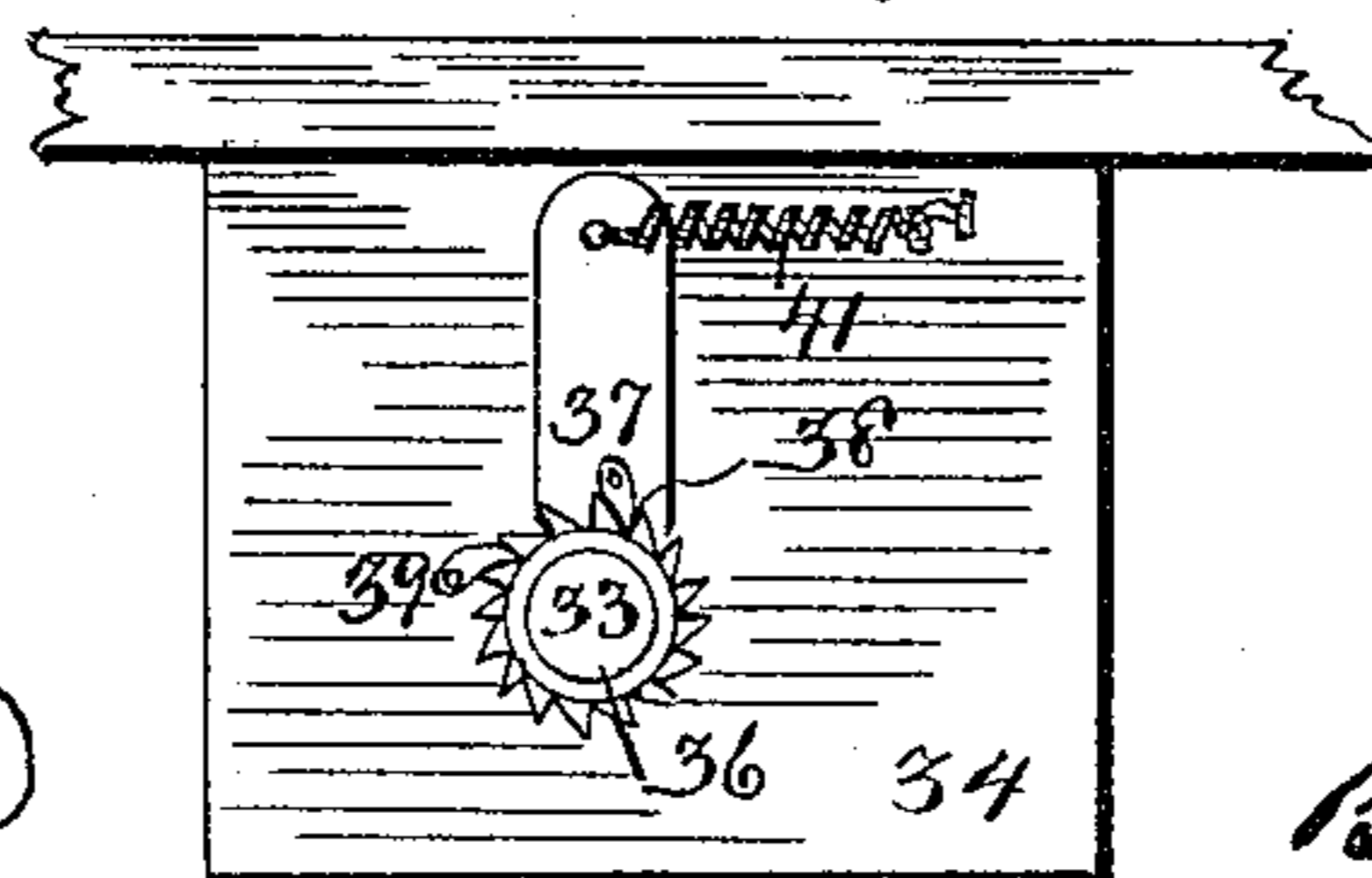
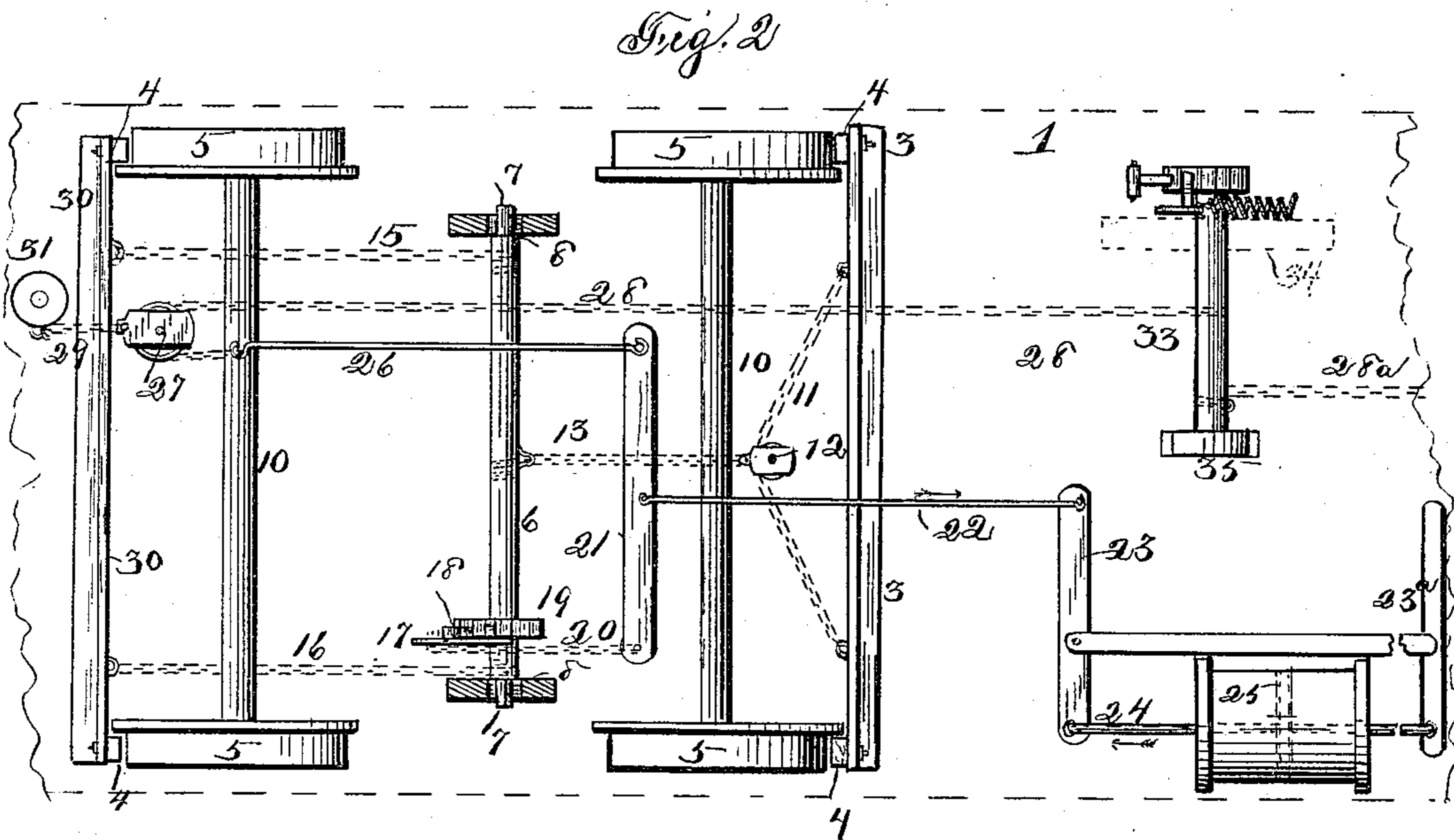
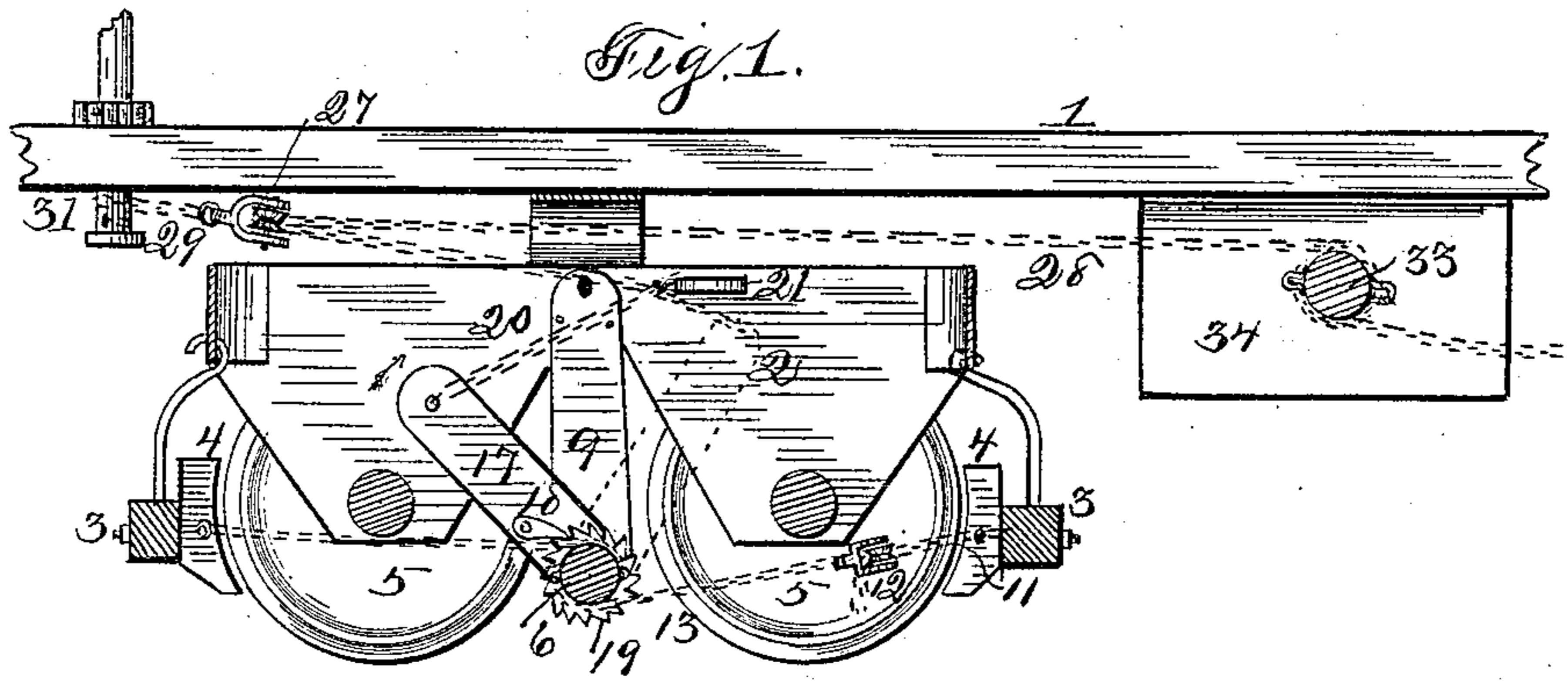


(No Model.)

P. F. WHITE.
RAILWAY CAR BRAKE.

No. 451,095.

Patented Apr. 28, 1891.



WITNESSES
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Fig. 3.

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PATRICK F. WHITE, OF WESTERN PORT, MARYLAND.

RAILWAY-CAR BRAKE.

SPECIFICATION forming part of Letters Patent No. 451,095, dated April 28, 1891.

Application filed January 8, 1891. Serial No. 377,183. (No model.)

To all whom it may concern:

Be it known that I, PATRICK F. WHITE, residing at Western Port, in the county of Alleghany and State of Maryland, have invented certain new and useful Improvements in Railway-Car Brakes, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to brakes for railway-cars, and while adapted for all cars is specially useful with cars which use air or other power brakes.

The object of the invention is to produce a car-brake in which the slack of the chain or operating-connections will be taken up automatically; also, to produce a brake in which the difference in thickness of brake-shoes may be equalized, so that the pressure will be uniform whether the shoes be of a like thickness or not; also, to improve car-brakes in various particulars, as hereinafter stated.

Figure 1 is a longitudinal section of a car-truck, showing part of a car-body and brake-connections, unessential parts being omitted.

Fig. 2 is a bottom plan of part of a car-body, (indicated in dotted lines,) showing diagrammatically the truck-wheels, axles, and brake connections, unessential parts being omitted. Fig. 3 is a detail elevation of slack take-up.

Let the part designated by the numeral 1 indicate the bottom portion of a car of any usual construction. A truck 2, also of usual construction, is connected thereto, and is duplicated at the other end of the car. The brake-beams 3 and 30 are suspended so as to swing rather loosely from the truck in any usual way, and the brake-shoes 4 are opposite the wheels 5, being held out of contact by any of the usual appliances. A winding-shaft 6 is suspended about midway of the truck, and is hung in loose bearings. The bearing 7 may rest in slotted boxes 8, as in Fig. 2, or the shaft may be hung in boxes at the end of pendulous levers or bearers 9, these bearers being free to swing slightly, so that the shaft 6 may adjust itself slightly out of parallelism with the axles 10 of the truck. A chain 11 is connected to one of the brake-beams, near each end thereof, and the bight of the chain passes through a pulley 12. A chain 13 is connected to the pulley, and its other end winds about the middle of the shaft

6, to which it is firmly secured. Two chains 15 and 16 are connected to the other brake-beam 30, and are wound about shaft 6 in reverse direction from chain 13 and near the ends of said shaft. A lever 17 is journaled on the shaft 6, and a pawl 18, carried by said lever, engages ratchet 19, which is firmly attached to the shaft. By drawing the free end of lever 18 in the direction of the arrow, Fig. 1, shaft 6 will be rotated by means of the rack and pawl, and chains 13 15 16 will be wound on shaft 6. The pull on chain 13 causes the brake-beam 3 to apply the shoes 4 with about equal force to the wheels, as the pulley 12 will find the proper position on chain 11 to equalize the pull at both ends of beam 3. At the same time the shaft 6 will assume such a position as to equalize the pull on chains 15 and 16.

As it is frequently desirable to replace a worn brake-shoe on a truck with a new one while the others are but partially worn, this automatic arrangement of the winding apparatus to equalize the pressure is a great advantage. Ordinarily the pawl 18 will lie in the same tooth in ratchet 19; but if desirable to take up slack the pawl may be adjusted by hand to engage a different tooth of the ratchet. The lever 17 is shown as being connected by means of chain 20 to the brake-bar 21, which bar is connected by rod 22 with the lever 23, said lever 23 being operated by piston-rod 24 from air-cylinder 25, as usual. It will be understood that any other suitable or usual connection may be made from lever 17 to the power-cylinder or other mechanism for operating the brake. A lever 17' is shown in dotted lines, Fig. 1, connecting the shaft 6 directly to the hand-brake chain. The other end of brake-bar 21 is connected by chain or rod and chain 26 round pulley 27, and so by chain 28 to the automatic slack-tightener hereinafter described. A chain 29 connects pulley 27 to the hand-brake shaft 31. Thus a pull on rod 22 or on chain 29 will swing the brake-bar 21, swing lever 16 by the chain connection, and so wind up chains 13, 15, and 16 on shaft 6 and apply the brakes with a substantially equal pressure on all the wheels.

The position of the hand and power brake apparatus may be as is most convenient. The illustration only shows one form in which

the device may be used. The lever 23 is duplicated at 23^a, and all the connections are duplicated to the other wheel-truck. As many intermediate levers may be used as desirable, 5 as is usual in brake construction. The chain 28 leads to shaft or drum 33, and is secured thereto so as to wind upon said shaft or drum. The corresponding chain 28^a from the other truck winds in reverse direction on shaft 33. 10 Shaft 33 is supported in suitable bearing-pieces 34 and 35, connected to the car-body. The shaft has a ratchet-wheel 36, rigidly attached, and a lever 37 journals on the shaft alongside the ratchet. A pawl 38, carried by said 15 lever, engages the ratchet, and a second pawl 39, hung on the bearing-piece 34, also engages the ratchet to prevent retrograde movement thereof. A spring 41, attached to lever 37 and to some fixed part of the car, tends to 20 pull said lever and thus turn the ratchet-wheel 36 and wind up the chain 28 28^a on shaft 33. The locking-pawl 39 prevents a retrograde movement of the shaft 33. The backward pull on chain 28 when brakes are applied 25 does not come against the spring 41, but against the locking-pawl 39. When the brakes are off, there is little resistance, and the spring 41 will be able to gather in the slack by winding the chains on shaft 33. Of course the lo- 30 cation of spring 41 is not material. The same result might be reached by a coil-spring connected to shaft 33 in other manner, so as to turn said shaft. The drum or shaft 33 is substantially a fulcrum or abutment, and the 35 power applied to the brakes operates from this point as a center of leverage. The spring 41 is merely strong enough to take up the slack of the chains, and is not strong enough to overcome the usual springs or other de- 40 vices used to keep the brakes out of action.

What I claim is—

1. The combination, with the yielding brake-beam having a shoe at each end, of a chain 45 attached near each end of the beam, a pulley through which said chain passes, and a chain connected to said pulley and to a winding-shaft, whereby the pressure on the brake-shoes is equalized when the chain is wound on the winding-shaft, substantially as de- 50 scribed.

2. The combination, with the two brake-

beams loosely supported on a truck and shoes near the ends thereof, of a winding-shaft supported in yielding bearings between the brake-beams, and connecting-chains from 55 near the ends of one beam and from the middle of the other to said winding-shaft, whereby the shaft will conform to the position of one of the bars and pressure on all the shoes be substantially equal when the shaft is 60 turned, substantially as described.

3. The combination, with the winding-shaft and its chain connections to brake-beams at opposite sides thereof, of a lever journaled on the shaft and carrying a pawl, a ratchet-wheel 65 secured to the shaft, with which said pawl engages, and means for operating said lever, whereby the position of the lever may be changed when it is desirable to take up slack in the chains, all substantially as described. 70

4. The combination, with the brake apparatus, of a chain connection from the operating shaft or lever, a winding-drum to which one end of the chain is attached, a spring 75 tending to rotate said shaft to take up the slack of said chain, and a ratchet connected to said drum, and a pawl engaging the same to prevent the unwinding of the slack when taken up.

5. The power-brake connections, a chain 80 connected to the operating-chain thereof and round a pulley to a winding-drum, and a spring operating said drum to take up the slack of the chain, a ratchet on the drum, and a pawl for locking the same, all combined 85 and relatively arranged substantially as described.

6. The combination, with the brake-operating connections of the two trucks of a car, of a chain connected to each, and an inter- 90 mediate drum to which the chains are attached, said drum serving as a fulcrum or abutment against which strain is applied, and means for winding said drum to take up the slack of both chains, substantially as de- 95 scribed.

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

PATRICK F. WHITE.

Witnesses:

JAMES H. BELL,
O. S. JAMESON.