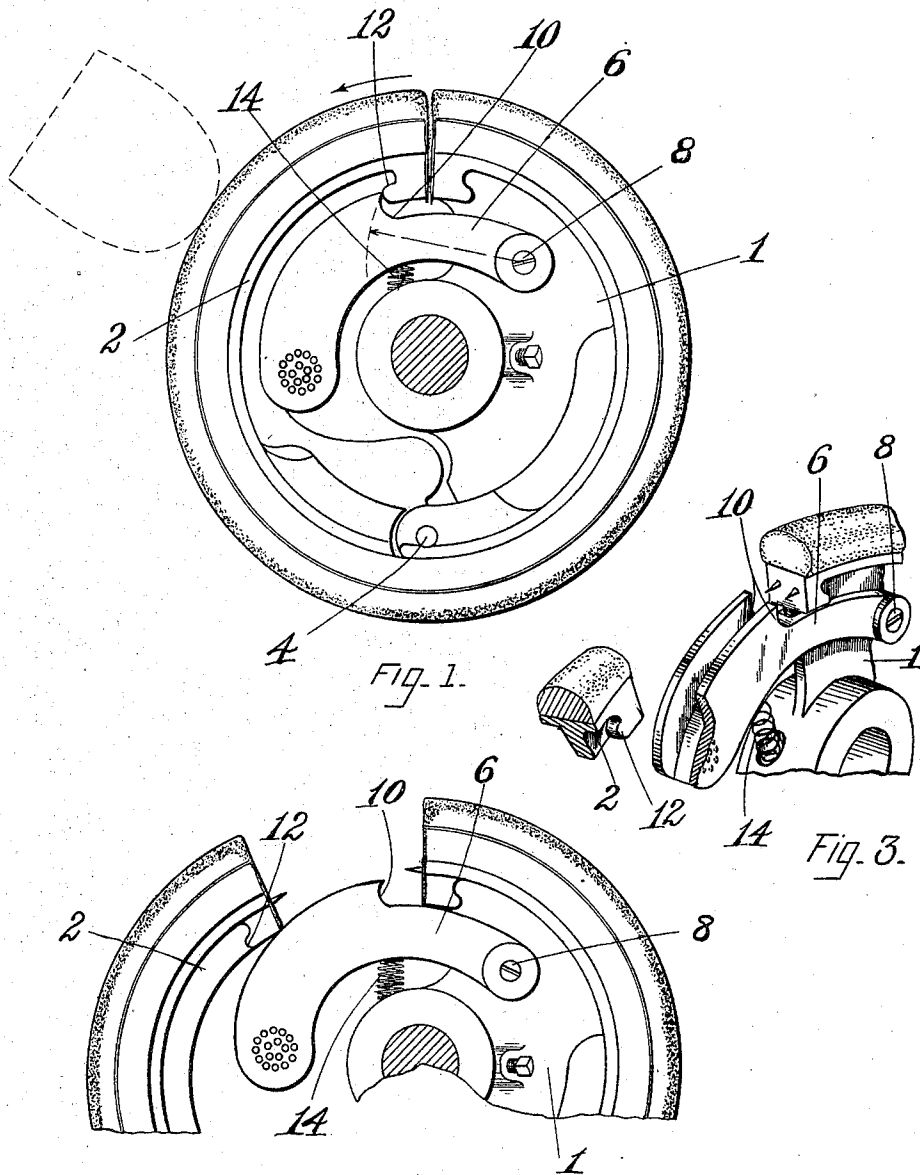


W. A. REED.
 ABRADING DEVICE.
 APPLICATION FILED MAY 13, 1907.

1,030,538.

Patented June 25, 1912.



WITNESSES.

Bertha M. Hutchinson.
 Bertha H. Hathaway.

FIG. 2.

INVENTOR.

William A. Reed
 By his Attorney,
 Nelson M. Howard

UNITED STATES PATENT OFFICE.

WILLIAM A. REED, OF CHELSEA, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

ABRADING DEVICE.

1,030,538.

Specification of Letters Patent.

Patented June 25, 1912.

Application filed May 13, 1907. Serial No. 373,469.

To all whom it may concern:

Be it known that I, WILLIAM A. REED, a citizen of the United States, residing at Chelsea, in the county of Suffolk and Commonwealth of Massachusetts, have invented certain Improvements in Abrading Devices, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to abrading devices of the class in which an abrading surface is formed by a removable cover of abrading material, and more particularly to devices which in action are continuously rotated or otherwise mechanically actuated.

An object of my invention is to produce a device of this class having a construction adapted to insure that the cover, during the use of the device, will be securely held in working position.

To this end the present invention contemplates the provision in such a device of means for gripping the cover to retain it in position, and means for pressing said gripping means into operative engagement with the cover arranged to be actuated by the movement of the device.

The invention is shown embodied in a device adapted to be mechanically rotated, and the construction is such that the means for pressing the gripping means into operative engagement with the cover is centrifugally actuated in the rotation of the device.

The device herein shown and described comprises a plurality of cover-supporting sections between cooperating faces of which the two ends of a cover are clamped. In order to reduce as far as possible the manipulation of the parts required in renewing the covers, it has been heretofore proposed to provide sectional devices of this type with means for locking the sections in closed position constructed to be mechanically brought into operation by the relative approaching movement of the sections in closing them upon the ends of the cover.

So far as I am aware, however, none of the devices of this type heretofore produced have gone into general use, and it is a further object of my invention to provide a practically operative device adapted to have this mode of operation.

To the end that in a device of this type the sections may be securely held in closed position against the centrifugal force exerted upon them in the rapid rotation of the device, and in order that the cover may be securely retained in working position, a further feature of the present invention consists in the provision, in a rotary device having a plurality of relatively movable cover-supporting sections arranged to receive between them the two ends of a cover, of means for moving relatively said sections to exert pressure upon the ends of the cover arranged to be actuated by the movement of rotation of the device. The arrangement is such that liability of the sections moving apart when the device is placed in rotation is prevented, and furthermore an effective grip of the sections upon the ends of the cover is insured during the rotation of the device. Even if the sections have not been closed tightly upon the ends of the cover by the operator, they will be brought into this relation to the cover by the movement of the device.

The construction hereinafter described comprises a sectional wheel having a locking member pivotally mounted upon one of the sections and arranged for movement toward and from the periphery of the wheel in a plane transverse to the axis of the wheel. The other section is provided with a cooperating part arranged to be engaged by the locking member to hold the sections from relative separating movement. The locking member is mounted so that when the sections are closed upon the ends of the cover by the operator it will be mechanically moved into engagement with said part and when the wheel is placed in rotation will be centrifugally forced into effective relation thereto. The contacting surfaces of the locking member and said cooperating part are so arranged that outward movement of the member toward the periphery of the wheel is accompanied by relative approaching movement of the sections.

In the drawings, which illustrate a buffing wheel constituting one embodiment of the invention,—Figure 1 is a view in side elevation of the wheel showing the sections in closed position; Fig. 2 is a view similar to Fig. 1 showing the sections in open position; Fig. 3 is a view in perspective show-

ing in detail the construction of the mechanism for locking the sections in closed position.

Referring to the drawings, the reference numeral 1 indicates the main section of the wheel secured in fixed position upon a rotatable shaft. A section 2 is pivotally connected at 4 to the section 1, and the two sections form, in the closed position represented in Fig. 1, a circular cover-supporting surface adapted to sustain a cover of sand paper or the like. Each section is provided, as is customary in devices of this type, with a peripheral cover of felt and the clamping faces between which the ends of the cover are held have pins projecting therefrom to facilitate application of a cover and assist in retaining it in working position.

A curved locking member 6 is provided with a forked end pivotally connected at 8 to the section 1, said member being arranged for swinging movement transverse to the axis of the wheel. The locking member is provided intermediate its ends with a locking surface 10, and, as indicated in Fig. 1, said surface extends inwardly from the outer edge of the member and is curved toward the axis of said member. Upon each side of the section 2 at a point adjacent to the clamping surface of the section is a part formed with a curved surface 12 arranged to be engaged by the surface 10 of the locking member 6. A spring 14 is mounted between the member 6 and the hub of the section 1 to hold said member yieldingly toward the periphery of the wheel. The surfaces 10 and 12 are so arranged, as will appear from Fig. 1, that outward movement of the member 6 toward the periphery of the wheel is accompanied by movement of the section 2 toward the section 1.

In the use of the wheel shown, a cover having been placed in the usual manner upon the pins projecting from the clamping surfaces of the sections, the sections are forced together by the operator into closed position, the sections being retained from separating movement when the outer edge of the surface 10 upon the locking member has engagement with the curved surfaces 12. In the relative approaching movement of the sections the locking member is moved toward the axis of the wheel out of the path of the section 2 by engagement of the said section with the curved outer face of said member, as will appear from Fig. 2. The spring 14 holds the locking member 6 yieldingly in engagement with the surface 12. When the wheel is placed in rotation, the centrifugal force exerted upon the member 6 is sufficient not only to prevent said member from assuming a position in which it would be ineffective to hold the sections from separating movement, but also to force said sections more firmly together upon the

ends of the cover, thus holding the ends of the cover securely in place and tightening the cover upon the wheel. The spring 14 holds the sections in closed position before the movement of rotation of the wheel actuates the member 6 centrifugally to force it into operative engagement with the surfaces 12. The wheel is preferably rotated in the direction indicated by the arrow in Fig. 1, since this causes the reaction of the work upon the wheel to tend to force the sections more closely together.

It will be understood that the force with which the section 2 is pressed toward the section 1 by the locking member 6 is sufficient to considerably more than counterbalance the centrifugal force tending to move the section 2 away from the section 1. Not only is the former force multiplied by the wedging action of the surface 10 upon the surface 12, but also by the position of the former surface intermediate the ends of the locking member 6 which causes the locking member to constitute a lever of the second class. It will also be seen from the drawings that the weight of the locking member 6 is concentrated near its free end in order to increase the force exerted upon said member to move it toward the periphery of the wheel.

Since the centrifugal force exerted upon the member 6 is depended upon to hold it in locking engagement with the surface 12, the spring 14 may be of a tension sufficient merely to bring said member lightly into engagement with the surface 12 when the sections are closed upon the cover. The pressure required to actuate said member to unlock the sections is therefore slight and manipulation of the wheel, in renewing the cover, is thereby facilitated.

Having described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:—

1. A rotary device for sustaining a cover of abrading material, having means for gripping the cover to retain it in position, and means for retaining said gripping means in operative engagement with the cover arranged to be maintained in effective relation to said means by the rotative movement of the device.

2. A rotary device for sustaining a cover of abrading material, having a plurality of relatively movable cover-supporting sections arranged to grip between them the two ends of the cover, and means for retaining the sections from relative separating movement, arranged to be maintained in effective relation to said sections by the rotative movement of the device.

3. A rotary device for sustaining a cover of abrading material, having a plurality of relatively movable cover-supporting sections arranged to receive between them the two

ends of the cover, and means for moving relatively said sections to exert pressure upon the ends of the cover, arranged to be actuated by the rotative movement of the device.

4. A rotary device for sustaining a cover of abrading material, having a plurality of relatively movable cover-supporting sections arranged to receive between them the two ends of the cover and means for moving relatively said sections to exert pressure upon the ends of the cover arranged to be centrifugally actuated during the rotation of the device.

5. A rotary device for sustaining a cover of abrading material, having two relatively movable sections arranged to receive between them the two ends of the cover and forming in their closed position a cover-supporting surface, a locking member movably mounted upon one of said sections, the other section having a surface arranged for engagement with said member to hold the sections from relative separating movement, said member being arranged to be pressed into locking engagement with said surface by the rotative movement of the device.

6. A rotary device for sustaining a cover of abrading material, having two relatively movable sections arranged to receive between them the two ends of the cover and forming in their closed position a cover-supporting surface, a locking member movably mounted upon one of said sections, the other section having a surface arranged for engagement with said member to hold the sections from relative separating movement, said member being arranged to be pressed into locking engagement with said surface by the rotative movement of the device, and means for maintaining said member yieldingly in operative position.

7. A rotary device for sustaining a cover of abrading material, having a plurality of relatively movable cover supporting sections constructed to grip between them the two ends of the cover and so arranged that cen-

trifugal force generated in their rotation tends to impart separating movement thereto, and means for retaining the sections from said separating movement arranged to be centrifugally maintained in effective relation to said sections.

8. A movable device for sustaining a cover of abrading material having means for gripping the cover to retain it in position, and means for pressing the gripping means into operative engagement with the cover and for maintaining it in such relation while the actuation of said device continues, said pressing and maintaining means being arranged to be actuated by the movement of the device.

9. A rotary device for sustaining a cover of abrading material having in combination a plurality of relatively movable sections adapted to grip between them an end of the cover, and centrifugally operated means for pressing said sections into gripping relation, said means including a lever pivoted to one of the sections and provided with a weighted portion.

10. A movable device for sustaining a cover of abrading material having means for gripping the cover to retain it in position and means for pressing said gripping means into engagement with the cover arranged to be actuated by the operative movement of the device.

11. A rotary device for sustaining a cover of abrading material having means for gripping the cover to retain it in position and means for pressing said gripping means into engagement with the cover arranged to be actuated centrifugally during the operative rotation of the device.

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

WILLIAM A. REED.

Witnesses:

BERNARD BARROWS,
H. DORSEY SPENCER.