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MECHANISM FOR EVENING FIBROUS SLIVERS.

APPLICATION FILED NOV. 18, 1911. RENEWED MAY 8, 1914.

1,111,290. Patented Sept. 22, 1914.

Fig. 1

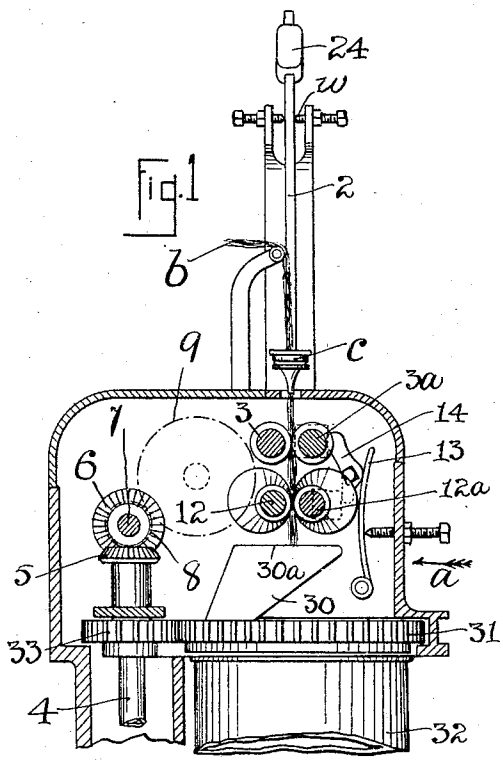


Fig. 3

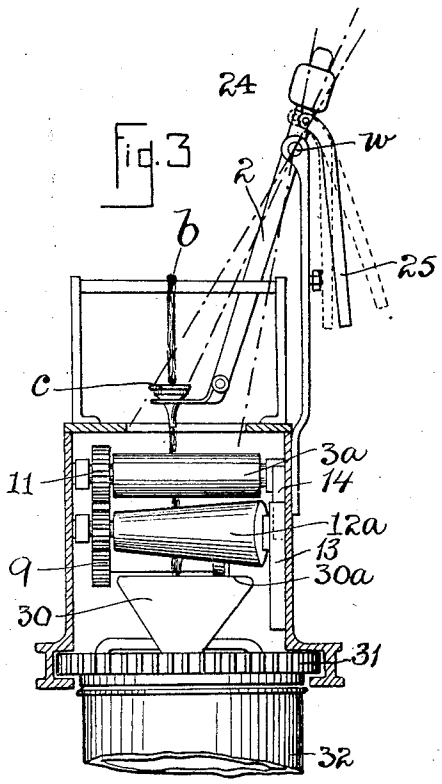
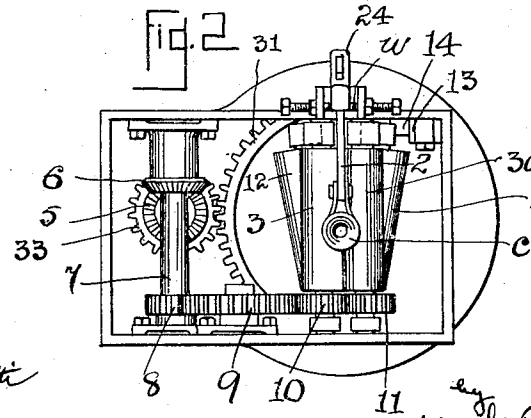


Fig. 2



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ALBERT BIRCH AND WALTER HAMER, OF BOLTON, ENGLAND, ASSIGNORS, BY DIRECT AND MESNE ASSIGNMENTS, TO DOBSON AND BARLOW LIMITED, OF BOLTON, ENGLAND.

MECHANISM FOR EVENING FIBROUS SLIVERS.

1,111,290. Specification of Letters Patent. Patented Sept. 22, 1914.

Application filed November 18, 1911, Serial No. 661,062. Renewed May 8, 1914. Serial No. 837,293.

To all whom it may concern:

Be it known that we, ALBERT BIRCH and WALTER HAMER, subjects of the King of Great Britain, and residents, respectively, of 684 Blackburn road, Bolton, in the county of Lancaster, England, and "The Willows," Sharples Park, Astley Bridge, Bolton aforesaid, have invented a new and useful Improvement in Mechanism for Evening Fibrous Slivers, of which the following description, which has reference to the accompanying sheets of drawings, is a specification.

In the production of yarns or threads of fibrous substances it is desirable that the slivers, or those thick threads from which the finer threads are subsequently produced, should be as even in thickness or weight as possible.

The object of this invention is to provide improved mechanism whereby the pull or force acting upon the sliver being treated, or the weight of a given length of such sliver, will have the effect of controlling the devices which guide it so that it is conducted to one part or another of front or receiving rollers, to be drawn or acted upon by corresponding portions of conical drawing rollers.

This object we attain by the employment of exceedingly simple devices hereinafter described with reference to the accompanying sheets of drawings wherein—

Figure 1 is a sectional end elevation of the mechanism we employ. Fig. 2 is a plan of the parts shown by Fig. 1, with the cover A removed. Fig. 3 is a sectional elevation of the parts shown by Fig. 1, as seen in the direction indicated by the arrow *a*.

In carrying our invention into effect the sliver *b* which has to be treated or made even, is conducted through a guide *c* which is mounted upon a counterbalanced lever 2 so that it may deliver the sliver passing through it to a pair of rollers 3, 3^a, which rotate at a regular speed as driven by or through any prime motor part of the machine, as for example, a motor-shaft 4 of the machine to which our improved parts have been applied, which shaft transmits its motion to the rollers 3, 3^a, by the bevel wheel 5 fixed upon it, gearing with the wheel 6 fixed upon the shaft 7 so that this shaft 7 may, by the wheel 8 secured to it, rotate the wheel 9 which transmits motion to the wheel 10 (see Fig. 2) on the shaft of the roller 3, while the said wheel 10 meshes with a wheel 11 on the shaft of the roller 3^a. Beneath the rollers 3, 3^a, are mounted another pair of rollers 12, 12^a. These rollers 12, 12^a are of conical shape and are arranged to be pressed together so as to rotate in contact with each other as do the rollers 3, 3^a. The forcing of these rollers 3, 3^a, and 12, 12^a together is effected by any well known means as for example, by the flat spring 13 pressing upon the spanning piece 14.

The conical rollers 12, 12^a rotate in unison by being geared together by pinions carried on their shafts and at their ends which are of smaller diameter. One of these pinions gears with the wheel 9 which is thus arranged to transmit motion to said rollers 12, 12^a, and that at such a rate that the surface speed at the smaller ends of these rollers is approximately equal to or slightly in excess of that of the rollers 3, 3^a, while said surface speed of the rollers 12, 12^a will gradually increase in proportion to their increasing diameters until their larger ends are reached.

From the foregoing description it will be understood that as the sliver *b* is delivered to the pair of rollers 3, 3^a, these latter carry it forward to the rollers 12, 12^a and that when said sliver is delivered at a part of the rollers 3, 3^a, which approaches or is in proximity to a position opposite the smaller ends of said rollers 12, 12^a said sliver will be less drawn out or attenuated than it will be when supplied to the parts of the rollers 3, 3^a, nearer the larger ends of the rollers 12, 12^a. We make use of the devices hereinafter described to automatically effect this adjustment of the position of feed of the sliver *b* to the rollers 3, 3^a in exact accordance with the thickness (or weight of a given length) of said sliver, so that as said thickness is increased its passage between the rollers 12, 12^a will be regulated to enable said rollers to deliver a sliver of the same thickness throughout. To attain this result it may here be observed that the sliver may be said to have a double movement transmitted to it in addition to its longitudinal motion, viz: one movement in the direction of the pull thereon and another movement carrying it lengthwise the drawing rollers. The lever 2 has a counterbalancing weight 24 and an arm 25 which are preferably ar-

ranged in the relative positions shown, although other forms and arrangements may be made use of. The arm 25 is fixed to the lever 2 and made to extend below the center of oscillation w so as to bring a portion of the counterbalancing weight for said lever 2 into a position to secure steadiness of motion. In this arrangement the pull of the sliver on the funnel c causes the lever 2 to oscillate about its center w and move toward the larger ends of the rollers 12, 12^a, while when said pull on the sliver or the weight of such sliver is diminished then the counterbalancing weight 24 overcomes the weight of the other arm of the lever 2 and so moves the funnel c toward the smaller end of the rollers 12, 12^a. In making use of the two pairs of rollers arranged as hereinbefore described, the funnel 30 (which is mounted upon the wheel 31 to coil the sliver within the receptacle 32 as said wheel 31 is rotated by the wheel 33) is made with its orifice at 30^a wider, in order to receive the sliver as it is delivered from one part or another of the rollers 12, 12^a.

Such being the nature and object of our invention, what we claim is:—

1. Mechanism for evening fibrous slivers, comprising drawing rolls including a pair of co-acting tapering or conical rolls, means for actuating said rolls continuously at the same rate of speed, a sliver guide, and means for automatically shifting said guide in a direction substantially parallel to the nip of the rolls under the influence of variations in the thickness of the sliver to direct thicker portions to the larger ends of the rolls and smaller portions to the lesser ends of the rolls.

2. Mechanism for evening fibrous slivers, comprising drawing rolls including a pair of co-acting tapering or conical rolls, means for actuating said rolls continuously at the same rate of speed, a lever pivoted to swing substantially in the plane of the nip of the rolls, and a sliver guide directly carried by said lever to move in the same plane therewith, said lever having a counterbalancing device tending to move the guide toward the smaller ends of the rolls.

3. Mechanism for evening fibrous slivers, comprising drawing rolls including a pair of co-acting tapering or conical rolls, means for actuating said rolls continuously at the same rate of speed, a lever pivoted to swing substantially in the plane of the nip of the rolls, and a sliver guide directly carried by said lever to move in the same plane therewith, said lever having a counterbalance weight 24 and a pendant arm 25 for the purpose described.

In testimony whereof we have affixed our signatures in presence of two witnesses.

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Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."