

No. 889,554.

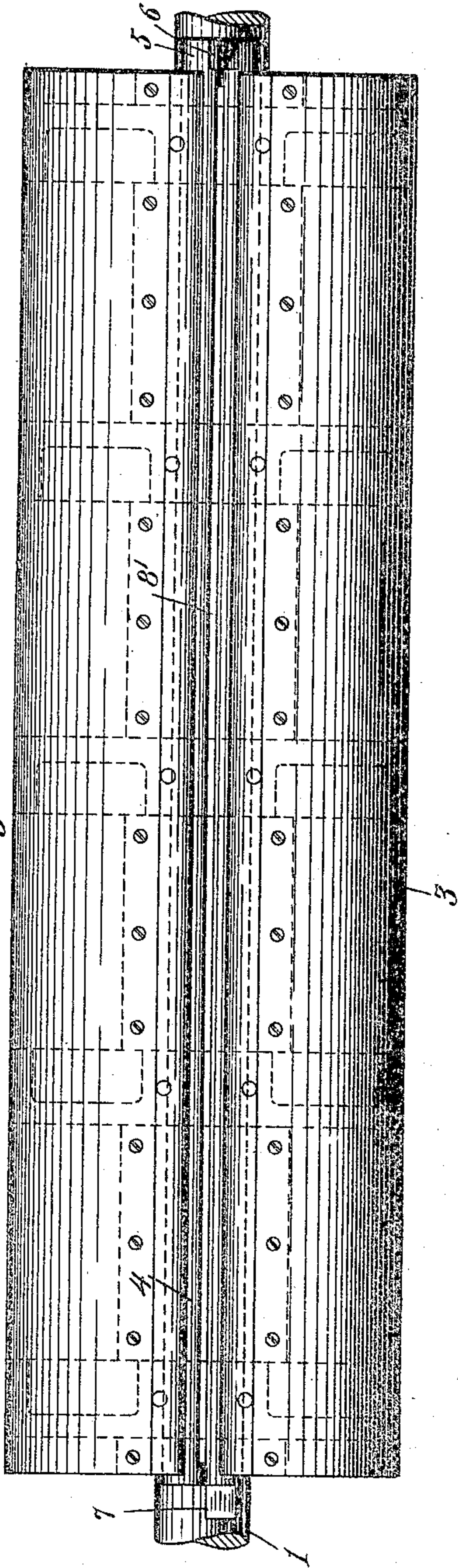
PATENTED JUNE 2, 1908.

J. P. SIMMONS.
SANDPAPERING MACHINE.

APPLICATION FILED AUG. 29, 1907.

2 SHEETS—SHEET 1.

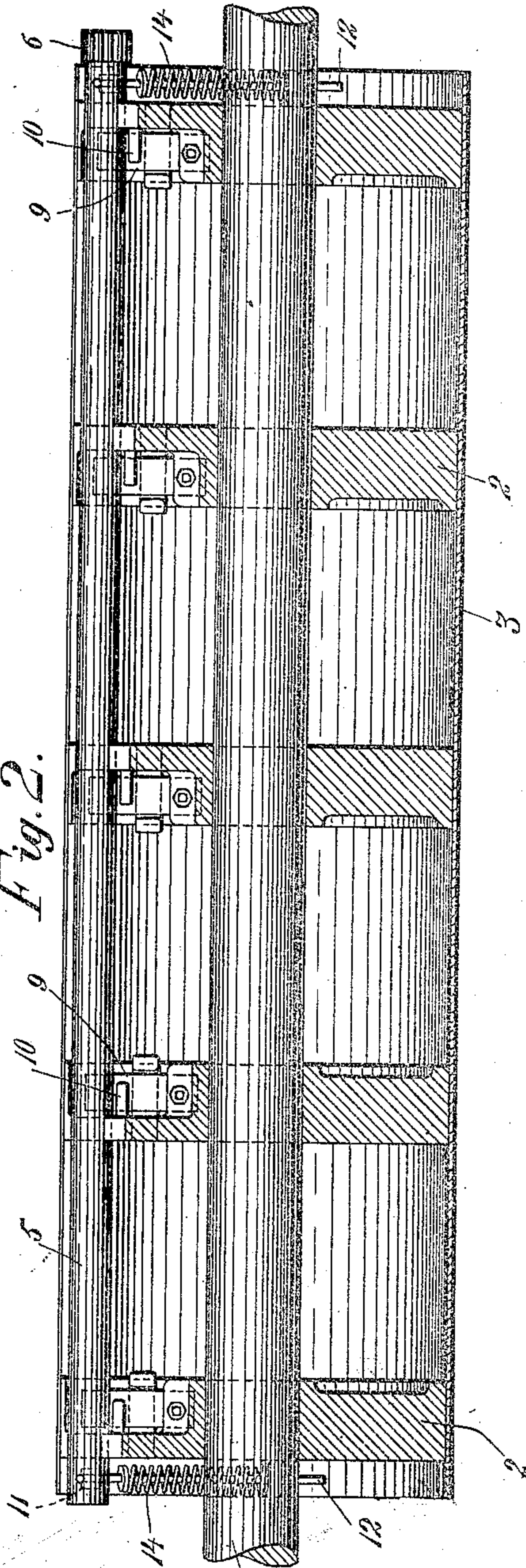
Fig. 1.



WITNESSES:

Alex Currie
W. B. Richards

Fig. 2.



INVENTOR

John P. Simmons

BY

Wm. Y. Booth

ATTORNEY

No. 889,554.

PATENTED JUNE 2, 1908.

J. P. SIMMONS.
SANDPAPERING MACHINE.
APPLICATION FILED AUG. 29, 1907.

2 SHEETS—SHEET 2

Fig. 3.

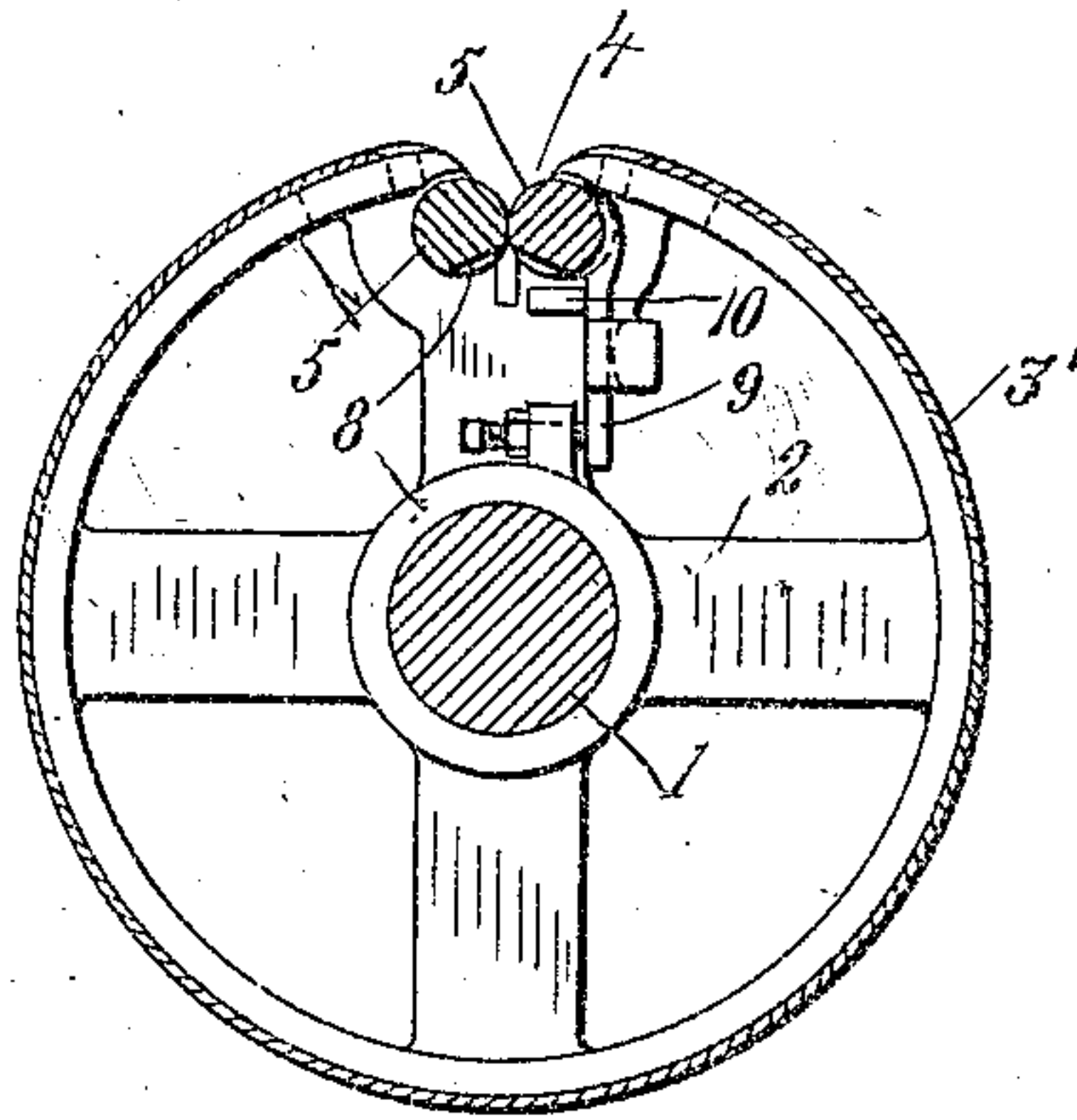


Fig. 4.

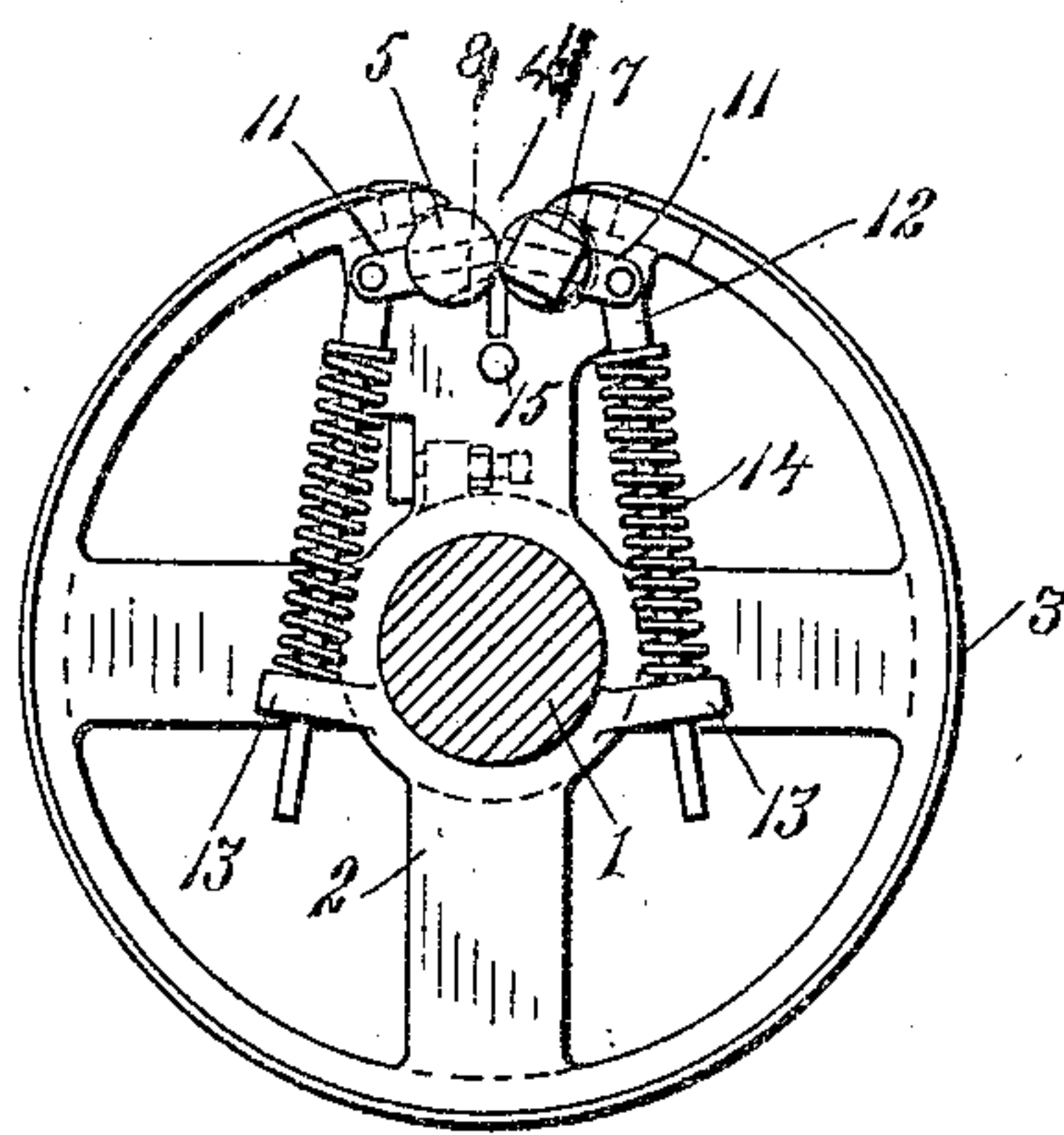
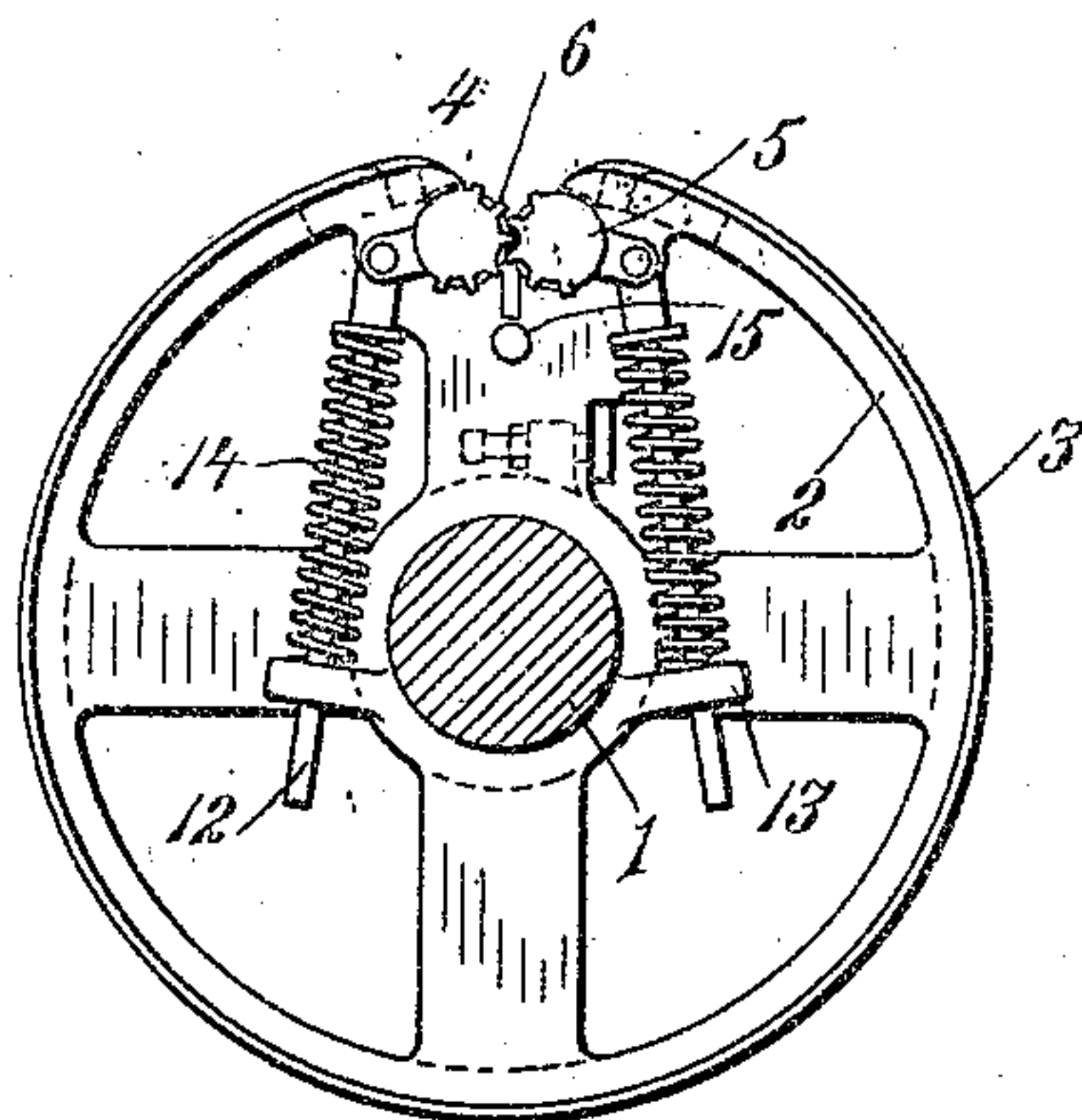


Fig. 5.



WITNESSES:

Alex. Currie
D. B. Richards

INVENTOR

John P. Simmons

BY

Wm. F. Booth

ATTORNEY

UNITED STATES PATENT OFFICE.

JOHN P. SIMMONS, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO HARRON, RICKARD & McCONE, OF SAN FRANCISCO, CALIFORNIA, A CORPORATION OF CALIFORNIA.

SANDPAPERING-MACHINE.

No. 889,554.

Specification of Letters Patent.

Patented June 2, 1908.

Application filed August 29, 1907. Serial No. 390,586.

To all whom it may concern:

Be it known that I, JOHN P. SIMMONS, a citizen of the United States, residing in the city and county of San Francisco and State of California, have invented certain new and useful Improvements in Sandpapering-Machines, of which the following is a specification.

My invention relates to the class of sandpapering machines, and particularly to an improvement in the drums thereof which carry the sand-paper, said improvement having for its object the provision of a simple and effective means for automatically continuously taking up the slack of the sand-paper and keeping it under continuous proper tension around the drum while the machine is in motion.

It is important that the sand-paper on the drum shall be kept tight and smooth. If there is any slack, such, for example, as is caused by the expansion due to dampness, it will pucker and wrinkle and then tear; or, if held rigidly tight, it will also tear under contraction due to dryness.

My invention contemplates a gripping pressure under constant yielding tension, which will compensate for all expansion and contraction of the paper, and hold it properly tight at all times and under all conditions, on the drum.

To this end my invention consists in the novel automatic gripping and tensioning device, which I shall now fully describe by reference to the accompanying drawings in which

Figure 1 is a plan of the sand-paper drum of the machine, showing the gripper rolls turned to a position to initially receive the sand-paper between them. Fig. 2 is a longitudinal section of the drum. Fig. 3 is a cross section of the drum, the gripper rolls being turned to a position for clamping the sand-paper and holding it under tension. Fig. 4 is an elevation of one end of the drum. Fig. 5 is an elevation of the other end of the drum.

The drum of the sand-papering machine comprises a central shaft 1, upon which are secured the spiders 2 in any suitable number, and an encircling shell 3 of steel or other ma-

terial, said shell being open at the top, as shown at 4.

Mounted rotatably in one spoke of each spider are the two adjacent and parallel gripper-rolls 5, which are exposed through the top opening of the shell, and extend the whole length of the drum. At one end the gripper-rolls are provided with intermeshing gears 6, (Fig. 5), to cause them to rotate in unison, and, at the other end, one of said rolls is squared, as seen at 7 in Fig. 1, to receive a socket wrench, to turn them. At one portion of its circumference, each gripper-roll is flattened, as seen at 8 in Figs. 3 and 4, whereby when the rolls are turned up, these flat portions form, as shown in Fig. 1, an entrance slot 8' to initially receive the sand-paper. The slot formed by said flat portions, preferably, does not extend quite to the ends of the rolls, thereby forming an accurate guide for the entrance of the paper.

The holes in the spider spokes in which one of the gripper-rolls is mounted are made slightly oblong as seen in Figs. 3 and 4, in order to permit said rolls to separate or spread when the sand paper is clamped between them. A flat spring 9 on each spider presses against the side of that gripper-roll which is mounted in the oblong holes, and normally holds it, relatively to the other roll, with clamping force on the sand-paper when the latter is between the rolls; but when no sand-paper is between them, the pressure of the spring 9 is limited by a lug 10 against which the spring bears, thereby maintaining the proper width of the entrance slot 8' to receive the paper.

A lug 11 is secured near each end of the gripper-rolls, and to each lug is pivoted a collar-pin 12, thus forming a toggle connection with the rolls. The other end of the collar-pin 12 passes freely down through a lug 13 on the spider. Spiral springs 14 are seated on the pins between their collars and the lugs 13, and serve to normally continuously impose a pressure on the gripper-rolls tending continuously to turn their tops towards each other.

15 is a pin fixed in the spiders to limit the turning of the gripper-rolls to a position to receive the sand-paper.

The operation of drum is as follows:—
 With a socket wrench the gripper-rolls 5 are turned until the lugs 11 rest against the pins 15, where they will stay at rest, by reason of the spring connection being thrown past center. This position brings the flat sides 8 of the rolls to the top and opposite each other to form the entrance slot 8', shown in Fig. 1. The sand-paper being now wrapped upon the drum, its two ends are passed through the slot 8'. Then the gripper-rolls are turned back, and their round sides now grip the sand-paper, the springs 9 giving the clamping pressure. The lugs 11 and the collar-pins 12, with the springs 14, being thus thrown to the other side of the center, said springs now not only hold the rolls in position, but also exert a constant tension on the sand-paper to continuously keep it tight by compensating for its expansion or contraction. By this construction also, the tension is increased by the centrifugal force due to the weight of the springs and their connections when the drum is rapidly revolving, and these parts have no tendency to throw the drum out of balance.

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

1. In combination with the drum of a sand-papering machine, a pair of gripper-rolls rotatably mounted in the drum and adapted to receive and clamp the ends of the paper between them; and means acting on said rolls for imposing constant yielding rotative pressure to compensate for the expansion and contraction of the paper and to keep it under constant tension.

2. In combination with the drum of a sand-papering machine, a pair of gripper-rolls rotatably mounted in the drum and adapted to receive and clamp the ends of the paper between them; and springs connected with said rolls for imposing upon them constant yielding rotative pressure to compensate for the expansion and contraction of the paper and to keep it under constant tension.

3. In combination with the drum of a sand-papering machine, a pair of gripper-rolls rotatably mounted in the drum and adapted to receive and clamp the ends of the paper between them, said rolls having projecting lugs; collar-pins pivoted to said lugs; lugs in the drum through which the other ends of the collar-pins play; and springs on the collar-pins disposed to impose on the rolls a constant yielding rotative pressure, to compensate for the expansion and contraction of the paper and to keep it under constant tension.

4. In combination with the drum of a sand-papering machine, a pair of gripper-rolls rotatably mounted in the drum and adapted to receive and clamp the ends of the paper between them, said rolls having at one portion of their circumference correspond-

ingly disposed flat sides, to form an entrance slot for the ends of the paper; and springs connected with said rolls for imposing upon them constant yielding rotative pressure, to compensate for the expansion and contraction of the paper and to keep it under constant tension.

5. In combination with the drum of a sand-papering machine, a pair of gripper-rolls rotatably mounted in the drum and adapted to receive and clamp the ends of the paper between them, said rolls having at one portion of their circumference correspondingly disposed flat sides, to form an entrance slot for the ends of the paper; means for effecting the rotation of the rolls in unison, to initially receive and clamp the paper; and springs connected with said rolls for imposing upon them constant yielding rotative pressure, to compensate for the expansion and contraction of the paper and to keep it under constant tension.

6. In combination with the drum of a sand-papering machine, a pair of gripper-rolls rotatably mounted in the drum and adapted to receive the ends of the paper between them, one of said rolls being movable in its bearings to and from the other; springs bearing on the movable roll to impose a clamping pressure upon the paper; and means acting on said rolls for imposing constant yielding rotative pressure to compensate for the expansion and contraction of the paper and to keep it under constant tension.

7. In combination with the drum of a sand-papering machine, a pair of gripper-rolls rotatably mounted in the drum and adapted to receive the ends of the paper between them, said rolls having at one portion of their circumference correspondingly disposed flat sides, to form an entrance slot for the ends of the paper, and one of said rolls being movable in its bearings to and from the other; springs bearing on the movable roll to impose a clamping pressure on the paper; fixed stops for said springs to limit their pressure on said roll; and means acting on said rolls for imposing constant yielding rotative pressure to compensate for the expansion and contraction of the paper and to keep it under constant tension.

8. In combination with the drum of a sand-papering machine, a pair of gripper-rolls rotatably mounted in the drum and adapted to receive and clamp the ends of the paper between them, said rolls having at one portion of their circumference correspondingly disposed flat sides, to form an entrance slot for the ends of the paper; lugs on the rolls; collar-pins pivoted to said lugs; lugs in the drum through which the other ends of the collar-pins play; springs on the collar-pins disposed to impose on the rolls a constant yielding rotative pressure to compensate for

the expansion and contraction of the paper
and to keep it under constant tension; means
for turning the rolls in unison; and fixed pins
in the drum against which the lugs of the rolls
5 come in contact to limit the rotation of the
rolls and hold them in position to receive the
paper in their entrance slot.

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

JOHN P. SIMMONS.

Witnesses:

N. A. ACKER,

D. B. RICHARDS.