(No Model.)

J. H. SHUFELT.

SURFACING AND POLISHING MACHINE.

No. 412,548. Patented Oct. 8, 1889.

Fig. 1.

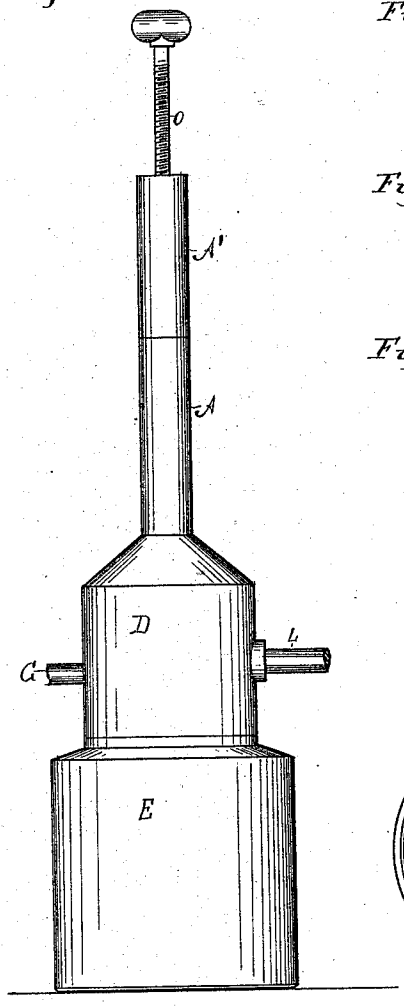


Fig. 3.

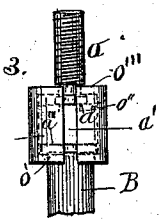


Fig. 4.

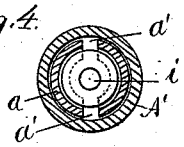


Fig. 5.

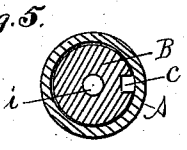


Fig. 6.

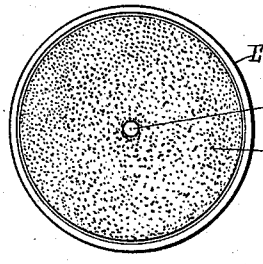
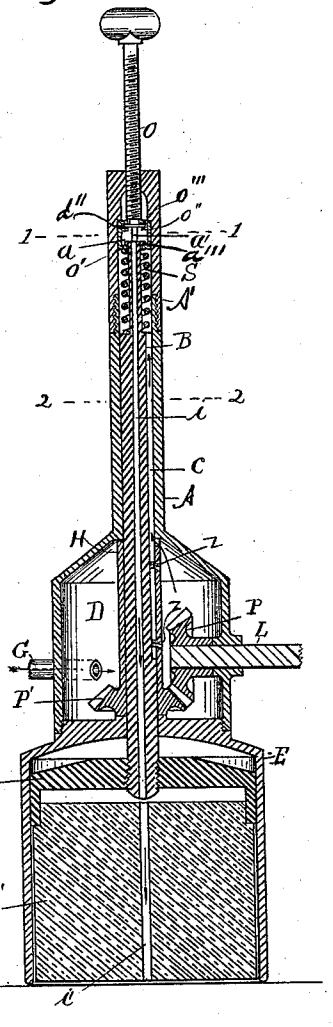


Fig. 2.



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UNITED STATES PATENT OFFICE.

JOHN H. SHUFELT, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO CHARLES B. KELLEY, OF SAME PLACE.

SURFACING AND POLISHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 412,548, dated October 8, 1889.

Application filed May 20, 1889. Serial No. 311,446. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. SHUFELT, a citizen of the United States of America, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Surfacing and Polishing Machines, of which the following is a specification, reference being had therein to the accompanying drawings and the letters and figures of reference thereon, forming a part of this specification, in which—

Figure 1 is a side elevation of the polishing-machine as it would appear ready for use, but detached from the power to operate it. Fig. 2 is a central vertical section of Fig. 1. Fig. 3 is a detail exterior view of the coupling for yieldingly connecting the rubbing-shaft with the case. Fig. 4 is a cross-sectional view of Fig. 2, taken on line 1. Fig. 5 is a cross-sectional view of Fig. 2, taken on line 2; and Fig. 6 is a bottom plan view of Fig. 1.

Referring to the drawings, E represents a cylindrical case having an open bottom and closed at its upper end, forming a screw-threaded neck for connecting it to a water-chamber D, which screws on the neck of said case. Chamber D contracts in size at its upper end and extends upward to form a stem composed of the two parts A and A′, screwed together, forming the handle to grasp for directing the device.

F is a polishing-head within case E, and F′ is a polisher screwed to said polishing-head, and is shown in this device as being made of stone, but may be made of any suitable material for the purpose.

B is a hollow shaft having its lower end secured to head F, and passes upward through the neck of case E, through chamber D, into the stem-handle to the place where its parts A A′ are screwed together.

H is the hub of miter-gear P′, which hub is sleeved on hollow shaft B within chamber D, and extends the whole length to hold miter-gear P′ in proper place and to furnish means for connecting said hub with rod B.

Z Z are set-screws which pass through the sides of hub H and extend into a longitudinal channel C in the side of shaft B, for the purpose of connecting said hub and shaft in such manner that said shaft may have vertical movement through said hub and yet be rotated thereby. Said channel extends from near miter-gear P to near the upper end of said shaft to where said shaft is reduced in size, so as to carry a coil-spring S on said reduced part. The extreme upper end of said shaft is provided with a flange-head a''', (see Fig. 3,) for connecting it with the shell-couplings a a.

O is a thumb-screw passing down through the upper end of stem A′, and is provided on its lower end with a flange-head a'' similar to that on shaft B.

a a are a pair of shell-couplings for connecting said shaft B with the thumb-screw O within the stem-handle A A′, and in such manner that the upper end of said shaft may have vertical movement in said coupling between its inwardly-extending annular flanges O′ and O″ of said coupling.

The flange-head a'' of thumb-screw O is held between the inwardly-extending annular flanges O″ and O‴ of said coupling, so as to carry said couplings with it when turned in either direction. The lower ends of said shell-couplings bear upon the upper end of coil-spring S, so that when thumb-screw O is turned down it will, through the medium of said coupling and spring, yieldingly press on shaft B and on the stone polisher F′, connected therewith, to hold said polisher to its work and feed it forward as it wears away. The parts A and A′ screw together about opposite said coupling and spring, so that easy access may be had to said parts for repairs or other purposes.

L is a shaft extending through the side of chamber D in a proper box, and has secured on its inner end the miter-gear P, for meshing with miter-gear P′. The power to drive the device is intended to be applied to said shaft, and is preferably a flexible shaft. (Not necessary to be shown.)

G is a water-inlet for supplying water to chamber D.

The polisher F′ is provided with a vertical central aperture i', corresponding with the aperture i through shaft B. These apertures i and i' admit water to the work being pol-

ished at the center of the polisher, so it can be radially distributed between the polisher and the work being polished. The polisher F′ may have more than one aperture through it for admitting water to its polishing-face; but preferably one is used in its central part, so the water will be radially and evenly distributed from its central part to its periphery. Water is intended to be forced into chamber D through an inlet anywhere most convenient, but shown at G in this device, so that it will find its way from said chamber to the upper end of the aperture *i* in shaft B through channel C in its side to the chamber containing spring S, and from thence through the open spaces *a′ a′* between couplings *a a*. The upper end of hub H is provided with an opening, as shown in Fig. 2, so the water may pass to channel C.

In operation the operator holds the device so as to apply the polisher F′ to the surface of the work to be polished. Power being applied to shaft L causes the polisher to revolve rapidly through the medium of its shaft B and miter-gears P and P′. Water, being forced into chamber D from inlet G, finds its way to channel C in the side of shaft B, and from thence through the chamber containing coil-spring S, through the openings *a′ a′* between the two parts of the coupling *a*, and from thence down through shaft B and polisher F′, through apertures *i* and *i′*, to the work being polished. The rapid rotation of the polisher on the surface to be polished quickly polishes it, and as the polisher wears away it is fed forward by the thumb-screw until it is worn out. It is intended in operation to turn the thumb-screw down until the polisher protrudes a trifle below case E, but not so far but that said case and the polisher may both rest upon the work being polished, the case causing the polisher to maintain a perpendicular position, and so an even pressure may be maintained on the polisher by means of the yielding pressure of the spring S, said pressure to be maintained by turning the thumb-screw down as the polisher wears away. The lower edge of the case E is slightly rounded, so as not to injure the surface being polished.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is as follows, to wit:

1. In the polishing-machine shown and described, the combination of the polisher F′, having a central aperture, hollow shaft B, and head F secured thereto, and having the side channel C, the miter-gear P, miter-gear P′, having the hub H and set-screws Z Z, and the means shown and described for maintaining a yielding pressure and for feeding forward said polisher, substantially as and for the purpose set forth.

2. The combination of the open-bottom case E, water-chamber D, terminating in its upper part in a stem-handle formed of the tubular parts A A′, screwed together and having a water-inlet G, coil-spring S, hollow shaft B, having the side channel C, shell-couplings *a a*, thumb-screw O, miter-gear P′, having the hub H sleeved on shaft B, miter-gear P, secured on shaft L, polishing-head F, and polisher F′, having the central vertical aperture *i*, all arranged substantially as and for the purpose set forth.

3. In the surfacing and polishing machine shown and described, the combination of the rotating polisher having a central orifice for admitting water through it to its work, the open-bottom case for inclosing said polisher and adapted to rest upon the work being polished, the hollow shaft B, having the head F secured to the polisher, and having the side channel C, and adapted to rotate and feed forward the said polisher, and the water-chamber D and its upwardly-extending stem-handle A A′, substantially as and for the purpose set forth.

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Witnesses:
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