(No Model.)

A. B. SNYDER.

AUTOMATIC RAILWAY SIGNAL.

No. 458,198. Patented Aug. 25, 1891.

Fig. 1

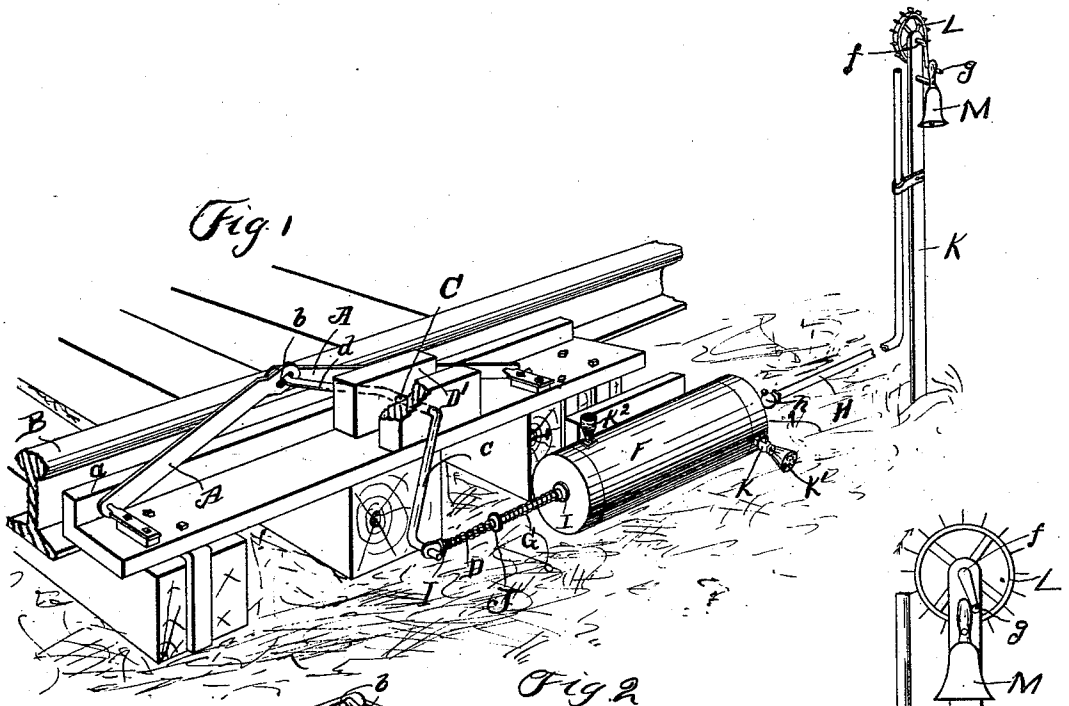


Fig. 2

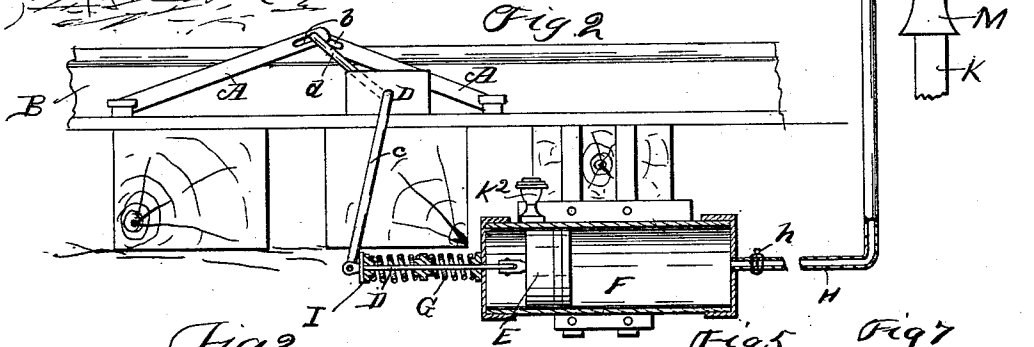


Fig. 3

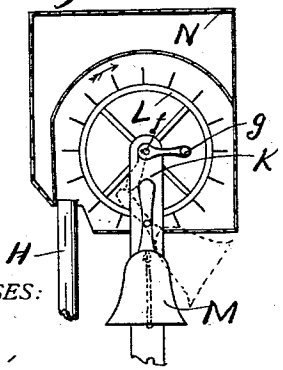


Fig. 4

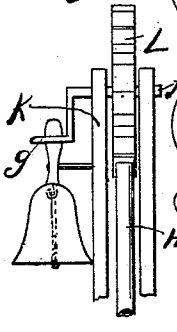
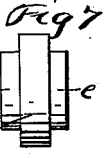


Fig. 5



Fig. 7



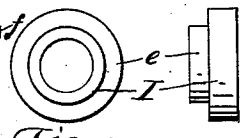


Fig. 8

Fig. 6

WITNESSES:

C. J. Cuss.

E. A. Le Smith

INVENTOR

Abraham B. Snyder

BY Fred W. Bond

ATTORNEY.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ABRAHAM B. SNYDER, OF LOUISVILLE, OHIO.

AUTOMATIC RAILWAY-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 458,198, dated August 25, 1891.

Application filed April 23, 1891. Serial No. 390,199. (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 of reference marked thereon, in which—

Figure 1 is an isometrical view. Fig. 2 is a side elevation showing parts in section. Fig. 3 is a side view of the wind-wheel, showing the signal-bell properly located with reference to the wind-wheel, and also illustrating a portion of the conduit. Fig. 4 is an edge view of the wind-wheel, showing a signal-bell properly adjusted. Figs. 5 and 6 are side views of the end spring-retaining rings. Fig. 7 is an edge view of the center spring-retaining ring or collar. Fig. 8 is an edge view of one of the end spring-retaining rings or collars.

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 claims.

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

In the accompanying drawings, A represents the operating-bars, which are pivotally attached either to the web of the railway-rail B or to the flange *a*, as illustrated in Fig. 1. The free ends of the operating-bars A are each provided with the elongated slot *b*, which slots are for the purpose of receiving the rock-bar C, as illustrated in Figs. 1 and 2. The rock-bar C is journaled to the blocks D′ or their equivalents, and is provided with the arm or crank *c*, to the free end of which crank is pivotally attached the bar D.

To the opposite end of the bar D is pivotally attached the plunger E, which plunger moves back and forth in the air-cylinder F. For the purpose of forcing the plunger E away from the front or forward end of the air-cylinder F the helical spring G is provided, which spring is located between the end of the air-cylinder and the crank or arm *c* and around the bar D. 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. To one end of the air-cylinder F is attached the conduit H, 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. It will be understood that the free ends of the operating-bars A should extend a short distance above the tread of the railway-rail for the purpose of causing the wheels of a passing train to press or force the free ends of the operating-bars A downward, which in turn carries the crank *d* downward and forces the arm or crank *c* toward the air-cylinder F and forces the plunger E forward by means of the rod D. After a wheel of a passing train has passed the operating-bars A said bars will be elevated by means of the spring G and again depressed by the next passing wheel, thereby imparting a reciprocating movement to the plunger E. For the purpose of holding the spring G out of contact with the bar D the rings or collars I and J are provided, which collars are located substantially as shown in the drawings. The spring G is formed in sections and the ring or collar J placed between the sections, as illustrated in Figs. 1 and 2. The rings or collars I and J are each provided with the flanges *e*, which flanges are for the purpose of receiving and holding the coil of the spring G. The ring or collar J may be loosely mounted on the bar D for the purpose of allowing said ring or collar to move back and forth upon the bar D. It will be understood that the ring or collar J will only move when the pressure of the spring-sections G is uneven or the pressure upon one side of said collar or ring is greater than it is upon the opposite side.

At a point where it is desired to locate a signal posts or standards, such as K, are located, to which posts or standards is journaled the wind-wheel L by means of its shaft *f*, and to one of the posts or standards K or its equivalent is pivotally attached the bell M, which may be located substantially as illustrated in the drawings. It will be understood that the wind-wheel L may be located at any desired height and the bell M adjusted with reference

to the crank *g*, the bell being so adjusted that the crank *g* will strike the top or upper portion of the bell-handle, and thereby swing the bell. The wind-wheel L is located within the casing N, said casing being for the purpose of protecting the wheel L. It will be understood that the conduit H should extend upward, as illustrated in the drawings, and is so located that it will conduct air to the wheel L, and as air is forced through the conduit H it will strike the wheel and rotate it. The cut-off valve *h* may be located substantially as shown in the drawings, and is for the purpose of holding and retaining air in the conduit H after it has been forced from the air-cylinder F by means of the plunger E. The valve *h* is of ordinary construction, such as are in commerce. The inlet-valve *k* is located substantially as illustrated in Fig. 1, and is also a check-valve of ordinary construction, and for the purpose of preventing dirt from being drawn into the air-cylinder F the screen K′ is provided and attached in any convenient and well-known manner.

For the purpose of lubricating the plunger E the oil-cup K^2 is provided, which may be located substantially as illustrated in Figs. 1 and 2.

By forming spring G in sections and placing the ring or collar J between said sections I am enabled, by means of the flanges *e*, to hold the center portion of the spring proper away and out of contact with the rod or bar D, thereby preventing the spring G from hugging said bar, and at the same time preventing the spring from twisting or buckling.

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

1. The combination of the operating-bars A, provided with elongated slots *b*, the rock-bar C, provided with the arms *c* and *d*, the bar D, the air-cylinder F, the plunger E, the helical spring G, and the rings or collars I and J, provided with the flanges *e*, substantially as and for the purpose specified.

2. The combination of the air-cylinder F, having located therein the plunger E and means for operating said plunger, the conduit H, the wind-wheel L, the crank *g*, and the bell M, substantially as and for the purpose specified.

3. The combination of the operating-bars A, the crank-arm C, the air-cylinder F, the rod D, having attached the plunger E, the conduit H, the inlet-valve *k*, the wind-wheel L, and the bell 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:
E. A. C. SMITH,
F. W. BOND.