

No. 612,014.

Patented Oct. 11, 1898.

J. D. BUNDY & A. L. JACKSON.

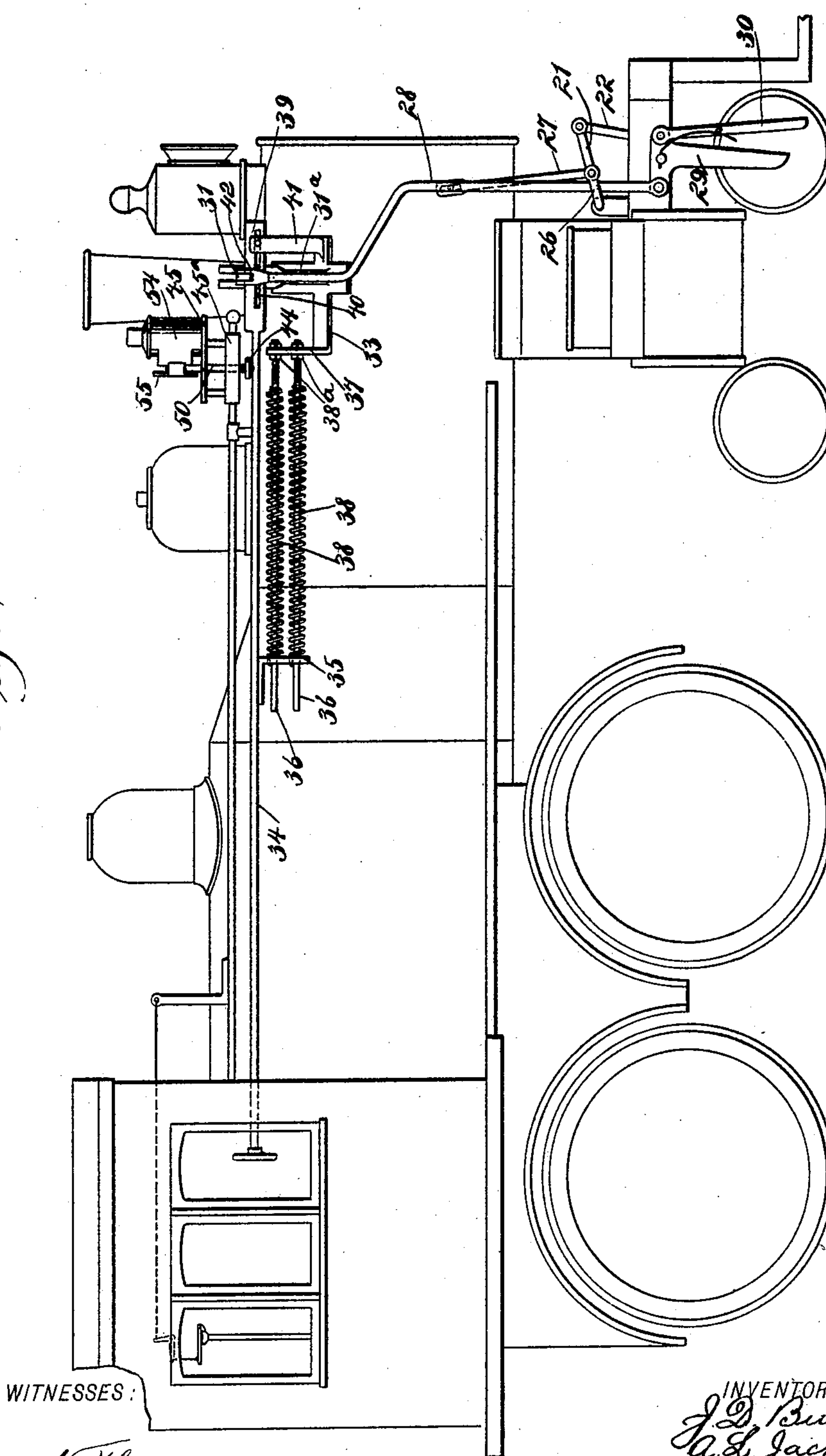
RAILWAY SIGNAL.

(Application filed Jan. 24, 1898.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.



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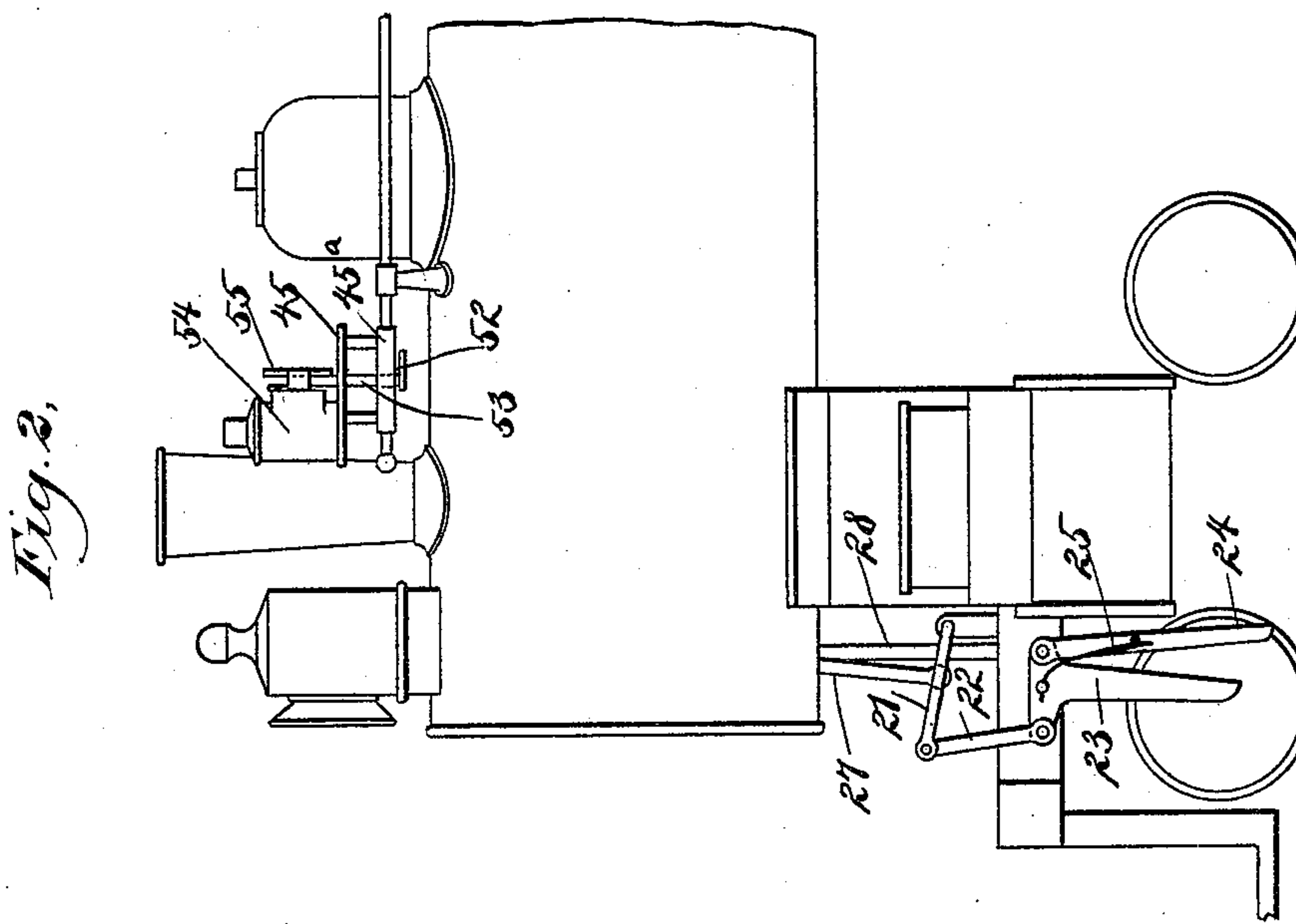
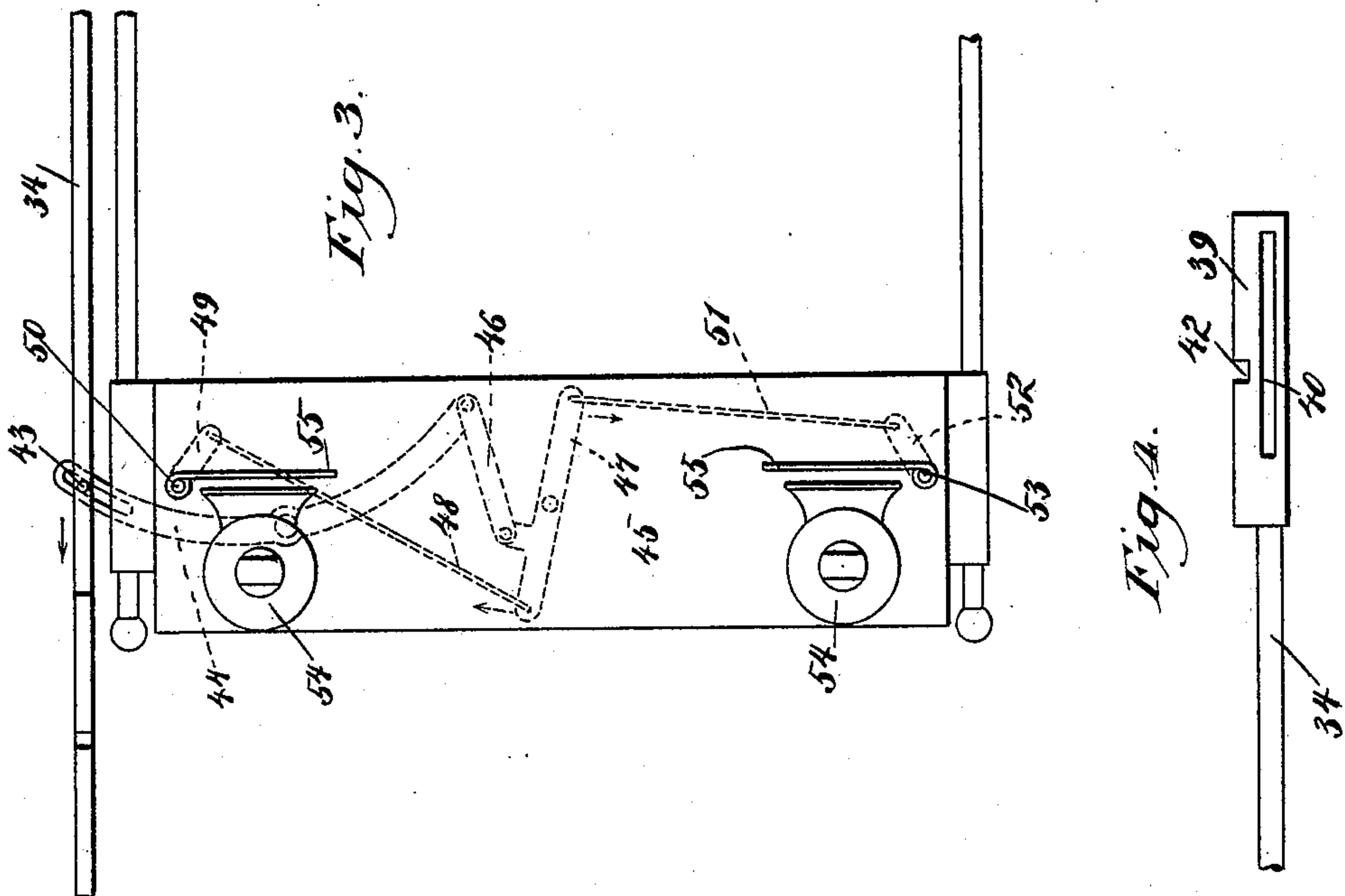
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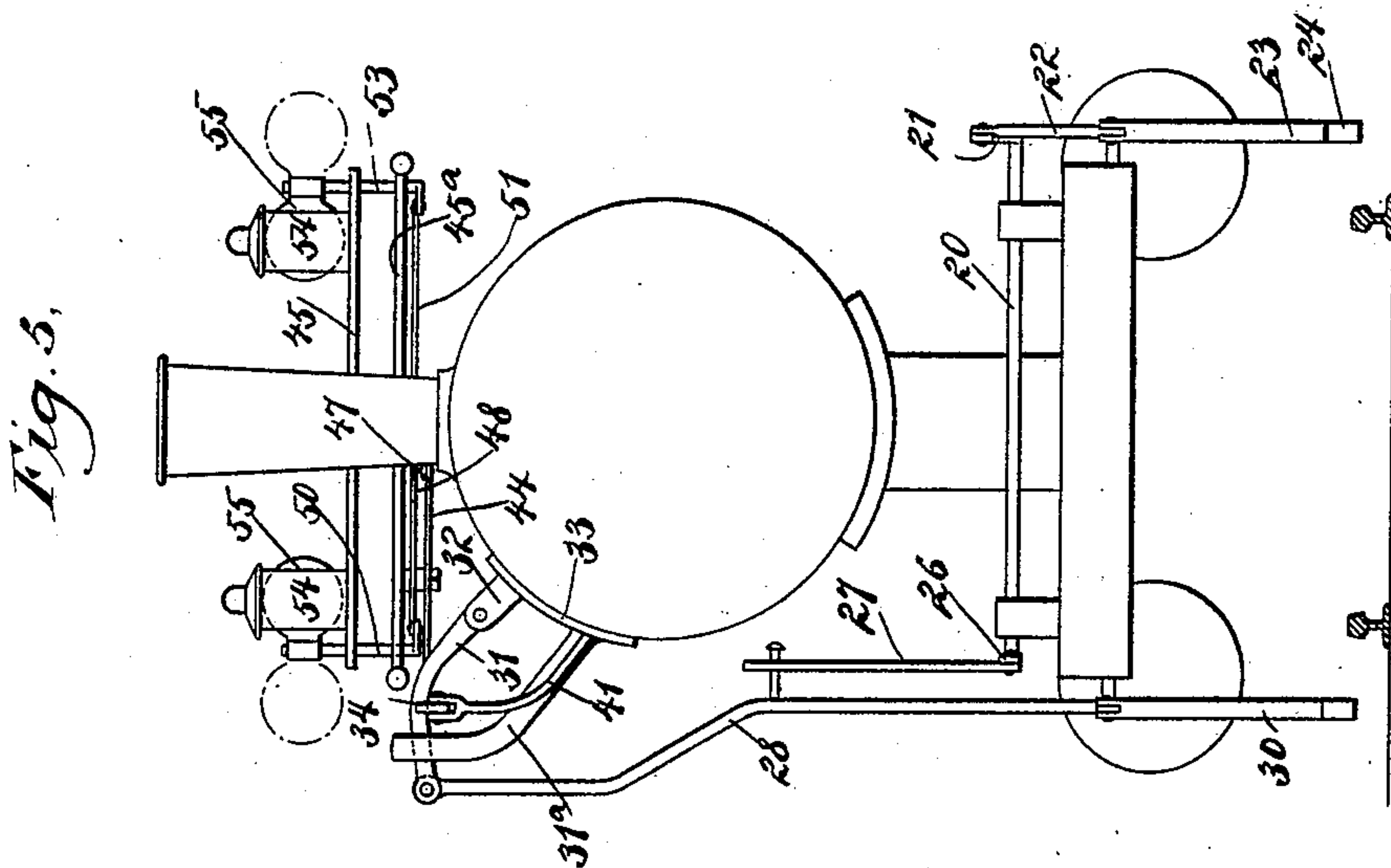
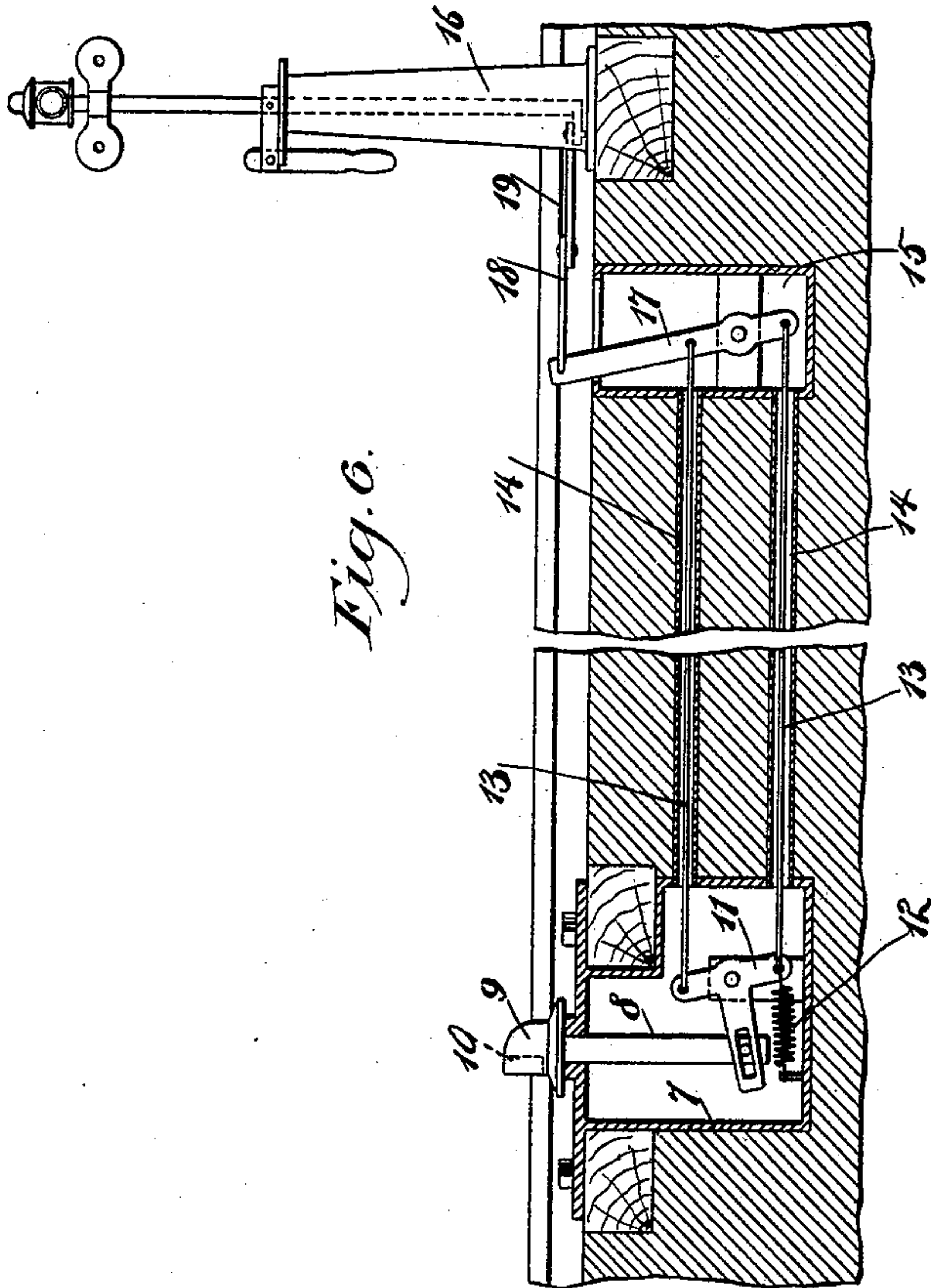
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3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

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RAILWAY-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 612,014, dated October 11, 1898.

Application filed January 24, 1898. Serial No. 667,800. (No model.)

To all whom it may concern:

Be it known that we, JEHU D. BUNDY and ARTHUR L. JACKSON, of De Kalb, in the county of Bowie and State of Texas, have invented a new and Improved Railway-Signal, of which the following is a full, clear, and exact description.

This invention is a signaling apparatus for attachment to locomotive-engines, and thrown into action by a detent on the track. The detent is controlled by the switch, so that when the switch is opened the signal of the locomotive is actuated and the engine-driver is informed in time to restrain the train.

This specification is the disclosure of one form of our invention, while the claims define the actual scope of the invention.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the invention, showing it applied to a locomotive. Fig. 2 is a side elevation of a portion of the engine, the side being opposite from that shown in Fig. 1. Fig. 3 is a diagrammatic view illustrating the action of the signals. Fig. 4 is a fragmentary elevation of one of the parts to be hereinafter described. Fig. 5 is a front view of the apparatus, and Fig. 6 is a transverse sectional view illustrating the track devices that are features of the invention.

The track devices shown in Fig. 6 consist in a casing 7, sunken in the bed of the railway and carrying a vertically-movable detent 8 with a working head 9, having a rubber cushion 10 to deaden the blow. A three-armed lever 11 is mounted to rock in the casing 7 and is actuated by a spring 12. One arm of the lever 11 is connected with the detent 8 and the other two arms of the lever 11 are connected with rods 13, extending through tubes 14 to a distant casing 15, juxtaposed to the switch-stand 16. The casing 15 carries a pivoted lever 17, to which the rods 13 are respectively connected above and below the pivot of the lever. The upper end of the lever 17 extends above the casing 15 and is in connection with the switch-stand by means of links 18 and 19. The parts are adjusted so that when the switch is opened the detent 8 will be raised, and so that when the switch

is closed the detent 8 will be lowered to the position shown in Fig. 6, in which position the detent is inoperative. If desired, this arrangement may be reversed, it being obvious that the device may be used to throw the signal when the switch is either opened or closed, as may be desired.

The engine devices consist in a rock-shaft 20, mounted transversely on the pilot of the engine. At the left-hand end of the rock-shaft 20 a crank 21 is rigidly secured to the rock-shaft. This crank is connected with a link 22. The link 22 is in turn connected with an arm 23, pivotally mounted on the pilot of the engine and extending downwardly. The arm 23 carries a striking-arm 24, which is pivoted to the arm 23 and held slightly rearward of the arm 23 by means of a spring 25. The arms 24 and 23 are adapted for action when the engine is running backward. When the engine is running backward and the detent 8 is raised, the arm 24 will strike the detent and the blow will be transmitted to the arm 23. The spring-pressed arm 24 serves, however, to cushion the blow and prevent unnecessary jar. The swinging of the arm 23 rocks the shaft 20 through the medium of the parts 22 and 21. The right-hand end of the shaft 20 is provided with a crank 26, to which a link 27 is attached. The link 27 extends upwardly and has slotted connection with a rod 28. The rod 28 extends downward to the pilot of the engine and is pivoted to an arm 29, similar to the arm 23. The arm 29 carries a spring-pressed striking-arm 30, similar to the arm 24. The arm 30 is arranged forward of the arm 29, so that the arms 29 and 30 are adapted for operation when the engine is going forward.

The rod 28 extends upward at the right-hand side of the boiler and is pivoted to a plate 31, which is also pivoted to a bracket 32, standing out from a plate 33, in turn rigidly secured to the boiler. The plate 31 is guided by a slotted arm 31^a, standing out rigidly from the plate 33. A push-rod 34 is mounted horizontally at the right-hand side of the engine and extends rearward into the cab. The rod 34 is adapted to slide longitudinally and is provided with a bracket 35, slidable on two guide-rods 36, which are fixed rigidly to an arm 37, standing from the plate 33. Retracting

tile springs 38 are attached, respectively, to the rods 36 and to the bracket 35. These springs tend, therefore, to push the rod 34 forward. The forward end of the rod 34, as best shown in Fig. 4, has a plate 39, provided with a slot 40, receiving a guide-pin carried on an arm 41, standing from the plate 33. The plate 39 also has a notch 42, wherein is normally situated the plate 31, by which means the rod 34 is held rearward against the action of the springs 38. When, however, the rod 28 is moved upward by the action of the striking-arms, the plate 31 is disengaged from the recess 42, and the arm 34 is permitted to move forward under the action of the springs 38. The tension of the springs 38 may be regulated by nuts 38^a, carried on the arm 37 of the plate 33.

The rod 34, as best shown in Fig. 3, has a pin 43 engaging in a slot formed in a bent lever 44, which is fulcrumed beneath a frame-plate 45^a, carried transversely of the boiler and above the same immediately rearward of the smoke-stack. The lever 44 is connected with a link 46, which in turn is connected to a lever 47, fulcrumed to and located beneath the plate 45^a. To the forward end of the lever 47 a link 48 is pivoted. This link extends rightward to a crank 49, fixed to a shaft 50, which extends vertically with the plate 45^a and above the same. The rear end of the lever 47 carries a link 51, which runs leftward to a crank 52, carried on a shaft 53, that extends through the plate 45^a and projects above the same similarly to the shaft 50. A plate 45 is supported on and immediately above the plate 45^a and has respectively adjacent to its ends two signal-lanterns 54. These signal-lanterns 54 throw their light rearward, so as to be visible in the cab of the engine. The shafts 50 and 53 extend above the plate 45. Fixed, respectively, to the shafts 50 and 53 are rigid plates 55, forming signal-flags, which are located above the plate 45. These signal-flags are arranged normally to cover the lanterns 54, so that at night when all is well the lanterns are not visible. When, however, the engine strikes the detent 8, the mechanism above described will be actuated to throw the plates 55 outward from the position in which they are shown in Fig. 3, thus exposing the lanterns and informing the engineer that the switch is open. In the daytime the position of the flag inward, as shown in Fig. 3, is the normal position, and when the detent 8 is struck the flags are thrown outward, so that their opposite faces will be visible to the engineer. These faces may be colored red, and in this way the day-signal is given. The rod 34 once projected forward by the action of the springs 38 may be drawn rearward and reset by the engineer in the cab of the engine.

If desired, trackmen and bridgemen may carry blocks which may be detachably connected with the bed of the track to operate the signal devices in case of emergency. It also should be understood that the detent

shown in Fig. 6 may be attached to a bridge or other structure forming part of the track, so that should an accident happen the signals will be operated.

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

1. The combination of switch mechanism, a lever in connection with the switch mechanism, two rods in connection with the lever, a three-armed lever also in connection with the rods, a spring actuating the three-armed lever, and a vertically-movable detent in connection with one arm of the three-armed lever.

2. The combination with a railway, of switch mechanism, a casing sunken in the bed of the railway adjacent to the switch mechanism, a lever pivoted in the casing, a connection between the lever and the switch mechanism, a second casing distant from the first casing and sunken in the bed of the railway, a three-armed lever pivoted in the second casing, connections run between two arms of the three-armed lever and between the first-named lever, a vertically-movable detent having connection with the third arm of the three-armed lever, and a spring actuating said lever.

3. The combination of a locomotive, an arm pivoted on the locomotive, a striking-arm pivoted to the first-named arm, a spring bearing between the two arms, a signal on the locomotive, and connections between the first-named arm and the signal.

4. The combination with a locomotive, of a rock-shaft mounted across the pilot of the locomotive, a crank at each end of the rock-shaft, an arm pivoted at each side of the pilot, a striking-arm pivoted to each of the first-named arms and located respectively at the front and rear of said arms, springs bearing between each pair of arms, connections between each crank and the respective first-named arms, a signal mounted on the locomotive, and means for operating said signal from said connections.

5. The combination of a push-rod, a lever in connection with the push-rod, a link pivoted to the lever, a second lever to which the link is pivoted, two crank-shafts, a signal carried by each crank-shaft, and two rods connected with the second lever and respectively connected with the crank-shafts.

6. The combination of a casing, a detent vertically movable therein and projecting out of the same, a three-armed lever pivoted in the casing, one arm of the lever being in connection with the detent, a spring actuating the lever, and two rods respectively connected with the remaining arms of the lever and run from the casing to impart movement to the lever.

7. The combination of a support, two plates mounted to swing thereon, a crank in connection with each plate, a link pivoted to each crank, a lever mounted on the support and having the links connected with its respective ends, a second lever mounted to swing

on the support, a connection between the two levers to transmit movement from the second lever to the first, and means for transmitting movement to the second lever.

5 8. The combination with a signal, of a push-rod having connection with the signal to operate the same, means serving to actuate the push-rod, a swinging plate located adjacent to the push-rod and capable of removably
10 holding the same against its actuating means, a rod in connection with the plate to actuate it, a pivotally-mounted arm having connection with the rod, a striking-arm pivoted to the said pivotally-mounted arm, and a spring
15 bearing between the two pivoted arms.

9. The combination of a plate, having two arms projecting therefrom, a push-rod having sliding connection with one of the arms, a rod attached to the second of the arms and
20 having sliding connection with the push-rod,

a spring held by the second-named rod and actuating the push-rod, a swinging arm adapted to engage the push-rod to normally hold it against the action of the spring, a signal actuated by the push-rod, and means for 25 throwing the arm to release the push-rod.

10. The combination of a horizontally-disposed plate forming a support, two levers mounted thereon, a plate mounted to swing adjacent to each lever, a crank in connection 30 with each swinging plate, a lever mounted on the first-named plate, connections between the lever and crank, and means for imparting movement to the lever to simultaneously move the swinging plate.

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