

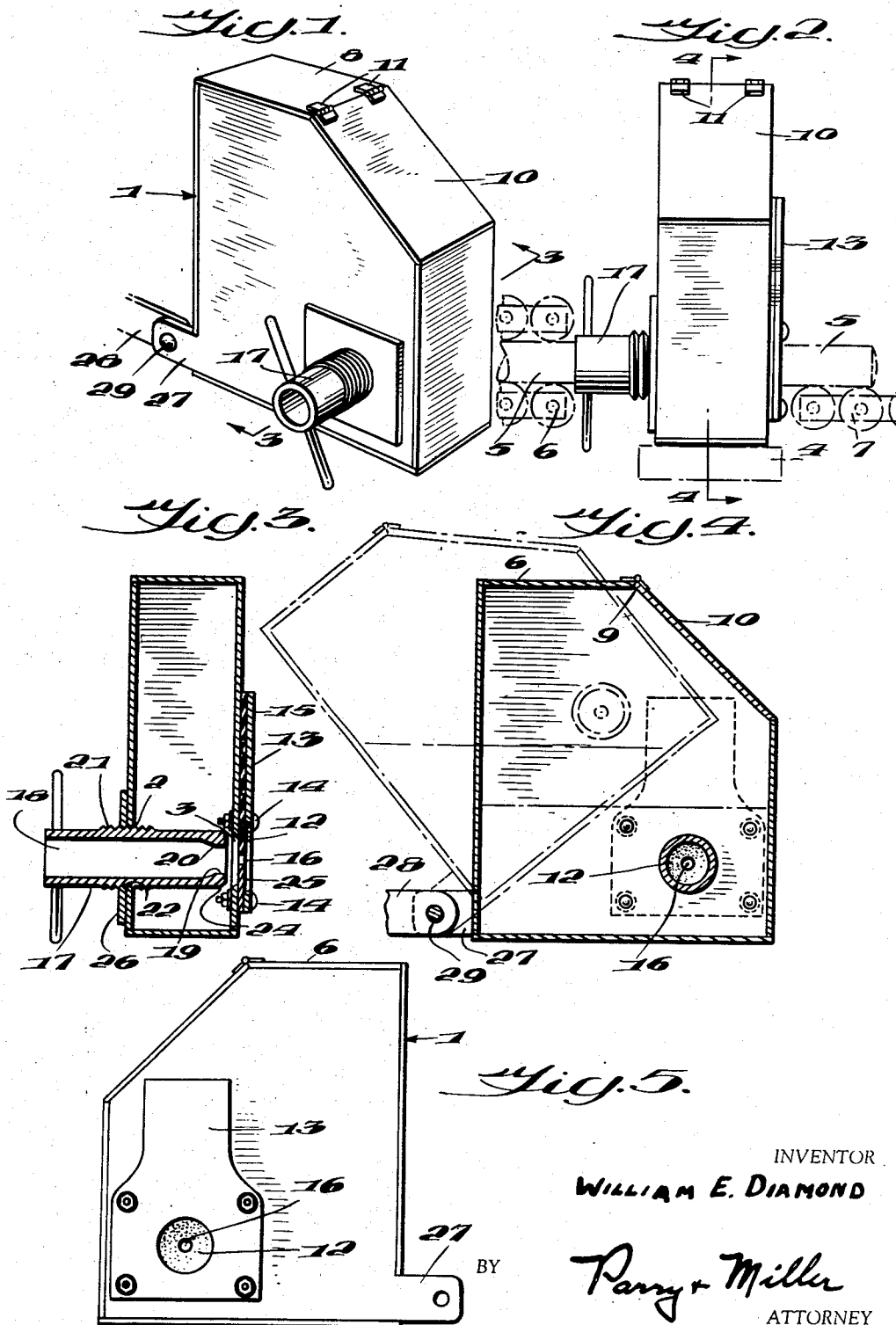
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COATING DEVICE FOR COATING ELONGATED OBJECTS

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COATING DEVICE FOR COATING
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1

This invention relates to coating or treating devices for applying coating and/or treating materials to various types of articles, and more particularly to a device of this type designed to apply the material by means of a wiping action.

A primary object of the invention is the provision of a coating device for articles which is relatively simple and economical in construction and which may be operated with minimum labor and operating costs.

Another object of the invention is the provision of a coating machine which will apply a controlled amount of coating or treating material to an article and spread it evenly over the surface thereof with a wiping action.

Still another object of the invention is the provision of a coating device which is compact and clean in operation and which tends to eliminate fire and other hazards associated with spraying and other type coating operations.

A further object of the invention is the provision of a coating device in which the parts thereof are readily accessible for adjustment or replacement and in which, if desired, such adjustment or replacement may be accomplished without removing the coating material therefrom.

Another object of the invention is the provision of a coating device which will coat articles of various shapes and sizes.

These and other objects and advantages of the invention will be apparent to persons skilled in the art from a consideration of the attached drawings and annexed specification illustrating and describing a preferred embodiment of the invention.

In the drawings—

Fig. 1 is a perspective view of a device embodying the invention;

Fig. 2 is a front view of the device showing article-feeding and discharging means;

Fig. 3 is a cross-sectional view of the device on the line 3—3 of Fig. 1;

Fig. 4 is a cross-sectional view of the device on the line 4—4 of Fig. 2; and

Fig. 5 is a side view of the device.

In general, the improved coating or treating device of the invention comprises a container for holding the coating or treating material having opposed openings therein for passage there-
through of articles to be coated, means for guid-
ing the articles to be coated through the con-
tainer and for applying controlled amounts of
coating or treating material thereto as they pass
through the container, and means for spreading

2

the material on the surface of the articles and for removing excess material as they pass out of the container. The invention further contemplates an arrangement wherein the device may be tilted to expose the working parts thereof above the level of the treating material for adjustment, replacement and the like.

Referring now to the drawings, the numeral 1 designates a container for holding a supply of coating or treating material and having opposed openings 2 and 3 therein for passage of articles through the container. The container 1 may be mounted on a table, bench, or other suitable type of support 4. The articles to be treated or coated, for example implement handles 5 and the like, are fed to the container by any suitable type of conveyor means such as that indicated by the numeral 6. Articles are discharged from the container onto a conveyor 7 and conveyed to another similar type of machine for the application of an additional coating or to other devices for further processing as desired.

The container 1 is preferably, though not necessarily parallelepiped in shape and has a liquid-tight cover 8 over the rear top portion thereof so that it may be tilted to the rear, as herein-after described, to expose the working parts of the device above the level of the treating material therein without spilling it. The top front corner portion of the container forward of the cover 8 is preferably cut off diagonally, as shown, and the inclined open portion 9 so formed, covered by a lid 10 hinged to the cover 8 by hinges 11. This arrangement permits ready access to the interior of the container through the open portion 9 and together with the cover 8 permits tilting of the container without spilling the contents thereof as referred to above.

The container 1 is preferably made of metal, for example sheet steel welded or otherwise secured together in the desired form. The size of the container may be varied as desired to suit the intended application thereof.

A resilient gasket member 12, preferably formed of rubber or similar elastic material, is held in sealing engagement with the container 1 over the opening 3 therein by means of a plate member 13. The plate member 13 is removably attached to the side of the container by means of bolts and nuts 14, screws or the like. The gasket 12 is preferably formed as part of a continuous strip 15 containing spaced openings 16 therein which may be successively aligned with the opening 3 of the container as required. This permits ready replacement of a worn gasket

merely by loosening the attaching means of the plate 13 and sliding the strip 15 thereunder to bring a new opening of the gasket into register with the opening 3. The strip 15 may be provided with openings of the same size for ready replacement of worn portions or of different sizes to permit ready adjustment of the device for different sized articles.

For most purposes the opening in the gasket will be circular and of a size such as to handle articles having a variable diameter as well as those having a uniform diameter. In the former case the gasket will expand and contract to fit the article by virtue of its inherent resilience or elasticity. The openings in the gasket may also be polygonal in shape such as square, hexagonal and the like, to fit similarly shaped articles. The size of the opening will be somewhat less than that of the article to be treated so that the edges of the gasket material around the opening are firmly pressed against the article to obtain an effective wiping action.

Although it is advantageous from an operating standpoint to employ a strip of material having a series of openings therein, it is equally effective to use individual gaskets having a single opening. In such cases replacement is made by removing the old gasket and inserting a new one.

In accordance with the invention the means for guiding the article through the container and for controlling the amount of treating material applied thereto comprises an elongated sleeve or valve member 17 having a passageway 18 therethrough for passage of the articles to be coated. The passageway 18 is slightly larger than the size of the article to be treated but not large enough but what it will hold the article substantially straight out until it is ready to drop on the conveyor 7.

In a preferred construction the passageway 18 has a constricted portion 19 adjacent the inner discharge end thereof which more closely surrounds the article so as to effectively guide it through the aperture in the gasket member. A gently curving portion 20 connects the constricted portion of the passageway with the enlarged portion so as not to obstruct the passage of the article therethrough. Exteriorly thereof the sleeve-like member 17 is provided with threads 21 which screw-threadedly engage threads 22 in the wall of the container surrounding the opening 2 for adjustably mounting the sleeve-like member in the container. Handles 23 are provided for rotating the sleeve-like member 17 so that it may be easily adjusted as desired.

The sleeve-like member 17 extends substantially across the container toward the opening 3, and has a beveled valve seat-engaging portion 24 for cooperation with a beveled valve seat 25. The valve seat 25 is preferably formed in the wall of the casing around the opening 3, but alternatively may be formed in a sleeve or the like attached to the wall. The valve seat engaging portion 24 is movable into sealing engagement with the valve seat 25 to completely shut off the flow of coating material from the container or to any desired position in spaced relation thereto to control the flow of material from the container to the article to be treated. To assist in holding the sleeve or valve member 17 in proper aligned position a reinforcing plate 26 may be suitably attached to the wall of the container 1 around the opening 2 therein and suitably threaded to receive the threads of the sleeve member.

During operation of the device the level of coating material in the container is maintained somewhat above the openings therein as shown, for example in Fig. 4. Articles to be coated are forced into the passageway 18 of the sleeve-like member 17 and through the constricted portion 19 and opening 16 in the gasket member 12, by any suitable feeding means such as the conveyor 6 or by hand. The supply of coating material supplied to the article 5 is controlled by properly adjusting the valve or sleeve-like member 17 so that the beveled end portion 24 thereof is properly spaced from the beveled seat 25. Such adjustment will depend on the character of the treating material, speed of movement of the article through the device, the type of article being coated, and the like. If the operation of the device is suspended temporarily, a slight seepage of coating material back through the sleeve member and out of the end thereof may take place. For temporary shutdowns of short duration such seepage is not objectionable and may be caught in a suitable receptacle positioned beneath the end of the sleeve member. However, if it is desired to prevent such seepage, and particularly where shutdowns of long duration are contemplated, the valve member 17 may be adjusted so that the beveled end 24 thereof is brought into sealing engagement with the beveled valve seat 25 to completely shut off the flow of treating material therethrough.

If it is desired to adjust or replace the valve member or the gasket member without removing the treating material from the container, means are provided whereby the container may be tilted upwardly about its lower rear corner, as shown in broken lines in Fig. 4, until the liquid level therein is below the openings 2 and 3. For this purpose extensions or lugs 27 are provided at the rear lower corner of the container 1 and these are hingedly connected with stationary support brackets 28 by a pin 29. To facilitate this operation the openings 2 and 3 are positioned adjacent the front lower corner of the container at points such that when the container is tilted back the level of the treating material may readily be brought below the openings.

The device of the invention may be used to coat articles of various sizes and shapes such as round, square, hexagonal or the like. For limited variations in size and shape of articles a single design of valve member 17 and gasket 12 will suffice to provide the desired coating action. However, for larger variations in size and shape it is preferable to provide a series of interchangeable valves and gaskets each designed to handle a particular type of article. The parts may then be readily interchanged as required to coat a particular type of article.

The device of the invention may be used alone to apply a single coating of material to articles or may be used in combinations of two or more arranged in series to apply a desired number of coatings of the same or different materials to the articles. In the latter case suitable conveying, drying and/or other means may be arranged between the individual devices to provide the proper treatment conditions.

In one application of the device in a handle plant one of the coating devices of the invention is set up to apply a coat of sealer on the handles as they come through the sanders, and another is set up to apply a coat of whatever color lacquer is desired as they come from the buffer

sanders. Other coatings are applied as desired by additional machines.

It will thus be seen that the present invention provides a simple, economical and efficient coating machine which may be operated with minimum personnel and labor costs. The device may be easily and quickly adjusted or parts replaced without removing the treating material therefrom. All parts are readily accessible and easily adjusted or changed. During operation of the device the treating material is applied in controlled amounts to an article, thus eliminating waste and providing an effective and uniform coating. During periods of shutdown the valve member may be quickly and easily closed to prevent any possibility of leakage of treating material from the container.

Although I have illustrated and described my invention with particular reference to one preferred embodiment thereof, I do not intend that it be limited to the details of construction shown and described, as the scope of the invention is best defined in the appended claims.

I claim:

1. A coating device comprising a container for coating material having opposed openings in opposite walls thereof, a sleeve member adjustably mounted in one of said openings and extending across the container toward said other opening, a seat on the end of said sleeve member opposite said other opening, a valve seat in the casing wall around said other opening for cooperation with the seat on said sleeve member, said sleeve member being movable toward said other opening to bring the seat thereon into sealing engagement with the valve seat and away from said opening to provide a desired clearance therebetween, and a resilient gasket member formed as part of a continuous strip mounted on said container and covering said other opening, said strip having a series of apertures therein each of which may be selectively aligned with the axis of said openings and being substantially smaller than said other opening.

2. A coating device comprising a container for coating material having opposed openings in opposite walls thereof, a resilient gasket member sealingly engaging one of said walls around the opening therein for wiping the surface of an article as it passes through said container, said gasket member being formed as part of a continuous strip having a series of apertures one of which is aligned centrally of the opening, a sleeve member associated with the other opening and having a passageway therein for guiding an ar-

icle to be coated through said container and apertured resilient gasket member, valve means on said sleeve member, a valve seat in said one wall of the container surrounding the opening therein for cooperation with said valve means, said sleeve member being adjustable toward and away from said valve seat to control the supply of coating material to an article passing there-through and being movable into sealing engagement with said valve seat to shut off the flow of coating material from said container through the aperture in said gasket member thereby permitting replacement or repair of said gasket member without draining the coating material from the container.

3. A coating device comprising a container for coating material having opposed openings for passage there-through of an article to be coated, apertured gasket means covering one of said openings, said means being formed as part of a continuous strip having a series of apertures, one of which is aligned centrally of said one opening to wipe the excess of coating material from the article.

4. A coating device comprising a container for coating material having opposed openings for passage therethrough of an article to be coated, apertured gasket means covering one of said openings, said means being formed as part of a continuous strip having a series of apertures one of which is aligned centrally of said one opening, an apertured plate overlying the strip and means securing it to the container, the aperture in the plate being of substantially the same size as said one opening in the container, the plate securing means being adapted to be loosened, whereby the plate may be spaced from the strip to permit selection of any one of the apertures therein to wipe the excess of coating material from an article.

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