(No Model.)

H. HANSON.

RAILWAY SIGNAL.

No. 264,829. Patented Sept. 19, 1882.

Fig. 1.

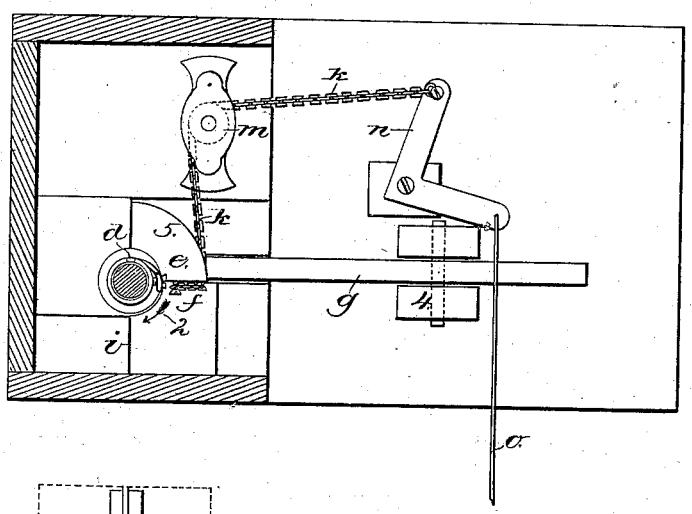
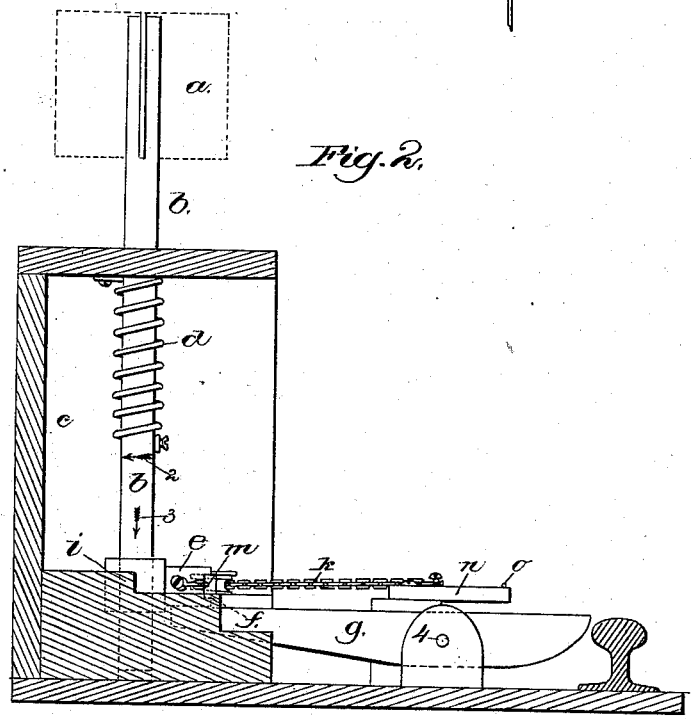


Fig. 2.



Witnesses.
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UNITED STATES PATENT OFFICE.

HENRY HANSON, OF BOSTON, MASSACHUSETTS.

RAILWAY-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 264,829, dated September 19, 1882.

Application filed April 17, 1882. (No model.)

To all whom it may concern:

Be it known that I, HENRY HANSON, of Boston, county of Suffolk, and State of Massachusetts, have invented an Improvement in Railway-Signals, of which the following description, in connection with the accompanying drawings, is a specification.

My invention relates to a railway-signal, and has for its object to produce a simple and efficient block-signal which is operated mechanically by the train in passing given points, at one of which points it causes the signal to be set to indicate "danger" and at the other causes it to be set in the opposite position to indicate "safety."

The signal consists of a vane, of any desired shape, mounted on a shaft the axis of which passes through or is parallel with the plane of the said vane, so that by a quarter-rotation of the said shaft the said vane may be moved from a position at right angles to the track, in which it is visible to the approaching engineer, to a position parallel with the track, in which only its edge can be seen by the engineer, the former position being employed to indicate "danger," and the latter "safety." The shaft is provided with an actuating-spring, shown as a spiral spring coiled around it, and tending to rotate it in such manner as to move the signal, as just described, the shaft being also provided with a stop projection or arm normally held by longitudinal pressure of the said actuating-spring in engagement with a shoulder, which prevents the spring from acting to rotate the signal. The train in passing acts upon a lever, by which the said holding-projection is disengaged from the said shoulder, permitting the shaft to be rotated by its actuating-spring for a quarter of a revolution, at the end of which the said projection engages another shoulder, preventing its further rotation. A cord or chain or other flexible connection is connected with the said shaft, it being shown as attached to the holding-projection, which is made as a sheave to receive the said cord, and the latter is connected by suitable devices—such as bell-cranks and wires—with another lever or device operated by the passing train at the point at which it is desired to restore the signal to the position occupied before it was released by the train and actuated by the spring, as just described. By these connections, when the train passes a second point it acts through the flexible connector to rotate the shaft in opposition to its actuating-spring until it is brought in position to have its holding-arm engaged by the shoulder, which is accomplished by the longitudinal action of the said spring. By this arrangement the signal is set in a given position—as, for instance, indicating "danger"—when the train passes it, and is restored to the other position when the train arrives at a certain distance beyond the said signal; but it is obvious that the operations might take place in inverse order, the signal being set in one position in advance of the train, and then restored to its other position when the train arrives at and passes it.

Figure 1 is a plan view, partly in horizontal section, of a signal apparatus embodying this invention, and Fig. 2 a vertical section thereof.

The signal *a*, shown as a flat plate or disk, is mounted on a vertical shaft, *b*, adapted to rotate in suitable bearings in an inclosing case or frame-work, *c*. The said shaft *b* is provided with an actuating-spring, *d*, coiled around it, and attached at one end to the frame-work and at the other end to the shaft, tending to rotate it in the direction of the arrow 2, and at the same time tending to produce a longitudinal movement of the said shaft in the direction of the arrow 3, or downward. The said shaft is provided with a holding-arm, *e*, shown in this instance as connected to the said shaft, and normally held by its downward tendency in engagement with a shoulder, *f*, which prevents the rotation of the cylinder under the action of the spring *d*.

The lever *g*, pivoted at 4, has one end in position to be acted upon and depressed by the wheels of the train passing over the rails, and the other end engaging the under side of the holding-arm *e*, so that when the wheels act upon the lever *g* it raises the said arm *e* out of engagement of the shoulder *f*, permitting the shaft *b* and connected signal *a* to be rotated in the direction of the arrow 2 by the actuating-spring *d*, the said movement being limited at the end of a quarter of a turn by the arm *e* engaging a stop-shoulder, *i*. The signal *a* is thus set at right angles to the position occupied when the

stop-arm *e* was engaged by the shoulder *f* before the lever *g* was actuated. The said arm *e* is provided with a curved grooved surface, 5, or is made as a sheave to receive a chain, *k*, or equivalent flexible band or connector, which is led over the guide-pulley *m*, and connected by bell-cranks *n* and wires *o*, or equivalent devices, with another lever or treadle (not shown) adapted to be operated by the train at any desired distance from the said signal, thus causing the arm *e* and connected shaft *b* to rotate in the direction opposite the arrow 2 until the said arm is again brought into engagement with the shoulder *f*, and thus placed under control of the lever *g*, ready to be operated in a similar manner by another train. When desired to operate the signal in advance of the train the normal condition of the apparatus would be with the arm *e* engaged with the shoulder *i*, in which case the approaching train would at the desired point rotate the said signal through the connectors *k n o* until the arm *e* was engaged by the shoulder *f*, as just described, the signal being retained in this position until the train arrives at and passes it, when the said train would act upon the lever *g* to disengage the arm *e* from the shoulder *f*, permitting the signal to be restored by the action of the spring *d* to its normal position.

It is obvious that the weight of the shaft *b* might be depended upon to move it in the direction of the arrow 3, to cause the arm *e* to engage the shoulder *f*; or that the said shaft might have no longitudinal movement, the arm *e* being splined thereon and having an independent longitudinal movement to engage and disengage the shoulder *f*, it being acted upon by the spring *d* or not, as desired; or that an independent sheave might be used for the chain *k* without departing from this invention.

I do not broadly claim a signal mechanically actuated by the train in passing different points.

I claim—

1. The signal, its shaft, having a rotary and longitudinal movement, and the actuating-spring for the said shaft, combined with a stop arm and shoulder engaged by it in the longitudinal movement of the shaft to prevent the said spring from rotating, and the lever actuated by the passing train and acting upon the said stop-arm to disengage it from its holding-shoulder and permit the spring to rotate the shaft, substantially as described.

2. The signal, its shaft, having a rotary and longitudinal movement, the holding-arm connected with the said shaft, and shoulders to engage it, combined with an actuating spiral spring surrounding the said shaft and tending to produce a longitudinal and rotary movement thereof, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HENRY HANSON.

Witnesses:
JOS. P. LIVERMORE,
B. J. NOYES.