

J. H. REED.
 ABRADING WHEEL.
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1,056,058.

Patented Mar. 18, 1913.

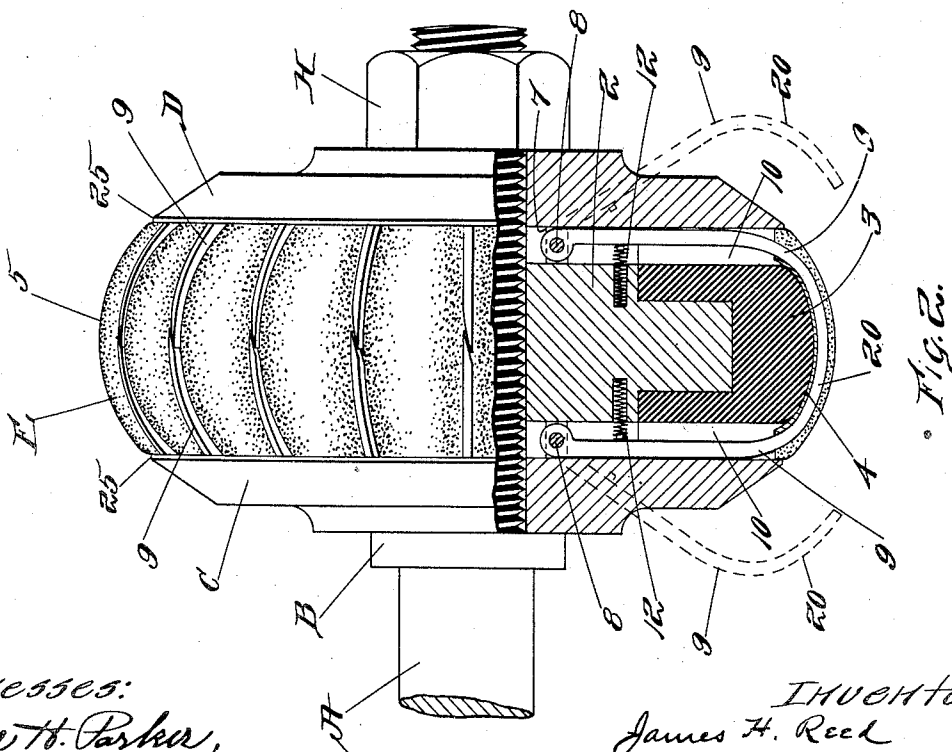
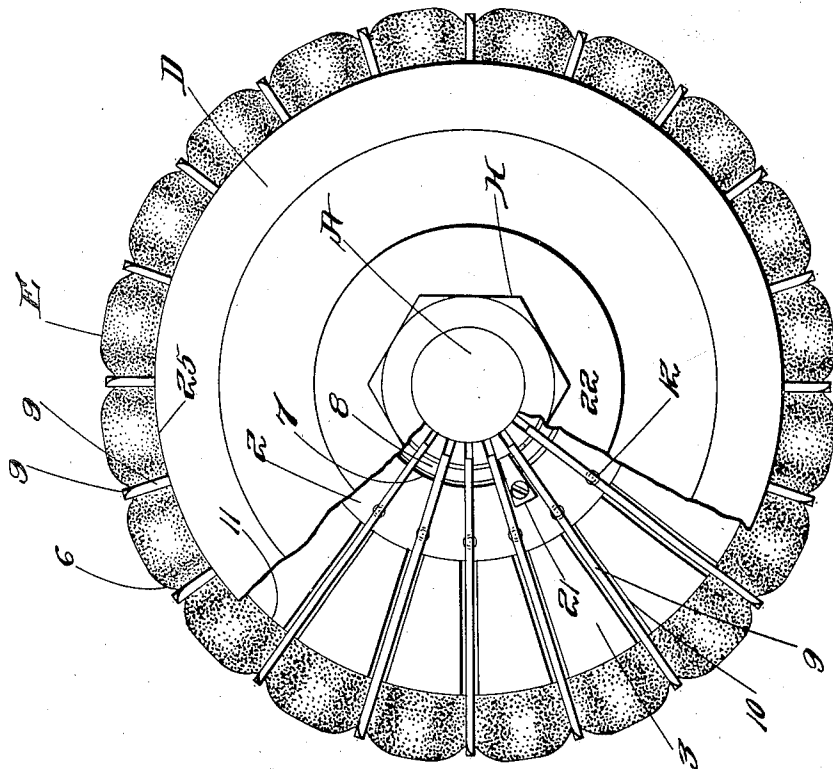


Fig. 2.

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UNITED STATES PATENT OFFICE

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ABRADING-WHEEL.

1,056,058.

Specification of Letters Patent.

Patented Mar. 18, 1913.

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To all whom it may concern:

Be it known that I, JAMES H. REED, a citizen of the United States, residing at Lynn, county of Essex, State of Massachusetts, have invented a certain new and useful Improvement in Abrading-Wheels, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention has for its object an improvement in abrading wheels, such for example, as scouring wheels which are used in the smoothing of the surface of boot and shoe heels prior to the blacking and final finishing of the same. Scourers for the above purpose as now commonly made, so far as known to me, have a certain maximum of speed at which they can be driven and if driven beyond this maximum of speed they will burn the heel and destroy it, the effect of burning being to so impair the surface of the heel as to prevent its properly taking the subsequent blacking and finish. By the employment of my invention the speed thereof may be largely increased beyond that of the maximum of speed of scourers as now commonly constructed and the time of the scouring operation thereby greatly diminished, without burning or impairing the heel, or interfering in any way with the efficiency and thoroughness of the scouring operation.

My invention will be readily understood from the following description taken in connection with the accompanying drawings and the novel features thereof are pointed out and clearly defined in the claims at the close of the specification.

In the drawings, Figure 1 is an end view of a scouring wheel embodying my invention, partly broken away for greater clearness. Fig. 2 is a side elevation thereof, also broken away to show the construction more fully.

Referring to the drawings A is a shaft upon which the wheel is mounted.

B is an annular collar formed integral with the shaft, or rigidly secured thereto.

C and D are clamping face plates between which the scouring wheel proper E is clamped securely on the shaft A, the said shaft A passing through said clamping plates C and D and the wheel E. The free end of the shaft A is screw-threaded and is provided with a nut H, between which and the collar B, when the said nut H is set up

firmly, the clamping plates C and D and scouring wheel E are rigidly secured, so as to turn with the shaft.

The scouring wheel proper, designated at E, consists of a metallic hub portion 2, onto the periphery of which is molded and vulcanized an annular web 3, preferably of yielding material, such for example as rubber. This rubber portion 3 of the wheel as also the metallic portion 2 thereof, is divided into segments by means of radial grooves 10 on both faces of the wheel and the outer ends of these grooves at the periphery of the wheel are connected by transverse notches or depressions 4 across the periphery. Each of the segments is therefore at the periphery of the wheel not only rounded or curved transversely as shown at 5, Fig. 2, but is also curved lengthwise of the periphery, as shown at 6, Fig. 1. That is, while the central portion of the face of the segment may be flat lengthwise, or substantially flat, it rounds off into the depressions at the side of the segment, that is the whole wheel when viewed from the side as shown Fig. 1 has somewhat the appearance of a rosette.

On each face of the metallic hub 2 of the wheel an annular groove 7 is formed to receive a wire 8 and pivoted on the wire 8 are a series of holders 9 which extend radially within the grooves 10 and the outer ends of these holders are curved as indicated at 20 to fit the curved transverse recesses 4. The wire 8 is held within the recess 7 by means of retaining strips or plates 21 set flush with the face of the hub 2 and projecting over the annular recesses 7. These retaining strips are secured in place by means of a screw 22. One of these retainers 21 is shown Fig. 1. Preferably I employ two of them which are set on opposite sides of the annular slot or recess 7.

The holders 9 are in pairs, the members of a pair being set on opposite sides of the wheel and the ends which project over the periphery of the wheel in the grooves 4 slightly overlap, said ends being beveled so that they will lie closely together as shown Fig. 2. The object of these holders is to hold the abrasive covering of the wheel securely in place. They are pivoted as shown on the wire 8 in order to permit them to be swung back when it is necessary to renew the abrasive cover. When these holders are in their holding position, and the wheel is

ready for use they lie within the radial slots and are substantially flush with the face of the wheel. The notches 4 on the periphery of the wheel into which the curved ends of the holder project, as shown, are of sufficient depth to receive the holders and the holders when in the notches are below the level of the abrasive covering at the central portion of the segments intermediate the said holders. In other words, when the wheel is in use the central portions of the segments at the periphery of the wheel make contact with the work but the holders and the depressions in which they are located are clear of the work.

The abrasive covering, one edge of which is indicated at 11, Fig. 1, projects transversely over the peripheral face of the wheel and inwardly on either side of said peripheral face so that the edge 25 of the clamps C and D extend slightly over the edge of the abrasive covering and so tend to hold the same securely in place. This arrangement together with the holders which are preferably placed relatively near together form a very secure holding means for the abrasive covering.

Underneath each of the pivoted holders 9 I preferably place a spiral spring 12, see Fig. 2, which is seated in a socket in the bottom of the radial groove 10 to prevent its becoming displaced. This spring operates when the clamping plates C D are moved back to throw open the holders, that is swing them out and back from the periphery of the wheel, and thus leave the operator free to remove the worn out abrading covering and put on a new covering.

As hereinabove stated only the central portions of each segment at the periphery of the wheel make contact with the work, and the depressions between the segments permit of the passage of air constantly across the face of the work. By this means the surface of the work is prevented from burning and the speed of the abrading wheel may be largely increased as compared with abrading wheels which are not provided with these depressions for access of air, and thus the operation of the wheel on a given piece of work may be much more speedily performed.

While I have shown my invention as embodied in a wheel especially adapted for scouring articles, such for example as boot and shoe heels, I do not desire to limit my-

self to any particular abrading operation since my invention may be advantageously used for a variety of abrading operations.

What I claim is;

1. An abrading wheel the periphery of which is divided into segments by transverse depressions between said segments and having pivoted holders for the abrading strip projecting into said transverse depressions.

2. An abrading wheel comprising a metallic hub portion, a portion of yielding material surrounding said hub portion divided into segments by depressions in the periphery, an abrading strip on said periphery covering said segments and following said depressions and holders projecting into said depressions to hold the abrading strip in place.

3. An abrading wheel comprising a metallic hub portion, a portion of yielding material surrounding said hub portion divided into segments by depressions in the periphery, an abrading strip on said periphery covering said segments and following said depressions, pivoted holders set radially of said wheel and projecting at their free ends into said depressions in the periphery and clamping plates on either face of said wheel to lock said holders securely in place.

4. An abrading wheel comprising a metallic hub portion, a portion of yielding material surrounding said hub portion divided into segments by depressions in the periphery, an abrading strip on said periphery covering said segments and following said depressions, pivoted holders set radially of said wheel in grooves in the face thereof, said holders being in pairs, one pair for each of said depressions in the periphery, the ends of said holders overlying said abrading strip in said depressions, springs for said holders tending to move them outwardly from the face of the said wheel, and clamping face plates on either side of said wheel, the edges of which overlap the edges of the abrading strip and which lock the said holders in place, and means for securing said clamping plates in firm contact with the face of the wheel.

In testimony whereof I affix my signature, in presence of two witnesses.

JAMES H. REED.

Witnesses:

WILLIAM A. MACLEOD,
ALICE H. MORRISON.