

No. 656,332.

Patented Aug. 21, 1900.

C. L. TOWNSEND.

FIFTH WHEEL.

(Application filed Jan. 30, 1900.)

(No Model.)

Fig. 1.

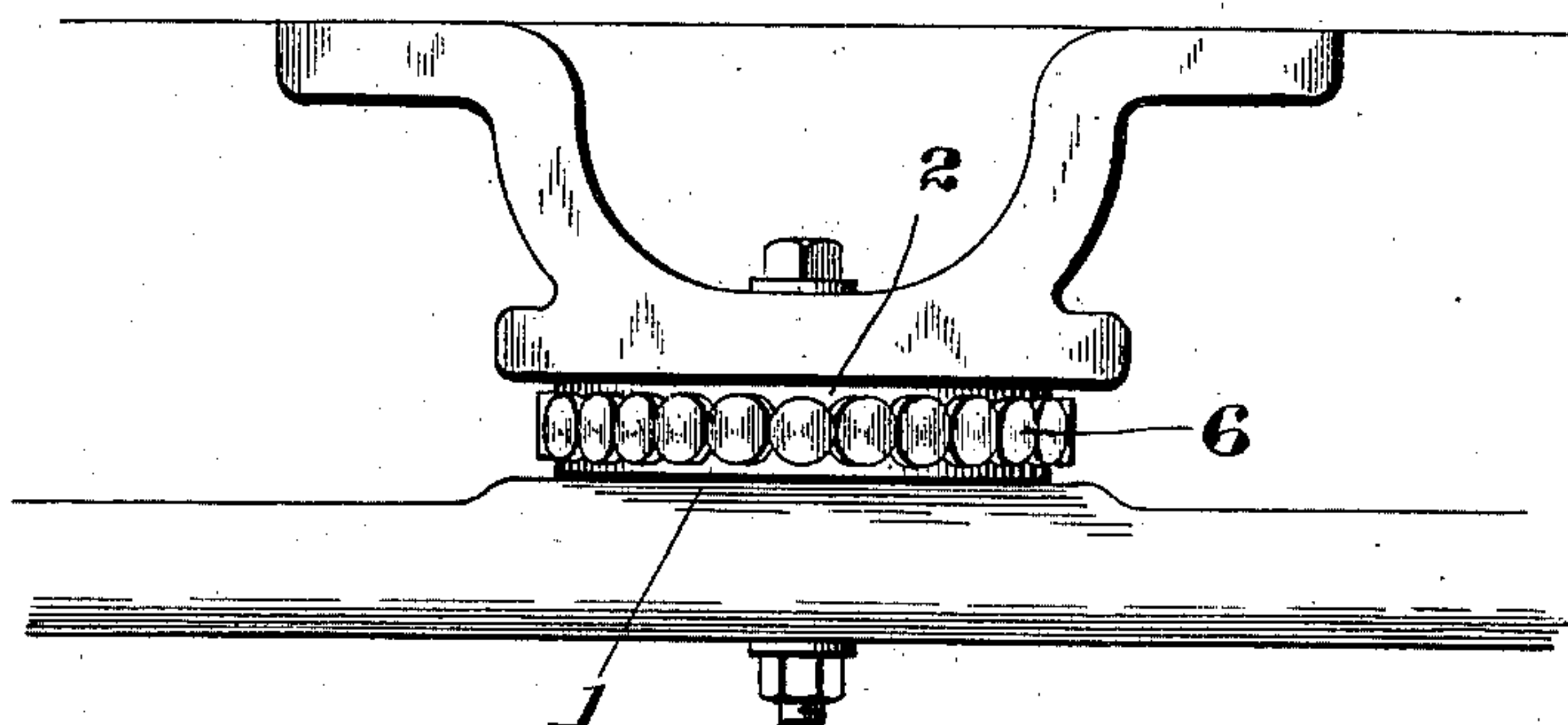


Fig. 2.

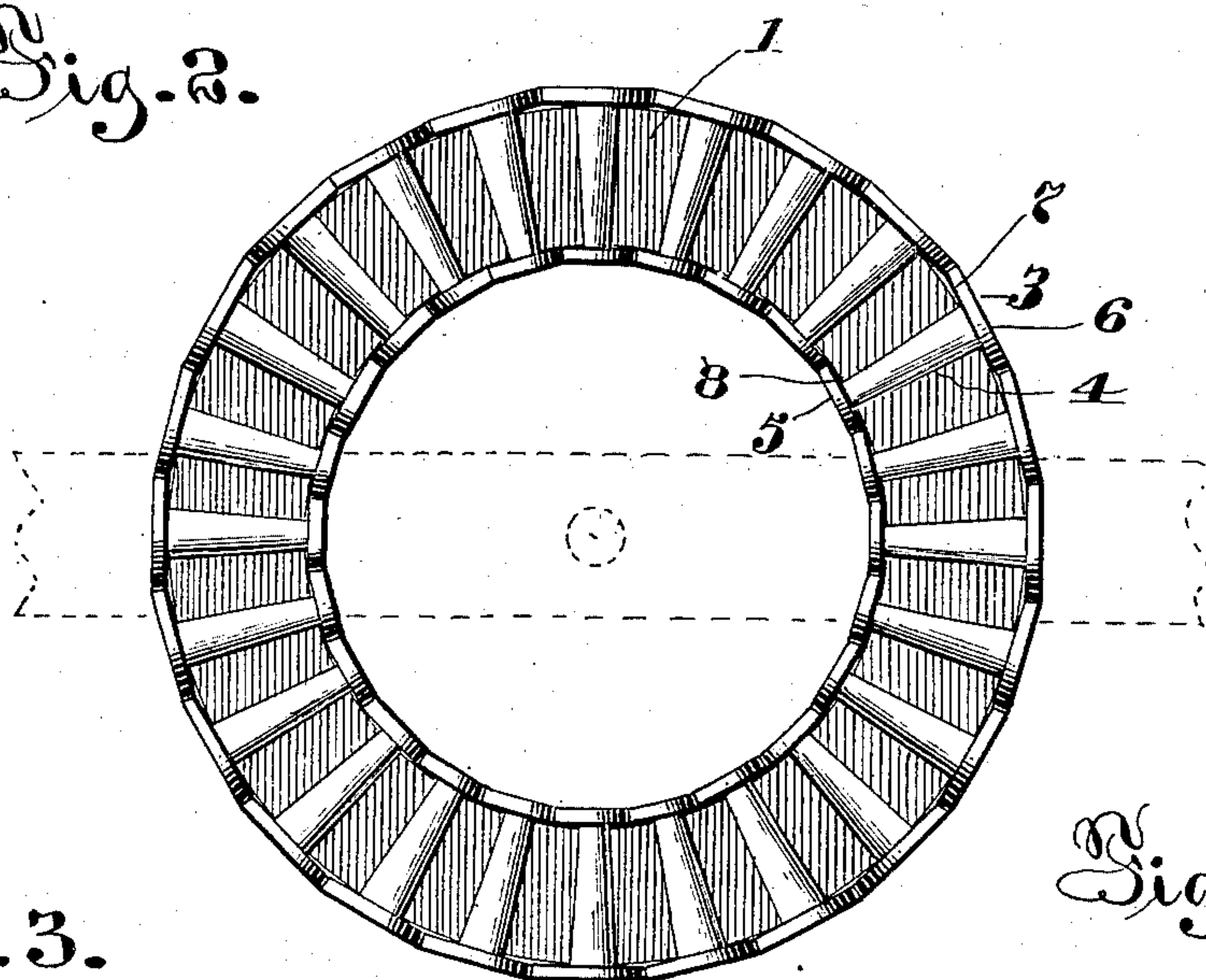


Fig. 3.

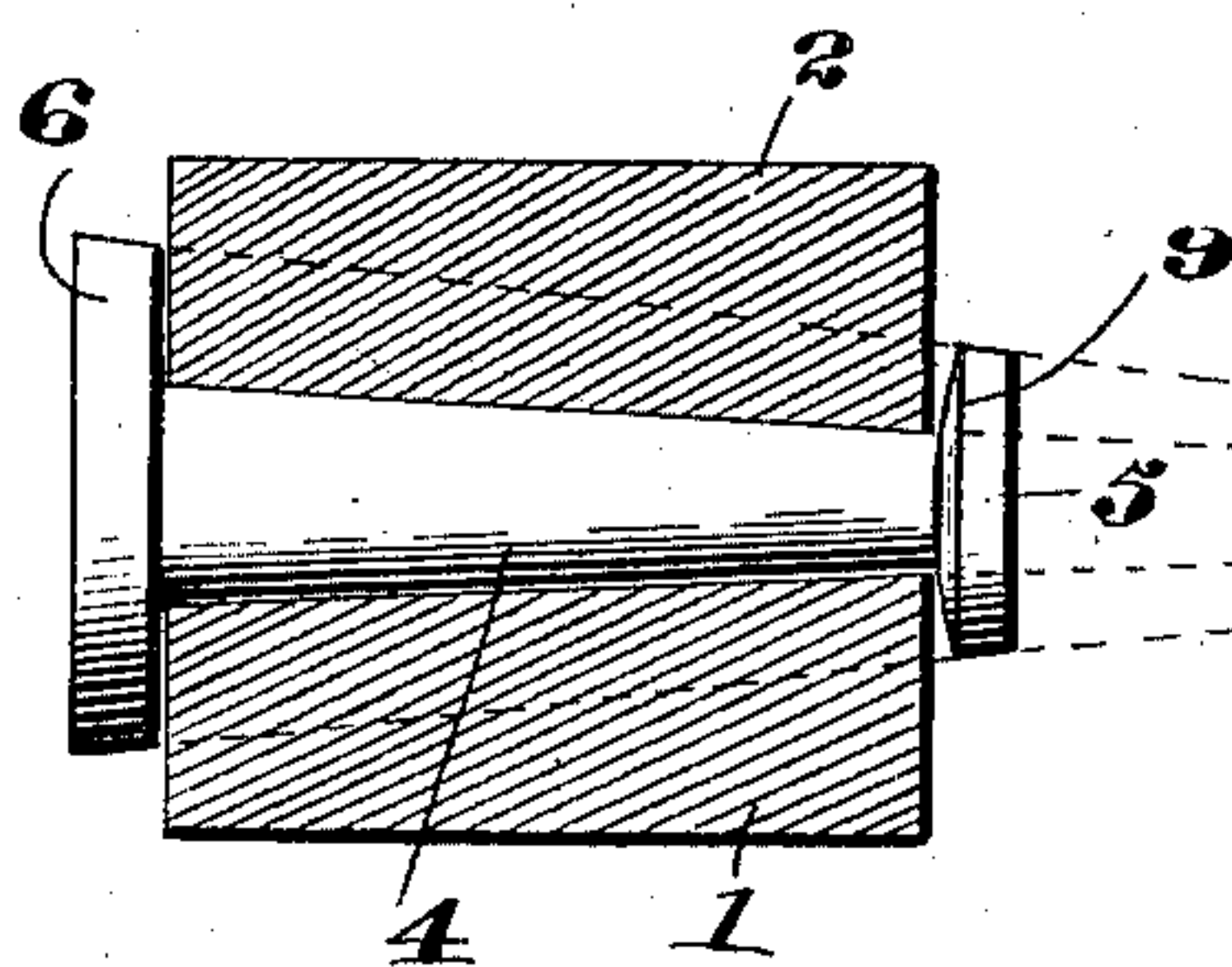
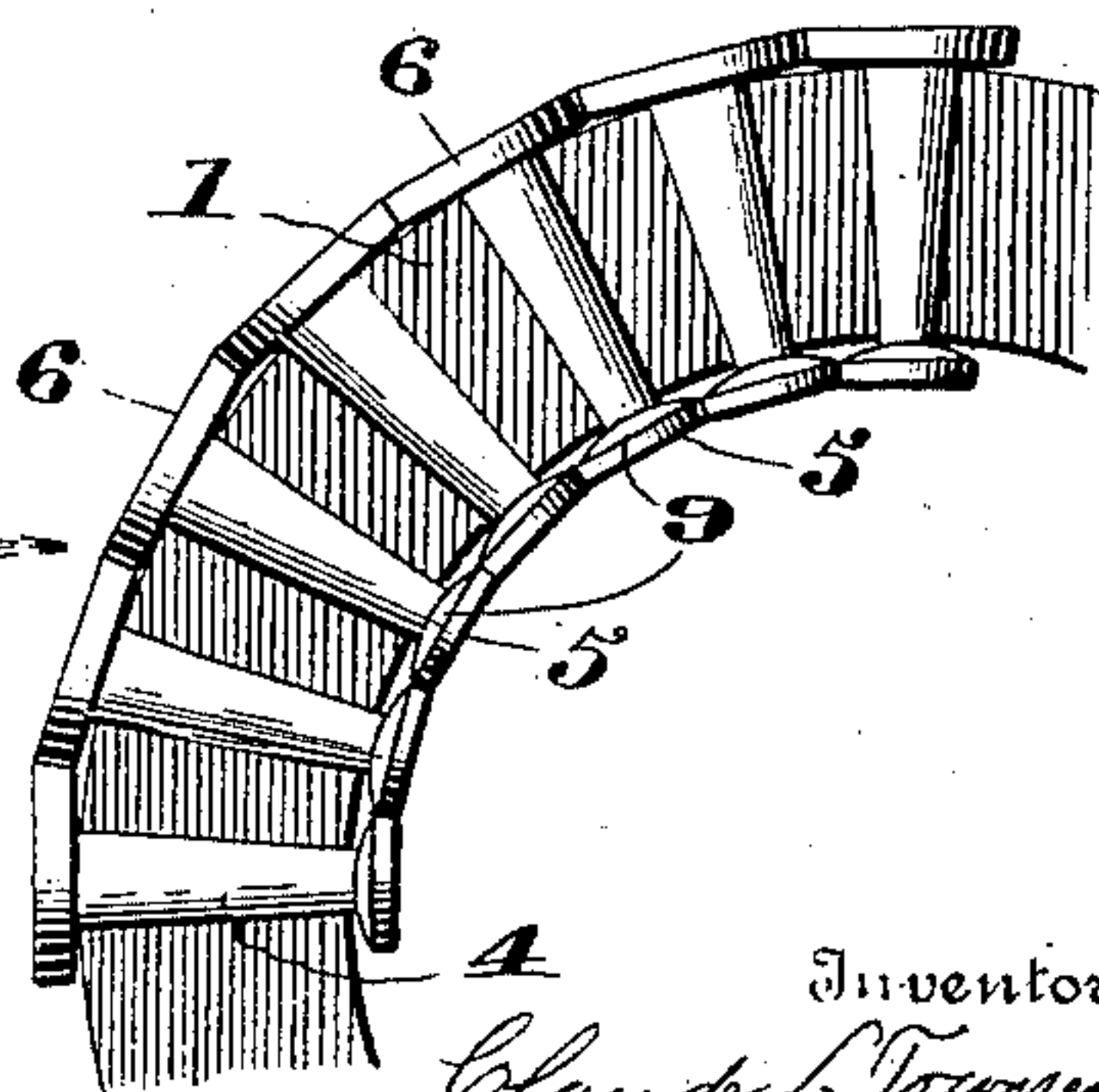


Fig. 4.



Witnesses
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UNITED STATES PATENT OFFICE.

CLAUDE L. TOWNSEND, OF SCRANTON, PENNSYLVANIA.

FIFTH-WHEEL.

SPECIFICATION forming part of Letters Patent No. 656,332, dated August 21, 1900.

Application filed January 30, 1900. Serial No. 3,323. (No model.)

To all whom it may concern:

Be it known that I, CLAUDE L. TOWNSEND, a citizen of the United States, residing at Scranton, in the county of Lackawanna and State of Pennsylvania, have invented certain new and useful Improvements in Fifth or Center Wheels; and I do hereby declare the following to be a clear and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements for reducing friction between rotating circles—such, for instance, as fifth-wheels for wagons, carriages, &c.

The object of my invention is to provide improved means whereby friction between the upper and lower rings of fifth-wheels for vehicles and other machines of similar construction will be very largely reduced and the motion of one of said rings or circles upon the other rendered extremely smooth and easy.

With this object in view my invention consists in the improved construction, arrangement, and combination of parts hereinafter fully described and afterward specifically pointed out in the claim.

In the accompanying drawings, Figure 1 is a view illustrating my invention as applied to the fifth-wheel of a vehicle. Fig. 2 is a top plan view of the lower circle and anti-friction spool-rollers, the upper circle being removed. Fig. 3 is a detail view in elevation of one of the spool-rollers of a modified form, the circles being shown in section. Fig. 4 is a fragmentary top plan view of some of the spool-rollers, and particularly of the lower circle, illustrating a slightly-modified form of spool-roller.

Like numerals of reference indicate similar parts in all the figures of the drawings.

Referring to the drawings by numerals, 1 indicates the lower circle or ring of a fifth-wheel, and 2 the corresponding upper circle or ring.

3 indicates one of my improved spool-rollers, which consists of a central stem 4, an inner flanged end 5, and an outer flanged end 6. The stem 4 of the spool is tapered, decreasing in thickness from its outer to its inner end, the degree of taper depending upon the diam-

eter of the rings and the thickness of the stem and each side of the stem being in line with a radius of the ring. The inner faces of the end flanges or heads 5 and 6 may be flat and at right angles to the longitudinal axis of the spool, as shown at 7 and 8 in the detailed illustration, Fig. 3; but it may be deemed preferable to convexly curve the inner face 9 of the inner flange 5, as shown in Fig. 4. The inner face of the outer flange 6 might be convexed, if desired, although I deem the flat plane 6 as preferable for this flange.

The inner flange 5 is preferably made of a less diameter than the outer flange, the difference in diameter being determined by the same rule used to determine the taper of the stem in practical operation, presuming the lower ring or circle to be stationary, as in the case of the fifth-wheel. As many spools 3 are placed upon, with their flanges in contact, as will form complete circles of said flanges, as illustrated most plainly in Fig. 2, the stems resting upon the circle or ring and the flanges overhanging the edges thereof. The upper circle or ring is now placed in position upon the stems of the spools. In view of the fact that the stems are tapered in thickness, increasing in thickness from their inner to their outer ends, the two circles must be so shaped and held with relation to each other that the spaces between the upper surface of the lower ring or circle and the lower surface of the upper ring or circle will increase in vertical width from its inner to its outer edge, corresponding with the increase in thickness of the stems of the spools. The upper ring may now be turned, which will cause the spools to roll upon the lower ring, thus providing an easy roller-bearing between the two rings. The taper of the stems, which, as before stated, are in contact with the opposing faces of the circles or rings, corresponding, as it does, with the radii of the circles will cause the spools in rolling upon the lower ring to move in the circle of the ring, thus preventing any tendency to roll off the ring on tangential lines, whereby great friction would be produced between the inner faces of the inner flanges and the inner edges of the rings. In the construction shown in Fig. 3, in which the inner surface of the inner flange is flat in

a plane at right angles to the longitudinal axis of the stem, there may be a slight tendency to friction between the extreme outer edges of the inner face of this flange and the inner edges of the rings. With the construction shown in Fig. 4 this tendency is entirely obviated, and the best effect would probably be produced by convexing the inner surface of the inner flange on a slightly-shorter radius than that of the inner edges of the circles, so that there would be contact between the inner flanges and the inner edges of the circles at the center or immediately adjacent to the stem.

The provision of the flanges serves a two-fold purpose—namely, to prevent the stems, which are the rollers proper, from accidental displacement from between the rings, and, secondly, to prevent lateral displacement of the rings themselves. It will be observed that the outer edges of the flanges, where they contact with the flanges of adjacent spool-rollers, may also be shaped with an inclination in line with the radii of the circles.

From the foregoing it will be obvious that I have produced extremely-simple and economically-constructed means for obviating friction between circles adapted to rotate with relation to each other, which means may be

instantly applied or removed without the necessity of using screws, bolts, shafts, or other fastenings, and by the use of which means the necessity for guard-rings or other devices to prevent the lateral displacement of the rollers or the rings themselves is rendered unnecessary.

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

A fifth-wheel for vehicles comprising two smooth-faced rings placed one above the other and in the same vertical plane, and spool-rollers between said rings, said rollers each consisting of a smooth-faced tapered stem in contact with the upper face of the lower ring and the under face of the upper ring, and end flanges at each end of said stem in contact with and overhanging respectively the inner and outer peripheries of both rings, the rollers being free to roll upon one ring when the outer ring is rotated, substantially as described.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

CLAUDE L. TOWNSEND.

Witnesses:

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