

(No Model.)

3 Sheets—Sheet 1.

E. H. TOBEY.

SAFETY RAILWAY SWITCH.

No. 324,613.

Patented Aug. 18, 1885.

Fig. 1.

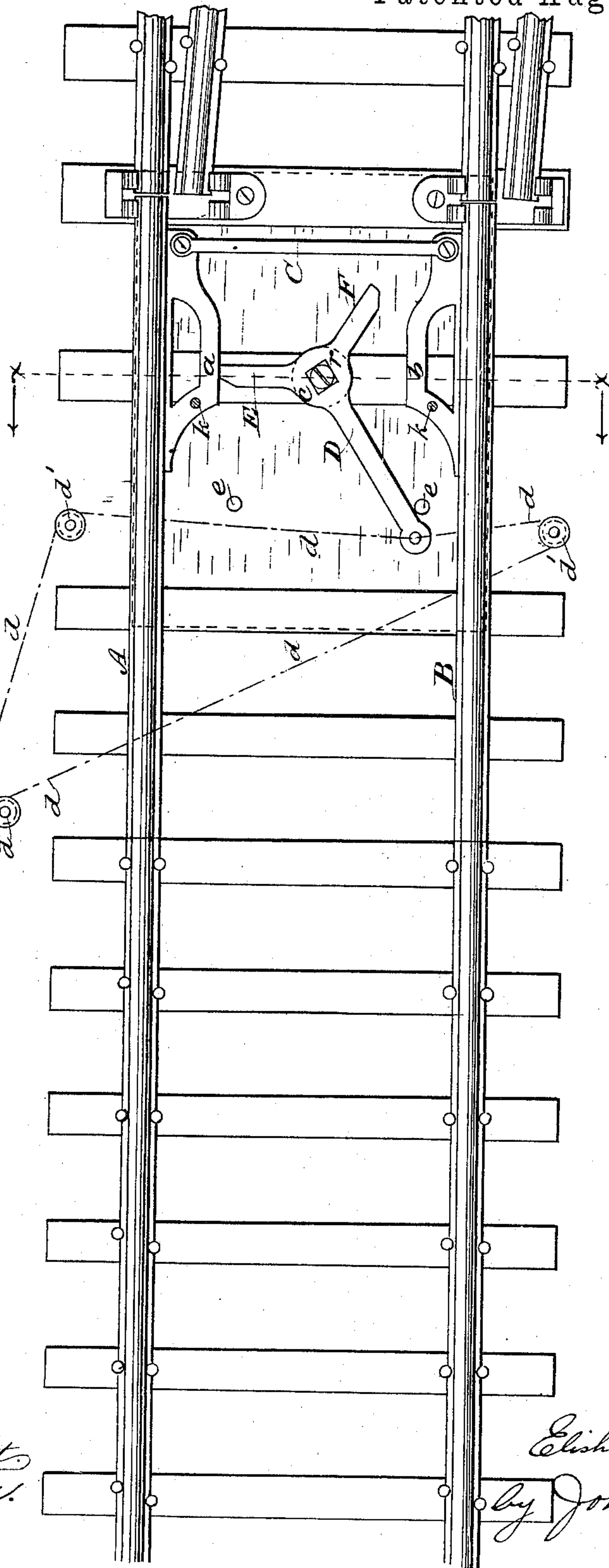
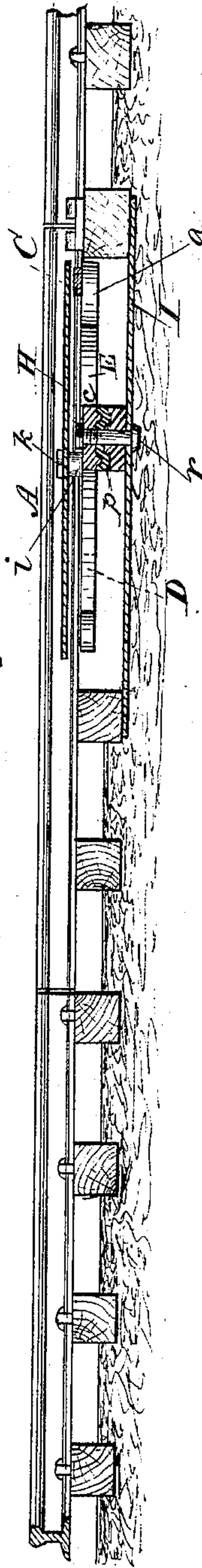


Fig. 6.



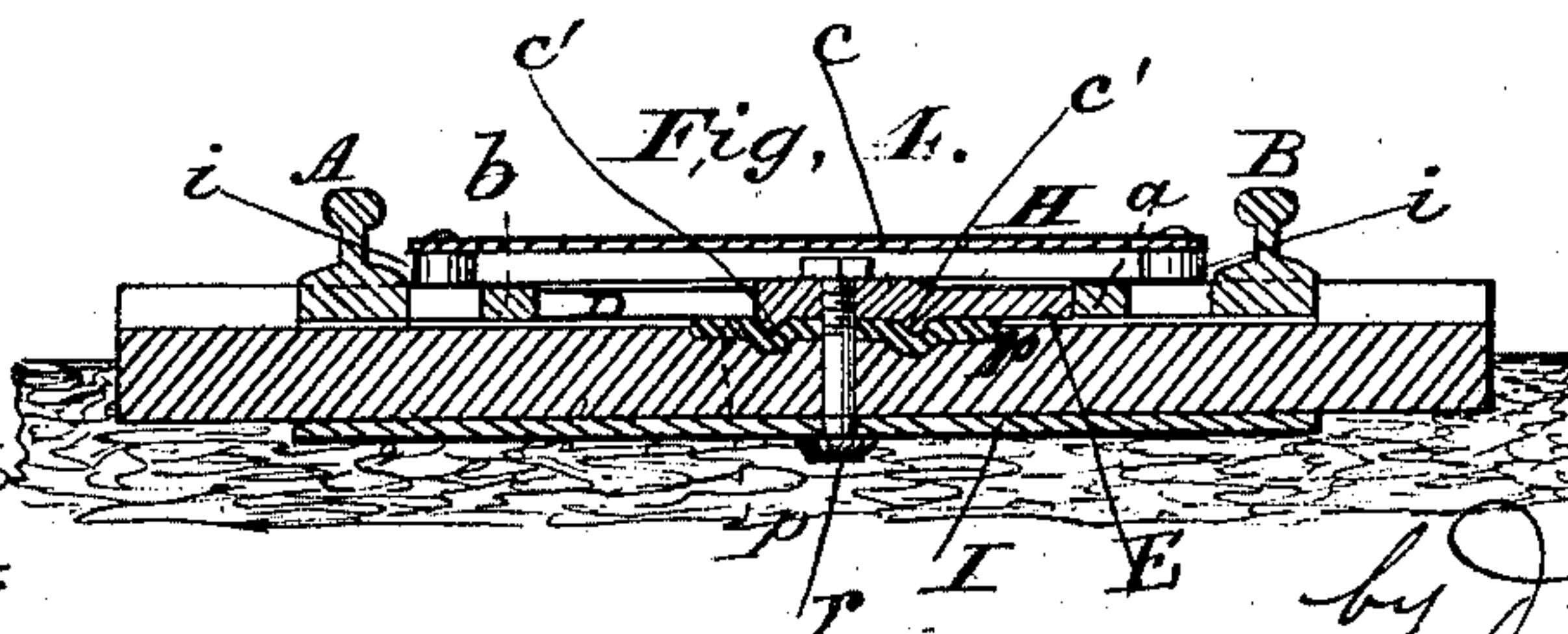
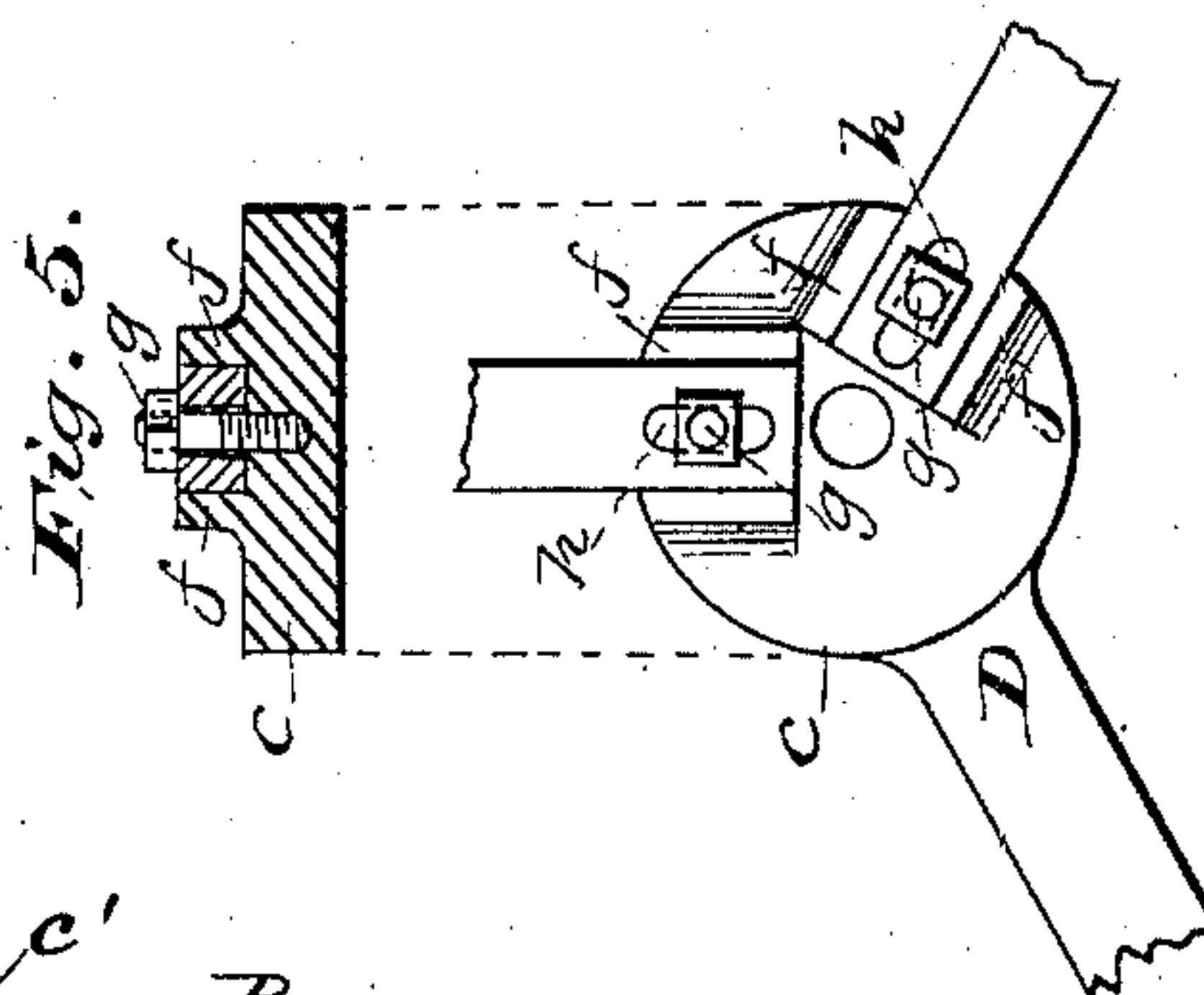
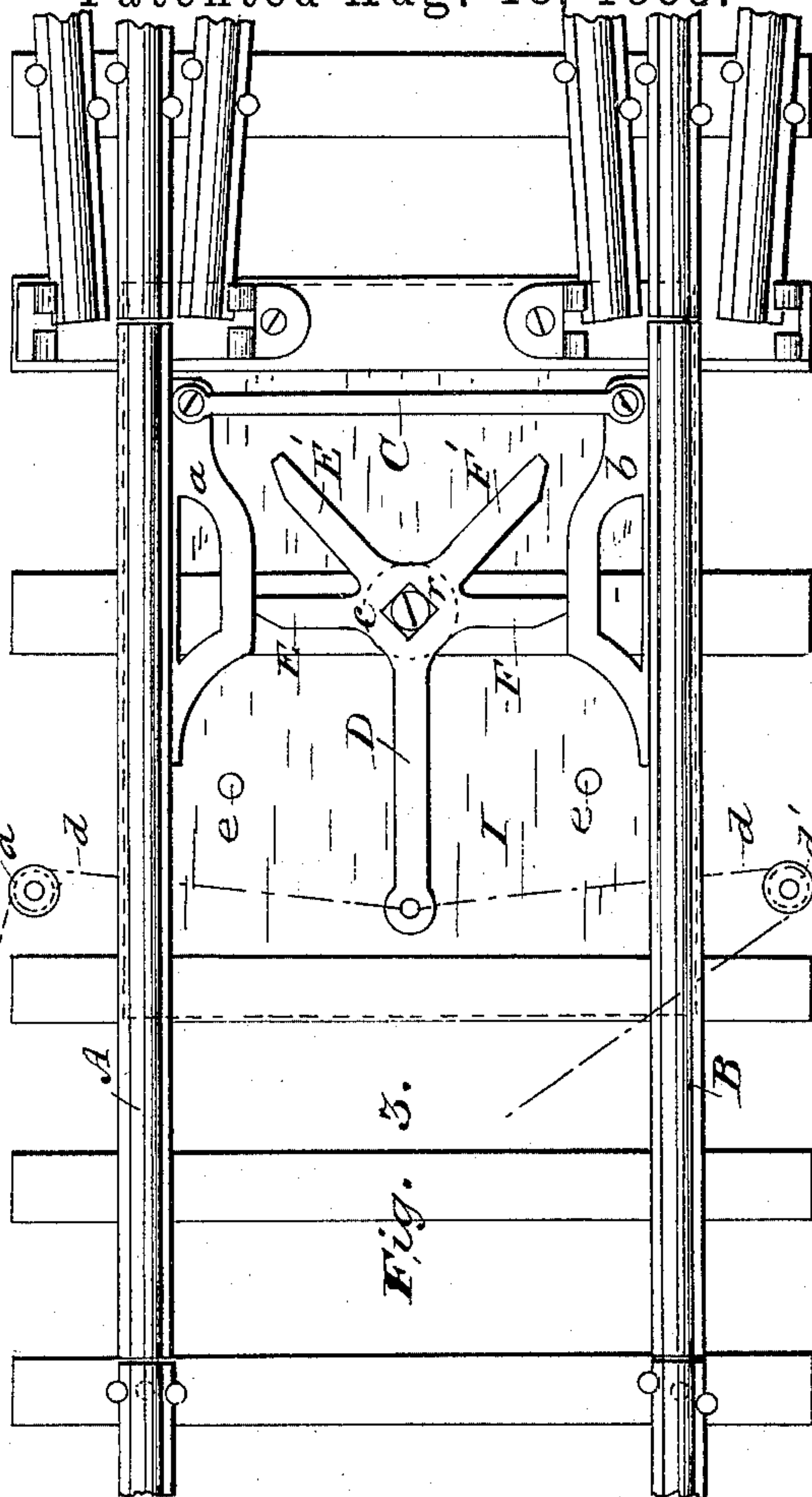
Witnesses:
J. C. Brecht,
Lutie Norris.

Inventor:
Elisha H. Tobey
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3 Sheets—Sheet 2.

SAFETY RAILWAY SWITCH.

Patented Aug. 18, 1885.



Witnesses:
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Leticia Norris.

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 Liza H. Tobey
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(No Model.)

3 Sheets—Sheet 3.

E. H. TOBEY.

SAFETY RAILWAY SWITCH.

No. 324,613.

Patented Aug. 18, 1885.

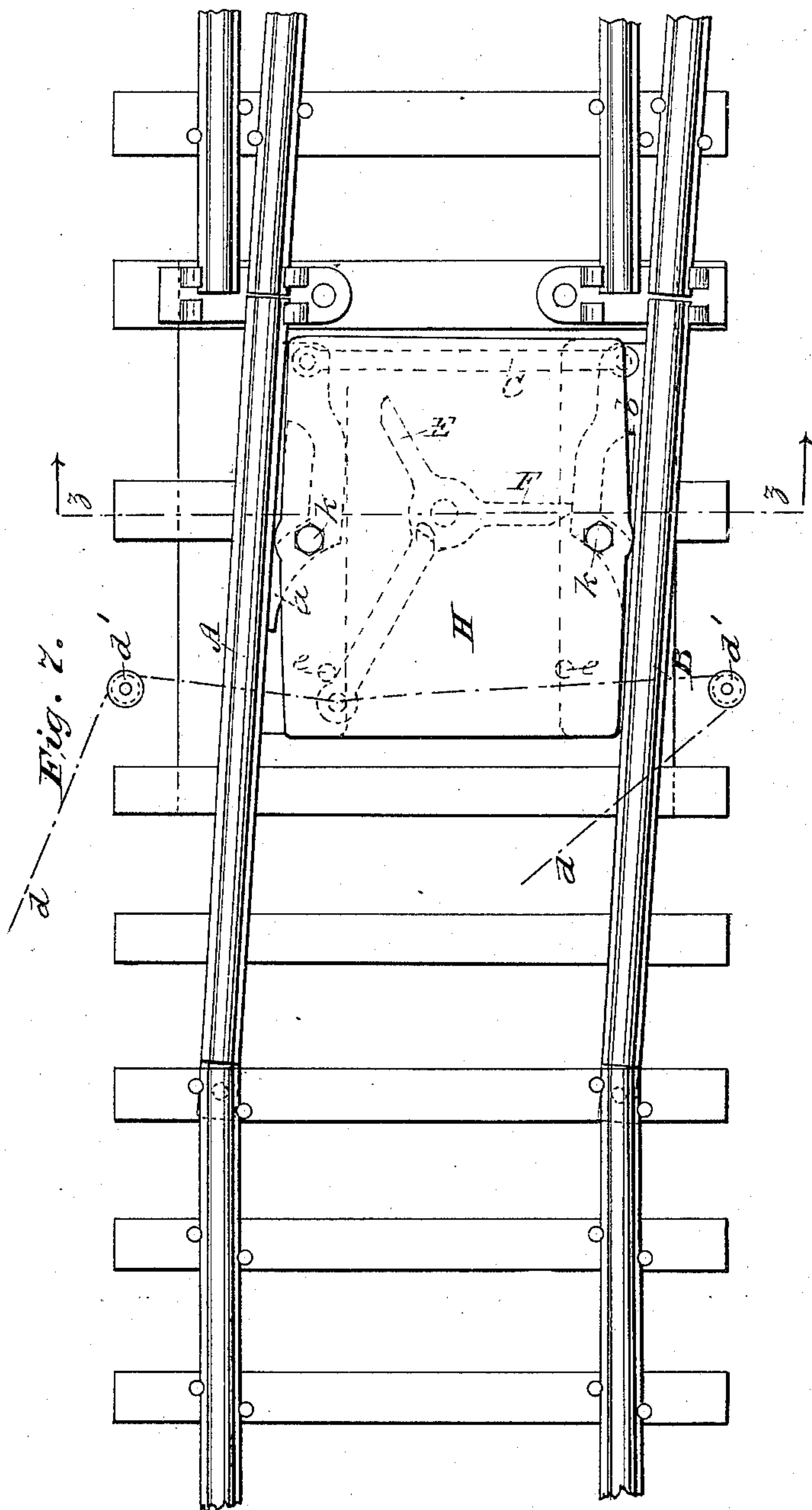
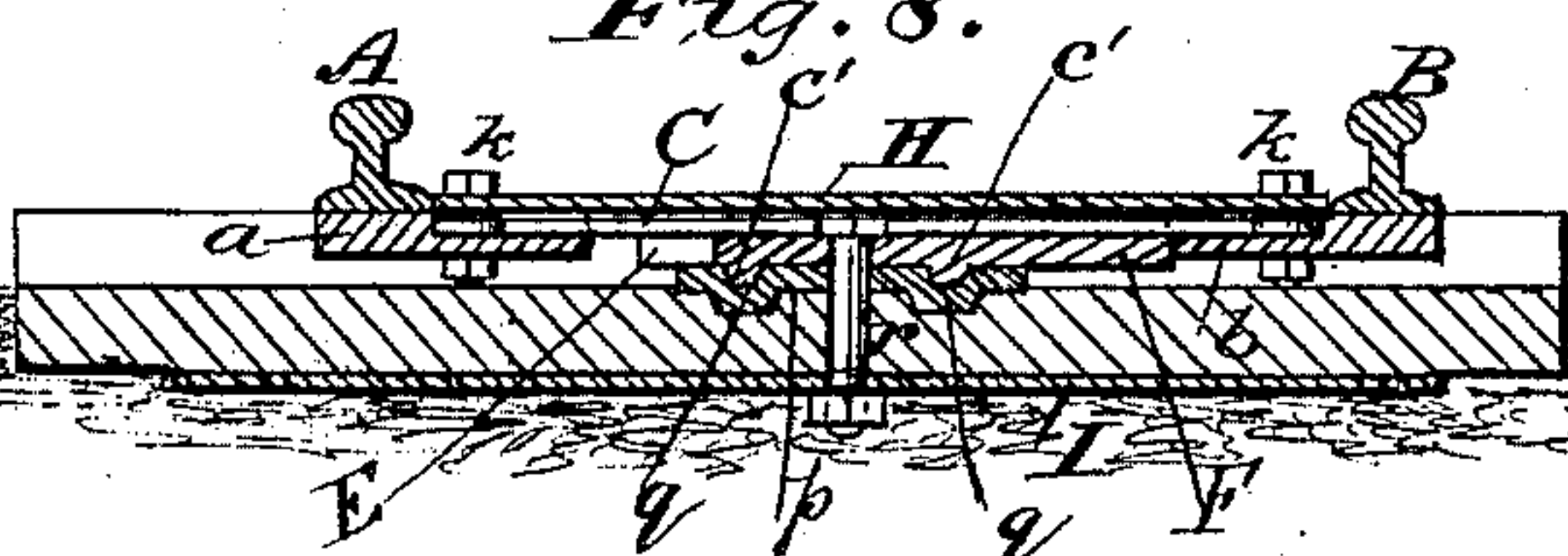


Fig. 2.

Fig. 8.

Witnesses:

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UNITED STATES PATENT OFFICE

ELISHA H. TOBEY, OF DENVER, COLORADO.

SAFETY RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 324,613, dated August 18, 1885.

Application filed April 5, 1884. (No model.)

To all whom it may concern:

Be it known that I, ELISHA HENRY TOBEY, a citizen of the United States, residing at Denver, in the county of Arapahoe and State of Colorado, have invented new and useful Improvements in Safety-Locking Railway-Switches, of which the following is a specification.

My invention relates to improvements in that class of switches in which the switch-rails can be moved and automatically locked in their terminal positions; and the object of my improvements are to increase the safety of railway-traveling; to simplify and perfect such automatic switch-locks, so that the switch-rails are securely held in position; to provide means whereby the switch moving and locking parts are inclosed in a housing to prevent being tampered with, and to protect them against snow, ice, and dirt; to provide for taking up the wear of the moving and locking parts, and to prevent the displacement of the operating-lever from its central position and facilitate its movement.

To accomplish these objects my invention consists in the combination, with a lever having two or more arms adapted to operate a switch and to lock it, of a housing for said operating-lever connected with and carried by said switch independent of said lever, and in the provision of a lever having four arms, two of which have a length greater than that of the other two, for operating a switch in relation to three divergent track-rails.

It also consists in pivoting said lever to a recessed bearing-plate, with a projection on the lever fitting into said recess to prevent displacement of the lever, facilitate its movement, and prevent the pivot-bolt from being worn or sheared off by the sidewise thrust or movement of the lever.

It further consists in inclosing the operating parts in a casing or housing pivoted to the switch to allow for its movement and prevent tampering with said parts by unauthorized persons, and to protect them from snow, ice and dirt.

It further consists in providing the means by which the switch-rails can be used in connection with three tracks; and it also consists in the construction of certain details and arrangement of parts, as will be more fully described hereinafter, and specifically pointed

out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 represents a plan view of my improved locking-switch locked in one position, the top housing-plate being removed. Fig. 2 is a plan view of the same, showing the switch locked in the opposite direction. Fig. 3 is a plan view of a modification showing a four-armed vibrating lever adapted to operate the switch in connection with three fixed diverging tracks. Fig. 4 is a transverse section on line *xx* of Fig. 1, showing the housing-plate for the operating parts of the switch. Fig. 5 is a detail section and plan of a part of the vibrating lever, showing adjustable arms. Fig. 6 is a longitudinal section on line *yy* of Fig. 2, showing also the housing-plate. Fig. 7 is a plan view showing the inclosing-casing for the operating parts; and Fig. 8 is a cross-section on line *zz* of Fig. 7.

In the drawings, A and B represent the switch-rails, provided at their movable ends with base-plates *a b*, projecting inward from the bottom part of the rails. These plates are preferably bolted to the rails, and are made of steel or faced with steel. The switch ends of the rails are connected by a pivoted stretcher-bar, C, so that it can move freely with the movement of the rails.

Between the plates *a b* is centrally pivoted a lever, D, having a hub, *c*, provided on its lower side with an annular projection, *c'*, which fits snugly into a recess, *q*, in a central bearing-plate, *p*. This plate is secured to the sleepers or other suitable foundation, and the lever is secured by a pivot-bolt, *r*, passing through them. The projection on the lever and recess in the bearing-plate prevent displacement of the lever sidewise, and also facilitate the movement thereof, as it admits of lubrication, and also prevents shearing of the pivot-bolts.

The lever D has two arms, E and F, which are steel-faced on their ends to resist wear, and are long, so that by a very slight movement the rails can be moved and locked in position. The ends of the arms bear alternately against the plates *a b* as they are brought in contact with them and exert a direct thrust against the rails, holding them securely in their locked positions. The movement of the rails is almost instantaneously accomplished by

means of the long arms. The lever has an eye in its end, to which wireropes *d*, chains, or their equivalent, are attached, and passing over sheaves or rollers *d'*, placed below the surface of the ground in suitable boxes or receptacles, extend to a tower, *G*, from which they are operated. On each side of the outer end of the lever *D* is placed a stop-pin, *e*, at the proper distance from the center of vibration, against which pins the end of the lever is brought to bear when the switch is locked in one or the other position. The lever *D* may, however, have four arms, *E F' E' F'*, as shown in Fig. 3, when it is desired to use the switch-rails in connection with three fixed tracks. In this case the two outer arms, *E* and *F*, are placed at right angles to the lever, and the two intermediate arms, *E'* and *F'*, must be lengthened so as to give a greater movement to the switch-rails.

To provide for any wear of the ends of the arms of the vibrating lever, said arms are made adjustable, and I have shown one plan of accomplishing this in Fig. 5. In this case the hub *c* of the lever *D* is provided on its upper surface with lugs *f*, between which the ends of the arms are fitted. They are held in the position desired by a stub-bolt *g*, which passes through a slot, *h*, in the arms and is screwed into the hub *c*. Other means for adjusting these arms will readily suggest themselves to the skilled mechanic. The arms in this instance are made entirely of steel to prevent wear, although they may be steel-faced and may bear directly against the rails.

To protect the operating works against snow, ice, or dirt, and also to prevent tampering with the same by unauthorized persons, I provide a suitable casing or housing. I have shown an upper plate, *H*, pivoted to the plates *a b* or the switch-rails, so that it can freely move with them. The sides of this plate are slightly beveled or rounded each way from the center, and it has a bearing or projection, *i*, Fig. 4, through which pivot-bolts *k* pass into the plates *a b*, and thus the plate *H* can move freely and without coming in contact with the sides of the switch-rails. A lower plate, *I*, is secured to the bottom side of the ties, and the lever-pivot is secured to said plate.

The housing *H* is a rigid plate, preferably pivoted to the rail-plates *a* and *b*, as described, but it may be pivoted directly to the base of the switch-rails, and its connection and construction should be such as to cause it to be moved with the movement of the switch free of the movement of the lever, free of binding action upon the switch-rails in the movement of the latter, and of sufficient area to cover and protect the lever, its arms, and its contact-points with the switch. The projections *i* (shown in Fig. 4) form base-bearings at its pivot-connections with the switch, and serve to keep the housing free from contact with the operating-lever.

I am aware that locking-switches have been used and are patented in which the switch-rails are operated by locking cams, levers, cranks, and other intermediate mechanisms.

My device cannot be easily tampered with by unauthorized persons, and snow, ice, or dirt cannot clog it and make it inoperative.

I claim—

1. The combination, with the pivoted switch-rails and a lever having two or more arms adapted to operate a switch and to lock it, of a housing, *H*, for said operating-lever, connected with and carried by the switch independent of said lever, substantially as herein set forth.

2. The combination, in a safety-locking railway-switch for three divergent fixed track-rails, of an operating-lever having four arms, two of which have a length greater than the other two, substantially as described, for the purpose specified.

3. The combination, in a railway-switch, of the lever *D*, having two or more arms, *E F*, adapted to operate and lock the switch with a direct thrust, and the stretcher-bar *C*, with an inclosing-housing pivoted to and moving with the switch, substantially as set forth.

4. The combination, in a railway-switch, of the lever *D*, having two or more arms, *E F*, and the switch-rail plates *a b*, with a housing for said lever, consisting of the top plate, *H*, pivoted to and moving with the switch, the lever-pivot, and the fixed base-plate *I*, substantially as described, for the purpose specified.

5. The combination, in a railway-switch, of the lever *D*, provided with two or more adjustable arms, *E F*, and the switch-rail plates *a b*, with means for operating and controlling the movements of said lever-arms upon said rail-plates, substantially as described, for the purpose specified.

6. The combination, in a railway-switch, of the lever *D*, having two or more arms, *E F*, and a bottom ring projection, *c'*, and the switch-rail plates *a b*, with a bearing-plate, *p*, having a surface-groove, *q*, adapted to receive said ring projection, the housing *H*, the base-plate *I*, and the bolt *r*, substantially as herein set forth.

7. The combination, in a locking switch, of the switch-rails *A B*, having the plates *a b*, and three fixed divergent tracks with the lever *D*, having four arms, two arranged at right angles to the lever, and two intermediate longer ones adapted to operate the switch, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ELISHA H. TOBEY.

Witnesses:

C. E. MACKEY,
O. S. MCCLAIN.