No. 31,031. PATENTED JAN. 1, 1861.

J. T. PLUMMER.

MACHINERY FOR DRAWING AND TWISTING WOOL, &c.

Fig. 1.

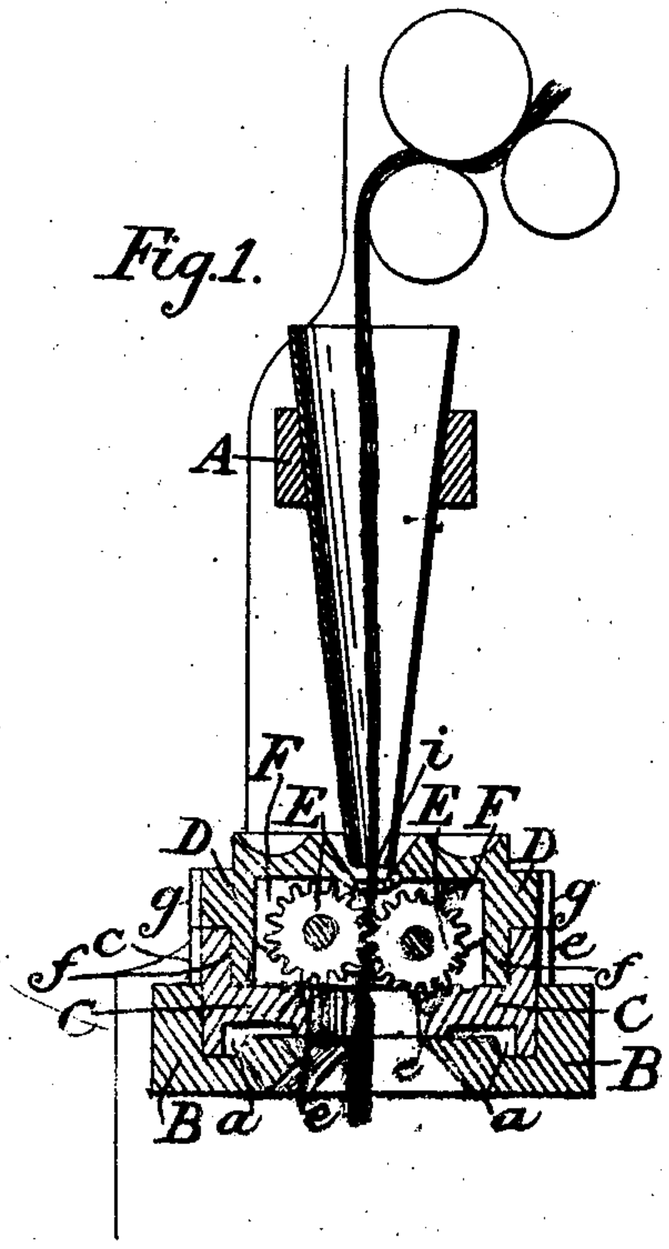
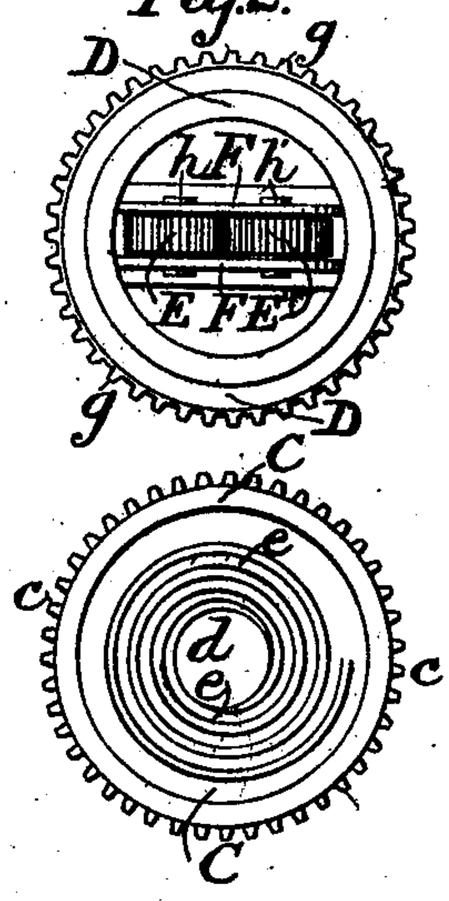


Fig. 2.



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UNITED STATES PATENT OFFICE.

JOHN T. PLUMMER, OF PLAINFIELD, CONNECTICUT.

MACHINERY FOR DRAWING AND TWISTING WOOL.

Specification of Letters Patent No. 31,031, dated January 1, 1861.

To all whom it may concern:

Be it known that I, JOHN T. PLUMMER, of Plainfield, in the county of Windham and State of Connecticut, have invented a new and useful Improvement in Machinery for Drawing and Twisting Wool or other Fibrous Materials; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1, is a vertical section of a drawing head illustrating my invention. Fig. 2, is an inverted plan of the upper portion of the box which contains the lower drawing rollers. Fig. 3, is a plan of the upper portion of the said box.

Similar letters of reference indicate corresponding parts in the several figures.

My invention relates to that description of drawing and twisting machinery in which the front or lower drawing rollers are caused to revolve about a common axis perpendicular to their own axes for the purpose of producing twist and draft of the roving at the same time. It consists in the employment of a detached stationary conducting tube, applied substantially as hereinafter described in combination with such drawing rollers whereby the necessity of piecing is generally avoided.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation.

A, and B, are two stationary rails of the spinning frame. The lower rail B, has bored in its upper side a circular or annular recess *a*, *a*, to constitute a bearing for the lower portion C, of the circular box C D, which contains the pair of front or lower drawing rollers E, E′, and in the center of this recess is an opening *b*, right through the rail for the passage of the roving. This portion C, of the box has upon its periphery a circle of spur teeth *c*, *c*, and it has in the center of its bottom an opening *d*, corresponding with the opening *b*, in the rail and around this opening *d*, there is cut in the interior of its bottom a groove *e*, of convolute spiral form as shown in Fig. 3. The upper portion D, of the said box C D, is fitted to drop into the lower portion C, as shown at *f*, *f*, in Fig. 1, and turn easily therein. It has upon its periphery a circle of spur teeth *g*, *g*, and in its center there is a small hole *i*, for the entrance of the roving and this hole is countersunk in a conical form (as shown in Fig. 1,) from the exterior. The two portions C, D, of the box may be considered as two hollow spur gears, for when fitted together and in their place they present the appearance of two such gears.

The front or lower drawing rollers E, E′, by which the draft and twist is given to the roving, are secured to the upper portion D, of the box C D, which may be termed a gear-box, so as to be movable with it. The said rollers are toothed that they may engage with each other like cog wheels, and that one may derive motion from the other. They are fitted to turn loosely on fixed horizontal axles *h*, *h′*, which are secured on opposite sides of the vertical axis of the box C D, in a slotted piece F, which is firmly secured in the portion D, of the gear box by screwing into the top of the said portion, as shown in Fig. 1, or in any other suitable manner. The roller E′, is arranged so much lower than that E, that its teeth, when the two portions of the gear box are together will gear in the convolute groove *e*, of the lower portion C, of the box as shown in Fig. 1.

G, is the detached stationary conducting tube, for conducting the roving from the upper or back drawing rollers shown in red outline in Fig. 1, to the receiving mouth of the hole or channel *i*. This tube is of conical or funnel form. It fits to a hole in the rail A, which holds it in such position that its small lower end enters the countersunk mouth of the hole *i*, which constitutes the receiving channel by which the roving enters the rollers.

The two portions C, and D, of the box are caused to rotate at different velocities in the same direction or in opposite directions, by suitable spur wheels or pinions geared with their teeth *c*, *c*, and *g*, *g*, and the difference of velocity causes the convolute groove *e*, so to act upon the teeth of the roller E′, as to turn the rollers in the proper direction to produce the draft of the roving which is greater or less, as the difference of velocity between C, and D, is greater or less. The twist is produced simultaneously with the draft by the revolution of the rollers with the portion C, of the box.

By the arranging of the rollers within the shallow box composed of two hollow gears supported in a rail below as described, a long revolving tube is dispensed with and owing to the shortness of the distance between the

receiving mouth of the channel *i*, and the rollers, there is no difficulty in inserting the end of the roving between the rolls when the machinery is in operation; and by the use of the stationary detached conducting tube entering the mouth of the channel *i*, the broken end of a roving is prevented getting foul of other rovings or of any parts of the machine and either a broken end or the end from a new bobbin is generally conducted to the mouth *i*, and to the rollers E, E′, without the necessity of piecing.

What I claim as my invention and desire to secure by Letters Patent, is:

The stationary detached tube G, applied in combination with the rotating gear-box, containing the front or lower drawing rollers, substantially as and for the purpose herein specified.

JOHN T. PLUMMER.

Witnesses:
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