

(No Model.)

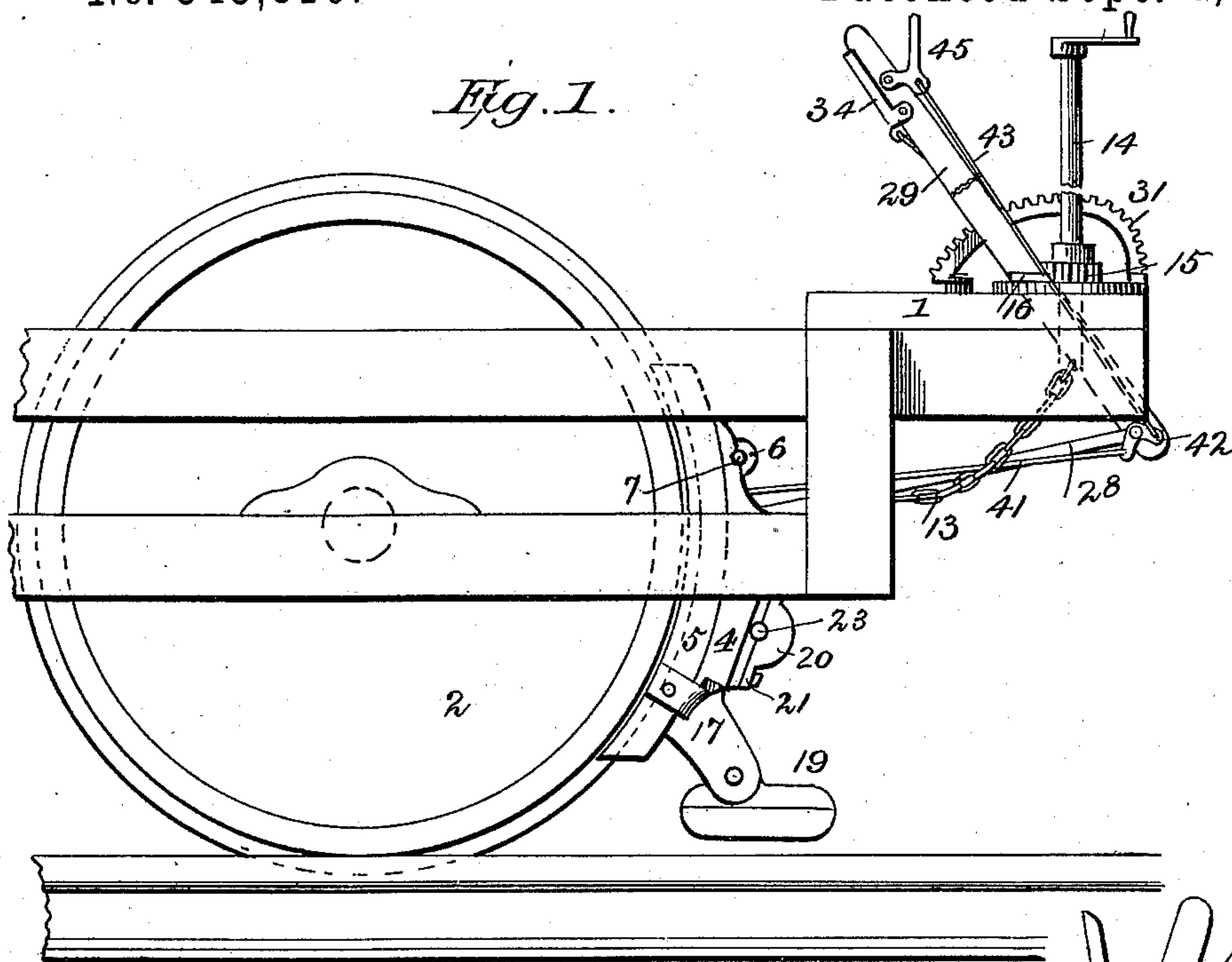
2 Sheets—Sheet 1.

F. P. MUSSER.  
CAR BRAKE.

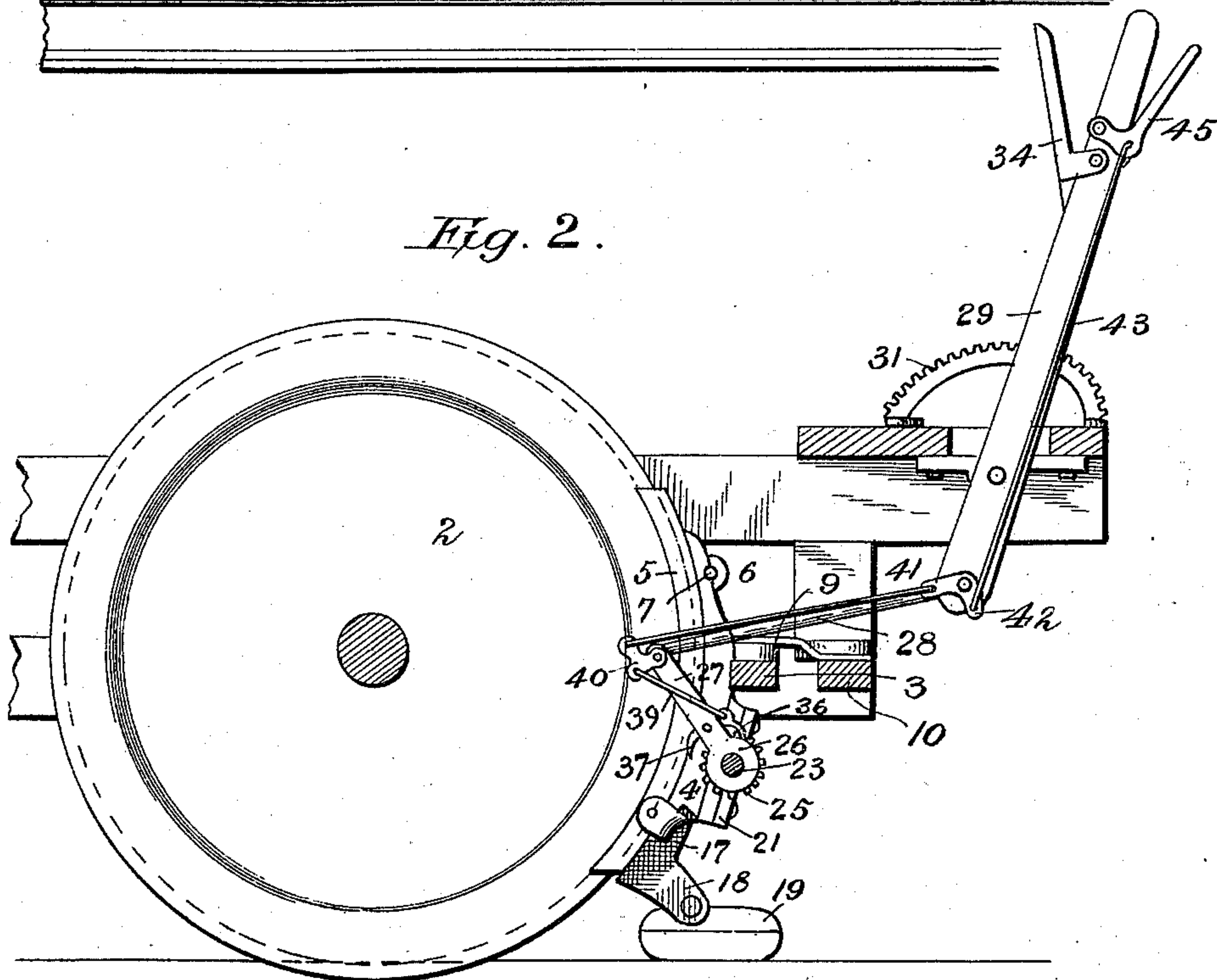
No. 545,810.

Patented Sept. 3, 1895.

*Fig. 1.*



*Fig. 2.*



**WITNESSES:**

H. L. Omand.  
J. L. Coombs.

*INVENTOR:*

Frank P. Musser,  
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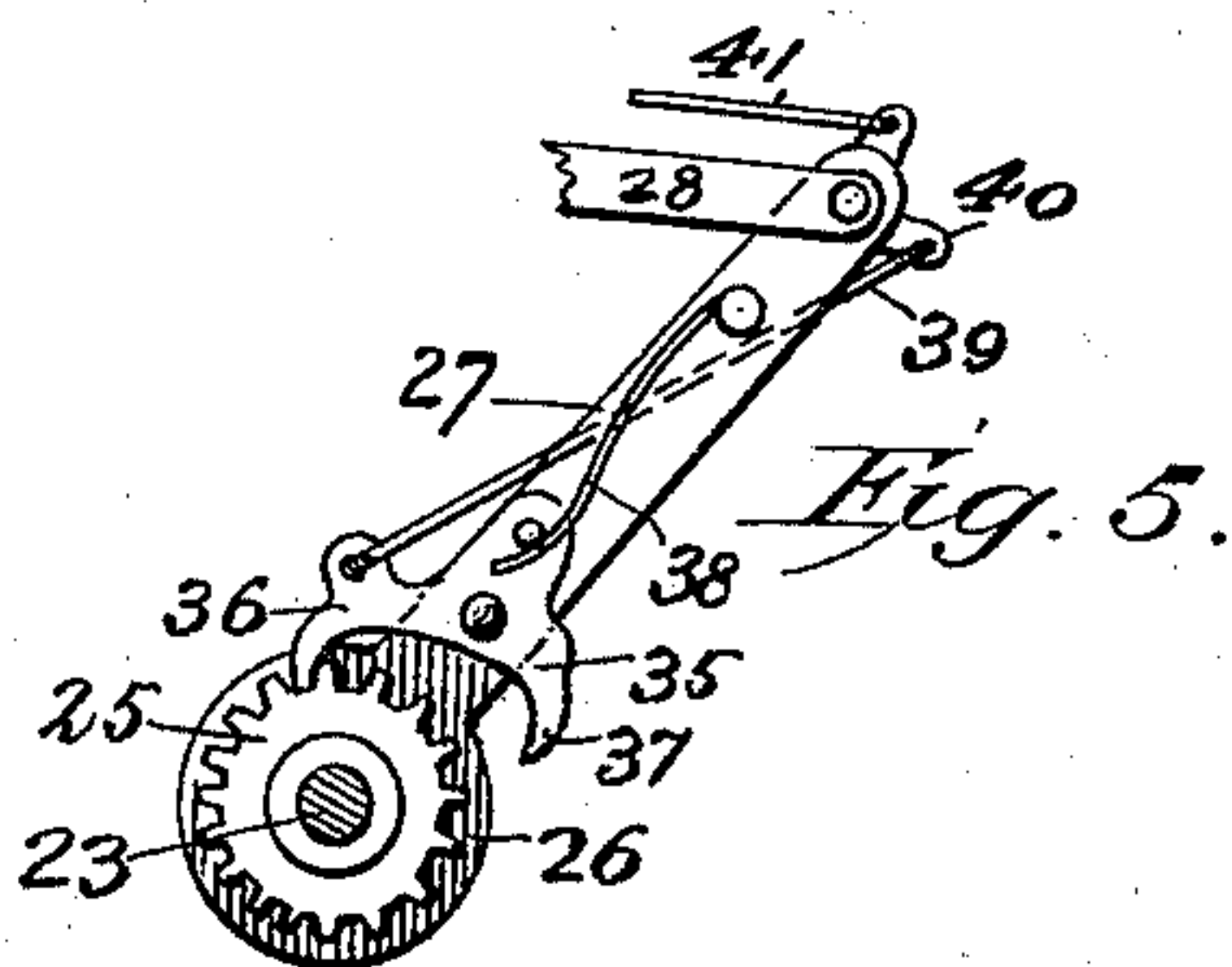
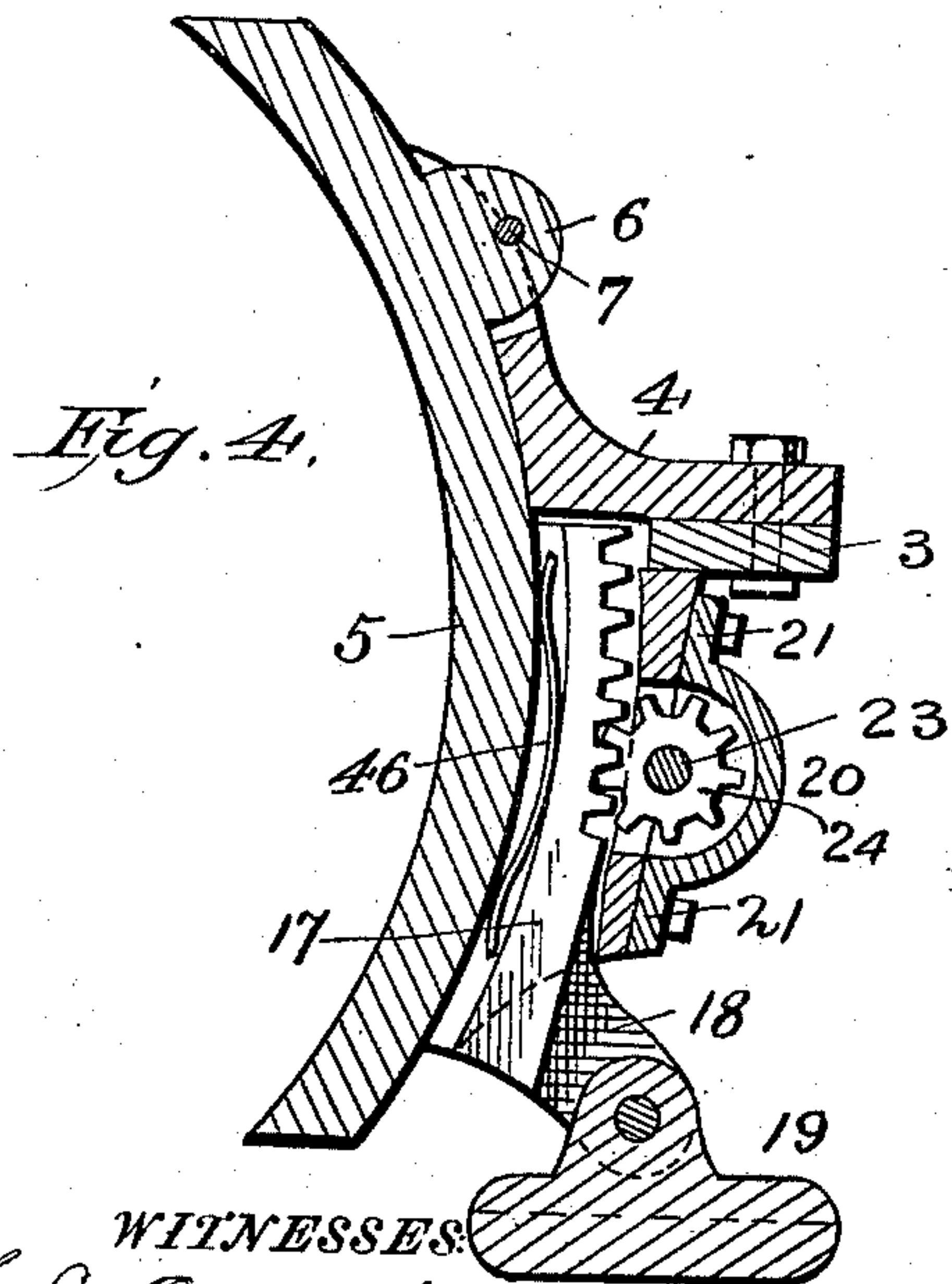
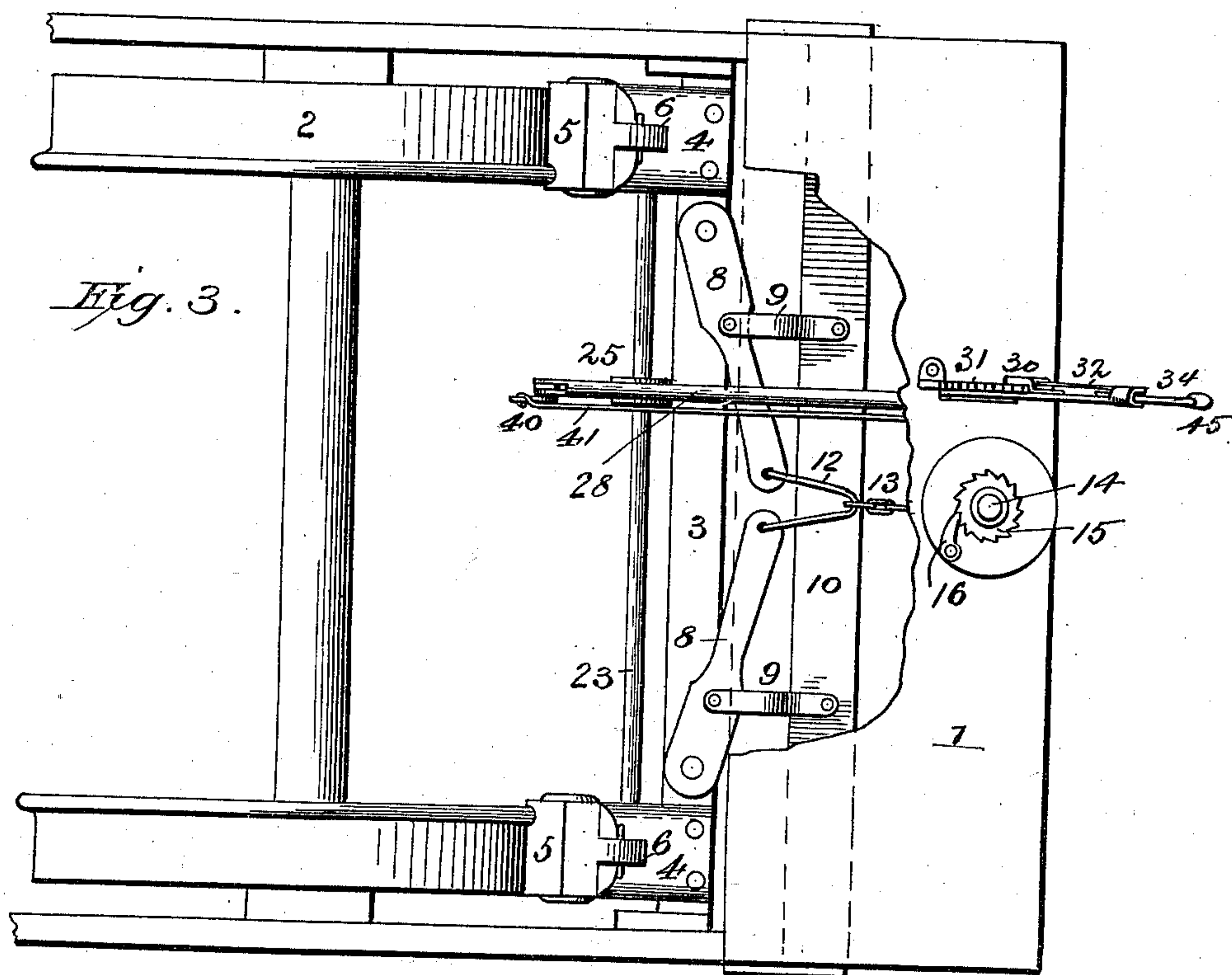
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WITNESSES:  
*H. L. Curand*  
*W. L. Leombs*

INVENTOR:  
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# UNITED STATES PATENT OFFICE.

FRANK P. MUSSER, OF BEAVER FALLS, PENNSYLVANIA.

## CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 545,810, dated September 3, 1895.

Application filed April 22, 1895. Serial No. 546,728. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK P. MUSSER, a citizen of the United States, and a resident of Beaver Falls, in the county of Beaver and State of Pennsylvania, have invented certain new and useful Improvements in Car-Brakes; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to car-brakes in which there is employed, in combination with an ordinary wheel-brake, a supplemental or emergency brake, which may be used independently of said wheel-brake or in connection with the same, which supplemental brake in case of an emergency can be thrown into engagement with the rail and by frictional contact therebetween suddenly stop the car.

The present invention is intended as an improvement upon the invention disclosed in Letters Patent granted to me May 8, 1894, No. 519,587; and it consists in the novel construction and combination of parts hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 is a side elevation of a portion of a car with my improvements applied thereto, the brakes being released or not in use. Fig. 2 is a longitudinal sectional view, the brakes being set. Fig. 3 is a plan view. Fig. 4 is a longitudinal sectional view of the brake. Fig. 5 is a detail elevation of the ratchet-pinion and means for operating the same, looking from the opposite side of Fig. 2.

In the said drawings, the reference-numeral 1 designates the platform of a railway-car, which may be of any ordinary construction, and 2 the wheels thereof.

The numeral 3 designates a transverse brake-bar, provided at each end with a clog or segment 4, having a segmental brake-shoe 5 secured thereto by lugs 6, which pass through slots in the upper ends of the clogs or segments, and pins 7 passing transversely through said lugs. Pivoted to said brake-bar near each end is an inwardly-extending lever 8, pivoted intermediate its ends to an arm 9,

which forms the fulcrum thereof, secured to a transverse bar 10, the latter being secured to the car-platform. The inner ends of these levers are connected with a link 12, secured to a chain 13, which is also secured to a rotatable rod 14, journaled to the car-platform and provided with a ratchet-wheel 15 and dog 16 to prevent backward movement thereof. The clog or segment at its rear side is formed with a rectangular recess to receive an upwardly and downwardly movable curved rack-bar 17, provided at its lower end with forwardly-inclined lugs 18, to which is pivoted the supplemental or rail-brake shoe 19. The recess in the clog or segment is closed by a half-round box 20, provided with lugs 21 having apertures therein for the passage of retaining-blocks. The inner sides of said cap and the outer sides of the clog or segment are formed with registering semicircular recesses, which form bearings for a transverse shaft 23, provided at each end with a pinion 24, seated in said boxes and meshing with the rack-bars. Secured to this rod at or about the center is a pinion 25, and journaled on the hub of this pinion is the circular head 26 of a lever 27. The upper end of this lever is connected by means of a rod 28 with a vertical lever 29, pivoted to the car-platform and provided with a detent 30, which engages with a toothed segment-bar 31. This detent is connected by a rod 32 with a pivoted handle 34, by which it may be thrown into and out of engagement with the segment. Pivoted to the lower end of lever 27 is a double or reversible pawl 35, having two teeth 36 and 37 and provided with a spring 38. Connected with this pawl is a rod 39, which in turn is connected with a bell-crank lever 40, pivoted to the upper end of the lever. The other arm of this bell-crank is connected by a rod 41 with a bell-crank lever 42, pivoted to the lower end of lever 29, which is connected by means of a vertical rod 43 to a handle 45, pivoted to the upper end of the said lever.

The numeral 46 designates a friction-spring seated in the recess in the clog and bearing against the inner side of the rack-arm 17, for a purpose hereinafter explained.

The operation is as follows: Under ordinary circumstances the wheel-brake alone is used,



which is set by rotating rod 14, whereby the levers 8 are actuated to move the brake-bar and throw the brake-shoes into contact with the wheels. In case of an emergency, when it is desired to stop the car very suddenly, in addition to the wheel-brakes, the supplemental brakes are also set by drawing back the lever 29, which will actuate lever 27, and the tooth 36 thereof, engaging with the pinion 25, will rotate the shaft 23, which, through the medium of the pinions on the ends engaging with the rack-bars, will force the latter down, so that the shoe on the lower ends thereof will come into frictional contact with the rails. If one stroke of the lever 29 does not produce sufficient pressure of the shoes upon the rails, the pawls on the lever 27 are thrown out of engagement with the teeth of the pinion 25 by means of the handle 45 and connections and the lever 29 moved forward or returned to normal position. The pawl 36 is then again engaged with the pinion by releasing the handle and the lever 29 again operated. To raise the supplemental brakes the tooth 36 is disengaged from the pinion and tooth 37 engaged therewith, so that as the lever 29 is operated the shaft 23 is rotated in an opposite direction and the rack-arms carrying the rail or supplemental brake-shoes elevated. In case one stroke of the lever is not sufficient to raise the rack or brake arms to proper position the tooth 37 may be disengaged from the pinion by means of the handle 45 and the lever moved backward and the handle released to enable the tooth to take a new hold. The friction-spring will prevent the rack or brake arms from falling down while this movement is taking place. In normal condition this tooth 36 is in engagement with the pinion, so that the emergency-brake is always ready for use. By the inclination given to the lugs to which the rail-shoes are pivoted, with respect to the wheel-brake shoes when said rail-shoes are forced down on the rails, these and the wheel-brake shoes will be wedged between the rails and wheels, thereby producing great frictional contact, so that a car can be almost immediately stopped.

Having thus fully described my invention, what I claim is—

1. In a brake mechanism, the combination with the brake bar, the clog or segment, the wheel brake shoe and mechanism for throwing the same into and out of contact with a car wheel, of the upwardly and downwardly movable brake arm having a pivoted brake shoe at its lower end and means for actuating the same independently of the wheel brake, substantially as described.

2. In a brake mechanism the combination with the brake-bar and the clog or segment recessed at the outer side, of the brake arms provided with rack teeth, the shoe pivoted to the lower end thereof, the transverse shaft provided with a pinion meshing with said rack arms and means for rotating said shaft; substantially as described.

3. In a brake mechanism, the combination with the brake-bar and the clog or segment having a recess in the outer side of the rack arm the shoe pivoted to the lower end thereof, the friction spring, the transverse shaft, the pinions at the ends thereof, the central rack pinion the lever journaled on said shaft and connected with a vertical operating lever, the double or reversible spring-actuated pawl, the bell-cranks, the pivoted handle and connections; substantially as described.

4. In a brake mechanism, the combination with the brake-bar, the clog or segment, the brake shoe connected therewith, the inwardly extending lever secured to said bar, the arm to which said lever is fulcrumed and the rotatable rod connected therewith, of the upwardly and downwardly movable brake arms, the shoes pivoted to the lower ends thereof, and means for actuating said arms; substantially as described.

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

FRANK P. MUSSER.

Witnesses:

G. WARD,

R. J. BEATTY.