

No. 765,160.

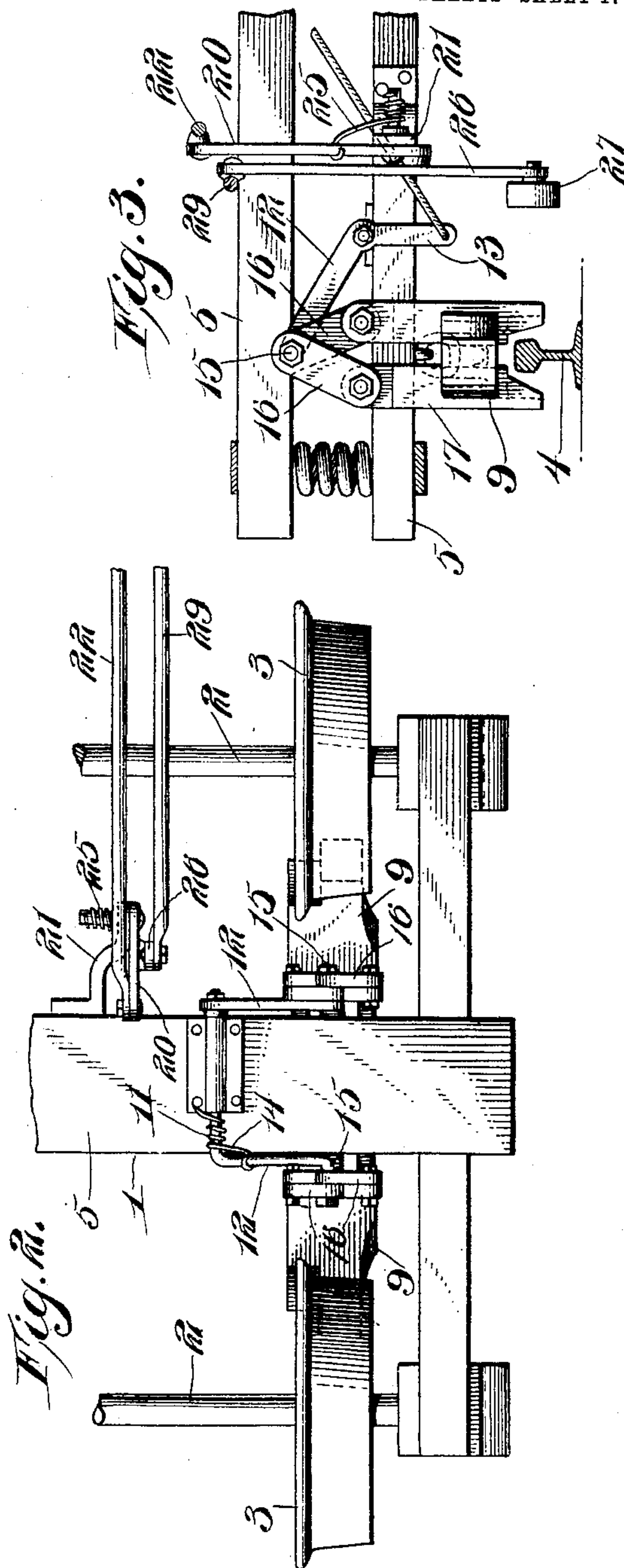
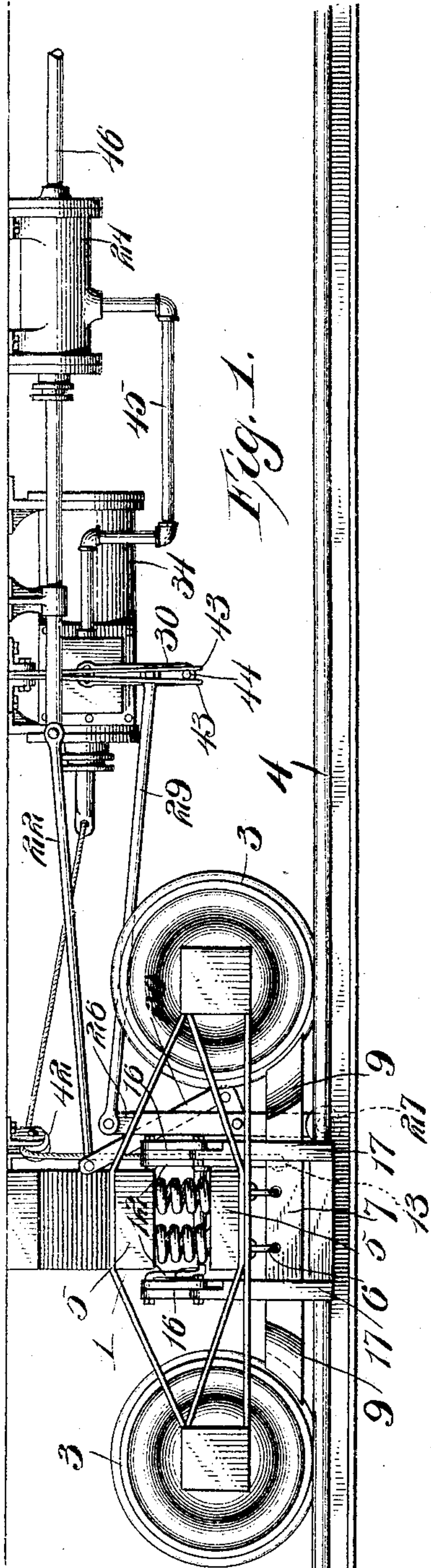
PATENTED JULY 19, 1904.

I. BAKER.
BRAKE OPERATING MECHANISM.

APPLICATION FILED JAN. 14, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses
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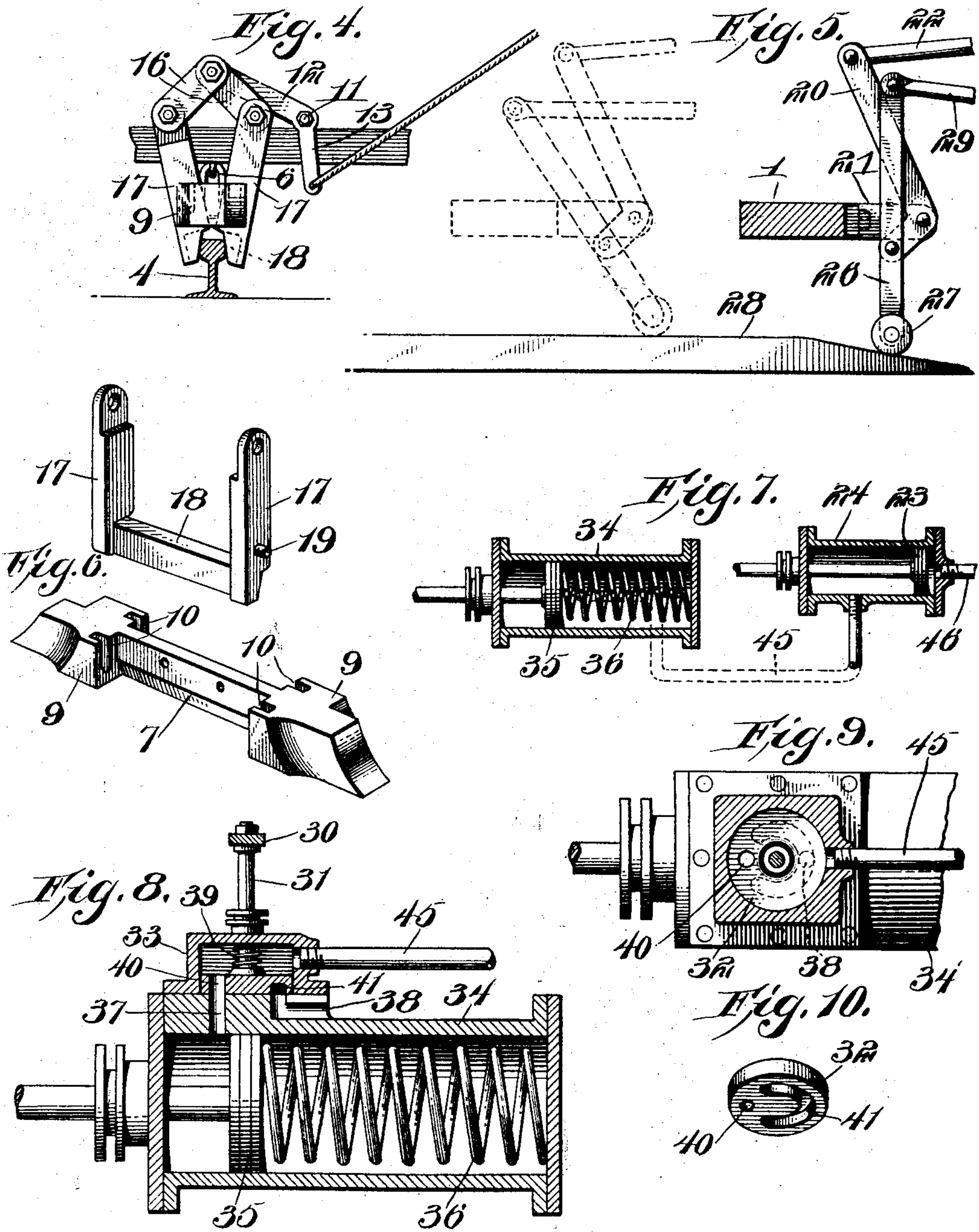
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UNITED STATES PATENT OFFICE.

IRVIN BAKER, OF LATTY, OHIO.

BRAKE-OPERATING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 765,160, dated July 19, 1904.

Application filed January 14, 1904. Serial No. 189,019. (No model.)

To all whom it may concern:

Be it known that I, IRVIN BAKER, a citizen of the United States, residing at Latty, in the county of Paulding and State of Ohio, have
5 invented a new and useful Brake-Operating Mechanism, of which the following is a specification.

My invention relates to car-brakes of the type known as "track-brakes," and has for its
10 objects to produce a comparatively simple inexpensive device of this character in which the track-gripping members will in practice be normally maintained in a position at the sides of the rails for instant action thereon
15 and be automatically elevated to override frogs or other track obstructions at switches or crossings and one in which the track-brakes when brought into action will serve to operate the wheel-brake.

20 To these ends the invention comprises the novel features of construction and combination of parts more fully hereinafter described.

In the accompanying drawings, Figure 1 is a side elevation illustrating my improved device applied for use. Fig. 2 is a detail plan
25 view. Fig. 3 is a detail end elevation, partly in section. Figs. 4, 5, and 6 are detail views. Fig. 7 is a detail sectional elevation illustrating the connection between the two cylinders.
30 Fig. 8 is an enlarged horizontal section longitudinally through the secondary cylinder and adjacent mechanism. Figs. 9 and 10 are detail views of the valve.

Referring to the drawings, 1 designates the
35 truck-bolster, to the end of which is bolted the usual bolster-frame carrying journal-boxes in which are journaled the ends of axles 2 of the transporting-wheels 3, designed to travel upon the main rails 4, the bolster
40 being composed of a pair of bars or members 5, maintained in vertical spaced relation by suitable spacing-blocks. These parts may all be of the usual or any preferred construction or material, inasmuch as they constitute
45 no part of the present invention.

In accordance with my invention I suspend from the bolster 1 by links 6 a brake-beam 7, disposed above and parallel with the rail 4 between the wheels 3, said beam being
50 provided at its ends with brake shoes or heads

9, the outer faces of which are in close relation with and curved to conform to the treads of the wheels, while the inner faces of the heads, which project laterally of the brake-beam, are provided with vertical upwardly-
55 opening grooves or recesses 10.

Pivoted upon the lower member 5 of the bolster is a rock-shaft 11, provided with a pair of normally upwardly and outwardly inclined crank-arms 12 and with a downwardly-extended actuating arm or lever 13,
60 the rock-shaft being maintained in normal position by a torsion spring 14. Each of the crank-arms has a horizontally-extending finger or pintle 15, on which is pivotally mounted a pair of links 16, which are in turn pivotally connected at their lower ends with the vertically-uprising arms 17 of gripping members 18, lying, respectively, on opposite sides
65 of the brake-beam between the heads 9 and having guide members or trunnions 19 working in the guide ways or grooves 10. It may here be said that the inner faces of the gripping members are shaped to conform to the side faces of the rails and that when the shaft
70 5 is rocked in the proper direction against the action of spring 14 the members will through the medium of the links 16 be moved downward and inward for engagement with the sides of the rail to firmly grip the latter
80 between them. As the members grip the rail they will, owing to contact with the laterally-extending heads 9, throw the outer faces of the latter into contact with the treads of the rear wheels, thus obtaining a combined
85 track and wheel engaging action.

20 designates a rocking member or bell-crank pivoted upon an angle-bolt or other support 21, carried by the bolster 1, and connected by a link or analogous element 22 with
90 the rod of a piston 23, movable in a primary cylinder 24, carried beneath the car. The member 20, which is moved to and maintained in normal position by a spring 25, carries a pivoted actuating member or lever 26, provided at its lower end with a rotary antifric-
95 tion-roller 27 and adapted when the member 20 is rocked against the action of the spring, as hereinafter explained, to be moved bodily downward into the path of a supplemental
100

rail or other suitable abutment 28, situated
 between the primary rails 4. The upper end
 of lever 26 is connected by a link or other
 suitable connecting element 29 with a crank-
 5 arm 30, depending vertically from the hori-
 zontal stem 31 of a disk valve 32, disposed for
 rotation in a valve-casing 33, provided upon
 the side of a secondary cylinder 34, in which
 works a piston 35, forced normally outward
 10 by a spring 36, said cylinder being in com-
 munication with the valve-chamber at a point
 in advance of the piston through an opening
 or port 37, while said chamber is adapted for
 communication with the external air through
 15 an exhaust opening or port 38, the valve 32,
 which is pressed to its seat by a spring 39,
 being provided with an opening 40, normally
 in register with the port 37, and upon its in-
 ner face with a concentric groove or channel
 20 41, overriding the exhaust-port 38 and termi-
 nating at its ends adjacent to the openings 40.
 The rod of piston 35 is connected by a cable
 or other flexible element passing around the
 guide-pulley 42 with the lower end of the
 25 actuating arm or lever 13, whereby upon the
 inward stroke of the piston the shaft 11 will
 be rocked for lowering the gripping members
 18 in the manner and for the purpose hereto-
 fore explained.

30 43 indicates a pair of leaf-springs attached
 to and depending vertically from the bottom
 of the car and receiving between them a lat-
 eral finger or extension 44, projecting out-
 ward from the lower end of arm 30 to hold
 35 the valve in normal position, with its opening
 or port 40 in register with the port 37, while
 45 is a pipe or duct through which air or steam,
 which is delivered under pressure through a
 pipe or duct 46 to the primary cylinder, may
 40 pass to the valve-chamber 33 and thence to
 the secondary cylinder for acting upon the
 piston therein.

In practice air or steam under pressure and
 under control of the engineer flows from the
 45 engine or other suitable source through the
 pipe 46 to the primary cylinder, causing an
 outstroke of the piston 23, and thereby, through
 the medium of element 22, rocking the mem-
 ber 20 to lower the lever 26 into the path of
 50 the abutment 28, in which position it will be
 normally maintained during the transporta-
 tion of the car. As the piston 23 moves out-
 ward it opens a side port in the cylinder 24
 and permits the fluid under pressure to pass
 55 through pipe 45, valve-chamber 33, and ports
 40 37 into the cylinder 34, where it will act
 to move the piston 35 inward against the
 spring 36 and through the medium of the cable
 actuate the lever 13 for lowering the mem-
 60 bers 18 to position at the sides of the rail, but
 not into engagement with the latter. The
 parts will remain in this position until it is
 desired to apply the brake, when an increased
 flow of fluid is permitted, thus causing a full
 65 stroke of the piston 35 sufficient to move the

gripping members to gripping position. If,
 on the other hand, the train approaches a
 switch or crossing, the actuating-lever 26 will
 come in contact with the abutment 28 and
 through the medium of link 29 and arm 30 70
 rotate the valve 32 for moving the opening
 40 out of register with opening 37, thereby
 cutting off the supply of fluid to the cylinder
 34 and at the same time bringing one end of
 the groove or channel 41 over the latter open- 75
 ing, thus permitting the air in the cylinder to
 escape or exhaust through opening 37, chan-
 nel 41, and port 38. The spring 36 then
 moves the piston forward and permits the
 gripping members to rise for overriding track 80
 obstructions, in which position the members
 will remain until the actuating-lever 26 has
 passed the abutment, when the parts will
 again return to normal position.

From the foregoing it will be seen that I 85
 produce a simple inexpensive device which in
 practice will admirably perform its functions.
 In attaining these ends it is to be understood
 that I do not limit myself to the precise de-
 tails herein set forth, inasmuch as minor 90
 changes may be made without departing from
 the spirit or scope of the invention.

Having thus described my invention, what
 I claim is—

1. In a track-brake, the combination with a 95
 rock-shaft provided with crank-arms, of a pair
 of gripping members suspended from the lat-
 ter, means acting on the shaft to maintain the
 members in a position at the sides of but in
 non-engagement with the rails, means for au- 100
 tomatically releasing the shaft, and means for
 automatically raising the members to over-
 ride obstructions when the shaft is released.

2. In a track-brake, the combination with a 105
 rock-shaft provided with crank-arms, of a pair
 of gripping members suspended from the lat-
 ter, means acting on the shaft to maintain the
 members in a position at the sides of but in
 non-engagement with a rail, means for auto- 110
 matically releasing the shaft, and a spring act-
 ing on the shaft to actuate the latter when so
 released for raising the members to override
 track obstructions.

3. In a track-brake, the combination with a 115
 rock-shaft provided with crank-arms, of a pair
 of gripping members suspended from the lat-
 ter, a piston operatively connected with the
 shaft and operable for maintaining the mem-
 bers in a position at the sides of but in non-
 engagement with the rails, means for auto- 120
 matically operating the piston to free the shaft
 and permit the members to rise, and means
 for raising the members to override track ob-
 structions when freed.

4. In a track-brake, the combination with a 125
 rock-shaft provided with crank-arms, of a pair
 of gripping members suspended from the lat-
 ter, a piston operatively connected with the
 shaft and operable for moving the latter in
 one direction to lower the members, means for 130

automatically operating the piston to free the shaft and permit the members to rise, and a spring acting on the shaft to raise the members.

5 5. In a track-brake, the combination with a rock-shaft provided with crank-arms, of a pair of gripping members suspended from the latter, a piston operatively connected with the shaft and operable for moving the latter in
10 one direction to lower the members, an abutment disposed adjacent to the rails, an actuating member operable thereby, mechanism controlled by the actuating member for automatically operating the piston to free the shaft
15 and permit the gripping members to rise, and means for raising the latter.

6. In a track-brake, the combination with a rock-shaft provided with crank-arms, of links pivotally mounted on the crank-arms, a pair
20 of brake members pivotally connected with the links, means, comprising an arm or lever, flexible connection and piston, for operating the rock-shaft to move the members to braking position, and a spring for automatically
25 returning the rock-shaft to normal position.

7. In a track-brake, the combination with a bolster, of a bar suspended therefrom and provided with brake-heads, a rock-shaft provided with crank-arms, links pivotally mounted
30 on the crank-arms, a pair of gripping members pivotally connected with the links, said members being disposed to engage the brake-heads, means for operating the rock-shaft to

move the members to braking position, and means for automatically returning the rock- 35 shaft to normal position.

8. In a track-brake, the combination with a bolster, of a bar suspended therefrom and provided with laterally-extending brake-heads having guideways, a rock-shaft provided with
40 crank-arms, a pair of brake members suspended from the latter, guides provided on the members and traveling in the guideways, means for operating the rock-shaft to move the members to braking position, and means
45 for automatically returning the shaft to normal position.

9. In a track-brake, the combination with a bolster, of a bar suspended therefrom and provided with laterally-extending brake-heads
50 having guideways, a rock-shaft provided with crank-arms, a pair of brake members pivotally connected with the latter, guides provided on the members and traveling in the guideways, means, comprising an arm or lever,
55 flexible connection and piston, for operating the shaft to move the members to braking position, and means for automatically returning the shaft to normal position.

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

IRVIN BAKER.

Witnesses:

ARTHUR L. KNAPP,
JOHN S. GISH.