(No Model.)

G. F. EVANS.

MECHANISM FOR EVENING ROVINGS, &c.

No. 389,695. Patented Sept. 18, 1888.

Fig. 1.

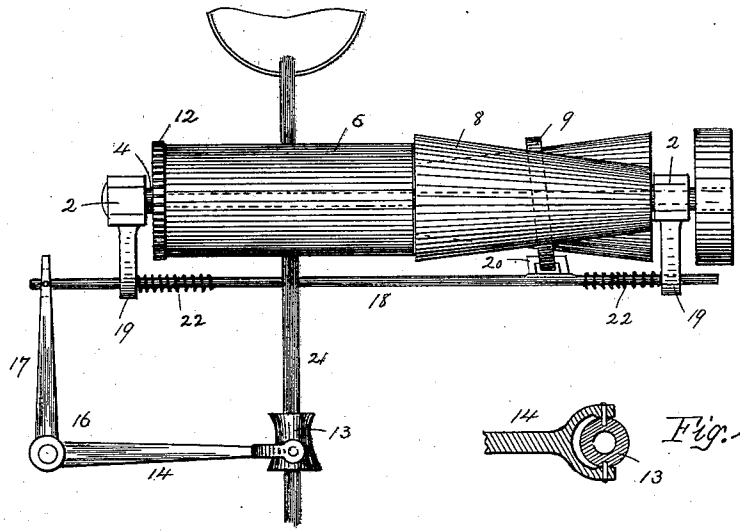


Fig. 4.

Fig. 2.

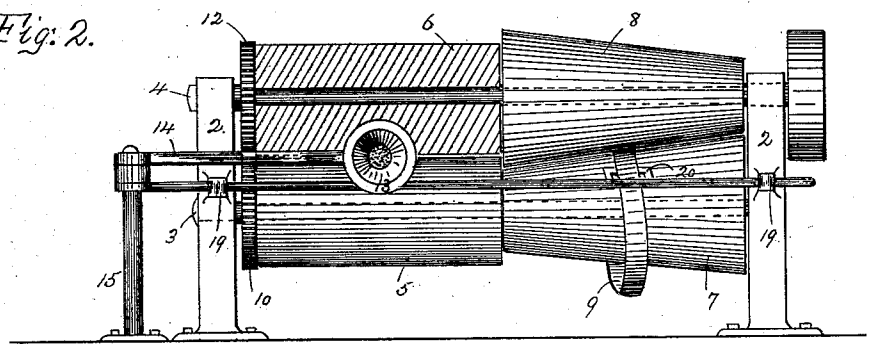
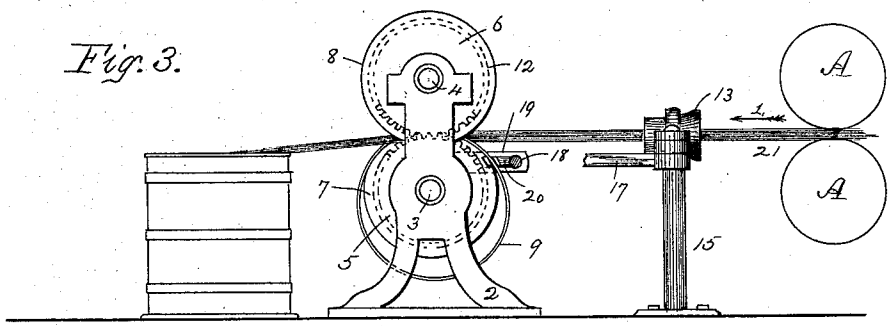


Fig. 3.



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UNITED STATES PATENT OFFICE.

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MECHANISM FOR EVENING ROVINGS, &c.

SPECIFICATION forming part of Letters Patent No. 389,695, dated September 18, 1888.

Application filed March 13, 1888. Serial No. 267,082. (No model.)

To all whom it may concern:

Be it known that I, G. FRANK EVANS, a citizen of the United States, residing at Somerville, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Mechanism for Evening Rovings, &c.; 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to machines for regulating the size of "roving," so called; and it consists, primarily, in the combination, with a pair of drawing-rolls and a movable tubular guide operated by the passage of the roving therethrough, of a pair of reversely conical or tapering pulleys revolving on parallel shafts, connections between the driven cone-pulley and one of the drawing-rolls, and an endless band arranged to pass between and be gripped by said pulleys, and connections between said tubular guide and said belt for shifting the position of said pulleys, said mechanism being so arranged and constructed that any change in the thickness of the sliver to shift the tubular guide will instantly and quickly cause a change in the speed of the drawing-rolls—that is, if the sliver is too thick the speed of the drawing-rolls must be accelerated—and in this way the inequalities in the thickness of the sliver are overcome and an even roving is produced.

The drawings represent in Figure 1 a plan of mechanism containing my improvements. Fig. 2 is a front sectional elevation. Fig. 3 is an end view of the same. Fig. 4 is a transverse section of the tubular guide, showing the manner of mounting it.

In said drawings, 2 2 represent similar housings or standards, in which are mounted horizontal shafts 3 4, arranged in parallelism, one above the other. Rigidly secured upon the lower shaft, 3, is a drawing-roll, 5, which is contiguous to a cone-shaped pulley, 7, likewise secured thereupon. The upper shaft, 4, is further provided with a cone-shaped pulley, 8, affixed upon it, and with its small end opposite the large end of the co-operating pulley 7, said pulley 8 being driven by belting from any motor or driving-shaft to a pulley, 23, on its shaft. Moreover, their peripheries do not touch, but are sufficiently close to grip an endless belt, 9, loosely encircling the lower and in the present instance the driven pulley. The shaft 4 is further furnished with a drawing-roll, 6, which is free to revolve thereon at a speed dependent upon that of its co-operating drawing-roll, 5, by means of two intermeshing spur-gears, 10 12, mounted at the other ends of rolls 5 and 6 on the shafts of said rolls and meshing with each other.

In front of and at a suitable distance from the drawing-rolls, and in a horizontal plane with the meeting surfaces of said pair of rolls, is a tubular guide or trumpet, 13, pivotally supported, as shown in detail in Fig. 4, in the U-shaped extremity of an arm or bar, 14, mounted upon a post or other fixture, 15, and which forms part of a bell-crank lever, 16. The other arm, 17, of said lever extends toward the drawing-rolls, but at one side thereof. (See Fig. 1.) The free end of this arm 17 engages a horizontal shifter-rod, 18, loosely mounted in the bracket-arms 19 19 on the standards 2 2. Said rod is parallel with the shafts 3 4 and located beneath the roving in front of the lower drawing-roll 5 and cone-pulley 7. Attached to said rod 18 is a guide or eye, 20, through which the belt 9 travels, and by means of which its position between the rolls is altered by an endwise movement of its actuating-rod 18.

As before premised, the object of my invention is to effect a change in the speed of the drawing-rolls instantly upon movement of the tubular guide through which the roving is continuously traveling and dependent upon inequalities in the thickness of the sliver. In connection with the above-described apparatus for producing the change in the speed of the rolls 5 6, a pair of rolls, A A, or several pairs in series, may be employed. The rolls A A (shown in Fig. 3) are arranged to run at a fixed rate of speed. In the event of a thickened portion of the roving entering the trumpet 13, an increase in the speed of the co-operating rolls 5 6 is at once effected, and a pull is at once exerted upon that portion of the roving between said sets of rolls.

The operation and subsequent result arising from the co-operation of the above-described instrumentalities which form a machine for regulating the size of roving will now be described, presuming the sliver 21 is now traveling in the direction of arrow 1 in Fig. 3.

The bore of the tubular guide varies for different machines and is made to suit the roving. When the sliver is too large, it presses against the bore of the tubular guide, which is thrown toward the drawing-rolls. The speed of the latter is instantly accelerated by the simultaneous movement of the bell-crank lever 16 and rod 18 to shift the belt toward the small end of the pulley 7. As soon as the inequality is reduced and the resistance caused thereby within the tubular guide 13 has ceased, the guide is returned to its normal place. This position of said guide, and consequently the position of the loose belt 9 between the cone-shaped pulleys, is maintained by means of two oppositely-acting springs, 22, coiled upon the shaft 18. One end of said springs is affixed to said shaft, while the other bears against the arms 19 19, projecting from the standard. Thus the trumpet or tubular guide is spring-balanced, and is always returned to its normal position, which latter may be adjusted by means of the springs, as required.

What I claim is—

1. In a device for regulating the size of roving, the combination, with a pair of drawing-rolls and a movable tubular guide operated by the passage of the roving therethrough, of a pair of reversely conical or tapering pulleys revolving on parallel shafts, connections between the driven cone-pulley and one of the drawing-rolls, and the endless band arranged to pass between and be gripped by said pulleys, and a lever and rod connecting said tube with said belt for the purpose of shifting the latter in the direction of the length of said pulleys, substantially as specified.

2. The combination, with the drawing-rolls 5 6, connections between the driven cone-pulley and one of the drawing-rolls, and the swinging tubular guide 13, operated by the roving, of an endless band, 9, and the reversely conical or tapering pulleys 7 8, between which said belt passes, said belt loosely encircling one of said rolls, and a lever and rod connecting said tubular guide to said belt, whereby the tubular guide serves to shift said belt, as and for the purposes herein set forth.

3. In a machine for regulating the size of roving, the standards 2, drawing-rolls 5 6, their interconnecting-gears 10 12, connections between the driven cone-pulley and one of the drawing-rolls, the actuating conical or tapering pulleys 7 8, and loose belt 9, combined with the spring-balanced shifter-rod 18, operating said belt, the pivoted lever 16, and the tubular guide 13, actuated by the roving, for the purposes stated.

In testimony whereof I affix my signature in presence of two witnesses.

G. FRANK EVANS.

Witnesses:

E. K. BOYNTON,

H. E. LODGE.