July 22, 1924. 1,502,299

A. L. EDWARDS

DEVICE FOR REMOVING DEFORMITIES IN COLLAPSIBLE METAL TUBES

Filed Aug. 4, 1922

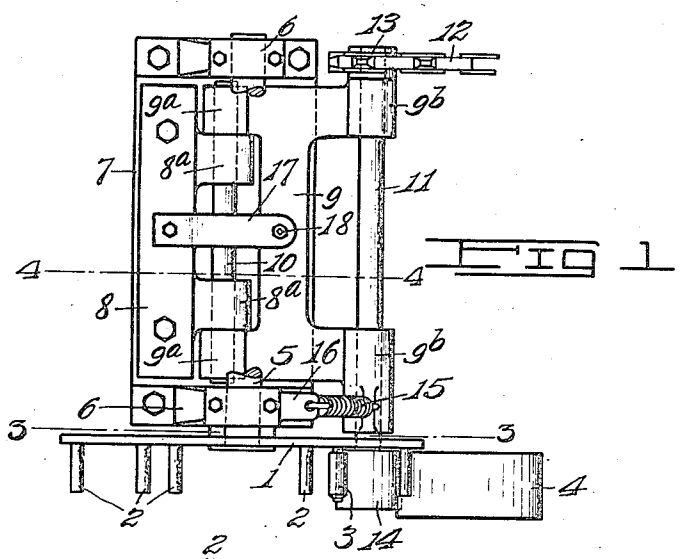

FIG 1

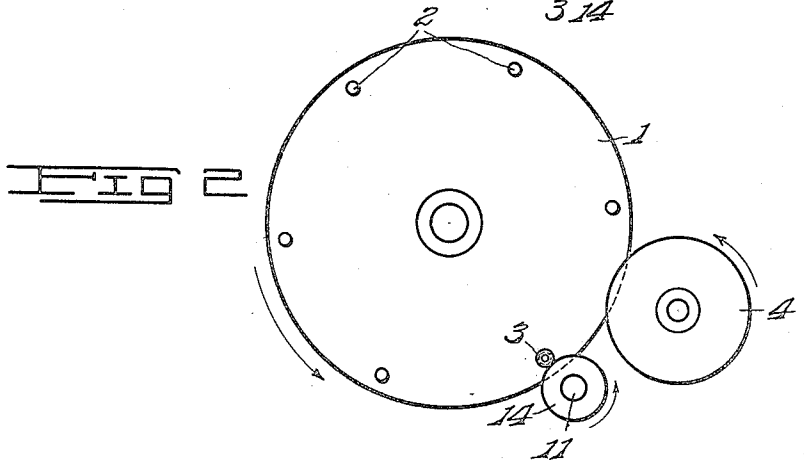

FIG 2

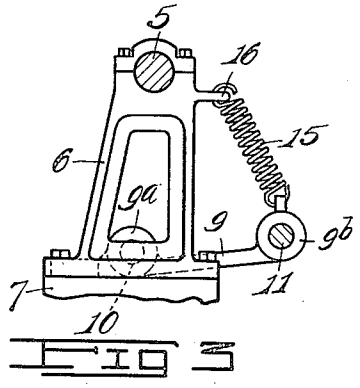

FIG 3

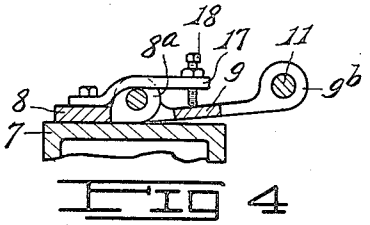

FIG 4

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UNITED STATES PATENT OFFICE.

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DEVICE FOR REMOVING DEFORMITIES IN COLLAPSIBLE METAL TUBES.

Application filed August 4, 1922. Serial No. 579,605.

To all whom it may concern:

Be it known that I, ALONZO L. EDWARDS, a citizen of the United States of America, and resident of Wheeling, county of Ohio, and State of West Virginia, have invented certain new and useful Improvements in Devices for Removing Deformities in Collapsible Metal Tubes, of which the following is a specification.

This invention relates broadly to enamel coating mechanism for collapsible metal tubes, and more specifically to apparatus for preparing such tubes for receiving such coating.

The primary object of the invention is to provide, in association with collapsible-tube enameling mechanism, a device whereby dents, wrinkles and like deformities in the tubes are removed as the latter approach the coating roll or rolls.

Due to the extreme thinness and the resultant fragility of the walls of ordinary collapsible metal tubes pressed from tin, lead, or alloys of said metals, it is practically impossible to so handle such tubes as to prevent the formation therein of slight indentions or deformities. Without the removal of such deformities, the application of an even or uniform enamel coating to the tubes cannot be effected by means of the coating roll employed in ordinary commercial forms of enameling mechanisms. It is therefore the aim of the present invention to provide a simple and effective device whereby the bodies of the tubes may be restored to their true cylindrical form immediately prior to their engagement with the coating roll.

In describing the invention in detail, reference is herein had to the accompanying drawings, in which—

Figure 1 is a top plan view of the invention, illustrating its application to the enameling mechanism, a portion of said mechanism being shown;

Fig. 2 is an end elevation of the apparatus shown in Fig. 1; and

Figs. 3 and 4 are partial sections taken, respectively, on lines 3—3 and 4—4, Fig. 1.

Referring to said drawings, 1 indicates the usual rotating carrier-disk of an enameling machine, said disk having fixed in spaced relation on its outer face adjacent to its peripheral edge a plurality of horizontally disposed spindles 2 designed to have more or less closely fitted thereon the collapsible metal tubes 3 which are to be coated through direct contact with a suitably positioned rotating enamel-applying, or coating, roll 4, as ordinarily.

The disk 1 is carried upon an end of a shaft 5 which is journaled upon upright supports 6 mounted upon a base 7. Fixed upon said base is a bar-like member 8 having integral bearing portions 8^a which coact with similar portions 9^a formed on the rear edge of a bar 9 in the formation of a hinge joint, said bearing portions 8^a and 9^a receiving a horizontal rod or pintle 10. The front edge of said bar 9 carries bearing portions 9^b having journaled therein a shaft 11 which is driven from any suitable rotating part of the enameling mechanism, as by means of a sprocket chain 12 operating upon a sprocket wheel 13 carried by the outer end of said shaft 11.

Carried by the inner end of the shaft 11 is a roller 14, preferably of wood or a suitable composition material, adapted to be frictionally engaged by the cylindrical bodies of the spindle-carried tubes 3 as the latter are advanced toward the coating roll 4. A retractile coil spring 15 having its lower end attached to one of the bearings 9^b is supported at its upper end by a stationary part of the structure, as by a lug 16 carried by one of the supports 6. The tension of said spring 15 is such that the hinged bar 9 is normally held in an upwardly swung position, as shown in Figs. 3 and 4, in which the roller 14 is supported with the upper portion of its periphery in position to be frictionally engaged by the bodies of tubes 3 borne by the spindles 2. An arm 17 mounted on the bar 8 is disposed in overhanging relation to the bar 9 and carries a set screw 18 which is adapted for vertical adjustment with respect to said bar 9, thereby to limit the extent to which said roller 14 may be elevated by said spring, it being designed that said roller shall occupy such position that, during the interval of its engagement with said roller, each tube will be frictionally rotated throughout at least one complete revolution and that sufficient pressure will be exerted to press out any in-

dentions or irregularities in the body of said tube. Otherwise expressed, the traverse of the tube upon the periphery of the roller is throughout a distance at least equal to the circumference of the tube, and the pressure exerted through the tube body on depressing said roller against the tension of its supporting spring to allow said tube to pass the roller is sufficient to roll out any irregularities in said body.

It will be noted that the coating roll 4 occupies a position somewhat below the horizontal plane of the axis of the disk 1, and that the roller 14 is located adjacent to and below said coating roll. Thus, the deformities of the tube are rolled out immediately prior to engagement of the same with the coating roller, thereby preparing the tube for receiving a coating which is wholly uniform and free from imperfections.

What is claimed is—

1. In a collapsible-tube coating mechanism, the combination with a base, supports carried by said base, a shaft journaled on said supports, and a carrier-disk carried by an end of said shaft, said disk having tube-carrying spindles on a face thereof, of shaft-bearings having hinged connection with said base, a shaft journaled in said bearings, a roller carried by said shaft, and yielding means normally supporting said bearings in a position in which a portion of the periphery of said roller is presented in the path of travel of tubes borne by said spindles.

2. In a collapsible-tube coating mechanism the combination with a base, supports carried by said base, a shaft journaled on said supports, and a carrier-disk carried by an end of said shaft, said disk having tube-carrying spindles on a face thereof, of shaft-bearings having hinged connection with said base, a shaft journaled in said bearings, a roller carried by said shaft, and a retractile coil spring normally supporting said bearings in an elevated position whereby said roller is positioned with a portion of its periphery in the path of travel of the tubes carried by said spindles.

In testimony whereof, I affix my signature in presence of two subscribing witnesses.

ALONZO L. EDWARDS.

Witnesses:
Mrs. J. C. PRINCE,
VICTOR VPYNSKY.