March 27, 1934. N. LANG 1,952,760

METALLIC COATING APPARATUS

Filed April 10, 1929

Fig. 1.

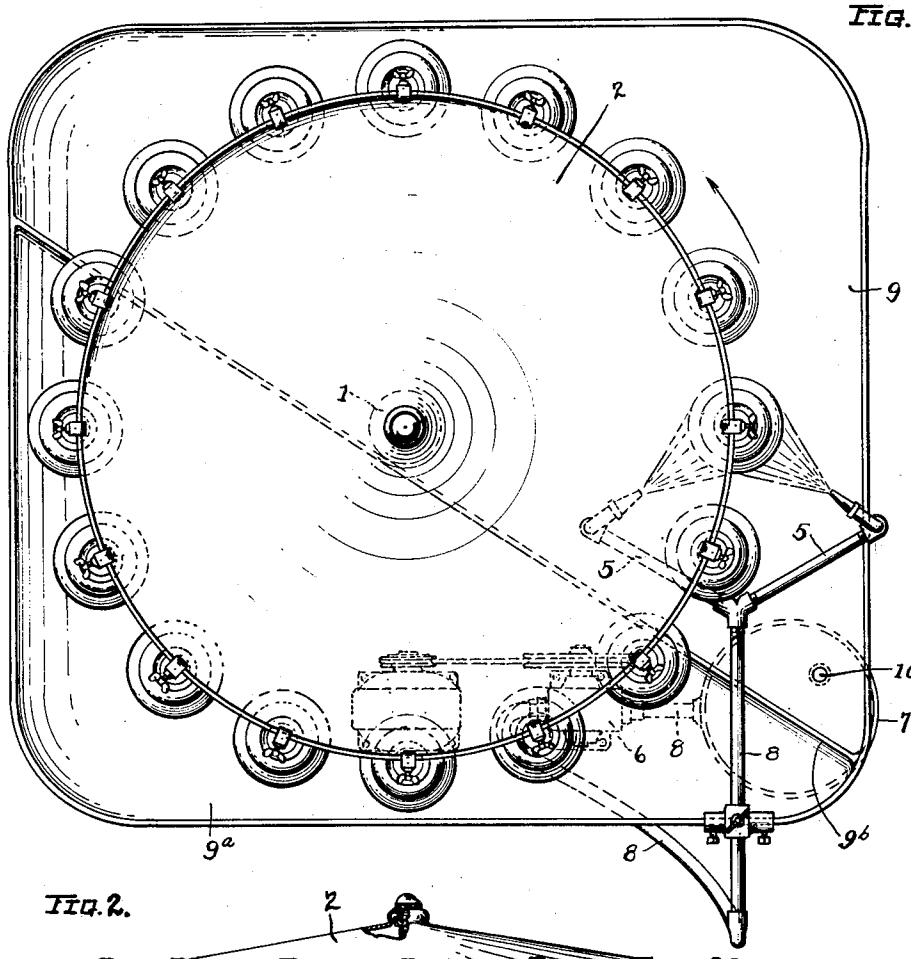
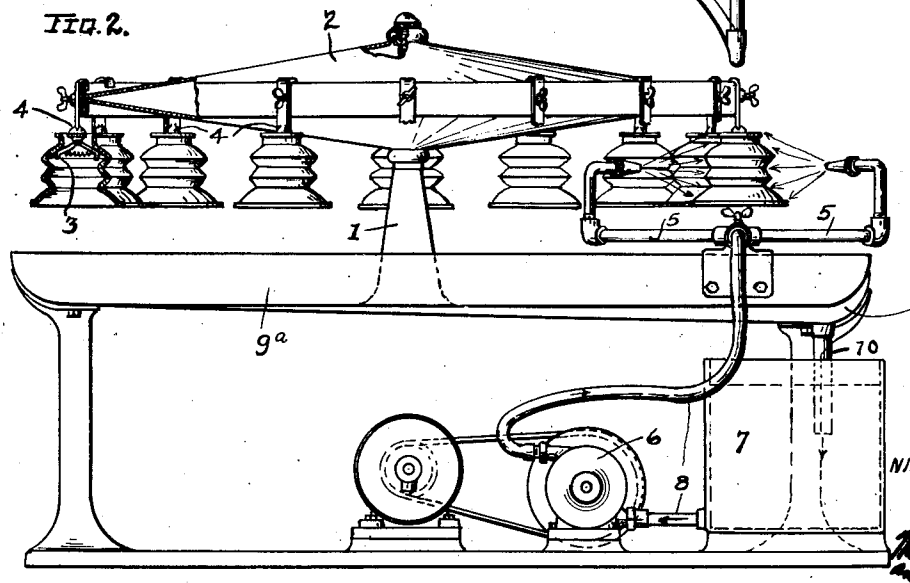


Fig. 2.



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METALLIC COATING APPARATUS

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8 Claims. (Cl. 91—44)

This invention relates to an improved form of apparatus for applying metallic coatings to reflectors and the like.

Heretofore in the application of metallic coatings to the outer surface of reflectors, there has been experienced certain difficulty in obtaining uniformity in the coating and when applied by hand, there has been required a considerable loss of time with increased cost of manufacture.

It is therefore the object of the present invention to devise an apparatus in which the coating is sprayed on to the reflectors in such manner as to insure the uniform degree of coating over the entire surface of the reflector and at the same time to apply the coating at such a rate of speed that there is afforded sufficient time for the drying of the same during its application.

A further object is to devise such a means in which there is eliminated the necessity of a mechanical or electrical motive means for bringing the series of reflectors into position to receive the coating.

Another object consists in devising such a system whereby the excess coating material may be recovered and employed over and over again with practically no loss during the entire process.

Other objects will be apparent from the following description and claims when considered together with the accompanying drawing.

Fig. 1 is a top plan view; and Fig. 2 is an elevation of my improved device.

The present invention as herein disclosed is illustrated as being employed in the application of a silver nitrate solution to the outer surface of glass reflectors which are successively moved into position with regards to the spraying means so as to receive the coating thereupon. It is to be understood, however, that this same invention may be employed for the purpose of applying various metallic coating compositions to other articles as well as reflectors, and for applying any kind of coating composition.

Upon the upper end of the standard 1, there is rotatably mounted the wheel 2 which is adapted to move in a horizontal plane and which has depending therefrom any number of holders comprising the spring fingers 3 and the swivel connections 4 which permit the fingers to be set at any desired angle according to the proper position for the reflectors during the coating operation. The spring fingers tend to open but may be closed sufficiently for insertion into the neck portion of the reflector and then released so as to engage the inner surface thereof, as a means of suspending the reflector therefrom. Any other suitable form of supporting attachment may be employed although the particular form herein disclosed is well adapted for the purpose intended.

The spray nozzles 5 from which the solution is directed on to the outer surface of the reflector, as illustrated in the drawing, are arranged in a substantially horizontal manner and bear such relation with respect to the reflectors and their rotary support that the force of the sprays from the nozzles will cause the reflectors to be rotated forwardly while at the same time, the particular arrangement of the spray nozzles 5 will cause the entire outer surface of the reflector to be covered with the coating material. Thus, the force of the spray of the coating material when directed in the particular manner herein disclosed is sufficient to cause progressive movement of the succession of reflectors, and hence there is effected rotation of the support 2 from which they are suspended, without the employment of any other motive means.

The coating solution is forced by means of the rotary pump 6 from the container 7 through the connecting tube 8 to the nozzles 5, these parts being supported in any suitable manner. After the coating material is applied in spray form to the outer surface of the reflector, there will be a certain excess portion which will drip from the reflector. The coating material which drips from the reflector during its travel over the first half of the circular path, is desirable to be recovered, but that which drips from the reflector during the second half of its circuit, is deteriorated and hence not desirable to be recovered. The desirable portion will drip on to the drip pan 9 arranged therebeneath. This drip pan is inclined in the proper manner and to a sufficient extent to permit the excess coating material received in the pan to drain through the opening 10 provided in the one corner thereof and to be received in the container 7. Thus, there is afforded a means of recovering the excess coating material which may be again employed in the spraying operation. The undesirable excess material is permitted to drip on to the pan 9^a which may have a waste drain opening. Pan sections 9 and 9^a are separated by a partition 9^b.

In carrying out the operation of the above-described device, the glass reflectors, after being thoroughly cleansed are supported from the holder members which are adjusted at the proper angular position so that the lower mouth

edge portion of the reflector will be substantially horizontal. In this way, the coating material will be applied uniformly as it is sprayed from the nozzles 5 which, as above stated, are arranged so as to direct the coating material over the entire outer surface of the reflector. Then, with the coating material in the container 7 and upon starting the pump 6, the spray will be applied to the reflectors as they are successively moved into proper position with respect to the nozzles 5. Upon manually starting rotation of the support 2 at the beginning of the operation, the force of the spray is sufficient to cause proper rotation of the reflectors at the proper speed after the operation has once begun. The coating material will gradually and uniformly become precipitated upon the reflector as it is being applied and the rotary support 2 is operated at such a speed as to permit such precipitation while maintaining the proper degree of moisture of the coating material upon the reflector. Thus, when the proper degree of coating has been applied, the reflectors are ready to be removed from the support shortly after completion of the spraying operation.

As a result of the present invention, it is possible to coat the reflectors in a thorough and uniform manner and it is possible for the coating to be produced upon the reflector in a progressive manner during the application of the coating material. Furthermore, there is avoided the necessity of a motive means for rotating the support from which the reflectors are suspended. Also, there is effected a further saving in the cost of material by the recovery of the excess material which may be used again. This particular device means a decided speeding up in the coating of reflectors and also a decided saving in the cost as well as an improvement in the finished product.

What I claim is:

1. In a device of the class described, the combination of a rotatable support mounted upon a vertical axis, means for mounting objects upon said support, said means permitting of angular adjustment with respect to the vertical axis, and means for spraying a coating material at one time about the entire body of each of the objects and for rotating said support.

2. In a device of the class described, the combination of a rotatable support mounted upon a vertical axis, means for mounting objects upon said support, spray means arranged with respect to the path of travel of said objects so as to cause rotation of said support co-incident with the spraying of the objects, and means for supplying coating material to said spray means.

3. In a device of the class described, the combination of a rotatable support mounted upon a vertical axis, said support being free of mechanical driving connections, means for mounting objects upon said support, and a single means for simultaneously applying coating material at one time to the entire surface of the objects in succession and causing rotation of said support.

4. In a device of the class described, the combination of a rotatable support mounted upon a vertical axis, said support being free of mechanical driving connections, means for mounting objects upon said support, and a spray means for simultaneously applying coating material at one time about the entire body of the objects in succession and causing rotation of said support.

5. In a device of the class described, the combination of a rotatable support mounted upon a vertical axis, universally adjustable means carried by said support and having spring fingers for releasably engaging only the inner surface of a globular object, whereby the objects may be set and maintained in fixed position upon said support during the coating operation, a single means for simultaneously applying coating material to the objects and causing rotation of said support, a container for the coating material, a drain means whereby the excess coating material may be recovered and returned to said container, said single means including a pump for causing application of the coating material from the container to the objects, said rotatable support being otherwise free of operating means therefor, and the objects being free of rotative movement about their own axis during the coating operation.

6. In a device of the class described, the combination of a rotatable support mounted upon a vertical axis, universally adjustable means carried by said support and having spring fingers for releasably engaging only the inner surface of a globular object, whereby the object may be set and maintained in fixed position upon said support during the coating operation, a single means for simultaneously applying coating material to the object and causing rotation of said support, a container for the coating material, a drain means whereby the excess coating material may be recovered and returned to said container, said single means including a pump and spray means for application of the coating material from the container to the object, said spray means being so arranged with respect to the path of movement of the rotatable support as to cause rotative movement thereof and to effect also uniform application of the coating material over the entire surface of the object, said rotatable support being otherwise free of operating means therefor, and the objects being free of rotative movement about their own axes during the coating operation.

7. In a device of the class described, the combination of a rotatable support mounted upon a vertical axis, universally adjustable means carried by said support and having spring fingers for releasably engaging only the inner surface of a globular object, whereby the objects may be set and maintained in fixed position upon said support during the coating operation, and a single means for simultaneously applying coating material to the objects and causing rotation of said support.

8. In a device of the class described, the combination of a rotatable support, adjustable means carried by said support and having yieldable means for releasably engaging only the inner surface of a globular object, whereby the objects may be set and maintained in fixed position upon said support during the coating operation, and a single means for simultaneously applying coating material at one time entirely to the outside of the objects in succession and causing rotation of said support.

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