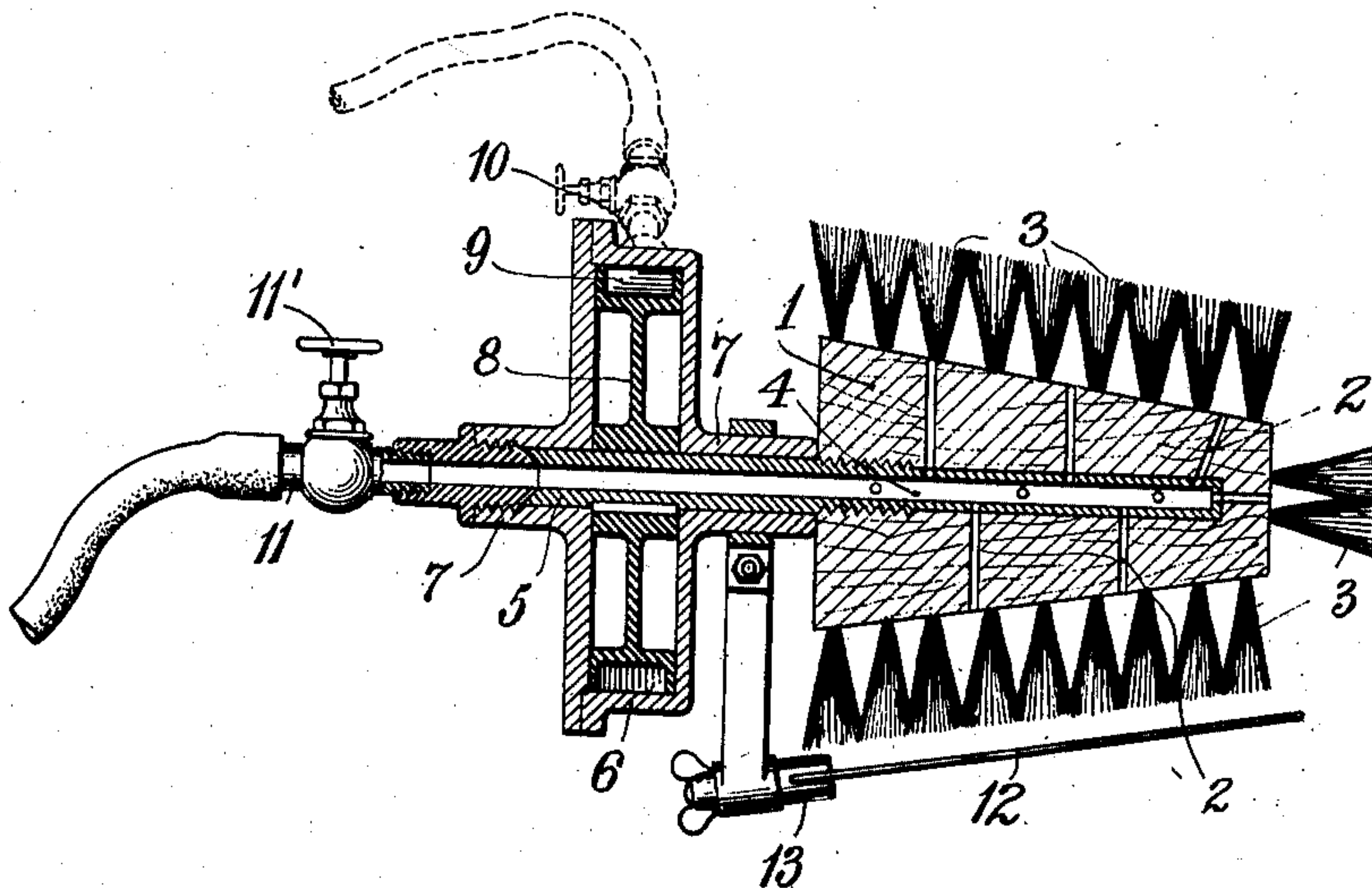


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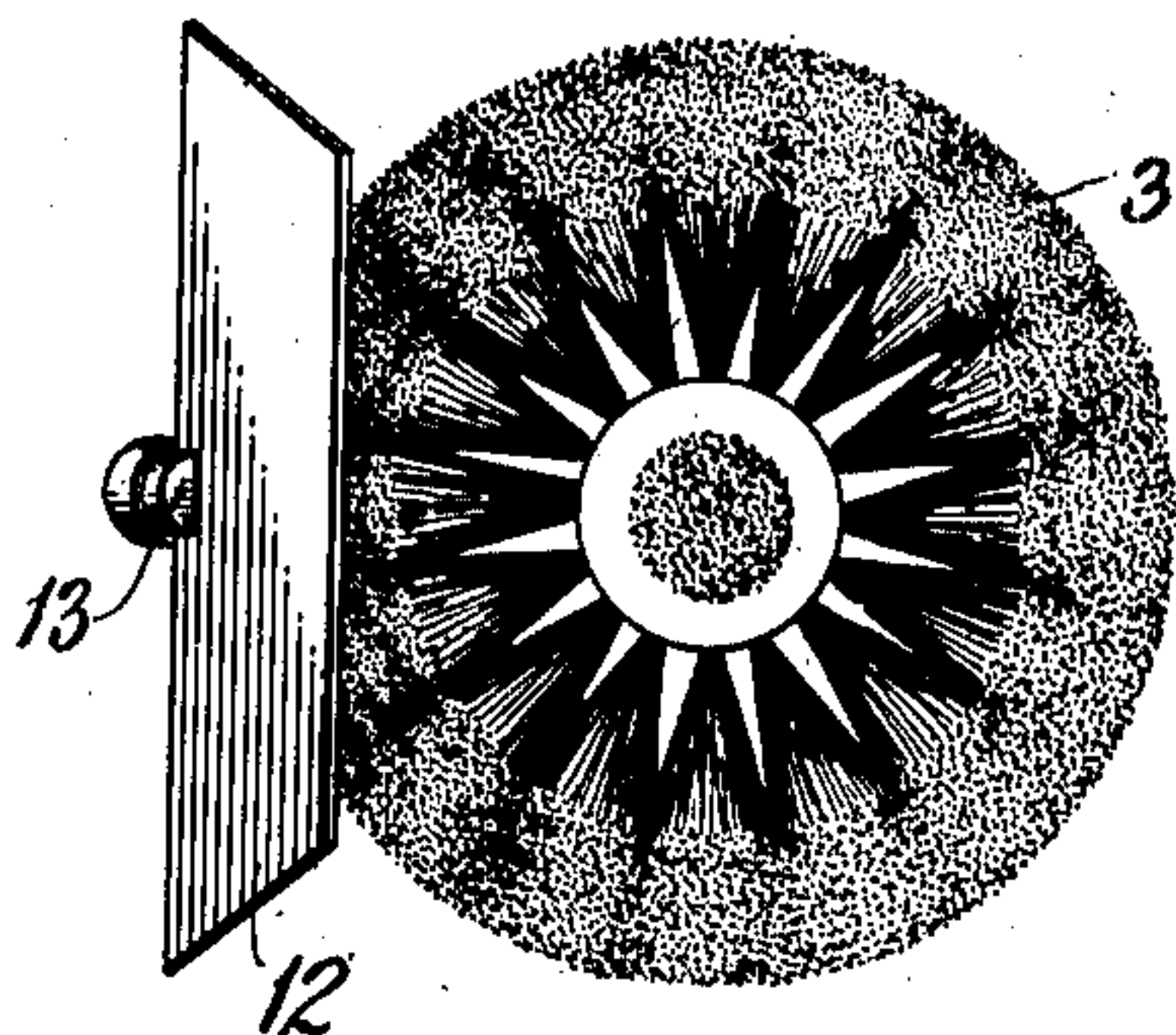
J. M. WILSON.  
PROCESS OF REMOVING FINISH.  
APPLICATION FILED OCT. 7, 1910.

Patented Mar. 14, 1911.

*Fig. 1*



*Fig. 2*



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# UNITED STATES PATENT OFFICE.

JOHN M. WILSON, OF MONTCLAIR, NEW JERSEY.

## PROCESS OF REMOVING FINISH.

986,531.

Specification of Letters Patent.

Patented Mar. 14, 1911.

Application filed October 7, 1910. Serial No. 585,744.

*To all whom it may concern:*

Be it known that I, JOHN M. WILSON, a citizen of the United States, and resident of Montclair, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Processes of Removing Finish, of which the following is a specification.

This invention relates to processes of removing finish including paint and varnish from surfaces such as wood, metal and the like, and especially to those processes wherein a liquid paint and varnish remover containing highly volatile solvents is permitted to react upon a film of paint and varnish to be treated in order to destroy its affinity for the underlying surface, the resulting mass being then physically removed in the manner hereinafter described.

Heretofore the removal of the resultant wax-containing magma has usually been accomplished by means of a scraper, cloth, or brush, manually manipulated or else by the agency of pneumatic suction devices. None of these means, however, are entirely satisfactory, owing to the tendency of the volatile solvents to evaporate and consequently to deposit wax, the same being often forced or injected into the pores of the surface treated by virtue of a continual downward pressure exerted by the operator upon the manually operated implement.

To accomplish the satisfactory removal of paint and varnish, in order to prepare the same for subsequent coats of fine grades of paints and varnishes, it is essential that the complete elimination of the wax, which is customarily contained in the removers be procured, yet withal the scoring or roughening of the surfaces must be prevented. In order to accomplish these results among others in a satisfactory and expeditious manner, it is essential that the magma, resulting from the action of the remover upon the paint and varnish films treated, be quickly and completely removed as soon as the enveloping film, which prevents the evaporation of a volatile solvent, is penetrated or destroyed by the implements employed to remove the magma from the surface supporting the same.

In the accompanying drawings forming part of this specification, a rotary fountain brush is illustrated, a longitudinal section

being shown in Figure 1 and an end elevation in Fig. 2.

The said brush serves the two-fold purpose of effecting the removal of the magma resulting from the action of paint or varnish remover upon dried, *i. e.* weathered films of paint and varnish, and also for the effective washing and polishing of the surface subsequent to the removal of the said magma therefrom.

Referring to the drawings a brush-block 1, provided with ducts 2, and of a cone-frustum configuration serves as a support for tufts of bristles preferably elastic, non-scratching wire bristles, such as described in the patent granted October 12th, 1909, No. 936,842, as indicated by the numeral 3. Said block is provided with a central conduit 4, which is adapted to communicate with the central passage of a hollow shaft 5 that is rigidly secured in any suitable manner to said brush-block, preferably being threaded thereinto. A casing 6, provided with journals 7, which latter serve as bearings for said shaft, envelops a turbine-wheel 8, which is also rigidly keyed to the hollow shaft 5. Said wheel is provided with blades or bucket-members 9, which are adapted to project into the path of an impinging motive-fluid current admitted from the port 10, in the manner well known in the rotary motor and turbine art, thereby effecting the rotation of the conical brush-member at any desired speed, while permitting the employment of a gaseous or liquid motive-fluid. A conduit 11 controlled by a valve 11' serves to supply a suitable wash or other liquid or emulsion if desired, to the brush-block and thence via the bristle-tufts to the surface treated.

In order to prevent the tangential projections of the displaced particles of the magma, due to the centrifugal force of rotation, an apron, of leather or other suitable material, as indicated by the numeral 12, is mounted upon a rod 13 in such a manner as to permit of its being readily adjusted to any desired height or angle with respect to the surface treated, in response to the varying requirements of the operator.

If desired, the apron may be of any suitable configuration to entrap and collect the particles as they are projected against the same, although usually the apron or curtain



serves merely to prevent the spattering of the particles and thus protects both the operator and also any adjacent objects therefrom.

5 The conical configuration of the brush results in the differential movement of successive peripheral rows of bristle-tufts as it is evident that the shorter the periphery of a particular row, the greater will be the speed  
10 of that particular row, as distinguished from the speed of a row having a much larger periphery. Accordingly such conical configuration admits of the application of all of the bristles simultaneously to a sur-  
15 face to be treated, while a portion of the brush is rotated at a relatively high speed with respect to other portions thereof, and therefore it is possible to readily apply whichever portion of the brush is rotating at  
20 the desired speed to a particular portion of the surface without altering the speed of the motor. In fact it is possible to rotate the portion of the brush which is revolving at the highest speed at a relatively high  
25 speed and then apply the whole brush to the surface treated without the operator experiencing a violent recoil as would occur if the entire brush were revolving at this maximum speed as would be the case were the  
30 brush cylindrical in configuration. Although preferably non-scratching elastic wire bristles are employed, other suitable ones such as hog-bristles, fiber, whalebone, or the like may be substituted.

35 The method of employing this process in practice is as follows:—A liquid paint and varnish remover is applied to a weathered paint or varnish surface in the well known manner and allowed to react thereon until  
40 the same becomes soft, and consequently the identity of the film is destroyed and its affinity for the underlying surface is materially diminished. Thereupon the brush-  
45 block 1 is set in rotation at the desired speed, preferably not exceeding a maximum of 3000, nor falling below a minimum of 300 revolutions per minute, although as previously stated any desired speed may be attained, and the said rotating brush-block is  
50 caused to approach in sufficiently close proximity to said surface to permit of contact between the ends of the filaments projecting therefrom and said slush-like mass of softened paint or varnish. The said slush-like  
55 mass will thereupon be tangentially projected from the surface in shreds, or filamentary particles, and against the enveloping screen and the said filaments will be automatically stripped of said particles by the action of the centrifugal force due to the rotation of said brush-block.

The removers preferably employed are so-called wax-removers, *i. e.*, removers consisting of highly volatile solvents and containing the requisite amount of wax to properly

retard the evaporation, such for example as described in Patent No. 872,314 of November 26, 1907, or any other suitable removers containing highly volatile solvents which it may be desired to employ.

7 In the event the surface to be treated has an excessive number of coats of weathered paint or varnish, a partial or preliminary removal of the magma may, if desired, be effected by abstracting part of the magma in  
75 accordance with the vacuum process set forth in Patent No. 932,738 of August 31, 1909, the surface then being subjected to the action of the rotary brush in order to complete the removal of the magma according to  
80 the process herein described.

The application of this process results in the surface being properly prepared without the necessity of sandpapering, except possibly in exceptional cases wherein the  
85 grain is particularly roughened, for the reception of the new coats of paint and varnish, as the rapid movement of the filaments or bristles exerts a peculiar thrust upon all particles of said magma which may  
90 superficially coat said surface or be retained in the pores thereof, with the result that the same are tangentially projected from said surface and against the enveloping screen. Moreover, the rapid rotation of the said  
95 bristles by virtue of the fact that it admits of momentary contact only of the same with the particles of the magma, which results from the reaction of the paint and varnish remover upon weathered films of paint or  
100 varnish, and accordingly the continual clogging or fouling of the tufts of bristles due to the deposition of the magma therein as occurs ordinarily from the prolonged contact of a brush when manually manipulated with  
105 such magma, is almost wholly prevented. As a result, the particles of the magma are converted into a thread-like or filamentary condition owing to the fact that once sufficient pressure is applied to the bristles to ef-  
110 fect their penetration through the enveloping film which normally prevents the evaporation of the volatile solvents, the said film will be comminuted into shreds and ready  
115 escape and volatilization of the solvents will occur. The bristle-tufts having penetrated the envelop will then enter into frictional engagement with the surface treated and thus effect the complete dislodgment of all  
120 materials from the pores in the surface treated.

Having thus described my invention, what I claim that it is desired to secure by Letters Patent is:

1. The process which consists in causing a  
125 finished remover, containing highly volatile solvents, to react upon a film of paint or varnish, permitting the same to react thereon until the identity of said film is destroyed and its affinity for the underlying surface is  
130



materially diminished, and then causing a plurality of rapidly rotating filaments, under sufficient pressure to penetrate said mass and to frictionally engage the underlying surface, to impinge against said magma thereby displacing the same completely from said surface and precluding the adhesion of the said magma to said filaments.

2. The process which consists in causing a finished remover containing highly volatile solvents, to react upon a film of paint or varnish, permitting the same to react thereon until the identity of said film is destroyed and its affinity for the underlying surface is materially diminished, and then causing a plurality of rapidly rotating filaments mounted upon an inclined support in such a

manner as to effect the rotation of filaments, positioned from point to point along said surface, at different peripheral speeds, under sufficient pressure to penetrate said mass and to frictionally engage the underlying surface, to impinge against said magma thereby displacing the same completely from said surface and precluding the adhesion of the said magma to said filaments.

Signed at New York in the county of New York and State of New York this twenty-ninth day of November A. D. 1909.

JOHN M. WILSON.

Witnesses:

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