(No Model.)

A. B. SNYDER.

AUTOMATIC RAILWAY SIGNAL.

No. 414,337. Patented Nov. 5, 1889.

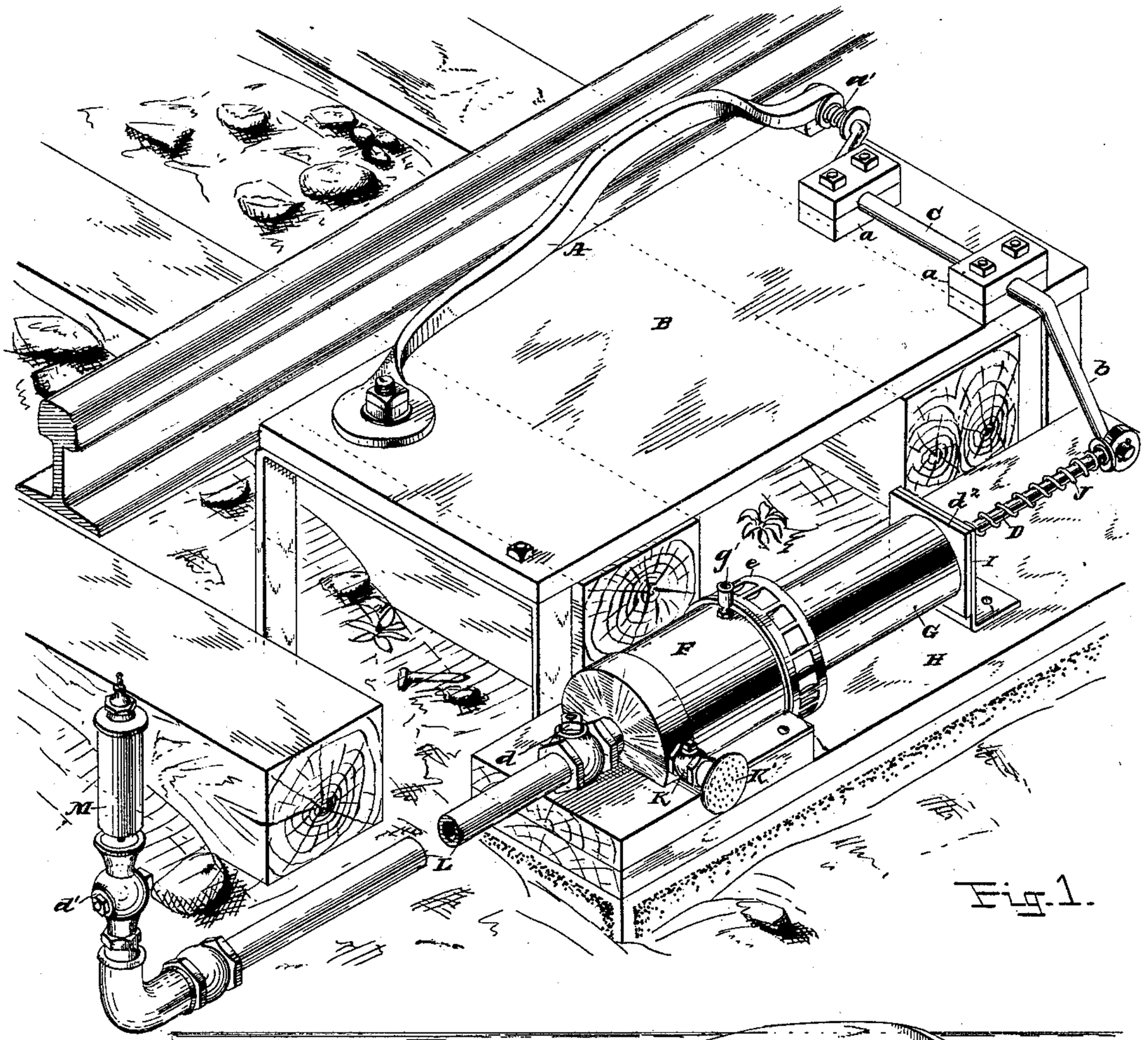

Fig. 1.

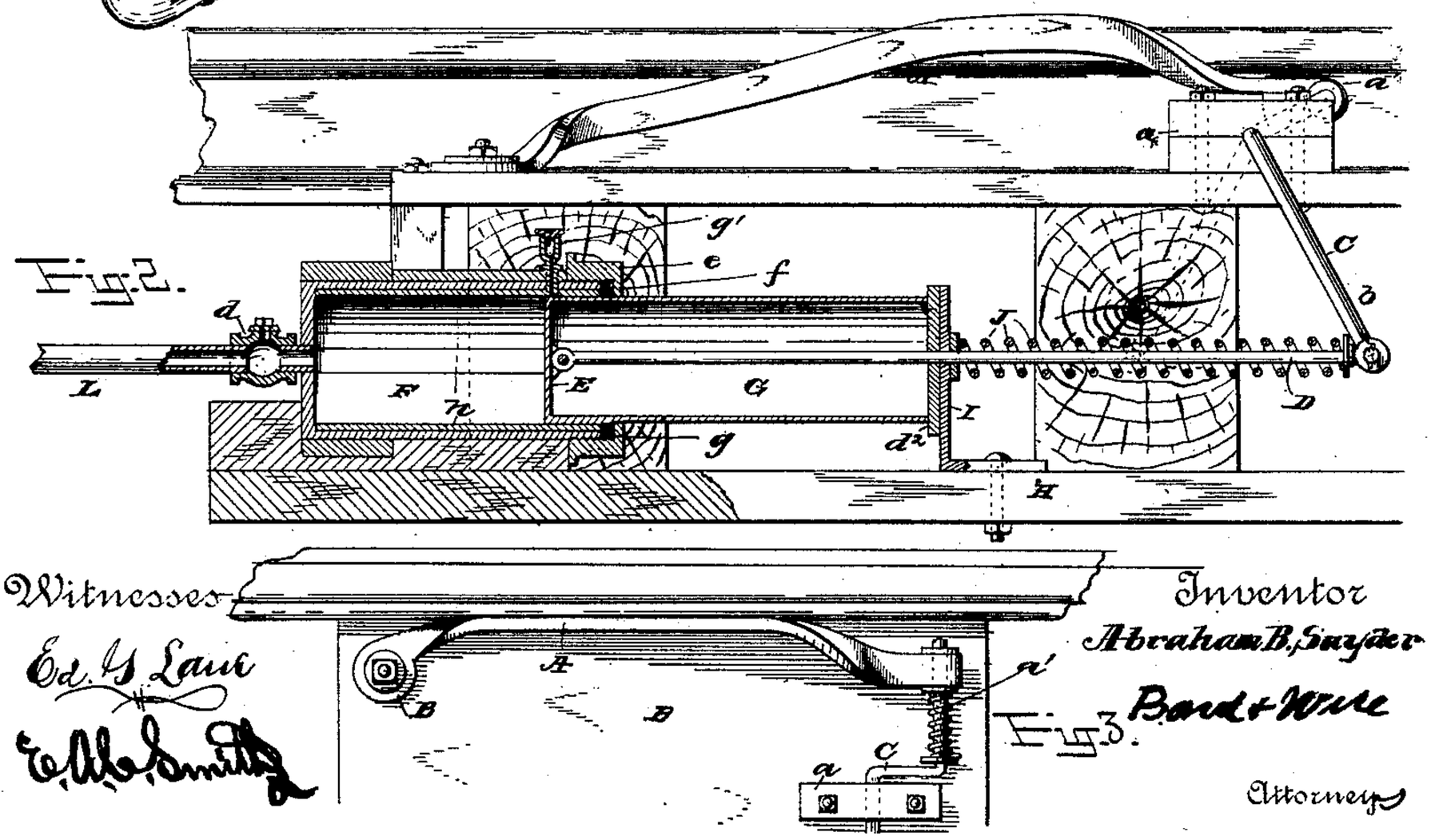

Fig. 2.

Fig. 3.

Witnesses
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ABRAHAM B. SNYDER, OF LOUISVILLE, OHIO.

AUTOMATIC RAILWAY-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 414,337, dated November 5, 1889.

Application filed June 14, 1889. Serial No. 314,242. (No model.)

To all whom it may concern:

Be it known that I, ABRAHAM B. SNYDER, a citizen of the United States, residing at Louisville, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Automatic Railway-Signals; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures marked thereon, in which—

Figure 1 is an isometrical view. Fig. 2 is a side elevation showing parts in section. Fig. 3 is a detached view of the operating-lever.

The present invention has relation to automatic railway-signals; and it consists in the different parts and combination of parts hereinafter described, and particularly pointed out in the claim.

Similar letters of reference indicate corresponding parts in all the figures of the drawings.

This invention is an improvement upon Letters Patent No. 389,258, granted to me September 11, 1888, for improvements in automatic railway-signals.

In the accompanying drawings, A represents the operating-lever, which is pivotally attached to the block B, or its equivalent, and is located at the side of one of the railway-rails, substantially as illustrated in Fig. 1. To the free end of this pivoted operating-lever A is attached the rock-bar C. Said rock-bar is securely held in proper position by means of the bearings *a*. Said bearings are securely held to the block B or its equivalent in any convenient and well-known manner.

The rock-bar C is provided with the arm or crank *b*, the free end of which has pivotally attached the bar D. The opposite end of the bar D is pivotally attached to the plunger-head E. For the purpose of providing a light plunger, and one that can be easily operated, said plunger is formed hollow, as illustrated in Fig. 2.

The air-cylinder F may be substantially of the form shown in the drawings, and is located at the side of the railway-track proper. Within the air-cylinder F is located one end of the hollow plunger G, which is provided with the plunger-head E. This plunger is so adjusted that it will draw air into the cylinder F as it is moved in one direction, and force air as it is moved in the opposite direction, as hereinafter described.

To the block H is securely attached the support I, which support is located substantially as illustrated in Figs. 1 and 2.

For the purpose of forcing the hollow plunger away from the front or forward end of the air-cylinder F, the helical spring J is provided, which is located between the support I and the crank *b* and around the bar D, said spring also forcing the arm or crank *b* away from the air-cylinder, thereby automatically elevating the operating-lever A, by means of the rock-bar C, after said operating-lever has been released. It will be understood that the operating-lever A is pressed downward by the wheels of a moving train.

To the cylinder F is attached the inlet-valve K, which may be constructed substantially as shown, and is an ordinary inlet-valve.

For the purpose of preventing dirt from being drawn into the cylinder the screen K′ is provided and attached in any convenient and well-known manner.

To one end of the cylinder F is attached the conduit L, which extends along the side of the railway-track to the place where it is desired to locate a signal, and, if desired, said conduit may be under ground.

The cut-off valve *d* may be located substantially as shown in the drawings, and is for the purpose of holding and retaining air in the conduit L, after it has been forced from the air-cylinder F, by means of the plunger-head E. The valve *d* is of the ordinary kind, such as are in commerce.

The signal end of the conduit L is bent or curved upward, as illustrated in Fig. 1, and may extend to any desired height. To the top or upper end of this bent or curved portion of the conduit L is attached the valve *d′*, and to this valve is securely attached the whistle M.

The valve *d′* is an ordinary cut-off valve, and should be so adjusted and regulated that it will hold a certain pressure of air within the conduit L before allowing the air to escape and sound the whistle. The valve *d′* may be constructed the same as the valve in

my former patent, No. 389,258, dated September 11, 1888. It will be understood that any valve constructed to operate will answer the purpose designed.

It will be understood that the conduit L may be of any desired length, and when it is desired to signal the starting of a train at a station the conduit L may extend to the station which the train is next to reach, thereby giving notice of the leaving of the approaching train. It will also be understood that the mechanism which compresses the air and forces it to the whistle may be located in any desired point or points between stations, and the conduit L extend to a street-crossing and be provided with a whistle, which is for the purpose of sounding a danger-signal.

The open end of the air-cylinder F is screw-threaded, which is for the purpose of receiving and holding the screw-threaded collar. This collar is provided with the flange *f*, which is for the purpose of holding the packing *g* in proper position.

For the purpose of causing the plunger G to move back and forth easily in the cylinder F, the lining *h* is provided, which is preferably formed of brass. The cushion d^2 is located against the support I, and is for the purpose of cushioning the hollow plunger G when it stops or strikes against the support I. The cushion d^2 should be formed of leather or like material.

For the purpose of preventing the whistle from being sounded when the train is leaving the signal proper, the operating-lever A is bent substantially as illustrated in Fig. 1, and is so adjusted that the flanges of the wheels will force or crowd said lever away from the railway-rail, thereby preventing any actuating movements of the operating-lever.

The spring a' is for the purpose of automatically forcing the operating-lever A toward the rail after the wheels have passed said lever.

For the purpose of properly oiling the plunger G, the oil-cup g' is provided, which is located substantially as shown in Figs. 1 and 2.

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

The combination of the operating-lever A, the connections C *b* D, the air-cylinder F, the hollow plunger G, the support I, the cushion d^2, the conduit L, provided with valves *d* and d', and the signal M, substantially as and for the purpose specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

ABRAHAM B. SNYDER.

Witnesses:
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