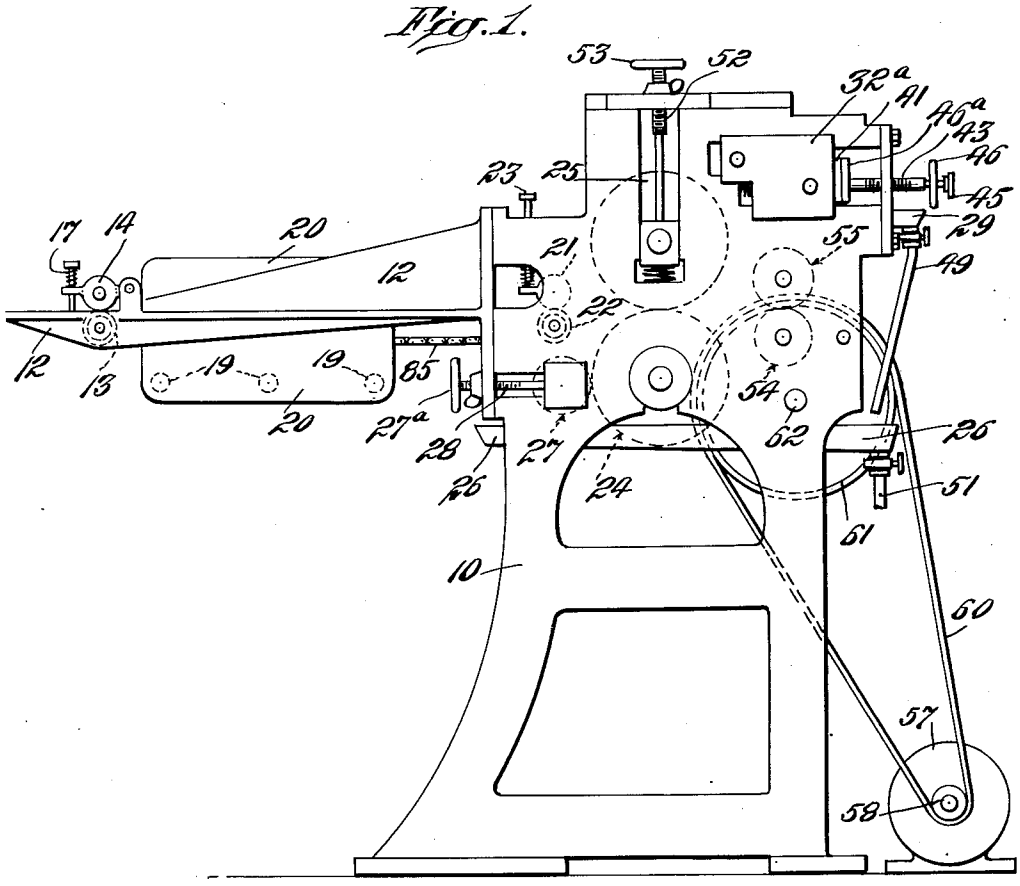
March 7, 1939. A. HORMEL 2,149,964

OIL WIPING MACHINE

Filed Aug. 18, 1937 2 Sheets-Sheet 1

Fig. 1.



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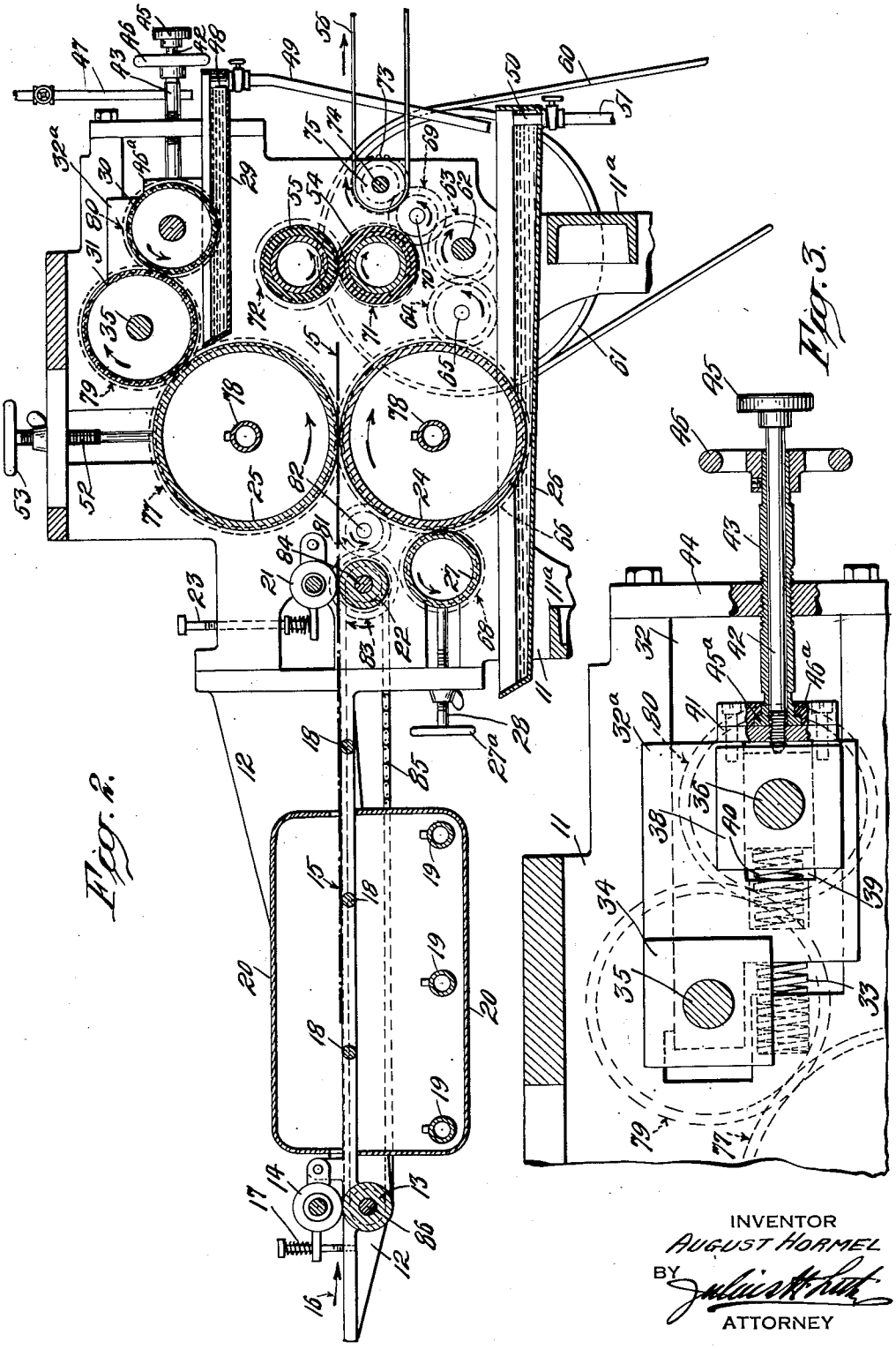


Fig. 2.

Fig. 3.

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UNITED STATES PATENT OFFICE

2,149,964

OIL WIPING MACHINE

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Application August 18, 1937, Serial No. 159,730

3 Claims. (Cl. 91—50)

This invention relates to an improvement in oil wiping machines of the character intended for use in connection with large metal plates to which oil or other suitable liquid is applied to retard corrosive action and the surplus oil is wiped off the surfaces of the plate.

The object of the invention is to provide a machine of this character wherein a uniform distribution of the oil is had on both faces of the plate and the operation of supplying the oil and removing the excess takes place speedily and effectively.

More particularly, the invention contemplates the provision of a plurality of rollers between which the plate is fed and which apply a coating or film of oil to both surfaces of the plate and the provision of wiping means which removes the excess oil from the plate.

In the accompanying drawings, wherein an embodiment of the invention is shown, Fig. 1 is a side elevation of the improved machine; Fig. 2 is a vertical sectional view through the machine, and Fig. 3 is a detail view, with parts in section, of the means for adjusting the upper oil-distributing rollers.

The machine includes a frame, one side member of which is shown at 10 and the similar opposite side member at 11, said members being suitably connected by cross braces, some of which are indicated at 11*a*. The frame elements just mentioned, carry a bracket 12 in which is journalled a lower, driven, feed roller 13 which cooperates with an upper adjustable sectional type feed roller 14 to feed a metal plate, diagrammatically indicated at 15 in Fig. 2 in the direction of the arrow 16 in that figure. An adjusting means indicated at 17 is provided for bringing the upper roller 14 to or from the lower roller 13.

A plate fed to the rollers 13 and 14, either by hand or by conveying means, passes between the rollers and is fed thereby toward the right in Fig. 2 over the supporting rolls 18 mounted in the bracket 12. While moving over the rolls 18 the plate is heated by suitable heating means such as the gas burners indicated at 19, located below the plate. Said burners are located in a suitable casing 20 which extends under and above the moving plate and confines the heat around the plate.

In its travel to the right in Fig. 2, the plate next passes between the two feed rollers 21 and 22, the lower roller 22 being a driven roller as hereinafter explained, and the upper roller 21 being a sectional roller adjustable to and from roller 22 by the adjusting screw 23. After passing between the feed rollers 21 and 22, the plate is next moved between the oil-applying rollers 24 and 25. The lower oil-applying roller indicated at 24 rotates clockwisely and applies a layer or film of oil to the underside of the plate 15, receiving its supply of oil directly from the oil tray 26 supported between the sides 10 and 11 of the frame. A wiping roller 27 governs the amount of oil delivered by the oil-applying roller 24 to the underside of the plate, said wiping roller being adjustable to and from the face of the roller 24 by suitable adjusting means controlled by manipulation of the hand wheel 27*a* on screw 28.

The upper oil-applying roller 25, rotating in a direction opposite to that of roller 24, receives a supply of oil from the tray 29 supported on the frame, the oil being taken therefrom by feed roller 30 which applies a film of oil to the roller 31 which, in turn, applies oil to the face of the oil-applying roller 25 that applies it to the upper face of the plate 15. The two rollers 30 and 31 are adjustable as a unit to or from the oil-applying roller 25, the adjusting means to accomplish this being shown in detail in Fig. 3. Frame members 10 and 11 are slotted as indicated at 32 and each slot accommodates a block 32*a*, said block being under the pressure of a coil spring 33 which tends to thrust it toward the right. Rotatably mounted in the portion 34 of the block is the shaft 35 on which the roller 31 is mounted. Shaft 36 on which roller 30 is mounted, is carried in member 38 adjustable in slot 39 formed in the block 32*a*. The coil spring 40 tends to thrust member 38 to the right. The right end of slot 39 is closed by a plate 41 through which an adjusting screw 42 is threaded, said screw operating against block 38 to move it to any required extent to the left in slot 39 and against the tension of spring 40. Such movement of the members 38 (one of which is located at each end of the shaft 36) under pressure of the screws 42 will move the shaft 35 and the roller 30 carried by it to or from the roller 31 as may be required.

Each of the adjusting screws 42 extends through a sleeve 43 threaded in a plate 44 secured on the frame, and the outer end of the adjusting screws each terminate in the hand wheel 45 by which the screw may be manipulated. Sleeve 43 carries at its free end a hand wheel 46 by which it may be rotated independently of the adjusting screw 42. The opposite end of the sleeve 43 is formed with a head 45ª rotatable in a plate 46ª secured over plate 41. By rotation of hand wheel 46, the sleeve 43 will be turned in plate 44 so that the block 32ª and

all of the elements carried by it may be moved as a unit either toward or away from the oil-applying rollers, and particularly to and from the upper roller 25. By manipulation of the hand wheel 45, member 38 may be moved so that the adjustment of roller 30 to or from roller 31 can be had. Thus, by the arrangement disclosed, the amount of oil supplied to the oil-applying roller 25 may be easily controlled and the application of a uniform film of oil to the plate be accomplished.

Oil is supplied to the upper oil tray 29 by means of the supply pipe 47 leading from a tank or other source of supply. Tray 29 is provided with an overflow pipe 48 from which a drip pipe 49 extends, said drip pipe leading to the lower oil tray 26 into which it directs any excess oil from tray 29. Tray 26 has an overflow pipe 50 connecting to pipe 51 which extends to a suitable pump which feeds all excess oil received by it back into the supply tank from which the feed pipe 47 extends. Through the arrangement disclosed, a constant level of oil in the two trays 26 and 29 is assured.

The upper oil-applying roller 25 is adjustable to or from the lower roller 24 by suitable means including the adjustment screw 52, terminating in the hand wheel 53 for controlling the movement of the upper roller toward the lower one.

When the metal plate passes between the rollers 24 and 25, both sides of the plate simultaneously receive the coating or film of oil from these rollers and then plate 15 passes between the two rollers 54 and 55 which remove excess oil from the surfaces of the plate and also feed the plate onto the conveyor belt 56 (Fig. 2) which carries it away from the machine. The driving means for the various rollers will now be described.

At 57 is an electric motor, the shaft of which carries a pulley 58 over which the belt 60 extends. Said belt also extends over the pulley 61 secured on shaft 62 journalled in the side frames 10 and 11 of the machine. Shaft 62 carries a gear 63 (shown in dotted lines in Fig. 2) said gear meshing with a gear 64 on stud shaft 65, the gear 64 driving gear 66 on the lower oil-applying roller 24. The gear 66 meshes with a gear 68 secured on the shaft on which the wiping roller 27 is mounted. Gear 63 meshes with a gear 69 on a stud shaft 70, said gear 69 driving gear 71 located on the shaft on which the roller 54 is mounted. Gear 71 meshes with a gear 72 on the shaft on which the roller 55 is mounted.

The gear 69 meshes with and drives the gear 73 on a shaft 74 journalled between the sides of the frame and on which a pulley 75 is secured, the belt conveyor 56 extending about said pulley and connecting with a similar pulley at a remote point.

The upper oil-applying roller 25 is driven by the gear 66 on the lower roller 24, said gear 66 meshing with a gear 77 secured on the roller 25. Gear 77 meshes with a gear 79 on shaft 35 on which the roller 31 is mounted, and gear 79 meshes with a gear 80 on the shaft 36 on which roller 30 is mounted. Gear 66 also drives a gear 81 on a stud shaft 82, said gear 81 meshing with a gear 83 on shaft 84 on which the feed roller 22 is mounted. Also secured on shaft 84 is a sprocket over which a chain 85 extends, said chain extending around a sprocket on the shaft 86 on which the feed roller 13 is mounted. Located within each of the rollers 24 and 25 is a burner 78 to heat these rollers. Through the drive arrangement shown, the plate is fed through the rollers; receives a coating or film of oil on both of its faces from the rollers 24 and 25, and has the surplus oil removed by the rollers 54 and 55 and is then delivered by the conveyor 56 to any desired remote point.

Briefly, the operation of the machine is as follows:

The plates to be oil-treated are fed to the rollers 13 and 14 at the left end of the machine, either manually or by conveyor, and the plate so fed passes over the burners 18 and is heated thereby. Feed rollers 22 and 23 next feed it to the oil-applying rollers 24 and 25 from which both surfaces of the plate simultaneously receive a coating or film of oil. Next the plate passes between the rollers 54 and 55 which remove surplus oil from both sides of the plate. Conveyor 56 then receives the plate and carries it away.

What I claim is:

1. In a machine of the character described, feeding means for a metal plate, means for heating the plate while it is being fed, a pair of oil-applying rollers, means for supplying oil to said rollers whereby the same will apply a film of oil to the opposite faces of the plate as it is fed between them, and wiping rollers between which the oil-treated plate is fed after leaving the oil-applying rollers.

2. In a machine of the character described, feeding rollers for a metal plate, means for heating the plate while it is being fed, oil-applying rollers between which the heated plate is fed, means for rotating said rollers in opposite directions, means for feeding oil to said rollers whereby they apply a film of oil to the opposite faces of the plate, means for governing the amount of oil fed to the oil-applying rollers, and wiping rollers to which the oil-treated plate is fed.

3. In a machine of the character described, a support over which a metal plate is fed, feeding means for moving the plate over said support, a heating chamber disposed over a portion of the plate as it is moved on the support, upper and lower oil-applying rollers between which the plate is moved by the feeding means, an oil supply receptacle for supplying a coating of oil to the lower oil-applying roller, an upper oil-supply receptacle for supplying an oil coating to the upper roller, distributor rollers for conveying oil from the upper oil receptacle to the upper oil-applying roller, means for adjusting the position of said distributor rollers relative to the upper oil-applying roller, means for controlling the amount of oil in the upper oil receptacle and means for feeding oil from the upper receptacle to the lower receptacle.

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