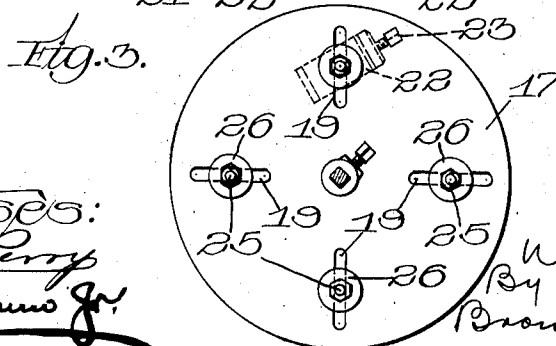
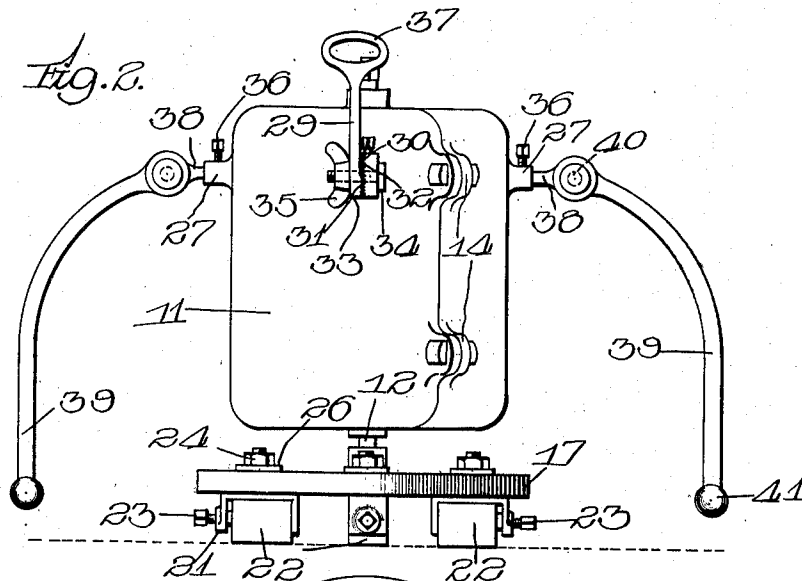
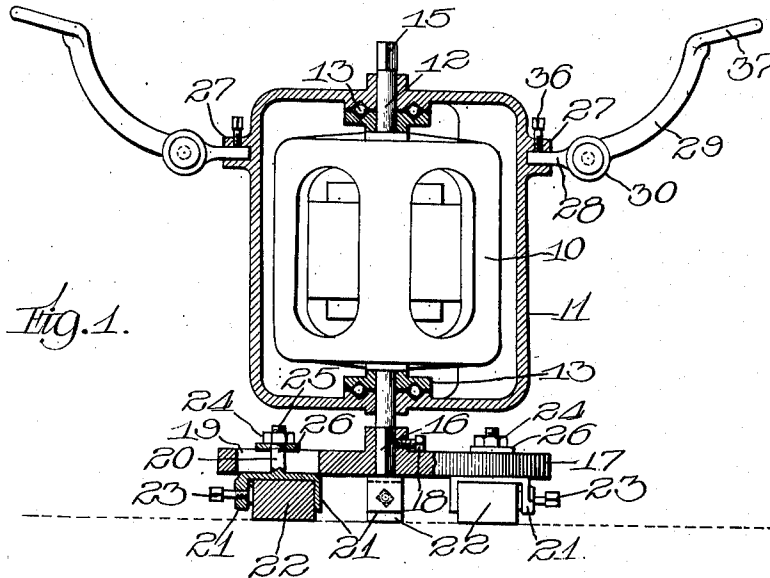


W. D. COUPER.  
POLISHING OR DRESSING MACHINE.  
APPLICATION FILED OCT. 19, 1908.

1,026,076.

Patented May 14, 1912.

2 SHEETS-SHEET 1.



Witnesses:  
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2 SHEETS—SHEET 2.

Fig. 4.

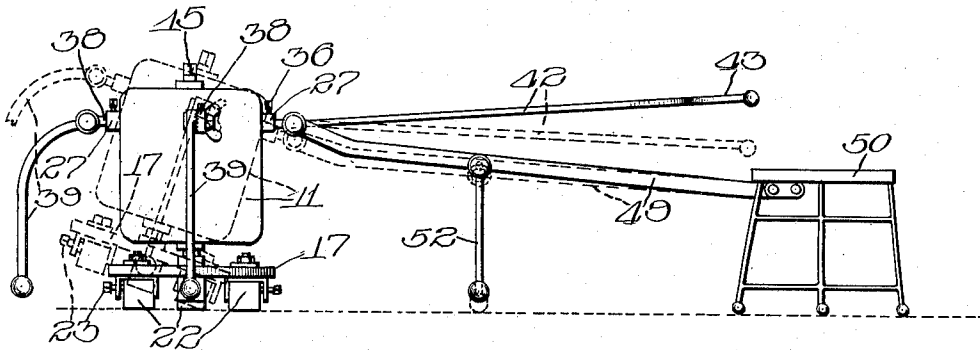
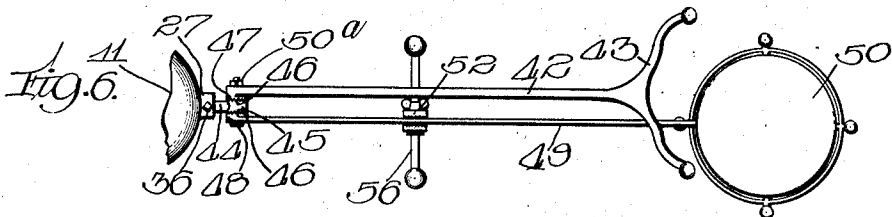
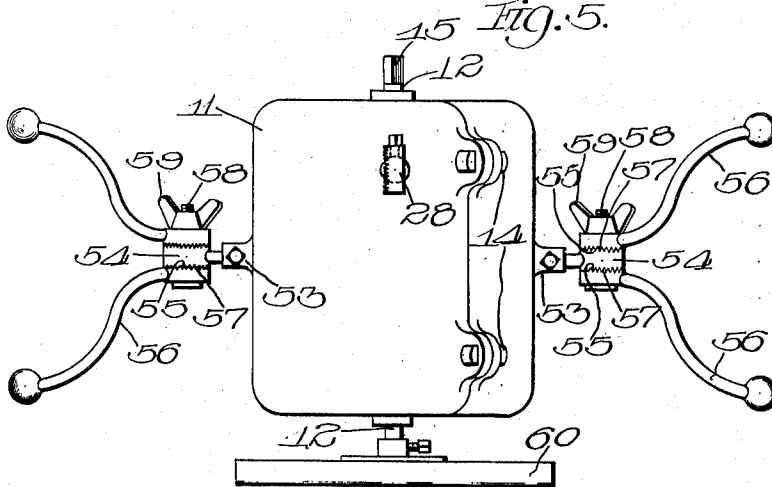


Fig. 5.



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# UNITED STATES PATENT OFFICE.

WILLIAM D. COUPER, OF CHICAGO, ILLINOIS.

POLISHING OR DRESSING MACHINE.

1,026,076.

Specification of Letters Patent.

Patented May 14, 1912.

Application filed October 19, 1908. Serial No. 458,392.

*To all whom it may concern:*

Be it known that I, WILLIAM D. COUPER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Polishing or Dressing Machines, of which the following is a specification.

This invention relates to improvements in polishing or dressing machines and the primary object of the invention is to provide an improved, portable power operated machine of this character particularly adapted for use in polishing or dressing floors, walls or any other surface.

A further object is to provide improved means for supporting the motor and improved means for connecting the grinding or abrading tool directly to the shaft of the motor.

A further object is to provide improved means for attaching handles to the motor support and improved means whereby the height of the handles may be varied.

A further object is to provide improved supports for the motor frame, whereby the frame may be tilted and sustained in its tilted position to vary the angle of the abrading tool with respect to the surface to be operated upon and improved means whereby the supports may be adjusted with respect to the motor supporting frame.

A further object is to provide improved means whereby a seat for the operator may be connected to the motor support and improved means whereby the operator may control the angle of the abrading tool with respect to the surface upon which it is operating to guide the machine during the advancing movement imparted thereto by the frictional engagement of the rotating abrading tool with the surface.

A further object is to provide an improved tool holder whereby the position and angles of the tools may be varied with respect to the holder, and a still further object is to provide an improved machine of this character which will be simple, durable and cheap in construction and effective and efficient in operation.

To the attainment of these ends and the

accomplishment of other new and useful objects, as will appear, the invention consists in the features of novelty in the construction, combination and arrangement of the several parts hereinafter more fully described and claimed and shown in the accompanying drawings illustrating the embodiment of the invention, and in which—

Figure 1 is a longitudinal sectional view partly in elevation of an improved machine of this character constructed in accordance with the principles of this invention. Fig. 2 is a side elevation of Fig. 1, showing the improved supports attached to the motor supporting frame for maintaining the abrading tool at an angle to the surface to be operated upon. Fig. 3 is a top plan view of the tool holder showing one of the tools in dotted lines in an adjusted position. Fig. 4 is a side elevation of a modified form of the invention. Fig. 5 is a top plan view of still another modified form of the invention. Fig. 6 is a detail top plan view of a portion of Fig. 4.

Referring more particularly to the drawings and in the present exemplification of the invention the numeral 10 designates a suitable motor preferably of the electric type which is supported within a suitable frame or casing 11, so that the shaft 12 of the motor will be in an upright position. The support or casing 11 is provided with suitable bearings 13 preferably of the roller type and in which bearings the shaft 12 is journaled. The casing or support 11 is preferably sectional in construction so as to entirely inclose the motor and the sections may be secured together in any desired or suitable manner, preferably by means of fastening devices 14 passing through cooperating ears or projections on the sections of the casing. The extremities 15, 16, of the shaft 12 project beyond the casing or support 11 and are preferably angular in cross section.

A tool holder 17 of any desired or suitable construction which, in the present exemplification of the invention, is illustrated in the form of a disk, is provided with an angular socket adapted to receive one of the angular extremities, preferably the extremity 16 of

the shaft 12 of the motor, whereby the tool holder will be directly secured to the motor shaft. The tool holder is preferably arranged at a substantially right angle to the shaft 12 and a suitable fastening device 18 such as a bolt or the like is provided for securing the tool holder against displacement with respect to the extremity of the shaft. This tool holder in the exemplification of the invention shown in Figs. 1 to 3 of the drawings, is provided with a plurality of radial elongated slots 19 and passing through the respective slots 19 is a shank 20 of a holder 21, which latter preferably comprises spaced jaws between which the abrading tool or block 22 is inserted, and this tool or block is held against displacement with respect to the jaws 21 in any desired or suitable manner, preferably by means of a suitable fastening device 23 in the form of a screw or bolt passing through one of the jaws 21 and engaging the tool or block 22 to force the same against the other jaw. Obviously, if desired, any number of these fastening devices 23 may be employed.

The holder 21 may be held against displacement with respect to the holder 17 in any suitable manner, preferably by means of a nut 24 engaging the threaded extremity 25 of the shank 20 and if desired a suitable washer 26 may be disposed between the nut 24 and the adjacent face of the holder 17. These tools or blocks 22 are preferably rectangular in configuration and may be adjusted toward and away from the periphery of the holder 17 by loosening the nut 24 and if desired, the angle of the blocks or tools 22 may be varied with respect to the holder or with respect to each other by axially rotating the holder 21 after the nut 24 has been loosened. When the blocks or tools have been adjusted to the desired position or angle they may be secured in such position by tightening the nuts 24.

The motor frame or casing may be provided with a plurality of sockets 27 into which suitable handles may be inserted. These handles preferably comprise two members 28, 29. These members are provided respectively with enlarged portions 30, 31, and these enlarged portions are provided respectively with serrated faces 32, 33, adapted to contact with each other for holding the members 28, 29 in adjusted positions with respect to each other. The members 28, 29, are secured together by a suitable fastening device 34 which is provided with a headed extremity and which passes through registering apertures in the portions 30, 31 and a thumb nut 35 is adapted to engage the extremity of the fastening device 34 for clamping the portions 30, 31 together. The free extremity of the member 28 is adapted to be inserted in the socket 27

on the motor frame and is held against displacement by means of a suitable fastening device 36 while the free extremity of the member 29 is shaped to form a portion 37 adapted to be gripped by the operator. Any number of these handles may be provided but in the exemplification shown in Figs. 1 and 2 two are shown arranged diametrically opposite to each other and which are adapted to be gripped by both hands of the operator so that he may control the machine to guide or raise the same and also serves as a means whereby pressure may be exerted upon the motor frame to force the tools or blocks 22 into engagement with the surface to be operated upon. Obviously by loosening the thumb nut 35 to permit the serrated faces of the portions 30, 31 to be separated the height of the portion 37 of the handle may be varied to meet the existing conditions. The motor frame is preferably provided with four of the sockets 27 arranged in pairs, the members of each pair being arranged diametrically opposite to each other.

It is sometimes desirable in using a machine of this character to tilt the abrading or polishing tool at an angle to the surface to be operated upon so that the corner of the blocks or tools may enter a recess, or for any other purpose which necessitates the tilting of the entire machine. In order to assist the operator in holding the machine in a tilted position and to relieve the operator of the weight of the machine so that he may more readily direct the machine during use, suitable supports may be provided, which supports are constructed in a manner somewhat similar to the construction of the handles. The members 38 of the supports are inserted in the sockets 27 and held against displacement by means of the fastening devices 36. The member 39 which is pivotally connected to the member 38 is of a length to terminate adjacent the surface operated upon when the members are in the position shown in Fig. 2, and these members 39 may be adjusted with respect to the members 38 by loosening the fastening devices 40 and when adjusted to the desired position may be held against displacement by tightening the fastening devices. Two of these supports 39 are adapted to be arranged diametrically opposite to each other and preferably at points intermediate the handles and in their normal position are adapted to be held so that the free extremities thereof will stand some distance beyond the periphery of the tool holder 17. With this form of the invention and when it is desired to tilt the machine, the members 39 may be adjusted to a predetermined position with respect to the periphery of the tool holder, according to the desired angle of inclination of the machine so that when the machine is

tilted, the extremity of one of the supports will engage and move upon the surface to be operated upon while the adjacent portions of the abrading tools are held in contact with the surface. When it is desired to tilt the machine in the opposite direction, the opposite support will be brought into engagement with the surface to sustain the machine at an angle to the surface and as the tools are advanced over the surface the extremity of the support which is in engagement with the surface will readily move thereover with the machine.

While in the present exemplification of the invention the extremities of the members 39 are enlarged as at 41 to form supporting surfaces, it is obvious that suitable casters or rollers may be secured to the supports. These members 39 are preferably constructed of yielding or spring material and may be adjusted to cause their free extremities to engage the surface of the work to steady the machine and to relieve the work of some of the weight of the machine. When in this position they will yield slightly to permit the machine to follow the work as it is dressed and will prevent the abrading tool from cutting too deeply, while at the same time the weight of the machine will cause the tool to bear upon the surface of the work sufficiently that the machine will be automatically advanced or fed by the abrading tool engaging the work surface and without necessitating manual pressure to force the tool into engagement with the work.

In the exemplification of the invention shown in Fig. 4 of the drawings, there are provided three supports and a single handle 42 is secured to the motor support or frame, which handle is provided with a bifurcated extremity 43. In this form of the invention the member 44 of the handle which is inserted in the socket 27 is provided with an enlarged portion 45 having its opposite faces serrated as at 46, one of the faces cooperating with the serrated extremity 47 of the handle 42 and the other serrated face cooperating with a serrated extremity 48 of a link or connecting member 49 and a single fastening device 50<sup>a</sup> passes through suitable registering apertures in the extremities of the handle 42, member 44 and link 49 for securing the parts together. Secured to the free extremity of the link or member 49 and in any desired or suitable manner is a seat 50 adapted to be occupied by an operator and the seat 50 is located any suitable distance from the motor frame or support 11 and is adapted to move across the surface with the machine. The bifurcated extremity 43 of the handle 42 terminates adjacent the seat and in a convenient position for the operator whereby the operator may guide

or control the machine from the seat. In this form of the invention and as the motor rotates, considerable force will be exerted upon the abrading tools and as these tools frictionally engage the surface, the motor will be advanced and as the motor is advanced the seat 50 will be drawn forward with the motor. By providing the handle 42 together with the supports for the motor frame, all of which normally terminate at points above the surface to be operated upon, the operator may guide the machine by tilting the motor to one side or the other through the medium of the handle 42, or if desired, he may elevate the handle 42 to throw the forward support into engagement with the surface. If desired, a suitable additional support designated generally by the reference numeral 52 may be provided, which is somewhat similar in construction to the supports for the motor frame. These supports 52 are adjustably secured to the arm 49 preferably at a point somewhat distant from the motor frame or support, and the link or member 49 is preferably constructed of spring metal so that when it is desired to elevate the forward end of the abrading tool, the operator may depress the handle 42 which movement will cause the portion of the link or member 49 in advance of the support 52 to yield and the support 52 will be forced into engagement with the surface being operated upon to assist in sustaining the weight of the machine and for holding the machine at the desired angle.

In the exemplification of the invention shown in Fig. 5 the motor frame or support 11 is preferably provided with sockets 53 arranged diametrically opposite to each other and at substantially the longitudinal center of the motor frame. These sockets 53 are each adapted to receive one extremity of a member 54 and the opposite faces of this member 54 adjacent its free extremity is serrated at 55. A pair of supports 56 are adapted to cooperate with the member 54 and each support is provided with a serrated portion 57 adapted to cooperate with the respective serrated faces of the member 54 and a suitable fastening device comprising a bolt 58 is adapted to pass through registering apertures in the adjacent extremities of the supports 56 and the member 54 and a thumb nut 59 is provided, which nut engages a threaded extremity of the fastening device 58 to clamp the supports and member 54 together. With this improved form of the invention it will be apparent that the motor frame or support 11 may be tilted to a horizontal position and the pairs of supports 56 which are arranged diametrically opposite to each other may be deflected with respect to the motor frame or casing so as to form legs for sustaining the motor frame

or support 11 out of contact with the supporting surface. When the invention is to be used in this manner the member 54 may be axially rotated in the socket 53 to cause the supports 56 of each pair to stand in substantially the same plane as the plane of the motor casing 11, before they are deflected laterally with respect to the casing. When the motor is thus supported any suitable grinding tool 60 may be secured to one extremity of the shaft 12 and if desired, another grinding tool may be secured to the other extremity of the shaft. When it is desired to use the form of the invention shown in Fig. 5 in the same manner in which the other forms of the invention may be used, that is, with the motor shaft in an upright position, the supports 56 may be again placed in substantially the same plane as the casing by axially rotating the member 54 in the socket 53 as the two diametrically opposite supports 56 will assume such positions that the free extremities thereof will be disposed in close proximity to the surface to be operated upon and when so disposed the motor may be tilted by means of suitable handles, the members 28 of which may be inserted in sockets on the motor frame similar to the sockets 27 and which sockets are preferably disposed diametrically opposite each other and at points intermediate the sockets 53.

While in the present exemplification of the invention a specific form of abrading tool or holder is shown and described, it is to be understood that any suitable form of abrading or polishing tool may be secured to the extremity of the shaft and it is also to be understood that while in the present form of the invention the abrading tool is shown as detachable from the shaft, it may be formed integral therewith.

With this improved construction the abrading or polishing tool will rest directly upon the surface to be operated upon and the weight of the motor and the motor frame or casing is sustained by the tool. If it is desired to exert a greater friction upon the surface than the friction caused by the weight of the superposed parts, all that is necessary is for the operator to exert pressure upon the handles and should it so happen that the weight of the machine causes too great a frictional engagement of the tool with the surface, the operator may slightly raise the machine to relieve the tool of a portion of the weight. It will also be obvious that in the form of the invention shown in Figs. 2 and 4, the supports may be adjusted to such a position when the motor is in an upright position, as to sustain a portion of the weight, that is, so that the free extremities of the supports will engage and rest upon the surface

to prevent the entire weight of the mechanism from being exerted directly upon the abrading tool.

In order that the invention might be fully understood, the details of the foregoing embodiment thereof have been thus specifically described, but

What I claim as new is:—

1. In a machine for the purpose set forth, the combination of a frame, a motor supported thereby, an abrading tool supported by one end of the motor shaft and adapted to engage the work, and supports connected with the motor frame and adjustable into and out of engagement with the work, said supports permitting the weight of the motor and frame to hold the abrading tool into engagement with the surface of the work and cause the tool to automatically advance.

2. In a machine for the purpose set forth, the combination of a frame, a motor supported thereby, an abrading tool supported by one end of the motor shaft, and supports constructed of yielding material secured to the frame and adapted to be adjusted into engagement with the work to yieldingly support the structure.

3. In a machine for the purpose set forth, the combination of a shaft, an abrading tool secured to the shaft, a motor mounted upon the shaft for rotating the same, a frame for the motor, handles secured to the frame, the weight of all of said parts being sustained by the abrading tool when the machine is in an upright operative position, and means coöperating with the frame for sustaining a portion of the weight of the parts when the machine is tilted at an angle to the work surface.

4. In a machine for the purpose set forth, the combination of a shaft, an abrading tool secured to the shaft, a motor mounted upon the shaft for rotating the same, a frame for the motor, handles secured to the frame, the weight of all of said parts being sustained by the abrading tool when the machine is in an upright operative position, and a support secured to the frame, said support normally standing out of engagement with the work surface and in proximity thereto, and adapted to engage the surface when the machine is tilted.

5. In a machine for the purpose set forth, the combination of a shaft, an abrading tool secured to the shaft, a motor mounted upon the shaft for rotating the same, a frame for the motor, handles secured to the frame, the weight of all of said parts being sustained by the abrading tool when the machine is in an upright operative position, and a support secured to the frame and adjustable with respect to the work surface, said support normally standing out of engagement

with the work surface and in proximity thereto and adapted to engage the surface when the machine is tilted.

6. In a machine for the purpose set forth, the combination of a shaft, an abrading tool secured to the shaft, a motor mounted upon the shaft for rotating the same, a frame for the motor, means for directing the motor, a support connected to the frame and normally adjustable into and out of engagement with the said surface, and means for adjusting the support with respect to the frame and into engagement with the work surface and for holding the support in such adjusted position while the abrading tool operates on the work.

7. In a machine for the purpose set forth, the combination of a shaft, an abrading tool secured to the shaft, a motor mounted upon the shaft for driving the same, a casing for the motor, a handle, and a supporting arm secured to the casing, said arm being adjustable both axially and pivotally with respect to the casing and into engagement with the work while the tool operates upon the work.

8. In a machine for the purpose set forth, the combination of a shaft, an abrading tool secured to the shaft, a motor mounted upon the shaft for driving the same, a support connected to the motor, said support normally standing out of engagement with the work surface and adapted to be brought into engagement with the surface when the motor is tilted, and means for axially and pivotally adjusting the support with respect to the motor.

9. In a machine for the purpose set forth, the combination of a shaft, a motor mounted upon the shaft for rotating the same, an abrading tool secured to the shaft, a frame for the motor, said frame being provided with sockets disposed intermediate its ends, supports engaging in the sockets, and means whereby said supports may be axially and pivotally adjusted with respect to the frame, whereby the supports may be adjusted to be normally held out of engagement with the work surface when the tool is in engagement therewith and also adjusted to sustain the machine above the supporting surface when the frame is in a substantially horizontal position.

10. In a machine for the purpose set forth, the combination of a shaft, a motor mounted upon the shaft for driving the same, an abrading tool secured to the shaft, a frame for the motor, a seat connected to the frame and being disposed beyond the frame to move upon the work surface with the tool, and a handle connected to the frame and extending to the seat.

11. In a machine for the purpose set forth, the combination of a shaft, a motor mounted upon the shaft for driving the same, an

abrading tool secured to the shaft, a frame for the motor, said frame being provided with a socket, an element engaging in said socket and axially adjustable therein, means for securing said element against displacement, a handle engaging said element and pivotally adjustable with respect thereto, a seat, a member connected by one end to the seat, the other end engaging said element, and a common means for securing the member and the handles to the said element.

12. In a machine for the purpose set forth, the combination of a shaft, a motor mounted upon the shaft for driving the same, an abrading tool secured to the shaft, a frame for the motor, a seat, a flexible connection between the seat and frame whereby the seat will be moved with the tool over the work surface, a handle for guiding the tool, said handle being also adapted to tilt the frame and tool with respect to the work surface, and a support secured to the connection intermediate the frame and seat and normally standing out of engagement with the work surface, said support being adapted to be brought into engagement with the surface when the tool is tilted.

13. In a machine for the purpose set forth, the combination of a shaft, a motor mounted upon the shaft for driving the same, an abrading tool secured to the shaft, a frame for the motor, a seat, a flexible connection between the seat and frame whereby the seat will be moved with the tool over the work surface, a handle for guiding the tool, said handle being also adapted to tilt the frame and tool with respect to the work surface, a support secured to the connection intermediate the frame and seat and normally standing out of engagement with the work surface, said support being adapted to be brought into engagement with the surface when the tool is tilted, and means whereby said support may be adjusted with respect to said connection.

14. In a machine for the purpose set forth, the combination of a shaft, a motor secured to the shaft for rotating the same, a tool holder secured to one end of the shaft, an abrading tool supported by the holder, and means whereby the tool may be adjusted toward and away from the axis of rotation of the holder.

15. In a machine for the purpose set forth, the combination of a shaft, a motor secured to the shaft for rotating the same, a tool holder secured to one end of the shaft, an abrading tool supported by the holder, means whereby the tool may be adjusted toward and away from the axis of rotation of the holder, and means whereby said tool may be axially adjusted and also adjusted toward and away from the axis of rotation of the holder.

16. In a machine for the purpose set forth,  
the combination of a frame, a motor sup-  
ported thereby, an abrading tool supported  
by one end of the motor shaft, and supports  
5 constructed of yielding material secured to  
the frame and adapted to be adjusted into  
engagement with the work.

In testimony whereof I have signed my

name to this specification, in the presence of  
two subscribing witnesses, on this 15th day 10  
of October A. D. 1908.

WILLIAM D. COUPER.

Witnesses:

ARTHUR M. HEATH,  
J. H. JOCHUM, Jr.