

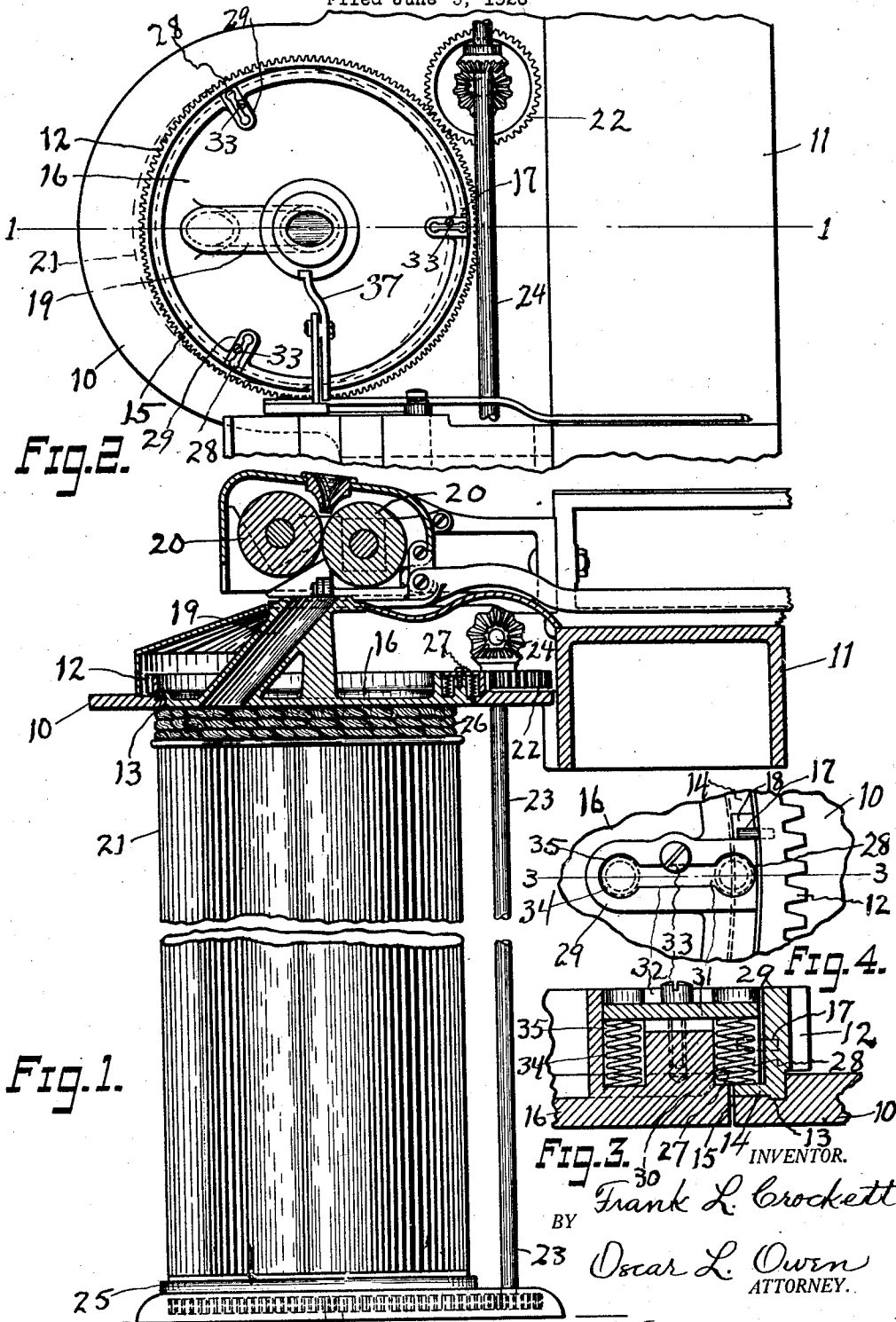
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COILER MECHANISM

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COILER MECHANISM.

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My invention relates to improvements in coiler mechanisms for coiling and packing cotton and other fibres in cans of carding, combing and drawing machines and the object of my invention is to provide means whereby the pressure exerted by the sliver while it is being coiled and packed into the cans may be regulated.

In prior machines of the class above noted, the inclined sliver coiler tube has been constructed integral with its motion transmitting gear, consequently the pressure of the combined weight which is imparted to the coils or layers of sliver in a full can is the same whether the sliver is coarse or fine. By this construction, especially in working fine sliver, the sliver is packed in the can so tightly that when the full can is removed from the machine the elasticity of the packed layers causes them to spring up in the can and if the operative does not use due care they topple over onto the floor causing waste due to breakage and soiling of the sliver. My invention obviates this objectionable feature.

While in the accompanying drawings my improvement is shown as applied to a drawing machine, it is obvious that it may be arranged to cooperate with other machines of the same nature.

In the drawings Figure 1 is a sectional elevation on line 1—1 of Figure 2 of the sliver coiling mechanism applied to a drawing machine showing my improved construction thereon. Figure 2 is a plan view showing the coiler tube gear and its relation to the can-full stop motion. Figure 3 is an enlarged sectional elevation on line 3—3 of Figure 4 showing my preferred form of pressure regulator. Figure 4 is a plan view of a portion of the coiler tube gear showing my improved pressure regulating means applied thereto.

The sliver calender rolls, the can-full stop motion and the mechanism for supporting and revolving the sliver receptacle are here shown substantially the same as now in common use in drawing machines.

Having reference to the drawings, 10 is the coiler plate fixedly connected to the framing 11 of the machine, 12 is a ring gear rotatively mounted in the circular bearings 13 cut in the upper surface of the coiler plate 10. The lower part of the ring gear

12 is provided with an inner annular flange 14 whose edge coincides with the edge of a circular opening 15 in the coiler plate 10. The flange 14 serves as a support for the rim of the coiler tube disk 16 which is loosely mounted thereon and prevented from twisting around on its seat by a pin 17 fixed to the ring gear and coacting with a notch 18 cut in the rim of the coiler tube disk. The bottom of the disk 16 loosely fits in the circular opening 15 of the coiler plate 10, the lower surfaces of both disk and plate being flush with each other normally.

The disk 16 carries the inclined tube 19 the mouth of which is directly beneath the delivery of the calender rolls 20, the sliver therefrom passes through the tube and is laid in a coil formation in the slowly rotating can 21 whose axis of rotation is slightly offset from the axis of rotation of the coiler tube disk.

Rotation is imparted to the coiler tube disk through its connection with the ring gear the teeth of which meshes with a spur gear 22 on the upright shaft 23 which in turn is rotated by bevel gear connections with the power transmitting shaft 24 common to machines of this class. The rotation of the sliver can 21 is effected by suitable gearing between the can-table 25 and the shaft 23.

In operation as the can becomes full the layers of sliver 26 pressing against the underside of the disk pack the sliver in the can until the pressure of the mass of fibre is sufficient to overcome the weight of the disk and pushes it upwards from its seat into contact with the detector lever 37 which is a member of the customary form of can-full stop motion, a fragmentary view of which is shown in Figures 1 and 2, thus stopping the machine.

It is obvious that the lighter the weight of the disk, the less force or pressure need be exerted by the packed sliver to effect the stoppage of the machine when the can is sufficiently filled. In order to have a construction that would fulfill this requirement without the necessity of making use of disks of varying weights I employ means whereby a force independent of that exerted by the packed sliver, but cooperating therewith is used. Preferably I make use of a plurality of compression springs 27 stationed in pock-

ets 28 drilled in bosses 29 which are integral with the rim of the coiler tube disk.

The lower end of each spring partly abuts against the shoulder 30 on the rim of coiler tube disk and partly on the upper surface of the ring gear flange. The other end of the spring abuts against the underside of the adjusting plate 31 which is slidably mounted in slot 32 formed in the upper portion of the boss 29. The adjusting plate is held in position by the adjusting screw 33 threaded into the top of boss 29. To equalize the movement of the adjusting plate in its slot, another compression spring 34 abuts between the adjusting plate and the bottom of a second pocket 35 formed in the boss 29.

By this construction when the springs are relaxed to their full limit the packing sliver in the can is opposed by the entire weight of the coiler tube disk supported on its rim directly on the flange of the ring gear but with the springs under compression part of the weight of the disk is absorbed by the springs and the rim of the disk is raised from its seat on the flange of the ring gear with the result that the pressure of the packing sliver against the coiler tube disk is reduced and the can-full stop motion quickly acts to stop the machine before the can overfills with sliver.

I claim:

1. In a machine of the character specified having a can-full stop-motion, in combination, a pair of sliver calendar rolls, a receptacle for the sliver delivered by said rolls, means located between the calendar rolls and top of said receptacle for coiling and packing the sliver in the receptacle, means for simultaneously imparting rotary motion to the receptacle and the coiling and packing means, and means for regulating the amount

of pressure exerted for actuating said can-full stop-motion.

2. In a machine of the character specified having a can-full stop-motion, in combination, a pair of calendar rolls, a rotatable receptacle for the sliver delivered by said rolls, a coiler plate located between the calendar rolls and the top of said receptacle said plate having a circular opening therein, a ring gear rotatable in bearings concentric with said opening, an inner annular flange at the base of the ring gear, a coiler tube disk detachably and loosely mounted on said flange, a plurality of compression springs coacting between the disk and ring gear, and a regulating screw for each spring whereby the amount of pressure exerted by the sliver and said disk against the can-full stop-motion detector may be varied.

3. In a coiler mechanism, the combination of a coiler plate having a circular opening therein, a ring gear, bearings in the coiler plate for said gear concentric with the opening in the plate, an inner annular flange at the base of the ring gear, a coiler tube disk loosely mounted on said flange, and means for detachably connecting the coiler tube disk and the ring gear.

4. In a coiler mechanism, the combination of a coiler plate having a circular opening therein, a ring gear, bearings in the coiler plate for said gear concentric with the opening in said plate, an inner annular flange at the base of the ring gear, a coiler tube disk loosely mounted on said flange, a notch in the rim of said disk, and a pin fixed to the ring gear coacting with said notch for detachably connecting the disk and ring gear.

In testimony whereof, I have signed this specification.

FRANK L. CROCKETT.