Oct. 4, 1932. K. H. BURTON ET AL 1,880,770

WIPING APRON FOR PIPE WRAPPING MACHINES

Filed Sept. 8, 1930

Fig. 1.

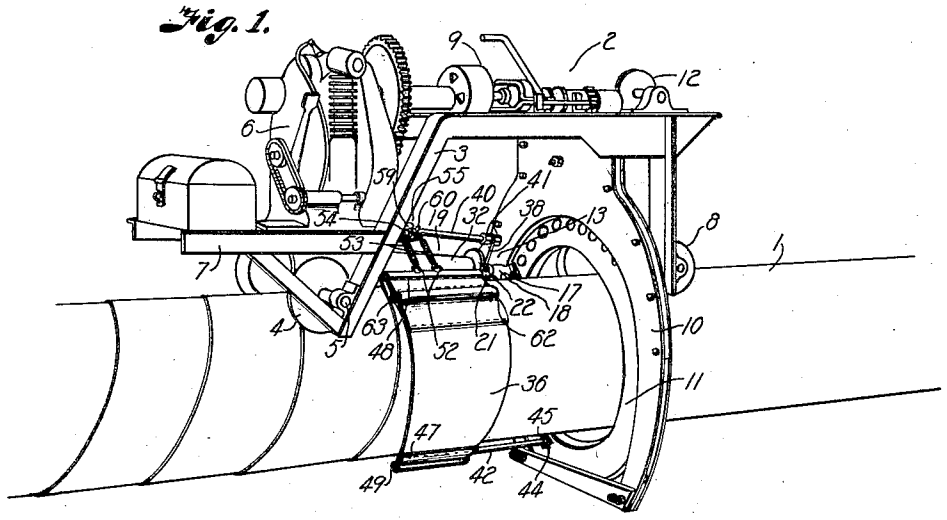


Fig. 2.

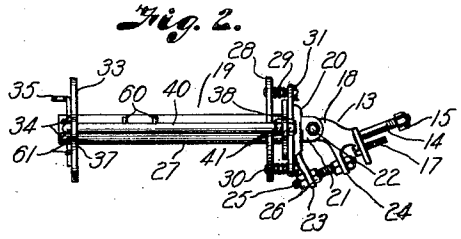


Fig. 3.

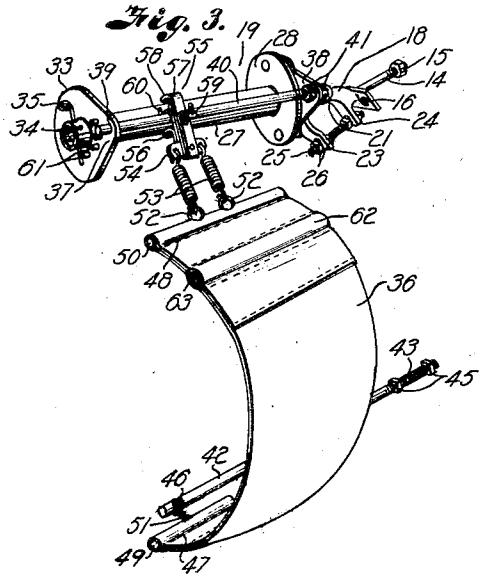
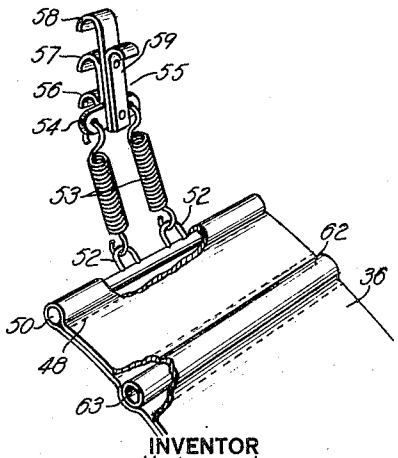


Fig. 4.



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UNITED STATES PATENT OFFICE

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WIPING APRON FOR PIPE WRAPPING MACHINES

Application filed September 8, 1930. Serial No. 480,509.

Our invention relates to wrapping machines and more particularly to improvements in pipe-wrapping machines of the character described in our co-pending application Serial Number 451,227.

The principal objects of our invention are to provide improved means for carrying and adjusting a roll of paper on a wrapping machine, and to provide means for insuring smooth and intimate engagement of the wrapping paper with the conduit upon which it is wound.

In accomplishing these and other objects of our invention we have provided improved details of structure the preferred form of which is illustrated in the accompanying drawing, wherein:

Fig. 1 is a perspective view of a wrapping machine mounted in operable relation on a conduit and provided with an apron for urging the wrapping material into engagement with the pipe.

Fig. 2 is an elevational view of a spool and supporting bracket including means for adjusting the angular relation of the spool to the bracket.

Fig. 3 is a detail perspective view of the spool for carrying the wrapping material, and of an ironing apron cooperating therewith.

Fig. 4 is a perspective view of one end of the apron attached to an adjustable hook member.

Referring more in detail to the drawing: 1 designates a conduit whereon is mounted a wrapping machine 2, including a frame 3 movably supported on the conduit by rollers 4 mounted on axles 5 carried by the frame. The machine is propelled along the conduit by a motor 6 supported on a supplementary bracket 7, and driving the traction rollers 8 through clutch and gear mechanism designated 9.

Mounted on the forward end of the frame is a yoke 10 adapted to extend over the conduit and to rotatably receive a carrier ring 11 driven from the motor through gears as indicated at 12. Secured to the carrier ring is a bracket 13 having a threaded shaft or bolt 14 formed integrally therewith and extending through a suitable opening in the carrier ring, a nut 15 being applied on the bolt for firmly attaching the bracket to the ring. Openings 16 are further provided in the bracket for receiving cap screws 17 threaded into the carrier.

Pivotally connected to an ear 18 of the bracket is a spool 19 having a head 20 provided with spaced ears 21 for receiving the ear 18 therebetween, and a bolt 22 is extended through aligning apertures in the ears for supporting the spool on the bracket.

A laterally extending finger 23 is further provided on the head of the spool and is connected to a cooperating finger 24 of the bracket by an adjusting bolt 25, so that angular relation of the spool to that of the bracket may be varied to prevent puckering of the wrapping material when wound on the conduit; lock nuts 26 being provided on the bolt to firmly lock the members in adjusted relation to each other.

The spool further includes a hub portion 27 preferably formed of tubing and fixed to the head of the spool. Slidably mounted on the hub is a disk 28 normally spaced from the head by springs 29 interposed between the head and disk on pins 30 fixed to the disk and retained in engagement with the head by cotter pins or the like 31.

A roll of wrapping material 32 is adapted to be mounted on the hub of the spool and one end thereof is urged into engagement with the disk 28, against the tension of the springs 29, by an opposite end plate 33 slidably mounted over the outer end of the hub.

A series of spaced and spirally arranged pairs of aligning openings 34 are provided near the outer end of the hub, and a pin 35 may be entered through a selected pair of aligning openings to properly tension the movable end plate against the roll of wrapping material to effect the resistance necessary for uniform unwrapping of the roll.

In order to insure even and smooth winding of the wrapping material on the conduit, a follower or ironing apron 36 preferably formed of canvas or like material, is attached to the spool and to the carrier ring. This mounting is preferably accomplished by pro-

viding a radial ear or extension 37 on the end plate 33 and a corresponding radial ear 38 fixed to the head of the spool.

Aligning apertures 39 in the ears 37 and 38 are adapted to receive a shaft 40 fixed to the ear 38 by nuts 41 and slidably engaging the opening in the end plate 33. A complementary shaft 42 having a threaded end 43 is extended through an opening 44 in the carrier ring and is fixed to the ring by nuts 45; the opposite end of said shaft being formed with a circular groove 46 for a purpose presently described.

Each end of the apron is folded retractively and stitched as indicated at 47 and 48 to form loops for respectively receiving rods 49 and 50, and a hook 51 is fixed to the rod 49 to engage the circular groove 46.

Spaced staples 52 are secured to the rod 50 for anchoring a pair of springs 53 attached to the cross arm 54 of a hook member 55, and by forming the hook member 55 of individual hook portions 56, 57 and 58 of increasing length, either of which may be anchored to the shaft 40, the tension of the apron may be readily varied.

The opposite side of the hook member is provided with a grip portion 59 to facilitate anchoring of the apron to the shaft 40, the several hook portions being preferably riveted or otherwise secured together to form a single unit. Lateral or sliding movement of the hook member on the shaft is prevented by spaced pins 60 fixed in the shaft.

To further increase the stability of the shaft 40, projecting lugs 61 are formed on the outer face of the end plate 33 for selective engagement by the pin 35, thus preventing rotation of the end plate on the hub.

The end of the apron adjacent the spool is folded sufficiently to permit the formation of an additional loop 62 spaced from said end and adapted to receive a tube 63 preferably formed of flexible material for removing the larger wrinkles or irregularities from the paper while it is being wound on the conduit.

Assuming a device to be constructed and assembled on a wrapping machine as described, the adjustment and operation of the spool and apron would be as follows:

A roll of wrapping paper is mounted on the hub of the spool and the bolt 25 is adjusted to produce the desired angularity of the spool relative to the supporting bracket.

One end of the apron is then hooked over the end of the rod 42, and the opposite end of the apron, including the hook member is attached to the rod 40, either of the hooks 56, 57 and 58 being forced into engagement with the rod to produce the necessary tension on the apron.

Upon rotation of the carrier ring the spool is revolved around the conduit and wrapping material is transferred in spiral form from the conduit.

The apron, under tension of the springs 53 is urged into firm engagement with the paper while it is being wound on the conduit, and the flexible tubing 63 serves to remove the folds and wrinkles that may result incident to unwinding of the paper from the spool. The remaining portion of the apron following the flexible tubing further urges the paper tightly against the pipe, thereby producing a smooth and uniform covering over the conduit.

What we claim and desire to secure by Letters Patent is:

1. In combination with a machine for wrapping conduits including a carrier rotatably mounted on the conduit, means for supporting wrapping material on the carrier, means for following the wrapping material on its rotation around the conduit to urge said material into intimate relation with the conduit, means for supporting one end of said following means on the carrier, and means for attaching the opposite end of said following means to the material-supporting means.

2. In combination with a machine for wrapping conduits including a carrier rotatably mounted on the conduit, means for supporting a roll of wrapping material on the carrier, an apron for following the roll of wrapping material on its rotation around the conduit to urge said material into smooth relation with the conduit, means for supporting one end of said apron from the carrier and means for attaching the opposite end of the apron to the roll-supporting means.

3. In combination with a machine for wrapping conduits including a carrier rotatably mounted on the conduit, means for supporting wrapping material on the carrier, an apron for following the wrapping material on its rotation around the conduit to urge said material into smooth relation with the conduit, means for supporting one end of said apron from the carrier and yielding means for attaching the opposite end of the apron to the roll-supporting means.

4. In combination with a machine for wrapping conduits including a carrier rotatably mounted on the conduit, means for supporting a roll of wrapping material on the carrier including a bracket, a spool pivotally mounted on the bracket, a shaft on the carrier in substantially parallel relation with the spool, a follower for the roll of wrapping material to urge said material into smooth engagement with the conduit, and means for securing the follower to said shaft and to the spool.

5. In apparatus of the character described, including a carrier, a spool on the carrier having a hub and a head portion on one end of the hub, a shaft on said head portion and extending therefrom in spaced, parallel relation with the hub, an end plate on the op-

posite end of the hub having an opening for slidably receiving said shaft, a follower for the spool, and means for securing opposite ends of the follower respectively to said shaft and to the carrier.

6. In apparatus of the character described including a carrier, a spool on the carrier having a hub and a head portion on one end of the hub, a shaft on said head portion and extending therefrom in spaced relation with the hub, an end plate on the opposite end of the hub having an opening for slidably receiving said shaft, an apron for following said spool, means for securing one end of the apron to the carrier, and means including a hook for adjustably anchoring the opposite end of the apron to said shaft.

7. In apparatus of the character described including a carrier, a spool on the carrier having a hub, and a head portion on one end of the hub, a shaft on said head portion and extending therefrom in spaced relation with the hub, an end plate on the opposite end of the hub having an opening for slidably receiving said shaft, means on the plate and hub for preventing rotation of the plate on the hub, an apron for following said spool, means for securing one end of the apron to the carrier, and means for anchoring the opposite end of the apron to said shaft.

8. In apparatus of the character described including a carrier, means for supporting a roll of wrapping material on the carrier, a follower for the wrapping material comprising an apron, a rod secured to each end of the apron, means on the carrier for supporting one rod, and yielding means for securing the other rod to the roll-supporting means.

9. In apparatus of the character described including a carrier, means for supporting a roll of wrapping material on the carrier, a follower for said wrapping material comprising an apron, means for securing opposite ends of the apron respectively to the carrier and to the roll-supporting means, and a transverse member on said apron for forming a projection to smooth out the folds of the wrapping material.

10. In apparatus of the character described including a carrier, means for supporting a roll of wrapping material on the carrier, a follower for said wrapping material comprising an apron, means for securing opposite ends of the apron respectively to the carrier and to the roll-supporting means, and a resilient transverse member in said apron for forming a projection to smooth out the folds of the wrapping material.

In testimony whereof we affix our signatures.

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HERMAN KRAMER.