No. 788,284. PATENTED APR. 25, 1905.

E. STANCLIFF.

DRIVER WHEEL.

APPLICATION FILED DEC. 14, 1904.

2 SHEETS—SHEET 1.

Fig. 2.

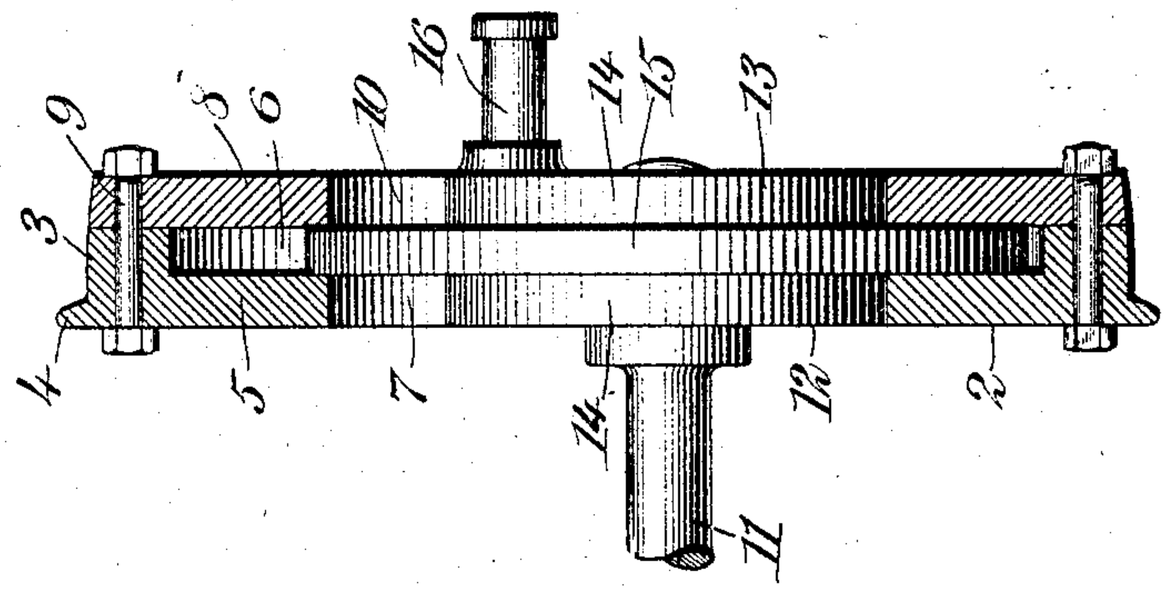
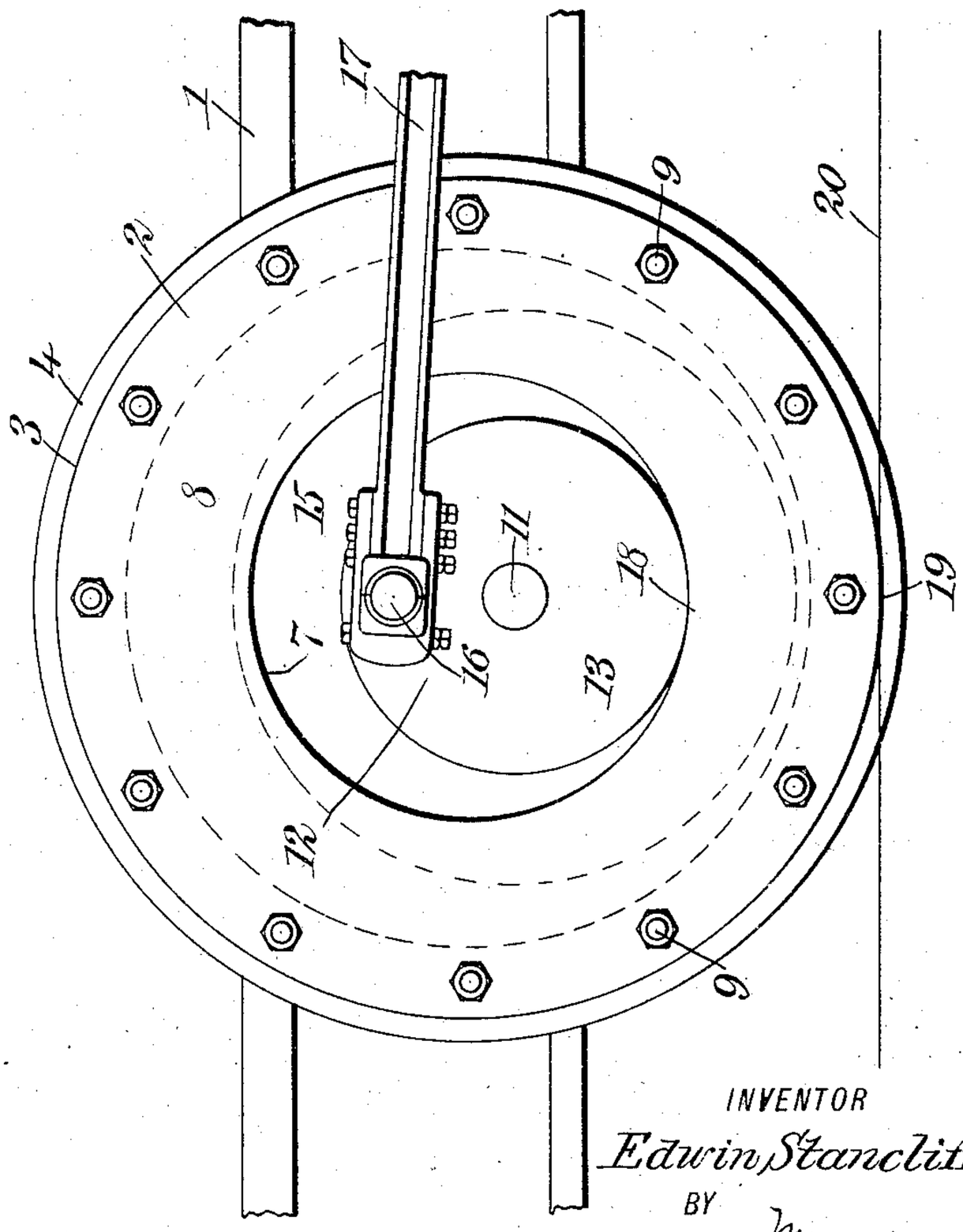


Fig. 1.



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2 SHEETS—SHEET 2.

Fig. 4.

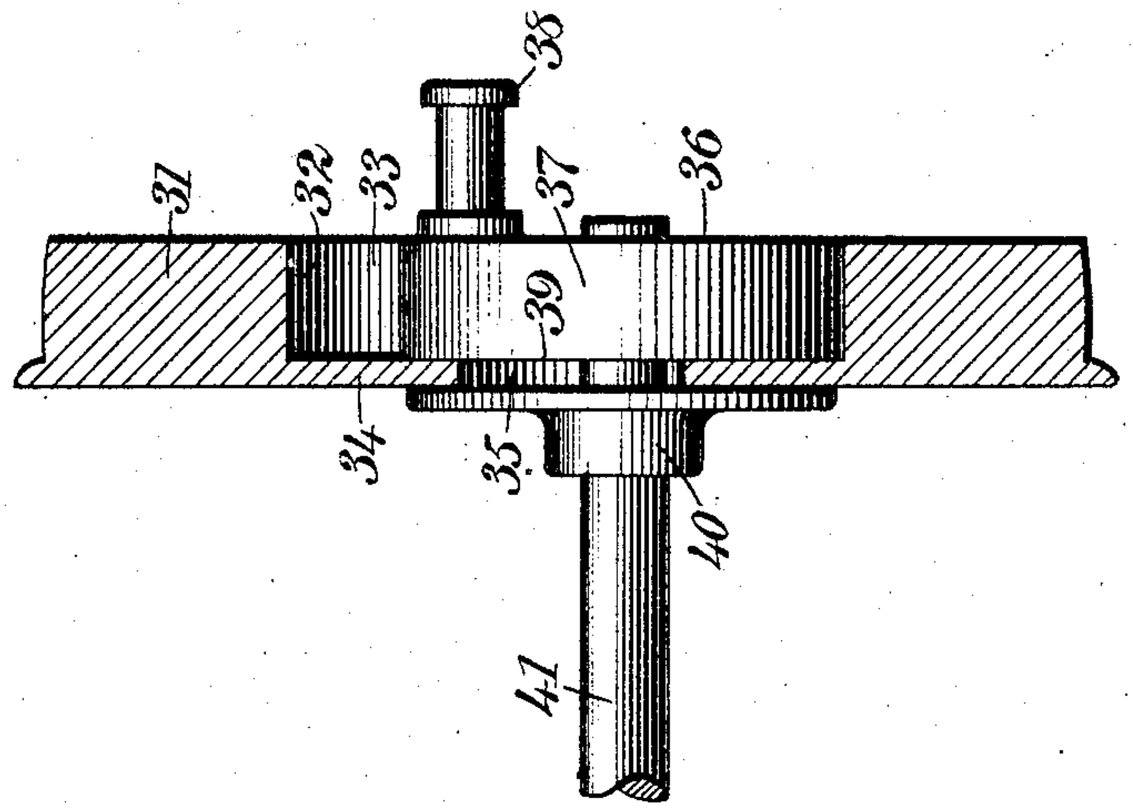
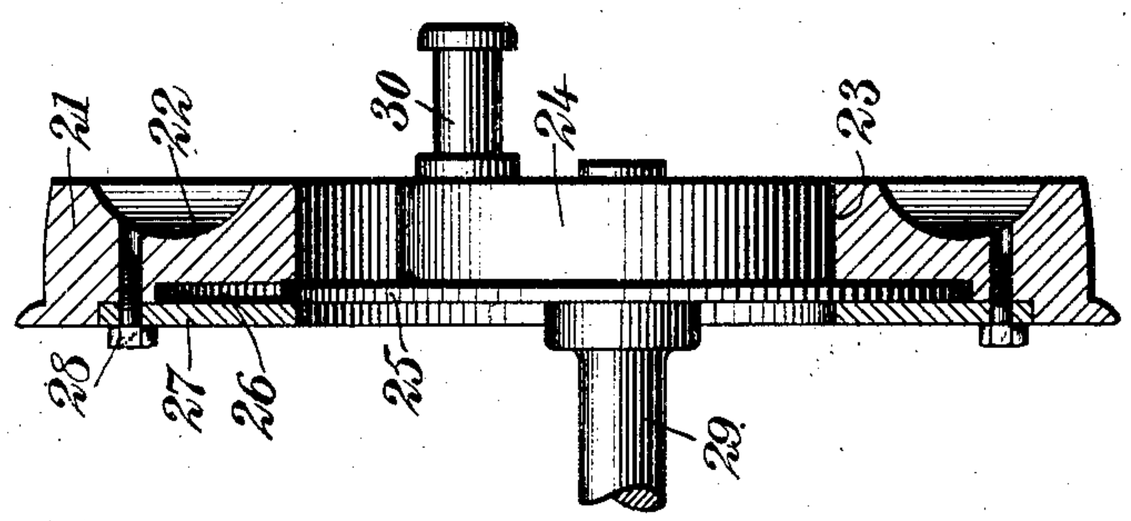


Fig. 3.



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UNITED STATES PATENT OFFICE.

EDWIN STANCLIFF, OF NEW YORK, N. Y.

DRIVER-WHEEL.

SPECIFICATION forming part of Letters Patent No. 788,284, dated April 25, 1905.

Application filed December 14, 1904. Serial No. 236,886.

To all whom it may concern:

Be it known that I, EDWIN STANCLIFF, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented new and useful Improvements in Driver-Wheels, of which the following is a full, clear, and exact description.

This invention relates to drivers or driving-wheels.

The object of the invention is to produce a wheel of the class described which is of simple construction and adapted to economize power and reduce frictional resistances.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of a driving-wheel constructed according to my invention and showing a portion of the frame mounted thereupon and broken away. Fig. 2 is a central vertical section through the driving-wheel. Fig. 3 is a vertical section showing a modified form of my invention, and Fig. 4 is also a vertical section showing another modified form.

Referring more particularly to the parts, 1 represents a portion of the frame or body supposed to be mounted upon the driving-wheel 2. This wheel 2 may be adapted to roll upon a rail like a locomotive driving-wheel, presenting a substantially flat face 3, adapted to roll upon the rail and having a flange 4 of the common form, such as that shown. The body 5 of this wheel has substantially the form of a thick disk, the inner face whereof is provided with an annular recess 6, a centrally-disposed opening 7 being formed through the material of the disk, the said opening being of circular form, as indicated. Upon the outer or recessed face of the body 5 a keeper-plate 8 is rigidly secured by means of suitable bolts 9, said keeper-plate being of annular form, as shown, and having a centrally-disposed opening 10, which is concentric with and of the same diameter as the opening 7 aforesaid. When the keeper-plate 8 is attached, as shown, it coöperates with the body 5, so as to form an annular groove under the plate, as will be readily understood. The body 5, in connection with the keeper-plate 8, constitutes an outer wheel or rim for the driver. At each extremity of the axle 11 an inner wheel 12 is rigidly attached, and this wheel comprises an enlarged body 13 of circular form and of smaller diameter than the openings 7 and 10, as indicated. This body 13 presents oppositely-disposed faces 14, which are intended to roll upon the inner faces or edges of the openings 7 and 10, and between the faces 14 a flange 15 is formed, which consists, substantially, of a disk the thickness whereof is equal to the depth of the recess 6, so that the flange may be received nicely within the recess, as indicated. The said flange 15 is of circular form, as shown, and its diameter is so great that when the faces 14 rest upon the faces of the openings 7 and 10 the remote edge of the flange will not have removed itself from the recess 6. From this arrangement the flange 15 operates effectively to prevent accidental removal of the rim of the wheel from the axle or inner wheel.

The outer face of the wheel 12 is provided with a crank-pin or wrist-pin 16, intended to facilitate the attachment of a suitable connecting-rod 17.

With a driving-wheel constructed in the manner described it follows that with one rotation of the axle 11 the point of tangency or contact 18 will advance on the edge of the openings 7 or 10 a distance equal to the circumference of the body 13. The advance of the point of contact 19 of the outer wheel with the rail 20 will be increased over this movement in the ratio of the diameter of the outer wheel to the diameter of the body 13. I have made this ratio about two, so that at one revolution of the axle 11 the wheel will advance twice the distance that it would under ordinary circumstances with the connecting-rod attached directly to the wheel. While the driving-wheel is especially useful as an improvement in locomotive construction, it is evidently capable of application generally in the arts for various purposes as a means of locomotion or power transmission.

In Fig. 3 I have illustrated another form which my invention may take. In this form the outer portion of the wheel consists of a rim 21 of annular form, the outer face of which may be provided with a deep recess 22 to reduce the weight of the rim, as will be readily understood. The inner face 23 of the rim supports an inner wheel 24, which rolls upon the same in the manner suggested above. The body of this inner wheel 24 is provided, preferably, at its inner face with a laterally-projecting flange 25. This flange is of circular form and is received in an annular recess 26, formed upon the inner face of the rim 21. The flange is retained in this recess by means of an annular keeper-plate 27, which is countersunk, as shown, into the face of the rim, said plate being preferably secured in position by means of bolts 28 of any suitable form. The inner wheel 24 is mounted as before upon a suitable axle 29, and the outer face of the wheel is provided with a projecting crank-pin 30, as illustrated.

In Fig. 4 another form of the invention is illustrated, in which the rim 31 is of annular form, so as to present a circumferentially-disposed rolling-face 32, surrounding an opening 33, as shown. From the inner face of the rim 31 a flange 34 projects inwardly, so as to obstruct the opening 33, and this flange is provided with a central opening 35 of restricted diameter, which opening is concentric with the opening 33, as will be readily understood. With this form of the invention the inner wheel 36 is formed, preferably, in two pieces. It comprises a body 37, carrying a crank-pin 38, said body being of circular form, as before described, and rolling upon the face 32. The inner face 39 of this body 37 abuts against the outer face of the flange 34, as shown. In addition to the body 37 the inner wheel comprises a collar 40, which is pressed upon the extremity of the axle 41 in advance of the body. When the body 37 is pressed into position, the flange 34 is caught and pressed snugly into position between the body and the collar, thereby preventing lateral movement of the rim with respect to the inner wheel.

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

1. A wheel comprising a rim and an inner wheel, said rim having a circumferentially-disposed face and said inner wheel having a circumferentially-disposed face adapted to roll upon said first face, one of said faces having a flange projecting therefrom and the other of said faces having an annular recess receiving said flange, the circumferential face of said flange being maintained out of contact with adjacent parts and said flange affording means for maintaining the parts of said wheel in connection.

2. A wheel comprising a rim presenting a substantially circular opening and an annular recess, and an inner wheel having an enlarged body adapted to roll on the face of said opening, said body having a flange projecting into said recess and rotating freely therein.

3. A driving-wheel consisting of a rim having an annular recess in the side face thereof, a keeper-plate attached over said recess, said keeper-plate and said rim having concentric alining central openings, and an inner wheel adapted to roll on the inner faces of said openings, said wheel having a flange projecting laterally therefrom and extending into said recess, said flange affording means for locking said rim against lateral displacement, the circumferential face of said flange being maintained out of contact with adjacent parts.

4. A wheel comprising an annular rim presenting a recess in the face thereof, an inner wheel presenting a body adapted to roll upon the inner face of said rim and having a projecting flange at the side face thereof extending into said recess, and an annular keeper-plate attached to said rim over said annular recess and retaining said flange, the circumferential face of said flange being maintained out of contact with adjacent parts.

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

EDWIN STANCLIFF.

Witnesses:
F. D. AMMEN,
JNO. M. RITTER.