Oct. 2, 1923. 1,469,740

H. V. UNDERWOOD

CAN TURNING MECHANISM

Filed Aug. 30, 1922. 2 Sheets-Sheet 1

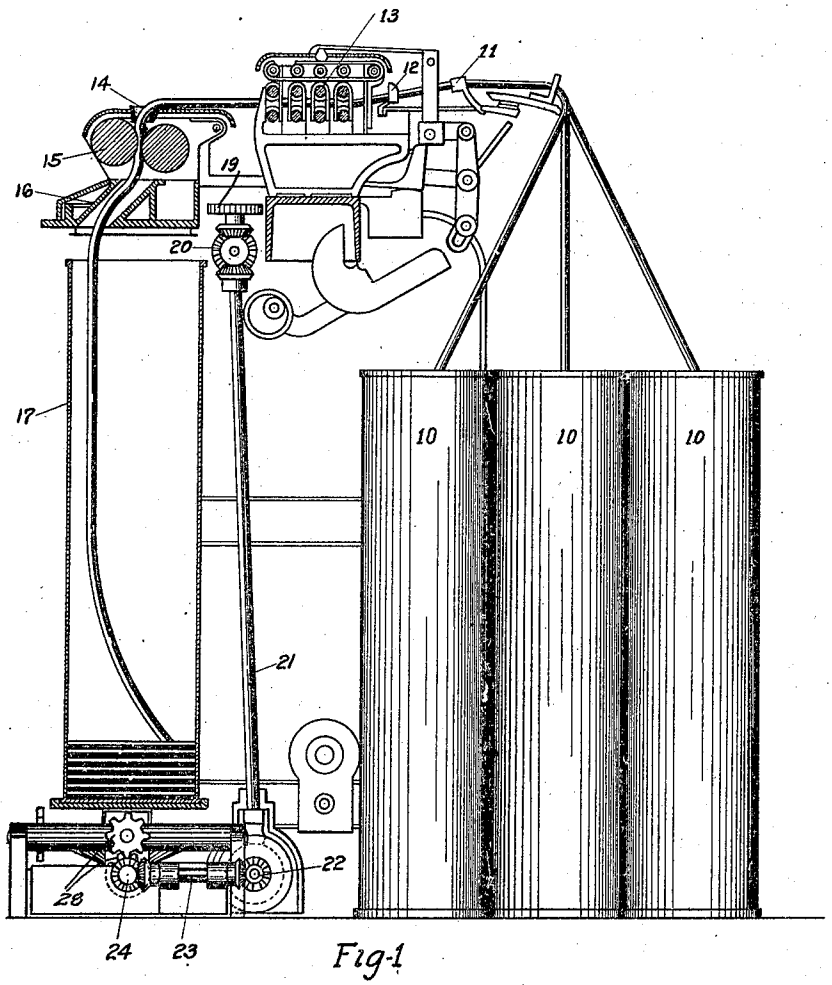


Fig-1

H.V. Underwood-Inventor-
By Southgate & Southgate
Attorneys

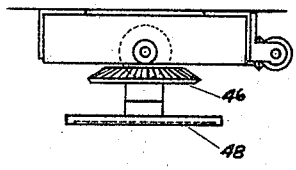
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Fig 3



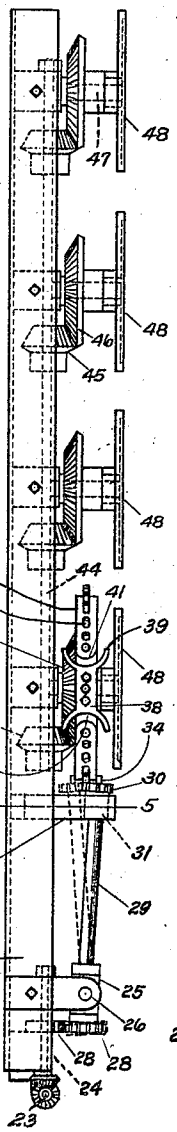


Fig 4

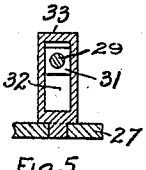


Fig 5

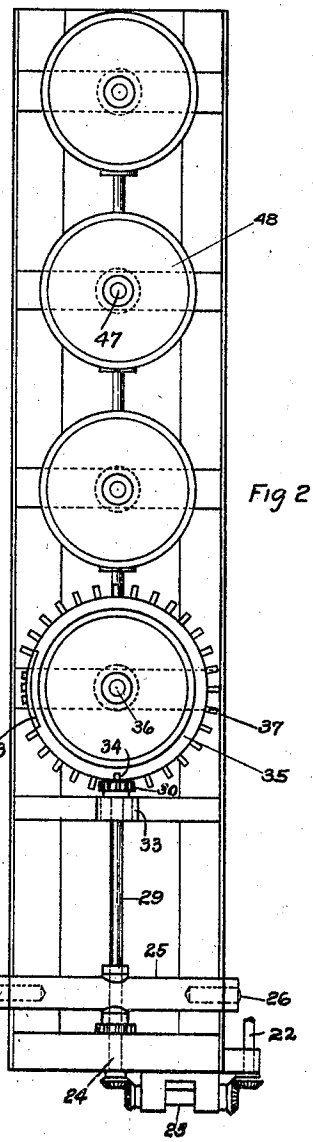


Fig 2

H.V. Underwood-Inventor

By Sandgate & Sandgate Attorneys.

Patented Oct. 2, 1923. 1,469,740

UNITED STATES PATENT OFFICE.

HENRY V. UNDERWOOD, OF MOUNT HOLLY, NORTH CAROLINA, ASSIGNOR OF ONE-THIRD TO C. EDWIN HUTCHISON, OF MOUNT HOLLY, NORTH CAROLINA.

CAN-TURNING MECHANISM.

Application filed August 30, 1922. Serial No. 585,236.

To all whom it may concern:

Be it known that I, HENRY V. UNDERWOOD, a citizen of the United States, residing at Mount Holly, in the county of Gaston and State of North Carolina, have invented a new and useful Can-Turning Mechanism, of which the following is a specification.

This invention relates to the turning of the cans which receive the warp or sliver from a drawing frame, splitting machine, or the like.

The principal object of the invention is to avoid the difficulty due to the fact that the usual sliver coming from these machines is coiled by a continuous motion in the can placed to receive it. This causes considerable trouble on account of the fact that as the receiving can always turns in the same direction the sliver also twists constantly and kinks up so that it cannot be withdrawn for the next process in a uniform manner. The invention also involves the provision of a simple and inexpensive mechanism for this purpose which is of such a nature that it will operate for a long period of time without getting out of order or wearing sufficiently to necessitate any repairs or replacement. Further objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings, in which—

Fig. 1 is an end view of a drawing frame partly in section showing a preferred embodiment of this invention applied thereto;

Fig. 2 is a plan of this mechanism detached from the drawing frame and shown by itself;

Fig. 3 is an end view of the same;

Fig. 4 is a rear elevation; and

Fig. 5 is a transverse sectional view on the line 5—5 of Fig. 4.

Although not limited to its use with any particular machine, I have shown it as applied to a well-known type of drawing frame by which several slivers or yarn are drawn from a series of cans 10, in which they have been deposited previously by another machine. The slivers are passed up over tumblers 11 through guides 12, and then through a series of draft rollers 13, each pair of which is set to run a little faster than the pair before it to cause the draft. The sliver having been drawn by these draft rollers passes through a trumpet or guide 14 into the space between a pair of calender rolls 15, then passes down through a tube or passage 16 to be deposited in another can 17. This can is given a certain motion according to this invention as will hereinafter appear. The parts above described relate to the machine with which this invention can be used, but it is not intended to restrict it to any particular type or kind of fibre preparing machine.

The shaft through which power is transmitted, by means of gears 19 or the like, to the draft rollers 13 is also provided with bevel gears 20, one of which constantly rotates a shaft 21 extending downwardly toward the bottom of the machine. This shaft as is well understood, also drives a horizontal shaft 22 by bevel gearing or any other means. This also has been done before, but according to this invention the shaft 22 is arranged to drive a horizontal shaft 23 and that to drive a horizontal shaft 24 by gearing. On this shaft 24 is a gear 28 constantly meshing with a similar gear on a pivoted shaft 29. Thus the shaft 29 is constantly rotated.

The shaft 29 has its supporting bearings in a pivoted cross arm 25 adapted to swing about two opposite pivots 26 horizontally arranged on a bottom frame 27 carrying this mechanism.

At the free end of the pivoted shaft 29 is a pinion or toothed wheel 30 fixed on this shaft. Also the free end of this shaft has a bearing 31 in the form of a block slidable in a vertical slot 32 in a bracket 33 on the frame 27. This permits the shaft at this end to have a vertical movement and enables the wheel or pinion 30 to move up and down. The shaft 29 has a projection 34 extending beyond the wheel or pinion 30 and adapted to rest on the top of a horizontal toothed wheel 35 mounted to rotate with a vertical shaft 36. This toothed wheel is shown in a form in which it involves a series of radially projecting studs 37 constituting teeth. This series of studs does not extend entirely around the wheel, but is interrupted at one point by a plate 38 having at each end a pair of prongs 39 provided with a semi-circular surface 40 between them. The wheel itself is provided with a concentric curved surface 41 spaced at a distance from the surface 40 slightly greater than the diameter of the projecting end 34 of the shaft 29. This plate constitutes a

guide for moving this end 34 from a point above the wheel to a point below it and vice versa. When the end 34 is resting on top of the wheel, the teeth of the wheel or pinion 30 mesh between the studs 37, causing the wheel to be rotated in one direction. When the end 34 is located below the wheel and held up by the bottom of the slot 32 in the bracket 33, the teeth on the wheel or pinion 30 at the top thereof, similarly mesh between the studs 37 and cause the wheel 35 to rotate in the other direction.

On the bottom of the wheel 35 is a bevel gear 42 meshing with a bevel pinion 43 on a shaft 44. This shaft has a series of bevel pinions 45 meshing with bevel gears 46 on vertical shafts parallel to the shaft 36 and spaced therefrom. On the top of each of the shafts 36 and 47 there is a plate 48. Each of these plates is preferably of circular form and carries one of the cans 17.

The operation of the device is very simple. The shaft 24 rotates constantly in one direction and transmits its motion of rotation through the gear 28 to the shaft 29 constantly. This shaft by its constant rotation in one direction with the end 34 resting on the top of the wheel for example, rotates that wheel around through less than a complete revolution. This may be half a revolution or considerably more. In the present case it is shown as about five-sixths of a revolution. When the wheel has rotated far enough for the end 34 to come into contact with one of the surfaces 40 that end will be forced down through the space between the surfaces 40 and 41 so as to come below the wheel 35. But the wheel or pinion 30 continues in mesh with the end stud 37 and, being held against further descent by the block 31 reaching the bottom of the slot 32, it continues to mesh with the studs 37. Immediately without any material period of delay it starts the wheel 35 turning in the opposite direction. It will continue to turn in that way until the opposite surface 40 comes into contact with the end 34. This will raise this end up to a point above the wheel 35 and immediately reverse the rotation of the wheel. The turning of the end 34 up or down through the semi-circular space between the surfaces 40 and 41 is a positive motion caused by these guiding surfaces and by the positive rotation of the wheel 30 around the end stud 37.

All the cans in the series are rotated in exactly the same way by means of one of these wheels, as shown, alternately in opposite directions, and the result is to cause the sliver to be deposited in the can part way around in one direction and then an equal distance around in the other. This prevents its being subjected to a continuous twist all the time in one direction and eliminates all tendency to kink up in the can and occasion irregularities in the laying of the sliver therein. The sliver is laid back and forth in a regular manner in the can and when it is drawn out also an advantage is provided in that it does not have to be drawn continuously from a continuously wound coil, but one convolution is drawn up from the can coming out in one direction and then the next coming out in the opposite direction. These are equal and opposite and all kinks and twists are neutralized so that they are not passed on to the next machine which is to operate upon the material.

Although I have illustrated and described only a single form of the invention, I am aware of the fact that modifications can be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims. Therefore I do not wish to be limited to all the details of construction herein shown and described, but what I do claim is:—

1. The combination with a machine for preparing a sliver, of a can for receiving the sliver therefrom, and means for turning said can first in one direction and then in the other to prevent the continuous coiling of the sliver and the twisting of the same in one direction all the time during the filling of the can.

2. The combination with a machine for preparing a sliver and depositing it therefrom, of a horizontal plate for supporting a vertical cam thereon in position to receive the sliver from the machine, means for turning the draft rolls of the machine, and means connected with said turning means for oscillating said can while it is receiving the sliver.

3. The combination with a machine for preparing a sliver, of a series of rotary plates at the bottom thereof, vertical shafts on which said plates are adapted to rotate, means for connecting said shafts together and turning them all in the same way, a shaft connected with said machine for supplying power to the said vertical shafts, and means whereby the power shaft will turn each of the vertical shafts first in one direction and then automatically reverse them and turn them through an equal arc in the opposite direction.

4. In a can turning device, the combination of a shaft, a gear thereon, a shaft having a gear meshing at all times with the first named gear but pivoted on a transverse axis, a wheel or pinion on its free end, a wheel provided with teeth with which the wheel or pinion on the pivoted shaft constantly engages, whereby the toothed wheel will be turned on its axis by the constant rotation of the pivoted shaft, and means whereby the wheel or pinion will be moved from side to side of the series of teeth on the toothed wheel to turn it first in one direction

and then in the other, said wheel having means for supporting a can for receiving a sliver and turning it therewith.

5. In a can turning device, the combination of a constantly turning shaft located in stationary bearings and having a gear thereon, a shaft having a gear meshing at all times with the first named gear but pivoted on a transverse axis and capable of moving about said axis, the last named shaft having a wheel or pinion on its free end, a wheel located horizontally and provided with radial studs thereon constituting teeth with which the wheel or pinion on the pivoted shaft constantly engages, whereby the horizontal toothed wheel will be turned on its axis by the constant rotation of the pivoted shaft, and means on the horizontal wheel whereby the wheel or pinion will be moved from side to side of the series of studs or teeth on the horizontal toothed wheel to turn it first in one direction and then in the other, said wheel having means for supporting a cam for receiving a sliver and turning it therewith.

6. In a device of the character described, the combination of a vertical shaft, a plate thereon for supporting a sliver receiving can in vertical position, a horizontal wheel fixed on said shaft and provided with teeth or studs equally spaced apart around its circumference and projecting radially from its edge, said series of studs extending part way around the wheel and having a space between the two ends of the series of studs provided with a pair of opposite semi-circular surfaces, the wheel having a pair of guiding surfaces concentric with said semi-circular surfaces and spaced inside them, a driving wheel or pinion for said wheel meshing with said studs and having a guiding end adapted to engage the top and bottom of the wheel and pass through the space between said curved surfaces, and means for constantly rotating said wheel or pinion, whereby the horizontal wheel and can will be turned throughout a part of a revolution in one direction, automatically reversed, and then turned in the opposite direction.

In testimony whereof I have hereunto affixed my signature.

his
H. V. + UNDERWOOD.
mark

Witness:
S. D. McCRAW.