S. BAGNELL.

WHEEL.

APPLICATION FILED DEC. 4, 1909.

965,681. Patented July 26, 1910.

Fig. 1.

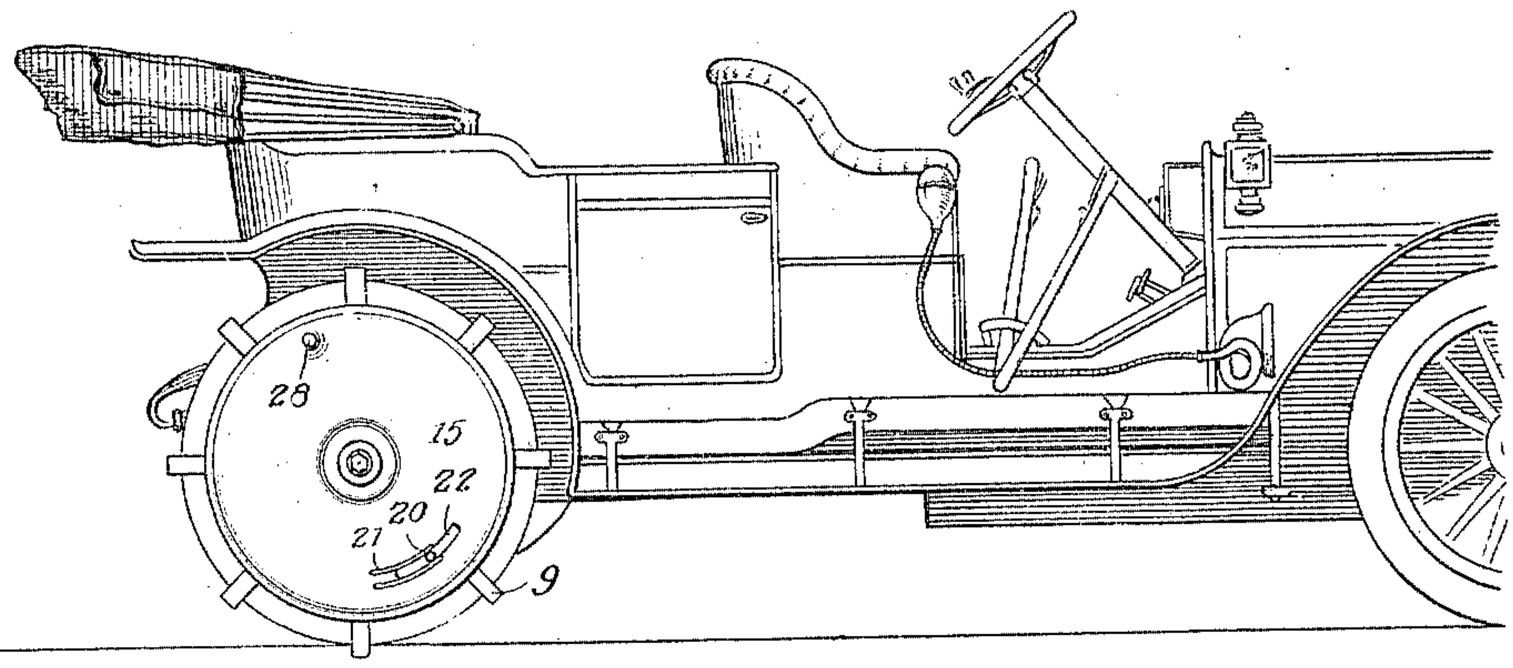
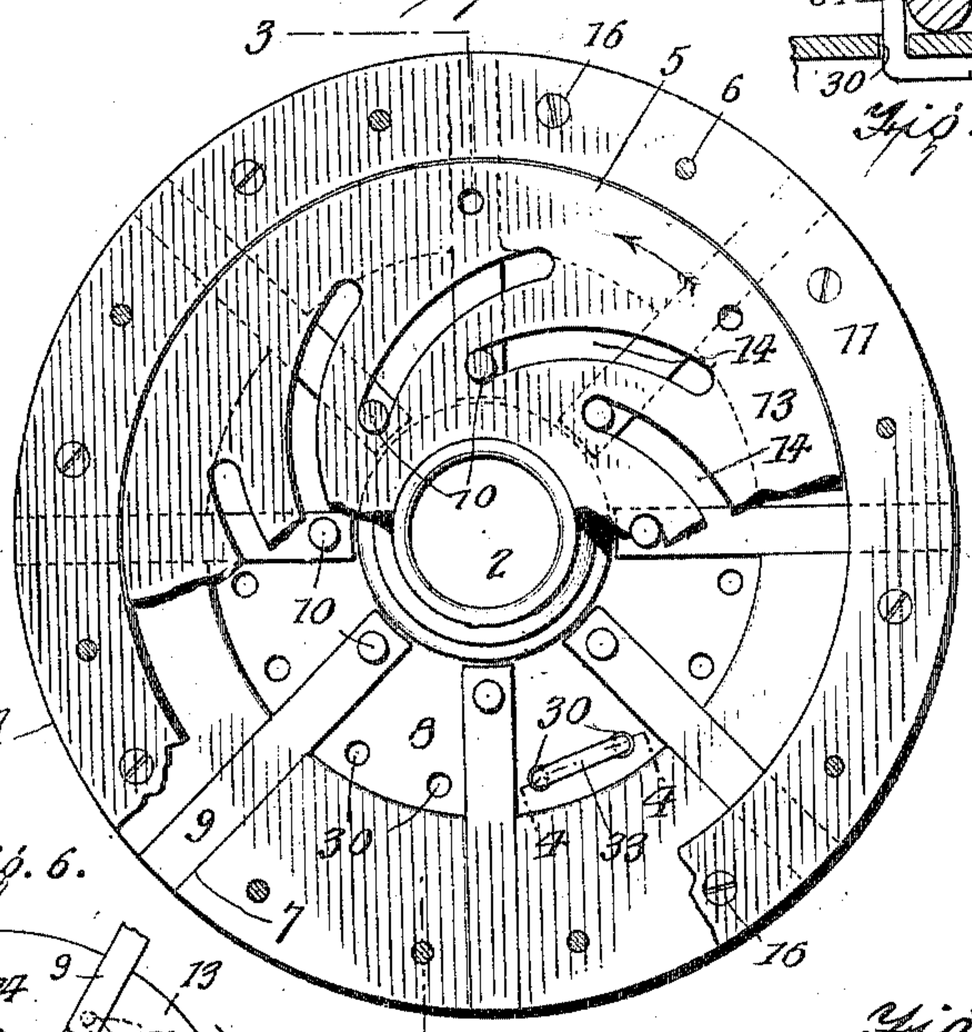


Fig. 2.



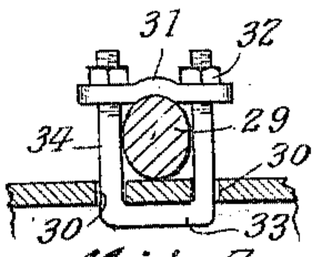


Fig. 4.

Fig. 3.

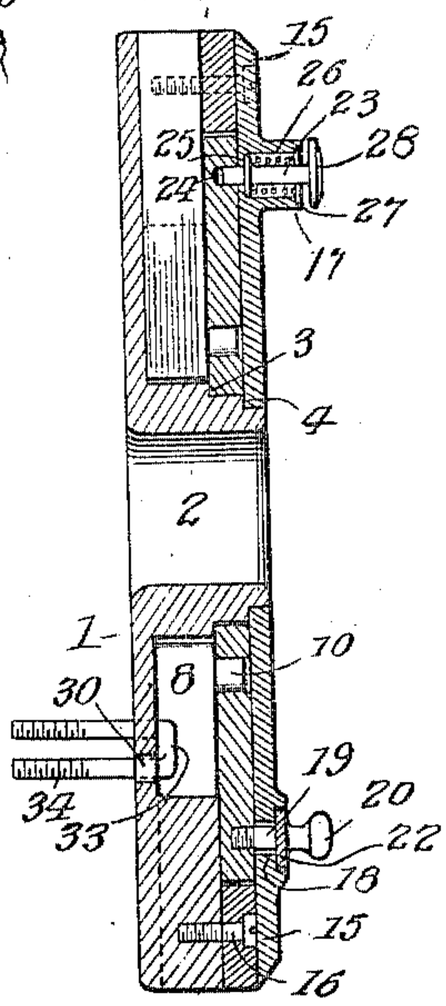


Fig. 6.

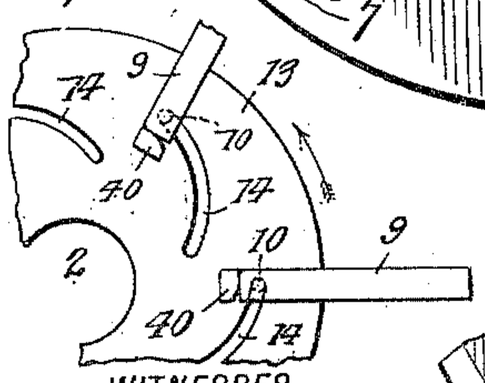
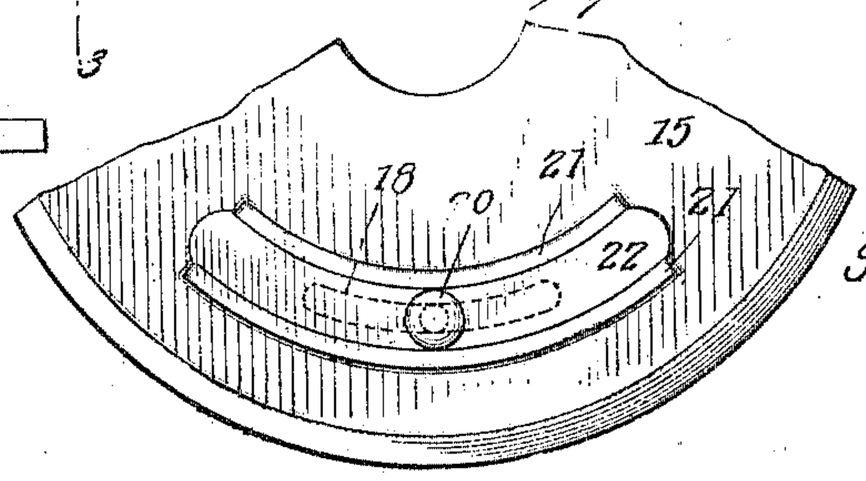


Fig. 5



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WHEEL.

965,681. Specification of Letters Patent. Patented July 26, 1910.

Application filed December 4, 1909. Serial No. 531,324.

To all whom it may concern:

Be it known that I, SAMUEL BAGNELL, a citizen of the United States, and a resident of Hankinson, in the county of Claiborne and State of Mississippi, have invented certain new and useful Improvements in Wheels, of which the following is a specification.

My invention is an improvement in wheels, and consists in certain novel constructions and combinations of parts hereinafter described and claimed.

The object of the invention is to provide an auxiliary wheel for permanent but removable attachment to the rear or drive wheels of an automobile, and provided with means to prevent slipping of the said wheels on smooth surfaces, or to assist the grip of the wheels in hill climbing or the like, and which, when not in use, may be withdrawn from operative position.

Referring to the drawings forming a part hereof, Figure 1 is a side view of an automobile provided with the improvement. Fig. 2 is a face view of the auxiliary wheel with the cover plate removed. Fig. 3 is a section on the line 3—3 of Fig. 2. Fig. 4 is a section through a spoke, showing the means for securing the auxiliary wheel in place. Fig. 5 is an enlarged view of a portion of the wheel showing the operating means, and Fig. 6 is a detail view.

In the embodiment of the invention shown in the drawings, a disk 1 is provided, having at its center a lateral boss or hub 2, the outer face of which is stepped, as shown in Fig. 3, forming three steps, with shoulders 3 and 4 between the steps.

A plurality of segmental blocks 5 are secured to the outer face of the disk by screws 6 to be presently described, and the adjacent edges of the blocks are spaced apart from each other to form radial guideways 7, and the apices of the blocks are cut away, so that a circular recess 8 is formed between the hub and the blocks. A pawl or claw 9 is movable in each of the radial guideways, the said pawls or claws being of such length that when the inner end is in contact with or near the outer face of the hub, the outer end is flush with the peripheral edge of the disk. Near its inner end, each pawl or claw is provided with a lateral pin 10, and a ring 11 is secured to the outer faces of the blocks 5 by the screws 6 for retaining the pawls in place. The outer edge or periphery of the ring is flush with the periphery of the disk, and the inner edge is spaced apart from the inner ends of the blocks. A second ring 13 is arranged inside of the first ring, filling the space between the inner edge of the said first ring and the hub, and rotatable on the hub, and the said ring is provided with a plurality of arc-shaped slots 14, with each one of which a pin 10 engages. The inner edge of the inner face of the ring 13 rests against the shoulder 3 of the hub, and the outer edge rests against the inner ends of the adjacent faces of the segmental blocks, and the slots are so arranged, that when the ring is turned in one direction, all of the pawls are moved outward, while when it is turned in the other direction, they are all retracted.

A cover plate 15 in the shape of a ring is secured to the blocks by the screws 6 before mentioned which also pass through the ring 11, and the inner edge of the inner face of the cover plate rests against the shoulder 4. The cover plate is provided on one side of the central opening with a boss 17, and on the other side with an arcuate slot 18, and a screw 19 provided with a head 20 is threaded into the disk 13, and extends through the slot, for convenience in manipulating the ring. On each side of the slot, the face of the cover plate is provided with an arc-shaped guideway or rib 21, and the pin is provided with an arc-shaped plate 22, whose side edges fit the guideways, the plate being of sufficient length to cover the slot when the pin is at either end of the slot.

A pin 23 is slidable longitudinally in the boss 17, and the inner end of the pin is adapted to engage openings 24 in the ring 13 to lock the pawls in active or inactive position. The pin is provided with a collar 25, and a spring 26 is arranged between the collar and the cover plate 27 of the boss, the spring acting to normally retain the pin in inward position. The pin is provided with a head 28 for convenience in manipulating the same, and is withdrawn when the ring is to be turned to move the pawls. As soon as it is released, the spring returns it into engagement with the ring.

The device is secured to the spokes 29 of the driving wheel with the hub of the wheel extending through the hub of the disk, by means of stirrups whose body portions 33 are in the space 8, the arms 34 passing through openings 30 in the disk 1, and upon

each side of a spoke. A strap 31 is arranged on the opposite side of the spoke, the ends of the strap having openings for receiving the arms, and the said arms are threaded and engaged by nuts 32, to retain the plate in place, and hold the device on the wheel.

The device, while removable, is designed to be a permanent fixture for the wheel, and under normal conditions, the pawls or claws take the position shown in Fig. 2, and are locked in this position by the engagement of the pin 23 with one of the openings 24. When a hill is to be climbed, or when the road is slippery, or when any other condition requires it, the pin 23 is withdrawn, and by means of the handle 20, the ring 13 is partially rotated in the direction of the arrow in Fig. 2. The cam-shaped slots move the pins outwardly, and the pawls are extended as shown in Fig. 1, and locked in such position, by the engagement of the pin 23, with the other opening 24.

In Fig. 6 I show braces in the form of blocks 40 on the ring 13 in position to receive the pressure at the inner ends of the pawls 9 when the latter are in their outermost position and thus operate as braces or supports of the said pawls.

I claim:—

1. The combination with a drive wheel, of a disk having a central laterally extending hub for receivin gthe hub of the drive wheel, and provided with means for detachably engaging the spokes, a plurality of segmental blocks secured to the face of the disk adjacent to the periphery, the adjacent edges of the blocks being spaced apart to form radial guideways, a pawl or claw movable in each guideway, a ring secured to the blocks and covering the outer ends of the guideways, a second ring within the first ring and provided with a plurality of cam-shaped slots, pins on the pawls engaging the slots, a cover plate secured to the blocks, and provided with an arc-shaped slot having upon each side an arc-shaped rib, a pin secured to the last named ring and extending through the slot for operating said ring, and means for locking the ring with the outer ends of the pawls flush with the periphery of the disk or projected therebeyond, said means comprising a pin movable transversely of the cover plate, the ring having openings for engagement by the pin, and a spring normally holding the pin in engagement with an opening.

2. A device of the class described, comprising a disk having a laterally extending hub for receiving the hub of the drive wheel of an automobile or like vehicle and having means for engaging the spokes, a plurality of segmental blocks secured to the face of the disk adjacent to the periphery, the edges of the blocks being spaced apart to form radial guideways, a pawl or claw movable in each guideway, a pin extending laterally from each pawl near its inner end, a ring secured to the blocks and covering the outer ends of the guideways, a ring rotatably mounted within the first ring and having cam-shaped slots for engagement by the pins, a cover plate for the rings and secured to the blocks, means for oscillating the movable ring to extend or withdraw the pawls, and means for locking the pawls in extended or withdrawn position.

3. The combination with an automobile or like vehicle, of a supplemental wheel comprising a disk having a laterally extending hub provided at its outer end with a plurality of annular concentric shoulders arranged in stepped relation, segmental blocks secured to the disk near its periphery and spaced apart at their ends to form radial guideways, pawls movable in the guideways, a ring rotatable on the hub within the blocks and resting at its inner edge on one of the shoulders, a cover plate secured to the blocks and covering the ring and resting on the other shoulder with its inner edge, said ring having means for engaging the pawls to simultaneously project and withdraw them, means for operating the ring, and means for locking the ring.

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