No. 721,263. PATENTED FEB. 24, 1903.

A. E. WATKINS.

POLISHING BRUSH.

APPLICATION FILED NOV. 14, 1898.

NO MODEL.

Fig. 1.

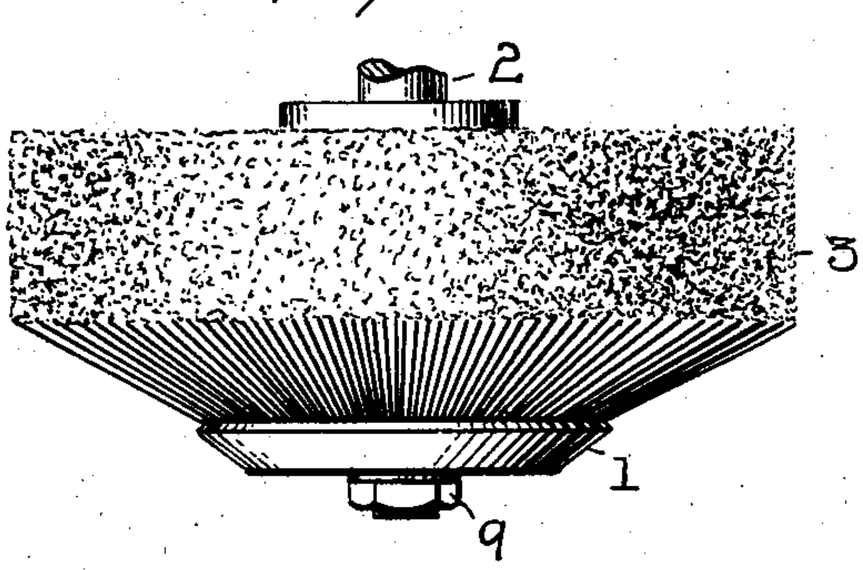
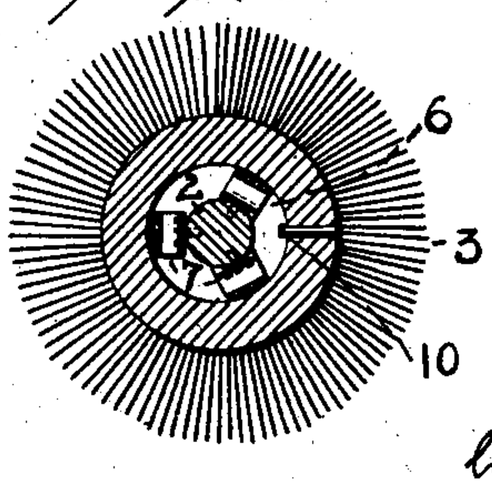



Fig. 2.




Fig. 3.




WITNESSES

Norris A. Clark.

INVENTOR

Alfred E. Watkins

by Witter & Kenyon

ATT'Y'S

# UNITED STATES PATENT OFFICE.

ALFRED E. WATKINS, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO BERNARD F. SEADLER AS INDIVIDUAL AND AS TRUSTEE, OF NEW YORK, N. Y.

## POLISHING-BRUSH.

SPECIFICATION forming part of Letters Patent No. 721,263, dated February 24, 1903.

Application filed November 14, 1898. Serial No. 696,348. (No model.)

*To all whom it may concern:*

Be it known that I, ALFRED E. WATKINS, of Jersey City, Hudson county, New Jersey, have invented a new and useful Improvement in Polishing-Brushes, of which the following is a specification.

My invention relates to brushes for polishing-machines.

It has for its object to provide an improved polishing-brush, one strong and durable, well fitted for polishing irregular surfaces, and having an intermittent irregular motion of its bristles.

My invention consists in the devices herein shown and described.

In the drawings which form part of this specification, and in which like reference-numerals designate like parts in the several views, Figure 1 is a side elevation of a brush embodying the preferred form of my invention. Fig. 2 is a central vertical section of the same, and Fig. 3 is a transverse section on the line 3 3 of Fig. 2 viewed as indicated by the arrow.

The brush is built upon a hub 1, mounted on a shaft 2 either fixedly or (preferably) rotatably mounted in the manner hereinafter described. This hub is preferably conical, with a cylindrical portion at the smaller extremity of the cone. The bristles 3 are fastened in the conical portion of the hub by any desired means, as by inserting them in holes drilled in the hub for that purpose, and are preferably of considerable length. It is desirable, however, that the bristles on opposite sides of the hub should be set at a considerable angle with each other. The angle that I consider to be the best is one hundred and fifty degrees; but this angle may be varied greatly without departing from my invention.

In practice I prefer to use a second set of bristles, such as 4 in Fig. 2, fastened in the hub in the usual manner, in connection with the first set already described, and for this purpose I make the hub with a cylindrical portion 5 and fasten the bristles in that portion in the usual manner. The extremities of the second set of bristles preferably cross those of the first set, making the face of the brush denser where such crossing occurs. Also the ends of the bristles in this portion are presented in two directions to the surface to be polished, so that if such surface is irregular one set of bristles or the other will always be properly presented for polishing to best advantage.

The brush is preferably rotatably mounted upon its shaft in the manner that I have devised and shown and will now describe.

An axial opening 6 is made in the hub of a diameter preferably about twice that of the shaft 2. To the shaft, preferably at equal circumferential intervals, are secured springs 7 of approximately the form shown, their middle portions bearing against the shaft to which they are preferably secured and their extremities curved away from it. The shaft with these springs is inserted in the opening in the hub, so that the ends of the springs bear against the interior of the hub. Collars 8 hold the hub in place on the shaft, bearing against a shoulder on the shaft and a nut 9 at its lower end. Space is left between each collar and the shaft to permit some lateral play of the brush. A pin 10 extends from the hub, so that its end projects into the opening 6 in the path of the springs. The springs strike against the pin, and thus impart a rotary motion to the brush. My construction permits to the brush a certain freedom of universal motion relative to the shaft.

My improved brush is particularly serviceable in polishing irregular surfaces, such as boots and shoes. It presents the ends of the bristles and not the sides to the surface to be polished. The universal motion of the brush especially adapts it for polishing irregular surfaces.

What I claim as new, and desire to secure by Letters Patent, is—

1. A rotary polishing-brush having two separate sets of bristles, the two sets being arranged so that the bristles of one set will run at an angle with the bristles of the other set, and so that the bristles of the two sets will interlace with one another and cross one another near the extremities of the bristles, substantially as set forth.

2. The combination with a shaft and a pol-

ishing-brush rotatably mounted upon it, of springs between the shaft and the brush adapted to impart universal motion to the brush, and a projection in the path of the springs whereby rotary motion will be imparted to the brush, substantially as described.

3. In combination with a shaft, a polishing-brush rotatably mounted upon it, springs secured to the shaft, and bearing upon the inner part of the hub of the brush, and a projection from the hub of the brush extending into the path of the springs, whereby universal and rotary motion will be imparted to the brush, substantially as described.

4. The combination with a shaft and a polishing-brush rotatably mounted upon it having a hub composed of a conical portion and a cylindrical portion and two sets of bristles arranged at an angle with each other and with the extremities of the bristles of one set crossing extremities of bristles of the other, springs secured to the shaft and bearing upon the inner part of the hub of the brush, and a projection from the hub of the brush extending into the path of the springs, whereby universal and rotary motion will be imparted to the brush, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALFRED E. WATKINS.

Witnesses:
EDWIN SEGER,
GEO. W. MILLS, Jr.