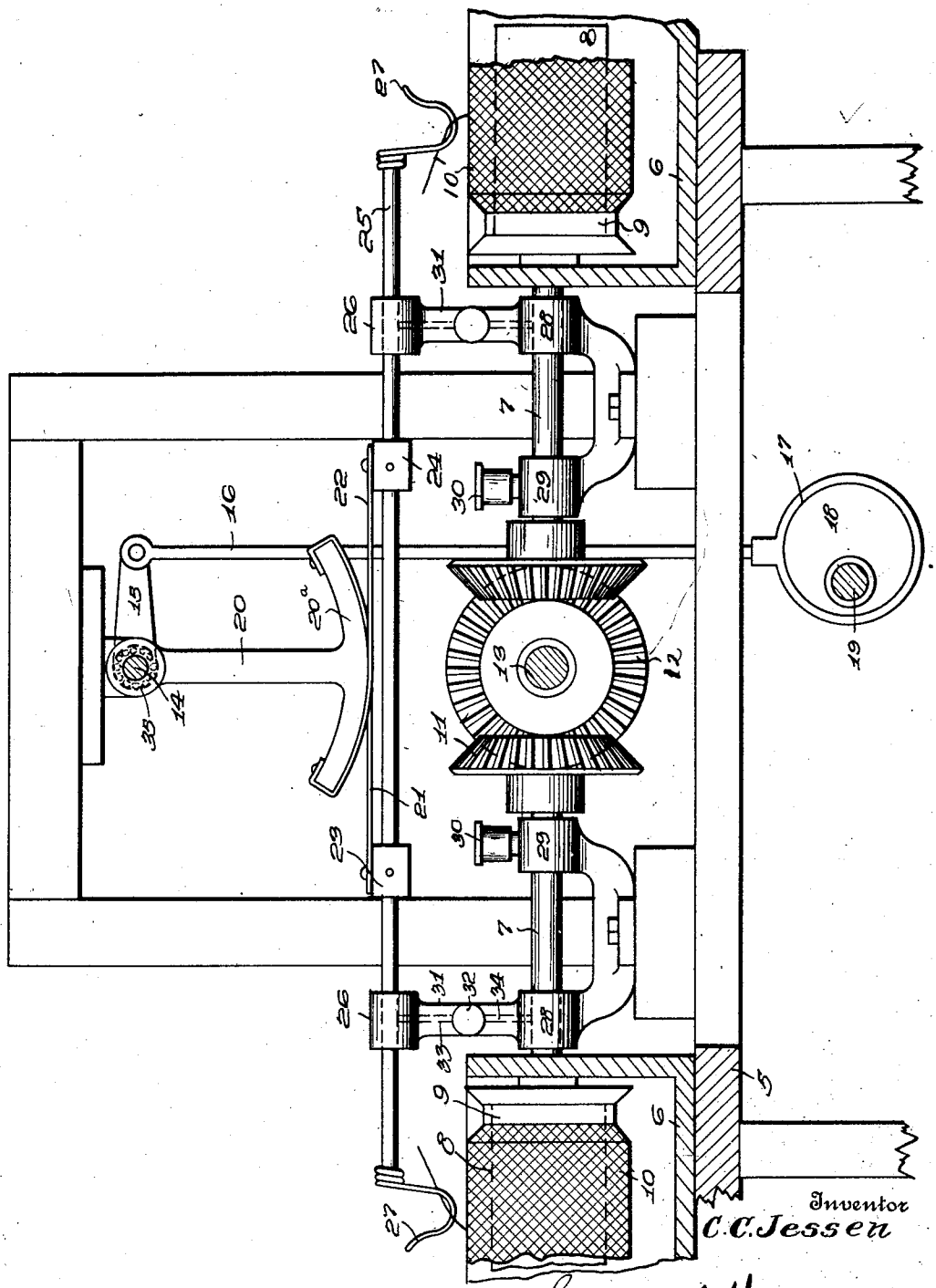
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TRAVERSE MECHANISM FOR WINDING AND REELING MACHINES

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TRAVERSE MECHANISM FOR WINDING AND REELING MACHINES.

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This invention relates to a traverse mechanism for winding and reeling machines. It is particularly intended for use in the artificial silk art, though, as this description proceeds, it will be seen to be adapted for use in any relation where a thread is to be laid evenly upon a rotating bobbin.

In the artificial silk art, it is common practice to lead the threads of artificial silk from the spinneret, that is immersed in the hardening or precipitating bath, to a centrifuge, where it is twisted and built up in the form of a cake. It is then necessary to "decop" the thread: that is, to free it, as far as possible, of the residual copper sulphate. To this end, the thread is led from the cake to cylinders that are being rotated in acid baths of a decopping solution, and a suitable traverse mechanism is employed to evenly lay the thread upon said cylinder in open or porous formation, so that the decopping bath may come into contact with all parts of the thread, and so that the thread may be thoroughly washed by being rotated, with its supporting cylinders, in a water bath, in a later operation.

Considerable difficulty has been experienced with the traverse mechanism heretofore employed, because of the action of the acid and acid vapors upon the joints and bearings. Such action not only corroded the parts but prevented the proper lubrication of the same. The difficulty of maintaining proper lubrication was enhanced because of the negligence of the operators of the machine. That is to say, while these operators might have lubricated the traverse mechanism, if the task of lubrication has been an easy one, they soon came to neglect any lubrication at all when the action of the acids had rendered that task a difficult one.

It is a primary object of the present invention to provide a traverse mechanism, which will employ a minimum of rotative or oscillatory joints or bearings, within the range of the acid action, with the end in view of providing a traverse mechanism which will operate efficiently and smoothly at all times, with a minimum of attention.

The figure, shown in the accompanying drawing, is a transverse sectional view of the portion of a decopping machine, with the traverse mechanism of the present invention applied thereto.

In the drawing, 5 designates a suitable base plate upon which longitudinally extending troughs 6 are disposed, said troughs serving to receive a bath of a decopping solution. Any desired number of mandrel shafts 7 may be disposed transversely of the machine and carry mandrels 8, upon which removable cylinders 9 are adapted to be slid, and it is upon these cylinders that the thread 10 is wound. Each mandrel shaft 7 carries a bevel pinion 11, which meshes with a bevel gear wheel 12, upon a longitudinally extending main shaft 13. The mechanism, so far described, is all of usual and well known construction.

To provide the traverse mechanism of the present invention, I locate an oscillatory shaft 14, at a point above shaft 13. Oscillation may be imparted to shaft 14 through crank arm 15, connecting rod 16, eccentric strap 17, eccentric 18, and a longitudinally extending drive shaft 19.

It is to be understood that any suitable cam mechanism may be substituted for the eccentric 18. This eccentric 18 may be disposed at one end of the machine, and at a point where it will be out of reach of the acid or acid vapors, and this one eccentric may serve to actuate the traverse mechanism of any desired number of mandrel shafts. The traverse mechanism of any given pair of mandrels 8 comprises a member 20, of substantially inverted T-shape. The head 20^a, of this member has a curved lower face over which flexible steel cables or bands 21 and 22 act. These cables are secured by suitable blocks or clips 23—24 to a laterally sliding rod 25, said rod being mounted for slidable movement in bearings 26. The part 25 constitutes the traverse bar, by which the thread guides 27 are carried. The mandrel shafts 7 are supported in bearings 28 and 29. Bearings 29 are lubricated by the grease cup 30. The bearings 28 carry vertical extensions 31, upon which the bearings 26 are supported. Grease cups 32 carried by these vertical extensions feed in two directions, viz: upwardly at 33 to lubricate the bearings 26, and downwardly at 34, to lubricate the bearings 28. The shaft 14 is preferably mounted in ball bearings 35, and requires very little lubrication. The bands 21 and 22 require no lubrication whatever. Thus, it will be seen that all essential lubrication is provided by the grease cups 30 and 32.

I find that the mechanism described materially increases the life of the decopping machine, and improves the quality of the thread, because it operates so smoothly that much of the vibration is eliminated. It will readily be appreciated that vibration, in a machine of this character, is ordinarily considerable, because it is the customary practice to dispose a large number of the decopping units in a row longitudinally of a main bed of the machine, said units extending transversely of the machine, as in the present case. It is apparent that with a large number of traverse mechanisms, operating simultaneously, the tendency is to set up considerable vibration. Further, I find that the mechanism of the present invention produces a better wound bobbin. The points of crossing of traverse of the thread as wound on the bobbin remains in better shape than formerly, leaving these bobbins in a more porous condition, which is a very desirable feature in subsequent operations, such as washing and drying.

It is to be understood that the invention is not limited to the precise construction shown, but that it includes within its purview whatever changes fairly come within either the terms or the spirit of the appended claims.

Having described my invention, what I claim is:

1. A traverse mechanism, comprising a slidable rod carrying a thread guide, a swinging quadrant and flexible elements connected at one of their ends to said quadrant, and at the other of their ends to said traverse rod, said flexible elements riding over the face of said quadrant in the swinging movement of the latter and extending in opposite directions therefrom and being alternately drawn in opposite directions by the movement of the quadrant.

2. A device of the character described, comprising a pair of mandrels disposed in substantial alignment with each other, a bodily slidable traverse rod the ends of which overhang said mandrels, thread guides carried by the ends of said traverse rod, a swinging quadrant and flexible members connected to said quadrant and to the traverse rod, said members extending in opposite directions from said quadrant, and being alternately drawn upon in opposite directions by the movement of the quadrant.

3. A device of the character described, comprising a pair of mandrels, a common actuating means for rotating said mandrels, a slidable traverse rod disposed above said mandrels, thread guides carried by said traverse rod, an oscillatory shaft, means for imparting oscillatory movement to said shaft, and a quardrant to which swinging movement is imparted by said shaft, said quadrant having a curved lower face, and flexible members connected to said quadrant and to the traverse rod, and riding over the curved face of said quadrant.

4. A device of the character described, comprising a mandrel shaft, a bearing for the same, a vertical projection from said bearing, a bearing upon said vertical projection, a traverse rod slidable through said bearing, a swinging quadrant and a flexible member connected to said quadrant and to the traverse rod.

5. In a device of the character described, the combination with a pair of mandrel shafts, bearings for said shafts, vertical extensions upon said bearings, bearings upon the vertical extensions, a traverse rod mounted in the last named bearings, a swinging quadrant, means for imparting movement to said swinging quadrant, and a pair of flexible members connected at one of their ends to said quadrant, and at the other of their ends to said traverse rod.

6. A device of the character described, comprising a supporting frame, a shaft extending longitudinally of said frame, means for imparting oscillatory movement to said shaft, a depending quadrant carried by the oscillatory shaft and to which swinging movement is imparted by said shaft, said quadrant having a curved lower face, a pair of flexible members connected at one of their ends to said quadrant, a traverse rod to which the other ends of said flexible members are connected, bearings in which said traverse rod is mounted for slidable movement transversely of the frame of the machine, thread guides carried by the traverse rod, mandrels over which said thread guides move, mandrel shafts by which said mandrels are carried, means for imparting rotation to the mandrel shafts, and means for supporting the bearings of the traverse rod from the bearings of the mandrel shafts.

In testimony whereof he affixes his signature.

CHARLES C. JESSEN.