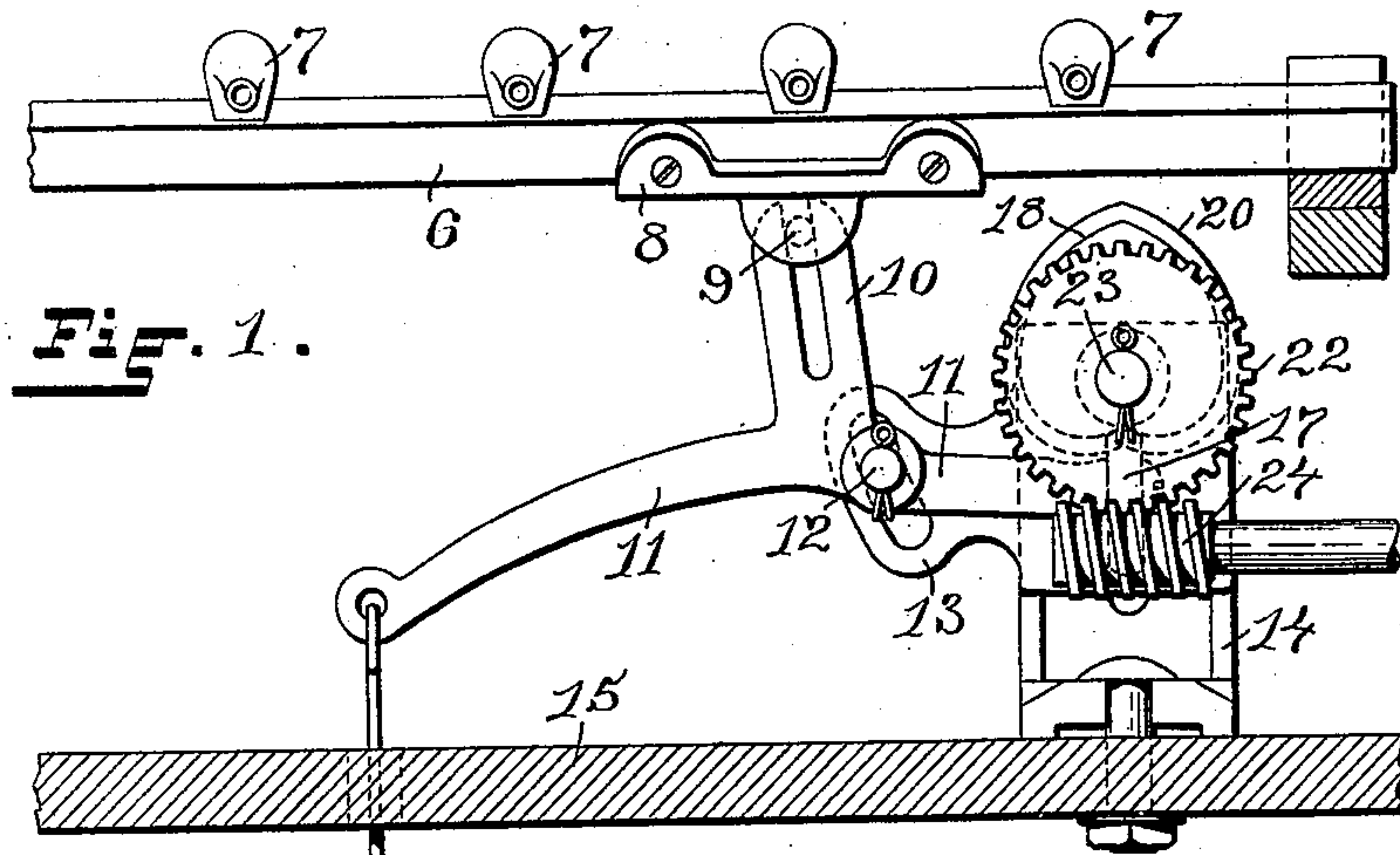


(No Model.)

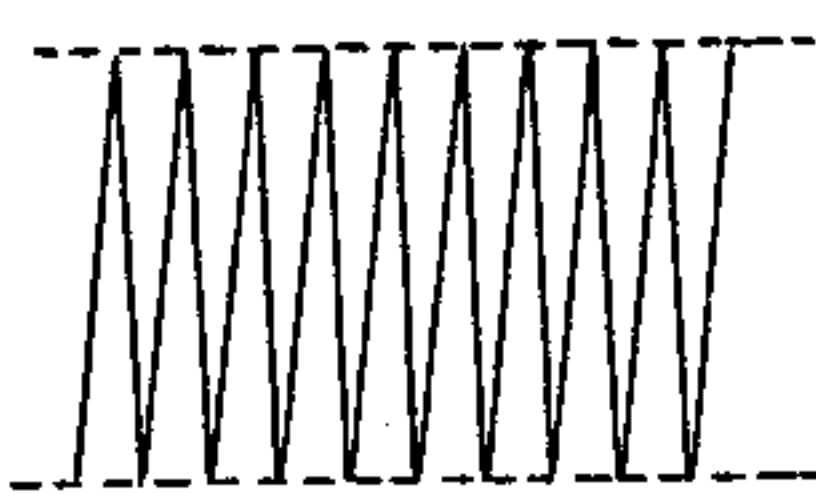
W. J. BURNHAM.  
SPINNING MACHINE.

No. 557,485.

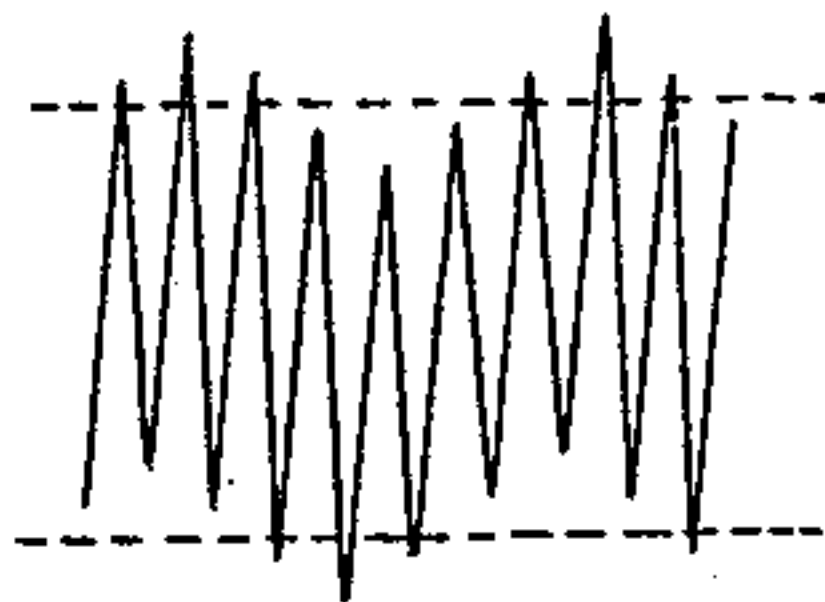
Patented Mar. 31, 1896.



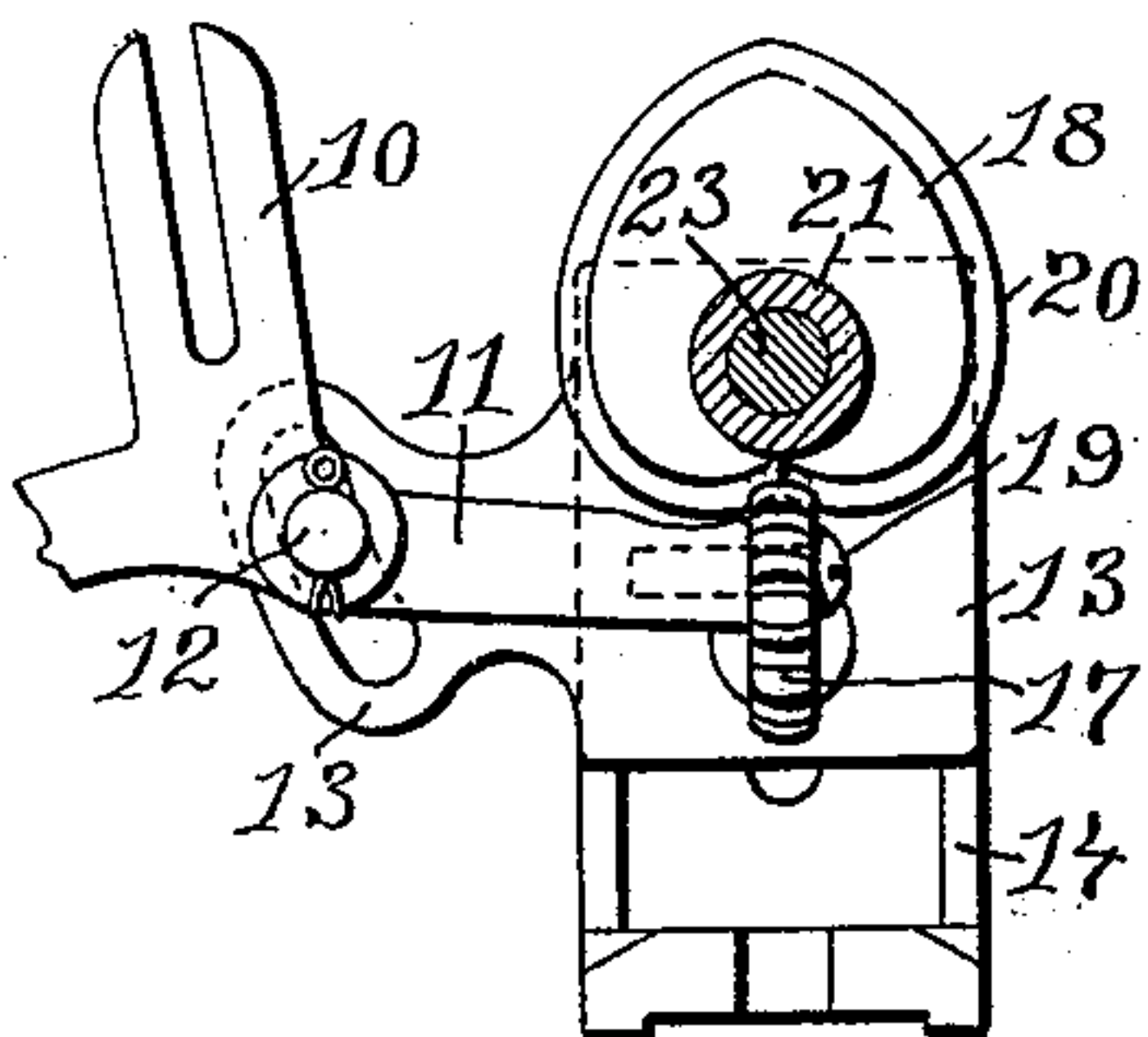
**Fig. 4.**



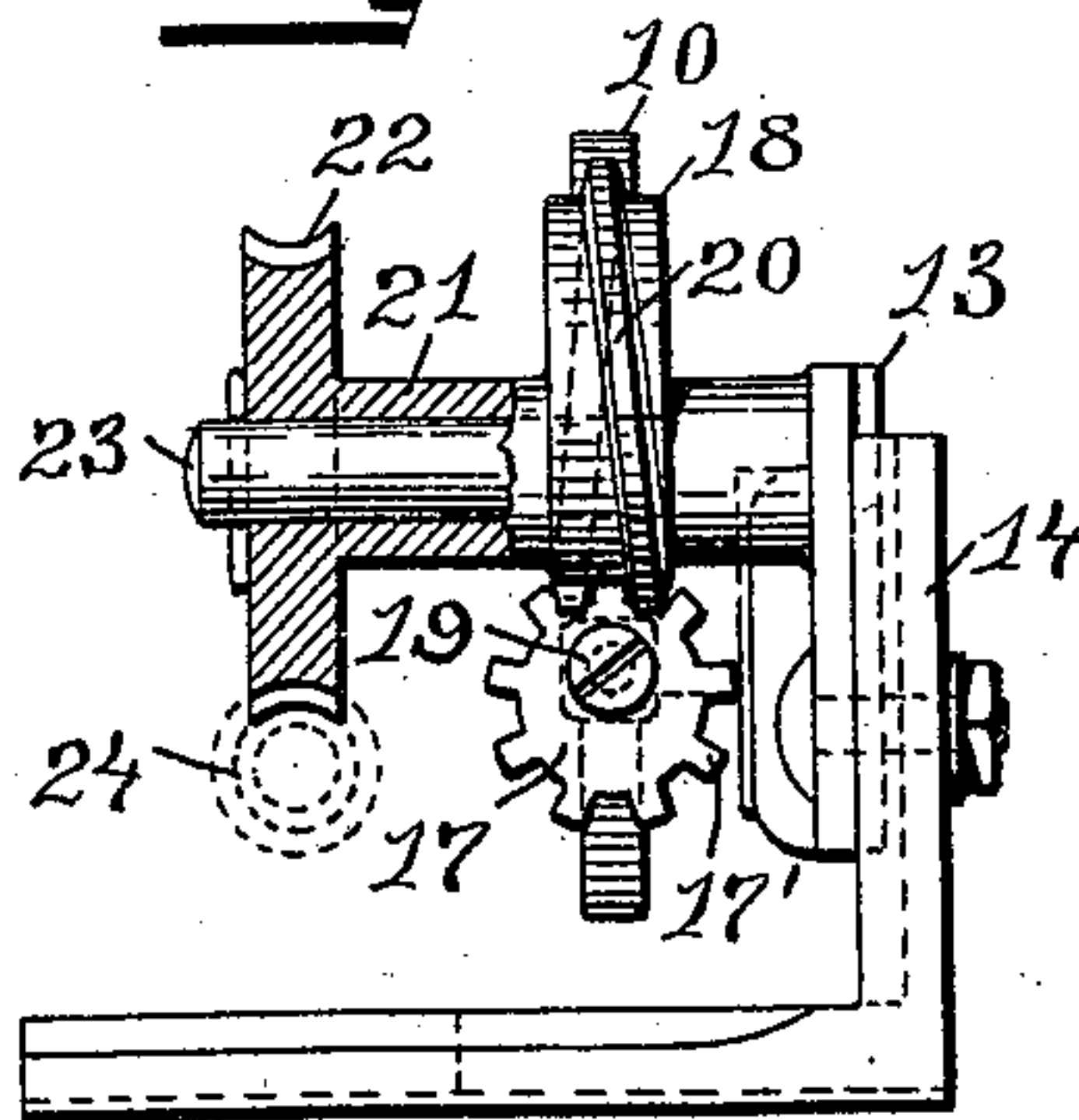
**Fig. 5.**



**Fig. 2.**



**Fig. 3.**



WITNESSES:

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Chas. H. Luther

INVENTOR:

William J. Burnham,  
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Attys.



# UNITED STATES PATENT OFFICE.

WILLIAM J. BURNHAM, OF LEWISTON, MAINE, ASSIGNOR TO EZRA DIXON,  
OF BRISTOL, RHODE ISLAND.

## SPINNING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 557,485, dated March 31, 1896.

Application filed May 9, 1895. Serial No. 548,630. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM J. BURNHAM, of Lewiston, in the county of Androscoggin and State of Maine, have invented certain new and useful Improvements in Spinning-Machines; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

In spinning-machines the fiber is passed between the fluted drawing-rolls and the top rolls. To prevent these rolls from wearing at one point into a groove, the fiber is passed through a trumpet or between guides secured usually to a rod, and to this rod reciprocating motion is imparted, whereby the fiber is guided forward and backward over the surface of the rolls and the wearing of the rolls into grooves is obviated. This method of controlling the passage of the fiber between the rolls is described in Patent No. 527,591, of October 16, 1894. By this improvement the wearing of the rolls is extended over a greater length of the rolls, corresponding with the length of the traverse of the reciprocating roving-rod, which carries the yarn-guides by which the fiber is controlled. The rolls will last longer; but they will wear and form at each end of the reciprocation recesses in the rolls, so that at these points the elasticity of the top rolls is not sufficient to hold the fiber on the drawing-rolls and by producing the proper drawing out of the fiber produce uneven yarn.

The object of this invention is to remedy this defect and prevent the wearing of the rolls at the ends of the traverse of the roving into grooves or shoulders; and to this end the invention consists in the peculiar and novel construction of the traversing mechanism by which the ends of the reciprocations are continually changed, as will be more fully set forth hereinafter.

To enable others skilled in the art to carry out the invention, I have shown the same in the drawings in connection with the roving-rod reciprocation mechanism shown and described in the United States Patent No. 527,591, dated October 16, 1894, above referred to.

Figure 1 is a side view, partly in section, of a roving-rod reciprocating mechanism provided with my improvement. Fig. 2 is a partial view of the same, showing the operating-cam and the variable abutment against which the cam acts. Fig. 3 is a view, partly in section, showing the cam and the variable abutment. Fig. 4 is a diagram illustrating the path of reciprocation when the roving-rod is operated with a fixed abutment, and Fig. 5 is a diagram illustrating the path of reciprocation when my variable abutment is used in connection with a reciprocating mechanism.

Similar numbers of reference designate corresponding parts in all the figures.

In the drawings, 6 indicates the reciprocating roving-rod of a spinning-machine; 7, the trumpets by which the roving is guided onto the drawing-rolls; 8, a bracket, secured to the roving-rod, provided with the pin 9, which connects the roving-rod 6 with the slotted arm 10 of the lever 11. This lever 11 is pivoted on the pin 12, adjustably secured to the bracket 13, which is secured, and preferably so as to be adjusted vertically, to the standard 14, and this standard 14 is secured to the frame 15 of the spinning-machine.

The weight 16 is suspended from one end of the lever 11, and on the opposite end of the lever 11 a variable abutment 17 is secured, which bears against the cam 18, the weight 16 always maintaining a firm contact of the abutment against the cam. The variable abutment I use in connection with this mechanism consists of a disk provided around its periphery with gear-like projections 17'. The disk is journaled on the short end of the lever 11 and secured by means of the screw 19. The disk 17 is journaled off its center, so that when rotated the relation of the end of the short arm of the lever 11 and the cam 18 is continually varied and thereby the limits of the reciprocation of the lever 11 and arm 10.

The cam 18, which is shown in the drawings, as in the Patent No. 527,591 referred to, of heart shape, is provided on its periphery with the worm-thread 20. The cam 18 instead of being heart-shaped may be an eccentric cam of any shape that will best secure the desired reciprocating motion. It is formed with or secured to the sleeve 21 with the worm-



gear 22 and journaled on the bearing-pin 23 secured to the bracket 13. Motion is imparted to the mechanism by the worm 24, driven from any convenient rotating part of the driving mechanism. The worm-gear 22 and cam 18 receive continuous rotary motion. By reason of the form of the cam 18 the motion is transmitted through the lever 11 and arm 10 to the roving-rod 6 and changed to reciprocating motion between limits determined by the cam 18. As, however, each rotation of the cam 18 turns, by means of the worm-thread 20, the disk 17 around its journal-bearing the distance of one tooth or projection 17', the relative position of the lever 11 to the cam is continually changing and the ends of the reciprocations of the roving-rod vary with the rotation of the disk 17. The disk 17 may be made oval or approximately heart-shaped, and the operating mechanism may be changed to best suit the desired conditions without materially changing the nature of my invention, the essential feature of which is the interposition between the roving-rod and the operating mechanism of the ever-varying abutment 17, by which the constant throw of the reciprocation is retained, while the end limits of the reciprocations are continually changed and the wearing of the rolls into grooves is prevented.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a roving-rod-operating mechanism for spinning-machines, the combination with the

roving-rod, a lever pivoted on a fixed pin, one arm of which lever is connected with the roving-rod, another arm in contact with mechanism for operating the lever and a third arm provided with a counterweight, of the mechanism for imparting oscillation through a fixed length of an arc, and a disk, journaled on one arm of the lever, interposed between the arm and the operating mechanism, whereby the ends of reciprocation of the roving-rod are constantly changed, as described.

2. In a roving-rod-operating mechanism for spinning-machines, the combination with a pivoted lever connected with the roving-rod, and a cam for operating the lever, of a variable abutment carried by the lever and in contact with the cam, and mechanism, substantially as described, for operating the same, as described.

3. In a roving-rod-operating mechanism for spinning-machines, the combination with the pivoted lever 11 provided with the slotted arm 10, and the cam 18, of the worm-thread 20, the disk 17 provided with projections 17', mechanism for imparting motion to the cam, and connection between the arm 10 and the roving-rod; the whole adapted to impart an ever-varying reciprocating motion to the roving-rod as and for the purpose described.

In witness whereof I have hereunto set my hand.

WILLIAM J. BURNHAM.

Witnesses:

FLORA KNOWLTON,  
GEO. HANSON.