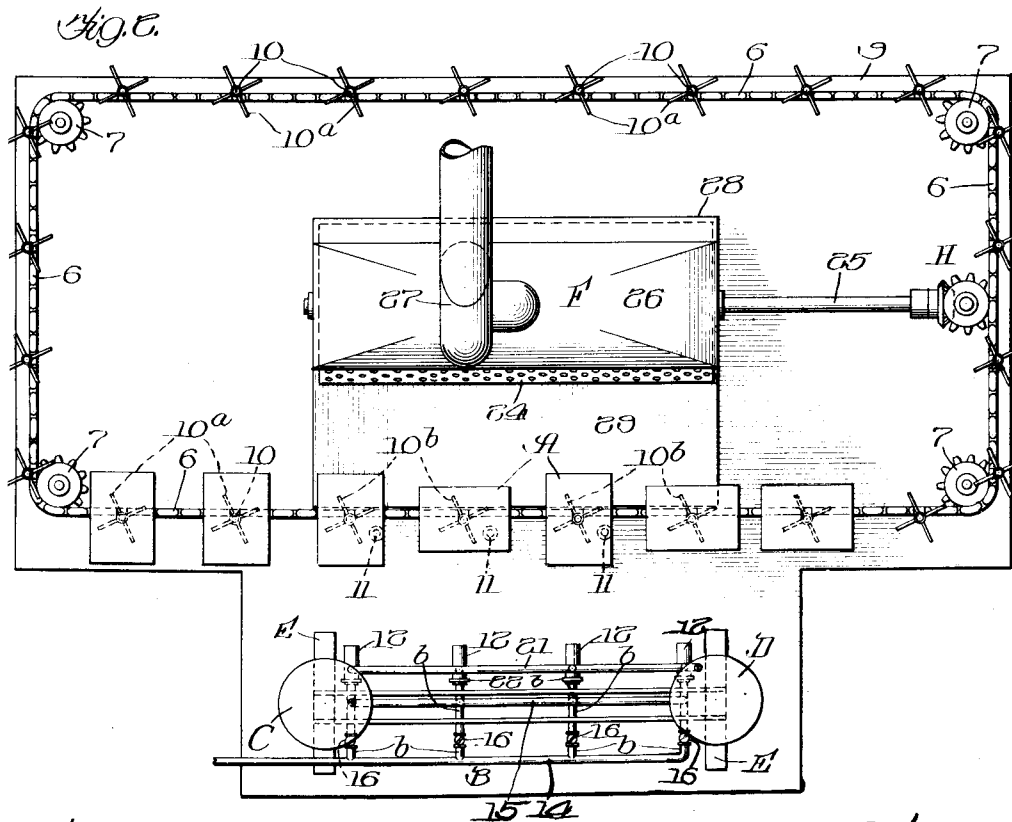
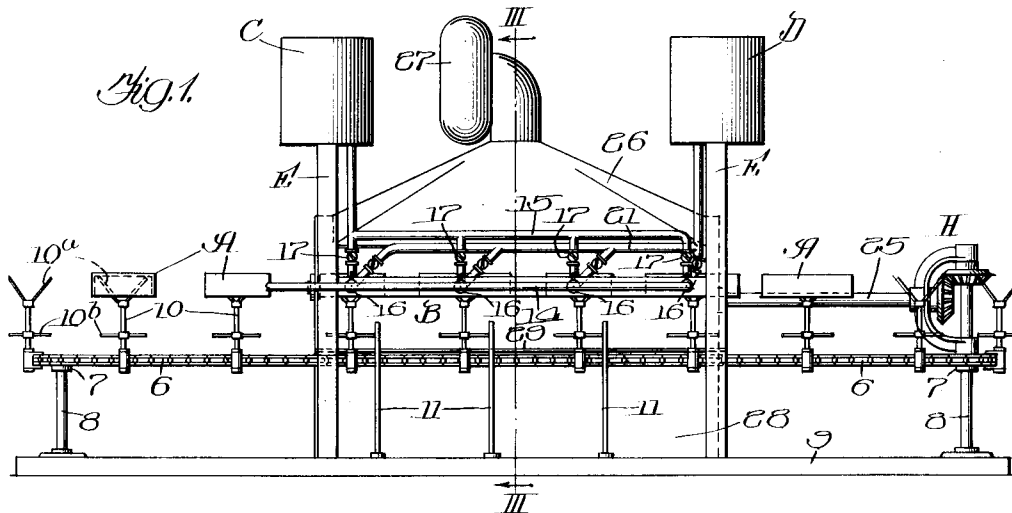


L. CARUSO & S. MORICI.
 APPARATUS FOR COATING ARTICLES.
 APPLICATION FILED SEPT. 16, 1913.

1,124,858.

Patented Jan. 12, 1915.

2 SHEETS-SHEET 1.



Witnesses:
 Jno. H. Nelson Jr.
 Julian H. Hendig.

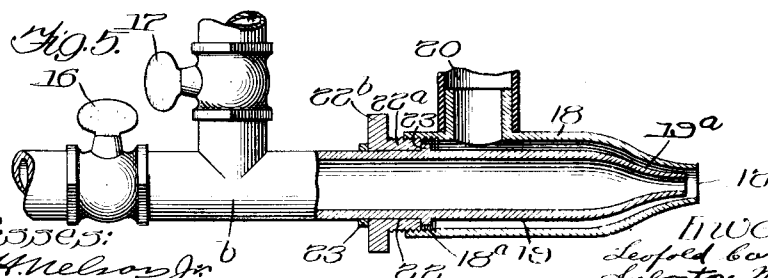
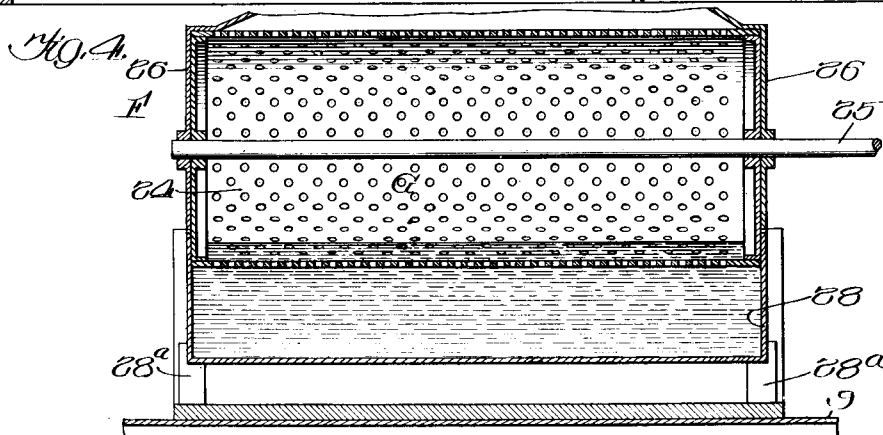
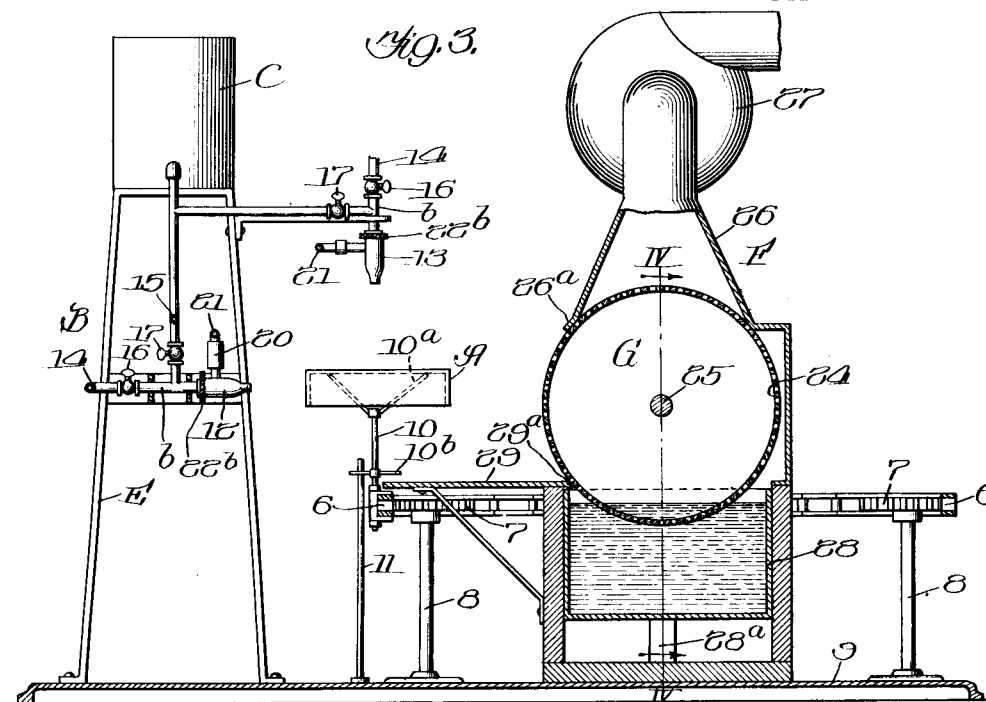
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2 SHEETS-SHEET 2.



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 Geo. H. Nelson Jr.
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 Leopold Caruso,
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UNITED STATES PATENT OFFICE.

LEOPOLD CARUSO AND SALVATORE MORICI, OF CHICAGO, ILLINOIS.

APPARATUS FOR COATING ARTICLES.

1,124,858.

Specification of Letters Patent.

Patented Jan. 12, 1915.

Application filed September 16, 1913. Serial No. 790,021.

To all whom it may concern:

Be it known that we, LEOPOLD CARUSO and SALVATORE MORICI, subjects of the King of Italy, and residents of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Apparatus for Coating Articles, of which the following is a full, clear, and exact description, reference being had to the drawings annexed hereto.

Our invention relates generally to apparatus for coating articles; and more particularly to machines of that class which are designed to direct a lacquer spray to blanks, such as telephone parts, as they pass through the spraying zone or field.

One of the objects of our invention is the provision of novel means in an apparatus of this character adapted to impart a step by step or intermittent rotation to the blanks as they pass through the spraying zone and thereby insuring their receiving a thorough coating of lacquer. Another object of the invention is the provision of novel means disposed in or adjacent to the spraying zone whereby the excess of lacquer, over and above that actually used in the application of the coating to the blanks, is withdrawn and localized in a receiving receptacle for further use, and which also constitutes a safety feature by affording a protection to the operator from the involuntary inhalation of lacquer spray.

A further object is to provide an improved and effective arrangement of sprayer parts, and more particularly in this connection to provide a novel spraying nozzle capable of receiving adjustment in order to regulate the volatility and range of the lacquer spray.

Our invention also contemplates certain novel details of construction, combination and arrangement of parts of the improved apparatus, whereby certain important advantages are attained, as will be more fully described hereinafter, and pointed out in the claims.

The foregoing, together with such other objects as may hereinafter appear, or are incident to my invention, we attain by means of a construction which is illustrated in pre-

ferred form in the accompanying drawings wherein:

Figure 1 is a front elevation of a lacquering apparatus constituting one embodiment of our invention; and Figure 2 is a plan view of the same.

Figure 3 is a central section taken through Figure 1 along the line III—III.

Figure 4 represents a partial vertical section of the means for exhausting and localizing superfluous lacquer illustrated at the right of Figure 3, and taken on the line EV—IV; and Figure 5 represents in enlarged detail a preferred form of one of the spraying nozzles.

Broadly stated, the invention pertains to a coating apparatus which contemplates the use of a traveling carrier having blank supports pivotally carried thereon for passing in a predetermined order blanks, such as telephone parts, through a spraying "field" or "zone", consisting of a plurality of grouped sprayers adapted to apply the lacquer or other coating to the said parts, which latter receive an intermittent rotation in passing the sprayers constituting the group. This step-by-step or intermittent rotary movement is designed to insure that a blank, such as is shown in Figure 2, shall receive a complete coating of the lacquer on all its sides.

The invention further contemplates the provision of mechanism disposed in or adjacent to the spraying zone, substantially in the manner as indicated more clearly in Figures 3 and 4, adapted to receive and localize the excess of lacquer spray through a perforated drum partially inclosed in a casing connected with an exhaust member which is designed to provide a suction through such perforated part of the drum not inclosed and confronting the sprayer. The drum is preferably journaled in the casing for rotation above a receptacle or tank containing a solvent designed to receive the excess of lacquer, and is mounted with respect to the tank in the manner shown, whereby the solvent cleanses the drum as it rotates, keeping the perforations unclogged and clear of the lacquer. This feature is important, and is particularly ad-

vantageous in protecting the operator against inhaling the excess lacquer spray, a condition usually present in the operation of other lacquering apparatus heretofore employed.

Referring to the drawings, it will be seen that we provide a traveling carrier, comprising the endless chain 6 mounted for movement in a horizontal plane on a plurality of sprockets 7 acutated constantly in one direction. The sprockets are mounted upon the shafts 8 which have their lower terminals carried in a suitable base 9, and serve as corner posts for the endless chain 6. Preferably all the sprockets turn freely upon the upper ends of their respective shafts, except one which may be suitably connected with any desired prime mover to drive the chain.

Positioned at intervals along the chain and pivotally mounted at its outer face are a series of blank supports, each consisting of a rod 10 provided at its upper end with a plurality of divergent and upwardly extending fingers 10^a, adapted to support the blank A, which is to receive a coating of lacquer from the group of sprayers indicated as a whole by the letter B.

The sprayers *b* comprising the group B are so positioned relative to the traveling carrier, that as the blanks in their progression enter the field of the sprayers, a spray of lacquer from each of the sprayers is successively directed to the blanks in turn. In order that all sides of the blank A when passing through the spraying field or zone receive a coating of lacquer, it is necessary to provide means for imparting rotary movement to it while in this spraying field. We have found in practice that a continuous or quick rotation of the blank before the sprayer, results in the application of a non-uniform coating, and to overcome this condition we have devised a means for rotating the blank on a short arc at suitable intervals, and obtain what might be termed a step-by-step or intermittent rotary movement of the blank.

To this end, therefore, the pivoted supporting rod 10 has formed thereon laterally extending arms 10^b provided intermediate its extremities, which arms cooperate with steps 11 to rotate the supporting rod and consequently its blank. The stops 11 extend upwardly from the base 9 a sufficient distance for contact with the arms, and are positioned in the spraying field at predetermined intervals with respect to the several component members of the spraying group B, whereby an uncoated portion of the blank A during its intermittent rotation is presented to the action of the next succeeding spraying member of the group until the blank has received its complete coating.

Referring more particularly to Figures 1, 2, and 3, it will be noted that where in this instance three stops are employed, the group B consists of four intervalled spraying members *b*, the nozzles of which are indicated by the numerals 12, and are each disposed to direct a lateral spray of lacquer to the article to be coated. One of the group members may include as a part thereof the overhead sprayer which is provided with the depending nozzle 13 positioned directly over the plane of blank travel for the purpose of coating the upper surface of the blank.

The spraying members *b* communicate with a rear pipe 14 connected to a source of compressed air, and each is provided with a T having a branch pipe connection 15 leading to a tank C containing the coating liquid or lacquer. The flow of air and lacquer through the member *b* and nozzle 12 is regulated by the cocks 16 and 17 respectively. Surrounding the nozzle end 12 of each of the members *b* is an outer tubular member 18, conforming generally to the shape of the inner nozzle but having a slightly larger diameter whereby to provide a restricted chamber or passage as at 19 for the flow of gasoline therethrough. The outer nozzle member 18 communicates through a flexible connection 20 with a branch pipe 21 leading from the gasoline tank D, which together with the lacquer tank C is supported in a plane above the feed members *b*, on a suitable frame E, the frame also serving to carry the pipes 14, 15 and 21.

In order to regulate the volatility and limit the range of the lacquer spray, means are provided to further restrict the passage or chamber 19 and decrease, (or increase), the flow of gasoline which mixes with the lacquer at the point of efflux. The means contemplated comprises the nut 22 mounted about the spray member *b* for rotary movement thereon, and held against longitudinal movement by the annular stop flanges 23 formed on the periphery of the member *b* to receive the nut. The latter is provided with an exteriorly threaded hub portion 22^a which receives the interiorly threaded socket portion 18^a of the outer nozzle 18, the nut also serving as a cap to close the rear end of the chamber 19.

For convenience in manipulating the nut 22, a handpiece is formed on the outer face thereof as shown at 22^b. Manipulation of the nut produces longitudinal movement of the outer nozzle member relative to the inner nozzle, thereby increasing or further restricting the exit 19^a of the chamber 19, as will be readily understood from an inspection of Figure 5.

Indicated as a whole by the letter F is the means provided for exhausting and localiz-

ing that excess of lacquer spray over and above the amount actually utilized in coating the blank, confronting the group of sprayers and suitably positioned to one side of the line of travel of the blanks to receive the superfluous lacquer spray. The said means comprises a perforated hollow drum 24 mounted on a shaft 25 journaled in the casing 26, which latter communicates at its upper end with an exhaust member 27, thereby constituting an induction chamber G. The casing is designed to inclose the perforated drum except for the open portion disposed in line with the lateral nozzles 12, which opening provides an induction aperture extending centrally across a portion of the front face of the casing.

That part of the casing located below the induction aperture is of box-like shape to receive the localizing receptacle or tank 28, which contains a solvent, such as gasoline. The tank normally rests on the block 28^a, removal of which permits the tank to be taken out and emptied when necessary. These blocks furthermore raise the tank sufficiently so that the drum 24 as it rotates passes through the solvent, cleaning the perforations of accumulated lacquer. The drum receives its rotary movement through the shaft 25 which preferably in turn is actuated by gearing H operatively connected with the endless chain 6.

Supported by the lower portion of the casing is a horizontal shelf 29 projecting into and below the line of blank travel, its inner marginal edge 29^a bent to fit easily against the periphery of the drum at the lower edge of the induction opening in the casing. Similarly the marginal edge of the casing 26 which defines the upper edge of the induction opening is bent as at 26^a to bear easily against the periphery of the drum as it rotates.

With the parts in position as described, the operation of the apparatus is substantially as follows. The line of blanks in entering the spraying field occupy a position midway of the spraying group and the induction chamber, and receive their intermittent rotary movement in the manner already set forth, as they progress toward the terminus of the field. By manipulating the adjustable nozzle the range of each of the sprays can be increased, or limited, as may be desired. The excess of lacquer spray is induced by the action of the exhaust to pass through the perforations of the drum and into the localizing tank for further use. The perforations of the drum are kept clear of the lacquer in that the drum is arranged to pass through the solvent contained in the localizing tank.

From the foregoing the essential features, elements, and operation of the apparatus, together with its simplicity and other ad-

vantages thereof, will be clearly apparent to those skilled in the art.

We do not intend to restrict ourselves to the exact details of construction shown, nor to the precise arrangement of certain parts, as it is obvious that variations thereof may be made without departing from the scope of our invention as pointed out in the appended claims.

Having thus described our invention, and illustrated its use, what we claim as new and desire to secure by means of Letters Patent, is the following:—

1. In an apparatus of the class described, the combination with a traveling carrier, of a blank support pivotally mounted thereon, a group of sprayers arranged to direct coating material to the blank as it is passed through the spraying-field by said carrier, the spraying members forming the group being disposed at intervals with respect to each other, and support engaging means positioned in the spraying field with reference to the intervalled group members so as to impart an intermittent rotary movement to the blank at points intermediate the group members, substantially as described.

2. In an apparatus of the character described and in combination, a traveling carrier for carrying blanks to be treated, a blank supporting member pivotally mounted on the carrier and formed with abutments, a plurality of intervalled sprayers for directing sprays of coating material to the blank as it is passed through the spraying-field by said carrier, and a plurality of stop members located approximately in the plane of blank travel for contact with the abutments in the spraying field and arranged in series with reference to said intervalled sprayers whereby the abutments successively engage with the stop members to impart an intermittent rotation to the blank on short arcs and intermediately of the sprayers.

3. In an apparatus of the class described; in combination, a spraying device for directing a spray of lacquer, or the like, to articles to be treated while in the spraying field, and means for receiving superfluous lacquer spray comprising an induction chamber confronting the spraying device and provided with an induction aperture in its wall, a solvent container in the chamber, a perforated rotary drum so mounted in the chamber as to have an arcuate portion of its periphery occupy a position in the induction aperture and another arcuate portion disposed below the plane of the upper edge of the said container, substantially as and for the purpose set forth.

4. In an apparatus of the character described, the combination of traveling means for carrying articles to be treated comprising an endless chain, spraying mechanism for directing a spray of coating material to

the articles while passing through the spraying field, induction means so located with reference to the spraying mechanism as to receive the excess of spray, said means including as a member thereof a perforated rotary drum, and driving connections between the drum and the said endless chain.

5. In an apparatus of the character described, the combination with a spraying device, of means for receiving excess spray therefrom comprising an induction chamber having an induction aperture confronting the spraying device, a movable screening member in said chamber and in operative relation with said induction aperture, and an exhaust member connected with said chamber and adapted to communicate with the induction aperture through the said screening member.

6. In an apparatus of the character described, the combination with a spraying device, of means for receiving and retaining excess spray therefrom comprising an induction chamber confronting the spraying device and formed with an intake aperture, a solvent container communicating with said

chamber, and a perforate rotary drum positioned in said chamber to have a portion thereof coinciding with said aperture and another portion disposed in said solvent container.

7. In an apparatus of the character described, the combination with a spraying device of means for receiving and retaining excess spray therefrom comprising an induction chamber confronting the spraying device and formed with an intake aperture, a solvent container communicating with said chamber, a perforate rotary drum positioned in said chamber to have a portion thereof coinciding with said aperture and another portion disposed in said solvent container, and means for actuating said drum.

In testimony whereof we have hereunto signed our names in the presence of the two subscribed witnesses.

LEOPOLD CARUSO.
SALVATORE MORICI.

Witnesses:

W. HERBERT FOWKES,
JOSEPH H. NICOLAI.