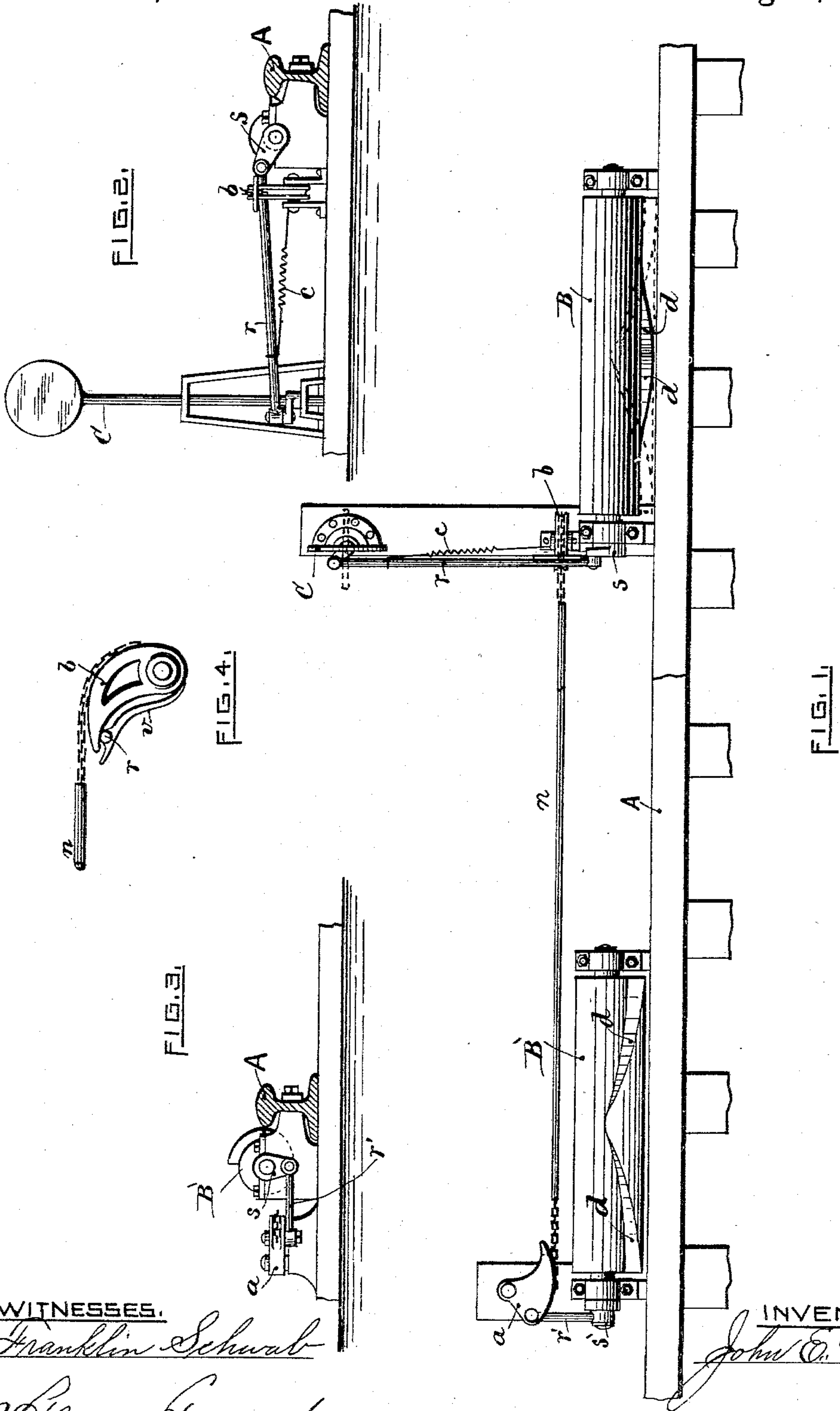


(No Model.)

J. E. BAKER.
RAILWAY SIGNAL.

No. 323,388.

Patented Aug. 4, 1885.



WITNESSES.

Franklin Schwab

Harry Howard

INVENTOR.

John E. Baker.

UNITED STATES PATENT OFFICE.

JOHN E. BAKER, OF NEW YORK, N. Y.

RAILWAY-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 323,388, dated August 4, 1885.

Application filed May 16, 1885. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. BAKER, of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Railway-Signals; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to that class of railway-signals called "automatic," being operated by the trains that pass them. It is illustrated in the accompanying drawings.

Figure 1 shows a plan view of the signaling apparatus. Fig. 2 shows an elevation looking to the right from the break in Fig. 1. Fig. 3 shows an elevation of the left end of Fig. 1. Fig. 4 is an enlarged view of the quadrant-lever *b*.

A indicates one of the rails of a railway-track.

B B' are cylinders with curved flanges *d d* made on their sides, which form a spiral track for about one-fourth of the way around them from one end to the middle, and then by a reversed curve to the other end. These cylinders or cam-levers are held in bearings at each end, securely bolted to the rail A at such a height that the centers of the cam-levers will be on a level with the top of the rail A. Short cranks *s s'* are made fast, one on the outer end of each cam-shaft. The crank *s* on the shaft of the cam B is connected by a rod, *r*, to a horizontal arm attached to the vertical shaft of the railway-signal C. This signal consists of an upright shaft or spindle supported in bearings in a stand securely bolted to a frame below and carrying at its upper end a vertical disk, though this part of the apparatus may be varied to suit the circumstances. A vertical quadrant-lever, *b*, is held in bearings attached to the ground-frame just outside of the cam B, and is placed so that its curved face shall bear against the rod *r*, and it is held up against that rod by a curved spring, *v*. (See Fig. 4.) The spring *v* has a semicircular recess made in it near its free end to receive the rod *r* and hold it so as to lock the signal when set, and a close spiral spring, *c*, which has one end attached to the rod *r* and the other end to the frame that holds the quadrant *b*, assists in locking the signal, so that it

shall not be moved accidentally by drawing back on the rod *r* when the crank *s* is above or below its center.

The cam-lever B' (shown on the left in Fig. 1) has its crank *s'* connected by a short rod, *r'*, to a horizontal quadrant-lever, *a*, which is held on a stud or pivot made fast to the frame below. The two quadrant-levers *a b* have each a groove made in their curved peripheries, and two pieces of chain that lie in these grooves have each one end attached to the quadrant near the inner end of the grooves. The other ends of the chains are made fast to each end of the rod *n*, which connects the two quadrant-levers together, so that each one may be operated by the other.

The curved flanges *d d* are made to receive the tread of the driving-wheels of a locomotive, and to avoid a shock from a sudden movement of the cam when the wheel strikes it the flanges *d* near the ends of the cams are recurved but little, gradually increasing in abruptness as they approach the middle of the cams, that the necessary motion may be imparted to them as easily as possible. The double flange is made on the cams for the purpose of receiving motion from trains passing either way; but a single flange may be used where trains pass only in one direction, in which case a more gradual curve can be obtained with the same length and weight of cam.

The operation is as follows: The signal-disk being in the position as left by the last train that passed out of the space between the two cams B B', as indicated by the dotted lines in Fig. 1, a locomotive approaching from the right will run its driving-wheels onto the curved flange *d* of the cam B and give that cam a quarter-turn toward the rail A. This will cause the crank *s* to turn the signal-shaft, by means of the rod *r*, a quarter-turn, so that the disk will stand square to the rail A and be exposed to view of the next train. When the rod *r* is raised by the crank *s*, it slides up against the curved face of the quadrant *b* and is caught in the recess in the spring *v*. (See Fig. 4.) At the same time the rod *r* pushes back the quadrant *b*, which draws on the quadrant *a* by means of the rod *n*, and gives the cam B' a quarter-turn by means of the rod *r'*, and leaves it in the position as shown in Fig. 1. When the signal is set in this way, the crank

5 *s'* being above its center, the tension of the spiral spring *c* tends to hold it there, and the rod *r* being held in the recess in the spring *v*, the signal is to a great degree locked in position against any accidental change. When the train has passed over the space between the two cams B and B', which distance may be more or less, according to circumstances, the cam B' is operated by the locomotive driving-wheel in the same way as the cam B was, and the crank *s'*, by means of the rod *r'*, will push back on the quadrant-lever *a*, which, by drawing on the rod *n*, will pull over the quadrant *b* and bear down the rod *r* and crank *s'*, turning the cam B, so that the flanges *d* shall be in the position shown by the dotted lines on that cam, and at the same time the signal will receive a quarter-turn by the rod *r*, and its disk

will stand as shown by the dotted lines, indicating that the track between the two cams B 20 and B' is clear and may be entered with safety.

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

1. The combination of the cam-lever B, quadrant-lever *b*, crank *s'*, rod *r*, and springs *v* and *c* with a signal, C, substantially as described, and for the purpose set forth. 25

2. The cam-lever B', crank *s'*, rod *r'*, and quadrant-lever *a*, in combination with the quadrant-lever *b* and rod *n*, substantially as 30 and for the purpose specified.

JOHN E. BAKER.

Witnesses:

FRANKLIN SCHWAB,
HARRY HOWARD.