

Nov. 7, 1933.

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1,934,494

METHOD AND APPARATUS FOR CLEANING AND POLISHING AUTOMOBILES

Filed Oct. 9, 1928

4 Sheets-Sheet 1

Fig. 1.

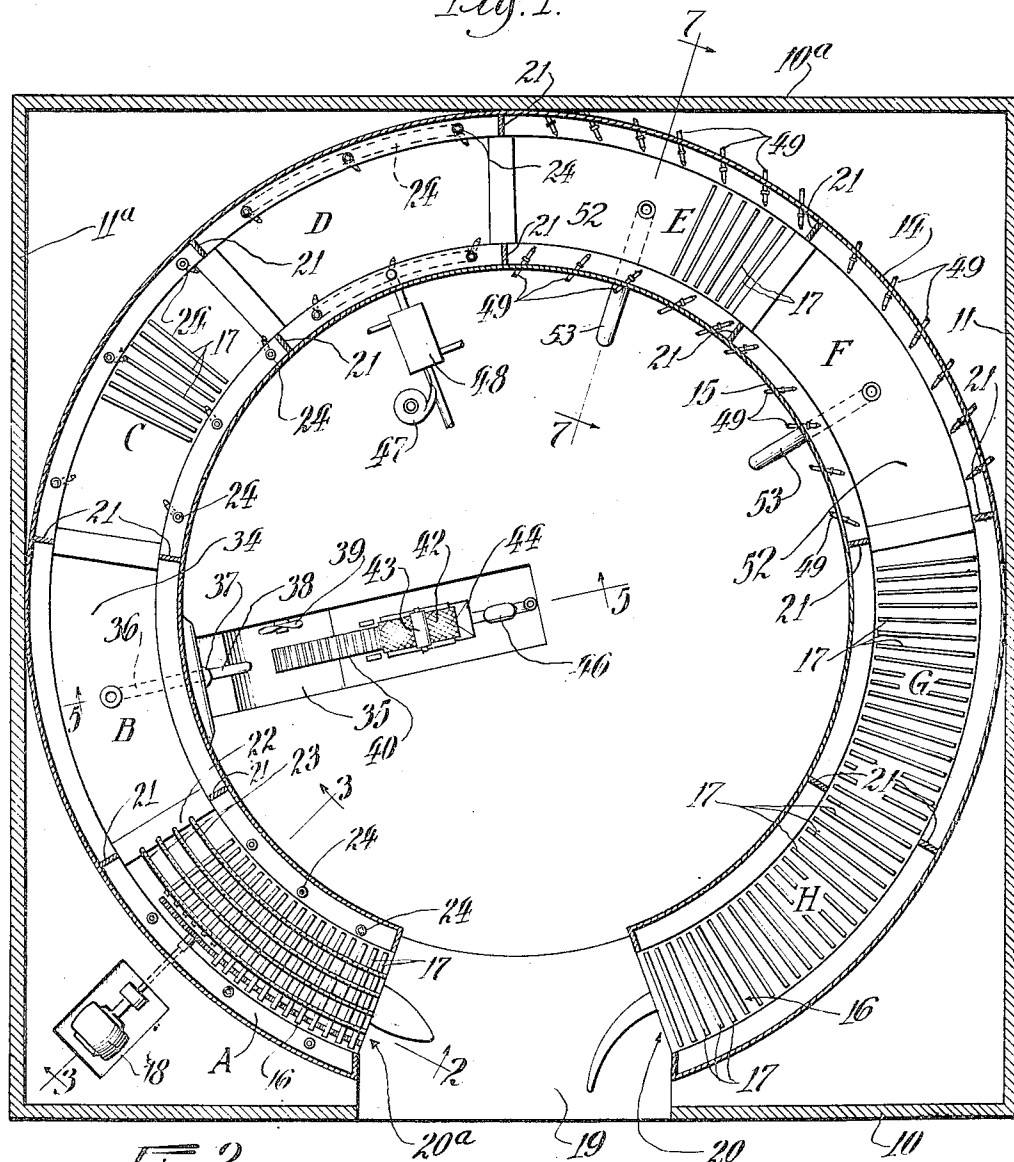
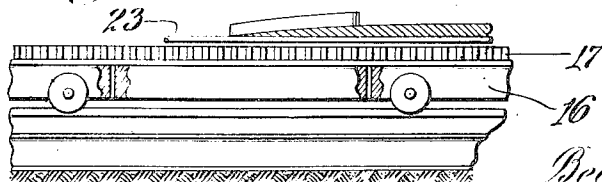


Fig. 2.



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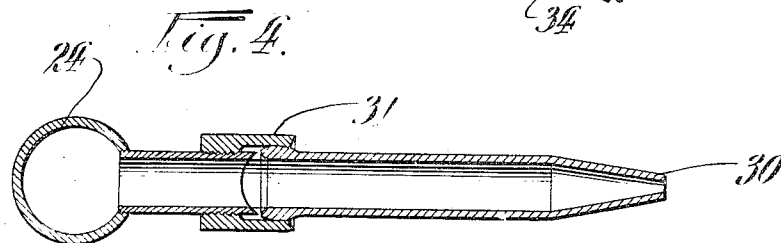
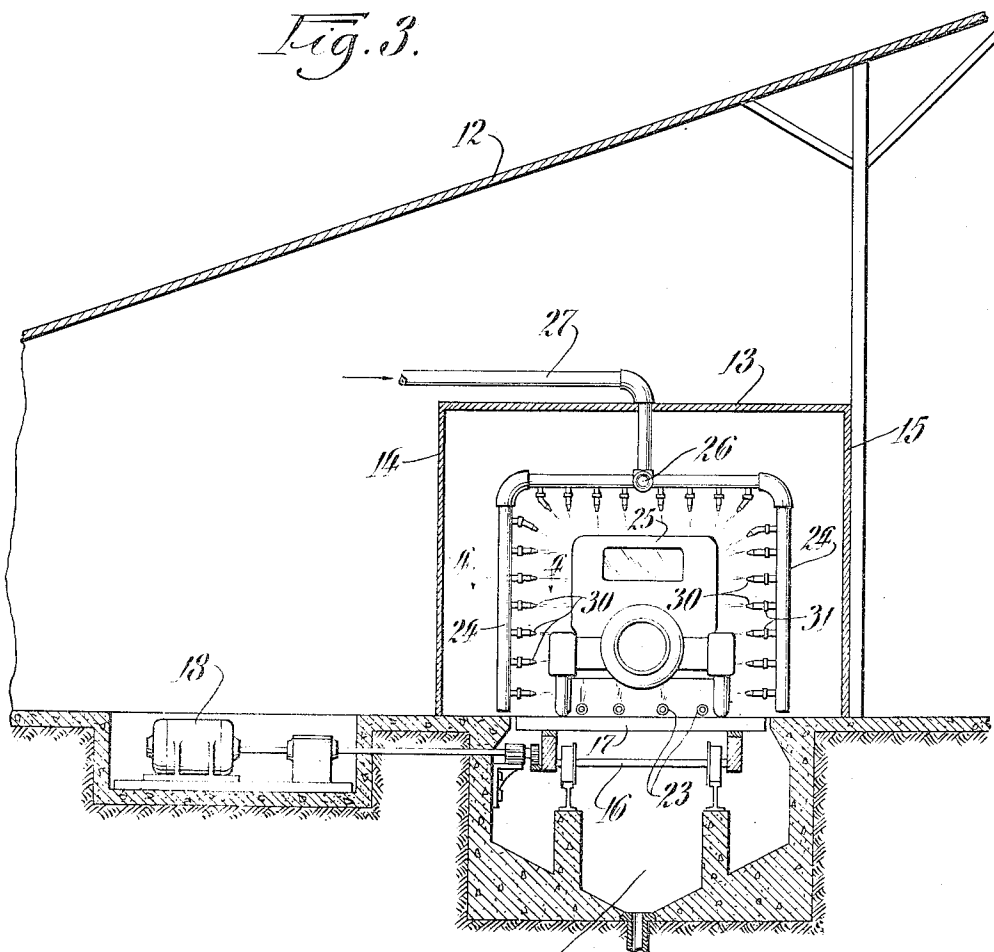
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4 Sheets-Sheet 2

Fig. 3.



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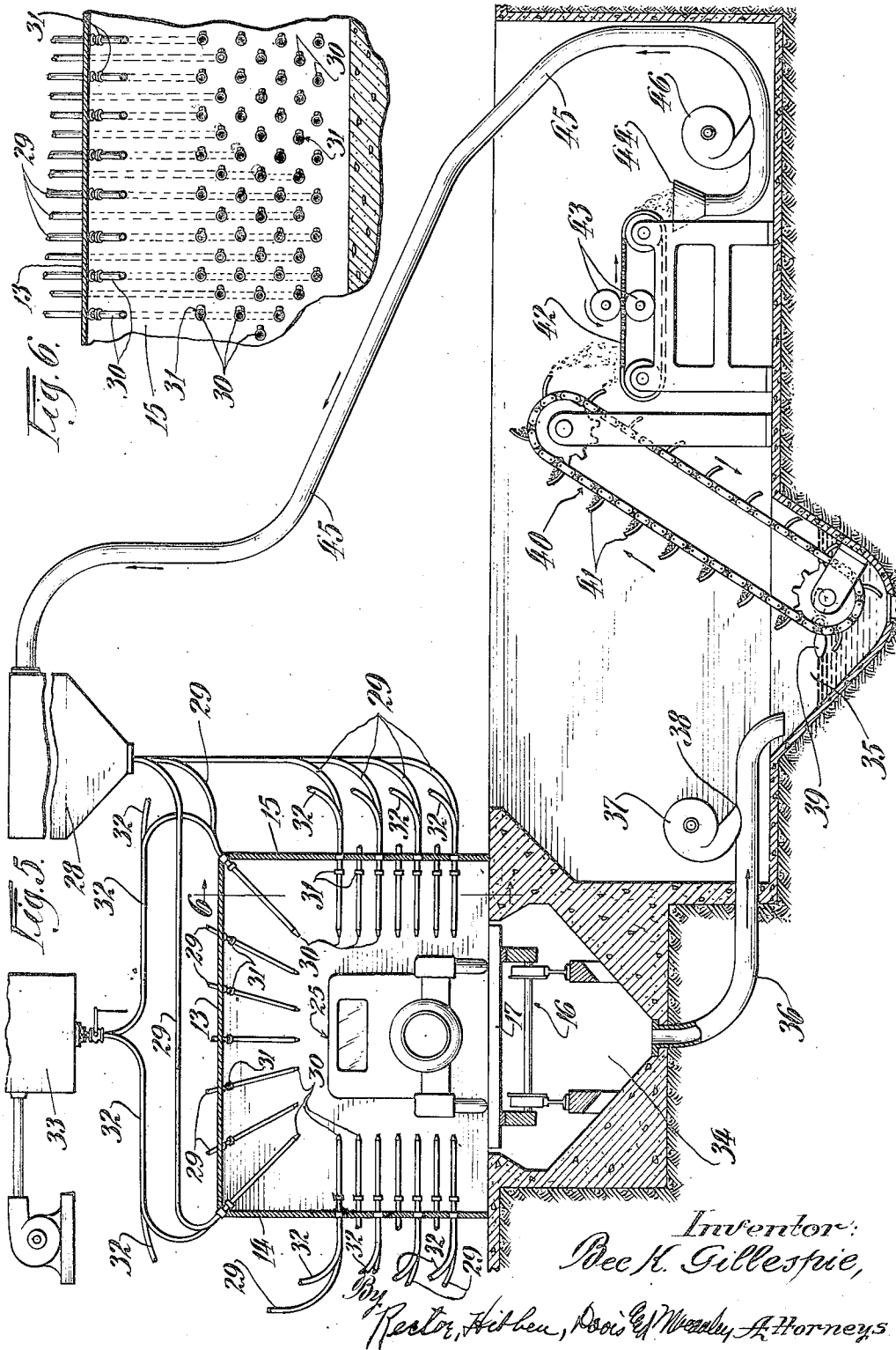
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METHOD AND APPARATUS FOR CLEANING AND POLISHING AUTOMOBILES

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4 Sheets-Sheet 3



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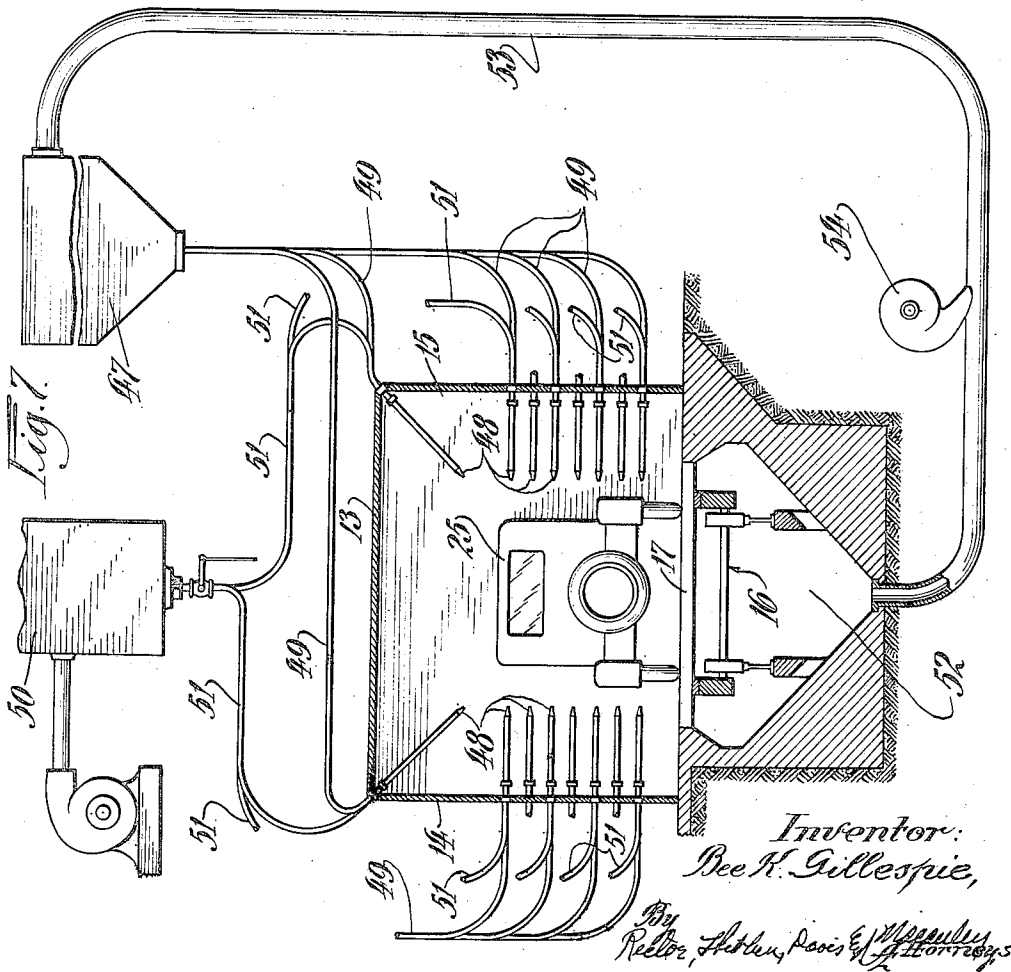
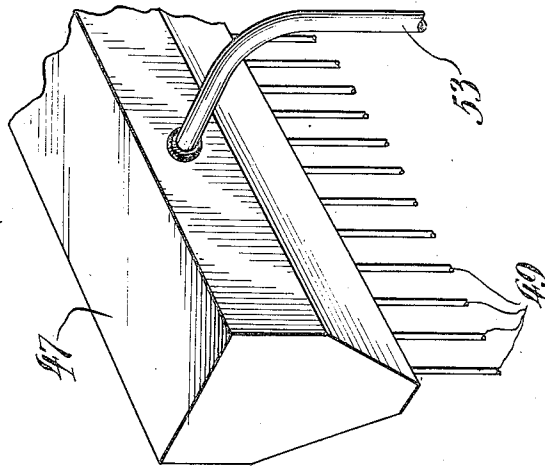
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METHOD AND APPARATUS FOR CLEANING AND POLISHING AUTOMOBILES

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4 Sheets-Sheet 4

Fig. 8.



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UNITED STATES PATENT OFFICE

1,934,494

METHOD AND APPARATUS FOR CLEANING
AND POLISHING AUTOMOBILESBee K. Gillespie, Chicago, Ill., assignor to Gillespie Auto Laundry System, Inc., Chicago, Ill.,
a corporation of Delaware

Application October 9, 1928. Serial No. 311,351

18 Claims. (Cl. 141—1)

My invention relates to a system for cleaning and polishing automobiles and has to do more particularly with method and apparatus for the cleaning and polishing of any number of automobiles successively.

One of the objects of my invention is to provide a simple and inexpensive method and apparatus whereby a plurality of successive cleaning and polishing operations are carried out mechanically in rapid order and without the aid of operators.

Another object is to provide an enclosure through which the automobiles may pass one by one successively by means of a continuously-moving conveyor, and with which there is associated apparatus arranged in succession along the conveyor for mechanically applying varied treatments to the automobile whereby it emerges from the enclosure thoroughly cleaned and polished both exteriorly and interiorly.

A further object is to provide a treating enclosure of the foregoing character which is divided into a plurality of successive compartments in each of which the automobile is subjected to a separate progressive treatment.

An additional object is to provide a continuous cleaning and polishing system wherein the automobile is submitted successively to a mechanical first-stage soaking or washing operation, a mechanical second-stage or complete washing operation, a mechanical rinsing operation, a mechanical air-drying operation, a mechanical polish-application operation, a mechanical polishing operation, an interior-cleaning operation and inspection.

Another object is to provide mechanical means for applying cleaning or polishing mediums, as the case may be, to the automobile under pressure, the medium being of such a character and being applied in such a manner that it comes in contact with the entire surface to be treated, regardless whether its contour is plain or irregular, without marring of such surface.

Another and more specific object is to accomplish the washing of the car by the application, under pressure, of a cleaning medium in the form of a soft, semi-solid material (small balls of cotton, small pieces of felt, small pieces of sponge, etc.) which will not mar the surface to be treated, such medium being impregnated with a cleaning element in the form of a soap solution, a coal oil solution, etc. I further provide for the use of the cleaning medium over and over again by providing an arrangement wherein the impregnated cleaning medium, after it has been applied to the automobile and has become dirty, is automatically

collected and passed to a cleaning or restoring station where it is washed and delivered back to feeding point to be again impregnated with the cleaning solution.

A further object is to provide mechanical means associated with the polishing-application compartment for applying to the automobiles the polish-application medium, such medium taking the form of small pieces of cotton, felt, sponge, or the like, impregnated with a polishing substance and delivered under pressure against the automobile body. The arrangement is such that the impregnated medium which has been applied to the automobile body surface is collected and mechanically delivered back to a feed source for use again on the next successively-treated car.

An additional object is to provide mechanical means similar to that mentioned in the preceding paragraph for the application of the polishing medium to the surface to be polished, the medium in this case may take the form of finely-cut pieces of felt, sponge, cotton, confetti, or other similar soft material, which will not mar the surface when applied thereto under pressure.

Another object is to provide mechanical means for rinsing and then air-drying the automobiles.

A further object is to provide apparatus of the foregoing character which as a whole is exceedingly cheap to install and easy to operate, and which is arranged for the reduction of waste of the various cleaning and polishing mediums to a minimum whereby the cost of operation is exceedingly low.

Other objects and advantages will become apparent as this description progresses and by reference to the drawings wherein,—

Fig. 1 is a horizontal section taken through a structure arranged in accordance with and embodying my invention;

Fig. 2 is an enlarged segmental section taken substantially on line 2—2 of Fig. 1 and showing the entrance-way leading into the enclosure structure as well as the conveyor which carries the automobile therethrough;

Fig. 3 is an enlarged vertical section taken substantially on line 3—3 of Fig. 1 and showing somewhat diagrammatically one form of apparatus for carrying out the first-stage cleaning operation;

Fig. 4 is an enlarged horizontal sectional view taken substantially on line 4—4 and showing the construction of one form of discharge nozzle which I may employ;

Fig. 5 is an enlarged vertical section taken sub-

stantially on line 5—5 of Fig. 1 and showing, diagrammatically, the apparatus associated with the second-staged cleaning compartment;

Fig. 6 is an elevational view of one of the side walls of the structure shown in Fig. 5, such view being taken substantially on line 6—6 of that figure; and

Fig. 7 is a view similar to Fig. 5 and showing one form of apparatus which I may employ in connection with the polishing and polish-application compartments; and

Fig. 8 is an enlarged separated perspective view of a portion of the hopper shown in Fig. 7.

With particular reference to the drawings, I may employ a building structure having end walls 10, 10^a, side walls 11, 11^a and a roof 12 (Fig. 3). Within this structure I provide a cylindrical, compartmental enclosure having a top 13 and side walls 14, 15. This enclosure is provided with a continuously moving conveyor 16, having a slatted platform 17, and it is driven by a suitable motor and gearing 18. The enclosure is provided with a combined entrance-exit platform 19 which is in communication with both the entrance 20^a and exit 20. The motor 18 and its gearing are adapted to drive the conveyor slowly to carry the automobile slowly through the enclosure so that the various successive treatments to be given it may be properly carried out as will be explained more in detail hereinafter. The circular enclosure, and the other foregoing described parts are similar to the corresponding parts fully described in U. S. Letters Patent No. 1,613,213 granted on January 4, 1927 to Louis J. Wilde and Bee K. Gillespie, for Apparatus for cleaning and polishing automobiles and I, therefore, do not deem it necessary to describe such structure in further detail. It is to be understood, however, that I do not wish to be limited to the specific form of enclosure structure shown and above described because it is obvious that such enclosure may be shaped so that the automobiles move through in a straight line rather than in a circular path; or the enclosure may be of any other desired shape with the provision of suitable means for moving the automobiles therethrough in continuous succession.

The cleaning and polishing enclosure is divided into a plurality of successively-connected compartments by vertical, spaced partition strips 21, and these compartments may be designated as the first-stage washing or soaking compartments A; the second stage washing compartment B; the rinsing compartment C; the drying compartment D; the polish-application compartment E; the polishing compartment F; the interior-cleaning compartment G; and the inspection compartment H. An opening 22 of suitable size is provided between adjacent compartments to permit the automobile to pass from one compartment into the other as the conveyor moves along. While I preferably employ the entrance-exit arrangement shown in the drawings, it is to be understood that the entrance and/or exit may be located at any desired position along the enclosure, or doors may be provided in each compartment so that the automobile may enter or be removed therefrom at any stage of operation.

In the first-stage washing compartment, I provide means for discharging numerous streams of cleaning fluid, preferably clean water, under pressure, in all directions, against the top, sides, front, and rear of the automobile body and against its running gear to preliminarily soak and loosen the dirt thereon. Specifically, a plurality, prefer-

ably, four pipes 23 supported by the platform 19 are disposed in compartment A along and parallel with the conveyor 16 so that the automobile passes over the same in moving through that compartment. These pipes are adapted to throw numerous sprays of water upwardly against the running gear of the automobile and the water may be applied with sufficient force and for a sufficient length of time, depending upon the rate of movement of the conveyor, that the running gear is thoroughly washed. At spaced intervals, in compartment A, I employ spaced U-shaped headers 24 defining a treating space through which the automobile 25 passes. Each of these headers is provided with a plurality of adjustable nozzles 30 (Figs. 3 and 4) which are directed tangentially toward the top, sides, front and rear of the automobile. The water passing through such nozzles strikes the automobile on a tangent with a wiping-like effect. The U-shaped headers 24 are connected together by a longitudinal header 26 which is connected to a suitable water supply by means of pipes 27. The water supply may take the form of a force pump (not shown) or any other desired means for forcing the water through the pipes 27 into the headers and through the nozzles against the automobile body under the desired pressure.

As the automobile 25 continues to move along slowly, and by the time it has had its preliminary cleaning and soaking, it passes from the compartment A and enters compartment B through the communicating opening 22. In the compartment B the automobile is subjected to a thorough cleaning operation as follows: The cleaning medium, which may take the form of soft material such as finely-cut pieces of felt, or cotton, or sponge impregnated with a cleaning solution, is applied under pressure, against the surface to be cleaned. This cleaning solution may take the form of a soap solution or a solution containing coal oil or any other material adapted for cleaning purposes. The structure, which I employ to this end, may take the form of a hopper 28 to which is connected a plurality of feed pipes 29. The material for cleaning is fed through these pipes to the discharge nozzles 30 which, preferably, take the form of the nozzle shown in Fig. 4. More particularly, this nozzle is provided with a ball and socket joint indicated generally at 31 which permits it to be swung to any desired angle for directing the material on a tangent diagonally toward the automobile to insure that all exposed and intended surfaces of the automobile will be wiped or "scrubbed", so to speak, and properly treated. Some of these nozzles may be so directed that the cleaning material will be directed generally toward the corners, or the rear and/or the front of the automobile body so as to properly clean those surfaces. The nozzle shown in Fig. 4, is, preferably, the form employed in all of the compartments which have been and which will be hereinafter described. A sufficient number of these nozzles are located in the compartment B along the sides and top of the automobile to insure cleaning of all its surfaces as the car passes through such compartment.

The material contained in the hopper 28 may be impregnated in any desired manner with the cleaning solution and this material is fed from the hopper through the feed pipe 29 by air-pressure means; namely, an air line 32 leading from, preferably, a compressed air tank 33 is connected to each pipe 29 at some desirable point

intermediate the hopper 28 and the discharge nozzle 30, as illustrated diagrammatically in Fig. 5. To feed the material from the hopper 28, air is delivered from the tank 33 under pressure into the pipe 29 toward the nozzle 30, creating in such pipe (each pipe), back of such connection, a suction and beyond such connection a forcing pressure, whereby the material, as will be well understood, is drawn from the hopper by the suction and delivered past the air-admission point and finally discharged through the nozzle 30 by the air under pressure. Thus, the slowly moving automobile, as it moves through the compartment B, passes through a space laden with the cleaning medium, and it is bombarded, so to speak, by the pressure-applied cleaning medium with the result that dirt, etc., is loosened and removed therefrom.

The medium as it strikes the vehicle, obviously falls downwardly and it is received in the hopper-shaped bottom or pit 34 of the compartment B from which bottom or pit it is fed through a conduit 36 by air-pressure means to a cleaning reservoir or a station 35. The air pressure means may include an air blower or compressor 37 which is connected to the conduit 36 as at 38 so as to direct the air toward the reservoir 35. The air delivered by this blower 37 sets up a suction condition in the conduit 36 between the blower and the pit 34, drawing the material from the latter, and discharging the same into the reservoir 35. This reservoir 35 is adapted to contain any suitable cleaning fluid which will remove the dirt, etc., from the cleaning medium. To aid in the cleaning operation, I may employ an agitator 39 suitably mounted on a wall of the reservoir and continuously actuated by any desired power means (not shown).

An endless conveyor 40 is so associated with the reservoir 35 that its paddles (or other suitable collectors) 41 pass through such reservoir and pick up the material therein and drop it onto the upper flight of a continuously moving and perforated conveyor platform 42. The surplus liquid which is carried along with the cleaning medium is drained through the perforated conveyor 42. The material dumped upon the conveyor 42 is carried along between the rollers 43 and substantially all of the moisture is removed therefrom. After this material passes through the rollers, it is carried along and dropped into a chute 44 from which point it is delivered through a conduit 45 back to the hopper 28 to be again impregnated with the cleaning solution for use again in the cleaning of other automobiles. The feeding of this material through the conduit 45 may be accomplished by means of a blower 46 similar in structure and operation to the blower 37, above described. Or, if desired, the blowers 37 and 46 may be dispensed with and these respective conduits connected to the compressed air tank 33 at suitable point to accomplish the same results as already described in connection with such blowers as will be well understood.

The continuously moving conveyor 16 finally carries the vehicle through the compartment B into the rinsing compartment C. This compartment is provided with a structure similar to that described in connection with compartment A. Preferably, clear water is discharged under pressure against all exposed parts of the automobile and all of the cleaning solution is thoroughly rinsed therefrom.

In the next compartment D, the vehicle is given

a drying treatment. To this end, the piping and discharge nozzle arrangement is similar to that used in connection with compartments A and B and will be well understood from the description of the structure used in such compartments. In this case, however, hot air (which, for example, may be from 180° to 200° in temperature) is discharged through the nozzles located in the compartment. To this end, I may employ a blower 47 which feeds the air through a steam-heated radiator 48 (or other suitable air-heating device) to heat the same and thence through a conduit 49 to a suitable header (similar to the header 46 of Fig. 3) and discharges the same under pressure through the several nozzles in that compartment against the car body.

The drying of the automobile is followed by the application of a polishing material and the polishing operation, successively in compartments E and F. I, preferably, apply the polish substance (which may be a polishing fluid or wax, etc.) by means of a polish-impregnated medium, which, as in the previous instances, may take the form of finely-cut pieces of felt, cotton, sponge, or the like. To this end, I employ apparatus similar to that employed in compartment B, except that the medium-cleaning and conveyor structures 35, 40 and 42 are omitted. Since, by the time the automobile reaches this compartment, it is fairly cleaned, the impregnated polish-application medium may be used over and over again for a considerable length of time without cleaning, or otherwise treating the same, with the possible exception of the application of additional polishing material. With particular reference to Fig. 7, the polish-application system just referred to may take the form of a hopper 47 in communication with the discharge nozzles within the compartment E by means of pipes 49 (one pipe for each nozzle). I also employ (as described in connection with compartment B, Fig. 5) a compressed air tank 50 from which lead a plurality of pipes 51 to the respective hopper pipes 49 for feeding the polish-application medium from the hopper 47 through the pipes 49 and nozzles 48 under pressure against the automobile. Obviously, as this polish-application medium strikes the automobile, the polishing material is uniformly applied to the surface to be polished. After its application, this medium falls downwardly into the compartment bottom or pit 52 and it is delivered from this pit back to the hopper 47 through the conduit 53 by means of the air-pressure or blower device 54 in a manner already made clear in connection with the blowers 37 and 46 of Fig. 5. Or, if desired, the blower 54 may be dispensed with and a suitable connection from the air tank 50 to the conduit 53 provided instead so as to produce the desired suction-pressure flow condition. As in the previous compartments, the nozzles are so adjustable (Fig. 4) to the desired angle that the material strikes the automobile surfaces at a tangent giving a wiping effect and they are of sufficient number to provide a continuous shower of the polish-application medium so as to thoroughly apply the polishing material to all parts of the automobile to be polished. Since it may not be necessary to polish the top of the automobile, nozzles at this point are omitted (Fig. 7).

The application of the polishing material to the automobile is followed by the final polishing in compartment F. This polishing is accomplished by means of apparatus identical with that shown in Fig. 7 and used in the compartment E.

However, in this case, the polishing medium takes the form of finely-cut pieces of felt material, sponge, cotton, confetti, or any other suitable material which will not mar the surface to be treated, and which is untreated and in its original state. This material is fed under pressure through the properly directed nozzles (corresponding to the nozzles 48) against all parts of the automobile and a high polish is added thereto. In this case, also, the space through which the automobile moves is, in fact, laden with the particles of material forming the polishing medium and all parts of the automobile to be polished are brought into contact with the same (and are "bombarded", so to speak) as the car moves slowly through this compartment.

In the interior-cleaning compartment G, the interior of the car is normally cleaned by an operator. In the final compartment H, the car is subjected to a rigid inspection by an operator or operators and it finally emerges from the exit 20 upon the platform 19 and is delivered to its owner, completely cleaned and polished.

While the operation of the foregoing structure will be obvious from the description already given, it may be summarized as follows: The car to be cleaned and polished is first driven upon the platform 19 and through the entrance 20* at the left onto the moving conveyor 16. This conveyor moves slowly in a clockwise direction carrying the automobile from compartment to compartment where the various treatments are given to it as herein above described. While, in the form shown, the conveyor is moved with a uniform slow motion, it may be desirable in some instances to move the conveyor at variable-rate speeds at different times. For example, while the car is passing through a compartment and before it has reached the exit of that compartment (and about the time it is ready to enter the other compartment), it may be desirable to increase the speed of the conveyor so as to rapidly move the car to the next station for the next treatment. To that end, I may employ a variable speed motor 18 controlled by suitable speed regulation and timing mechanism for causing the conveyor to move at variable speeds as above described. In some instances, also, some of the mechanical operations may be dispensed with and such operations carried on under the control of an operator. For example, the polish material may be applied to the automobile in compartment E manually by means of spray devices controlled by the operator or by other known manual means. However, I preferably carry out all of these operations, excepting those which take place in compartments G and H, mechanically in accordance with the afore-stated objects of my invention.

While I have shown and described only one form of embodiment of my invention, it will be readily appreciated that various changes in details and arrangement of parts thereof may be made without departing from the spirit and scope of my invention as defined by the claims which follow.

I claim:

1. In apparatus of the character described, a continuous closed cleaning system which comprises a source of cleaning medium, a plurality of nozzles for directing said cleaning medium against all exterior parts of an automobile, said nozzles being connected to said cleaning medium source, means associated with each of said nozzles for feeding the cleaning medium

from its source under pressure through said nozzles, a pit beneath said nozzles for receiving said medium after its application to the automobile, mechanism for cleaning said medium and restoring it to its original form after its application to the automobile which includes a washing reservoir, a conduit connecting said pit and reservoir, means for feeding the medium through said conduit, a conveyor for removing said medium from said reservoir, a wringer structure which receives the cleaned medium from said conveyor, and a conduit having feed means for delivering the cleaned medium back to said source.

2. A closed, continuous cleaning system for apparatus of the character described, means forming an enclosure, a reservoir adapted to contain a non-fluid treatment-medium of a character which, when applied to the highly finished surface of automobiles under pressure, will not mar the same, a conduit leading from said reservoir to said enclosure, a discharge nozzle located in said enclosure and connected to said conduit for delivering the medium against the surface to be treated, an air pressure device located in said conduit for delivering air under pressure into said conduit toward said enclosure and for creating a suction in said conduit between said device and said reservoir, a pit beneath said enclosure, and means for feeding said medium which falls into said pit back to said reservoir, whereby the same medium may be used over and over again in the successive treatment of any number of automobiles.

3. A continuous cleaning system constituting a part of an apparatus of the character described, which comprises means for forming an enclosure, a pit beneath said enclosure, a reservoir adapted to contain a supply of treatment fluid and a non-fluid carrier medium saturated with the fluid, a plurality of discharge nozzles connected to said reservoir and located in said enclosure so as to direct said saturated medium against all parts of the automobiles while they are located in said enclosure, means for feeding said medium through said nozzles under air pressure, and means for feeding said medium which has been applied to the automobiles from said pit back to said reservoir, including mechanism for cleaning the medium, restoring it to substantially an unsaturated form, and delivering the same continuously to said reservoir for resaturation.

4. A method of cleaning automobiles which comprises soaking the surfaces to be cleaned with a liquid which will soften and loosen the foreign matter adhering thereto, while the foreign matter is still soft and loose, subjecting the surfaces to a scrubbing treatment by bombarding the same with finely divided pieces of a soft material impregnated with a cleaning solution and supported and propelled by a fluid which has no cleaning effect on said surfaces, and finally subjecting the surfaces to a rinsing action to remove any cleaning solution and finely divided pieces of said material adhering thereto.

5. A method of cleaning automobiles which comprises soaking the surfaces to be cleaned with a liquid which will soften and loosen the foreign matter adhering thereto, while the surfaces are still wet with said liquid and the foreign matter is still soft and loose, subjecting the surfaces to a scrubbing treatment by directing against the surfaces, at a tangent diagonal to the planes of the same, finely divided pieces of a soft material impregnated with a cleaning solution and sup-

ported and propelled by a fluid which has no cleaning effect on said surfaces, and finally subjecting the surfaces to a rinsing action to remove any cleaning solution, finely divided pieces of said material, or the like, adhering thereto.

6. The method of cleaning automobiles which comprises soaking the surfaces to be cleaned to soften and loosen the foreign matter adhering thereto, while the foreign matter is still soft and loose, subjecting the surfaces to a scrubbing treatment by bombarding the same with pieces of a soft material having applied thereto a cleaning solution and which is supported and propelled by an air blast, and finally removing from the surfaces any cleaning solution, pieces of said material, and the like, still adhering thereto.

7. The method of cleaning automobiles which comprises spraying the surfaces to be cleaned with water to soften and loosen foreign matter adhering thereto, while the surfaces are still wet and the foreign matter still soft and loose, subjecting the surfaces to a scrubbing treatment by directing thereagainst at a tangent diagonal to the planes of said surfaces finely divided pieces of a cleaning solution carrying medium propelled by a fluid which has no cleaning effect on said surfaces, finally rinsing the surfaces free of any cleaning solution and finely divided pieces of said carrier medium still adhering thereto.

8. A method of treating the finished surfaces of automobiles which comprises subjecting said surfaces to the action of finely divided pieces of a soft material impregnated with a treating liquid and suspended and propelled by a fluid which has no treating effect on said surfaces.

9. The method of treating finished surfaces of automobiles which comprises directing against said surfaces at a tangent substantially diagonal to the planes of the same finely divided pieces of a soft material impregnated with a treating solution and suspended and propelled by a fluid which has no treating effect on said surfaces.

10. The method of treating finished surfaces of automobiles which comprises bombarding said surfaces with finely divided pieces of a soft material having applied thereto a treating substance and suspended and propelled by a multiplicity of air blasts.

11. Apparatus for cleaning automobiles which comprises means for thoroughly soaking the exposed surfaces of the automobiles with a liquid which will soften and loosen foreign matter adhering thereto, means for impregnating finely divided pieces of a soft material with a cleaning solution, air pressure means for forcibly bombarding said surfaces with said pieces of material to cause the wet surfaces to be scrubbed with the cleaning solution, and means for rinsing the surfaces with water to remove any cleaning solution, pieces of material, and the like still adhering thereto.

12. Apparatus for cleaning automobiles which comprises means for thoroughly soaking the exposed surfaces of the automobiles with a liquid which will soften and loosen foreign matter adhering thereto, means for impregnating finely divided pieces of a soft material with a cleaning solution, means for forcibly projecting against said surfaces the saturated pieces of material to cause the wet surfaces to be scrubbed with the cleaning solution and means for spraying the surfaces with a fluid to remove any cleaning solution, pieces of material, or the like, still adhering thereto.

13. Apparatus for cleaning automobiles which

comprises an inclosure divided into a plurality of separate chambers, means for propelling automobiles successively through said separate chambers, means associated with one of said chambers for thoroughly soaking the exposed surfaces of the automobiles, as they are moved therethrough, with a liquid which will soften and loosen foreign matter adhering thereto, means for impregnating finely divided pieces of a soft material with a cleaning solution, air pressure means associated with another of said chambers for forcibly bombarding said surfaces with pieces of material to cause the wet surfaces to be scrubbed with the cleaning solution while the automobiles are being moved through this chamber, and means associated with another of said chambers for rinsing the surfaces of the automobiles, while being passed through said chamber, with water to remove any cleaning solution, pieces of material, or the like, still adhering thereto.

14. Apparatus for cleaning automobiles which comprises an inclosure divided into a plurality of separate chambers, means for moving automobiles successively through said chambers, means associated with one of said chambers for thoroughly soaking the exposed surfaces of the automobiles, while being moved through the chamber, with a liquid which will soften and loosen foreign matter adhering thereto, means for impregnating finely divided pieces of a soft material with a cleaning solution, means associated with another of said chambers for forcibly projecting against the said surfaces the saturated pieces of material to cause the wet surfaces to be scrubbed with the cleaning solution while the automobiles are being moved through this second chamber, and means associated with another of said chambers for spraying the surfaces of the automobiles, while being passed through this chamber, with a fluid to remove any cleaning solution, pieces of material, or the like, still adhering thereto.

15. Apparatus for cleaning automobiles which comprises means for treating the surfaces to be cleaned to soften and loosen the foreign matter adhering thereto, means for impregnating finely divided pieces of a soft material with a cleaning solution, air pressure means for forcibly bombarding said surfaces with said pieces of material to cause the wet surfaces to be scrubbed with the cleaning solution, and means for removing from the scrubbed surfaces any cleaning solution, pieces of material, or the like, still adhering thereto.

16. In apparatus of the character described, means forming a compartment to enclose automobiles while the finished surfaces of the same are being treated, air pressure means operatively associated with said compartment for continuously directing against said surfaces a treating medium, a pit in said compartment for receiving the treating medium after it has been applied to said surfaces, and means for continuously supplying said treating medium to said air pressure means.

17. In apparatus of the character described, means forming a compartment to enclose automobiles while the finished surfaces of the same are being treated, means for saturating finely divided pieces of a soft material with a treatment substance to form a surface treating medium, air pressure means operatively associated with said compartment for continuously directing against said surfaces said treating medium, a pit in said compartment for receiving the treating medium

after it has been applied to said surfaces and means for continuously supplying said treating medium to said air pressure means.

18. In apparatus of the character described, 5 means forming a compartment to enclose automobiles while the surfaces of the same are being treated, means for saturating finely divided pieces of a soft material with a treatment substance to form a surface treating medium, air pressure 10 means operatively associated with said compartment for continuously directing against said

surfaces the treating medium, a pit in said compartment for receiving the treating medium after it has been applied to said surfaces, means for treating the said medium to remove therefrom the treatment substance and other foreign matter adhering thereto to return the finely divided pieces of material to a substantially unsaturated form, and means for returning the unsaturated pieces of material to the saturating means.

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