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H. K. BACON.

CHUCK FOR HOLDING ABRADING WHEELS.

APPLICATION FILED DEC. 17, 1903.

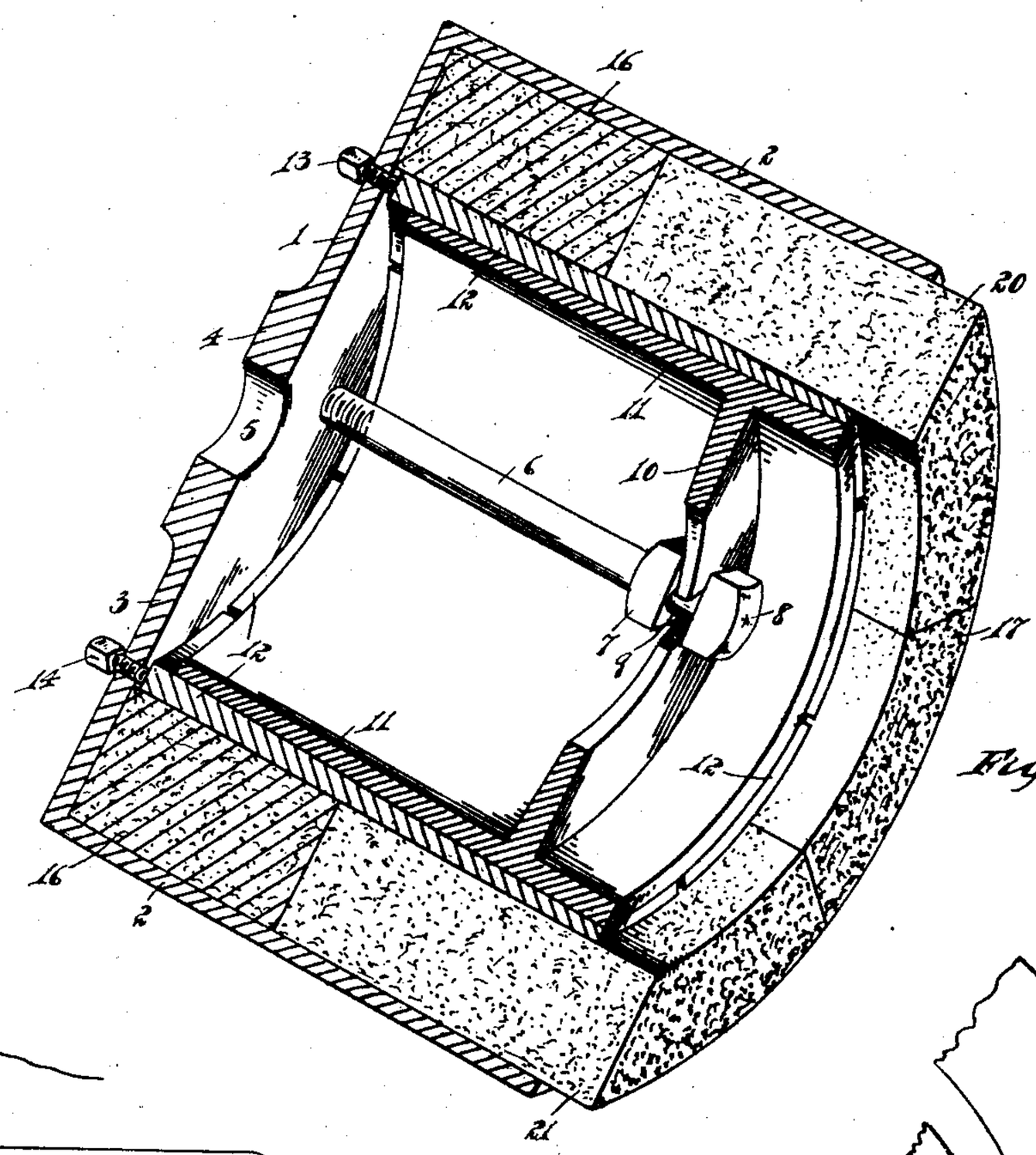

Fig 1.

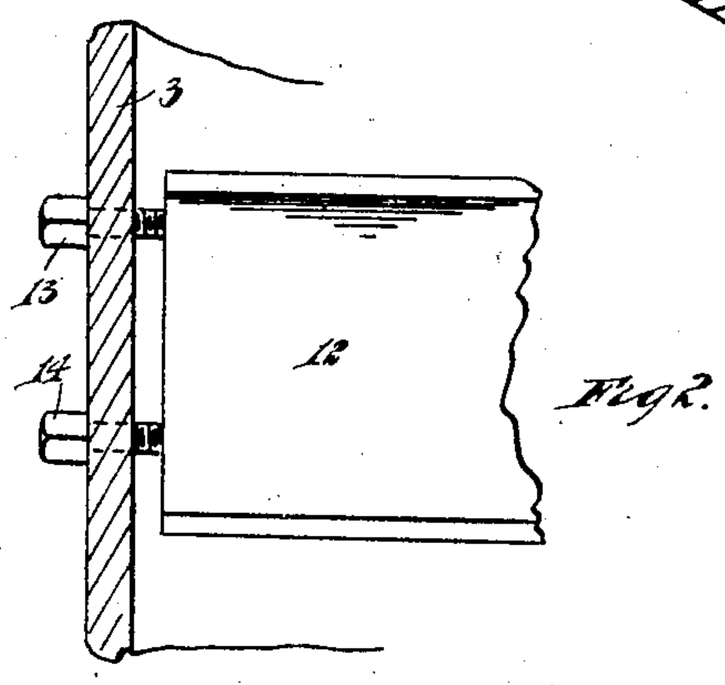

Fig 2.

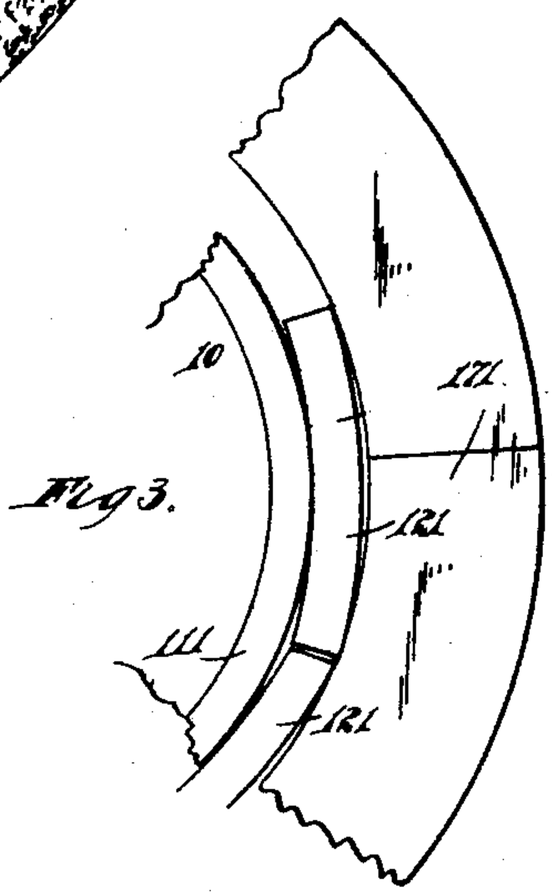

Fig 3.

WITNESSES

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UNITED STATES PATENT OFFICE.

HENRY K. BACON, OF PONTIAC, MICHIGAN.

CHUCK FOR HOLDING ABRADING-WHEELS.

SPECIFICATION forming part of Letters Patent No. 779,684, dated January 10, 1905.

Application filed December 17, 1903. Serial No. 185,489.

To all whom it may concern:

Be it known that I, HENRY K. BACON, a citizen of the United States, residing at Pontiac, county of Oakland, State of Michigan, have invented a certain new and useful Improvement in Chucks for Holding Abrading-Wheels; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to chucks that are used to hold grinding-blocks, and has for its object an improved chuck that is adapted to hold securely in place the several segments or segmental blocks employed to form the abrading part of a grinding sectional wheel.

In the drawings, Figure 1 is a perspective showing half of the grinding-head. Fig. 2 is an elevation of one of the wedges used in the construction of the chuck. There is also shown in section a portion of the end wall of the cup in which the parts are contained. Fig. 3 shows a form of wedge having a surface curved with longer radii than the radius of the blocks and the radius of the ring.

1 indicates the holder part of the head, made in the form of a cylindrical cup with side wall 2 and closed at one end by a plate 3, central to which is a hub 4. Through the hub is a central perforation 5 for the spindle, to which the head is secured. The plate 3 is provided with a plurality of threaded holes, one of which is shown in Fig. 1, and through these holes are run from the inside the ends of holding-bolts 6. Each holding-bolt is provided with a double head 7 and 8, spaced by a short neck portion 9. The holding-bolt engages an inward-extending flange 10 of a ring 11, which is arranged concentric with the external cylindrical part 2 and is spaced therefrom, leaving an annular opening between the two cylinders for the insertion of the grinding-blocks and the wedges. The external surface of the ring 11 is conical, with the smaller end of the cone located toward the cross-plate 3 in the assembled structure.

In connection with the externally-coned ring 11 there are used a number of stave-like wedges 12, which engage closely against the outer surface of the ring 11, with the thick end of each wedge lying toward the cross-wall 3 and with the thin end of each wedge lying closely contiguous to the thick end of the ring 11. The slant of the cone and the slant of the wedges correspond, and the wedges engage closely against the part 11 from end to end. The external surface of the assembled wedges is substantially cylindrical, broken only by slight intervals between those edges which lie parallel with the axis of the cylinder to allow for the slight longitudinal movement which is necessarily along that axis.

In the annular chamber between the external surface of the cylinder formed by the wedges and the interior surface of the cylinder 2 are inserted stave-like blocks of abrading material. These are formed as nearly as possible true segments of a tube; but, as is well known, it is practically impossible to make such segments exactly accurate, and to compensate for any possible irregularity the wedges 12 are each arranged in front of set-screws 13 and 14, that are inserted through the wall 3, and either one of the wedges 12 may be regulated by the set-screws to compensate for possible irregularities in the abrading-blocks.

Behind the abrading-blocks 20 21 are or may be inserted filler-blocks 16, of wood, which are replaced from time to time by longer blocks as the abrading-surface 17 is worn away by use.

The flange 10 instead of being perforated for the passage of the holding-bolt 6 is preferably notched from the inside, and the flange engages between the heads 7 and 8 with the neck in the notch of the flange. With this construction the bolt 6 may be utilized both to force the inner ring to its clamping position and to loosen it therefrom.

In Fig. 3 the wedge 121 has an external radius that is longer than the internal radius of the blocks 171 and an internal radius which is longer than the external radius of the ring 111. In this case there is a tangent line between the abrading-blocks and the ends of

the wedges, and the inner surface is tangent to the ring at a line that extends along the middle of the wedge. Such a structure enables the wedge to adjust itself to slight irregularities of thickness in the abrading-blocks, and it also produces a structure in which the resiliency of the metal of which the wedge is formed is utilized.

What I claim is—

1. In a chuck for holding abrading-blocks, in combination with a cup-shaped head provided with a cylindrical wall, a movable ring member coned externally, a plurality of wedges having the internal face of each a segment of a hollow cone, and the external face a segment of a cylinder, and means situated at the end of said cup-shaped member for regulating the pressure exerted by each of said wedges, means for securing the ring member to the hub member, and moving the ring member along the axis of the chuck, substantially as described.

2. In a chuck for an annular sectional grinding-wheel, having in confining member, a hub, a ring conical on its exterior surface, a plurality of wedges, each of which is in form the segment of an internally-coned cylinder, means for securing the ring to the hub, and means for adjusting the segments independently, substantially as described.

3. In a chuck for abrading-wheels, in combination with a cup-shaped confining member, a longitudinally-movable spreading-ring having the form of a truncated cone, a plurality of segmental wedges forming an internal bearing, and means located on the outer end of said cup-shaped member for independently adjusting each segment of the internal bearing, substantially as described.

4. In a chuck for abrading-wheels, the combination of a cup-shaped confining member, a movable ring member having the form of a truncated cone, adapted to be inserted in said cup-shaped member with the base having the larger diameter in the open end of the cup-shaped member, a plurality of segmental wedges forming an internal bearing, means located in the closed end of said cup-shaped member for independently adjusting each segment of the internal bearing, and means for securing said movable ring member in place, substantially as described.

5. In a chuck for abrading-wheels, the combination of an external confining cylinder one of whose ends is closed by a transverse wall, an internal longitudinally-movable truncated cone-shaped member, means for securing said cone-shaped member in place, a plurality of segmental wedges adapted to be inserted between the confining members, having their external and internal surfaces curved with radii varying from the radii of the surfaces to which the wedges are tangent, and means extending through the transverse wall in the end of the external cylinder for independently adjusting each segment of the internal bearing, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

HENRY K. BACON.

Witnesses:
WILLIAM T. MATHEWS,
WILLIAM F. NORTH.