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CLEARER FOR DRAWING ROLLS.

APPLICATION FILED JAN. 9, 1915.

1,167,033. Patented Jan. 4, 1916.

Fig: 1.

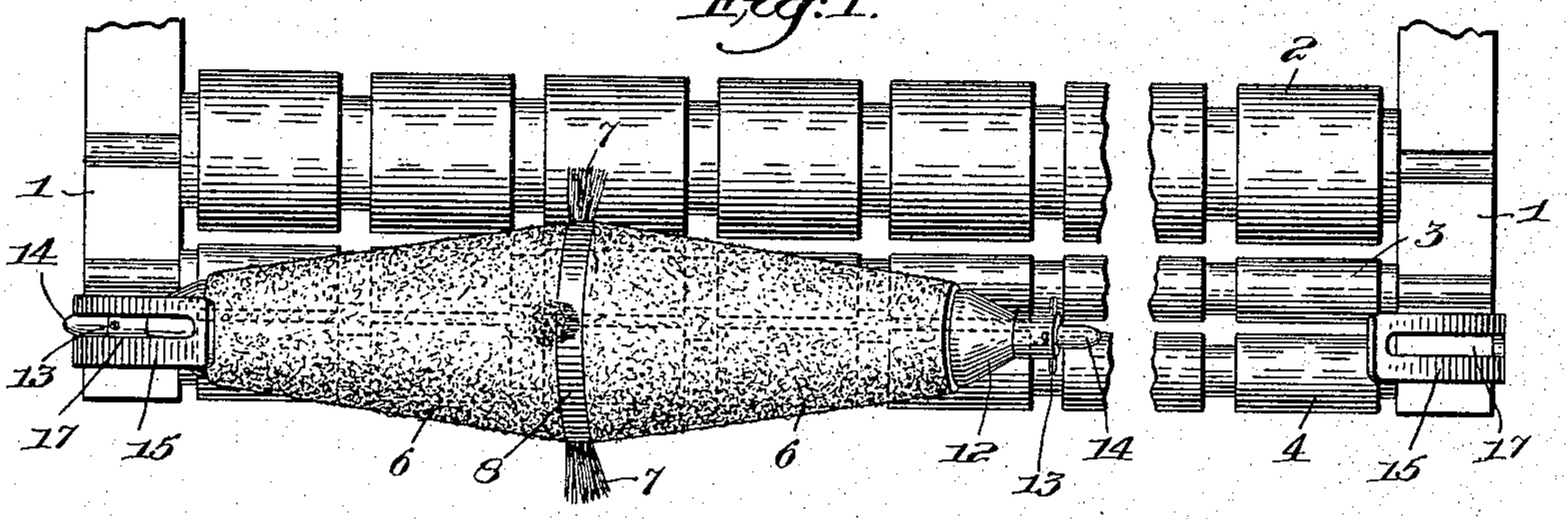


Fig: 2.

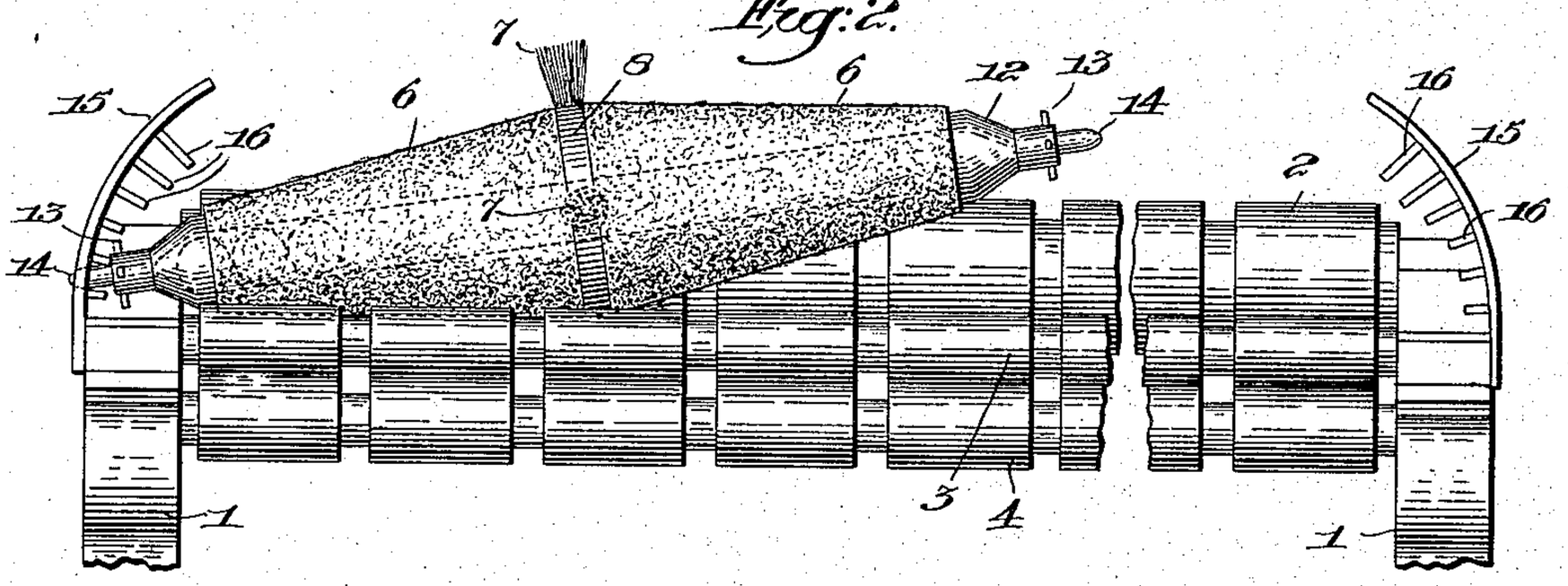


Fig: 3.

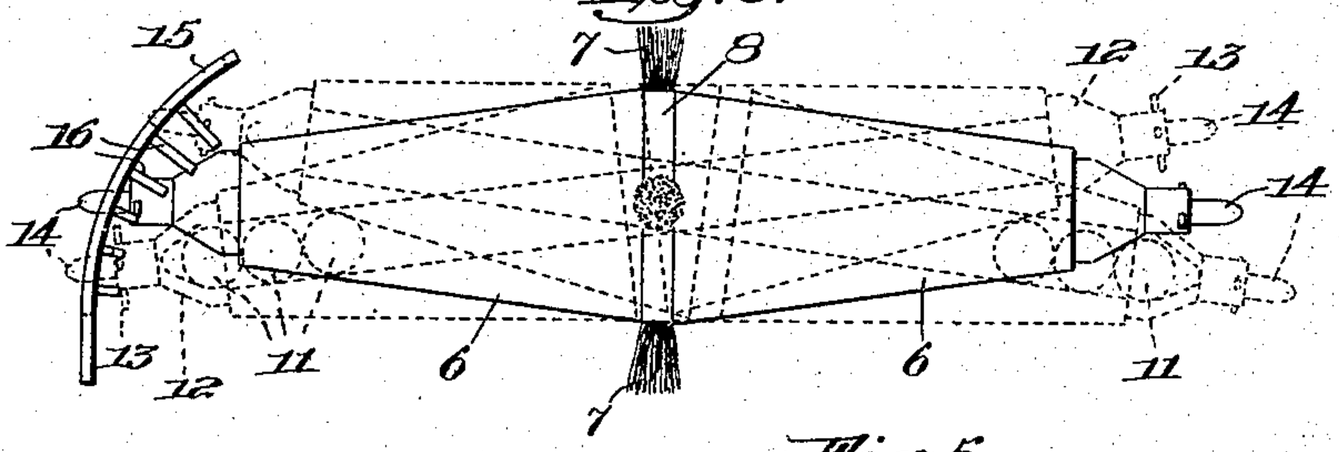


Fig: 4.

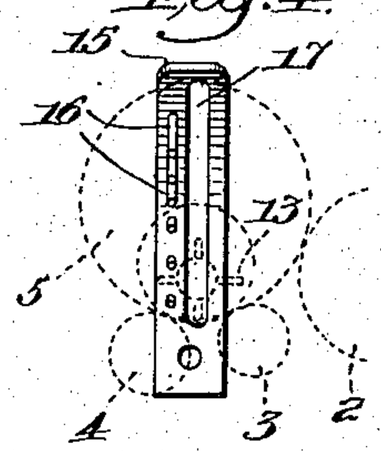
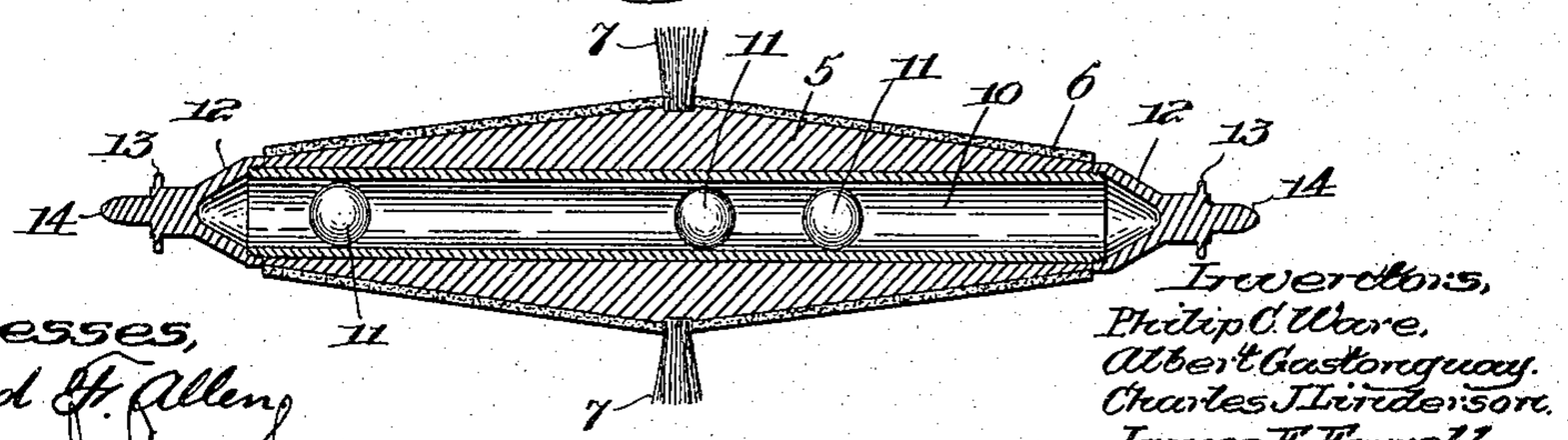


Fig: 5.



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UNITED STATES PATENT OFFICE.

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CLEARER FOR DRAWING-ROLLS.

1,167,033. Specification of Letters Patent. Patented Jan. 4, 1916.

Application filed January 9, 1915. Serial No. 1,423.

To all whom it may concern:

Be it known that we, PHILIP C. WARE, ALBERT GASTONGUAY, CHARLES J. LINDERSON, JAMES E. FARRELL, and WILLIAM S. WOODBURY, citizens of the United States, and residents of Newburyport, county of Essex, and State of Massachusetts, have invented an Improvement in Clearers for Drawing-Rolls, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

The invention to be hereinafter described relates to roll clearers for spinning and other textile machines, and more particularly to clearers of the double cone type.

As well understood by those skilled in the art, when a roving or other rope-like form of loosely assembled fibers are passed between rollers, as for instance, the drawing rolls of spinning machines, much lint, fly, dirt, and the like collects upon the cylindrical surface of the roll and upon the usual cap-bars which are interposed between the roll sections; and various means have been suggested for clearing the rolls of this objectionable accumulation. Among these suggested means has been a double cone provided with a shiftable weight, which was intended to hold one end of the double cone depressed as the cone traveled lengthwise of the rolls in one direction, and at the limit of such travel, to be shifted longitudinally of the cone to depress the opposite end and cause the cone to travel in the opposite direction longitudinally of the rolls. The shifting movement of the weight has usually been effected by hand, and in some cases, attempts have been made to provide automatic means for this purpose, but such attempts have not been practically successful or acceptable, because they have either depended upon the endwise movement of the cone itself to effect the relative longitudinal movement of the weight and cone, or have introduced undesirable and complicated mechanism operating independent of the cone itself, and consequently unreliable.

With the above generally-stated facts in view, the aims and purposes of the present invention are to provide a double cone clearer which shall be simple in construction and practically efficient in operation, and wherein the rotative movement of the cone itself is rendered effective for causing the cone to be automatically tilted at each end of its traverse to shift the weight and enable the cone to reverse the direction of its movement longitudinally of the rolls.

The characteristics and important features of the present invention will best be made clear from the following description and accompanying drawing of one form of means for carrying the invention into practical effect, it being understood that the invention is not limited to the particulars thereof, but in its true scope is defined by the claims.

In the drawings:—Figure 1 is a plan view of sufficient portions of a spinning or other fiber-treating machine to make clear the operation of the present invention associated therewith, some of the parts being broken away, or omitted for clearness of illustration; Fig. 2 is a front view of the parts shown by Fig. 1, illustrating the double cone clearer, substantially at one end of its longitudinal movement and about to have its lower end raised to tilt the cone in the reverse direction; Fig. 3 is a diagrammatic side view showing one end of the cone being raised by rotative movement of the cone itself; Fig. 4 is a detail view of the cone tilting ladder, showing the cone and rolls in dotted lines; and Fig. 5 is a longitudinal section of the cone detached.

The machine frame may be of the usual character found in spinning or other textile machines which are provided with drawing or like rolls, and in the present illustration it is shown as provided with portions 1 having suitable bearings for the rolls 2, 3, and 4. These rolls may be of any appropriate type between which and the usual lower rolls, not shown, the sliver, roving, or other rope-like character of fiber may be passed, but in the particular form illustrated, the back roll 2 is larger than the intermediate and front rolls 3 and 4, respectively. In these respects, however, the rolls may be as usual, and since they are well understood by those skilled in the art, further amplification is unnecessary.

The clearer comprises a double-ended cone, substantially as shown, the body portion 5 of which may be formed of any suitable material, such as wood, paper, metal, or the like, having its conical surfaces preferably covered with clearer cloth, felt, or other

like substance 6, to which lint, fly, and dirt, etc., is adapted to adhere. Between the conical end portions the cone is preferably provided with a series of brushes 7 formed of suitable bristles. These may be provided at suitable intervals about the largest part of the double cone, and if desired, the clearer cloth or like covering 6 may be omitted at the belt of bristles forming a plain zone 8, but the invention is not restricted in this respect. If used, the brushes 7 serve to effectively loosen and detach or partly detach much of the lint, fly and dirt from the rolls.

Extending longitudinally through the double cone, is an opening which may be of tubular form to provide a runway for a traveling weight. In the illustrated form of the invention, the longitudinal opening is shown as provided by a tube 10 adapted to receive one or more movable weights 11.

From the construction thus far described, it will be apparent that if the double cone be placed upon the rolls, as indicated in Figs. 1 and 2, and have one of its ends depressed, the weight or weights will gravitate toward the depressed end and maintain said end in depressed position, so that upon rotation of the rolls and cone, as usual, the latter will travel longitudinally along the rolls with the depressed end of the cone leading. When the cone has thus traveled longitudinally of the rolls to one side of the machine or to one end of the rolls, it is desirable that the cone be tilted into the reverse position, that is, the end that was before depressed should be raised and the end that was raised should be depressed to thereby cause the cone to travel toward the opposite side of the machine, or the other end of the rolls. To this end, the present invention contemplates means operative by or through the rotative movement of the cone as it completes its longitudinal traverse of the rolls, to effect the change in the tilted position of the cone; and one form of such means that has been found practically efficient, will now be described.

Mounted at each end of the double cone is a pin or spur wheel, the pins or spurs of which are adapted to engage devices at the end of the cone traverse and by rotative movement of the cone itself, caused by the rotation of the rolls, raise the depressed end of the cone, thereby causing the weight or weights to gravitate toward and thereafter to hold the other end of the cone depressed, as the cone travels longitudinally toward the other side of the machine.

The pin or spur wheels may be variously formed, but as shown, each comprises a cap piece 12 secured to and closing one end of the tube 10. A screw threaded connection between the cap pieces 12 and the tube 10 affords a convenient and good practical form of union, and at the same time permits ready access to the interior of the tube for removing and replacing the weights 11. Each cap piece 12 has a series of pins or spurs 13 and extending longitudinally of the cone beyond the pins or spurs 13 is a finger or projection 14 for a purpose that will presently appear.

Mounted at each side of the machine or at the ends of the rolls, is an arm 15 having a series of lugs or projections 16 suitably spaced apart and adapted to be successively engaged by the pins or spurs 13 as the cone rotates when it has reached the limit of its longitudinal movements in one direction. The characteristic action or law of operation of the pin or spur wheels and the arms 15 is such, that the end of the double cone, the pin or spur wheel of which is brought into coacting relation with one of said arms, is progressively lifted as the cone rotates until the weight or weights gravitate toward the opposite end of the double cone, whereupon the cone commences its travel longitudinally of the rolls toward the opposite side of the machine.

The lugs or projections 16 may be variously formed, but are here shown as pins secured to and projecting from the plate 15, and inasmuch as the end of the cone which is being lifted moves in a curved path, it is expedient to make the pins 16 progressively longer from the bottom toward the top of the plate 15 to insure positive engagement of the spurs 13 therewith as the end of the cone is raised; and to the same end, the plate 15 is preferably curved to correspond or substantially correspond with the path of movement of the end of the cone, as indicated in Fig. 3.

In order that the pin or spur wheel at the end of the cone may be maintained in cooperative relation with the plate 15 and its lugs or projections 16, means are provided to prevent sidewise movement of the end of the cone as the pins or spurs 13 progressively climb up the plate. As one means to this end, the plate 15, which for identification may be termed a ladder, is provided with a slot 17 which is engaged by the finger 14 of the pin or spur wheel, as the depressed end of the cone reaches the end of its travel, and said finger rides upward in said slot as the end of the cone is raised.

Various changes may be made in the details described without departing from the true spirit of the invention, as we believe ourselves to be the first in this art to effect automatically tilting movement of a double clearer cone at the end of its traverse by rotative movement of the cone itself, but the means described have been found well adapted to carry the invention into practical effect. By making the cap pieces 12 of the form shown, the hollow portion thereof en-

ables the weight or weights, which are preferably metal balls, to find a seat in each cap piece beyond the actual end of the cone, as shown by dotted lines in Fig. 3.

What is claimed is:—

1. In a machine of the class described, the combination of the rolls, a double cone clearer adapted to rest upon and travel longitudinally of said rolls, a member secured to the clearer for rotative movement therewith, and means engaged by said member at the end of the longitudinal movement of the clearer and effective by rotation of said member to positively change the inclination of the clearer.

2. In a machine of the class described, the combination of the rolls, a double cone clearer provided with a weight movable longitudinally of the clearer, a toothed device secured to the clearer to rotate therewith, and means engaged by the rotating toothed device at the end of the clearer travel to reverse the inclination of the clearer.

3. In a machine of the class described, the combination of the rolls, a double cone clearer provided with a weight adapted to gravitate toward the lower end of the clearer and hold said end depressed while the clearer travels longitudinally of the rolls in one direction, a member secured to rotate with the clearer, and a device at the end of the clearer travel to be engaged by said member and by its rotative movement to positively lift the depressed end of the clearer and cause the weight to gravitate toward the opposite end of the clearer.

4. In a machine of the class described, the combination of the rolls, a double cone clearer provided with a shiftable weight adapted to maintain the clearer in tilted position, a pin or spur wheel carried at each end of the clearer, and means adapted to be engaged by the pin or spur wheel at the end of its travel and by rotative movement of said pin or spur wheel reverse the tilted position of the clearer.

5. In a machine of the class described, the combination of the rolls, a double cone clearer therefor, a pin wheel mounted at each end of the clearer, and a ladder device mounted for engagement by said pin wheel as the latter rotates at each end of the clearer travel to effect a reversal in the tilted position of the clearer.

6. In a machine of the class described, the combination of the rolls, a double cone clearer, a weight movable longitudinally of the clearer, a pin wheel mounted at each end of the clearer, a plate having a series of projections or pins adapted to be engaged by said pin wheel as the latter rotates at each end of the clearer travel to lift the depressed end of the clearer and change the position of said movable weight.

7. In a machine of the class described, the combination of the rolls, a double cone clearer, a weight movable longitudinally of the clearer, a pin or spur wheel mounted at each end of the clearer, a finger projecting longitudinally of the clearer at each end beyond the pin or spur wheel, a ladder device at each end of the clearer travel having a slot for engagement by one of said fingers and a series of projections or pins for engagement by one of said pin wheels as the latter rotates.

8. A clearer device for textile machines, comprising a double cone having a pin or spur wheel mounted at the ends thereof, and a ladder device adapted to be engaged by said pin or spur wheel as the latter is rotated to reverse the tilted position of the double cone.

9. A clearer for textile machines, comprising a double cone having a tubular opening extending longitudinally thereof, and containing movable weights, cap pieces secured to the ends of the cone and having pin or spur wheels, and ladder devices adapted to be engaged by said pin or spur wheels as the latter are rotated to reverse the tilted position of the double cone.

10. A clearer for textile machines, comprising a double cone having a pin or spur wheel at each end, a movable weight within the cone, a curved ladder device having portions to be engaged by one of the pin or spur wheels to shift the tilt of the cone and change the position of the weight.

11. In a machine of the class described, the combination of the rolls, a double cone clearer, a weight movable longitudinally of the clearer, a pin wheel mounted at each end of the clearer, a plate having a series of projections or pins adapted to be engaged by said pin wheel as the latter rotates at each end of the clearer travel to lift the depressed end of the clearer and change the position of said movable weight, and means for maintaining the pin wheel and plate in coöperating relation as the pin wheel travels up the projections or pins of the plate.

In testimony whereof, we have signed our names to this specification, in the presence of two subscribing witnesses.

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