

No. 686,085.

Patented Nov. 5, 1901.

J. H. KIRKPATRICK.
ADJUSTABLE TRACTION DEVICE.

(Application filed Mar. 14, 1901.)

(No Model.)

Fig. 1.

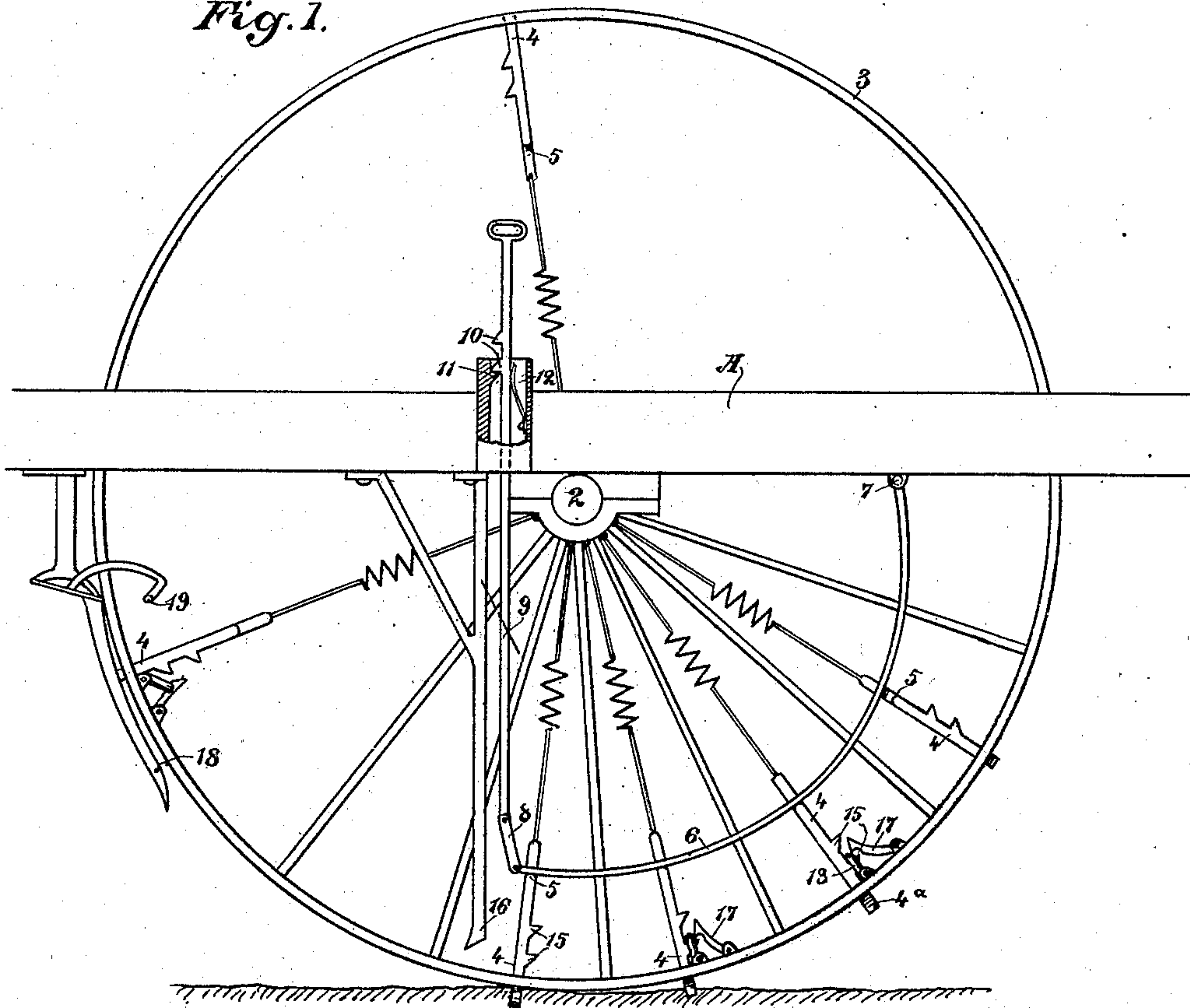
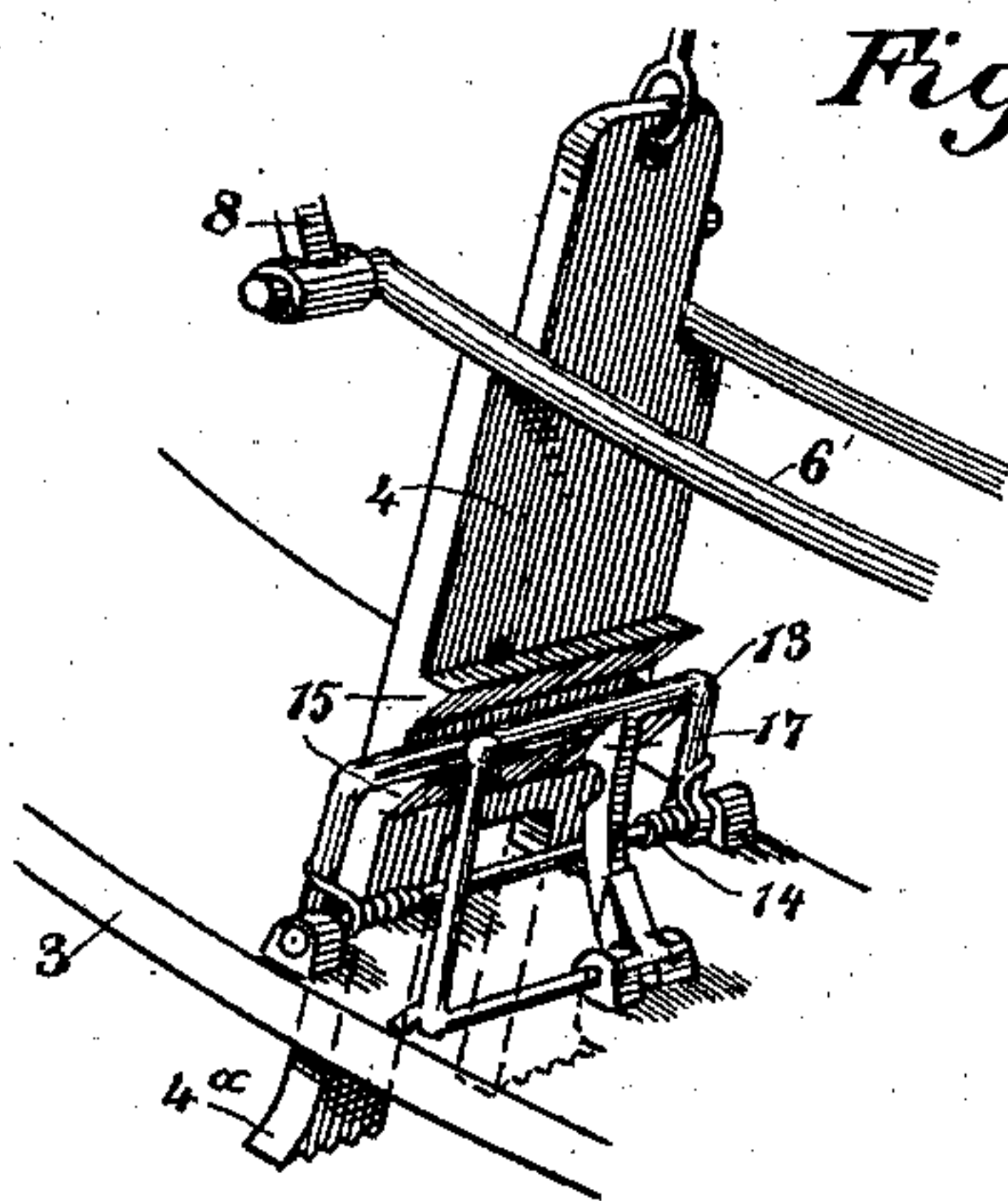


Fig. 2.



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UNITED STATES PATENT OFFICE.

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ADJUSTABLE TRACTION DEVICE.

SPECIFICATION forming part of Letters Patent No. 686,085, dated November 5, 1901.

Application filed March 14, 1901. Serial No. 51,101. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. KIRKPATRICK, a citizen of the United States, residing at Utica, county of Licking, State of Ohio, have invented an Improvement in Adjustable Traction Devices; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to a traction device for vehicle-wheels. It is especially adapted to wheels of such vehicles as are propelled by motors of any description and is designed to prevent the slipping of such wheels in soft ground.

It consists of radially-slidable traction-plates movable in and out through slots in the wheel-rim and means by which these plates are projected, locked in position while they are moving over the ground, released, and retracted while passing over the upper part of the circumference of the wheel.

My invention also comprises details of construction, which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a side elevation of a traction-wheel, showing my improvement. Fig. 2 is a detail of a traction-plate and its connections.

I have here shown a sufficient portion of a bearing-frame A to support the journal 2 of the wheel.

3 is the rim of the wheel, which has transverse slots made through it, as shown, and the blades or plates 4 are projected through these slots as that portion of the periphery of the wheel carrying the plates approaches the ground, and when in this position the plates are locked, so that they will not be forced back by pressure upon the ground, thus retaining them in position to engage the ground and prevent the wheel from slipping. These plates are suitably guided and made either to be single or may be made in two or more branches. Near the upper end they have shoulders, as at 5, and these shoulders travel in contact with the cam-shaped guides 6, which acting upon the shoulders gradually project the plates through the rim of the wheel. These guides 6 are here shown as hinged to some part of the frame, as at 7, and the other end is connected by a link 8 with a vertically-movable rod 9, having catches 10, which are adapted to engage

with corresponding stationary catches, as at 11. These catches are pressed into engagement by a spring, as at 12.

The rod 9 may be moved up or down to change the curvature of the cam-guides 6 by simply pressing it back against the spring 12 until the engaged catch 10 is released from 11, when the rod 9 can be moved up or down, as desired. When moved up, it shortens the distance to which the traction-plates are projected. When moved down, it increases the distance. The shorter projection of these plates is used when the ground is comparatively hard; but when it is soft the traction-plates are projected farther, so as to have a good hold upon the ground. When the plates have thus been projected, it is necessary to retain them in place against the pressure of the ground. For this purpose I have shown bails 13, which are normally acted upon by coiled springs around their journals, as at 14, and these bails being journaled upon the rim of the wheel near each of the plates 4 the springs will act to press the bails against the plates.

The plates have projecting lugs 15 at intervals, and when the plate has been pushed down the bail will pass over the lug and engage it from above, so as to prevent the plate from being pushed back by pressure upon the ground. When the plate has passed the lowest point and is beginning to rise upon the opposite side, the bail is released by contact with a fixed arm at 16, which draws the bail back from the lug 15 with which it is engaged, and the top of the bail is then engaged by a spring-pressed latch 17, which holds it back while the plate is passing over a fixed inclined or cam-shaped surface 18, which acts to force the plates back through the slots in the rim, at the same time scraping and cleaning the plates of any adhering earth. When the plates have thus been retracted, the bail 13 is released from the latch 17 by the action of a fixed arm 19, projecting into the path of the latch 17 and engaging it, so as to press it back sufficiently to release the bail 13. The spring 14 then acts to force the bail 13 against the traction-plate, where it remains in readiness to again engage one of the latching-lugs 15 when the plate is again projected. In order to prevent these plates from sliding inwardly

through the slots in the wheel-rim, I have shown them as being flared or divergent at the outer end, as at 4^a; but they may be also retained by stops interior to the wheel, if preferred. The plates may also be retracted by springs in place of or in addition to the cams or inclines 18. By this construction the traction-plates are projected to the required distance, locked while passing over the ground, automatically released, and retracted while passing over the upper portion of the travel of the wheel, thus cleaning them at each inward movement.

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

1. The combination with a traction-wheel, of plates radially slidable through the rim, a cam engaging said plates to move them outwardly, a latch mechanism for retaining them in their extended position, and a stop in the path of the latch mechanism for tripping the latter and releasing the plates.

2. The combination with a traction-wheel of radially-slidable plates extending through the rim, shoulders upon said plates, a cam engaging said shoulders so as to extend the plates through the rim, latches upon said plates and a spring-pressed bail adapted to engage said latches to retain the plates in their extended position.

3. The combination with a traction-wheel of plates radially slidable through slots in the rim, a cam by which said plates are extended, catches upon the plates and a spring-pressed bail by which the catches are engaged to retain the plates in their extended position, and a fixed arm adapted to disengage the bail to allow the plates to be retracted.

4. The combination with a traction-wheel of plates radially slidable through slots in the rim, a cam pivotally secured at one end engaging said plates and acting to project them through the rim, and means connected with the opposite end of the cam and provided with projections by which said cam is adjustable to determine the distance to which the plates are projected.

5. The combination with a traction-wheel of plates slidable radially through slots in the rim, a cam engaging shoulders upon the plates whereby the latter are forced outwardly, said cam having one end hinged to a

fixed point, a slidable rod with which the other end is connected and latches by which said rod is held at different points of adjustment to increase or decrease the eccentricity of the cam.

6. The combination in a traction-wheel of plates slidable radially through slots in the rim, a cam engaging said plates to force them outwardly, lugs upon the plates and a spring-pressed bail engaging said lugs to hold the plates after they are protruded, a fixed arm by which the bail is disengaged after the plates have passed over the surface of the ground, a latch with which the bail is engaged to retain it out of contact with the plate until the latter has been retracted.

7. The combination with a traction-wheel of plates radially slidable through slots in the rim, a cam engaging shoulders upon the plates whereby the plates are projected as they approach the surface of the ground, a spring-pressed bail and lugs upon the plates engaged thereby to retain them in their projected position, a fixed arm by which the bail is disengaged from the plates after the latter have passed over the ground, a latch by which the bail is engaged and temporarily held out of contact with the plate, a cam or incline by which the plates are retracted into the rim of the wheel after the bail is disengaged, and a second arm by which the latch is disengaged and the bail allowed to assume its normal position in contact with the plate.

8. In a traction-wheel, radially-slidable bars or plates, means for projecting them through the rim of the wheel at and during the contact of the wheel with the ground and means engaging the projected ends of the bars or plates for retracting said bars or plates after contact with the ground has ceased.

9. In a traction-wheel, radially-slidable bars or plates, means for projecting them through the rim of the wheel, and means carried by the rim of the wheel for locking the plates in their extended position during their contact with the ground.

In witness whereof I have hereunto set my hand.

JAMES H. KIRKPATRICK.

Witnesses:

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CHAS. E. TOWNSEND.