

(No Model.)

2 Sheets—Sheet 1.

S. C. MENDENHALL.

CASTER.

No. 314,959.

Patented Mar. 31, 1885.

FIG. I.

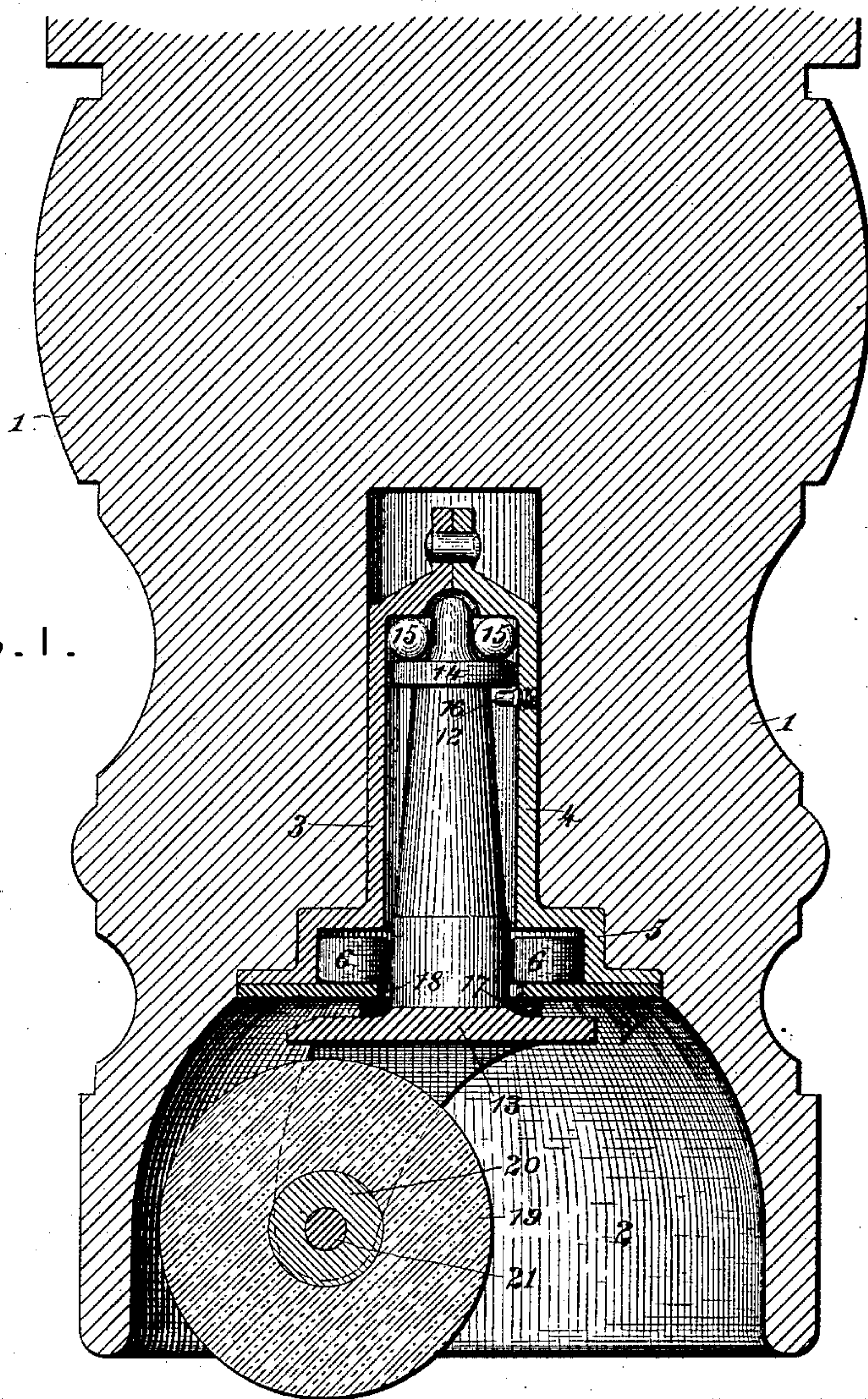
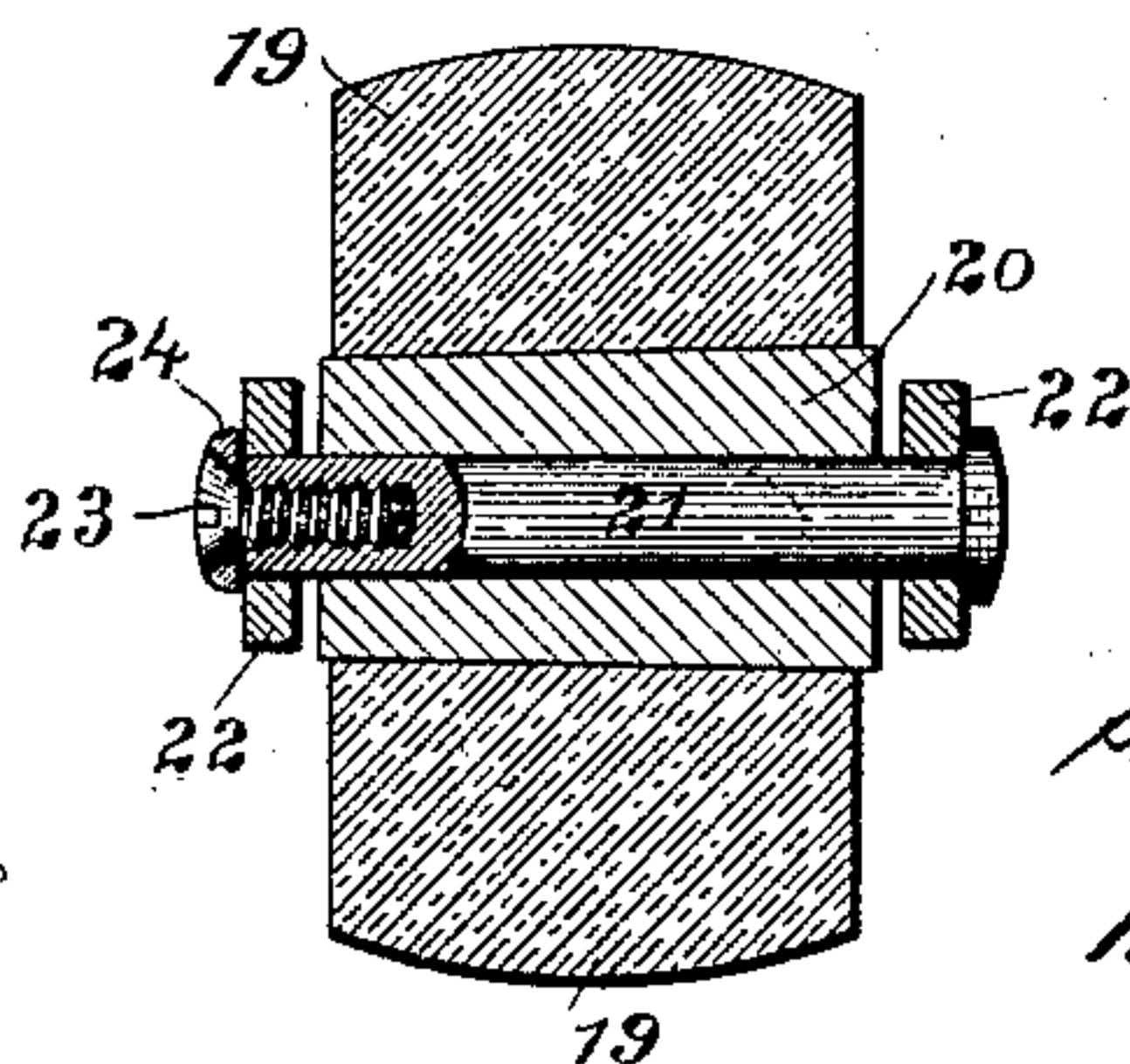


FIG. V.



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FIG. II.

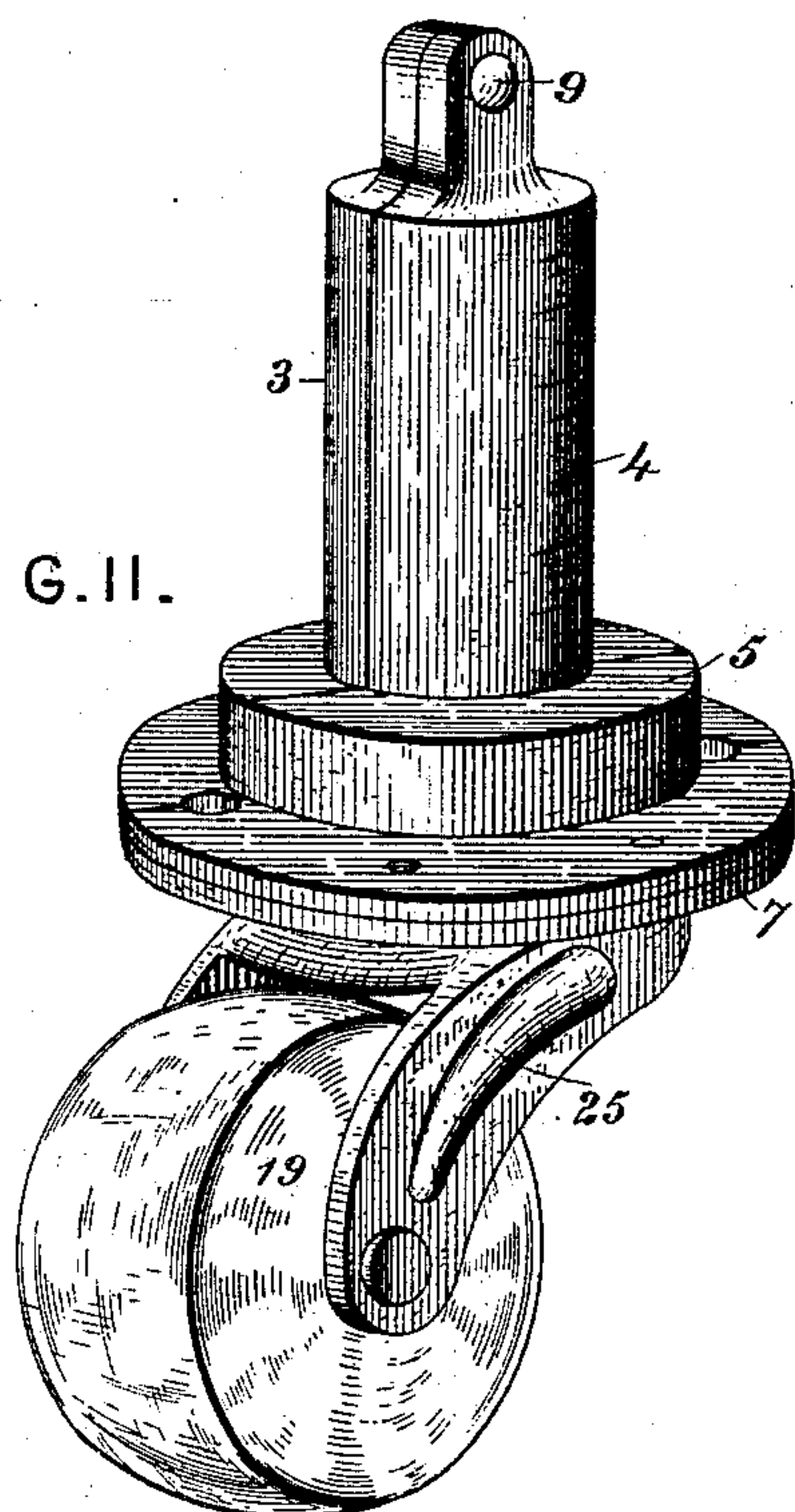


FIG. III.

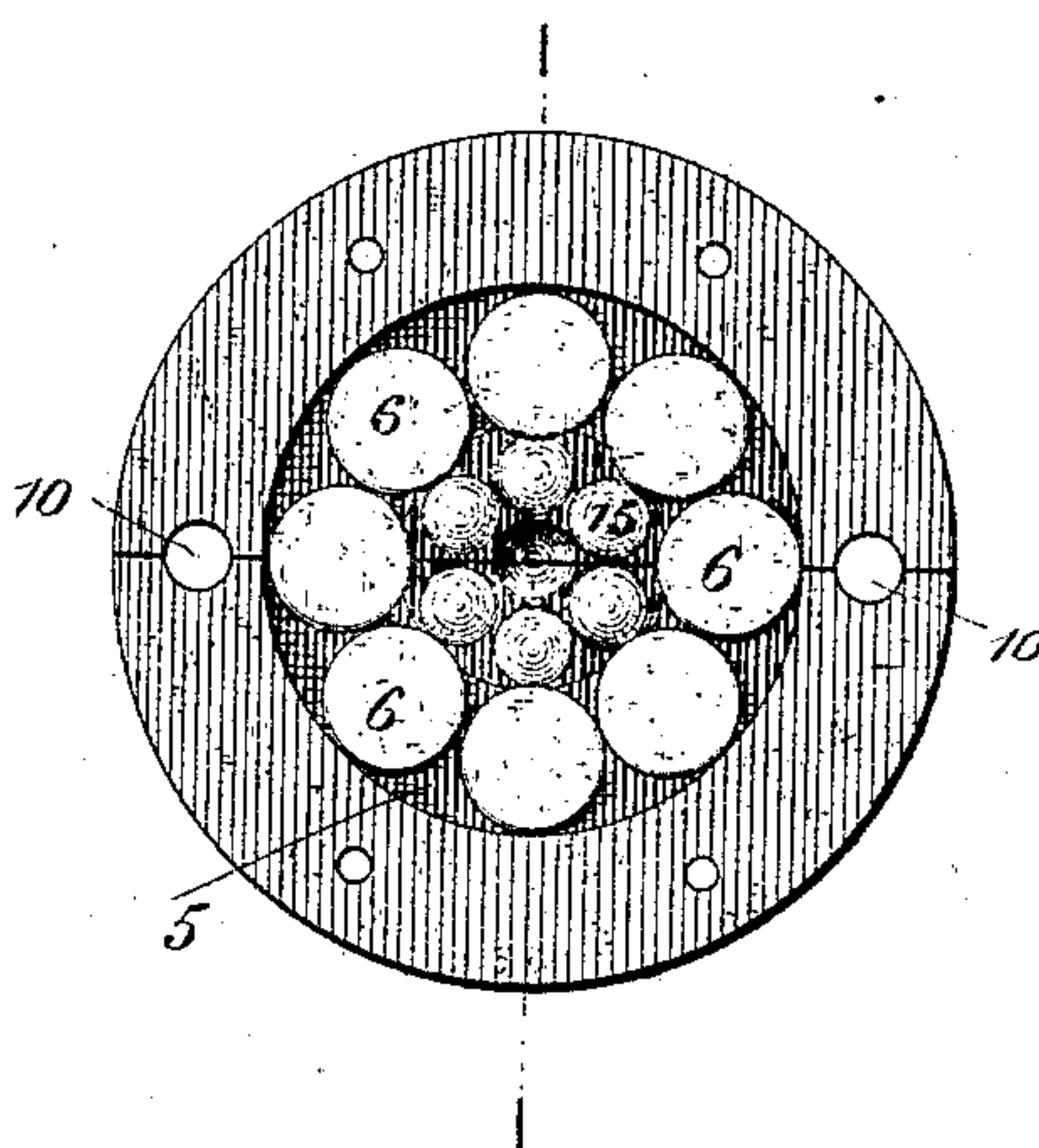
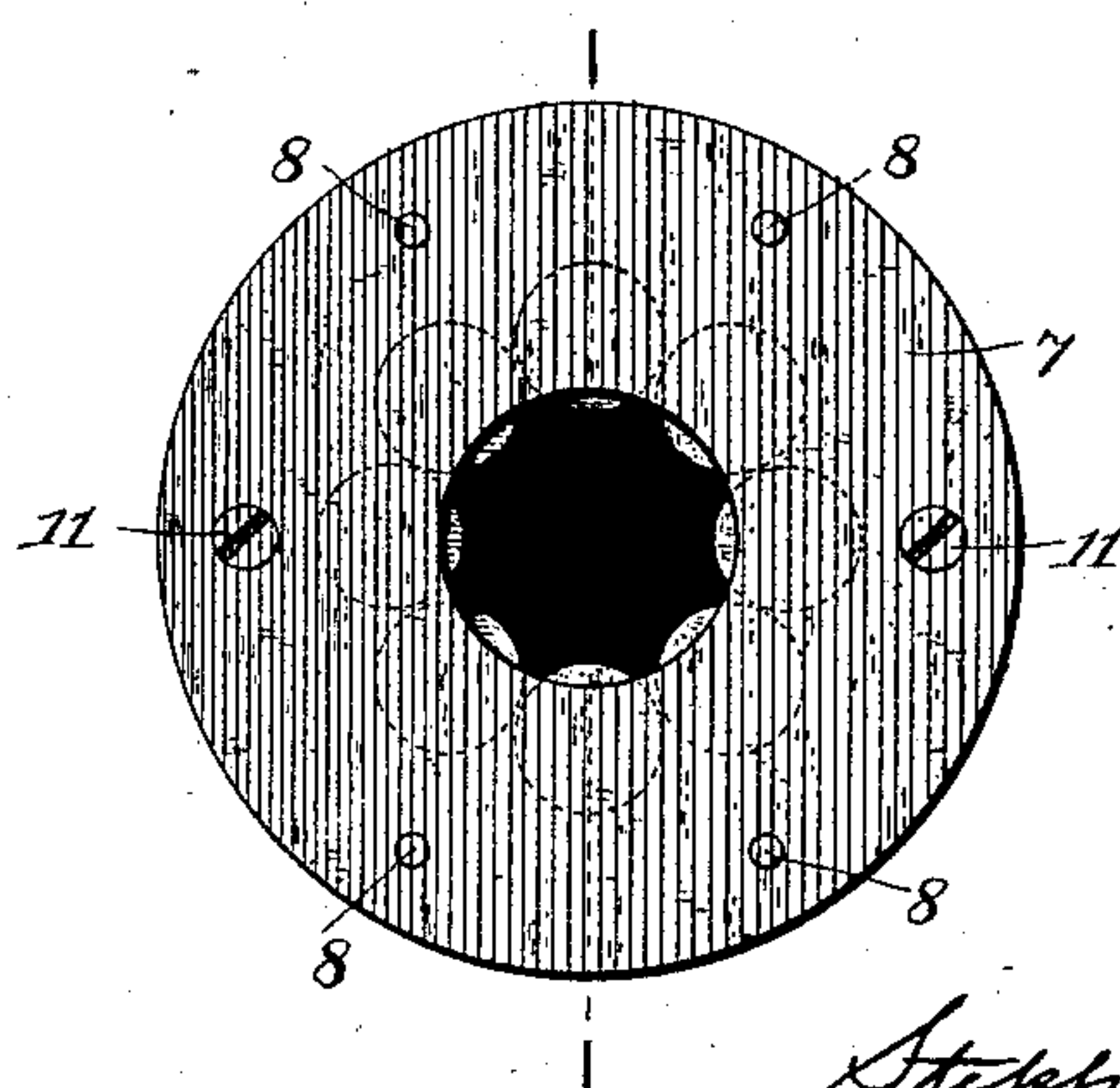


FIG. IV.



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UNITED STATES PATENT OFFICE.

STEPHEN C. MENDENHALL, OF RICHMOND, INDIANA.

CASTER.

SPECIFICATION forming part of Letters Patent No. 314,959, dated March 31, 1885.

Application filed September 12, 1884. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN C. MENDENHALL, a citizen of the United States, residing at Richmond, in the county of Wayne and State of Indiana, (present business address Cincinnati, Ohio,) have invented certain new and useful Improvements in Casters for Pianos and other Articles, of which the following is a specification.

The object of the present improvements is to provide a caster which shall have bearing in every direction upon anti-friction movement, as well as to enable the insulation of pianos and other articles wherein such insulation is desirable. To these ends I construct a stem-caster having its pod or socket formed in two parts united by an annular riveted cap at the bottom. Said top is provided at the bottom with an enlarged annular chamber within which loose anti-friction rollers are placed.

The spindle of the improved caster is made with a flange or collar near its upper end, which serves the double purpose of a bearing for loose anti-friction balls and for retaining the spindle in its place in connection with a stud or screw fixed in the pod. In connection with an anti-friction top thus constructed I employ a glass roller bushed in the manner described in my copending application, No. 141,864, filed August 30, 1884.

For pianos and other musical instruments a glass roller is especially desirable, its insulating properties aiding materially in purifying and strengthening the sound. It is also useful in such places as bedsteads, lounges, and physicians' chairs, in which electrical insulation is wanted. Increased strength of the saddle and horns or prongs is obtained by stamping a bulged portion therein, and the top of the saddle is provided with a felt or other equivalent disk or annulus, which covers the opening in the cap-plate and protects the anti-friction movement from dust.

It is well known that ordinarily the method of fixing the bearing-pin of the floor-wheel within the horns of the saddle by riveting over its edges is apt either to break the said horns immediately or to put them under such an initial strain as will cause their breakage when subjected to any heavy weight. To avoid this difficulty I provide a pin passing

through both wheel and horns, having a fixed head at one end and a washer at the other, which washer abuts against the end of the pin to prevent the screw or rivet which is used to fix the pin to position from straining the horns.

In order that my invention may be more fully understood, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure I is a vertical sectional view of a piano-leg to which my improved caster has been applied. Fig. II is a perspective view from the rear of said caster detached from the leg. Fig. III is a face view of the top with the cap-plate removed, and showing the two series of anti-friction rolls and balls. Fig. IV is a similar view with the cap-plate in place. Fig. V is a sectional view of the floor-roller.

The piano-leg 1 is hollowed out, as shown at 2, to such a depth as that when the caster is in place but a small portion of its periphery will project below the leg. The leg is also bored out in such a shape as to be occupied snugly by the caster-top when pressed in. Said top is cast or stamped in two parts, 3 4, each part bearing one-half of an annular enlargement or chamber, 5, within which move the loose horizontal anti-friction rollers 6, which are supported from falling out by means of the cap-plate 7, secured to the top by rivets 8, as shown in Fig. IV. The cap plate thus serves not only to hold the rollers in place, but to fix the lower parts of the halves of the top together. The upper parts of the said halves are fixed together by means of a single rivet, 9. Holes 10 are also allowed in the flange of the top and in the cap-plate for the passage of screws 11 for fixing the top within the leg. Neither the wood-screws nor rivets are shown in Fig. I, the section in this case being taken on the line I I, Figs. III and IV. The spindle 12 is cast or riveted onto the saddle 13, and bears near its upper end a flange or collar, 14, which supports the piano-leg through the medium of a series of anti-friction balls, 15, which move freely in the annular chamber provided between said collar and the top of the socket. A pin or screw, 16, passing through the socket, bears on said collar to retain the spindle in place when such an arrangement is desirable. It will be seen that with this arrangement the spindle is nowhere directly in contact with

the socket. All vertical strain is transmitted vertically onto the anti-friction balls 15. All lateral strain at the top of the spindle is transmitted laterally to the spindle through said balls, while lateral strain at the bottom of the spindle is received by the horizontal anti-friction rollers. The spindle is thus in its every motion as practically frictionless as possible. A washer or annulus, 17, of felt or similar material, is supported on the saddle 13 surrounding the spindle, thus completely excluding dust from entrance through the hole 18 in the cap-plate into the socket-top.

The glass roller 19 of my improved caster is provided with a wooden, hard rubber, or equivalent bushing, 20, as described in my copending application, before referred to, said bushing having axial bearing for the journal-pin 21, fixed to or passing through the lower ends of the horns 22 of the saddle. When placed within said horns, the said journal-pin is so fixed as to be readily removable by means of screw 23, having countersunk bearing in a washer, 24, interposed between the head of said screw and the horn.

While showing and describing a screw employed for fixing the pin to position removably, I do not wish to be understood as limiting myself to such a construction, as any of the ordinary equivalents of a screw may be employed, the main object of this portion of the invention being to so form the pin as to provide a rigid bearing between the horns. The said horns are thus separated, so that the too tight screwing or riveting down of the pin will have no effect upon the firmness of the horns.

The saddle may be either cast or stamped out of malleable iron, in which latter case a bulged or convex portion, 25, is stamped or struck up in each horn or prong for increasing the strength and rigidity of the saddle.

I am aware that it has before been proposed to employ in a reversed socket supported on the saddle of a caster a series of anti-friction balls under the end of the spindle receiving vertical strain between the spindle and said socket. Such arrangement I do not therefore claim.

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

1. In a stem-caster, in combination with a socket and caster-spindle, two sets of anti-friction rollers, one at the top and the other at the bottom of said spindle. 55

2. In combination with the spindle having flange or collar near its upper end and a socket for receiving said spindle, a series of anti-friction balls placed in the annular chamber, between said collar and socket, and adapted to take up both vertical and lateral strains. 60

3. In combination with an anti-friction socket-top and a spindle fixed to the saddle and bearing therein, a felt or equivalent washer surrounding the said spindle and protecting the top from dust, substantially as set forth. 65

4. In combination with a two-part pod or socket having an annular enlargement or chamber at bottom, a circular flange surrounding and extending beyond said chamber, and a cap-plate riveted to said flange and having wood-screw holes for attachment of the top to the leg of the piano or other article, substantially as set forth. 70

5. In combination with a floor-wheel and the horns of a caster-saddle embracing the same, a pin having bearing in both horns and floor-wheel, a shoulder or head on said pin for preventing movement in one direction, a washer having end bearing on said pin, so as to prevent movement in the other direction, and means for fixing said washer and pin together, the whole being so constructed and arranged as to prevent the straining of the two horns when the pin is being fixed in position, substantially as set forth. 75

6. In combination with a caster saddle or horn and a floor-roller, a journal-pin for said roller, having a solid head at one end and an internal screw-thread at the other, a washer, and a screw, the whole being so arranged as to permit the fixing of the pin within the saddle-ears without subjecting the said ears to strain. 80

7. A malleable furniture-caster saddle having ears surrounding the floor wheel or roller, said ears having ribs or bulged portions struck up therein, substantially as shown. 85

STEPHEN C. MENDENHALL.

Witnesses:

E. L. WHITE,
HARRY E. KNIGHT.