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PATENTED APR. 9, 1907.

W. M. & A. M. COX.  
AUTOMATIC WHISTLE.  
APPLICATION FILED JAN. 22, 1907.

Fig. 1.

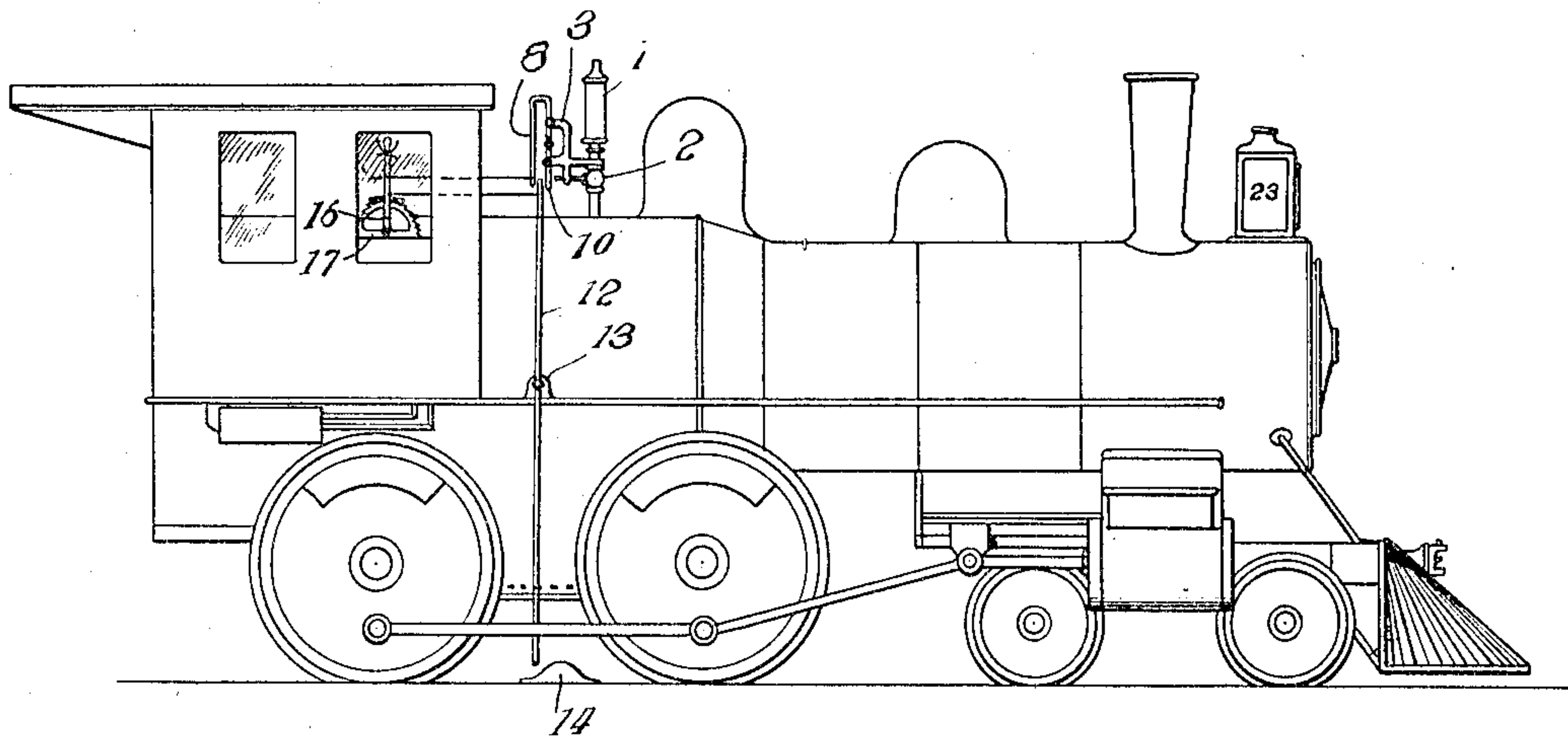


Fig. 2.

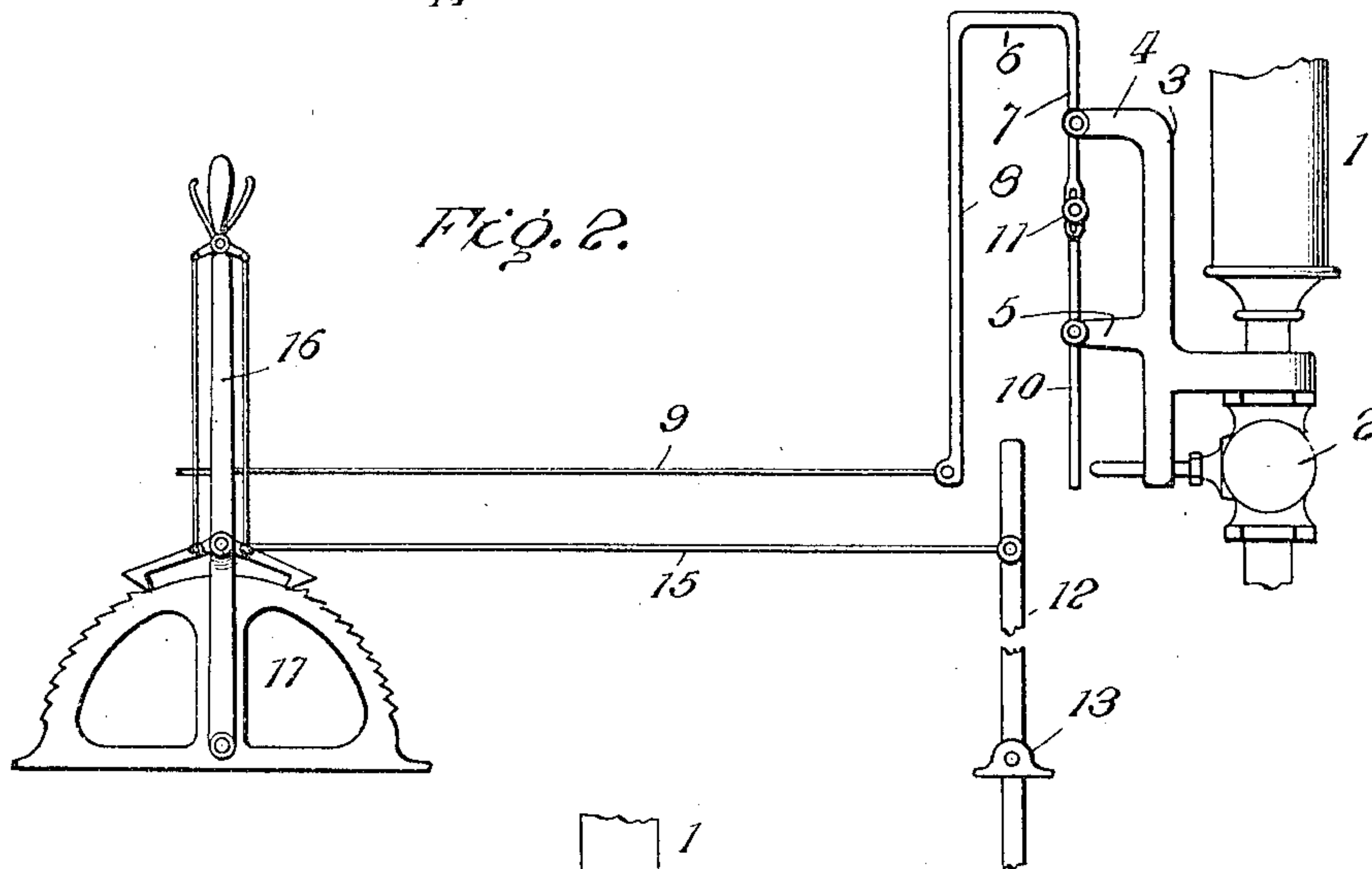
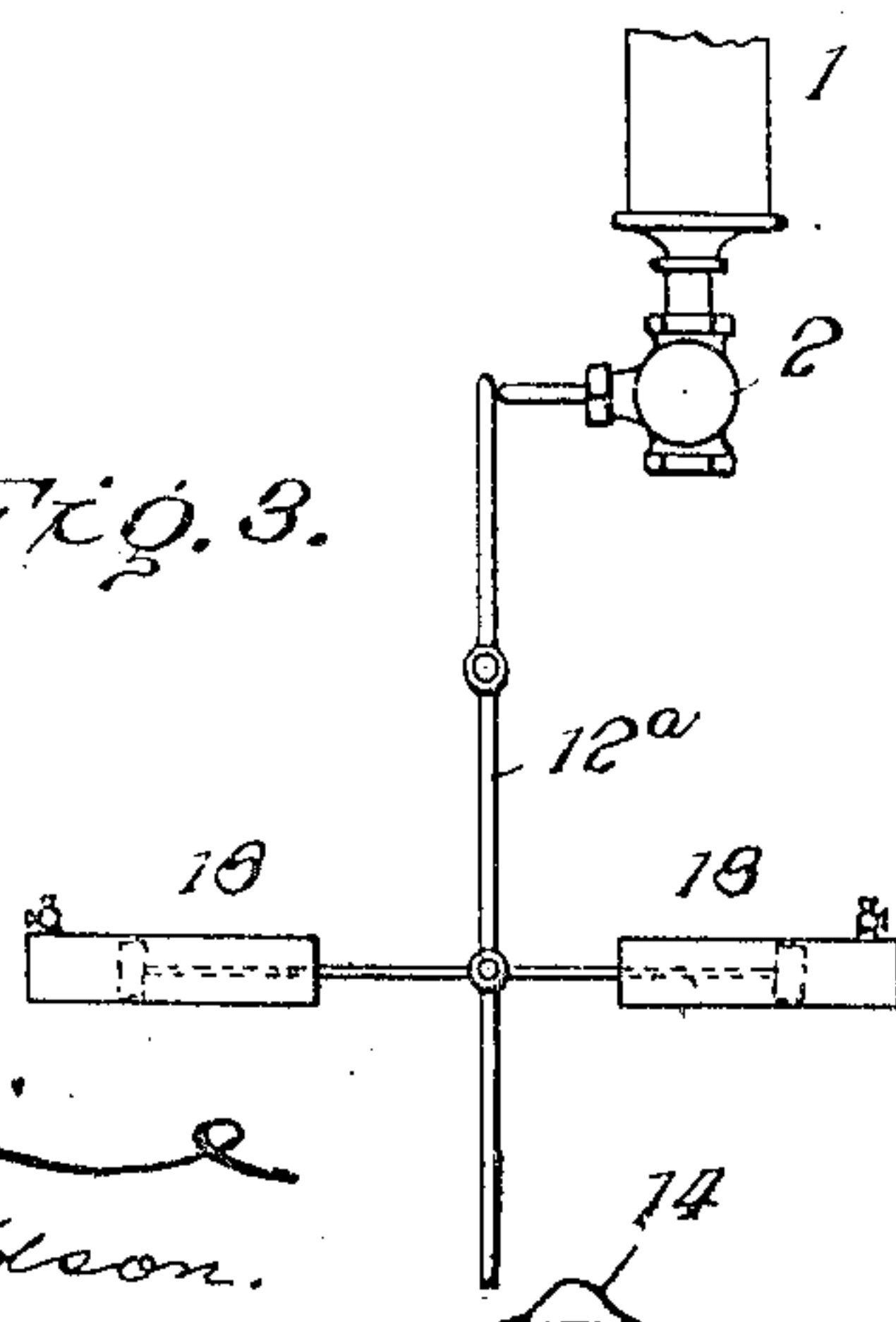


Fig. 3.

Witnesses

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# UNITED STATES PATENT OFFICE.

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## AUTOMATIC WHISTLE.

No. 849,661.

Specification of Letters Patent.

Patented April 9, 1907.

Application filed January 22, 1907. Serial No. 353,533.

*To all whom it may concern:*

Be it known that we, WALTER M. COX and ARTHUR M. COX, citizens of the United States, residing at Cynthiana, in the county of Harrison and State of Kentucky, have invented certain new and useful Improvements in Automatic Whistles, of which the following is a specification.

Engine-drivers of railway-trains are required by law to sound the locomotive-whistle before arriving at crossings and other points along the road, and when the engineer is depended on to sound the whistle it is well known that this requirement has very often not been complied with, resulting in accidents that have been the cause of severe or fatal injuries and also in pecuniary loss to the railways consequent upon damage suits.

With these conditions in view our invention has for its object an improved device which when applied to a locomotive will automatically sound the whistle at the point required by law and hold the whistle open or sounding until the steam or other pressure is removed therefrom by the manual operation of the engineer. By this means the "man element" is entirely done away with as far as the positive actuation is concerned, which is clearly a desideratum in railroading, and releases the engineer from the responsibility, it being well recognized that without such an automatic mechanism the engineer might pass the point where the whistle is to be blown through carelessness or for some other reason, for the engineer is frequently unable to see the posts or other signals set for the blowing of the whistle, this condition being especially true at night.

For a full understanding of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and accompanying drawings, in which—

Figure 1 is a side elevation of a locomotive supplied with the improvements of our invention. Fig. 2 is a side elevation of the automatic mechanism on an enlarged scale. Fig. 3 is a detail view illustrating the modification herein specifically referred to.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

Referring to the drawings, the numeral 1 designates a locomotive-whistle, which may

be of any desired design or construction and operated by either steam or air pressure.

2 designates the valve of the whistle, and 3 a stand or bracket, which is secured to and supported by the base of the whistle and which is provided with two arms 4 and 5, one above the other. To the arm 4 a lever 6 is fulcrumed, said lever being of substantially inverted-U shape, with two spaced arms 7 and 8 facing downwardly, and the lever is attached to the arm 4 by the pin 10 being pivoted intermediate of its ends to the said arm 4. A cord 9 or the like may be secured to the lower end of the rear arm 8 of the lever 6, said cord extending backwardly from said arm, in the cab and arranged for manual actuation by the engineer, so that the whistle may be sounded when necessary irrespective of the automatic mechanism.

The arm 7 of the lever 6 is shorter than the arm 8, as illustrated in the drawings, and has pivotally secured by a loose joint to its lower end a finger 10, the joint being indicated at 11. The finger 10 is fulcrumed intermediate of its ends on the arm 5 of the bracket 3 and extends downwardly into proper operative position to the valve 2.

12 designates a trip device, which in the present instance is in the form of a rod pivoted intermediate of its ends at the point 13 alongside of the boiler and extending downwardly toward the track, where its lower end is designed to be struck by a trip-block 14, which may be secured to one of the rails of the track or to the ties thereof or on the ground. The upper end of the track-rod 12 projects into the space between the arm 8 of the lever 6 and the pivoted finger 10 of said lever.

A link 15 is pivotally connected at its front end to the upper end of the trip-rod 12 and extends rearwardly into the cab, where its rear end is pivotally connected through a hand-lever 16, provided with one or more hand-retracted detents arranged for locking engagement with the toothed quadrant 17.

In the practical operation of our improved automatic whistle-actuating mechanism when the locomotive is traveling forward the trip-block 14 (which is located at the requisite distance in advance of the crossing or the like) will strike the lower end of the trip-rod 12 and rock the same about its axis 13, so as to move the upper end of said trip-rod forwardly, the said end of the trip-rod thereby actuating the whistle. During this for-



ward movement of the upper end of the trip-rod 12 it is manifest that the link-rod 15 will be pulled forwardly, as will likewise the hand-lever 16, and accordingly by means of the detents of said hand-lever the latter will be engaged with the quadrant 17 at a point in advance of the normal or neutral vertical position, and thereby hold the whistle open and sounding until the engineer shall have turned the parts back to the normal position through the instrumentality of the hand-lever.

If the locomotive be traveling backwardly, the trip-block 14 will rock the rod 12 so that its upper end will be carried back into engagement with the lower end of the arm 8. This will result in carrying the lever 6 rearwardly, and therefore the lower end of the arm 7 will, by means of the loose joint 11, in turn carry the finger 10 about its fulcrum on the arm 5 of the bracket 3 and will cause the lower end of the finger 10 to be moved forwardly, and thereby sound the whistle. In this operation also it is obvious that the hand-lever 16 will be moved rearwardly beyond its neutral position and hold the parts locked with the whistle continuously sounding until stopped by the manipulation before described.

If desired, as shown in Fig. 3, we may substitute for or use in connection with the hand-lever 16 a steam or air cushion 18, so connected to the trip-rod 12 that its piston may be readily drawn out when the trip-rod is positively actuated and adapted to draw the trip-rod back again slowly as the steam or air exhausts from the cylinder, the cylinder being pivoted with a petcock or other device well known in this connection. By the regulation of the petcock it is obvious that the slow closing of the whistle may be regulated and the whistle kept blowing for long or short intervals. If this device be used in connection with the hand-lever 16, it is of course essential that the detents of said lever be locked in retracted position, so that they will not interfere with the actuation of the slow closing device 18. Manifestly two of these air or steam cushions may be used, one being arranged to operate when the locomotive is traveling forwardly and the other when it is traveling rearwardly. From the foregoing description, in connection with the accompanying drawings, it will be seen that we have provided sure and effective means whereby the engineer is in no wise depended upon to sound the whistle at the proper times, this being effected automatically and with a construction embodying comparatively few and simple parts, thereby avoiding difficulties before pointed out and other resultant accidents. As the whistle will continue sounding until shut off by some one in the locomotive-cab, the attention of the engine or fire man will be forcibly called to the fact that a

crossing or other dangerous point in the road is being approached and the occupants of the cab will always be on the alert.

If desired, the air-cushion 18 may be arranged on opposite sides of the trip-rod 12. By then opening either the front or rear petcock, according as the train is going forward or backward, the air in the closed cylinder will let the lever back gradually to its place, while the other, being wide open, will not retard the entrance of the plunger in the cylinder and not hinder the trip-rod from being rocked.

Having thus described the invention, what is claimed as new is—

1. In an apparatus of the character set forth, the combination with a whistle and its valve, of a bracket supported contiguous to said whistle and provided with two arms, one above the other, an inverted-U-shaped lever having one of its arms bifurcated intermediate of its ends, upon the upper arm of the bracket, a finger fulcrumed intermediate of its ends on the lower arm of the bracket, and having a jointed connection with the lower extremity of the fulcrumed arm of the lever, the lower end of said finger being adapted to actuate the said valve, and a trip-rod adapted to be tripped by a device along the track and having its upper end extending into the space between the said lever and the lower end of the said finger.

2. The combination with a whistle and its valve, of a bracket secured to the base of the whistle and provided with two arms, a lever having spaced arms, one of which is fulcrumed intermediate of its ends on one of the arms of the bracket, a finger fulcrumed intermediate of its ends on the other arm of the bracket and having a loose connection with the fulcrumed arm of the lever, one end of said finger being adapted to actuate the valve, a trip-rod adapted to be actuated by a tripping device along the track and extending into the space between the lever and its finger, means for manually rocking said lever to actuate the whistle independent of the trip-rod, and a manually-released locking device connected with said trip-rod and adapted to hold the same in the position in which it is swung by the tripping device.

3. In combination with a whistle and its valve, of a lever fulcrumed in proximity to the valve and provided with a finger with which it has a jointed connection, said finger being arranged to actuate the valve, the said lever and its finger having different fulcrum-points and the finger being adapted to be moved into operative engagement with the valve when the lever is rocked rearwardly, and a trip-rod adapted to be rocked by a device along the track, the upper end of said trip-rod passing into the space between the lever and its finger and arranged to engage the lever to rock it rearwardly when moved in



one direction and to engage the finger of the lever when moved in the opposite direction.

4. The combination with a whistle and its valve, of a finger pivoted intermediate of its ends with one end in proximity to the valve and adapted to actuate the same when such lower end is rocked in one direction, a lever having a loose connection with the other end of said finger and adapted to rock the same, said lever being pivoted with an arm spaced from the first-named end of said finger and a trip-rod adapted to be swung by a

device along the track, one end of the trip-rod passing between the lever and said finger and adapted to rock the lever when moved in one direction and to engage the finger when moved in the opposite direction.

In testimony whereof we affix our signatures in presence of two witnesses.

WALTER M. COX. [L. S.]

ARTHUR M. COX. [L. S.]

Witnesses:

S. M. ADAMS,

S. B. HARDIN.