

J. M. WILSON.
PROCESS OF REMOVING FINISH.
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Patented Aug. 31, 1909.

Fig. 1

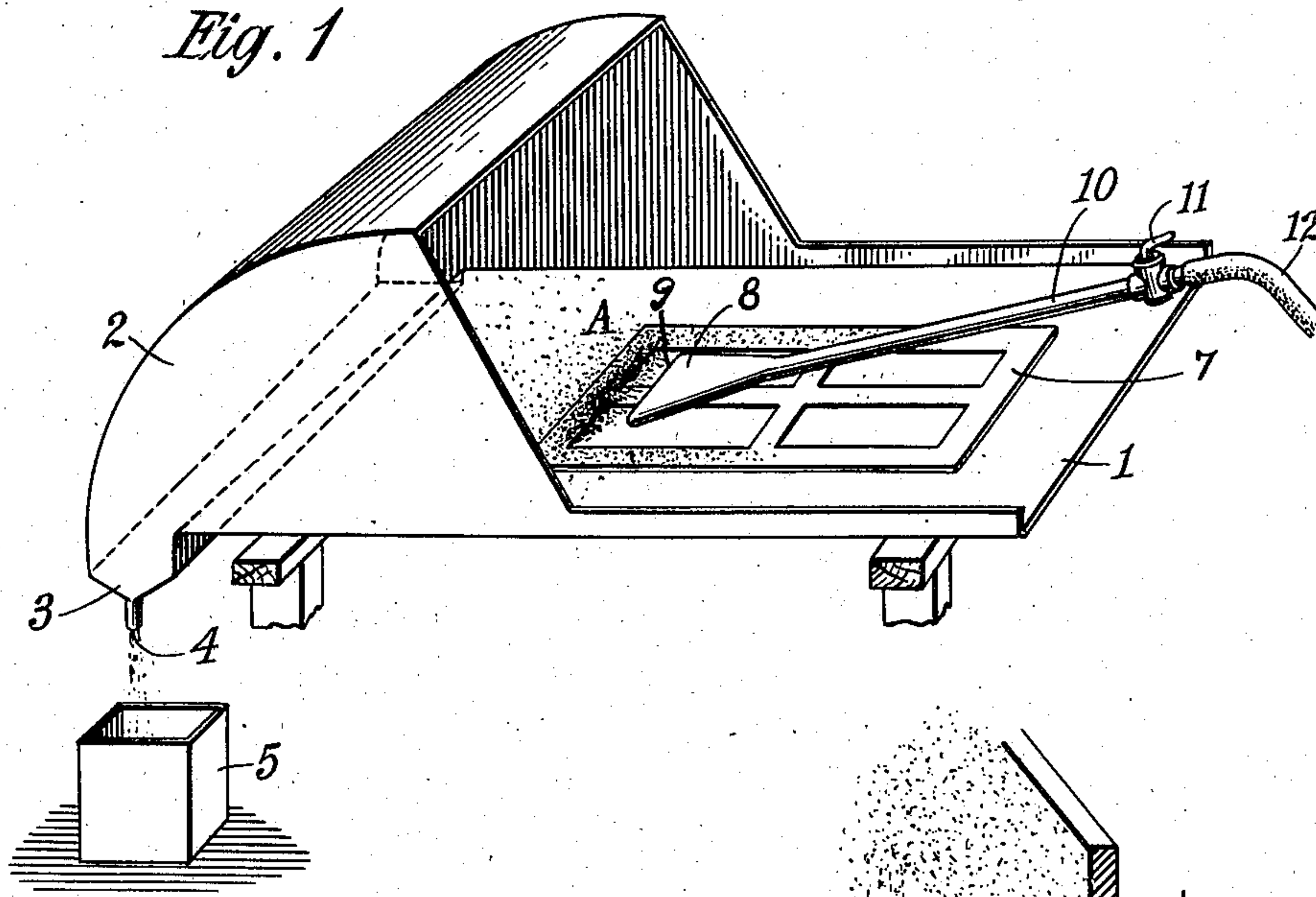
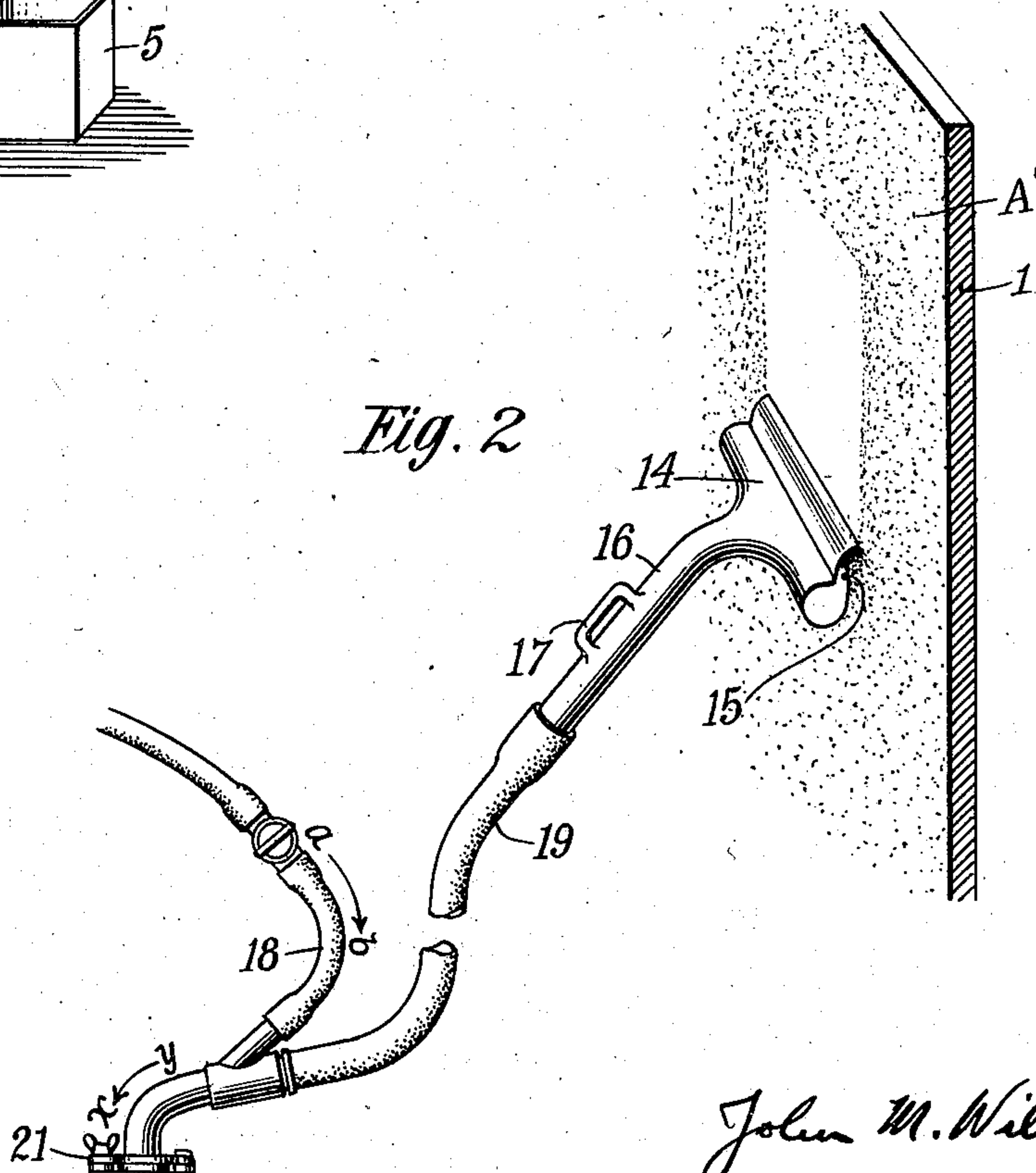


Fig. 2



Witnesses:

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UNITED STATES PATENT OFFICE.

JOHN M. WILSON, OF MONTCLAIR, NEW JERSEY.

PROCESS OF REMOVING FINISH.

932,738.

Specification of Letters Patent.

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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 an improvement in processes of removing dried films of paint and varnish, wherein non-alkaline, film-forming compositions, containing volatile paint and varnish solvents, are preferably employed to dissolve the said films primarily, and thereby render them susceptible of being readily removed pneumatically, as hereinafter described.

Heretofore, many paint and varnish removers of the film-forming type have consisted of volatile paint and varnish solvents containing considerable quantities of wax in suspension therein, and these removers, upon exposure to the air, immediately formed a thick, superficial film, consisting chiefly of wax, which film was substantially impervious to the vapors of the alcoholic solvent employed to dissolve the paint or varnish treated.

The objects of this invention are to secure an efficient removal of the dissolved paint and varnish, which usually consists of a viscous magma, especially in those instances wherein the original remover contains but a minimum amount of wax, and thereby accomplish the further objects of reducing the time and labor cost of the removal of the paint and varnish. Furthermore, this process is admirably adapted for interior application, in that it enables one to localize the application of and removal of the paint and varnish remover, thereby eliminating the usual objection with regards the spattering of the remover, and its action upon surfaces and objects, which is not only often objectionable, but in many cases decidedly injurious. The removal of the remover from crevices and interstices is also an important feature of this process, when employed in the interior of cars, buildings, &c., as not only is one enabled to completely remove all traces of the remover, and thereby conceal the fact that the same has been employed, but also the surfaces are rendered more suitable for the reception of fresh coats of paint or varnish, and the duration

or life thereof is thereby decidedly prolonged.

In the accompanying drawings, which serve to illustrate the apparatus employed in carrying out this process, Figure 1 is a perspective elevation of a pneumatic apparatus for removing the dissolved paint and varnish when in its slush-like condition, and Fig. 2 is a similar view of a pneumatic apparatus of the vacuum type for removing the dissolved paint and varnish aforesaid.

Referring to the drawings, 1 represents a platform or table provided with a curvilinear hood 2, at one end thereof, which hood is provided with a sloping channel 3 at the bottom thereof, below the level of the surface of said platform 1, said channel being provided at the lowermost end with an outlet tap 4, adapted to deliver the viscous liquid received by said channel, or trough, into a waste receptacle 5.

The article or object 7 is placed on the platform 1, as shown, for example, a door, and the nozzle 8, which is provided with an elongated delivery slot 9, and which is preferably flattened as regards its transverse dimensions, in order to admit of the delivery of air through said nozzle in the form of a thin sheet or film, preferably a sheet of eight inches more or less long, is brought in close proximity to the liquid mass, such as A, of dissolved paint and varnish, which results from the application of a paint and varnish remover to a dried, *i. e.*, weathered or oxidized, film of paint and varnish. Said nozzle, or film-spreader, is provided with a hollow, tubular handle 10, having a cut-off valve 11 therein, to control the supply of air admitted to said spreader, and said handle is adapted to be coupled with a source of air under high pressure, as indicated by the hose, or pipe, 12.

In Fig. 2, which illustrates the application of a pneumatic process for interior work, the surface 1' to be treated is similarly supplied, or treated, with a paint and varnish remover containing highly volatile paint and varnish solvents, or, if desired, other liquid solvents of paint and varnish, as indicated by the reference letter A', and a vacuum nozzle 14 is applied directly to the dissolved mass of paint and varnish, preferably in actual contact therewith. Thereby the said magma can be drawn or sucked through the elongated slot 15 of the vacuum nozzle 14,

and into the tubular handle 16, provided with a grip 17, when air under high pressure is introduced, through the supply hose 18, into the covered passage or main hose 19, which is coupled to said tubular handle, in the direction shown by the arrow *a—b*. The liquid thus aspirated or drawn through the main tube or pipe 19, will be forced out of the opposite end thereof in the direction indicated by the arrow *x—y*, and will be delivered into a receptacle 20, to which said pipe is secured by an adjustable collar, or strap, 21, or in any other desired manner. As vacuum apparatus have been heretofore constructed, which will work efficiently to produce the desired amount of suction required for this purpose, the apparatus herein employed is not claimed as such, but is merely described to enable one skilled in the art to utilize the same for carrying out the process herein described and claimed, and similarly the type of nozzle indicated in Fig. 1 is not claimed, but is merely described to enable one skilled in the art to carry out the process in accordance with the method indicated for such type of apparatus.

While various types of removers may be employed for this process wherein the removal of the resultant mass of dissolved paint and varnish is accomplished pneumatically, I preferably employ a thickened remover having film-forming properties, which contains a relatively small quantity of wax, as wax-containing removers, when the wax is present in relatively large quantities, are extremely unsatisfactory for use in the process herein described, for the reason that, not only is the wax so impervious to the influence of the compressed air applied, either positively or negatively, it becoming more and more impervious with the forced evaporation of the volatile paint and varnish solvents, but also, particularly when the pneumatic pressure is positively applied to the mass containing dissolved paint and varnish, there is a tendency for the wax to settle in and clog up the pores of the wood or other surface treated. Such preferred remover consists preferably of 65 pounds of methyl alcohol and 17 pounds of a collodion mixture containing approximately 92½% of solvent, for example, ethyl alcohol and ethyl acetate, the latter in relative small quantities, and 7½% of nitro-cellulose, as the hexa-, tetra- or di-nitro-celluloses, or other compounds of a similar nature, as acetate of cellulose. To this mixture is added a second solution consisting, for example, of one-half pound of beeswax, one-half pound of paraffin and about twenty-five pounds of crystallized phenol, the said ingredients being heated at approximately 70 degrees centigrade until thoroughly digested and reacted upon by the phenol. If desired, in lieu of the one-half pound of paraffin, one-quarter

pound of stearin and one-eighth pound of paraffin may be substituted. The aforesaid remover, since it contains pyroxolin, which is an alcohol soluble thickener, in relatively large proportions, and merely one pound of wax, possesses the peculiar property of remaining in liquefied condition for long periods, and in fact appears to become more and more liquefied, when applied to paint and varnish films and allowed to remain in contact therewith for extended periods, for example, several hours. The superficial film formed by this mixture is scarcely noticeable, and yet the liquid is so dense that the evaporation of the volatile solvents is retarded to an equally great extent as when large amounts of wax, for example, two pounds per gallon, are present in the remover. Moreover, the absence of a substantial film, admits of the ready penetration of a film of compressed air into the liquid, and also admits of the ready flow of the liquid through the vacuum nozzle illustrated in Fig. 2. The said removers are preferably non-aqueous, *i. e.*, they are free from aqueous-acid and aqueous-alkaline solvents, as acetic acid and ammoniacal solutions, and the like, which, as commercially known, contain large amounts of water, for example, acetic acid contains commonly from 40 to 70 per cent. of water, and usually the latter amount. Such aqueous-acid and aqueous-alkaline solutions usually consist of relatively non-volatile ingredients, owing to the large amount of water present, and accordingly the factor of evaporation of the paint and varnish remover into which they are introduced would be obviously largely reduced.

The action of the phenol upon the wax, in the removers such as are herein described, apparently is a chemical conversion, and instead of the gradual solidification of the mass when allowed to re-act upon weathered films of paint or varnish, there is a gradual increase in the liquefaction of the mass, and thus the removal thereof in the manner specified is more readily accomplished, particularly by the pneumatically applied film of air under high pressures, as described with reference to the apparatus shown in Fig. 1. Moreover, the conversion of the wax by the phenol results in the formation of a compound which has, apparently no deleterious effect upon fresh coats of varnish.

Having thus described my invention, what I claim is:

1. The process of removing paint or varnish, which consists in subjecting a dried film thereof to the action of a paint and varnish "remover," containing relatively small amounts of wax, and consisting principally of highly volatile paint and varnish solvents; permitting said remover to react upon the film so treated; and then effecting the removal of the resulting magma pro-

duced by said reaction by means of air under sufficient pressure to displace the said magma from the underlying surface which originally served to support the said paint or
5 varnish film treated.

2. The process of removing paint or varnish, which consists in subjecting a dried film thereof to the action of a liquid paint and varnish "remover"; permitting said re-
10 mover to react upon the film so treated; and then effecting a sufficient degree of suction in proximity to a portion of the surface of the resulting magma which is produced by
15 the underlying surface to which it originally adhered and to induce the flow of said mass through a covered passage which is in communication with a suction-producing means.

3. The process of removing paint or var-
20 nish, which consists in subjecting a dried film of paint or varnish to the action of a paint and varnish "remover," containing less than one and one-half pounds of wax per gallon, and containing an alcohol-soluble
25 thickener, said remover consisting principally of highly volatile paint and varnish solvents; permitting said "remover" to react upon the film so treated; and then effect-

ing the removal of the resulting magma, produced by said reaction, by means of air
30 under sufficient pressure to displace the said magma from the underlying surface which originally served to support the said paint or varnish film.

4. The process of removing paint or var-
35 nish, which consists in subjecting a dried film thereof to the action of a liquid paint and varnish "remover"; permitting said remover to react upon the film so treated
40 until its original identity is destroyed; and then effecting the removal of the resulting magma produced by said reaction, by inducing a sufficient degree of suction in juxtaposition to a portion of the surface of the
45 magma, to overcome the tendency of said magma to adhere to an underlying surface, whereby the said magma is separated from the underlying surface which originally served to support the same.

Signed at Montclair in the county of Es-
sex and State of New Jersey this 23d day
50 of February A. D. 1909.

JOHN M. WILSON.

Witnesses:

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