Dec. 20, 1927.

1,653,255

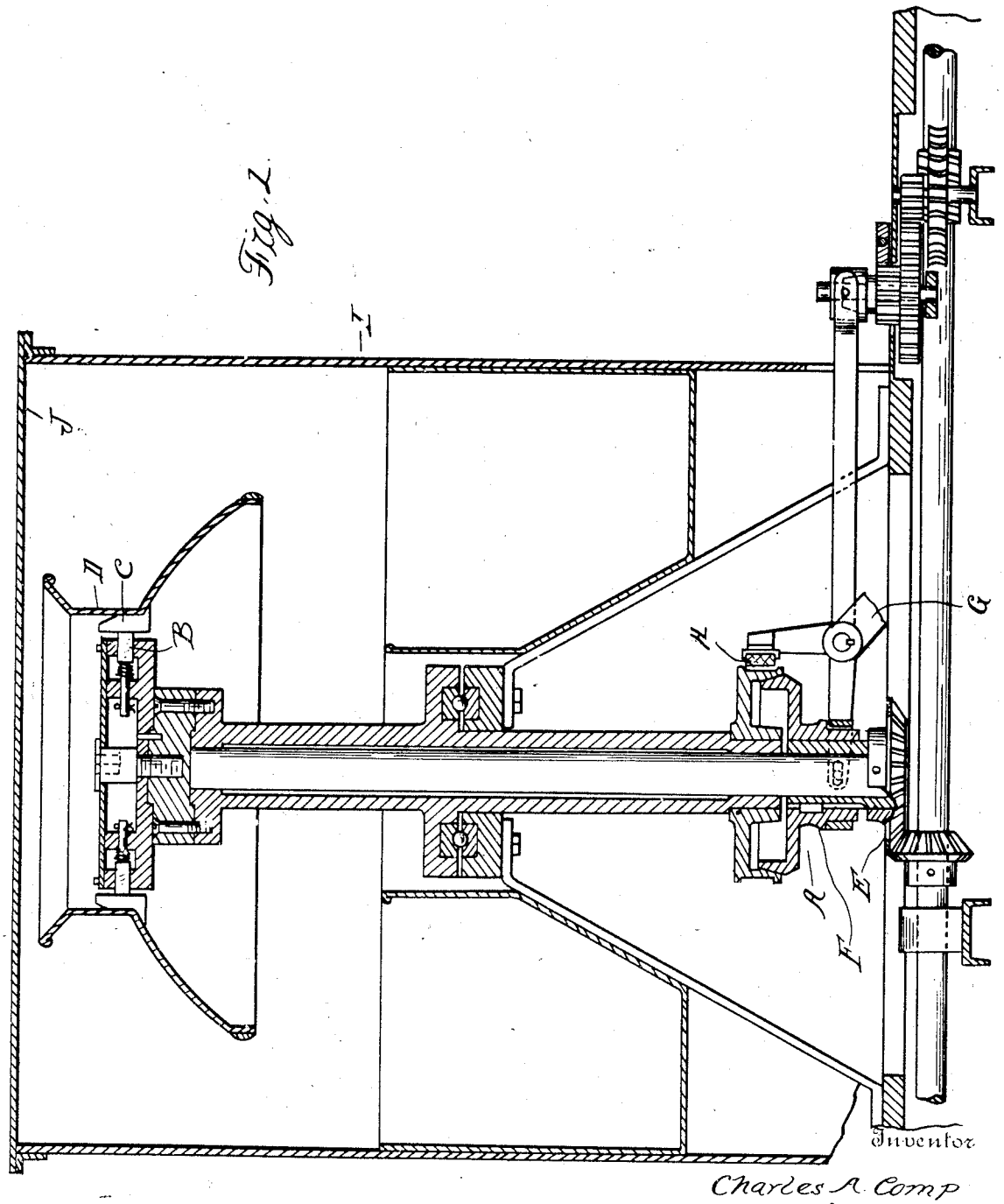
C. A. COMP

METHOD OF TINNING ARTICLES

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2 Sheets-Sheet 1

Fig. 1.



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Fig. 2.

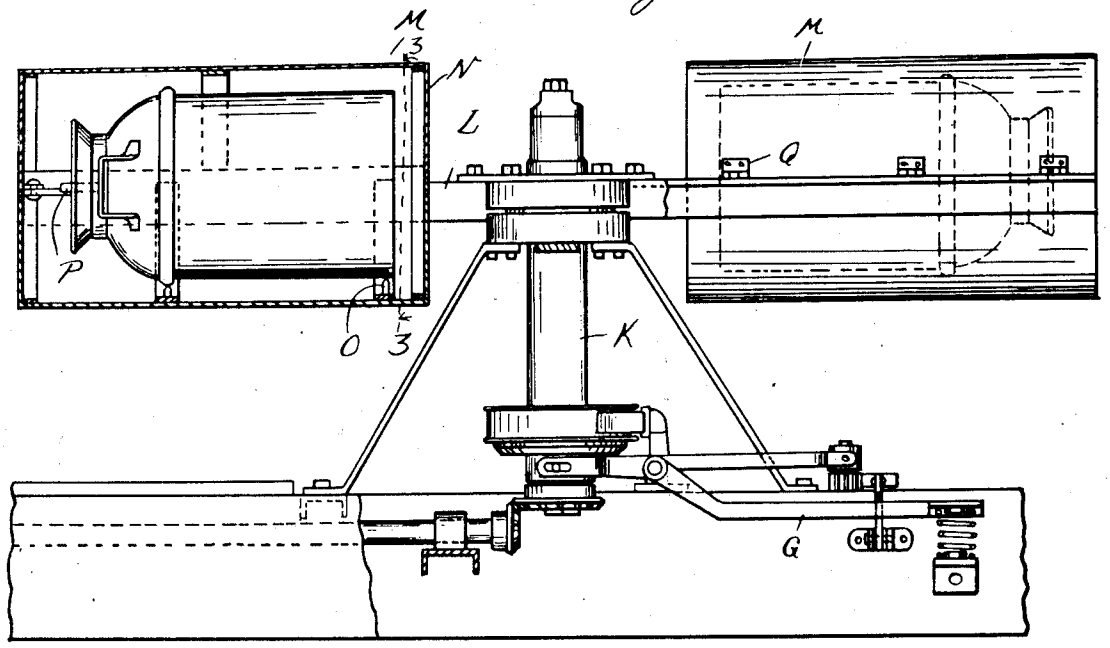
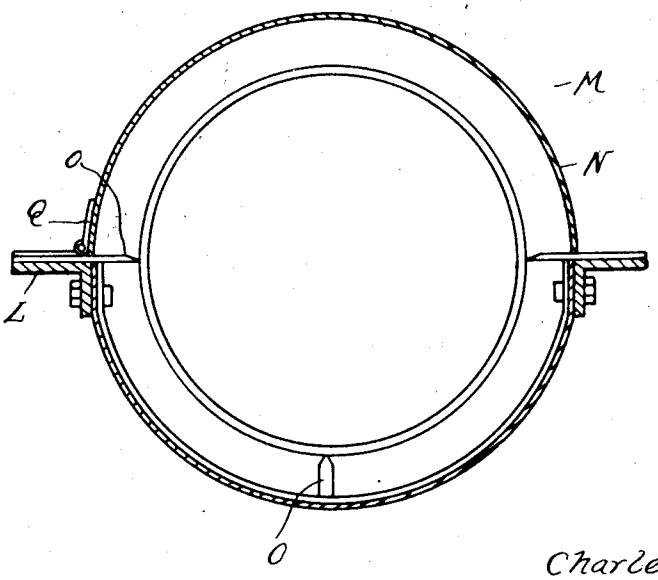


Fig. 3.



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UNITED STATES PATENT OFFICE.

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METHOD OF TINNING ARTICLES.

Application filed April 20, 1925. Serial No. 24,706.

The invention relates to an improvement in the process of tinning articles and the object is to provide a cheaper and better process which can be readily applied to the manufacture of articles such as milk cans and the like on a quantity production basis.

The chief difficulty in the tinning process is to obtain a smooth and even coating of the proper thickness and to secure these results it has heretofore been the practice to first provide a clean surface on the article and then alternately immerse the same in baths of molten tin and tallow. This process of alternate immersion must be repeated several times before the article is provided with a suitable coating having a good appearance and capable of standing up under ordinary usage.

One of the objects of my invention is to eliminate the use of tallow stripping baths and to provide a process where a single immersion in molten tin is sufficient to obtain a good coating. Another object is to increase the speed of the process, while a further object is to better the quality of the tinned articles by providing a smoother coating having a better appearance. These and other objects are attained by the process as hereinafter described and illustrated in the accompanying drawings, wherein:

Figure 1 is a longitudinal section of a spinner;

Figure 2 is a similar section of a modified form of spinner;

Figure 3 is a section on the line 3—3 of Figure 2.

According to my invention the articles such as completely assembled milk cans or parts used in their manufacture are cleaned in the usual manner, preferably by pickling and are then immersed in a bath of molten tin maintained at a temperature of approximately 100° above the melting point thereof. The article is then removed from the bath and quickly inserted in a spinning machine where it is rapidly rotated in order that the excess tin may be removed by centrifugal force and the coating given a smoother appearance. The article may be secured to the machine either to rotate about its own axis as in the case of the tinning of parts, such as milk can breasts, or to have its axis arranged radially of the spinner, the latter arrangement being preferable when tinning the assembled milk cans. It is also desirable to provide an enclosure for surrounding the article while in the machine in order to protect it from air currents and maintain the temperature above the melting point of the tin until the rotation has stripped the excess tin from the surface.

The process as above described results in a very smooth finished surface since the tin covers up all of the rough spots in the metal. Furthermore, the process can be quickly carried out for it requires only from four to twelve seconds rotation to complete the operation.

In Figure 1, I have illustrated a machine adapted to be used in my improved tinning process and fully described in my copending application Serial Number 24,707, filed April 20, 1925. In general this machine comprises a rotatable spinner A having the work holder B in which are arranged the spring pressed plungers C for engaging the inner surface of a milk can breast D. This machine is driven through suitable gearing E from a motor (not shown) and is provided with a clutch F for intermittently rotating the spindle. The clutch is operated by a foot pedal G, the latter also actuating the brake shoe H for stopping the rotation of the spindle when the clutch is disengaged. A cylindrical housing I surrounds the spinner unit and is provided with a cover J permitting the insertion of the work in the housing in order to mount the same on the spindle. With this construction, the article after having been withdrawn from the bath of molten tin is quickly placed upon the spindle and the foot pedal G is immediately depressed in order to cause the article to be rotated. The spindle is arranged to be rotated at a suitable speed for example, from 150 to 300 R. P. M., this being sufficient to cause the excess tin to be stripped from the article by centrifugal force. It will be understood, of course, that a suitable automatic mechanism may be employed for stopping the rotation of the spindle after a predetermined rotation, a mechanism of this type being described in the copending application above referred to.

The new process may also be applied to the tinning of hollow articles such as milk cans, but with articles of this type the stripping of the tin can not be effected by rotation about the axis of the work because the body

of the can is of larger diameter than the open end thereof. It is, therefore, necessary to provide a different type of spinner in which the article is mounted radially of the spindle in order that the excess tin on the interior surface may be removed. Figure 2 illustrates a machine of this character having a vertical spindle K from which extend the radial arms L carrying at their outer ends the containers M. Each container is preferably formed with a housing N having inwardly projecting pins O adapted to support the milk can with its axis extending radially of the spindle. Suitable stops P are arranged within the housing to prevent outward movement of the article under the action of centrifugal force. For introducing the work into the container the upper portion of the housing is hinged at Q so that the milk can may be quickly inserted as soon as it is removed from the tin bath.

It is important that the temperature of the article be maintained above the melting point of the tin until after the excess metal is stripped from the surface and in the machine where the articles are mounted radially of the spindle it would be impossible to maintain this temperature if the article were exposed to the atmosphere during the rotation. Therefore, it is essential that a closed container surround the article while it is being subjected to centrifugal force, not only to retain the temperature but to protect the article from the force of air stripping and marring the finished surface.

What I claim as my invention is:—

1. The method of tinning articles comprising the immersing of the article in a bath of molten tin, removing the same from the bath, mounting said article rigidly, and immediately spinning the article to remove excess tin while shielding the same from air currents set up by the said spinning.

2. The method of tinning milk cans which consists in immersing a completely fabricated milk can in a vat containing molten tin, removing the same therefrom, mounting the milk can adjacent a shield and moving the milk can to remove excess tin from the same while maintaining the milk can adjacent the shield to protect the milk can from all air currents.

3. The method of tinning articles which consists in immersing the article in a vat of molten tin, removing the same therefrom, rigidly mounting the article in a container, and revolving the container with the article rigidly mounted therein.

4. The method of tinning an article which consists in immersing the article in a bath of molten tin, removing the article from the bath and immediately revolving the article to remove excess tin while shielding the same from air currents set up by the said revolving action.

5. That step in the method of tinning an article which consists in moving the article through a predetermined path to remove excess tin from the same while shielding the article from all air currents set up by the movement of the same.

In testimony whereof I affix my signature.

CHARLES A. COMP.