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APPARATUS FOR COATING OBJECTS WITH SUBDIVIDED MATERIAL.

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1,068,733.

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Fig. 1.

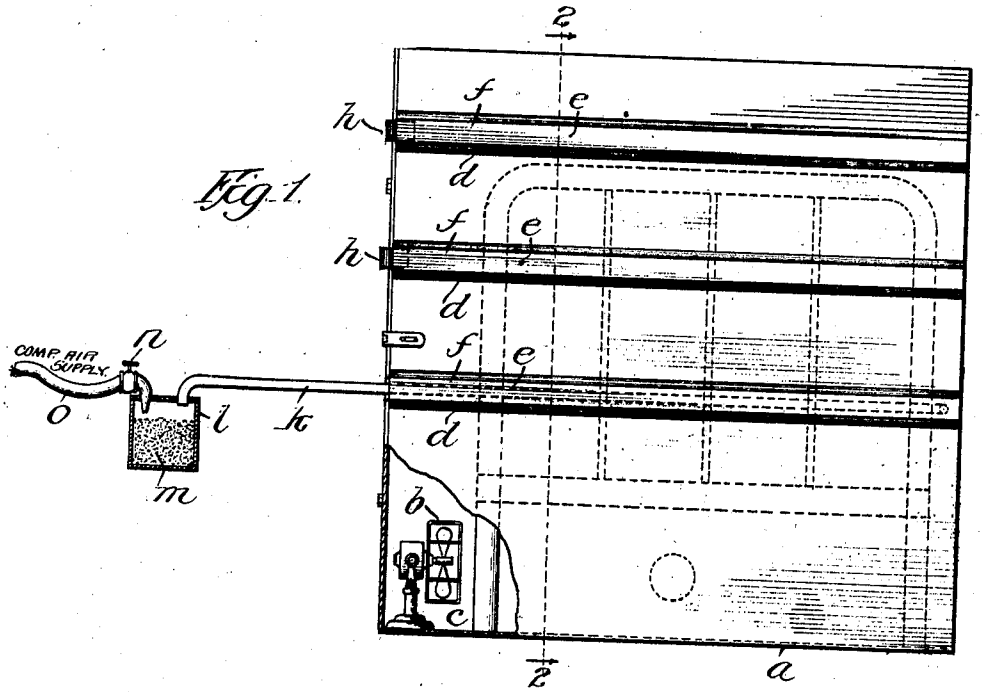


Fig 3

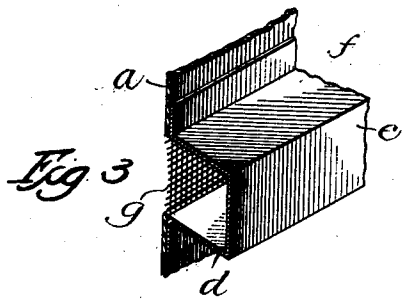


Fig 2

Fig. 4.



Witnesses:

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR COATING OBJECTS WITH SUBDIVIDED MATERIAL.

1,068,733. Specification of Letters Patent. Patented July 29, 1913.

Application filed October 24, 1910. Serial No. 588,730.

To all whom it may concern:

Be it known that I, FRANKLIN F. BRADLEY, citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Apparatus for Coating Objects with Subdivided Material, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to apparatus for coating objects with comminuted, subdivided or powdered material and is of particular service in spreading bronze powder upon objects whose surfaces to be coated are covered or painted with suitable adhesive material or paint, which in its fresh state holds the powder scattered thereupon and in its dry state firmly fixes the powder in place.

In accordance with one feature of my present invention I employ a receptacle having a door for permitting the objects, such as metal bedstead parts, to be inserted therein and withdrawn therefrom. In accordance with the present feature of my invention I provide air agitating mechanism, such as a motor driven fan, within the receptacle so that the air may be caused rapidly to swirl within the receptacle to carry the subdivided material with which the air is laden to all exposed parts of the structure to be coated.

The apparatus described in this application is simpler than the apparatus described in my companion applications in that there need be no multipled inlet openings for incoming air and no multipled outlet openings for outgoing air, agitating mechanism within the casing being so arranged as to effect desired swirling movements of the air to obtain the results described. There are some features of my invention, however, that do not depend upon the location of the fan within the receptacle and I do not therefore wish to limit all embodiments of my invention to the location of a fan within the receptacle.

Another feature of my invention relates to providing means whereby the subdivided material may be caused to be more plentiful within certain parts of the receptacle as compared with other parts and in carrying out this feature of my invention I desirably employ one or more shelves upon which the bronze powder, or other subdivided material, may be lodged and from which such subdivided material is withdrawn by the operation of the fan within the receptacle.

As another feature of my invention I employ a nozzle which is shiftable in position and which may be projected within the receptacle, this nozzle being desirably inserted within the receptacle where the shelf or shelving is located. Means are employed for causing a supply of the subdivided material to be passed through the nozzle, the material being discharged from the nozzle into the receptacle at various points accordingly as the nozzle is adjusted in position, and inasmuch as the nozzle is preferably inserted where the shelving is located, the subdivided material may be led from the nozzle upon the shelving and may thereafter be removed from the shelving by the operation of the fan within the receptacle.

I will explain my invention more fully by reference to the accompanying drawing showing a preferred embodiment thereof, and in which—

Figure 1 is a side elevation, partially broken away, of a receptacle and contents, means for supplying the subdivided material to the receptacle being shown at the left thereof; Fig. 2 is a sectional view on line 2—2 of Fig. 1; Fig. 3 is a detail view, in perspective, of the shelving as it preferably enters into the structure; Fig. 4 is a detail view showing a nozzle structure in plan as it appears in Fig. 1.

Like parts are indicated by similar characters of reference throughout the different figures.

The receptacle *a* is preferably made of sheet metal and incloses air agitating mechanism which is desirably in the form of an electric motor driven fan *b*. The receptacle is suited in size and shape to the objects that are to be placed therein for the purpose of having subdivided material lodged thereupon, the location of the fan *b* within the receptacle permitting the receptacle to conform very closely to the object or objects that are to be inserted therein for the purpose stated, this close correspondence of the receptacle and contents being permitted because of the location of the fan *b* within the

receptacle and the consequent absence of auxiliary devices that are otherwise required to cause the passage of the air in the proper directions to enable the air to carry the subdivided material to all parts of the structure to be coated that are exposed and suitably prepared to that end. I have shown a metal bed end *c* within a receptacle *a*. The receptacle is provided with shelving *d*, three distinct shelves being shown, the shelves outsetting from the main casing wall in order not to interfere with the insertion of the objects to be coated and forming the bottom of channel ways extending along a side of the receptacle, and completed by means of vertical portions *e* and top portions *f*. The channel ways are separated from the balance of the receptacle space by means of screening *g* provided for the purpose of preventing large particles from finding access to the object to be coated. The bronze powder may be placed upon one or more of the shelves, and if it is thus placed while the fan *b* is in operation all of the channel ways except the one within which the powder is being inserted are closed as by means of plugs *h*. The powder may be inserted within the channel ways in a manner which is most desired. I have shown a nozzle *i* upon the end of a pipe *k* through which the bronze powder may be forced. The nozzle *i* and pipe *k* are here shown in the form of a pipe of which the nozzle constitutes an elbow rigidly related with respect to the balance of the pipe, although I do not wish to be limited to this characteristic. If the powder is forced gently through the pipe *k* the pipe is turned to enable the nozzle *i* to face a shelf *d*, whereupon the powder may be laid upon the shelf and thereafter removed therefrom by the operation of the fan *b*. If the powder is forced through the pipe under considerable pressure the nozzle *i* would be turned to occupy a horizontal position, such as is indicated in Figs. 1, 2 and 4, whereupon the powder may be directly injected without first finding lodgment upon the shelf, and by moving the nozzle back and forth the powder may be suitably distributed within the receptacle.

I have illustrated a supply box *l* that contains the bronze powder *m* and from which the bronze powder may be forced through the pipe *k* when the valve *n* in a flexible air pressure pipe *o* is open. The box *l* may be carried in the hands so that it may be moved toward and from the receptacle and also turned thereby to determine the places at which the powder will find entry within the receptacle.

In the event of necessity the excess of the subdivided material which remains within the receptacle after the object has been coated may be withdrawn by a suction fan *p* when set into operation, the excess powder finding lodgment within a collection box *q* to which it is passed by the suction fan.

I have thus provided a machine comprising a closed chamber adapted to receive articles to be coated, means for creating air currents in said chamber to impinge upon all portions of the surfaces of said articles, means for introducing coating material into said air currents for transmission to the surfaces to be coated, and means for clarifying the chamber of unapplied coating material after the article has been coated. Obviously the means for clarifying the chamber, the suction fan *p*, may if desired be operated during circulation of air around the coated article, depending altogether upon the discretion of the operator. Any of the material that remains upon the object and yet which does not adhere thereto constitutes excess material and as such, is removable by the suction fan. I have spoken above of the withdrawal of the excess material "by a suction fan *p* when set into operation", it being obvious that the fan is manually controlled, the fan then constituting a manually controlled means operable from the exterior of the casing for clarifying the chamber of unapplied coating material by simultaneously removing unapplied material from the air and article.

The valve *n* constitutes a means for closing the material supply to the air currents as do also the plugs *h*.

While an important feature of my invention is the inclusion of fan *b* within the receptacle, yet there are features of the invention that do not depend upon this location of the fan.

While I have herein shown and particularly described a preferred embodiment of my invention, I do not wish to be limited to the precise details of the constructions shown, as changes may be made without departing from the spirit of my invention, but

Having thus described my invention, I claim as new and desire to secure by Letters Patent the following:

1. Apparatus for coating objects with subdivided material, including a receptacle for the objects; a fan within said receptacle for forcing passage within the interior of the receptacle of air laden with subdivided material and serving to cause such air to swirl whereby the subdivided material is carried to those exposed parts of the objects that are to receive the coating; and shelving exposed to the interior of the receptacle for holding the subdivided material preparatory to its circulation within the receptacle.

2. Apparatus for coating objects with subdivided material, including a receptacle for the objects; a channel way for affording passage of subdivided material to the receptacle interior, said channel way being

elongated in order that the subdivided material may be introduced at different places; and means for causing the air to swirl within the receptacle.

3. Apparatus for coating objects with subdivided material, including a receptacle for the objects; and piping having a nozzle for directing the subdivided material into the receptacle, said nozzle being changeable in position to change the places at which the subdivided material finds entry within the receptacle; and means for causing motion of the air within the receptacle.

4. A machine of the kind specified comprising a closed chamber adapted to receive articles to be coated, means for creating air currents in said chamber to impinge upon all portions of the surfaces of said articles, means for introducing coating material into said air currents for transmission to the surfaces to be coated, and means for clarifying the chamber of unapplied coating material after the article has been coated.

5. A machine of the kind specified comprising a closed chamber adapted to receive articles to be coated, means for creating air currents in said chamber to impinge upon all portions of the surfaces of said articles, means for introducing coating material into said air currents for transmission to the surfaces to be coated, and means for clarifying the chamber of unapplied coating material after the article has been coated and during circulation of air around the coated article.

6. A machine of the kind specified comprising a closed chamber adapted to receive articles to be coated, means for setting the air contained in said chamber in motion to impinge upon the surfaces of the articles to be coated, means for introducing coating material into said air for transmission thereby to the surfaces of said articles, and manually controlled means operable from the exterior of the casing for clarifying the chamber of unapplied coating material after the articles have been coated and during maintenance of air in motion within said chamber.

7. A machine of the class specified comprising a coating material supply, means for creating currents of air to take up the coating material in suspension and apply it to the article to be coated, means for closing the material supply to the air currents, and means for simultaneously removing the unapplied material from the air and the surplusage from the article after the latter has been coated.

In witness whereof, I hereunto subscribe my name this twentieth day of October A. D., 1910.

FRANKLIN F. BRADLEY.

Witnesses:

G. L. CRAGG,

GEO. C. DAVISON.