

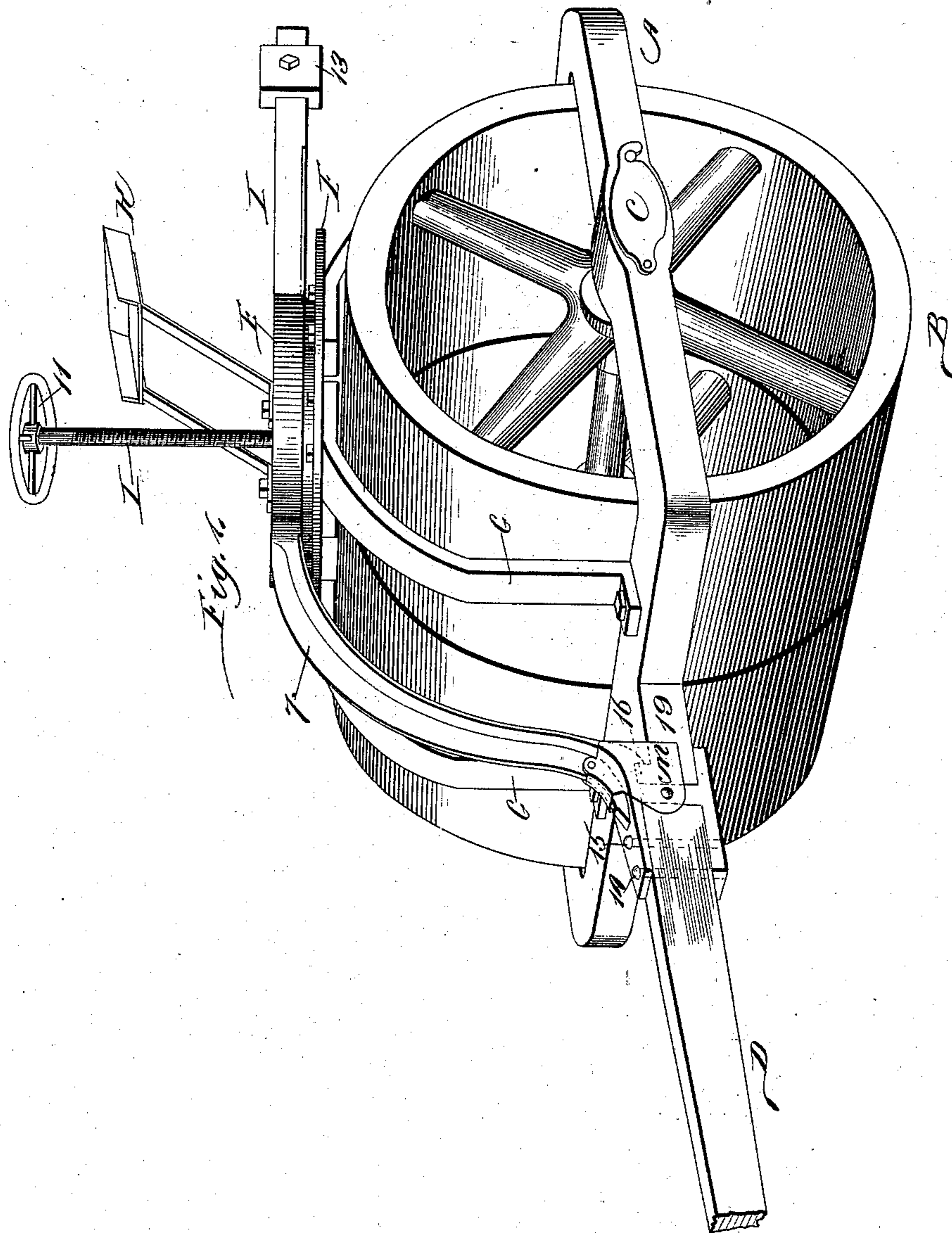
(No Model.)

3 Sheets—Sheet 1.

M. G. BUNNELL.
REVERSIBLE ROAD ROLLER.

No. 560,684.

Patented May 26, 1896.



Witnesses

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R. M. Wagner.

Inventor

Morton G. Bunnell
By Chas. G. Page
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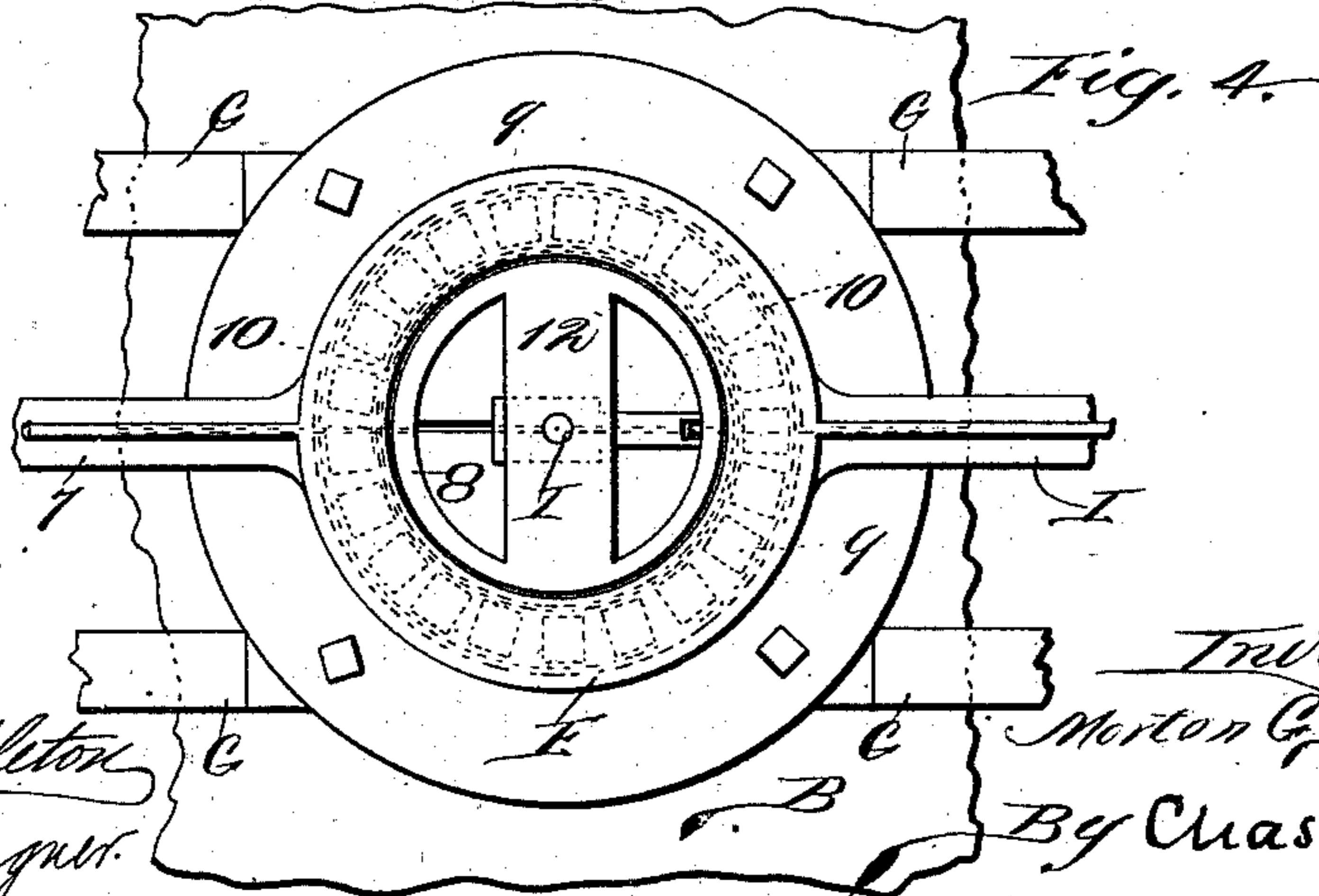
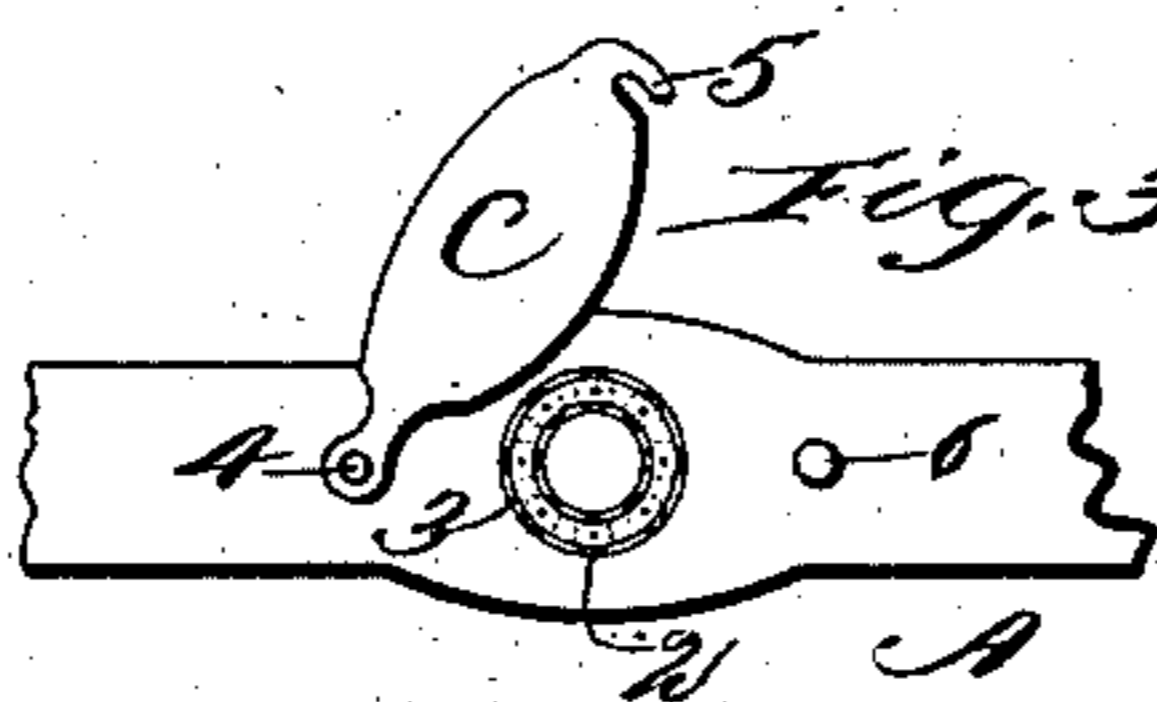
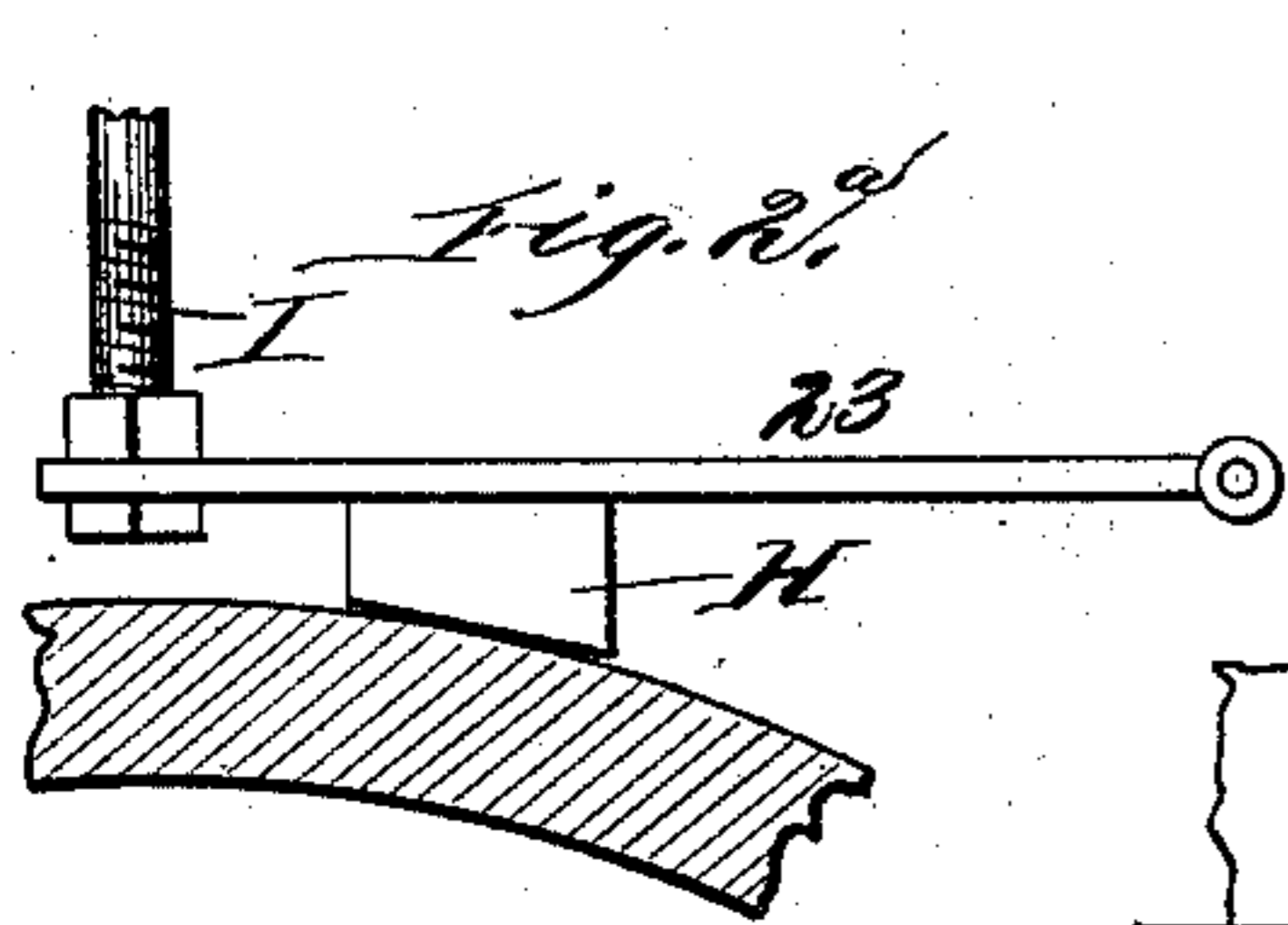
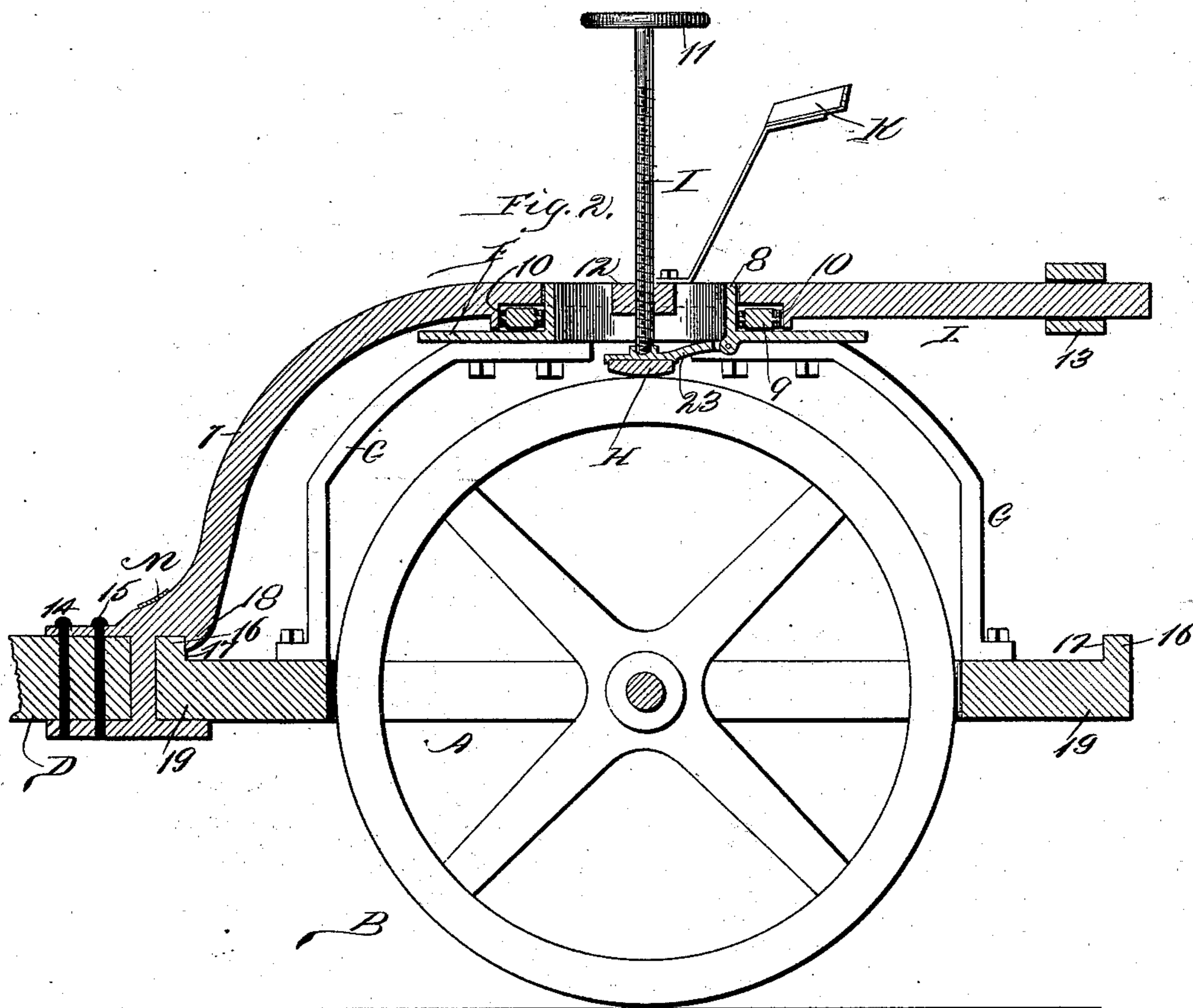
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M. G. BUNNELL.
REVERSIBLE ROAD ROLLER.

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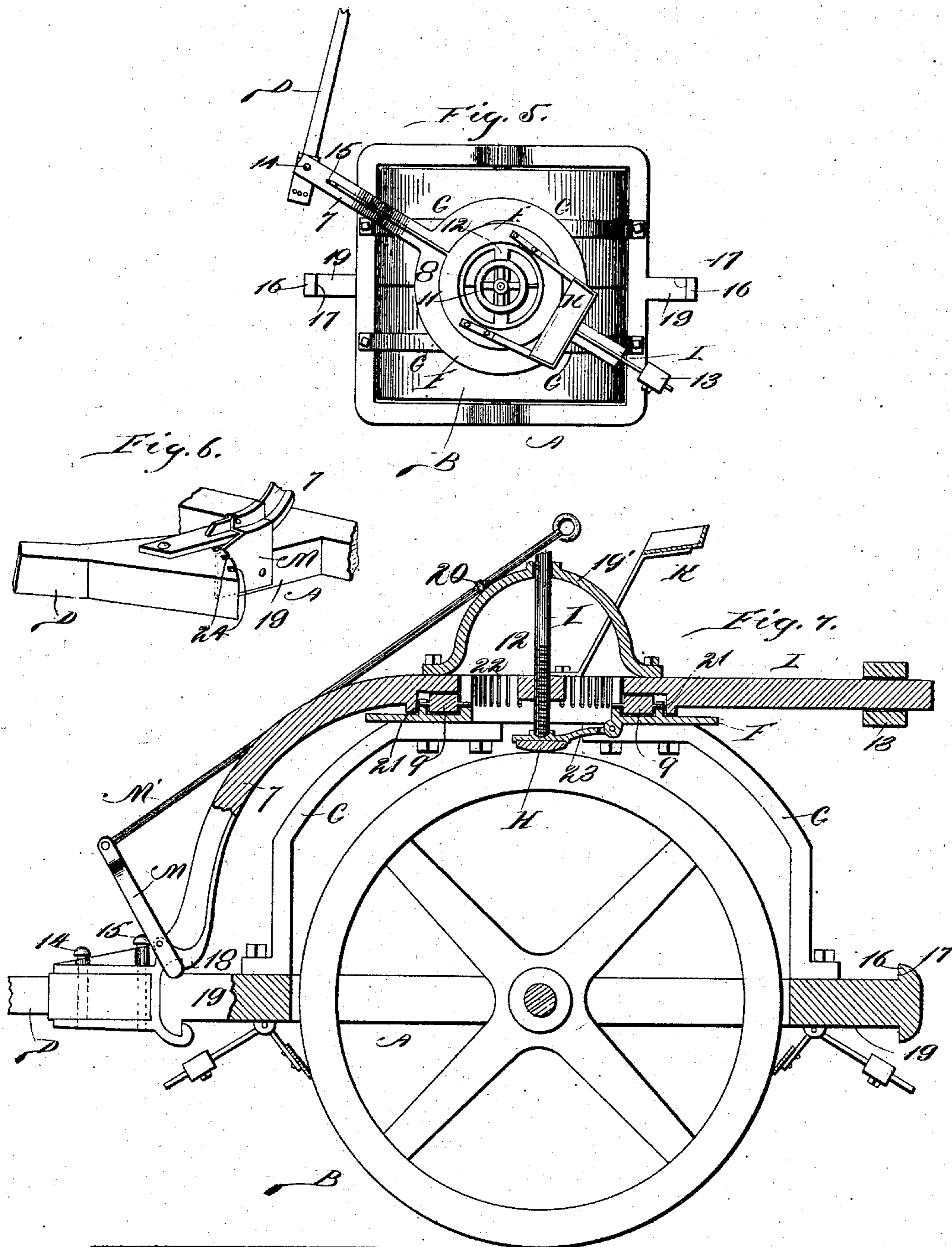
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3 Sheets—Sheet 3.

M. G. BUNNELL.
REVERSIBLE ROAD ROLLER.

No. 560,684.

Patented May 26, 1896.



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UNITED STATES PATENT OFFICE.

MORTON G. BUNNELL, OF CHICAGO, ILLINOIS, ASSIGNOR TO FREDERICK C. AUSTIN, OF SAME PLACE.

REVERSIBLE ROAD-ROLLER.

SPECIFICATION forming part of Letters Patent No. 560,684, dated May 26, 1896.

Application filed April 11, 1893. Serial No. 469,911. (No model.)

To all whom it may concern:

Be it known that I, MORTON G. BUNNELL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Reversible Road-Rollers, of which the following is a specification.

My invention relates to reversible road-rollers in which the pole or an extension thereof is connected with the upper member of a turntable arranged over the roll, whereby the pole can be swung around independently of the body-frame for the purpose of reversing the direction of the draft without turning the roll.

In a road-roller characterized by my invention the pole is provided with a rear extension which extends above the roll and which is interrupted by the upper circle of an annular turn-table arranged over the roll and having its lower circle supported by suitable legs upon a body-frame within which the roll is arranged. The lower circle of the annular turn-table is flanged and adapted to form a track for a set of antifriction-rolls, and the two circles are adapted to form between them an annular way within which the antifriction-rolls are confined. A driver's seat is supported upon the upper circle of the annular turn-table, and a brake is arranged so as to be in front of the driver's seat regardless of the direction in which the seat may face. As a simple and preferred construction of brake I have selected a shoe on a spring-arm and a rotary threaded shaft for forcing the shoe against the roll, and as a matter of novel arrangement I extend the rod upwardly through the space within the annular turn-table, whereby it will at all times be in front of the driver's seat. In order to vary the angle of draft, the pole is hinged to the rear extension, and means are provided for locking it in adjustment. Stops are also provided on the body-frame and arranged for alternate engagement with a shoulder on the rear extension of the pole.

In the accompanying drawings, Figure 1 is a perspective view of a reversible road-roller embodying my invention. Fig. 2 is a longitudinal central section of the same on a vertical plane. Fig. 2^a shows in detail the brake constructed with the shoe upon a spring-arm.

Fig. 3 represents in elevation the middle portion of the sides of the body-frame with the cap-plate swung up in order to illustrate an arrangement of antifriction-rolls for the axle.

Fig. 4 is a top plan of a portion of the machine with the driver's seat and hand-wheel shaft for the brake removed for convenience of illustration. Fig. 5 is a top plan view of the machine on a smaller scale and illustrates the way in which the pole can be swung around. Fig. 6 shows in perspective, on a larger scale, a portion of the frame and pole and illustrates a way in which the pole can be locked oblique to the axis of the roller by a catch arranged to engage the rear end of the forward section or portion of the pole. Fig. 7 is a section similar to Fig. 2, with some variation in details, as hereinafter fully described.

The body-frame A is mounted upon the axle ends or journals of the roller B, and in order to cause the machine to run easily said axle has its bearings formed by an annular series of antifriction-rolls 2, arranged within a suitable box or annular seat 3 in the body-frame. The antifriction-rolls are protected by dust-guards C, which also constitute end caps for keeping the rollers within their allotted boxes, as in Fig. 3, wherein the combined end cap and dust-guard consists simply of a plate pivoted to the body-frame at 4 and adapted at 5 for locking engagement with a catch 6 upon the body-frame. The tongue or pole D is provided with a rear extension 7, which terminates at a point over the roller and at such point of termination merges into or is united with a circle E. This circle is rigid with said rear extension of the pole and is supported upon an annular track or bed F, which latter is in turn supported upon the body-frame by two pairs of legs or standards G, which are bolted both to the bed F and to the body-frame. The annular bed F has its central opening surrounded by an upwardly-extending neck 8, which also extends within the circle E.

In order to so support the circle E that it can be easily turned, I arrange upon the bed F a set of antifriction-rolls 9, which are held in annular series by concentric rings 10, in which they are journaled. The circle E bears upon these rolls, and hence when the pole is

swung around toward either side of the machine the circle E will readily turn with the same. The provision of the annular bed F provides an open space over the middle or center of the roller, and within this space I arrange a brake-shoe H, which is attached to the bed F. By such arrangement the bed F, which is rigid with the body-frame, can be locked upon the roller, and hence in swinging the pole and the rear extension thereof, and the circle E as a whole, the body-frame will be locked upon the roller so that it cannot tilt and also so that the roller cannot turn. On the other hand, by regulating the pressure of the brake-shoe the roller can be controlled while running down hill.

With reference to certain details which involve a departure in construction from Letters Patent of the United States No. 296,446 and No. 505,800, in which the beam is held over the roller by a central pivot in contradistinction to a turn-table, the annular neck or flange 8 is provided at its base with a horizontally-arranged flange forming the annular track from which the circle is supported. By such arrangement the circle can be fitted to turn about the annular neck having a laterally-extending base from which the circle is supported, and at the same time the space within the neck can be utilized for a brake.

In order to provide a simple and convenient device for operating the brake-shoe and for locking the same down when so desired, I provide a hand-wheel shaft I, which has a hand-wheel 11, and which is arranged to work through a bearing 12 upon the neck portion 8 of the bed F. The driver's seat K can be supported upon the circle E so as to turn with the same, and by such arrangement the driver can readily operate the hand-wheel shaft. It will also be seen that when the pole is rigid with its rear extension 7 and is swung around so as to turn the circle upon the set of antifriction-rolls 9, the driver's seat will be turned around with the circle, and that at all times the brake device will be within his reach. The circle E is also desirably provided with a weighted arm L, serving to counterbalance the weight of the pole and the rear extension thereof, and as a preferred arrangement the weight 13 of said arm is adjustable thereon.

The forward portion of the pole is pivotally connected with the rear extension 7 thereof by a bolt 14 and is rigidly locked to said extension by a removable bolt 15, (except in Fig. 6.) By such arrangement the bolt 15 can be removed, so that in turning or reversing, the horses can swing the forward portion of the pole to an oblique position, as in Fig. 5, and thereby walk easily and naturally around the roller.

The body-frame is provided at each end with an upturned portion 16, forming a shoulder, with which the forward end portion of the rear section or extension 7 of the pole engages when the forward pole-section and its

rear extension are in position for drawing the roller. To such end the forward end of the rear extension is adapted to receive the upturned projecting end portion 16 of the body-frame and is provided with a lug or shoulder 18, which engages with the shoulder 17, so as to transmit the draft to the body-frame when the two sections of the pole are in position for drawing the roller, as in Fig. 2.

In order to lock the rear extension of the pole in engagement with the body-frame, I provide the former with a catch *m*, which can engage the sides of either one of the projecting portions 19, which are formed upon the body-frame and turned upwardly, as at 16. I may also provide the rear end of the forward section of the pole with a series of notches or holes for the bolt 15, as in Fig. 5, by which arrangement the forward section of the pole can at any time be locked oblique to the line of draft.

In Fig. 1 the catch M is pivoted to the rear extension 7 of the pole, and consists of a plate or casting having side flanges or cheeks and arranged to straddle the pole, the sides or cheeks of the catch being pivoted to the said rear extension of the pole and formed so that when the catch is down, as shown, it will also embrace opposite sides of one of the lugs or projections 19 on the body-frame, according to the side to which the draft is applied. By this arrangement the pole will be temporarily locked to the body-frame by a catch or latch which is carried by the swinging pole, it being understood that so far as this feature is concerned the pole may be regarded as a single bar continuous from the circle to the forward end of the pole.

In Fig. 7 the catch or latch M is the same in principle as the catch M in Fig. 1, but is extended upwardly to form a lever with which a rod M' is connected. With such arrangement the rod M' extends over the roller, so that it can be manipulated by the driver, who can thereby operate the latch without getting off his seat. In said Fig. 7 I also provide an upper bearing 19' for the hand-wheel shaft and secure said bearing on the circle. This bearing is also provided with a guide 20 for the rod M'.

In place of journaling the antifriction-rolls 9 in rings 10, as hereinbefore described, I may employ other arrangements—as, for example, the annular bed can be provided with bearings for the roll-journals formed by vertical grooves or slots 21 and 22, as in Fig. 7. The brake-shoe can be connected with the bed in any suitable way, although I prefer attaching it to an arm 23, which is in turn attached to the bed, it being evident, however, that the hinged arm in Fig. 7 would, to a certain extent, be substantially the same thing as the spring-arm 23^a in Fig. 2^a, which latter is the preferred construction for the following reason, to wit: It frequently happens that these rollers are not true cylinders and that when an ordinary brake is rigidly

locked upon a roller which is irregular or not true something must give at some point or points during the rotation of the roller, and hence that either the brake devices become injured or the roller locked so that it will not turn. In Fig. 2^a, however, the arm 23^a is a spring-arm, as hereinbefore stated, and the shoe H is arranged upon said arm at a point between the end of the spring-arm which is secured upon the main frame of the machine and the opposite end of said arm which the adjustable rod I engages. When, therefore, the rod I is adjusted so as to cause the shoe to bear upon the roller, the arm 23^a can obviously bow or bend upwardly, so as to yield in conformity with any irregularity in the perimeter of the roller. The shoe with such arrangement preferably bears at one side of the highest point of the roller, as shown, although it could bear upon such highest point.

In Fig. 6 I have widened the rear end of the forward section of the pole and have provided such widened end with notches 24, with which the catch M can engage, in which way said catch can be used for locking the forward section of the pole in an oblique position in place of the pin or bolt hereinbefore described.

I also provide a scraper at each side of the roller and hang these scrapers on the body-frame, so that they will scrape the roller no matter which way the latter runs.

What I claim as my invention is—

1. A road-roller comprising a roll, a body-frame within which the roll is arranged, a pole having a rear extension which extends above the roll, an annular turn-table arranged over the roll and comprising a couple of circles whereof one interrupts the rear extension of the pole while the other is supported from the body-frame, a driver's seat supported upon the upper circle of the turn-table so as to turn therewith when the pole and rear extension thereof are swung around, and a brake device comprising a shoe arranged upon a spring-arm which is secured to the lower circle of the annular turn-table and a threaded rod which engages the shoe and extends upwardly through the space within the annular turn-table so as to be in front of the driver's seat regardless of the direction in which such seat may face as a result of swinging around the pole and rear extension, substantially as described.

2. A road-roller comprising a roll, a body-frame, a reversible pole having a rear extension which at a point over the roll is inter-

rupted by the upper circle of an annular turn-table, a circle supported over the roll and forming the lower member of the annular turn-table, antifriction-rolls arranged between the two circles, a driver's seat supported upon the upper circle, and a brake device arranged for engaging the upper portion of the roll and positioned within the annular turn-table so as to be in front of the seat regardless of the direction in which the seat may face as a result of reversing the pole, substantially as described.

3. The combination and arrangement in a road-roller, of the roll, the body-frame, a reversible pole joined between its forward portion and rear portion, and provided with means for temporarily locking said portions together, the pole provided with a rear extension which extends above the roll, an annular turn-table comprising an annular track or circle supported from the body-frame, an upper circle interrupting the rear extension of the pole, said circles being constructed to provide between them an annular way for a set of antifriction-rolls, a couple of concentric rings arranged within said annular way, and a set of antifriction-rolls journaled in said concentric rings, substantially as described.

4. In a road-roller, having a reversible pole, the body-frame provided with upturned portions forming a shoulder at each end, and the reversible pole provided with an offset or shoulder for alternately engaging one and the other of said shoulders on the body part, substantially as described.

5. In a road-roller having a reversible pole whose forward portion is pivotally connected with its rear extension; the body-frame provided with upturned portions forming a shoulder at each end; and the reversible pole provided with an offset or shoulder for alternately engaging one and the other of said shoulders on the body-frame, substantially as described.

6. A road-roller comprising a roll, and a reversible pole having its forward portion pivotally connected with its rear extension, and provided with a catch adapted to engage the projecting end portions of the frame and temporarily lock the two portions of said pole in alinement and also at different horizontal angles so as to change the draft, substantially as described.

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