No. 782,628. PATENTED FEB. 14, 1905.

W. A. TAYLOR.

LOCOMOTIVE DRIVE WHEEL.

APPLICATION FILED MAY 23, 1904.

Fig. 1.

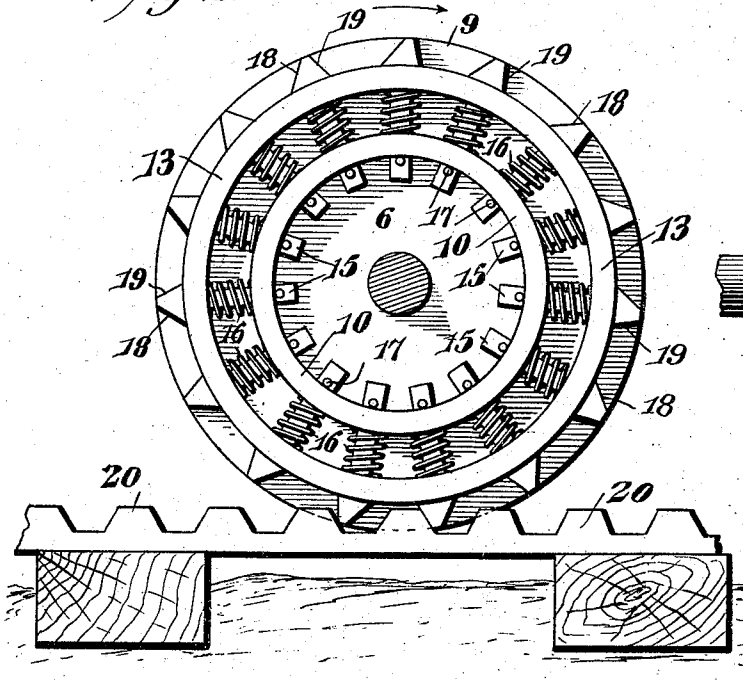


Fig. 2.

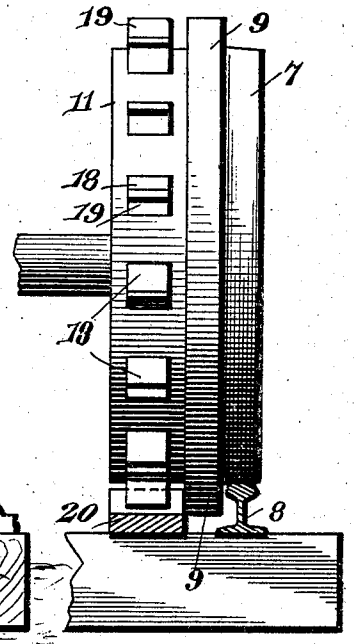


Fig. 3.

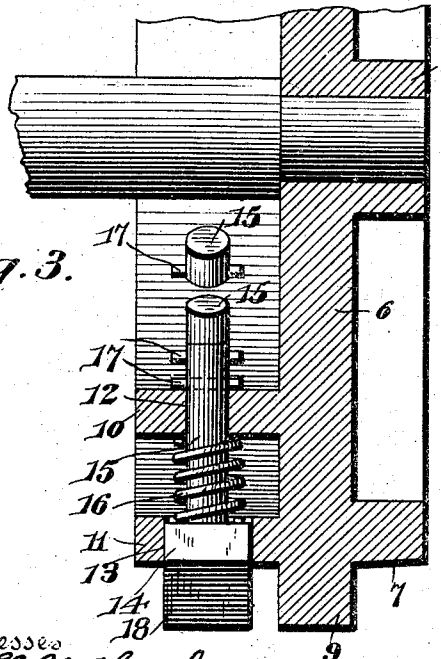
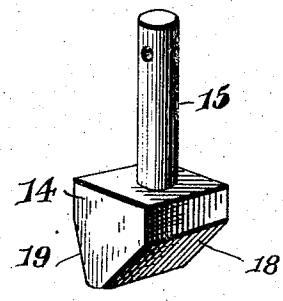


Fig. 4.



Witnesses
Jas. K. McCutcheon
B. G. Foster

William A. Taylor, Inventor
By E. G. Siggers
Attorney

No. 782,628. Patented February 14, 1905.

UNITED STATES PATENT OFFICE.

WILLIAM A. TAYLOR, OF FRENCH CAMP, MISSISSIPPI, ASSIGNOR OF ONE-HALF TO JAMES A. SANDERSON, OF FRENCH CAMP, MISSISSIPPI.

LOCOMOTIVE DRIVE-WHEEL.

SPECIFICATION forming part of Letters Patent No. 782,628, dated February 14, 1905.

Application filed May 23, 1904. Serial No. 209,285.

To all whom it may concern:

Be it known that I, WILLIAM A. TAYLOR, a citizen of the United States, residing at French Camp, in the county of Choctaw and State of Mississippi, have invented a new and useful Locomotive Drive-Wheel, of which the following is a specification.

This invention has relation more particularly to means for preventing the slipping of the drive-wheels of locomotives when started from a state of rest, ascending an incline, or the like, but probably also useful in other relations.

One object is to provide a simple structure wherein the failure of the parts to initially operate will not damage or injure the same, but said parts will assume their proper and operative relation without interference.

A further object is to construct the said parts so that they will properly interlock for positively effecting the propulsion of the locomotive or other apparatus in one direction and at the same time will allow the wheels to slip upon the rails when slowing down or coming to a stop.

The preferred form of construction is illustrated in the accompanying drawings, wherein—

Figure 1 is a view in elevation of the wheel and a portion of the rack engaged thereby. Fig. 2 is an end elevation of the same. Fig. 3 is a detail sectional view, on an enlarged scale, through the wheel. Fig. 4 is a detail perspective view of one of the teeth.

Similar reference-numerals refer to like parts throughout the several figures of the drawings.

In the structure illustrated the main body of the wheel may be of any desired form having a hub portion 5, a web 6, a smooth tread 7, arranged to run upon the usual rail 8, and having at its inner side a retaining-flange 9. The inner side of the web 6 is provided with spaced annular flanges 10 and 11, the former of which is provided with a series of circular openings 12, the latter having angular openings 13, alined with the openings 12. These flanges constitute the supports for radially-disposed yieldingly-projected teeth, each comprising a head 14, that is slidably mounted in one of the openings 13, and a shank 15, bridging the space between the flanges 10 and 11 and slidably extending through the corresponding opening 12. A spring 16 coiled upon each shank bears at its outer end against the inner end of the head 14 and at its inner end against the outer face of the flange 10, thus serving to yieldingly and normally hold the tooth in projected position. The outward movement is limited by a stop-pin 17, detachably fitted in the inner end of the stem and abutting against the inner face of the inner flange 10. The opposite side faces of the projecting portion of each tooth are beveled, as shown at 18 and 19, and it is to be observed that the pitch of the face 18 is greater than 19, the purpose of which is hereinafter explained.

As shown, the toothed portion above described is located on the inner side of the wheel, and the teeth thereof are adapted to engage a rack 20, secured to the ties on the inner side of the rail 8 in spaced relation thereto to permit the free passage of the flange 9. These racks are placed along the road at any desired position—as, for instance, on heavy grades and at stations or other places where locomotives must get under way from a complete state of rest. The wheel on but one side of each locomotive is necessary, and consequently the racks are located along but one side of the tracks. When employed at curves, the racks are preferably placed on the long side of the same, so that the flanges of the drivers will be forced away from said racks instead of toward them. In use the wheels are so arranged that the less inclined faces of the teeth will abut against the teeth of the rack when said wheels are put into forward motion, as indicated by the arrow in Fig. 1. These faces 19 will therefore properly abut against the teeth of the rack, so that the wheel cannot slip, and consequently the locomotive will be positively started, because of the interlocking engagement of the sets of teeth. On the other hand, when coming to a stop or whenever the wheels strike the racks it may commonly happen that the teeth thereof will not interlock. In other words, the teeth of the wheels will ride upon the teeth of

the racks. This, however, will not affect either, as the wheel-teeth will be forced against the tension of the springs into the wheel, and no damage will result. On the other hand, should the drive-wheel slip the teeth will then immediately assume their proper relations, and the necessary interlocking engagement will occur. If in coming to a stop the brakes should be applied with sufficient force to prohibit the rotation of the wheels, the forward faces 18 o fthe teeth are inclined sufficiently so that they will ride over the teeth of the rack, and under these conditions no damage will result. Likewise if it should happen that a stone or other like article becomes lodged between any of the teeth of the rack the tooth of the wheel which would ordinarily enter that space would be forced into the wheel, and thus the obstruction would be passed without interference.

From the foregoing it is thought that the construction, operation, and many advantages of the herein-described invention will be apparent to those skilled in the art without further description, and it will be understood that various changes in the size, shape, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention. For instance, it may readily happen that the wheel can be employed in other relations where a positive action is desired without the objection of rigid teeth.

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

1. The combination with a rack, of a wheel having teeth that are beveled and engage the rack, the pitch of one side of each tooth being greater than that of the other side.

2. The combination with a rail and a rack, of a wheel having a smooth tread that runs upon the rail, spaced annular flanges that are located over the rack, and a guard-flange disposed between the annular flanges and the tread and operating between the rack and rail, radially-disposed teeth slidably mounted in the flanges and engaging the rack, and coiled springs located between the flanges and bearing against the teeth for holding the same in projected relation.

3. A rotary wheel having radially-sliding teeth projecting from the same, and means for normally and yieldingly holding the teeth in projected relation, said teeth being beveled and having a pitch at one side of each tooth greater than that at the opposite side for the purpose set forth.

4. The combination with a rail and a rack spaced therefrom, of a wheel having a flange that operates between the rail and rack, a smooth tread located on one side of the flange and running upon the rail, and yieldingly-projected teeth carried by the wheel on the opposite side of the flange and engaging with the rack.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM A. TAYLOR.

Witnesses:
J. P. PATTERSON,
W. A. DOWNING.