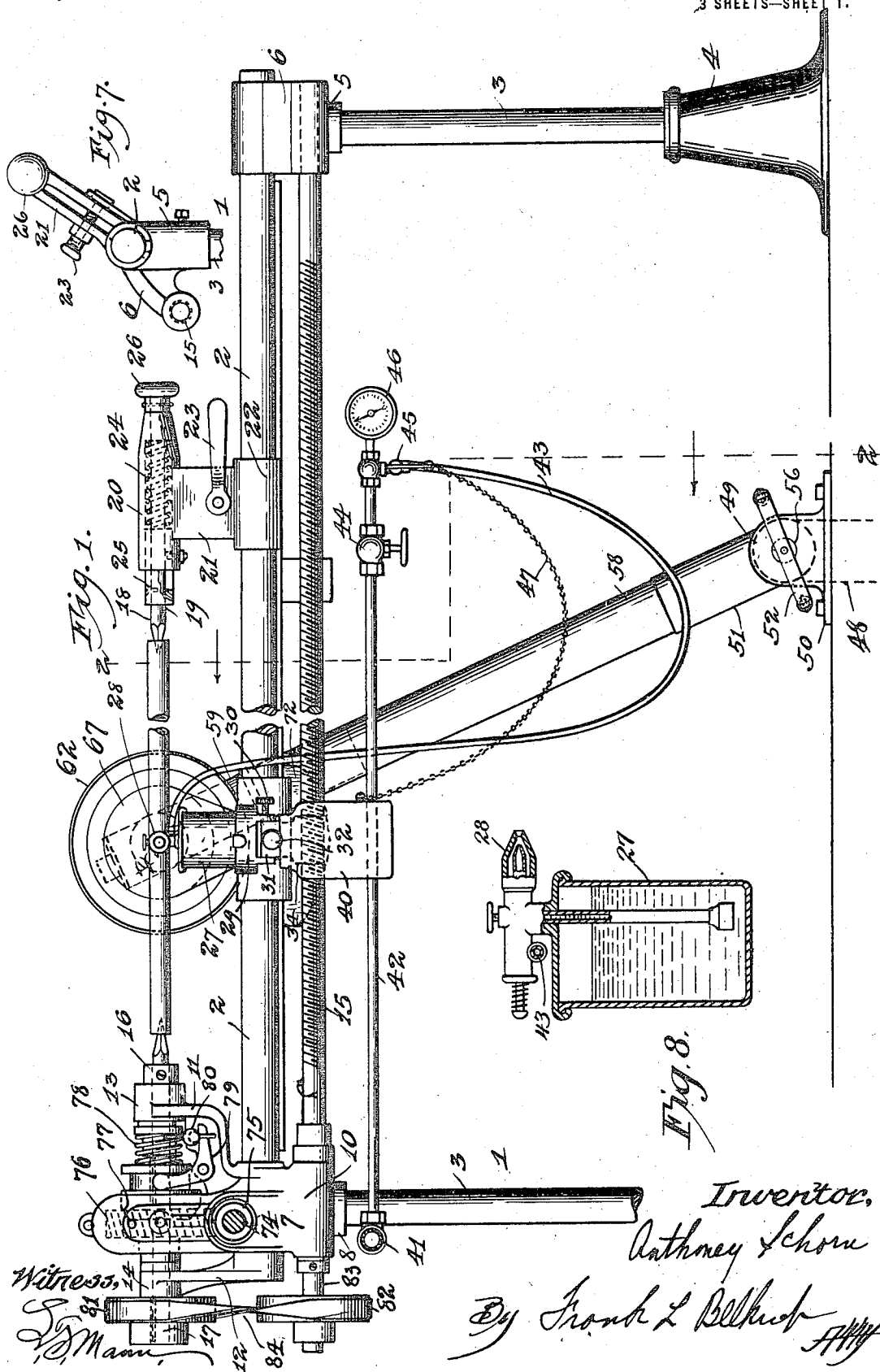


APPLICATION FILED APR. 29, 1916.

3 SHEETS—SHEET 1.

1,281,672.



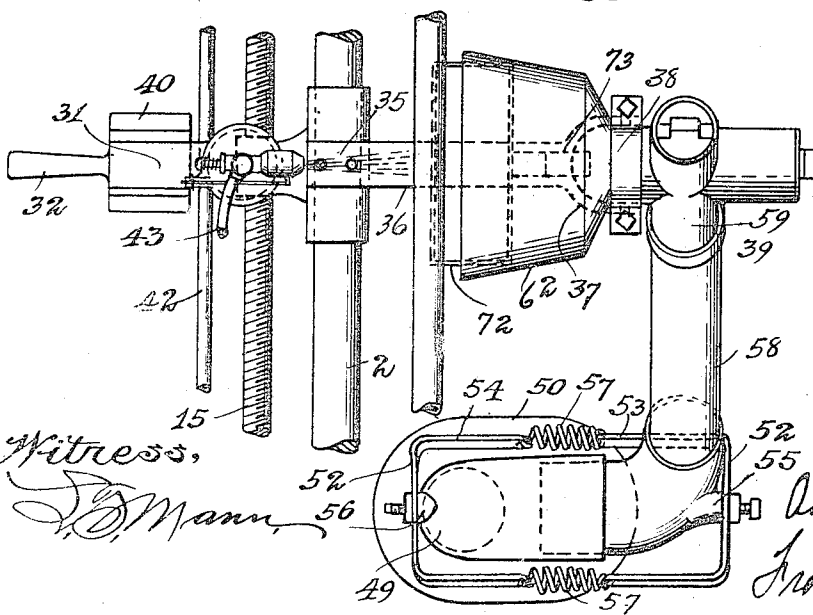
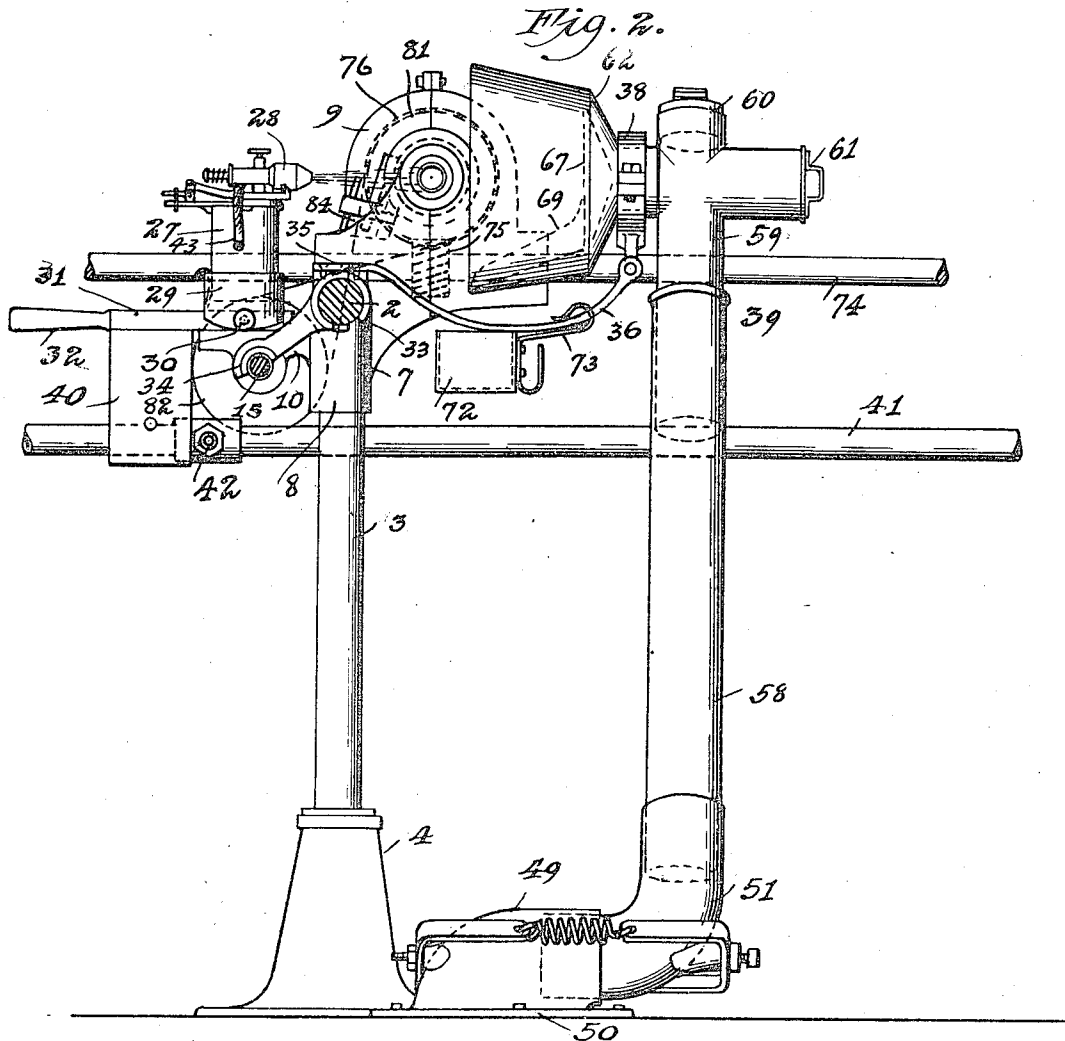
Inventor,
Anthony Schorn

By Frank L. Belknap *FWB*

A. SCHORN.
LACQUERING MACHINE.
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1,281,672.

Patented Oct. 15, 1918.
3 SHEETS—SHEET 2.



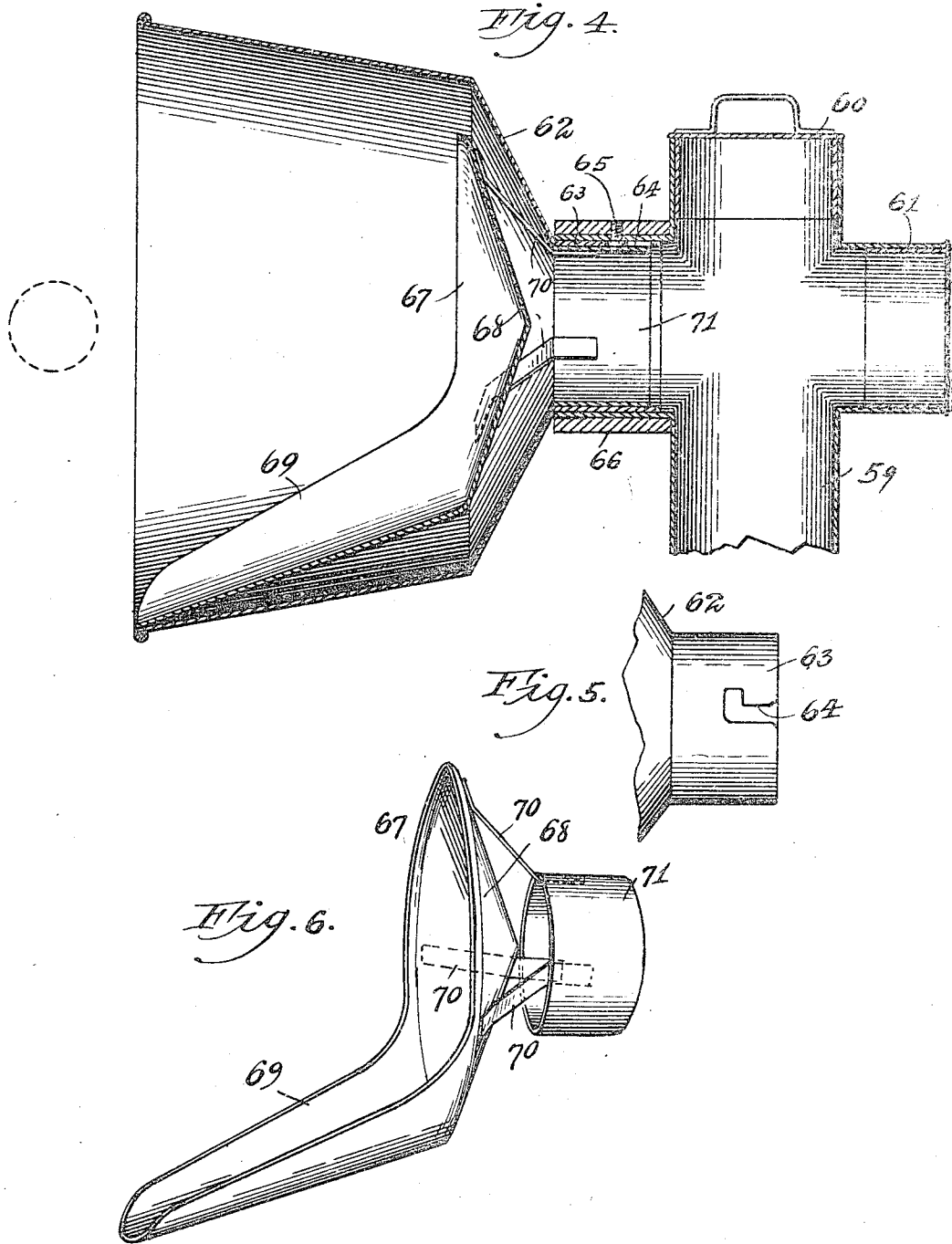
Witness,

J. Mann

Inventor,
Anthony Schorn
Frank P. Belknap

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3 SHEETS—SHEET 3.



Witness,
J. E. Mann.

Inventor,
Anthony Schorn
Frank L. Belknap

UNITED STATES PATENT OFFICE.

ANTHONEY SCHORN, OF KENOSHA, WISCONSIN, ASSIGNOR TO SIMMONS COMPANY, OF KENOSHA, WISCONSIN, A CORPORATION OF DELAWARE.

LACQUERING-MACHINE.

1,281,672.

Specification of Letters Patent.

Patented Oct. 15, 1918.

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To all whom it may concern:

Be it known that I, ANTHONY SCHORN, a citizen of the United States, residing in the city of Kenosha, county of Kenosha, and State of Wisconsin, have invented certain new and useful Improvements in Lacquering-Machines, of which the following is a specification.

This invention relates to improvements in lacquering machines and refers more particularly to a machine of that type in which the lacquer is applied to the article to be coated by means of an atomizer or in the form of a jet and in which said surplus lacquer is removed from the article in question by suction.

Among the salient objects of the invention are to provide in a construction of the character referred to, novel means for collecting and saving the surplus lacquer which is applied to the tube or other article to be coated; to provide in a construction of the character last referred to, a novel collector device interposed in the path of the suction current and so arranged that the solid portions of the lacquer are collected and saved without interfering with the withdrawal of the fumes or other gaseous vapors from the vicinity of the lacquering machine; to provide a construction in which the collector member is detachably mounted in position whereby it may be readily removed for the purpose of cleaning and freeing it of any lacquer that may have adhered thereto; to provide a construction in which the suction mechanism and collector hood are arranged to have a back and forth travel across the machine so as to be able to act upon the entire length of tube or other article to be coated; to provide a construction in which the atomizer or lacquer applying device is automatically caused to travel back and forth over the article to be coated thus insuring a more uniform coating than where the atomizer is operated by hand; to provide in a construction of the character in question automatic regulating means for shutting off the atomizer at predetermined points in the travel of the latter; to provide a novel suction tube mechanism peculiarly adapted for use with the present invention; to provide a construction which is adapted to save all or substantially all of the surplus

lacquer; and in general to provide a simple and economical construction of the character referred to.

In the drawings—

Figure 1 is a side elevation of a lacquering machine equipped with my invention, parts being broken away to reduce the size of the drawing and parts being broken away for the sake of clearness;

Fig. 2 is a transverse vertical sectional view taken on lines 2—2 of Fig. 1 and looking in the direction of the arrows;

Fig. 3 is a fragmentary top plan view of a central portion of the machine;

Fig. 4 is a fragmentary vertical sectional view taken on an enlarged scale, showing the collector mechanism and a portion of the suction pipe;

Fig. 5 is a fragmentary plan view of the securing collar for the hood;

Fig. 6 is a perspective view of a removable collector pan or spout;

Fig. 7 is a detail view of one of the bracket casting members;

Fig. 8 is a detailed sectional view showing the supply tank for atomizer.

In lacquering metal articles, such as the units of a furniture construction, the fumes or noxious gases which are generated must be immediately withdrawn from the vicinity of the machine, which may be accomplished by subjecting the article which is being coated to a relatively strong suction action whereby the fumes are withdrawn from the room in which the lacquering machines are being operated. The surplus lacquer which does not permanently adhere to the article being coated and which generally consists of the heavier gums or oils is drawn out through a suction pipe with the fumes or gases and is wasted and lost. This lacquer is relatively expensive and where a large number of lacquering machines are in use, as is frequently the case in large establishments, the lost surplus lacquer in time adds materially to the cost of operation. The present invention among other things collects and saves the body of the surplus lacquer which is then retreated and used. The method of collecting and retreating this surplus lacquer however, forms no part of the present invention, which is directed to the apparatus here in question.

Referring now to the drawings—

1 designates as a whole the frame comprising supporting bar 2 and posts 3, the latter being mounted in base casting members 4. The tubular bar 2 is secured at one end to one post 3 by a bracket casting 5 provided with a laterally extending arm 6 for a purpose hereinafter described. The other end of the frame is secured to the other post 3 by a bracket casting 7. This bracket member 7 comprises a socket portion 8, fitting over the upper end of the post 3, a gear housing 9 and a diagonally extending supporting arm 10. The upper end of the bracket is provided with a pair of arms 11 and 12 carrying bearings 13 and 14. Below the bar 2 and offset relative to the same, is a screw shaft 15, one of which is supported in the extension 6 of the bracket 5 and the other end of which is mounted in the arm 10 of the bracket 7. In the bearing 13 is mounted a chuck 16 for holding one end of the tube or other article to be coated. The chuck 16 is mounted in a drive shaft 17 which extends through bearings 13 and 14 as shown more clearly in dotted lines in Fig. 1. The other end of the tube or other article to be coated, is held by a second chuck 18 having a rod extension 19 mounted in a suitable barrel 20 carried by bracket 21. The bracket 21 is slidably mounted on the bar 2 and is locked in position by clamp 22 and by screw lever 23. The chuck 18 is normally forced outwardly from the barrel by means of a coil spring 24 interposed between the rear end of the barrel and a sleeve 25 keyed to the chuck. The chuck can be pulled rearwardly against the action of the spring to release it from the tube by means of a handle 26. The arrangement is such that the movable chuck member can be moved along the frame bar 2 to any desired position to accommodate the different lengths of tubes to be lacquered.

Describing now the mechanism for applying the lacquer, the atomizer having a reservoir 27 and a nozzle 28 is mounted in a socket 29 which is adjustably connected by means of a screw 30 to an arm 31 terminating in a handle 32. The bracket arm 31 is provided with a split or interrupted collar 33, which is movably fitted around the frame member 2. This bracket arm is also provided with a screw threaded half nut 34, which fits over the screw shaft 15. To the upper end of the collar 33 is secured as shown at 35 a curved supporting strap or arm 36, terminating in a forked extension 37 to which is secured by collar 38 the movable suction mechanism 39, hereinafter described. Normally the half nut 34 is held in threaded engagement with the screw shaft 15 by means of a weight 40. By lifting the handle 23 the half nut 34 is disengaged from the screw shaft 15, whereupon the atomizer can be moved back and forth along

the tubular bar 2. Air is supplied to the atomizer from a main air pipe 41, branch air pipe 42 and air hose 43. The air is controlled by pressure regulating valve 44 and cutoff valve 45. Preferably an air gage 46 is also provided. The air pipe 42 is stationary but the flexible hose permits of the atomizer traveling back and forth across the machine. The valve 45 is automatically cut off when the atomizer has reached its limit of travel by means of a chain or cable 47 secured at one end to the valve stem 45 and at the other end to a suitable weight 40 or any other suitable point on the movable arm 31.

Describing now the suction mechanism which removes the fumes and gaseous vapors from the machine, to a pipe 48 which in the present instance extends below the floor and is connected to suction fan (not shown), is secured a stationary suction pipe 49 mounted on a suitable base 50. To the upper end of this pipe section 49 is pivotally secured or swiveled an elbow 51. The lower end of this elbow 51 is in telescopic engagement with the pipe section 49 and is held in connection therewith by means of spring yokes 52. These spring yokes 52 comprise arm members 53 and 54 mounted in bosses 55 and 56 and connected by means of coil contractile springs 57. A suction pipe 58 has telescopic engagement at its lower end with the elbow 51 and at its upper end receives a T-shaped pipe 59. This T-shaped pipe section 59 has caps 60 and 61 in order that it may be more readily cleaned. The other arm of this T-shaped pipe section is provided with a detachable funnel shaped hood 62 which in turn is provided with a collar 63. This collar 63 has a bayonet joint 64 which is detachably engaged with a stud 65 carried by the T-shaped pipe section. Preferably, a reinforcing band 66 extends around the pipe 59 and collar 63. Removably mounted within this detachable hood is a combined baffle member and collecting spout or pan designated as a whole 67. This member 67 comprising a cone-shaped body portion 68 terminating in a spout 69 and strap arms 70 carrying a supporting collar 71. This collar 71 fits within the collar 63 of the hood and is detachably held in frictional engagement with the latter. It will be noted that the cone-shaped baffle member 68 is spaced away from the rear end of the hood so as to provide a restricted air passage to permit the fumes and gaseous vapors being drawn into the suction pipe. At the same time the baffle member will catch the heavier surplus particles and prevent them being drawn into the suction pipe. The spout 69 serves to deliver the heavier particles which fall from the spout into a drip pan 72 removably secured by spring clip 73 to curved arm 36. As is well known to those skilled in the art a considerable part of the surplus lacquer

so collected will firmly adhere or stick to the baffle member and spout and at intervals it is necessary to remove the baffle member and spout and clean it. To avoid the necessity of stopping the machine a clean collector member can be immediately put in place. For the same reason the hood can be detached and removed and a clean one put in its place. It has been found in practice that the foregoing arrangement affords a very substantial economy in the lacquering of metal articles without in any sense interfering with the successful operation of the machine.

From the foregoing it will be seen that as the atomizer travels along the frame bar, the collector hood and suction mechanism will travel with it. These members are automatically moved along the machine by the rotation of the screw shaft 15. At the same time, the chucks are revolved in order to rotate the tube or other article being coated.

Describing now the driving mechanism, on a main drive shaft 74 driven from any suitable source, is mounted a spiral gear 75 which meshes with a larger spiral gear 76. The gear 76 is loosely journaled on the shaft 17 but is normally held in operative engagement with the shaft through a friction clutch 77 having a coil spring 78, an operative bell-crank lever 79 and hand operated eccentric shaft 80. All this is well known in practice and need not be further described. On the shaft 17 is mounted a pulley 81 which drives a similar pulley 82 mounted in an extension 83 of the screw shaft 15. The pulleys are connected by cross belt 84 whereby they rotate in opposite directions. The rotation of the screw shaft moves the atomizer along the machine by reason of the connections between the shaft and half nut 34 heretofore described, and inasmuch as the suction mechanism is connected through the collar 38 to the arm 36, the latter will likewise travel with the atomizer as will be obvious from the previous description. When the atomizer has reached its limit of movement the tube or other article being coated is completely lacquered and the gear 76 is thrown out of operative engagement with the shaft 17, thus stopping the revolution of the tube and also the screw shaft 15. The tube can now be released by merely withdrawing the chuck 18. The atomizer and chuck mechanism can be then moved back into normal position by merely lifting the nut 34 out of engagement with the screw shaft and sliding the arm 31 and its connecting parts back along the frame bar. The operation of the device need not be further described.

It will be apparent, that in its broader aspects the invention can be modified and

changed in many details of construction without departing from the spirit thereof.

I claim as my invention:

1. In a lacquering machine, the combination with a frame member, of a movable supporting mechanism mounted thereon, an atomizer carried by the supporting mechanism, a suction mechanism for withdrawing the fumes and surplus lacquer, and a collector member interposed in the suction current for collecting and saving the surplus lacquer, said supporting mechanism and suction mechanism being movable together.

2. In a lacquering machine, the combination with a frame member, of a traveling carriage mounted thereon, an atomizer supported on the carriage, means for automatically controlling said atomizer, a suction mechanism moving with the carriage for withdrawing the fumes and surplus lacquer and a collector member interposed in the suction current for collecting and saving the surplus lacquer.

3. In a lacquering machine, the combination with a frame member adapted to support an article to be coated, of means for applying lacquer to said article, of a suction mechanism for withdrawing the surplus lacquer and comprising a pivotally mounted frame support, telescopic suction pipes and a collector hood and baffle member.

4. In a lacquering machine, the combination with a frame member, of a traveling carriage mounted thereon and adapted to support coating mechanism, means for applying lacquer to said article, a suction mechanism moving with the carriage and comprising a movable frame support, suction pipe, collector hood and baffle member.

5. In a lacquering machine, the combination with a frame member, of a traveling carriage mounted thereon, lacquer applying mechanism supported by the carriage, a suction mechanism movable with the carriage and a collector member interposed in the suction current, for collecting and saving the surplus lacquer.

6. In a lacquering machine, the combination with a frame support, of a drive shaft associated therewith, an atomizer movable relative to said shaft, a suction mechanism movable relative to said shaft and a collector member also movable relative to said shaft and cooperating with the suction mechanism.

7. In a lacquering machine, the combination with a frame support of a traveling carriage mounted thereon, an atomizer supported by the carriage, a suction hood, a suction pipe associated therewith, and means for moving all of said elements in unison and relative to said frame support.

ANTHONEY SCHORN.