

No. 753,497.

PATENTED MAR. 1, 1904.

G. W. KIMBALL.
BURNISHING WHEEL.

APPLICATION FILED AUG. 21, 1903.

NO MODEL.

Fig. 1.

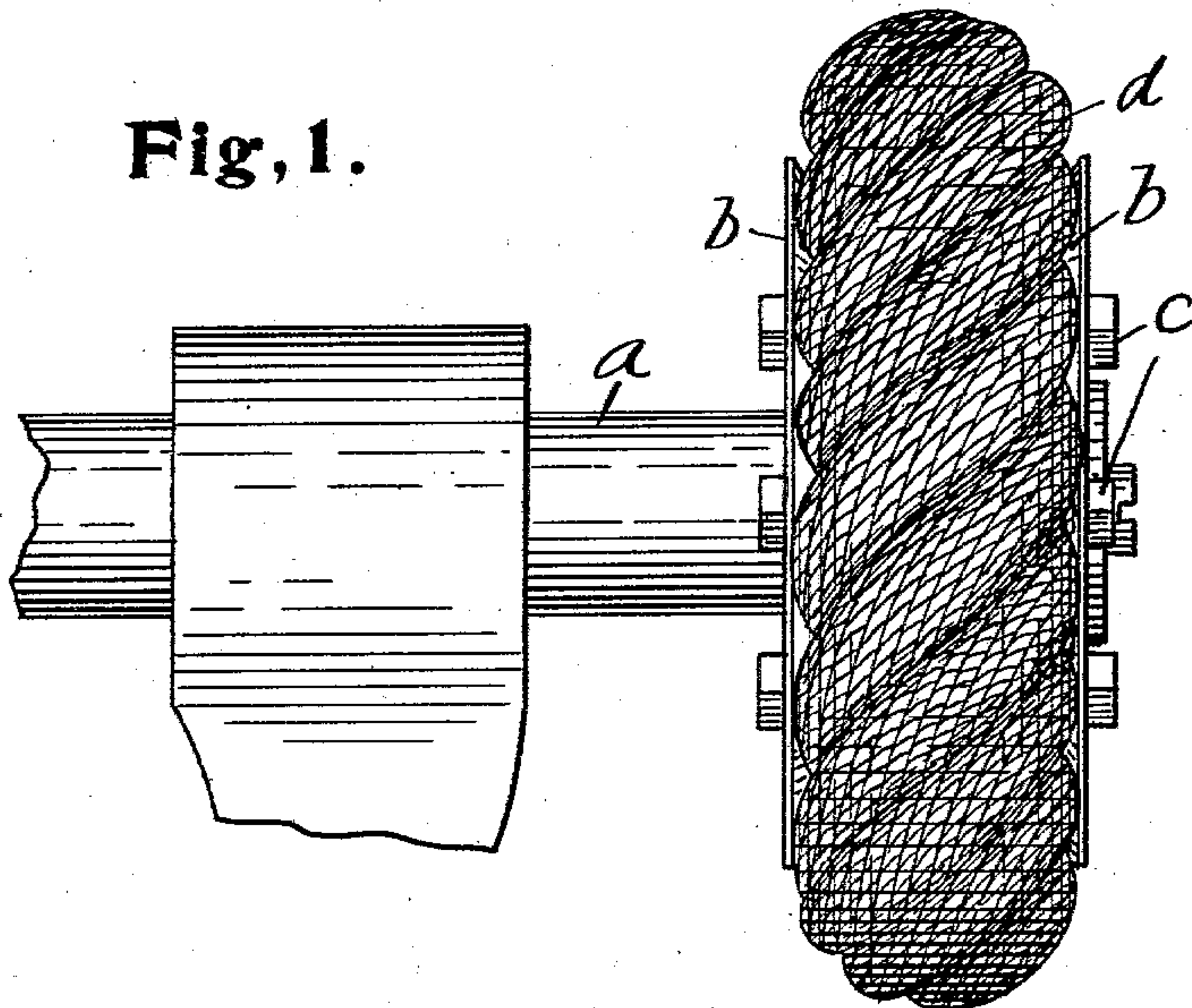


Fig. 2.

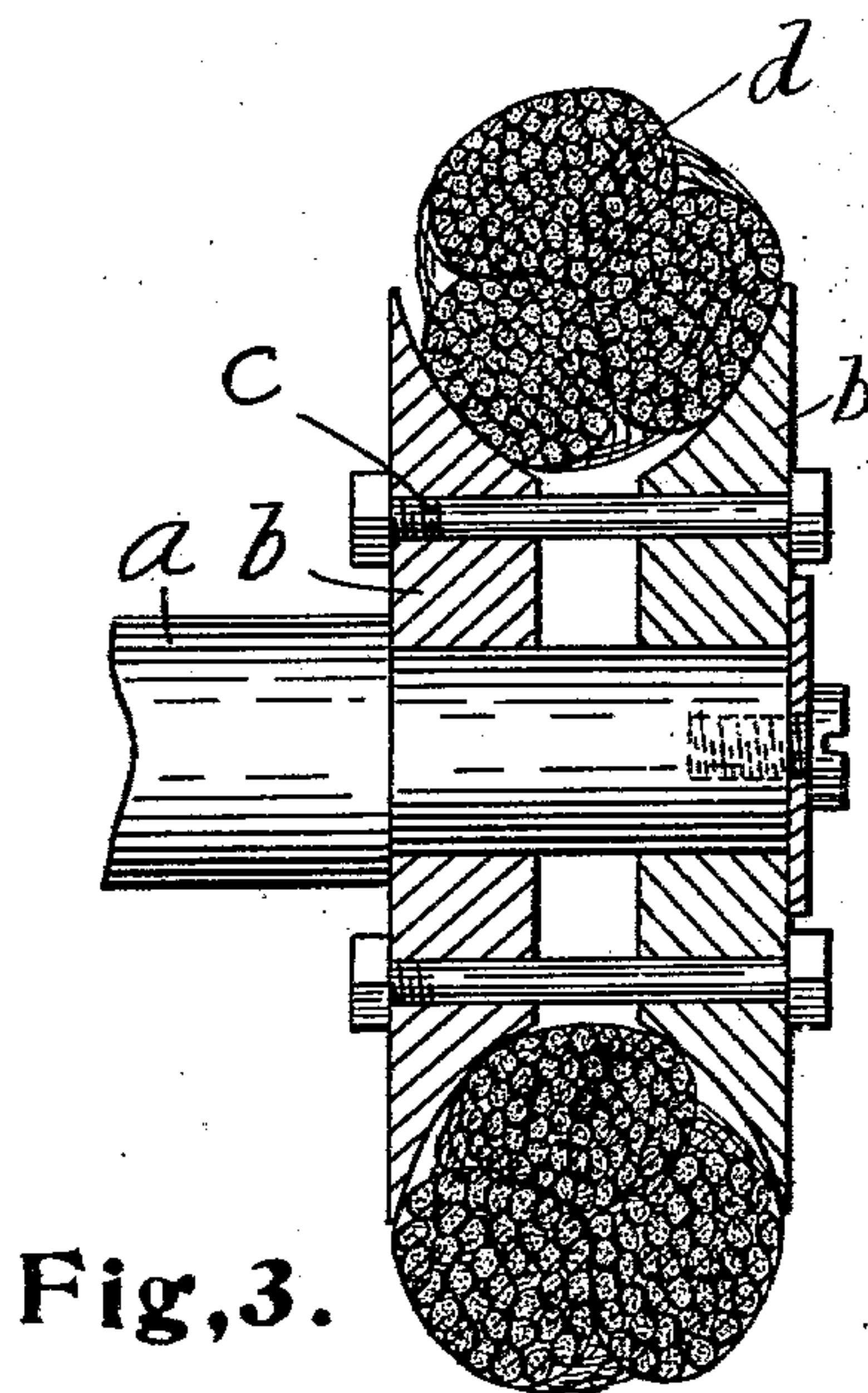
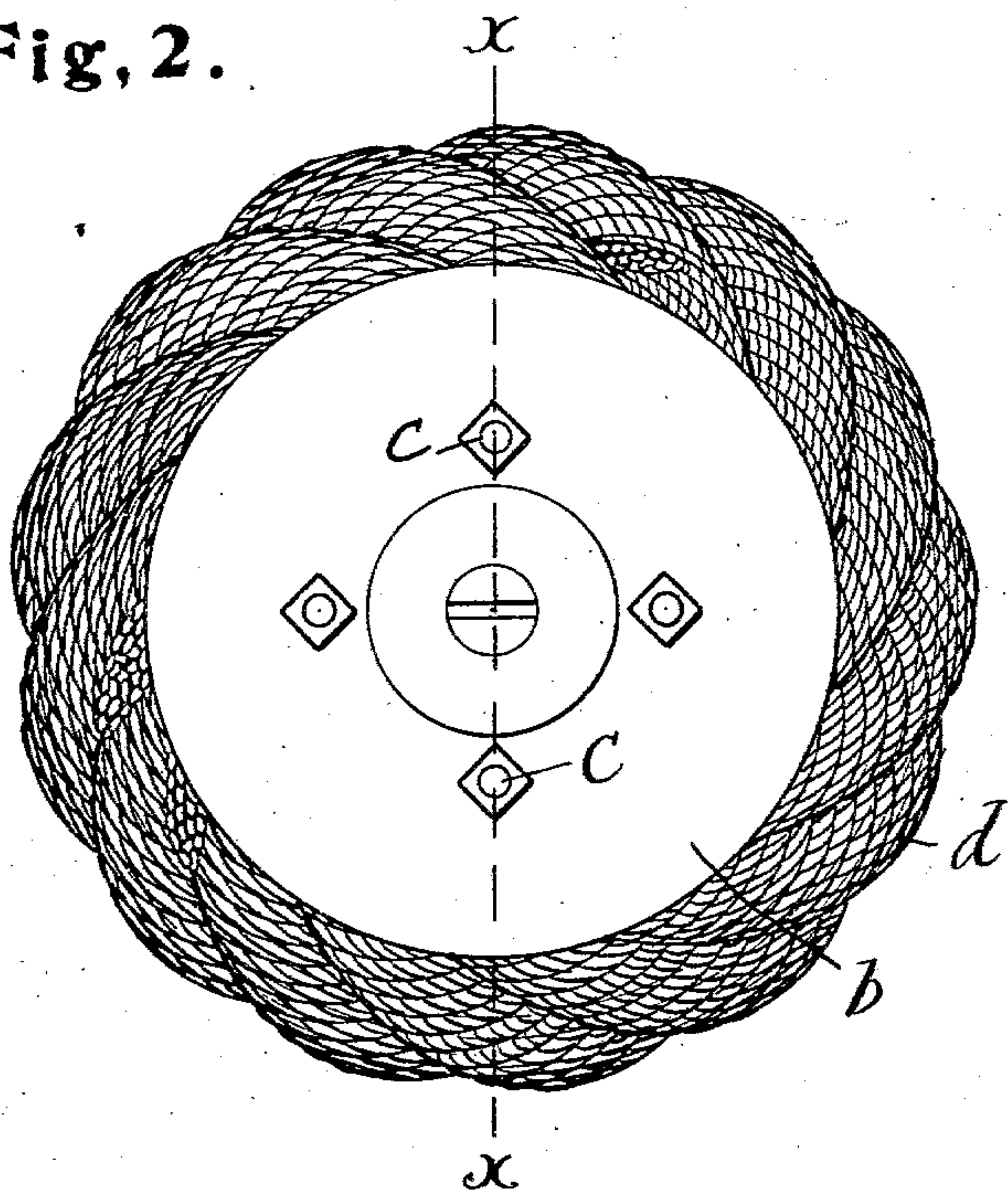


Fig. 3.

Witnesses.

H. B. Davis.

Mend M. Piper.

Inventor.

Geo. W. Kimball
by Noyes Kimball
attys.

UNITED STATES PATENT OFFICE.

GEORGE W. KIMBALL, OF NEWTON, NEW HAMPSHIRE.

BURNISHING-WHEEL.

SPECIFICATION forming part of Letters Patent No. 753,497, dated March 1, 1904.

Application filed August 21, 1903. Serial No. 170,245. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. KIMBALL, of Newton, county of Rockingham, State of New Hampshire, have invented an Improvement in
5 Burnishing-Wheels, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

In finishing the heels and bottoms of shoes
10 it is customary to cover these surfaces with a compound of wax, blacking, and other substances and then to produce a high polish upon the surface thus treated by rubbing the same with a burnishing-wheel. Various forms
15 of burnishing-wheels have been produced and employed for this purpose, and one of the most commonly employed devices of this character is known as a "rag-wheel," such device usually comprising a body or holder
20 covered with cloth. These cloth coverings soon become worn or burned by contact with the work, so that it is necessary to renew them frequently, and such renewal causes the loss of considerable time to the operator, and
25 the cost of new coverings is an important item of expense.

In order that a bright or highly-polished surface and a hard and lasting finish may be produced on a heel or shoe bottom, the ap-
30 plication of a considerable amount of heat and pressure during the polishing process is necessary when the ordinary polishing compounds are employed. This application of heat is accomplished in various ways—for
35 example, with a heated iron roll—all of which add more or less to the expense of performing the polishing process.

The object of my invention is to provide a form of burnishing-wheel which is con-
40 structed so that it will not only satisfactorily perform the functions of an ordinary rag-wheel, but which is of such a nature that it will wear for a long time, and much longer than any construction of rag-wheel of which
45 I am aware, which may be pressed with considerable force against the work and may become highly heated without injury to either, which is adapted to be turned in such a way as to present a fresh operating-surface
50 when one of the surfaces become worn, and

which is of such a simple and inexpensive construction that the first cost thereof is comparatively small. I accomplish these objects by mounting on a suitable holder a polishing rim or ring composed of a series
55 of twisted strands of hemp or manila fiber, the ends of each strand being interlocked with the other strands, so that a practically continuous working surface is produced.

In the accompanying drawings, Figure 1 is
60 an edge elevation, and Fig. 2 is a front view, of a burnishing-wheel made according to my invention; and Fig. 3 is a diametrical section on the line $x x$ of Fig. 2.

The rotating shaft a is provided with a two-
65 part holder b , the sections thereof each being of disk form and having their edges oppositely beveled inwardly toward each other and slightly concaved, so as to provide an approxi-
70 mately semicircular groove when the sections of the holder are adjustably clamped together by bolts c or other suitable means. A ring
75 or rim d , composed of three or more spirally-twisted strands, is arranged in the groove of said holder, each strand being composed of a
80 plurality of spirally-twisted hemp or manila fibers, as in an ordinary rope. The ring may be made practically continuous and of ap-
85 proximately uniform size by tapering the ends of the strands and splicing them together, by
90 winding a strand or a rope of small size about itself until a ring of the desired thickness is produced, by twisting several strands together so that each spans the meeting ends of the other,
95 or in any other manner so that the ends of the twisted strands interlock with the other strands and prevent enlargement of the ring beyond the ordinary stretching and so that
100 when the holder-sections are drawn together the ring will be tightly drawn about the holder and will be firmly held in this position without the aid of cement or other fastening means. A burnishing-wheel having a circular working face, across which a series of corrugations extend obliquely, is thus provided, each corru-
105 gation being formed by each main strand as it passes across the working face, and as the fibers run spirally or are twisted to form each minor strand the result is that these fibers work on the surface in different directions and

thoroughly fill the cracks in the heel with wax. The hemp or manila fiber of which the ring is made is capable of withstanding a comparatively high degree of heat and will not
5 become burned or discolored by the heat generated when the work is pressed against it even with as much force as the ordinary operator is able to apply. The advantages thereby attained are several and important. The
10 ring of fiber becomes highly heated at its working surface, thereby applying the heat to the polishing compound requisite to produce a high polish, and the force with which the work is pressed against the work produces a
15 hard firm finish which is not easily marred and does not readily lose its luster. My device thus has the combined advantage of a rag-wheel and a metal wheel without their disadvantages, for a metal wheel will not polish satisfactorily or distribute or work the wax into
20 the pores of the leather and spaces between the heel-lifts, while the rag-wheel will become burned or torn if the work is pressed against it more than lightly, greatly impairing the luster of the polished surface. Moreover, the
25 twisted fibers present a porous surface which becomes partly filled with the polishing compound, so that the polished surface does not become covered with a continuous coating of wax, as will an ordinary rag-wheel; but the
30 fibers act directly on the surface to be polished at all times and yet at the same time hold the polishing compound in the pores formed between them, removing the surplus compound and supplying it where deficient. The corrugations formed by the main strands cause the surface of the work to receive a rapid succession of blows, which greatly increase the hardness of the finish. These corrugations also
35 prevent all possibility of a continuous wax-covered working surface being formed, the formation of such a surface making it neces-

sary to discard the burnishing-covering. As the fibers of the ring are all twisted together, it will be apparent that the wearing away and
45 consequent breaking of the fibers or even of minor strands of the ring will not impair the efficiency thereof, as their ends will be made to adhere to the main body of the ring by the wax. However, if such broken ends project
50 from the surface the brushing action which they will have will be advantageous rather than otherwise. As the whole body of the burnishing-ring is approximately circular in cross-section and is also so flexible that it may
55 be bent in any direction if the working surface becomes worn to too great an extent or worn too flat to engage satisfactorily the curved side of a heel, it is simply necessary to remove the ring from the holder and roll
60 it or turn it inside out, as it were, so that a new working surface is presented, when it is replaced. By doing this at intervals until the whole surface of the ring is worn down a single ring may be used for a long time, so that
65 the expense of renewal of the rings is comparatively insignificant.

Having thus described my invention, what I claim as new, and desire to secure by Letters
70 Patent, is—

A burnishing-wheel for the purpose described consisting of a rotary holder having an annular seat, a circular burnishing-ring mounted on said seat comprising a plurality
75 of spirally-twisted strands, each strand composed of a plurality of spirally-twisted fibers, substantially as described.

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

GEORGE W. KIMBALL.

Witnesses:

LOUIS H. HARRIMAN,
H. B. DAVIS.