PROCESS FOR APPLYING A PROTECTIVE COATING TO METAL SURFACES

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Filed Mar. 31, 1961, Ser. No. 99,725

Claims. (Cl. 117—16)

This invention relates to a process for applying a protective coating to metal surfaces.

It is conventional practice after machining or stamping metal parts to place them in a finishing barrel to remove burrs and rough edges. The parts are subsequently cleaned and then stored until used. It has been found, however, that these finishing and cleaning steps remove certain protective oils and greases from the surface of the metal, causing the latter to be susceptible to rusting within a short period of time.

It is the principal object of this invention to provide a process for applying a protective coating to the surfaces of metal parts by placing them in a container in which is a mixture comprising a solid coating material and a carrier, the container being agitated to cause the solid coating material and metal parts to repeatedly come in contact with each other, to gradually transfer the coating material to the surfaces of the metal parts.

Another object is to provide a process of the character described in which the solid coating material comprises small pieces of a wax base solid intermingled with a carrier of a finely comminuted dry material.

A further object is to provide a process for applying a protective coating to metal parts in which the coating may be readily and rapidly applied to multiple parts simultaneously, which coating is of a uniform predetermined thickness.

The process of the present invention is particularly adapted to be employed subsequent to the finishing and cleaning of machined or stamped metal parts. It is to be understood however that the process of the present invention may be used whenever it is desired to apply a protective coating to relatively small objects made of any type material.

In carrying out the objects of the present invention any suitable container may be used such as, for example, an open or closed drying barrel capable of rotating on its longitudinal axis. The parts to be coated may be placed in the container after which the mixture for carrying out the coating process is placed therein. This mixture includes first of all a carrier or vehicle which is preferably of a finely comminuted dry material. Optimum results are obtained with a ground and cleaned corncob meal commercially known as maize. Sawdust may be employed as the carrier if so desired. Various other like materials may also be employed.

The solid wax base coating material may be paraffin pellets, blocks of any size or fine granules of wax which is soft enough to rub off onto the parts being coated. Commercial paraffin wax such as Bowax No. 993 has proven very satisfactory in use.

In use, after the metal parts and mixture have been placed in the container the latter is rotated on its longitudinal axis for one or two minutes during which time the pellets or pieces of wax repeatedly contact the metal surfaces and gradually the wax adheres to the entire surface area thereof. A smooth and even coating of metal surfaces has been obtained by employing a tumbling barrel which is one-half full of a mixture of three parts corncob meal and one part paraffin which has been ground to a fine screen size. Rotation of the metal parts in such a mixture for one or two minutes produces a thin wax coating on the metal surfaces that will protect the latter for an indefinite period of time.

The corncob meal or sawdust serve to prevent adhesion of the solid wax pieces to each other and also to prevent uneven application of the coating to the metal surfaces.

The thickness of the wax coating can be controlled by changing the ratio of the solid coating material and carrier. If a thin coating is desired then the amount of wax in the mixture is reduced. Sufficient corncob meal or sawdust should be used at all times to cover the parts.

After tumbling the parts in the above manner they may be removed in any suitable way such as by dumping and separating them by a screen.

With the process of the present invention parts made of metal or any other material to which it is desired a coating material be applied, may be rapidly treated to prevent rusting. It has been found that thousands of relatively small parts can be coated in less than five minutes' time.

While the present process above set out particularly specifies the use of certain materials such as paraffin, it is to be understood that many other solid materials having a wax base may be employed.

Various changes may be made within the scope of the claims hereto appended.

What is claimed is:

1. A process for applying a protective coating to surfaces comprising placing the parts to be coated in a container, adding a mixture comprising a solid wax base coating material and a carrier to the container, and agitating the container to effect contact of the coating material with the surface of the parts, the solid wax base coating material leaving a deposit on the surfaces.

2. The process of claim 1 wherein the wax base substance is of the consistency of paraffin.

3. The process of claim 1 wherein the solid wax base coating material is mixed with a dry comminuted material.

4. The process of claim 3, wherein the dry comminuted material is corncob meal.

5. The process of claim 3, wherein the dry comminuted material is sawdust.

6. A process for applying a protective coating to metal surfaces comprising the steps of placing a mixture of three parts corncob meal to one part paraffin ground to a fine screen size in a tumbler, placing the metal parts to be coated in the mixture, and actuating the tumbler to apply a thin wax coating on the metal surfaces.

7. A process for applying a protective coating to surfaces comprising placing the parts to be coated in a container, adding a mixture comprising pieces of solid wax material and dry comminuted material to the container, and agitating the container to effect contact of
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the solid wax material with the surfaces of the parts, the solid wax material leaving a deposit on the surfaces, the thickness of which varies in direct proportion to the ratio of the solid wax material to the dry comminuted material.

8. The process of claim 7 wherein the solid wax material is paraffin.

9. The process of claim 8 wherein the dry comminuted material is corn cob meal.

10. The process of claim 8 wherein the dry comminuted material is sawdust.

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