

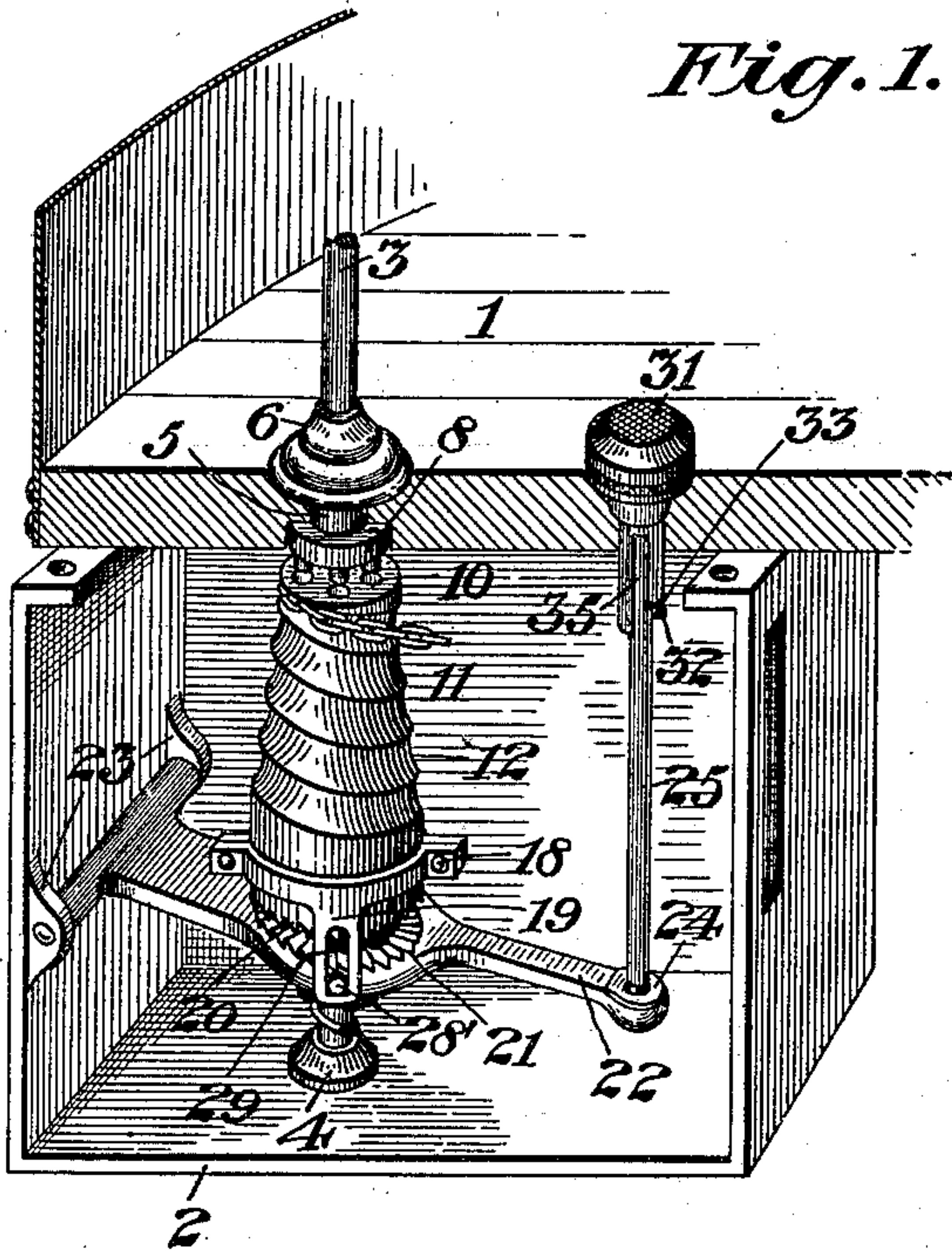
No. 624,239.

Patented May 2, 1899.

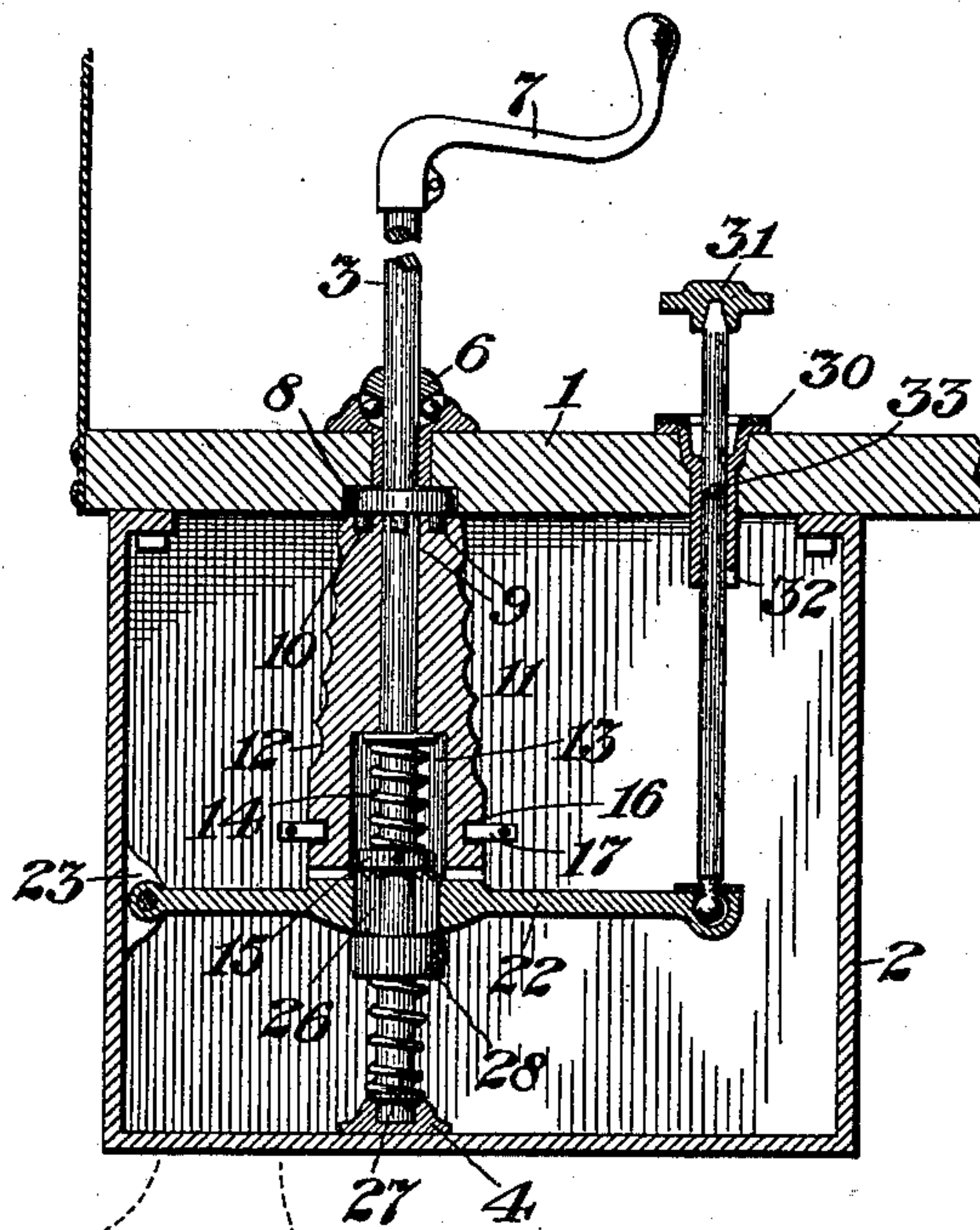
J. A. NORTON.  
CAR BRAKE APPARATUS.  
(Application filed Feb. 24, 1899.)

(No Model.)

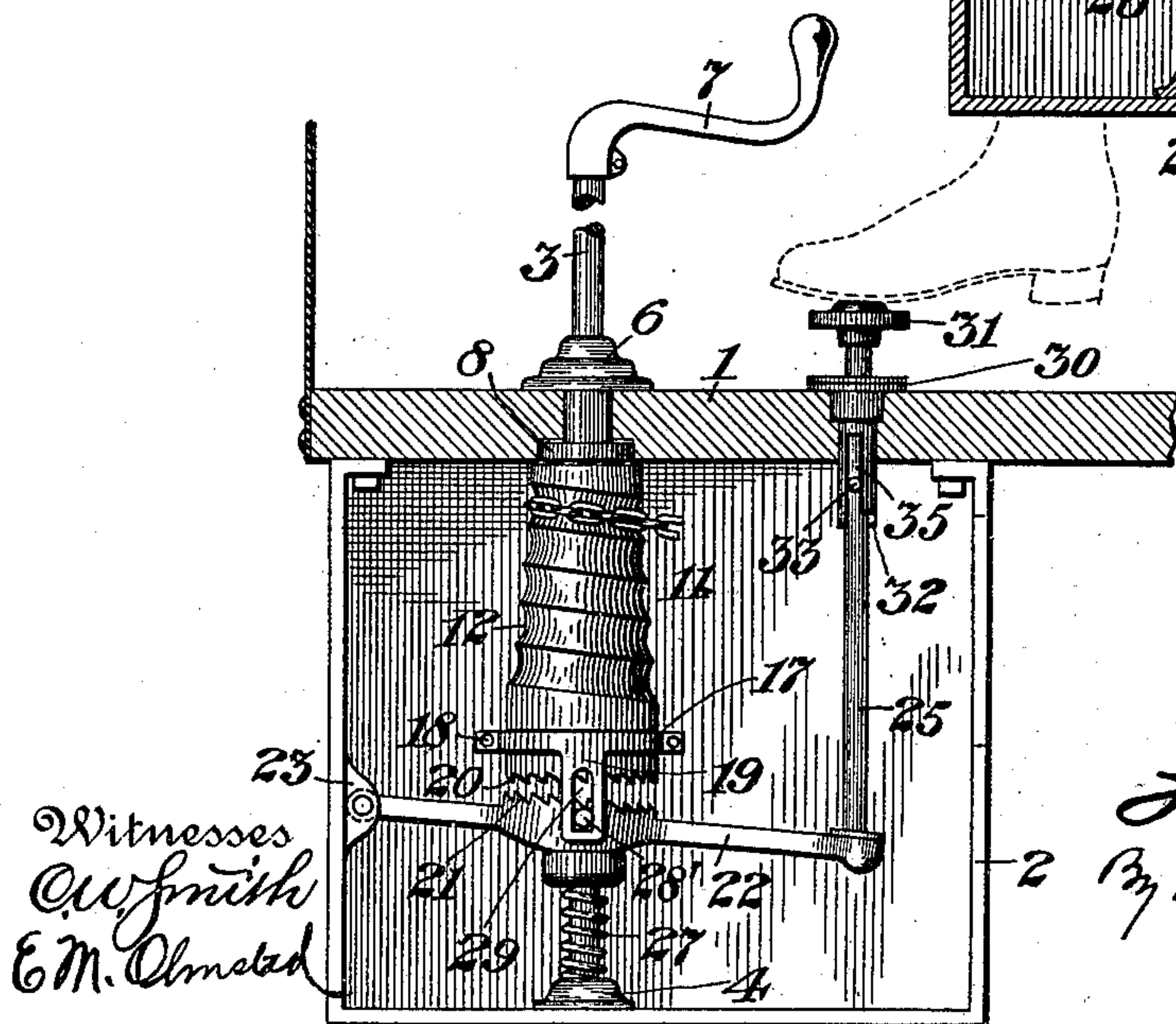
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



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# UNITED STATES PATENT OFFICE.

JAMES A. NORTON, OF WILKES-BARRÉ, PENNSYLVANIA.

## CAR-BRAKE APPARATUS.

SPECIFICATION forming part of Letters Patent No. 624,239, dated May 2, 1899.

Application filed February 24, 1899. Serial No. 706,710. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES A. NORTON, a citizen of the United States, residing at Wilkes-Barré, in the county of Luzerne and State of Pennsylvania, have invented certain new and useful Improvements in Car-Brake Apparatus, of which the following is a specification.

The object of my invention is to provide a car-braking apparatus in which the brake may be released by the pressure of the foot without reversing the brake-handle and in which also the braking power may be applied in varying degrees in the usual manner.

My invention also includes means for preventing tampering with the brakes by careless or mischievous persons on the rear end of the car.

In the accompanying drawings, which illustrate my invention, Figure 1 is a perspective view of my improved braking apparatus, showing the pedal fully depressed and the winding-drum released from the staff. Fig. 2 is a central sectional view showing the pedal in its uppermost position, the drum being locked to the staff and the holding clutch or ratchet in engagement with the drum. Fig. 3 is a side view showing the pedal partly depressed, the ratchet released from the drum, and the latter locked to the staff.

Referring to the drawings, 1 indicates a section of the car-platform, to the under side of which is secured a brace or stirrup 2. The brake-staff 3 is journaled at its lower end in a thrust-bearing 4, supported upon the cross-bar of the brace. The staff extends upward through a bushing 5 and ball-bearing 6 in the platform, and its upper end is suitably formed to receive a crank-handle 7. Below the bushing 5 the shaft is provided with a collar 8, having on its underside projections 9, adapted to engage with corresponding recesses 10, formed in the upper end of the winding-drum 11. The collar and projections are formed integral with the shaft or otherwise firmly secured thereto. The winding-drum 11 is preferably tapering in form, being larger at the bottom than at the top, and it is provided with spiral chain-grooves 12. It is journaled upon the shaft, so as to turn freely when moved downward, so that the interlocking parts 9 and 10 are not in engagement. A recess 13 is formed in the lower part of the drum to receive a compression-spring 14, sur-

rounding the shaft and interposed between the drum and a collar 15, fixed to the shaft. The spring 13 normally supports the drum and holds the interlocking parts of the drum and shaft in engagement, so as to prevent rotation of the drum on the shaft.

An annular recess 16 is formed near the lower end of the drum, and within the recess is a two-part collar 17, the parts being secured together by bolts 18 and having on each side a depending link 19. The collar fits loosely in the groove, so that the drum may turn while the collar is held stationary. The lower surface of the drum, as shown, is provided with an annular row of ratchet-teeth 20, forming a ratchet-wheel, which is normally engaged by a ratchet 21 upon a spring ratchet-lever 22. The ratchet-lever is hinged at one end in suitable bearings 23 upon the side of the support 2, and its opposite end is connected by a ball-joint 24 with the pedal-rod 25. The ratchet 21, as shown, surrounds the staff, the lever being provided with a longitudinal opening 26 within the space inclosed by the ratchet, so that it may be depressed without interfering with the shaft. The ratchet-lever is normally pressed upward against the drum by a spring 27, surrounding the staff and interposed between the step-bearing 4 and a sliding collar 28 upon the staff. The sliding collar bears against the lower surface of the lever on either side of the opening 26, the surface of the lever at this point being preferably slightly rounded, as shown.

Pins 28' project from each side of the ratchet and extend into openings 29 in the links 19. The openings are of such length that the ratchet may be depressed out of engagement with the drum before the pins reach the bottom of the openings; but upon further movement of the ratchet the pins will engage the links and draw the drum down out of engagement with the locking device.

The pedal-rod 25 extends upward through a tubular bushing 30 in the platform and terminates in a removable cap or pedal 31. The bushing 30 has a slot 35 extending part way of its length, said slot having an offset 32 at its base. The pedal-rod has a pin 33 projecting through the slot in the bushing, and when the rod is depressed to its full extent and turned in the proper direction the pin



enters the slot 32 and locks the parts, as shown in Fig. 1.

The operation is as follows: When the car is moving without the necessity of applying the brakes, the parts are in the position shown in Fig. 2. When it becomes necessary to apply the brakes, the staff and drum are turned in the usual manner by means of the crank-handle, and the ratchet, engaging the ratchet-wheel on the drum, prevents the backward rotation of the latter. If it is desired to decrease the pressure on the brakes, the pedal-rod is depressed part way, as shown in Fig. 3, releasing the ratchet from the drum, and the latter may then be turned at will in the backward, as well as in the forward, direction. When it is desired to release the brakes, the pedal-rod is depressed to its fullest extent, and the drum will be drawn downward until it becomes unlocked from the staff, as shown in Fig. 1, in which position the tension upon the chain by the backward movement of the brake-shoes from the wheels will turn the drum upon the staff and unwind the chain. When the pedal-rod is allowed to rise, the drum will again become locked to the shaft, and at the completion of the movement the ratchet will engage the teeth on the drum.

In order to prevent annoyances from mischievous or malicious persons setting the brake on the rear platform, the parts may be locked at the end of the route in the position shown in Fig. 1 by turning the foot slightly, thus throwing the pin 33 into the offset 32. The pedal-piece may then be removed and carried by the motorman to the front platform for use on the pedal-rod at that end, and as the pedal-rod on the rear platform cannot readily be disengaged without the pedal-piece and as the drum will not turn with the staff it will be seen that unauthorized tampering with the apparatus is effectually prevented.

The apparatus is preferably inclosed in a casing for the purpose of excluding dirt, a suitable opening being provided for the passage of the chain. My improvements may be readily applied to the brake-staves now in use without making any material changes or alterations in the arrangement of said staves.

It will be obvious that various changes may be made in the details of the apparatus without departing from the spirit of my invention.

Having described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a car-brake, the combination with a staff and a winding-drum journaled upon the staff and movable lengthwise thereof, said staff and drum having parts adapted to interlock, of a spring supporting said drum and normally holding said locking parts in engagement with each other, ratchet-teeth upon said drum, a ratchet engaging said teeth, a link connecting said drum with the ratchet, and a pedal-rod connected to said ratchet.

2. In a car-brake, the combination with a

staff and a winding-drum journaled upon the staff and movable lengthwise thereof, said staff and drum having parts adapted to interlock to prevent relative rotary movement, of a spring supporting said drum and normally holding said locking parts in engagement, a ratchet-wheel and ratchet adapted to prevent the backward rotation of said drum and shaft, one or more links connecting the ratchet with the drum, and a pedal connected with the ratchet whereby when said pedal is depressed, the ratchet and locking parts are successively released, substantially as described.

3. In a car-brake the combination with a staff and a winding-drum journaled upon and movable lengthwise of the staff, said staff and drum having parts adapted to interlock to prevent relative rotary movement, of a spring supporting said drum and normally holding said locking parts in engagement, a ratchet-wheel and ratchet adapted to prevent the backward rotation of said drum and shaft, a collar loosely mounted upon said drum, and having depending links connected to said ratchet and a pedal connected with the ratchet whereby when the pedal is depressed the ratchet and locking parts are successively released, substantially as described.

4. In a car-brake the combination of a staff, a winding-drum journaled on the staff and movable lengthwise thereof, said staff and drum having parts adapted to interlock, a spring normally supporting the drum and holding it in its locked position, ratchet-teeth on the lower end of said drum, a ratchet-lever having a ratchet adapted to engage said teeth, a spring normally holding said ratchet in engagement with said teeth, and a pedal-rod connected to said lever, substantially as described.

5. In a car-brake the combination with a staff and a winding-drum journaled upon the staff, said drum and staff having parts adapted to interlock, of a pedal-rod adapted when depressed to disengage said locking parts, a catch for holding said rod in the depressed position, and a removable pedal on said rod, substantially as described.

6. In a car-brake the combination with a staff and a winding-drum journaled upon the staff, said drum and staff having parts adapted to interlock, a ratchet-wheel and ratchet arranged to prevent backward movement of the drum and staff, a pedal-rod and connections between the rod and said ratchet and drum, whereby when the rod is depressed the ratchet will be released from the drum and the latter will be unlocked from the shaft, a catch for holding the rod in the depressed position, and a removable pedal on said rod, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES A. NORTON.

Witnesses:

M. STOLZ,

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