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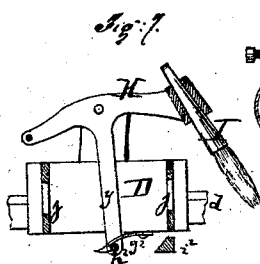
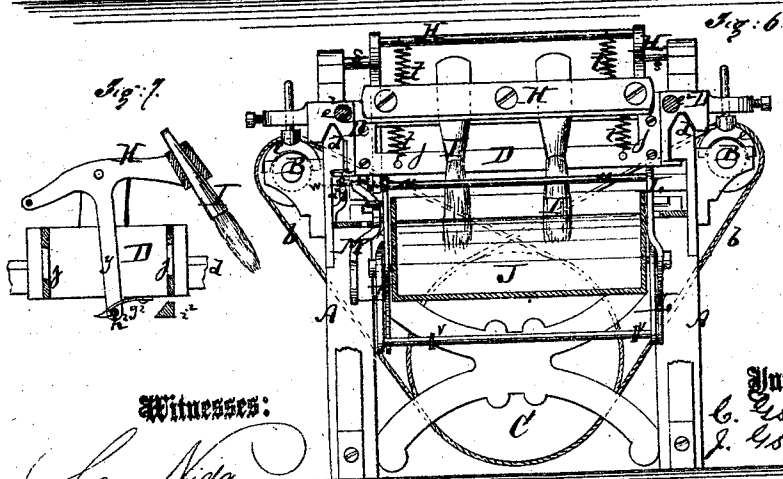
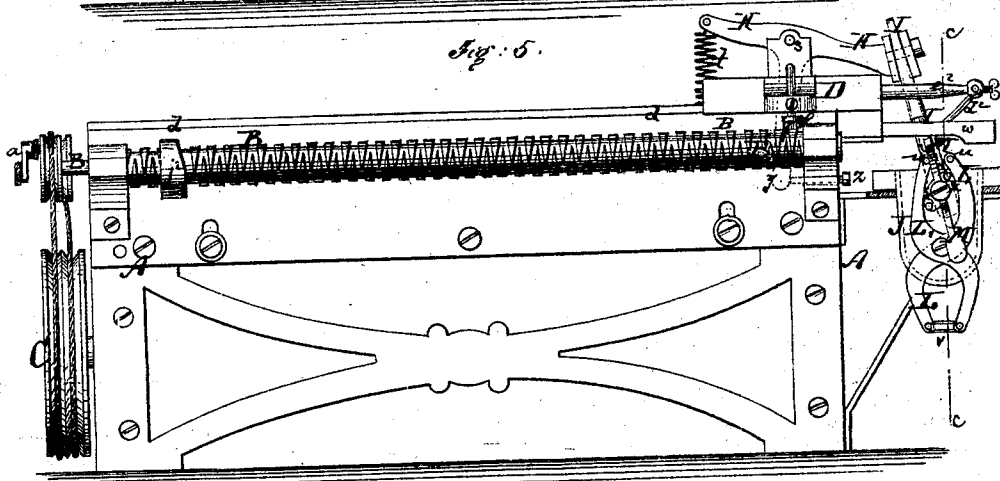
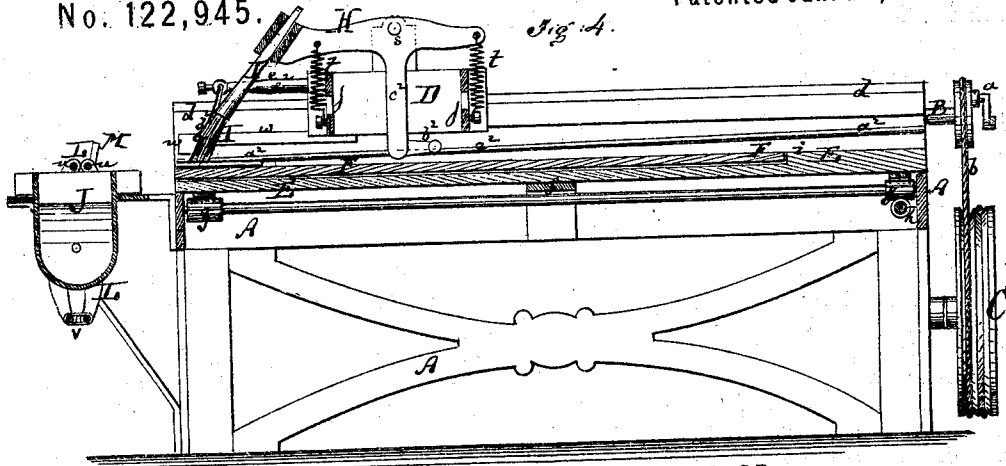
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2 Sheets--Sheet 2.

Improvement in Machines for Polishing and Varnishing Mouldings.

No. 122,945.

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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN MACHINES FOR POLISHING AND VARNISHING MOLDINGS.

Specification forming part of Letters Patent No. 122,945, dated January 23, 1872.

Specification describing a new and original Machine for Polishing and Varnishing Moldings, invented by CHARLES GSCHWIND and JOHN GSCHWIND, of Union Hill, in the county of Hudson and State of New Jersey.

Our invention has for its object to devise a reliable apparatus whereon moldings to be gilt, silvered, or otherwise ornamented can be automatically and rapidly polished and, if desired, also varnished. This object we attain partly by a novel and ingenious arrangement of polishing-tools and mechanism for moving the same over the moldings, and the combination therewith of an adjustable table on which the moldings are secured. Partly, also, we attain our object by a new system and arrangement of brushes, mechanism for dipping the same, and means for increasing their pressure upon the moldings in equal ratio to their distance from the varnish-reservoir, and by further items of invention of greater or less importance, as hereinafter fully described.

In the accompanying drawing, Figure 1 represents a top view of the machine arranged for polishing. Fig. 2 is a vertical longitudinal section of the same. Fig. 3 is an end view, partly in section, of the same; and Fig. 3 a detail end view of a modification. Fig. 4 is a vertical longitudinal section of the machine arranged for polishing. Fig. 5 is a side elevation, and Fig. 6 a vertical transverse section of the same on the line *c c*, Fig. 5. Fig. 7 is a detail transverse section of the brush-frame.

Similar letters of reference indicate corresponding parts.

A in the drawing represents the frame of our machine, made of wood or metal, or both, of sufficient strength and proper size for supporting the working parts of the mechanism. In the sides of the frame are hung two horizontal longitudinal screws, B B, each provided with right-and-left-handed threads, and both connected at one end by rods *a a* or equivalent means which will insure their equal motion. By bands *b b* or otherwise these screws are connected with the driving-pulley C, to which motion is imparted by suitable means, and whence it is transmitted equally and in equal direction to both screws B B. These latter extend from end to end of the machine and serve to impart reciprocating motion to a frame,

D, which extends across the frame A, resting and sliding on side rails *d d* of same, as shown. In the ends of the frame D are swiveled pendant forks *e e*, which straddle the screws B and receive longitudinal motion by the same. The forks, when at the end of the frame A, will, under continued motion of the screw B, that brought them to the end, vibrate against the reverse threads of the screw and cause the reverse motion of the frame D. The latter is thus moved back and forth over the frame A, though the driving-pulley is continued in the same motion. In the frame A is held a horizontal table, E, which is supported on a fixed cross-bar, *f*, and on pinions *g g*, which mesh into racks that are secured to the under side of E. The pinions *g* are mounted upon the same shaft, (see Fig. 2,) and are thus brought under both ends of E. A worm, *h*, meshing into one of these pinions serves to turn both when required for the purpose of adjusting the table E laterally. This lateral adjustment is of importance in order to bring the moldings properly under the polishing-tools. Upon the table E is placed a plate, F, on which the moldings to be prepared are fastened. This plate F abuts against a shoulder, *i*, formed at one end of the table E, which, for convenience sake, we will call the forward end of the machine. The surface of this shoulder *i* is flush with the top of the plate F, as shown in Fig. 2. The frame D has above the plate F two horizontal slotted bars, *j j*, in which the tool-holders G G are adjustably secured. Each of these tool-holders consists of three, more or less, vertical chambers or cases, *l l l*, in the lower ends of which the polishing-tools *m m m* are inserted, while their upper parts contain springs *n* and screws *o* for holding the tools with force against the moldings. The several chambers of each holder G are graduated—that is to say, in varying lateral plane, as shown in Fig. 1—so that each tool of such holder will be over a different part of one molding. The lower ends of the tools must, of course, be shaped to conform to the portion of the molding over which they are to move. Each holder G is swiveled at its ends to thumb-screws *p p*, which also hold it to the slotted bars *j*. On these screws *p* the holders can be laterally adjusted within the frame D, and on them they

can also vibrate to bring the tools in contact with the moldings at suitable angles. We consider this arrangement of the tool-holders and tools as of great importance. It permits the application of the machine to moldings of all kinds, smooth as well as ribbed. The moldings $g g$ to be polished are tacked or otherwise fastened upon the plate F , parallel to the screws $B B$, and so close together as is convenient to accommodate an equal number of holders, G , on the frame D . Sections $r r$ of similar moldings are secured upon the projecting parts i of the table E in exact continuation of the moldings on F . The holders G are then adjusted on the frame D , which is at the back end of the machine, in such manner as to bring the several tools or burnishers exactly above the parts and faces of the moldings to be polished, and at the desired angle. The frame D is next moved forward, drawing the burnishers over the moldings, and thereby burnishing or polishing the latter. When the tools have reached the front ends of the moldings the frame D is drawn still further ahead and carries the tools onto the strips $r r$. The plate F with its moldings is thereby liberated, and can be withdrawn and all the moldings taken off and others replaced without in the least disturbing the tools or holders. When the new moldings have been placed and the plate F restored to its position the frame D is moved back, carrying the burnishers over the new moldings and then forward again, and so on until the surfaces are properly prepared. If it were not for the shoulder i and the strips r thereon the tools would have to be specially fitted to every new set of moldings put on the machine. Fig. 3^a shows a tool-holder and burnisher applied against the side of a molding by a spring bearing against one side of the pivoted holder. The lateral adjustment of the table E is advantageous in shifting the same under the tools to make them fit well, it being easier thus to shift the moldings than it would be to adjust the tool-holders severally. For varnishing purposes the tool-holders $G G$ are removed from the frame D and a frame, H , having trunnions $s s$, at the ends, is thereby pivoted in boxes that project from the ends of the frame D . In the back of this frame H are clamped as many brushes, $I I$, as there are moldings to be varnished simultaneously. Springs $t t$ connect the frame H in front and back with the cross-bars j in order to keep it balanced on its pivots s . A varnish vat or reservoir, J , is suspended in an extension frame at the back of A . Across the open top of this reservoir extend two wires, $u u$, which are held by tongs L pivoted to the ends of J . (See Fig. 5.) Springs v serve to hold the wires $u u$ together. When the moldings have been secured to the plate F and the latter put in its place on the table E the frame D is moved backward toward the reservoir. When the meshes arrive above the reservoir an arm, w , projecting backward from D strikes a lever, M , which is

pivoted to one end of the vat and swings said lever, causing the same, by acting on a cam, x , to open the tongs L and spread the wires $u u$ for admitting the brushes to the vat. A pendent arm, y , of the frame H then strikes a stop or screw, z , fixed to the end of the frame A , (see dotted lines, Fig. 5,) and thereby trips the frame H , causing the brushes to be dipped into the varnish of the vat. This performance is carried on while the frame D is at the very end of its backward motion. On resuming the forward motion, the frame H clears the stop z , and is by the springs $t t$ balanced to resume its former horizontal position and withdraw the brushes from the vat. At the same time the lever M is released from the influence of the arm w and the wires $u u$ spring together against both sides of the brushes, clasp them while being withdrawn and wiping from them all superfluous varnish. The frame D now moves forward and draws the brushes over the molding g . Only one application of each brush to a molding being permissible, it is important to equalize the distribution of the material. The brushes are therefore to be more and more pressed down the further they move away from the vat, as there is more need of pressure the less varnish there is contained in them. This object we attain by applying an inclined rail, a^2 , to one side of the frame A and letting a pin, b^2 , or friction-roller projecting from a pendent arm, c^2 , of the frame H run on the same. The more the pin or roller b^2 is raised on a^2 the more will the frame H be swung to press down the brushes. A wire, d^2 , held in projecting arms $e^2 e^2$ of D , bears against the brushes and holds them against the moldings. It may by a rod (not shown) be connected with the frame H , to be drawn with greater power against the brushes, the more said frame H is lifted by the rail a^2 . When the brushes arrive at the forward ends of the moldings the arm y of H strikes a fixed stop, f^2 , Figs. 1 and 2, and thereby swings the frame so as to lift the brushes from the moldings. In this position the brushes are held by a spring, g^2 , catching over a pin, h^2 , on y , (see Fig. 7,) during the entire backward motion of the frame D until at the end of the backward stroke the g^2 is released from h^2 by a fixed incline, i^2 , and the arm y subsequently struck against the screw z^2 to tip the brushes, as hereinbefore specified. The length of motion of the frame D can be regulated—i. e., shortened at the forward end—by rings $j^2 j^2$ secured around the screw B in suitable position.

Having thus described our invention, we claim as new, and desire to secure by Letters Patent—

1. A reciprocating frame D provided with the pendent swivel-forks $e e$, which straddle the right-and-left threaded screws $B B$, substantially as herein shown and described.

2. The table E carrying the plate F , and combined with the pinions $g g$ to be laterally adjustable, as specified.

3. The shoulder *i* formed on the table E for the reception of the strips *r r*, substantially as herein shown and described.

4. The tool-holders G G made in graduated sections, substantially as and for the purpose herein shown and described.

5. The tools *m m* fitted in the cases *l l* and combined with the springs *n n* and screws *o o*, substantially as and for the purpose herein shown and described.

6. The slotted bars *j j* of the reciprocating frame D, arranged in combination with the laterally-adjustable tool-holders G, as set forth.

7. The varnish-vat J provided with the wires *u u*, which are connected to the tongs L and operated by the levers M, as specified.

8. The vibrating brush-holder H pivoted to

the reciprocating frame D and balanced by springs or their equivalents, as set forth.

9. The brush-holder, made self-dipping by striking a stop, *t*, as set forth.

10. The combination of the vibrating self-dipping brush-holder with the wiping-wires *u*, as specified.

11. The inclined rail *a*² applied to the brushing-machine for gradually depressing the brushes the further they are moved away from the vat J, as set forth.

12. The spring *g*² arranged to lock the frame H so as to hold the brushes elevated.

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