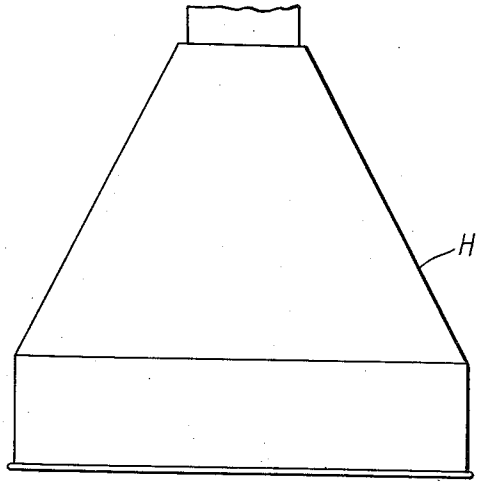
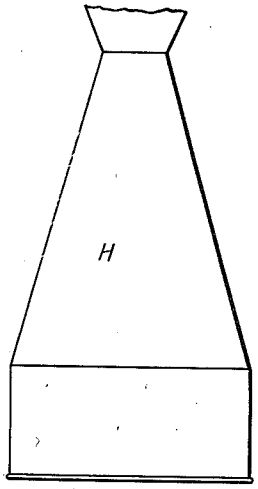
April 27, 1937. W. IRVEN 2,078,714

PREPARATION OF TUBULAR SHEET METALWARE ARTICLES

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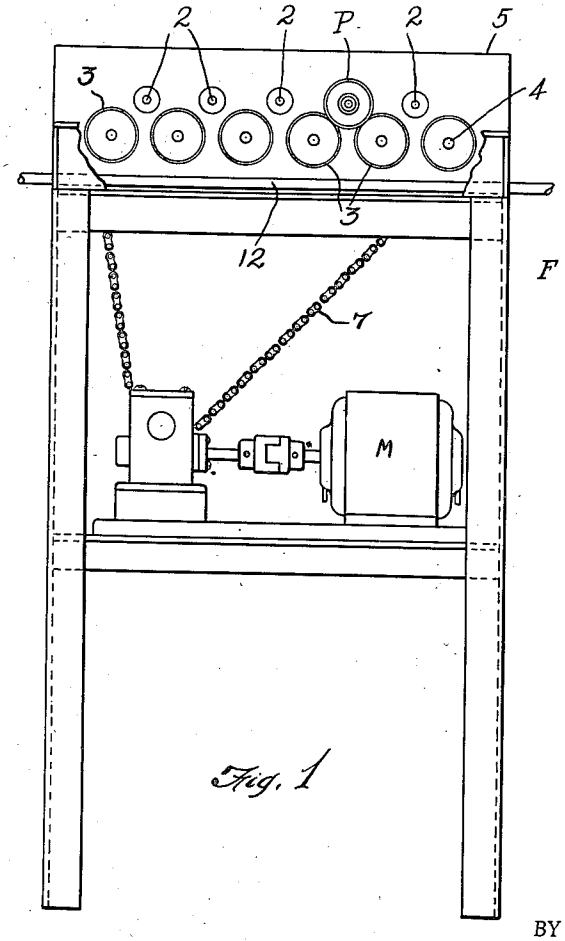


Fig. 1

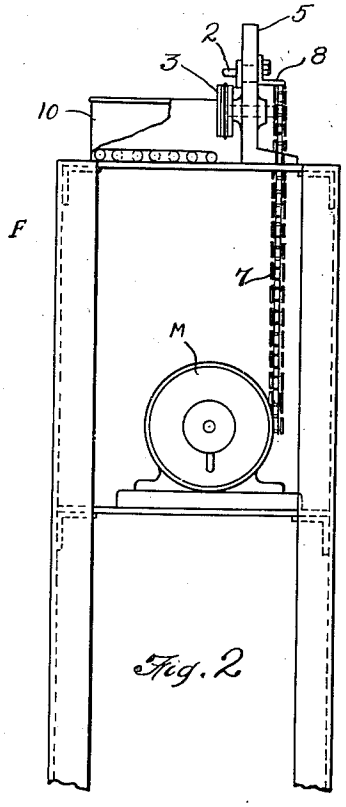


Fig. 2

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PREPARATION OF TUBULAR SHEET METALWARE ARTICLES

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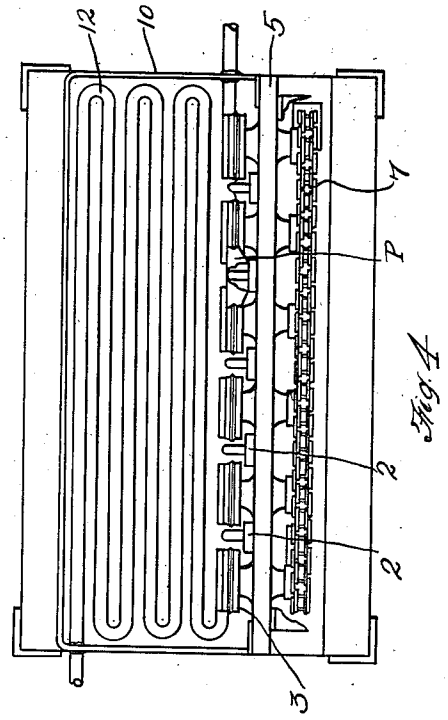


Fig. 4

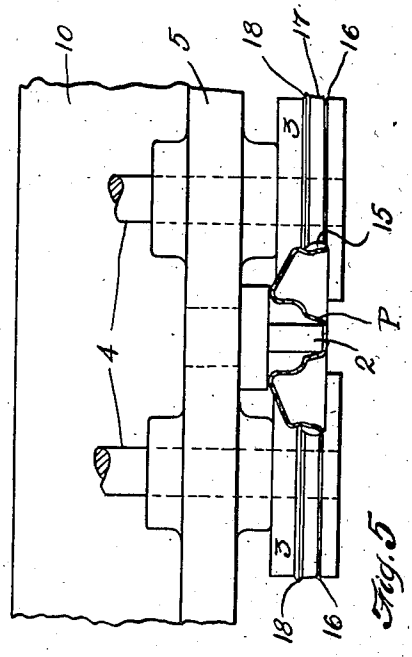


Fig. 5

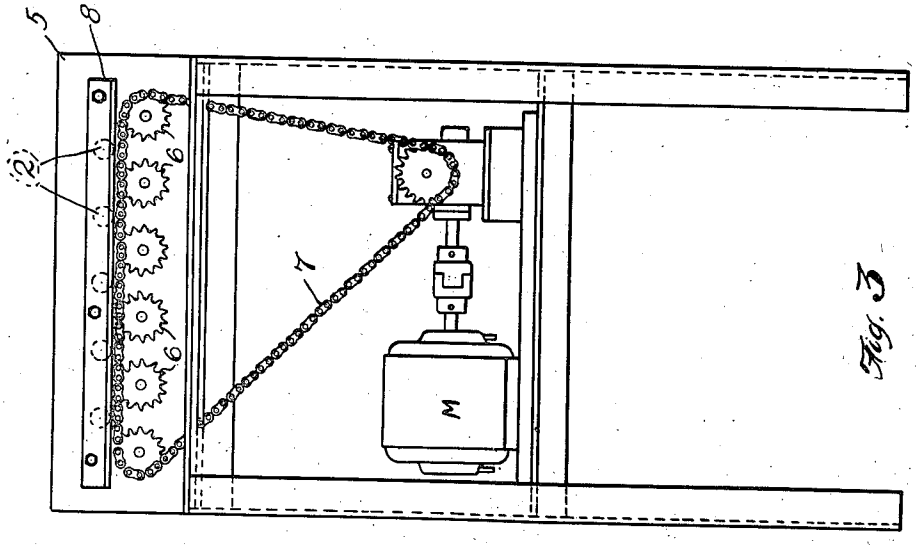


Fig. 3

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2,078,714

UNITED STATES PATENT OFFICE

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PREPARATION OF TUBULAR SHEET METAL-WARE ARTICLES

William Irven, Lakewood, Ohio, assignor to The Standard Oil Company (Ohio), Lakewood, Ohio, a corporation of Ohio

Application April 16, 1936, Serial No. 74,809

8 Claims. (Cl. 153—54)

In the manufacture of certain sheet metal ware articles, particularly where a sheet metal piston element is concerned, and with the requirement of a leak-tight smooth slidable fit in a can-like container, there is considerable inherent difficulty in attaining desirable accurate construction and functioning. It is among the objects of the present invention to prepare such sheet metal piston elements, particularly facilitating accuracy and uniformity and with avoidance of customary difficulties.

To the accomplishment of the foregoing and related ends, the invention, then, comprises the features hereinafter fully described, and particularly pointed out in the claims, the following description and the annexed drawings setting forth in detail certain illustrative embodiments of the invention, these being indicative however, of but a few of the various ways in which the principle of the invention may be employed.

In said annexed drawings:—

Fig. 1 is a front elevational view of an embodiment of the invention, parts being broken away; Fig. 2 is a side elevational view, similarly; Fig. 3 is a rear elevational view of the body of the device; Fig. 4 is a plan view thereof, showing a sheet metal piston element in section therein; and Fig. 5 is an enlarged scale fragmentary detail of structure shown in Fig. 4.

The device comprises suitable framing F, supporting a plurality of mandrels 2, adjacent to and staggered with which are rollers 3. The latter are rotatably carried by stud shafts 4 journaled through a suitable vertical support plate 5, and having sprocket wheels 6 driven by suitable means, such as a motor M with reduction gearing and sprocket chain 7. Over the chain and series of sprocket wheels 6 is a combined guide and guard which may be in the form of an angle iron 8 suitably supported on the plate 5, as by bolts or the like. Arranged to cooperate with the roller 3 and supply a small amount of dope to their peripheries is a tray or pan 10, such that the lower portion of the rollers may dip into the contents therein. Suitable heating means is provided for maintaining a desired temperature in the contents of the tray, and such means may be of any desired or convenient character, for instance a steam coil 12. Desirably, a hood H is adjacent and over the tray, to carry off fumes which may be developed.

In operation, with the motor started by a suitable controller switch, the detail of which is immaterial, and the rollers 3 in rotation, and the dope at suitable temperature in the tray 10 as controlled by the heater 12, the operator places a plurality of sheet metal piston blanks P (see Figs. 1, 4, and 5) on the mandrels 2. These piston elements are for ultimate application in grease guns or cartridges, air pumps, etc., where a leak-proof sliding fit is wanted, and at this stage are of slightly cupped form with re-set center and provided with a gasket member 15 in the grooved periphery of the sheet metal blank. The contour of the rollers 3 is such as to provide a small groove 16 which receives and trues the edge of the sheet metal piston element blank, and the intermediate portion 17 of the rollers engages and trues the gasket 15 and at the same time applies a small amount of dope picked up from the tray, and the bead 18 of the roller further assists in truing and perfecting the zone of the sheet metal piston element blank adjacent the gasket member. The detail of the dope or composition applied is immaterial here, it being sufficient to state that it is generally of a character providing a light lubricating quality. The piston blanks having thus been treated, the operator removes them and applies new blanks to the mandrels 2.

Other modes of applying the principle of the invention may be employed, change being made as regards the details described, provided the features stated in any of the following claims, or the equivalent of such, be employed.

I therefore particularly point out and distinctly claim as my invention:—

1. In apparatus of the character described, a plurality of mandrels for sheet metal piston elements, rollers adjacent and staggered between said mandrels having peripheries with a groove and a spaced bead, a vertical support plate, shafts carrying said rollers journaled through said plate, means for rotating said rollers, including roller sprockets on said shafts at the rear side of said plate and a chain running over said sprockets, a guard-guide over said chain, a motor for driving said chain, a tray forwardly of said plate in which the lower portions of said rollers dip, a steam heating coil at the bottom of said tray, and a hood for carrying off fumes.

2. In apparatus of the character described, a plurality of mandrels for sheet metal piston elements, rollers adjacent and staggered between said mandrels having peripheries with a groove and a spaced bead, a vertical support plate, shafts carrying said rollers journaled through said plate, means for rotating said rollers, including roller sprockets on said shafts at the rear side of said plate and a chain running over said

sprockets, a guard-guide over said chain, a motor for driving said chain, a tray forwardly of said plate in which the lower portions of said rollers dip, means for heating said tray, and a hood for carrying off fumes.

3. In apparatus of the character described, a plurality of mandrels for sheet metal piston elements, rollers adjacent and staggered between said mandrels having peripheries with a groove and a spaced bead, a vertical support plate, shafts carrying said rollers journaled through said plate, means for rotating said rollers, including roller sprockets on said shafts at the rear side of said plate and a chain running over said sprockets, a guard-guide over said chain, a tray forwardly of said plate in which the lower portions of said rollers dip, and means for heating said tray.

4. In apparatus of the character described, a plurality of mandrels for sheet metal piston elements, rollers adjacent and staggered between said mandrels having peripheries with a groove and a spaced bead, a vertical support plate, shafts carrying said rollers journaled through said plate, means for rotating said rollers, including roller sprockets on said shafts at the rear side of said plate and a chain running over said sprockets, a guard-guide over said chain, means for driving said chain, a tray forwardly of said plate in which the lower portions of said rollers dip, and means for heating said tray.

5. In apparatus of the character described, a plurality of mandrels for sheet metal piston elements, rollers adjacent and staggered between said mandrels, means for truing the peripheries of said sheet metal piston elements, including a groove and a spaced bead on each said roller, a vertical support plate, shafts carrying said rollers journaled through said plate, means for rotating said rollers, a tray forwardly of said plate in which the lower portions of said rollers dip, and means for heating said tray.

6. In apparatus of the character described, a plurality of mandrels for sheet metal piston elements, rollers adjacent and staggered between said mandrels, means for truing the peripheries of said sheet metal piston elements, including a groove and a spaced bead on each said roller, means for rotating said rollers, a tray in which the lower portions of said rollers dip, and means for heating said tray.

7. In apparatus of the character described, a plurality of mandrels for sheet metal piston elements, rollers adjacent and staggered between said mandrels, means for truing the peripheries of said sheet metal piston elements, including a groove and a spaced bead on each said roller, means for rotating said rollers, and a tray in which the lower portions of said rollers dip.

8. In apparatus of the character described, mandrel means for supporting sheet metal piston elements, rollers adjacent, means for truing the peripheries of said sheet metal piston elements, including a groove on each said roller, means for effecting relative rotation between the sheet metal piston elements and truing means, and a tray in which the lower portions of said rollers dip.

WILLIAM IRVEN.