R. R. MILLER.

SURFACE WORKING MACHINE.

APPLICATION FILED JUNE 12, 1918.

1,299,990.

Patented Apr. 8, 1919.

2 SHEETS—SHEET 1.

Fig. 1

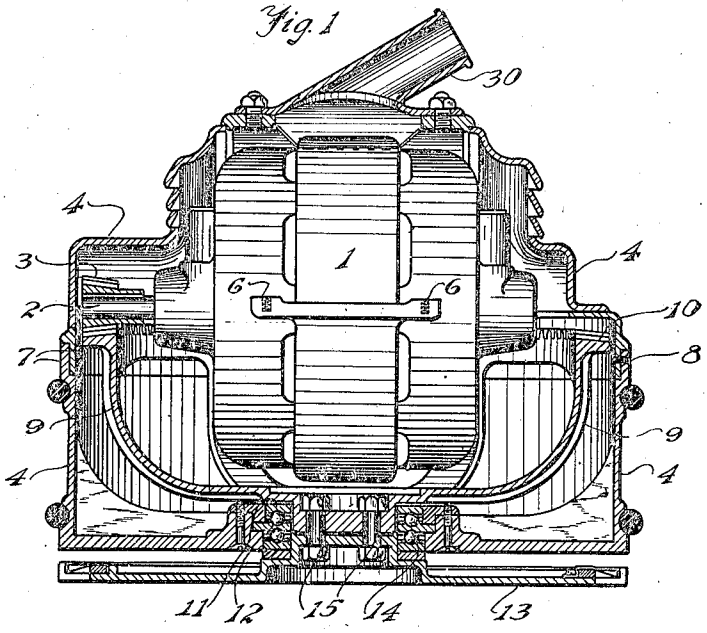


Fig. 2

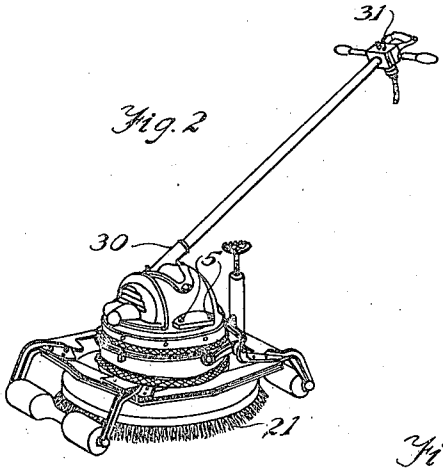


Fig. 3

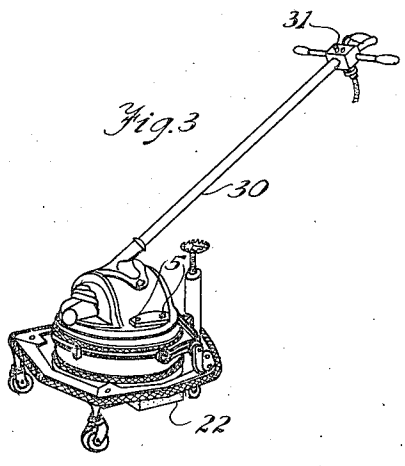
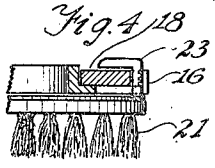


Fig. 4



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2 SHEETS—SHEET 2.

Fig. 5

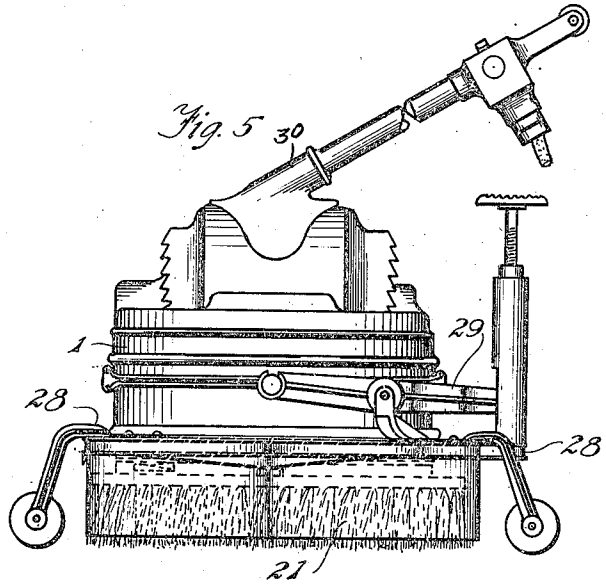


Fig. 6

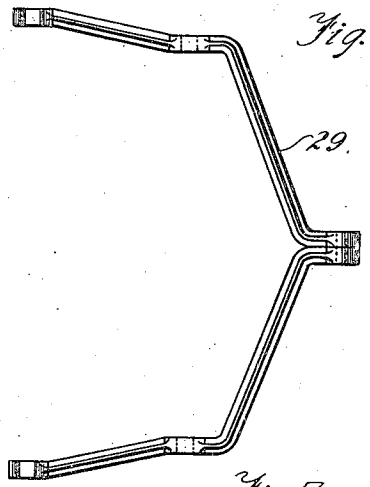


Fig. 8

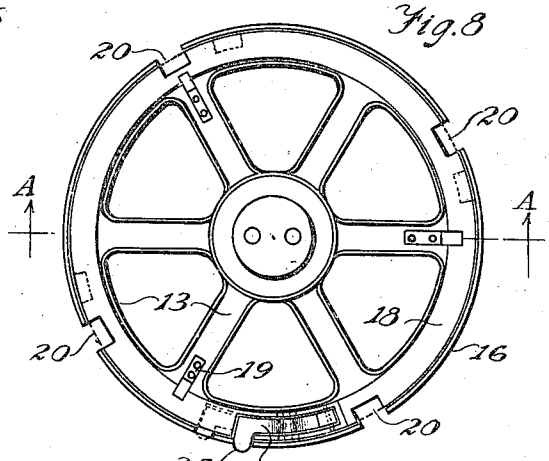


Fig. 7

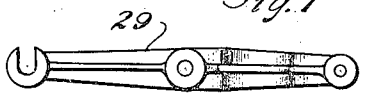


Fig. 9

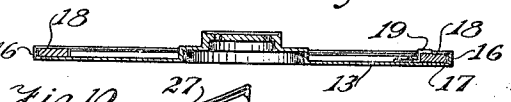
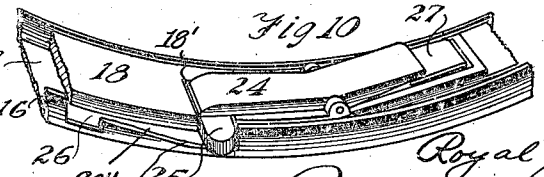


Fig. 10



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UNITED STATES PATENT OFFICE.

ROYAL REUBEN MILLER, OF CHICAGO, ILLINOIS, ASSIGNOR TO ELECTRIC ROTARY MACHINE CO., OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

SURFACE-WORKING MACHINE.

1,299,990. Specification of Letters Patent. Patented Apr. 8, 1919.

Application filed June 12, 1916. Serial No. 103,274.

To all whom it may concern:

Be it known that I, ROYAL REUBEN MILLER, a citizen of the United States of America, and a resident of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Surface-Working Machines, of which the following is a specification.

The main objects of this invention are to provide an improved form of surface working machine of the rotary type; to provide a machine having a relatively stationary housing for entirely incasing the driving motor; and to provide an improved attachment plate to which various cleaning devices may be readily attached and detached.

An illustrative embodiment of this invention is shown in the accompanying drawings in which;

Figure 1 shows the device in vertical section with the operating handle, supporting frame and cleaning devices detached therefrom.

Fig. 2 is a perspective view of the complete machine equipped with a cleaning device in the form of a scrubbing brush.

Fig. 3 is a perspective view of the cleaning machine equipped with cleaning devices in the form of carborundum stones.

Fig. 4 is a detail view showing how the various cleaning devices are attached to the machine.

Fig. 5 is a side elevation of the machine shown in Fig. 2.

Fig. 6 is a top plan of the supporting yoke which is fulcrumed on the supporting frame.

Fig. 7 is a side elevation of the same.

Fig. 8 is a top plan of the circular disk to which various cleaning devices are attached.

Fig. 9 is a section on the line A—A of Fig. 8.

Fig. 10 is a perspective detail of the locking and ring shifting means.

In the construction shown in the drawings, an electric motor 1 having a shaft 2 carrying a beveled driving gear or pinion 3 is mounted within a surrounding casing or housing 4 and is secured thereto by means of screws 5 which pass through the housing and have threaded engagement with lugs 6 on the motor frame.

The housing 4 is made in two parts which are separable from each other so as to provide access to the interior thereof, said parts having interfitting flanges 7 which may be secured together by screws 8.

The pinion 3 on the motor shaft meshes with and drives a bowl shaped gear 9 which surrounds the motor 1 and which is provided with beveled gear teeth 10 radially disposed about the rim thereof. The gear 9 is provided with a bearing 11 at the base thereof adapted to coact with and be supported on the upper side of a double sided bearing 12 located at the base of housing 4.

A circular disk 13, to which may be attached various kinds of working tools, is journaled beneath the casing 4 on a bearing 14 adapted to coact with the under side of bearing 12, said disk being rigidly attached to the gear 9 by means of bolts 15 which pass through and clamp these parts together. The disk 13 is provided with a peripherally disposed upstanding flange 16 on the rim 17 thereof, and a flat annular ring 18 is slidably mounted on said rim inside of the upstanding flange 16 and is retained by clips 19 mounted on the disk.

The peripheries of both the ring 18 and rim 17 are notched in registry with each other at suitable points as at 20. Various kinds of working tools such as scrubbing brushes 21 and carborundum stones 22, mounted on suitable backs, may be attached to the disk 13 by means of inwardly facing undercut lugs 23 mounted on the backs of such working tools in position to register with the notches 20 in said disk.

The ring 18 may be rotatably shifted relatively of the rim 17 so as to carry the notches therein out of registry with those in said rim and thereby bring a part of the ring underneath the lugs 23, locking said lugs to the disk.

Means for releasably locking the ring 18

in such shifted position is provided and comprises a member 24 pivoted intermediate its ends on ring 18 so as to rock in a vertical plane and being provided with a lug 25 on one end thereof for engaging in a notch 26 in flange 16. A spring 27 is located underneath the other end of member 24 for normally urging the lug 25 downward so as to snap into the notch 26. The lug 25 projects not only to one side but also downwardly, and when depressed the inner part enters the notch 18′ in ring 18. The flange 16 is provided with a beveled notch 26′ adjacent to the notch 26 wherein the lateral part of lug 25 rests when the ring is in its notch registering position, the beveled side 26″ leading up to the notch 26 being adapted to facilitate automatic locking when the ring 18 is shifted to its effective position.

A supporting framework 28, having connection with the machine by means of a yieldingly mounted pivoted yoke 29, is described in detail in my copending application Serial No. 103,273, filed of even date herewith.

A handle 30 for guiding the machine is mounted on the casing 4 and the outer end thereof is provided with a switch box 31 for opening and closing the circuit to the electric motor.

In the operation of the machine the motor 1 drives the bowl-shaped gear 9 by means of the pinion 3 on the motor shaft and thereby rotates the disk 13 which is connected to said gear. The housing 4 surrounds and incloses the motor and gears, thereby permitting a supporting frame to be clamped to the machine for the purpose of decreasing or increasing the amount of weight on the working tool. The housing 4 also prevents the rotary gear parts from scratching and defacing walls or other surfaces against which it may be pushed. Furthermore such a casing renders the machine safe to handle as there is no danger of a person's garments becoming entangled therein.

Although but one specific embodiment of this invention has been herein shown and described it will be understood that the construction may be altered or details omitted without departing from the spirit of this invention as defined by the following claims.

I claim:

1. A machine of the class described, comprising a motor having a shaft and a driving gear mounted on said shaft, a bowl-shaped gear having teeth around the rim thereof for meshing with said driving gear, a housing surrounding and extending underneath said motor and gears and secured to said motor, a bearing located at the base of said housing, a bearing at the base of said bowl-shaped gear adapted to coöperate with said housing bearing, a disk connected to the base of said bowl-shaped gear, and means for attaching a working tool to said disk.

2. A cleaner of the class described, comprising a motor having a shaft and a driving gear mounted on said shaft, a bowl-shaped gear having teeth around the rim thereof for meshing with said driving gear, a housing surrounding and extending underneath said motor and gears and secured to said motor, a double sided bearing located at the base of said housing, a bearing at the base of said bowl-shaped gear adapted to coöperate with the upper side of said housing bearing, a circular disk connected to the base of said bowl-shaped gear and having a bearing for coöperating with the under side of said housing bearing, and means for attaching a working tool to said disk.

3. A machine of the class described, comprising a motor, a housing surrounding and secured to said motor, a gear located within said housing and driven by said motor, said gear being journaled at the base of said housing, a disk secured to said gear and including a rim having notches therein, an annular ring slidably mounted on said rim and having notches located so as to register with the notches in said rim, means for shifting said ring to carry the notches therein out of registry with the notches in said rim, means for releasably locking said ring in such shifted position, a working tool, and inwardly extending lugs on said tool adapted to be engaged by said ring when shifted so as to carry the notches therein out of registry with the notches in said rim.

4. In a device of the class described, the combination of a driving motor and a disk driven by said motor, said disk including a rim having notches in the periphery thereof, a member movable with respect to said disk and having notches in the periphery thereof located so as to register with the notches in said rim, said member being shiftable so as to carry the notches therein out of registry with the notches in said rim, a working tool, and means on said tool adapted to be engaged by said ring when shifted so as to carry the notches therein out of registry with the notches in said rim.

5. In a device of the class described, the combination of a driving motor and a disk driven by said motor, said disk including a rim having notches in the periphery thereof, an upstanding peripherally disposed flange on said rim having a notch therein, an annular ring slidably mounted on said rim and having notches in the periphery thereof located so as to register with the notches in said rim, said ring being shiftable so as to carry the notches therein out of registry with the notches in said rim, means

for releasably locking said ring in such shifted position and comprising a locking member mounted on said ring so as to rock in a vertical plane, a lug on said member adapted to fit in the notch in said flange, yielding means for rocking said member so as to urge said lug into said notch, a working tool, and inwardly extending lugs on said tool adapted to be engaged by said ring when shifted so as to carry the notches therein out of registry with the notches in said rim.

Signed at Chicago this 26th day of April, 1916.

ROYAL REUBEN MILLER.