

No. 775,720.

PATENTED NOV. 22, 1904.

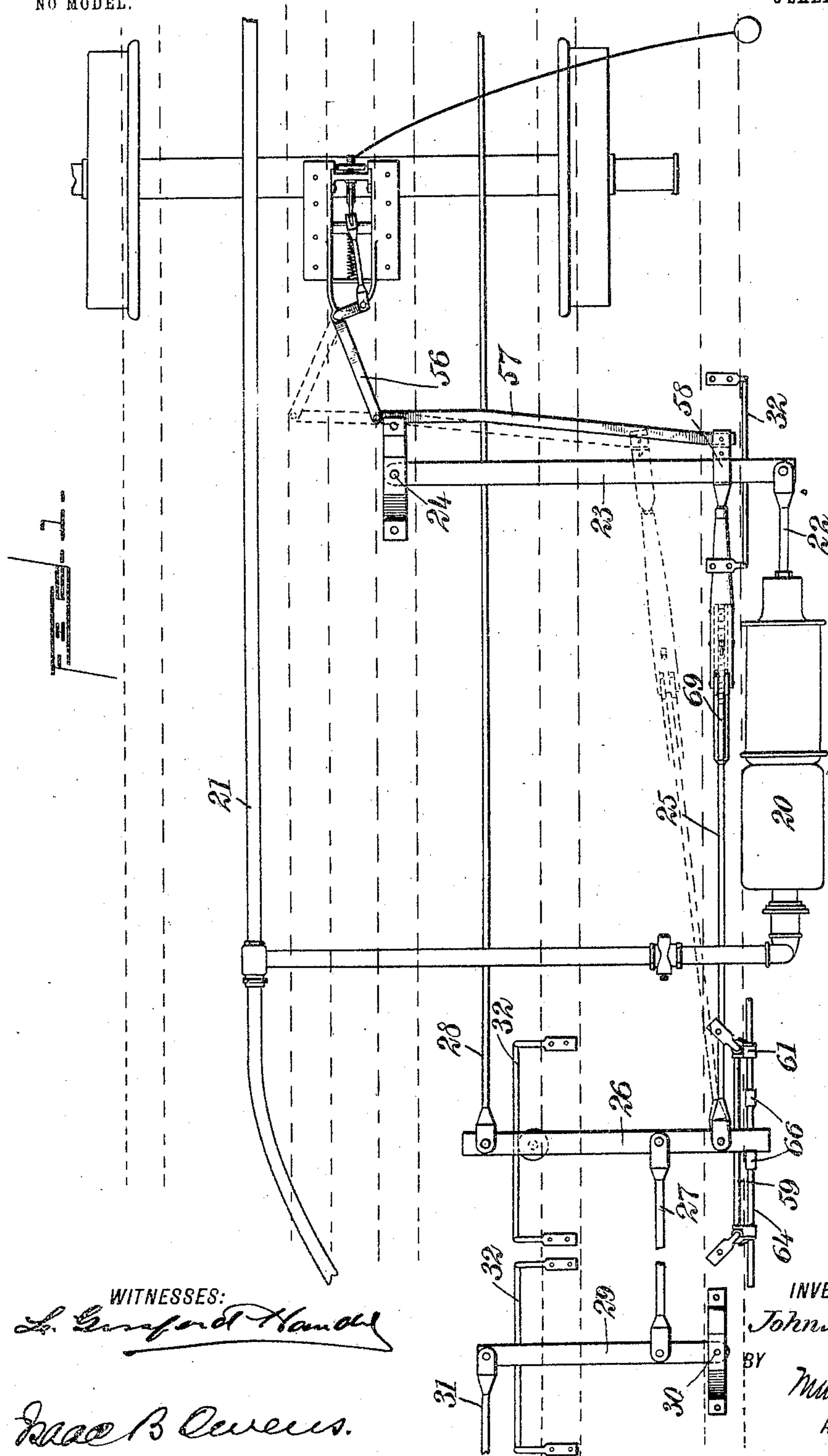
J. M. DAVIES, JR.

BRAKE RIGGING.

APPLICATION FILED APR. 22, 1904.

NO MODEL.

3 SHEETS—SHEET 1.



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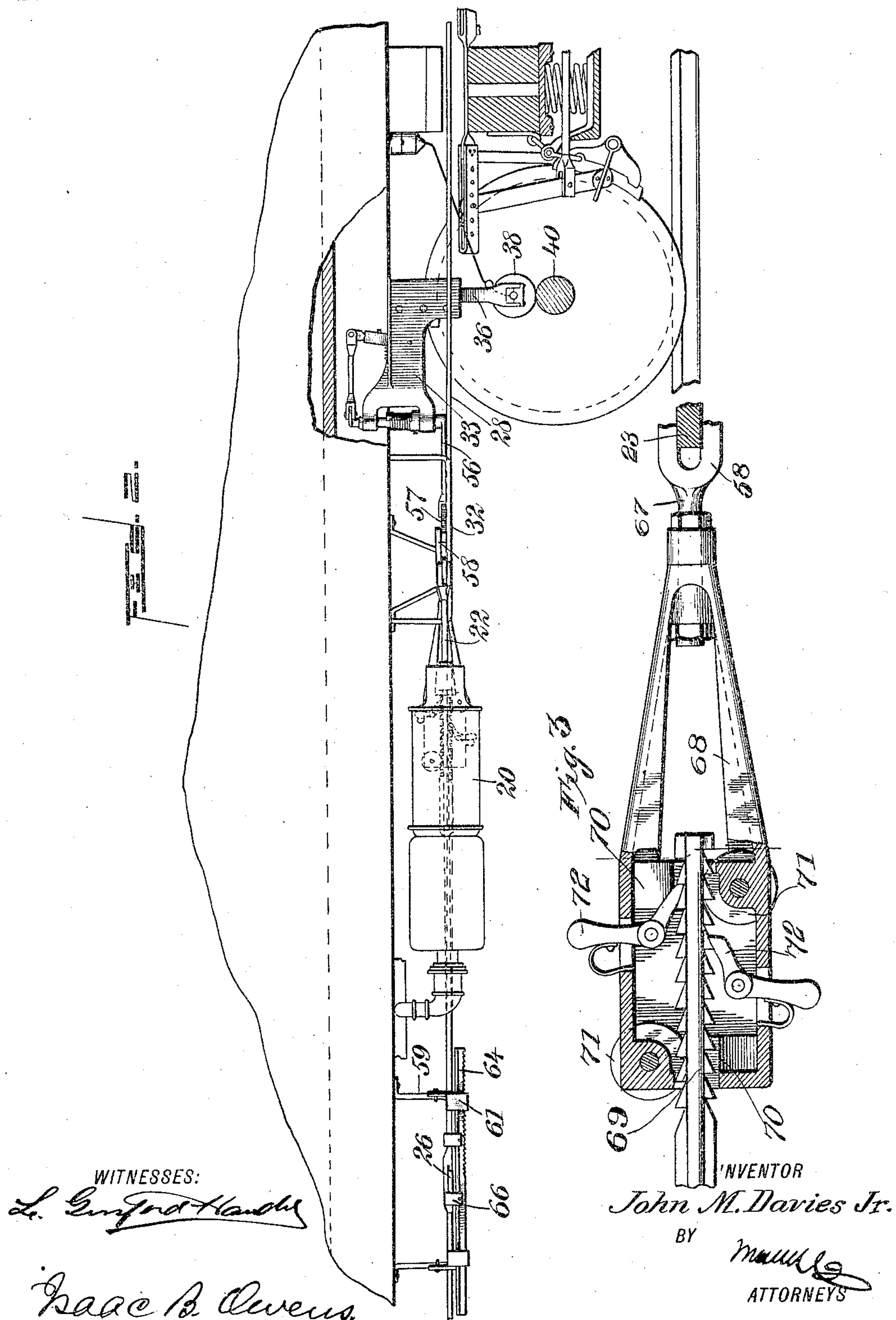
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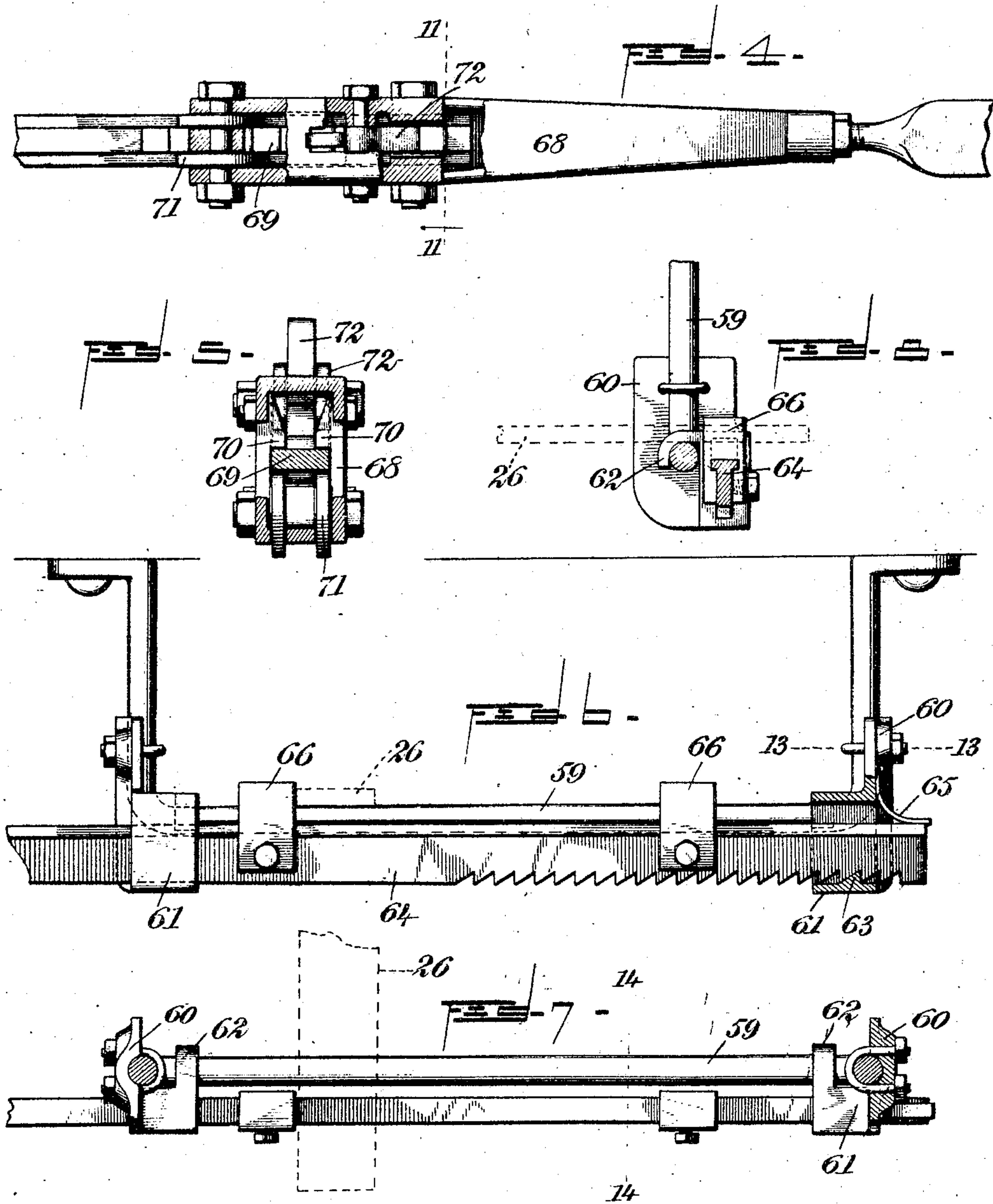
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3 SHEETS—SHEET 3.



WITNESSES:

L. Sanford Hand

Wm. B. Owens

INVENTOR

John M. Davies Jr.

BY

Mumford
ATTORNEYS

UNITED STATES PATENT OFFICE.

JOHN M. DAVIES, JR., OF PLATTSBURG, NEW YORK.

BRAKE-RIGGING.

SPECIFICATION forming part of Letters Patent No. 775,720, dated November 22, 1904.

Application filed April 22, 1904. Serial No. 204,397. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. DAVIES, JR., a citizen of the United States, and a resident of Plattsburg, in the county of Clinton and State of New York, have invented a new and Improved Brake-Rigging, of which the following is a full, clear, and exact description.

The invention relates particularly to the brake-rigging of freight-cars, although it is useful in other connections.

The leading object of the invention is to provide devices for automatically taking up the slack in the rigging occasioned by the wear of the brake-shoes and other parts of the mechanism.

These objects I attain according to the embodiment of the invention here illustrated by a connection which contracts automatically, taking up the slack as it occurs and coacting with a brake-lever restrainer which is automatically shifted as the brake-rigging becomes slackened and which limits or restrains the movement of the brake-rigging within the proper throw.

The invention resides in certain features of structure and organization which will be hereinafter fully set forth.

Reference is to be had to the accompanying drawings, which illustrate as an example one manner of practically embodying my invention, in which drawings like characters of reference indicate similar parts, and in which—

Figure 1 is a diagrammatic view showing my invention in operative adjustment. Fig. 2 is a side elevation of the same. Fig. 3 is a plan view, with parts in section, showing the device for taking up the slack in the brake-rigging. Fig. 4 is a side view of the same device, also with parts in section. Fig. 5 is a cross-section on the line 11 11 of Fig. 4. Fig. 6 is a side elevation, with parts in section, of the self-adjusting restrainer for the brake-rigging. Fig. 7 is a plan view thereof, with parts in section, on the line 13 13 of Fig. 6; and Fig. 8 is a cross-section on the line 14 14 of Fig. 7.

Referring particularly to Fig. 1, 20 indicates the auxiliary reservoir and brake-cylinder, and 21 the train-line of the usual or any known fluid-pressure air-brake system. This

view also shows the brake-cylinder piston-rod 22 connected with a brake-lever 23, which is fulcrumed at the point 24 and has a connection (referred to collectively as 25) with the brake-lever 26, said lever being also joined to rods 27 and 28. The former is connected with the brake-lever 29, which lever is fulcrumed at 30 and has connection by a rod 31 with the brake-beams at one end of the car. The rod 28 passes to a similar connection with the brake-beams at the other end or truck of the car. 32 represents the usual brackets for guiding the brake-levers. All of the above-referred-to parts excepting the connection 25 are well known in the art and are described merely to illustrate the organization of my invention.

The automatic brake-lever restrainer is here shown as applied to the lever 26, although it may be applied to other parts of the brake-rigging with the same result. This device is best shown in Figs. 1, 6, 7, and 8, and comprises an essentially U-shaped bracket 59, fastened to the under side of the car-body. Secured to the ends of the bracket 59 at a point directly adjacent to the horizontal lower portion of said bracket are clips 60, which include guides 61 and fingers 62, the guides lying alongside of the bracket and the fingers impressing the bracket to increase the security of the connection between the clips and bracket. Of the said guides 61 one is provided interiorly with a tooth 63, (see Fig. 6,) and said guides carry a longitudinally-reciprocal ratchet-bar 64, the teeth whereof coact with the tooth 63 of the said guide 61. The ratchet-bar 64 is pressed down firmly yet yieldingly on the tooth 63 by means of a spring 65, which is preferably attached to one of the clips 60 and bears on the upper part of the ratchet-bar. Attached to the ratchet-bar to project upward therefrom are lugs 66, which extend above the plane of the lower portion of the bracket 59 and between which the said brake-lever 26 is adapted to bear, as is indicated by the broken lines in Figs. 6 and 7, said brake-lever resting on the bracket 59 and being movable freely between the lugs 66. Referring particularly to Fig. 6, it will be seen that the leftward movement of the brake-

lever 26 beyond the position shown in Fig. 6 is prevented by the engagement between the ratchet-bar 64 and the tooth 63. Said lever may move freely rightward independently of the ratchet-bar until the right-hand lug 66 is engaged, and then the ratchet-bar will be moved with the lever, causing said bar to assume a new position with respect to the tooth 63. When, therefore, the brakes are applied and the slackened rigging drawn taut by the action of the brake-cylinder piston, the lever 26 will move rightward, (referring to Fig. 6,) and if there is sufficient slack in the rigging the right-hand projection or lug 66 will be struck and the ratchet-bar 64 will be moved relatively to the tooth 63 and caused to assume a new position. Then upon releasing the brake the brake-lever 26 will be free to return; but its return movement will be limited to the brake-lever restrainer upon the engagement of said lever with the left-hand stud 66. This restraining device therefore allows a releasing movement of the brake-rigging sufficiently to bring about the proper clearance between the brake-shoes and the treads of the wheels, and it automatically advances the position of the restraining part in strict conformity with the increase of the slack of the rigging.

The before-referred-to connection 25 includes the take-up device, which gathers up the slack in the rigging and operates in co-action with the restraining device. This take-up is best shown in Figs. 1, 3, 4, and 5. The loop 58, which runs on the brake-lever 23, is attached, preferably, by a swivel 67 to a suitable frame 68, having therein a longitudinally-disposed passage receiving a double ratchet-bar 69, constituting a continuation of the rod indicated at 25 in Fig. 1. Said frame 68 is provided with guide-lugs 70, interiorly located and holding the double ratchet-bar 69 against lateral movement independently of the frame. Said frame also carries antifriction-wheels 71, which engage opposite sides of the ratchet-bar 69, so as to decrease the friction incident to the movement of said bar. Coacting with the bar are spring-pressed pawls 72, which are pivotally mounted in the frame 68, as shown. This device allows a contracting movement of the frame 68 and connection-rod 25, and as this movement takes place the parts are automatically connected by the pawl-and-ratchet devices, so as to prevent a return, and in this manner the slack in the brake-rigging is taken up. When the brakes are applied, the ratchet-bar 64 will if there is slack in the rigging be advanced on the tooth 63, and when the brakes are released the brake-lever 26 will return toward the left-hand stud 66. (See Fig. 6.) This stud will restrain the releasing movement of the brake-lever at the proper point, and at this time relative movement of the frame 68 and ratchet-bar 69 will begin, the pawl 72 playing idly over the teeth of the

ratchet-bar 69, and when the brake-cylinder piston has returned to its full released position the slack in the rigging will be completely taken up and cannot be lost, owing to the action of the pawls 72 on the double-ratchet bar 69. Preferably the pawls are, however, spaced with respect to the double ratchet-bar, as shown in Fig. 3, so that a fine adjustment, considering the size of the teeth on the ratchet-bar, may be obtained. With this arrangement if there is slack in the rigging the ratchet-bar 64 will be advanced, as before explained, and upon releasing the brakes the releasing movement of the brake-levers will be arrested at the proper point, and the slack in the rigging will be taken up by the action of the parts 68 and 25.

I desire it understood that the foregoing description is of a specific embodiment of the invention and that various departures may be made in the details of the apparatus without departing from the spirit of the invention.

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

1. A restrainer for the purpose specified, comprising a shiftable ratchet-bar adapted to have connection with a part of the brake-rigging, and a stationary toothed member coacting with the ratchet-bar.

2. The combination of a bracket, a toothed member thereon, and a ratchet-bar coacting with the toothed member and having means for engaging it with a part of a brake-rigging.

3. The combination of a bracket, a toothed member thereon, a ratchet-bar held to move on the bracket and coacting with the toothed member, and studs attached to the ratchet-bar and projecting therefrom, for the purpose specified.

4. In a brake-rigging, the combination of a connection adapted to operate the brakes, and including means for automatically taking up slack in the brake-rigging, and a restrainer engaged with a part of the brake-rigging to which the said connection is joined, the restrainer limiting the movement of the said part of the brake-rigging and automatically following the movement thereof due to wear on the parts.

5. In a brake-rigging, the combination of a connection adapted to transmit the braking movement, said connection including a means for automatically taking up the slack, a restrainer engaged by a part of the brake-rigging with which the said connection is joined, the restrainer limiting the movement of said part of the brake-rigging, and means for permitting movement of the restrainer in one direction and restraining movement thereof in the opposite direction.

6. In a brake-rigging, the combination of a connection adapted to transmit the braking movement, said connection including a means for automatically taking up the slack, a restrainer engaged by a part of the brake-rig-

ging with which the said connection is joined, the restrainer limiting the movement of said part of the brake-rigging, and means for permitting movement of the restrainer in one direction and restraining movement thereof in the opposite direction, said means comprising rack-teeth on the said restrainer, and a relatively stationary toothed member with which the rack-teeth coöperate.

10 7. In a brake-rigging, the combination of a connection adapted to transmit the braking movement, a restrainer-bar engaged by a part of the brake-rigging with which said connection is joined, the restrainer-bar having projecting portions between which said part of the brake-rigging is freely movable, and means for permitting movement of the restrainer-bar in one direction and restraining movement thereof in the opposite direction.

20 8. In a brake-rigging, the combination of a connection adapted to transmit the braking movement, a restrainer-bar engaged by a part of the brake-rigging with which said connection is joined, the restrainer-bar having projecting portions between which said part of

the brake-rigging is freely movable, and means for permitting movement of the restrainer-bar in one direction and restraining movement thereof in the opposite direction, said means comprising rack-teeth in the restrainer-bar 30 and a relatively stationary toothed part with which the rack-teeth coact.

9. The combination of a frame having a passage disposed longitudinally thereof, a double-faced ratchet-bar movable in said passage, and 35 dogs pivotally mounted in the frame coacting respectively with the faces of the ratchet-bar, the dogs projecting beyond the frame to facilitate the manual operation thereof, said ratchet-bar having smooth surfaces and guide- 40 rollers mounted in the frame at opposite sides of the ratchet-bar and engaging the said smooth surfaces thereof.

In testimony whereof I have signed my name to this specification in the presence of two sub- 45 scribing witnesses.

JOHN M. DAVIES, JR.

Witnesses:

RALPH L. SIGNOR,
J. L. SIGNOR.