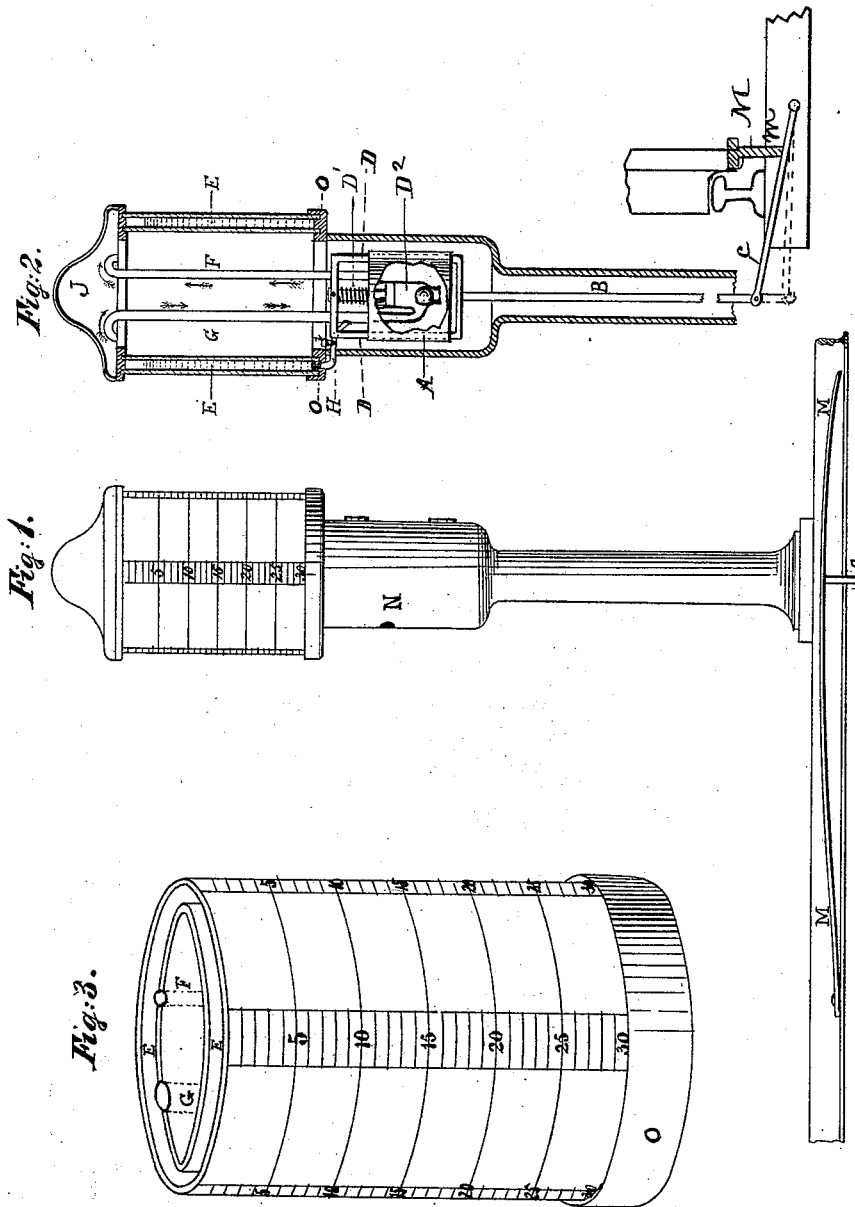


(No Model.)

R. M. BECHTEL & J. MOEBUS.
RAILWAY TIME SIGNAL.

No. 422,367.

Patented Mar. 4, 1890.



Witnesses:
James Erwin
John H. Walsh.

Inventors:
Robert M. Bechtle,
Jacob Morbus,
by Edmund Mannings,
their attorney.

UNITED STATES PATENT OFFICE.

ROBERT M. BECHTEL AND JACOB MOEBUS, OF JERSEY CITY, NEW JERSEY,
ASSIGNORS OF ONE-THIRD TO EDWIN MANNERS, OF SAME PLACE.

RAILWAY TIME-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 422,367, dated March 4, 1890.

Application filed March 21, 1889. Serial No. 304,214. (No model.)

To all whom it may concern:

Be it known that we, ROBERT M. BECHTEL and JACOB MOEBUS, citizens of the United States, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented a new and useful Railroad-Signal, which we call the "Automatic Railroad Time and Danger Signal," and of which the following is a specification.

Our invention is an automatic or self-registering time and danger signal. It is designed, principally, for use on railways, surface or elevated. It may be used in other cases. It has a double glass cylinder with a graduated scale thereon to denote minutes of time, called the "indicator." This indicator has a narrow fluid-chamber next the outer glass for holding some red or colored fluid—as colored alcohol or kerosene—and an interior chamber to hold a lamp or lantern for night use. There is a tank or reservoir containing the supply-fluid, and furnished with an ordinary force-pump directly underneath the cylinder-glass or indicator. The force-pump is connected by a bar or strong wire with a spring-bar alongside the rail on the bed of the railroad.

The nature of the invention is this: A train passing over the rail depresses the spring-bar attached thereto, which sets the force-pump in action. The pump forces the red or colored liquid from the tank into the fluid-chamber of the indicator and fills the same. After the passage of the train the red fluid gradually flows out of the fluid-chamber, as sand in an hour-glass, through a regulator, back into the tank or reservoir. The degrees of subsidence are indicated on the scale by lines, each line marking a minute in time. For instance, the engineer of the approaching train looks at the indicator and notes that the red fluid has fallen or subsided so many lines or degrees on the graduated scale, as five or ten. Immediately he knows that the foregoing train passed the signal five or ten minutes previous and has cleared the curve, cut, tunnel, or point in question. At present flagmen are required for this purpose. Our invention will obviate the necessity of their employment—a great saving in railroad economy or management—and furnish in their stead a reliable unerring indicator of the clearance of

trains. It also shows the comparative movement of trains, whether slow or fast, along the line. It is an effective danger and convenient time signal for railroad employes and travelers and a safeguard for the public in general. At elevated-railway stations and on city street-crossings it may prove of facility and convenience to the traveling public as indicating the passage and arrival of steam and horse cars run on a certain headway. These objects we attain by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a general view or side elevation of the signal. Fig. 2 is a sectional view of the same. Fig. 3 is the indicator or glass cylinder with graduated time-scale.

Similar letters refer to similar parts in the several figures.

We will now explain the drawings and construction of the signal in detail.

The frame or stand of the signal is a hollow iron casting enlarged at the top for the reception of the tank or reservoir A, which is secured on offsets in the casting. The tank A is the reservoir for the fluid, and is a round pot made of metal, with a slot on each side to hold the rods of the force-pump D², which is an ordinary force-pump placed within the reservoir. The helical spring, as at D', is the lifting-power of the piston after it has been depressed by the rod B, which is attached to the rod C, which in turn is connected with the spring-bar M. This spring-bar M is a flat bar placed on the inside of the rail on road-bed and wide enough to catch the flange of the wheels of passing trains, and hence be depressed. This bar M has depending from it a finger m, which is just over the rod C. This rod passes underneath the rail and is pivoted to or between two cross-ties, as shown in Fig. 2. On the top of the frame or stand is fastened the indicator, Fig. 3. This indicator is composed of two glass cylinders, one set inside the other, with a narrow space left between them E E as a chamber for the colored fluid. The interior cylinder is preferably opaque or porcelain. Within the interior cylinder a lamp or lantern is placed at night. These glass cylinders are set into a metal seat or base O. The tops of the cylinders are protected by metal rims with a ven-

tilating-cover J hinged thereon. Along the back of the inside cylinder run two tubes G and F, connecting with the tank A. The tube F is the injection or supply pipe running 5 down into the reservoir A and there connected with the force-pump D². The tube G is the overflow-pipe leading back into the tank and is larger than the supply-pipe F. The tube H is the regulator, a small pipe lead- 10 ing from the bottom of the fluid-chamber E to the tank. It has a stop-cock i to regulate the outflow to suit the graduated time-scale of the signal. The time-scale on the exterior glass cylinder may be blown in the same, 15 painted thereon, or made of metal. The metal frame or scale is preferred as being more distinct and at the same time a protection to the glass. The time-scale may be varied and adjusted to suit the schedule or time-table of 20 any road.

N is a door in frame of stand opening to the tank.

We do not confine ourselves to one method of supplying the indicator. The tank, for

instance, may be placed underneath the rail 25 on the road-bed or otherwise.

Having fully described our invention, what we claim, and desire to secure by Letters Patent, is—

1. The combination of the spring-bar M, 30 the rods C and B, the force-pump D², having the rods D and provided with the spring D', the tank A, within which is the force-pump, the indicator above the tank, the supply-pipe F, the overflow-pipe G; and the regulator-pipe 35 H, all constructed and arranged as and for the purpose set forth.

2. The indicator consisting of two concentric translucent cylinders, with a space between them closed at the bottom, but with an 40 outlet in said bottom, the outer cylinder having a scale on its surface, as set forth.

ROBERT M. BECHTEL.
JACOB MOEBUS.

Witnesses:

ROBERT O. KELLY,
J. J. HOHMANN.