(No Model.)

J. JOHNSON.

TIME SIGNAL.

No. 286,616. Patented Oct. 16, 1883.

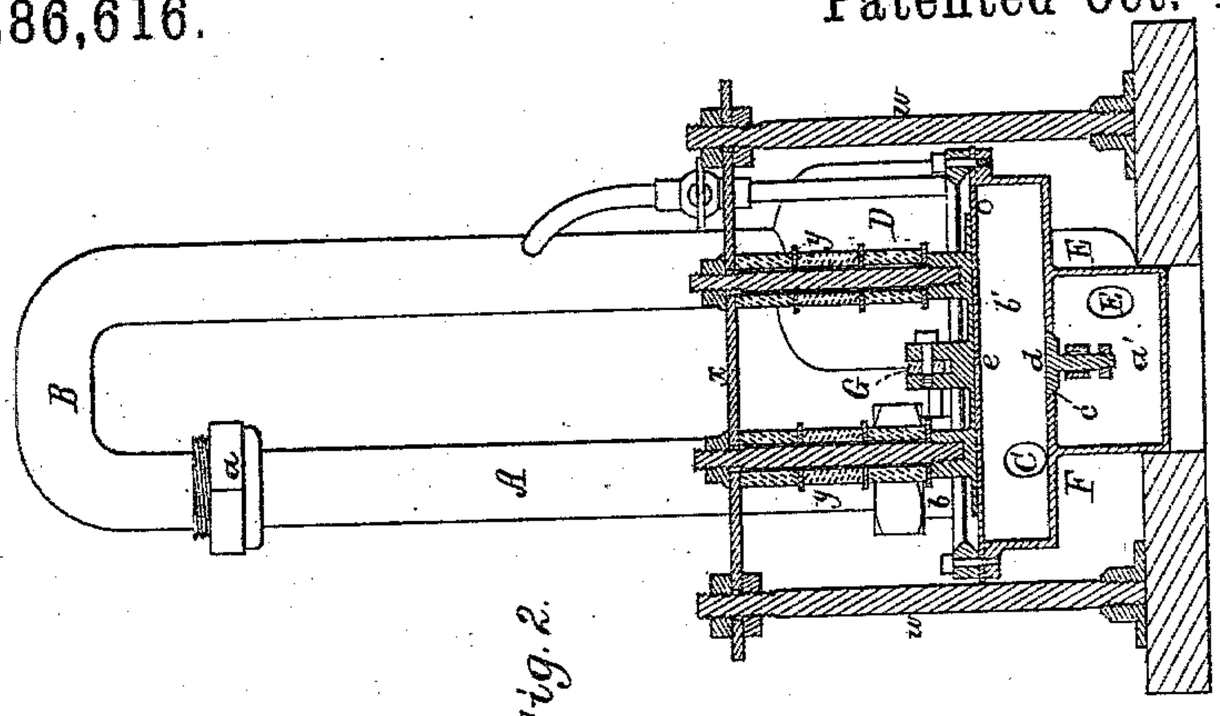

Fig. 2.

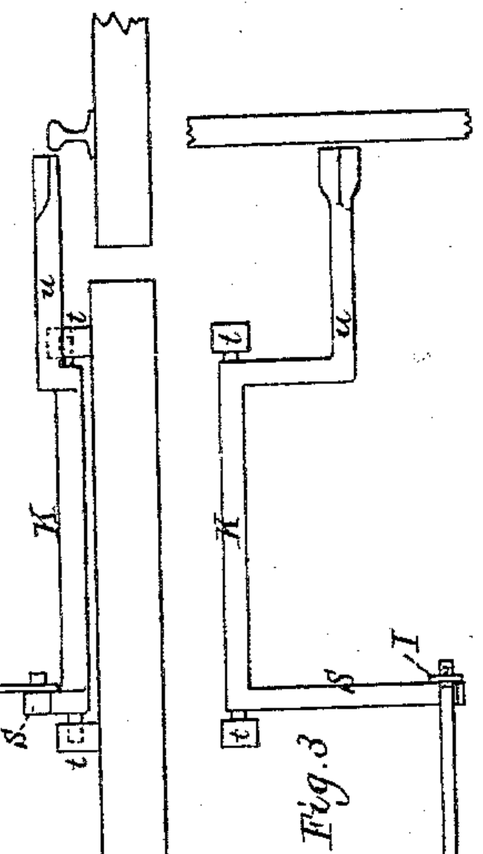

Fig. 3

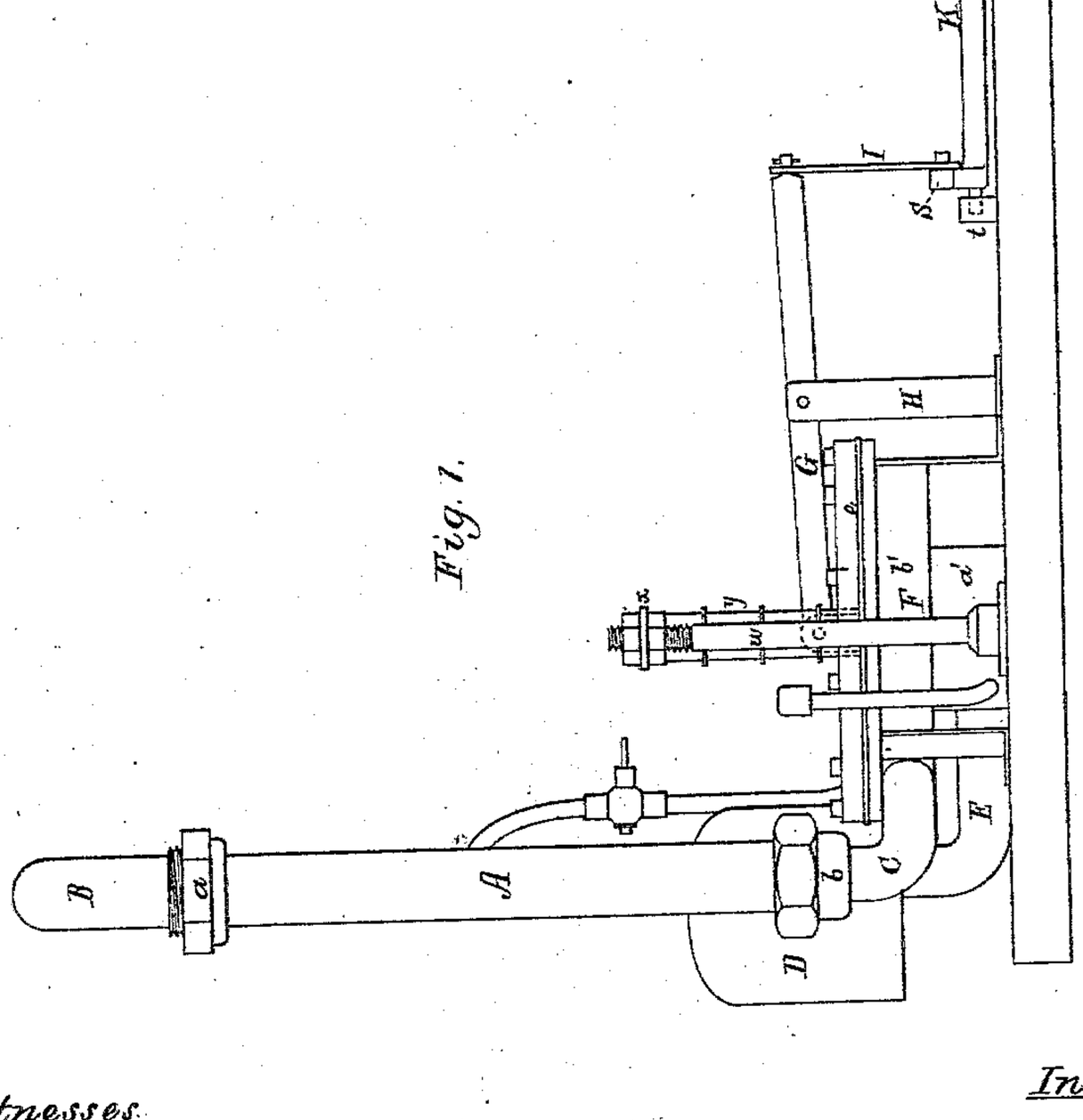

Fig. 1.

Witnesses.
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UNITED STATES PATENT OFFICE.

JACOB JOHNSON, OF NEWBURYPORT, ASSIGNOR OF ONE-FOURTH TO MATTHEW SCRANNAGE, OF MEDFORD, MASSACHUSETTS.

TIME-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 286,616, dated October 16, 1883.

Application filed February 5, 1883. (No model.)

To all whom it may concern:

Be it known that I, JACOB JOHNSON, of Newburyport, in the county of Essex, of the Commonwealth of Massachusetts, have invented a new and useful Improvement in Signal Apparatus for Railways; and I do hereby declare the same to be described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a side elevation, and Fig. 2 a transverse section, of a signal apparatus provided with my invention, the nature of which is defined in the claim hereinafter presented. Fig. 3 is a top view of the mechanism applied to the pump-piston lever, and making part of my invention.

The improvement has reference to the signal apparatus described and represented in the United States Patent No. 242,228, dated May 31, 1881, and granted on an invention made by Matthew Scrannage, the signalizer constituting such invention being to notify a car, train, or an engine on reaching the station of the signalizer of the period of time that may have intervened between the arrival of the said car, train, or engine at such station, and the departure therefrom of another car, train, or engine in advance, the object being to prevent the rear car, train, or engine from colliding with that in advance, as collisions of trains have frequently arisen in consequence of the engineer or conductor of one of them supposing another car or train in advance of his car or train to be at a required distance ahead, or as having passed or departed from a station in time for the arrival there of a following train. With the said signalizer of the said Scrannage the time that may have elapsed since the departure of a train from the signalizer-station will be indicated by the column of colored fluid of the glass tube of the instrument, it being supposed that such time is to be less than a given period—as five minutes, for instance. Thus by the distance the top of the column of fluid may have fallen since the departure from the station of a train in advance, the conductor or engineer of the following or rear train can judge of the time that may have elapsed since the station was left by the advance train.

The accompanying drawings, besides my invention, exhibit the main features or parts of the Scrannage signalizer, of which A is the glass tube, supported in stuffing-boxes *a b* at the ends of two conduits or tubes, B and C, arranged as shown. The longer, B, of these tubes turns downward parallel with the glass tube and opens into the top of a receiver or bulb, D, out of whose bottom a tube, E, extends and opens into the lower chamber, *a'*, of a force-pump, F. This pump has two chambers, *a' b'*, one of which is below the other and opens into it by a passage, *c*, provided with a valve, *d*, to open upward. The upper chamber has a flexile diaphragm or cap, *e*, which, at its middle, is jointed to a lever, G, fulcrumed to a standard or post, H. On pressing down the plunger when the upper chamber of the pump is filled with colored liquid such liquid will be driven through the tube C and upward into the glass tube A, such tube C opening out of the upper chamber of the pump, and being provided with a valve to open upward, in order to prevent return of the fluid through the tube C. Furthermore, in the Scrannage signalizer there leads out of the tube C, above its valve, a small educt or tube that opens into the bulb or receiver, such educt being gaged or of a size to discharge from the glass tube in five minutes of time a column of liquid equal in length to the distance between the two stuffing-boxes of the said glass tube. In practice, with the said Scrannage signalizer a train of cars in actuating the lever G would successively and rapidly depress the piston or diaphragm of the force-pump. The resistance presented by the fluid of the pump to the sudden downward movements of the piston was so great that the disastrous results or rupture or breakage of the apparatus followed.

The object of my invention is to prevent such evil consequences, and in carrying out such invention I combine with the force-pump the glass tubular column, and the return-tube connecting such column and pump, one or more springs to depress the piston, such spring or springs, in order to so operate, being contracted by the car or train acting thereon through suitable mechanism, a top view of which in its ap-

plication to the lever G is shown in Fig. 3. The outer arm of the lever G is connected by the link I with the longer arm, S, of a treble knee-lever, K, fulcrumed at *t t*, the other arm, *u*, of said lever being bent at right angles, as shown. The wheels of the cars in running upon the railway are to successively cross and depress the arm *u*, which at the same time will cause the arm *s* to be as often depressed and the piston to be raised. Over the piston, and resting upon it, and supported by two posts, *w w*, and a bar, *x*, extending from one to the other of such posts, and arranged with the pump in manner as represented, is one or a series of springs, *y*. The successive depression of the lever K by the wheels of the car or train will as often cause the piston to be forced upward against the spring or springs, so as to contract such spring or springs, which in the intervals will depress the piston, from which it will be seen that the piston is not depressed by the lever, as it is in the patented Scrannage signalizer, but is depressed by the spring or springs, which, in being contracted by the action of the car-wheels on the lever K, gradually yield to the force of contraction, and thereby prevent the injury to or breakage of the apparatus, to which it is liable when the piston is depressed by the lever G.

I do not herein claim the Scrannage signalizer; but

What I claim as my invention is—

In a signalizing apparatus of the class described, a piston for transferring the fluid from one chamber to another, the piston-lever, and means for operating such lever by a train, in combination with a spring located at the piston and adapted to depress the latter, as set forth.

JACOB JOHNSON.

Witnesses:
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E. B. PRATT.