

July 19, 1927.

W. E. WUELKER

1,636,087

POWER TAKE-OFF FOR AUTOMOBILES

Filed March 7, 1923

2 Sheets-Sheet 1

Fig. 1

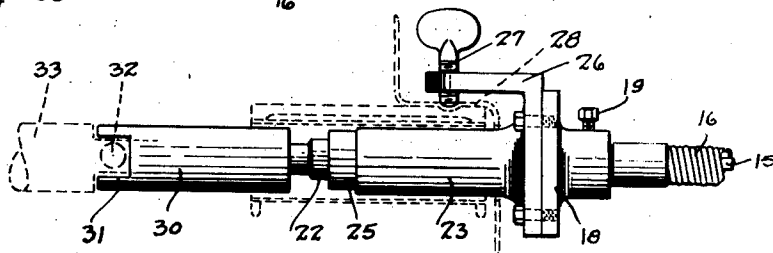
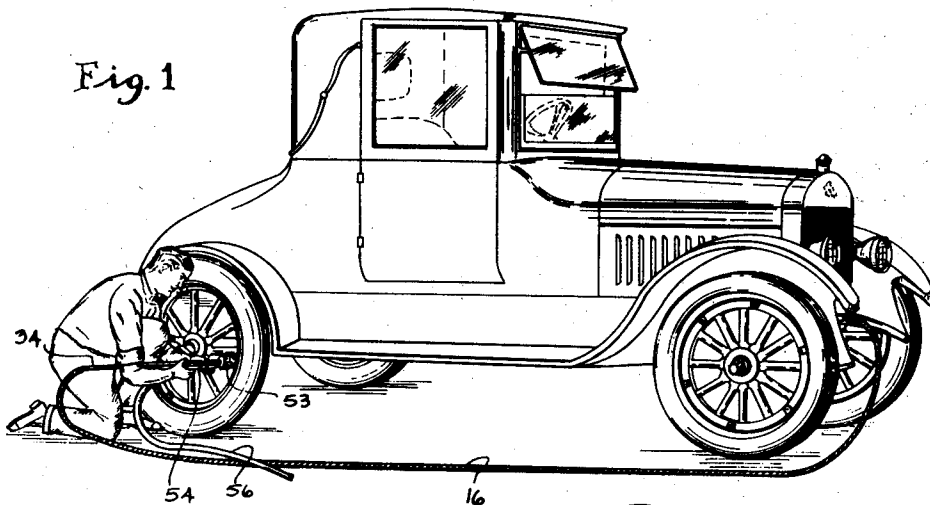


Fig. 2

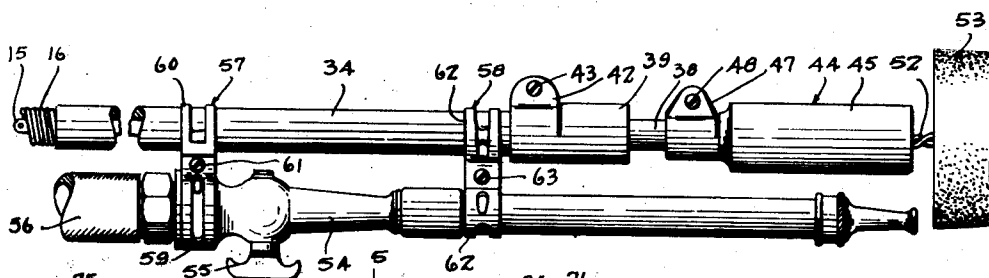


Fig. 3

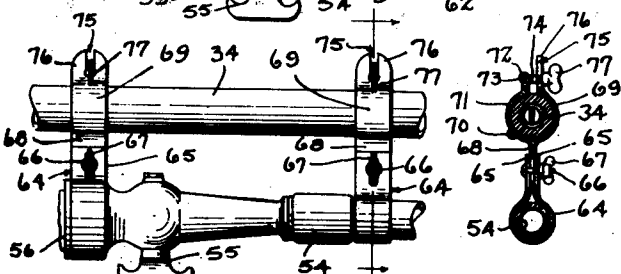


Fig. 4

Fig. 5

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2 Sheets-Sheet 2

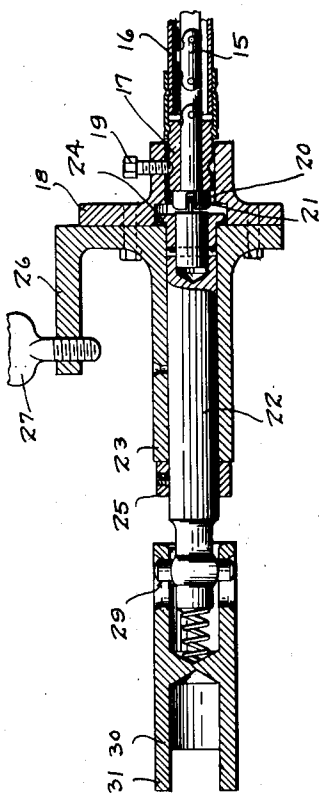


Fig. 6

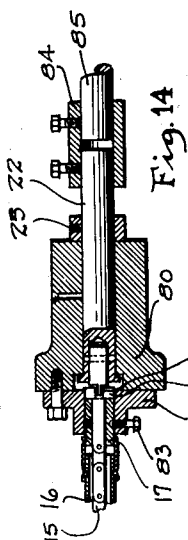


Fig. 14

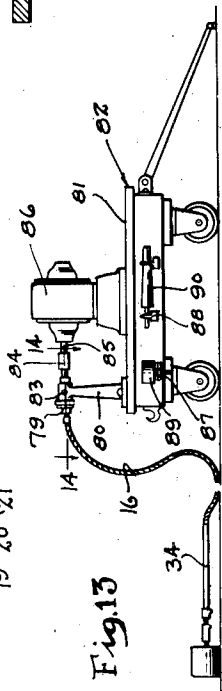


Fig. 13

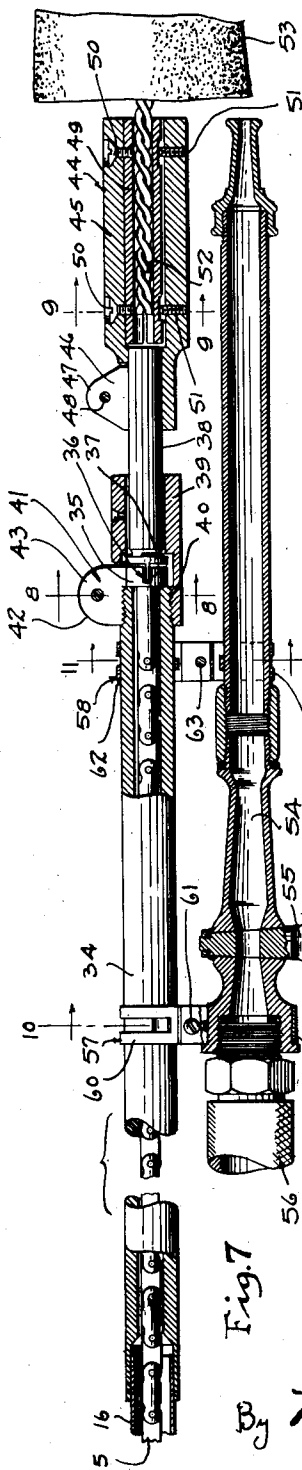


Fig. 7

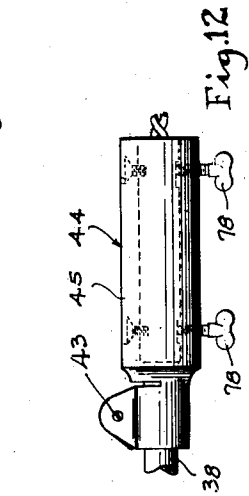


Fig. 12

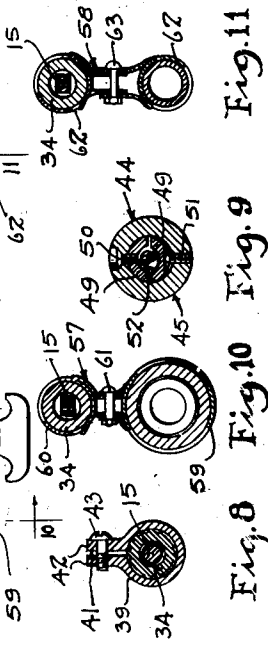


Fig. 8

Fig. 9

Fig. 10

Fig. 11

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UNITED STATES PATENT OFFICE.

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POWER TAKE-OFF FOR AUTOMOBILES.

Application filed March 7, 1923. Serial No. 623,449.

This invention relates to cleaning apparatus the prime mover of which operates to effect rotation of the cleaning or polishing brush of the oil or polish applicator, any one of which may be detachably connected with the shaft of the apparatus.

The invention is especially serviceable in the cleaning of motor cars and will be described in that connection, though it is to be understood that it may be employed otherwise when found desirable.

An object of the invention is to provide an apparatus that can be used with great facility upon the different parts of a motor vehicle or elsewhere, for washing, for applying a liquid or semi-solid cleaner, oil or polisher, and for polishing the various parts of a motor vehicle or any other surfaces that require these operations.

Another object is to make provision for supplying water to a rotary brush while the brush is in action upon the surface being scrubbed.

Another object is to make provision for detachably connecting the apparatus to an automobile, so that the motor thereof will operate the apparatus.

Another object is to construct the apparatus so that a water nozzle may be associated with the scrubbing brush during the scrubbing operation and may be readily disconnected from the brush supporting handle when it is desired to apply a liquid or semi-solid cleaner, oil or polisher and when it is desired to effect the polishing operation.

Another object is to embody the apparatus in a form that it will make it convenient for use in garages, without the necessity of employing the motors of the vehicles as a source of power for operating the apparatus.

The accompanying drawings illustrate the invention:

Figure 1 is a perspective view of a motor vehicle with which an apparatus, embodying the invention, is connected, said apparatus being shown as in actual use by an operator in scrubbing the vehicle.

Fig. 2 is a longitudinal view of the means for detachably connecting the apparatus to the motor vehicle, portions of which are indicated in broken lines.

Fig. 3 is an enlarged longitudinal view of that portion of the apparatus on the left in Figure 1, a portion of the brush being broken away to contract the view.

Fig. 4 is a fragmental view of some of

the parts shown in Figure 3, illustrating modified means for detachably connecting the nozzle to the brush handle.

Fig. 5 is a sectional elevation on the line indicated by 5—5, Figure 4.

Fig. 6 is a longitudinal mid section of the connection means shown in Figure 2.

Fig. 7 is a longitudinal view, mainly in mid section, of the parts shown in Figure 3 on an enlarged scale.

Figs. 8, 9, 10, and 11 are sectional elevations on the lines indicated by 8—8, 9—9, 10—10, and 11—11, respectively, Figure 7.

Fig. 12 is a longitudinal view of the chuck showing a modification of the clamping screws.

Fig. 13 is a side elevation showing a wheeled form of the apparatus.

Fig. 14 is an enlarged sectional detail on the line indicated by 14—14, Fig. 13.

Referring first to the form of apparatus shown in Figures 1 to 3 and 6 to 11, of the drawings there is provided a flexible shaft 15 of any suitable construction. The shaft is illustrated is of a type that is well known in the art relating to shafting. The flexible shaft extends through a flexible sheath 16 which is also of well known construction. One end of the sheath 16 is provided with a coupling member 17 adapted to be inserted in a second coupling member or collar 18 provided with a set screw 19, the inner end of which engages the coupling member 17 to securely hold the coupling members together.

The flexible shaft 15 extends through and is journaled in the coupling member 17 and is provided with a slotted head 20 adapted to engage an ear 21 that projects from one end of a shaft 22 which is journaled in a bracket bearing 23. The coupling member 18 is bolted or otherwise secured to the bracket bearing 23, and a shoulder 24 on the shaft 22 is adapted to thrust against one end of the bearing 23 to limit endwise movement in one direction of the shaft 22. Endwise movement of said shaft in the opposite direction is prevented by a collar 25 on said shaft adapted to thrust against the opposite end of the bearing 23.

The bearing 23 has associated therewith suitable means for detachably connecting it to the front portion of an automobile in alinement with the crank shaft thereof. These means will be variously constructed to meet the various conditions in different

motor vehicles. In this instance the bearing 23 is formed integrally with an L-shaped arm 26 provided with a thumb screw 27 which is adapted to be tightened against a
 5 thimble 28 that constitutes a portion of the automobile, said thimble being shown in broken lines in Figure 2. The bearing 23 projects into the thimble 28, when the apparatus is operatably associated with the auto-
 10 mobile. The shaft 22 is connected by a universal joint 29 to a coupling 30 which is forked at 31 so as to engage the cross pin 32 in the shaft 33 of the motor vehicle. The construction of the cross pin 32 is well under-
 15 stood in the art relating to automobile engines, and said pin enables the ordinary hand-operated crank to be applied to the crank shaft for starting the motor into operation. Thus, by the construction de-
 20 scribed, the shaft 15 of the cleaning apparatus is detachably coupled to the crank shaft in place of the usual hand crank so that rotation of the crank shaft will effect rotation of the flexible shaft. The shaft 15
 25 may be otherwise coupled with the crank shaft, within the scope of the invention.

The sheath 16 connects with a tubular handle 34 through which extends the flexible shaft 15. The flexible shaft 15 is pro-
 30 vided with a head 35 adapted to bear against one end of the tubular handle 34 to prevent endwise movement of the tubular shaft toward the left in Figure 7. The head 35 is provided with a slot 36 in which is en-
 35 gaged an ear 37 of a rigid shaft 38 which extends through a bearing 39, into one end of which is screw-threaded at 40 the tubular handle 34. The bearing 39 may be split at one end, as indicated at 41, and is pro-
 40 vided with ears 42 through which extends a screw 43 for contracting the split portion of the bearing upon the tubular handle 34.

The shaft 38 is provided with a chuck 44 which may be of any suitable construction
 45 which, in this instance, is as follows: A sleeve 45 is split at one end, as indicated at 46, and is provided with ears 47 through which extends a screw 48 for contracting the split portion of the sleeve upon the shaft 38. In the sleeve 44 are sections of a split
 50 clamping bushing 49, one section being secured to the sleeve 44 by screws 50 threaded into the sleeve. The other bushing section is adjusted toward the first bushing section
 55 by screws 51 threaded into the sleeve 44 and having their inner ends bearing against said other bushing section, as clearly shown in Figure 7.

60 The clamping bushing 49 is adapted to receive the stem 52 of a brush 53. The brush 53 may be constructed of bristles, felt or other material suitable for effecting the various operations of washing, polishing or
 65 applying a liquid or semi-solid oil or polish,

and it is to be understood that the term "brush" employed herein defines any member that may be employed for effecting any of the various operations mentioned herein. The construction of the brush 53 need not
 70 be described in detail herein, since such construction constitutes no portion of this present invention. To connect the brush 53 to the shaft 38, the screws 51 will be loosened and the stem 52 inserted in the bushing 49,
 75 whereupon the screws 51 will be tightened to contract the bushing upon the stem 52. The foregoing describes one form of means for operatably connecting the brush to the flexible shaft, but other means may be em-
 80 ployed within the scope of the invention.

Associated with the handle 34 is a water nozzle 54 which may be provided with a valve 55. The nozzle 54 receives water
 85 through a hose 56 which may be connected in the usual manner to a water supply pipe. The nozzle 54 is positioned longitudinally of the handle 34 with its discharge end substantially flush with the outer end of the sleeve 44 and, thus, adjacent to the brush 53.
 90 The nozzle is held in this position by suitable clamping devices 57, 58. The clamping device 57, in this instance, comprises split bands 59, 60 which are joined together and clamped upon the nozzle and handle 34, re-
 95 spectively, by a screw 61. The clamping device 58, in this instance, comprises a pair of split clamping bands 62, one surrounding the nozzle and the other surrounding the handle 34. The clamping bands 62 are fas-
 100 tened together and contracted upon the nozzle and handle 34 by a screw 63. The clamping devices 57, 58 are not constructed for ready detachment of the nozzle from the handle 34, though this is possible by loosening
 105 the screws 61, 63.

To use the invention described above, the apparatus will be operatively connected with the motor vehicle, in the manner hereinbefore described, and the engine of the vehicle will be started into operation to effect rotation of the brush 53. To wash
 110 the car, water will be supplied to the nozzle 54 and the nozzle will direct the water into the rotating brush. The operator manipulates the brush, to reach all portions that are to be washed, by grasping the tubular handle 34 and thereby pressing the brush
 115 53 into contact with the surfaces that are to be cleaned. After the washing is effected, the brush 53 will be removed and another brush substituted therefor capable of applying a polishing liquid, oil or wax and, if desired, the nozzle 54 may be unclamped from the handle 34 so that the application of the polish can be effected without danger of scratching the motor vehicle with the nozzle.

After the polishing liquid, oil or wax has been applied, the brush may be removed and
 120

a polishing brush substituted therefor to effect the final polishing of the car surfaces.

From the foregoing it will be apparent that the various operations of washing, applying a polish and polishing the body and chassis of a motor vehicle are made quite easy, since mechanical power is utilized by means of a flexible shaft connected with a rotatably mounted brush that is manipulated by the operator against the surfaces to be cleaned.

Now referring to Figures 4 and 5 of the drawings, I have there illustrated modified clamping devices for detachably connecting the nozzles 54 to the tubular handle 34. Each clamping device comprises a split clamping band 64 that embraces the nozzle, the band 64 being provided with perforated ears 65 through which extends a screw 66 having thereon a wing nut 67 for drawing the ears together to contract the clamping band. Embraced between the ears 65 is an ear 68 projecting from a semi-circular clamping member 69 to which is hinged at 70 a second semicircular clamping member 71. The clamping members 69, 71 together embrace the handle 34. The clamping member 71 is provided with an ear 72 to which is hinged at 73 a screw 74 that extends through a slot 75 in an ear 76 of the clamping member 69. On the screw 74 is a wing nut 77 that bears against the ear 76 to force it toward the ear 72. When this form of clamping device is employed, the nozzle may be very easily detached from the handle 34, when it is not desired to employ said nozzle, by simply loosening the wing nuts 77 and throwing them out of engagement with the ears 76.

In Figure 12 of the drawings I have shown the means for releasably clamping the brush stem 52 in the sleeve 44 provided with modified clamping screws. Instead of employing the screws 51 as in Figure 7, which screws are turned by employing a screw-driver, I substitute for the screws 51 thumb screws 78 so that the tightening and

loosening of the clamping bushing can be effected without the employment of a screw driver.

Now referring to Figures 13 and 14 of the drawings, the coupling 17 instead of engaging the coupling member 18, as in Figure 6, engages in a coupling member 79 on the upper end of a standard 80 which is secured to the platform 81 of a wheeled truck 82. A set screw 83 detachably secures the coupling member 17 to the coupling member 79. The shaft 22 is connected by a coupling 84 to a shaft 85 of a motor 86 which is mounted on the truck platform 81. The motor 86 may be of the internal combustion type or may be operated by electricity which may be supplied from any suitable source.

It is evident that the carriage 82 may be drawn close to the automobile that is to be cleaned and the motor 86 set into operation for performing the cleaning and polishing operations in the same manner as hereinbefore described. The carriage 82 is provided with brackets 87, 88 for supporting other brushes 89, 90 for use in place of the brush 53 to effect some of the operations involved in cleaning and polishing an automobile.

I claim:

In a cleaning and polishing apparatus, the combination of a bearing, a rigid shaft journaled in the bearing, an L shaped arm integral with the bearing, a thumb screw threaded into said arm and adapted to be tightened against a thimble into which the bearing projects when associated with an automobile provided with said thimble, means for connecting said rigid shaft to the motor shaft, a flexible shaft connected with the rigid shaft, a bushing to journal the flexible shaft, means detachably connecting the bushing to the supporting means, and a flexible sheath for the flexible shaft connected with the bushing.

Signed at Los Angeles, Calif., this 23d day of February 1923.

WILLIAM E. WUELKER.