feed of the cotton to the beater at a speed proportionate to or dependent upon the thickness of the lap. Referring to Fig. 1, portions of the arms 12 being in rear of other parts of the machine, of course, do not appear in Fig. 1, but such concealed parts of the arms 12 appear clearly in Figs. 5 and 6. The cone gearing consists of a lower cone 14 fixed to and receiving motion from a shaft 15, an upper cone 16, and a belt 17 connecting the two cones and shiftable axially thereof to change or vary the speed of the upper driven cone. The belt 17 is engaged by an eye or loop 18 on a shifter arm 19 which is connected to and is movable with a reciprocating rod or bar 20 having near one end rack teeth or a rack 21 in mesh with the teeth of a gear segment or quadrant 22 mounted on and rotatable with a rock shaft 23 supported at opposite ends by bearings 24. The two bearings are similar in construction, each consisting of a ball-carrying member and a member having a tapered end that engages the balls, so that the bearing is of the thrust-type. Owing to the reduced or tapered end of the ball-engaging member, lateral or sidewise movement of the shaft or the bearings in any direction is possible so that non-alinement of the bearing to a large degree may exist without resulting in any binding or cramping of the shaft. This is a most important consideration, for it contributes to the existence and preservation of the condition that is necessary for the free movement of the parts required to render the everner mechanism as sensitive as is necessary to get the best results. A set screw 23^a passes through the hub of the arm 23^b which forms a part of the connection between the rock shaft 23 and the scale levers 13. The rock shaft 23 is connected to and receives its motion from the main scale lever through the intermediary of a bell crank lever 25, whose pivot is journaled in ball bearings at 26, and which is connected to a radial arm on the rock shaft.

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The bell crank lever 25 has a lug 25^a which overhangs the main scale lever, which, on its opposite side is engaged by the lower end of the screw 25^b which passes downward through the lug 25^a.

The gear segment or quadrant 22 is mounted to turn, for purposes of adjustment, on the rock shaft, and it is yieldingly held against one end of an adjusting screw 27

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that engages a threaded opening in an arm 28 fixed to the rock shaft, a coil spring 29 encircling the rock shaft and having one end secured to said segment or quadrant and the other end to a collar 30 fixed to the rock shaft, constituting means for yieldingly holding the quadrant or segment in contact with the adjusting screw. By this means, the weight or pressure under which the scale levers are actuated may be determined, that is to say there may be such adjustment of the power of the spring as may be required to cause the operation of the scale levers by a given weight or pressure upon the evenner plates 11, and as the adjusting means, including the screw, is located at or near the side of the machine, it is very conveniently accessible for purposes of adjustment.

Heretofore each evenner plate and its arm have been cast in one piece. Since it is important that the surface of the evenner plate be as smooth as possible, machining of it is necessary, and the machining of it when formed or cast with the arm is inconvenient and adds objectionably to the cost of construction. I obviate all this by making the evenner plate, which is comparatively small, separate from the arm, so that the operation of machining its cotton-engaging surface can easily and readily be performed, and I connect the evenner plate and arm together readily and inexpensively by providing on the end of the arm that carries the evenner plate, lugs 31, respectively, on opposite sides thereof, that are, respectively, engaged by hooks 32, formed on the under side of the evenner plate, the evenner plate bearing upon the upper end of the arm to one side of the hooks so that the tendency is for the parts to remain in engagement.

The shaft of the upper or driven cone at each end of the latter is journaled in ball or anti-friction bearings, and the shafts or journals of the evenner roll 10, as well as of the two feed rolls 33, are journaled in anti-friction roller bearings, all three of said rolls, as in the case of my prior patent No. 375,301, receiving their motion from the upper cone pulley by suitable gearing including a worm 16^a on the shaft of the cone 16, and a worm wheel 16^b as best shown in Fig. 1. In consequence of the anti-friction bearings thus provided, an extremely light and free running or loose belt may be employed to connect the cone pulleys, so that effort required to shift the belt to vary the speed of the rolls is so slight that my evenner is very sensitive and quickly responds to any inequalities of the lap passing beneath the evenner roll, so that the output of the machine possesses the uniformity that is required.

The bearings for the upper or driven cone pulley are attached to a common plate 34 which is vertically movable in a guideway 35 on the side of the machine frame, and

may be so moved by means of an adjustable screw 36 passing through a threaded opening in a boss or block on the side of the machine frame, on the upper end of which said bearing carrying plate rests. Thus, such adjustment as may be necessary to secure proper action of the belt connecting the two cone pulleys may easily and quickly be had.

It will be understood that changes may be made in the details of construction and the organization of the elements of the machine as an entirety from what I have shown and particularly described hereinbefore, without involving any departure from the scope of the appended claims, and in construing or determining the meaning of the latter, this is to be taken into account.

Having thus described my invention, what I claim is—

1. In an evenner, the combination of a driving and a driven cone pulley, a feeding means geared to the driven cone pulley, anti-friction bearings for said driven cone pulley, a light, easily shiftable belt connecting the cone pulleys, and automatic means for shifting the belt along the pulleys.

2. In an evenner, the combination of a driving and a driven cone pulley, rolls geared to the driven cone pulley, anti-friction bearings for the driven cone pulley and said rolls, a light, easily shiftable belt connecting the cone pulleys, and automatic means for shifting the belt along the cone pulleys.

3. In an evenner, the combination of a driving and a driven cone pulley, a feed roll geared to the driven cone pulley, anti-friction bearings for said driven cone pulley, a light, easily shiftable belt connecting the cone pulleys, evenner plates, connections between the evenner plates and the belt for moving the latter along the pulleys, comprising a rock shaft, and bearings for the rock shaft permitting lateral movement of the rock shaft, whereby binding or cramping thereof is prevented, said bearings being located at opposite ends of the shaft, and comprising, each, a stationary and a laterally movable member, one of which is larger than the other and an annular space existing between them.

4. In an evenner, the combination of cone pulleys, a belt connecting the pulleys, evenner plates, connections between said plates and the belt for shifting the belt along the pulleys, comprising a rock shaft, and bearings for said shaft permitting lateral movement thereof, whereby binding of the shaft in the bearings is prevented, said bearings being located at opposite ends of the shaft, and comprising, each, a stationary and a laterally movable member, one of which is larger than the other and an annular space existing between them.

5. In an evenner, the combination of cone

pulleys, a belt connecting the pulleys, everer plates, connections between said plates and the belt for shifting the belt along the pulleys, comprising a rock shaft, and ball bearings for said shaft permitting lateral movement thereof, whereby binding of the shaft in the bearings is prevented, said shaft bearings including, each, a ball-engaging member having an end surface that the balls engage.

6. In an everer, the combination of a feed roll, variable speed mechanism for driving said roll, everer plates, connections between the everer plates and said variable speed mechanism, comprising a rock shaft and a member movable thereon, and means for adjusting said member with reference to the shaft.

7. In an everer, the combination of a feed roll, variable speed mechanism for driving said roll, everer plates, connections between the everer plates and said variable speed mechanism, comprising a rock shaft and a member movable thereon, and means for adjusting said member with reference to the shaft, comprising a spring acting to move the member in one direction, and an adjusting screw.

8. In an everer, the combination of a feed roll, cone pulleys geared thereto, a belt connected with the cone pulleys, a rack bar connected with the belt, a gear segment meshing with the rack bar, a shaft on which said segment is mounted, a spring acting to move the segment in one direction on the shaft, an adjusting screw engaging the segment and carried by the shaft, everer plates and connections between the everer plates and said rock shaft.

9. In an everer, the combination of a feed roll, variable speed mechanism for driving said roll, an everer plate, an arm made separate from the everer plate, a hook and lug connection between the plate and its arm, and connections between the arm and the variable speed mechanism.

10. In an everer mechanism, the combination of a feed roll, cone pulleys, an adjustable support for one of the cone pulleys

carrying bearings at opposite ends of the cone, means to move said support to shift both said bearings and the cone bodily to and from the other cone, a light, easily shiftable belt connecting the cone pulleys, and automatic means to shift the position of the belt along the pulleys.

11. In an everer, the combination of a driving and a driven cone pulley, a feeding means geared to the driven cone pulley, anti-friction bearings for said driven cone pulley, a light, easily shiftable belt connecting the cone pulleys, everer plates, connections between said plates and the belt for shifting the belt along the pulleys, comprising a rock shaft, and anti-friction bearings for said shaft permitting lateral movement thereof.

12. In an everer, the combination of a driving and a driven cone pulley, a feeding means geared to the driven cone pulley, anti-friction bearings for said driven cone pulley, a light, easily shiftable belt connecting the cone pulleys, everer plates, connections between said plates and the belt for shifting the belt along the pulleys, comprising a rock shaft, and a bearing for said shaft comprising at each end a series of balls and a taper ball-engaging member.

13. In an everer, the combination of a driving and a driven cone pulley, rolls geared to the driven cone pulley, anti-friction bearings for the driven cone pulley and said rolls, a light, easily shiftable belt connecting the cone pulleys, everer plates, connections between said plates and the belt for shifting the belt along the pulleys, comprising a rock shaft, and thrust ball bearings for said shaft permitting lateral movement thereof, said bearings, each, comprising balls and a member having an end engaging the balls whereby binding of the shaft in the bearings is prevented.

In testimony that I claim the foregoing I have hereunto set my hand.

JAMES CHARLES POTTER.

Witnesses:

MITCHELL ADAMS,
EARLE ROBERTS.