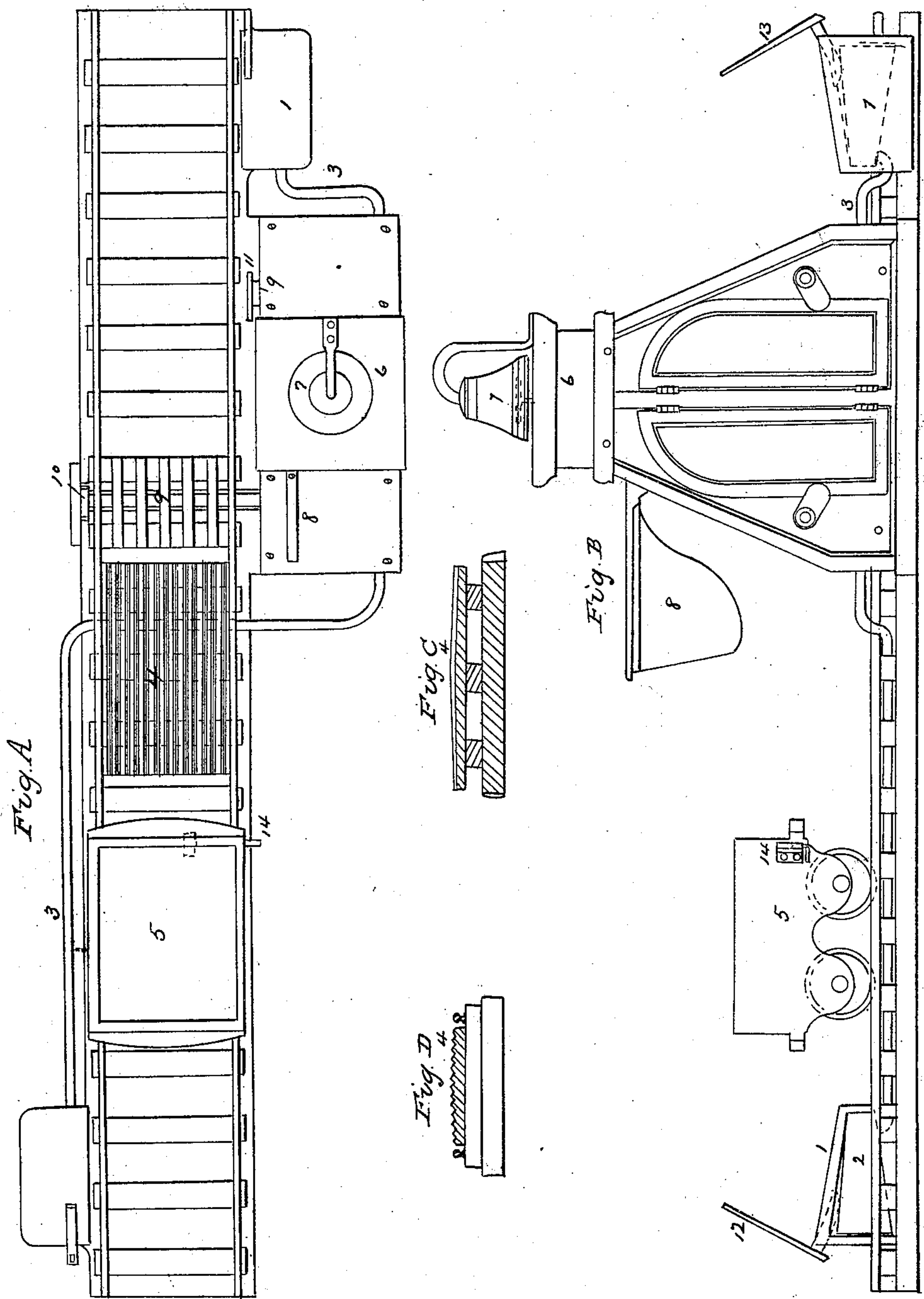


J. W. FOWBLE.
Railway Alarm and Signal.

No. 15,480.

Patented Aug. 5, 1856.

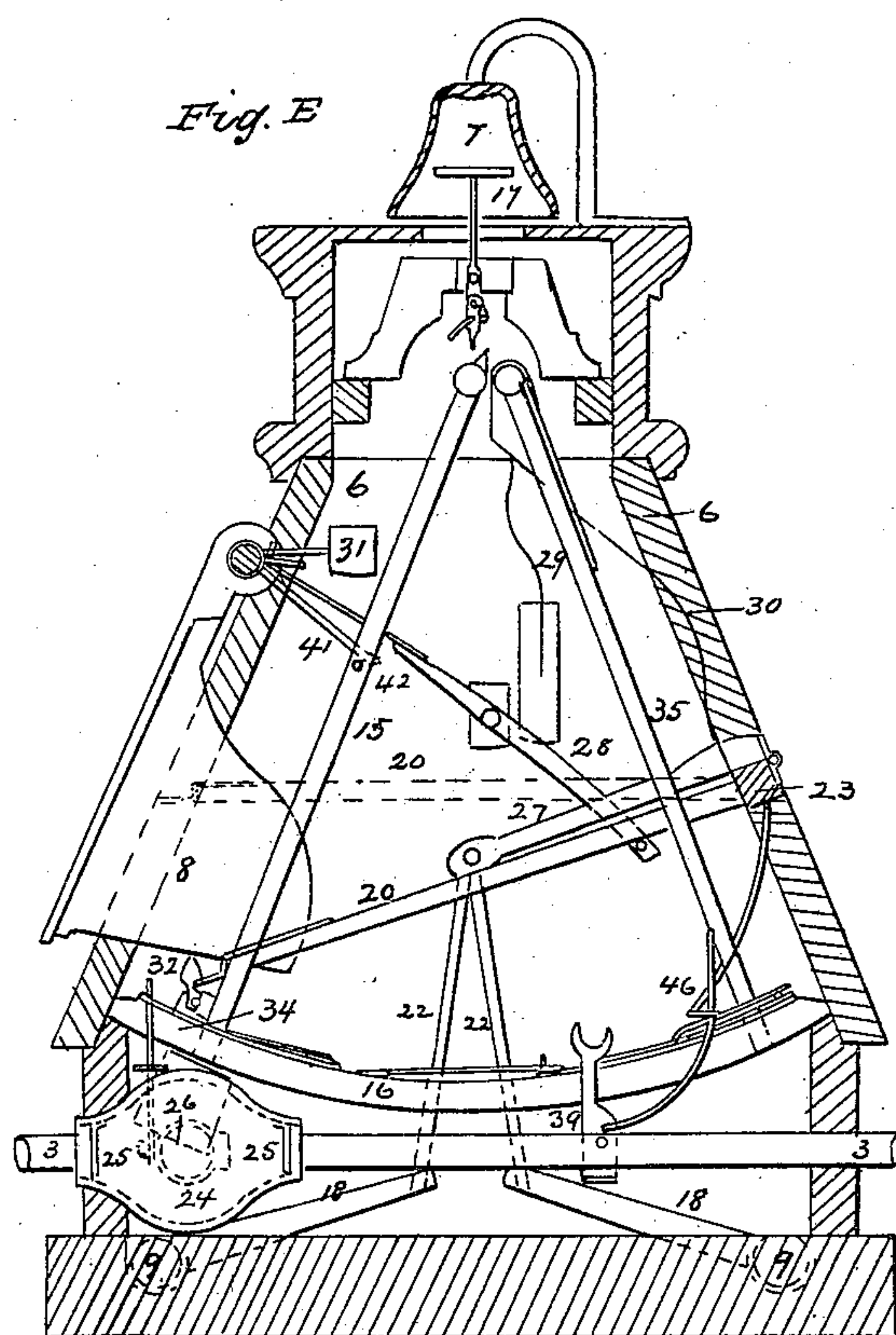
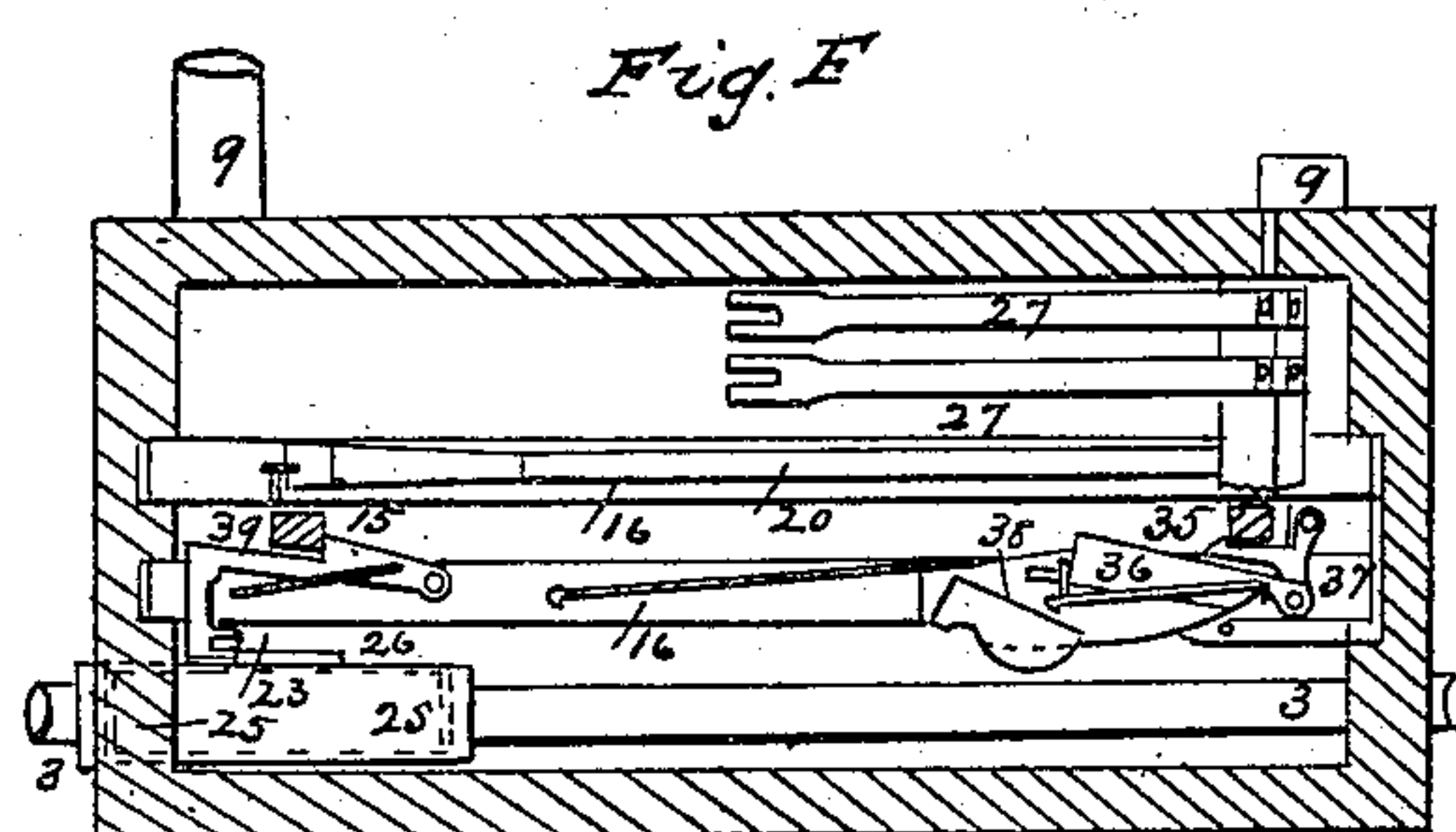


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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

JOHN W. FOWBLE, OF CINCINNATI, OHIO.

MECHANISM FOR COMPRESSED-AIR RAILROAD-SIGNALS.

Specification of Letters Patent No. 15,480, dated August 5, 1856.

To all whom it may concern:

Be it known that I, J. W. FOWBLE, of the city of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in what I term a "Railway Alarm and Signal"; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, forming part of this specification, and to the letters and figures of reference marked thereon.

Similar letters and figures refer to corresponding parts of the improvement.

My improvements consist in the arrangement of a system of valves, and mechanism composed of rods, levers, springs, catches, when operated upon by compressed air, for the purpose of ringing an alarm bell and throwing out a signal placed at the crossings of railway tracks, for the purpose of warning travelers who require to cross the track of the approach of a train of cars, and prevent them from trying to effect a crossing until after the train passes, thereby preventing the destruction of life and loss of property which so frequently occurs at such points of the railway as require to be often crossed for ordinary road purposes.

The alarm bell is made to ring through the agency of air compressed by a suitable bellows, provided with a lever or some suitable mechanical contrivance, and placed from a quarter of a mile to a mile from the crossing, and as the cars pass the bellows they strike the lever attached thereto, and compress sufficient air which is forced through a pipe to the crossing and there operates on a system of levers and springs which sets a pendulum in motion that operates a clapper hammer against the bell, and at the same time the signal flag is sprung out, thus giving an alarm to approaching travelers that a train is near, and prevent them from attempting to cross until the train has passed. As the train passes the bell-tower at the crossing there are levers projecting up from each side of the track which are operated upon by the passing train, and are made to re-set the system of levers, catches and springs that operate the clapper hammer of the bell and throw in the signal flag, in readiness to be again acted upon as before by an approaching train in either direction striking a lever attached

to a bellows and communicating compressed air through a pipe which is made to set a pendulum in motion, causing the bell to ring and throwing out the signal as before described, and again as the train passes the apparatus is re-set as already alluded to. Thus, the whole operation of ringing the alarm bell, and throwing out the signal as also the re-setting of the apparatus as the cars approach and pass in either direction is entirely self-acting, requiring no watchman or supervision of any kind.

To enable others skilled in the art to make and use my improvement, I will proceed to describe its construction and operation, at the same time making direct reference to the accompanying drawings.

Figure A, represents a section of a railway with the improved alarm and signal apparatus attached, showing the relative position of each, and the connection of the bellows to the bell and signal tower for compressing air and conducting it through pipes to the apparatus. Fig. B, is a side elevation of those portions represented in Fig. A, showing also a car to illustrate its action on the apparatus for ringing the alarm bell and displaying the signal. Fig. C, is a separate and longitudinal sectional view of a corrugated plate, laid between the rails where the road is crossed, and Fig. D is a transverse sectional view of the same in connection with the rails. This plate is provided with angular corrugations and laid at crossings, which, from its roughness prevents cattle and stock of all kinds from standing or lying upon it, thus avoiding accidents arising from this cause. Fig. E, is a longitudinal sectional elevation of the bell-tower showing the apparatus in detail for operating the bell hammer displaying the signal, and resetting the machine. Fig. F, is a horizontal sectional view of the bell and signal tower, for representing the catches and springs for holding and operating the pendulum used for giving motion to the clapper hammer of the bell.

1, 1, represents cases attached to the side of the road the required distance from the bell-tower 6, and contain bellows 2 for compressing the air as fully shown on the left of Fig. B. I do not confine myself to any particular apparatus for compressing air, cylinders, or other forms of bellows may answer the same purpose.

3, 3, are pipes on each side of the tower, used for conducting the air from the bellows to the apparatus.

4 represents the angular corrugated plate laid between the rails where the road is crossed for purposes before mentioned.

5 is a car, furnished with a catch lever 14 which strikes the bellows levers 12, and 13, as it passes, and compresses the air in the bellows and forces it through pipes 3, 3, to the bell-tower 6, and operates the resetting levers 10 and 11, which levers and shaft 9 to which they are attached are used for properly arranging the mechanism employed in giving the alarm and raising the signal. The catch lever 14 is hinged, and if by accident it should strike any of the levers on the wrong side, it would fold up without effecting any damage.

8 represents the signal, elevated, in Fig. B which is supposed to be over and across the road, at the side of the track, for giving additional warning of the approach of a train of cars.

7, is the bell supported by any convenient means over the bell-tower.

By referring to Figs. F and E, the operation of the machine may be explained as follows: As it is represented in Fig. E, it is supposed to be properly set for giving an alarm and throwing up the signal by means of compressed air from either of the bellows (with the exception of the horizontal lever 2 being held down by the catch 32—it should be free, and in the position denoted by the dotted lines).

24, is an air chest to which the pipes 3 leading from the bellows on each side, are connected, and the chest is provided with two valves 25 on its inside, over the ends of the pipes, as denoted by the dotted lines in the Figs. E and F, and when the air is forced into the chest from one direction, the valve admitting air from the opposite direction closes. The compressed air then opens the lever valve 26, the end of which operates on the vertical lever 33, which draws the catch 34 out and thereby liberates the pendulum 15, which is set in motion by being provided with a weight at its lower end, and works between the segmental guides 16. The top portion of the pendulum strikes against a system of catches as represented in the top of the tower, which operates the clapper hammer 17 against the bell 7 and thus gives an alarm. The signal 8 is allowed to raise up by being liberated from the pin 42 on the pendulum and rod 41. Attached to the axis of the signal when the pendulum is set in motion. The counterbalance 31 attached to

the axis of the signal, falls, and carries the signal out and up which will be fully comprehended by reference to Fig. E.

The levers 18, rods 22, lever 27, pendulum 35, rods 40, catch plates 36, 37, and 38, springs 29 and 30, and levers 20, 28 and 39, are used for re-setting the apparatus to be again operated upon by the compressed air, which resetting is effected by means of the catch 14 coming in contact with the lever 10 or 11 as shown in Fig. A, so that when the train passes the tower it re-sets the apparatus when going in either direction. The hinged catch 14 acts on one only of the levers 10 or 11 according to the direction the cars pass the tower.

The catch plate 36, 37, 38, and lever 39 are employed to release the setting pendulum from its catch 37, by operating either of the levers 27, with the rods 22 and their attachments which move the fulcrum lever 23, and by means of the rods 40, draws the lever 39 against the outer edge of a plate attached to the plate 38 which forces the plates 36 and 38 in, so that the alarm pendulum 15 will strike against the end of the catch plate 36 (which is attached to the double bell-crank lever 37, that holds the setting pendulum 35) and thereby release it, and the spring 30 then forces the setting pendulum to its set position, to be again operated upon by means of the compressed air, and likewise resets the signal 8 ready to be again thrown up and out as before described, after which the spring 29 produces a reaction which catches the setting pendulum 35 at the catch lever 37, ready to be acted upon from the outside of the tower by a passing train through means above specified.

What I claim as my improvement and desire to secure by Letters Patent is—

1. The arrangement of the valves 25 and lever valve 26, with the air chest 24, when acted upon by compressed air for the purpose of setting in motion the alarming apparatus for purposes before mentioned.

2. I also claim the arrangement of the levers 18, rods 22, levers 27—20, and 28, rods 40, and lever 39, catch plate 36, 37 and 38 and springs 29 and 30, and these arranged with the shafts 9, 9, and levers 10, and 11, for the purpose of re-setting the alarming and signal apparatus as before described, when operated on by the lever valve 26, for purposes mentioned in the foregoing specification.

JOHN W. FOWBLE.

Witnesses:

MARTIN BENSON,
L. W. SMITH.