(No Model.)

2 Sheets—Sheet 1.

J. B. LOW.

ELECTRIC BRAKE SETTING APPARATUS.

No. 271,721. Patented Feb. 6, 1883.

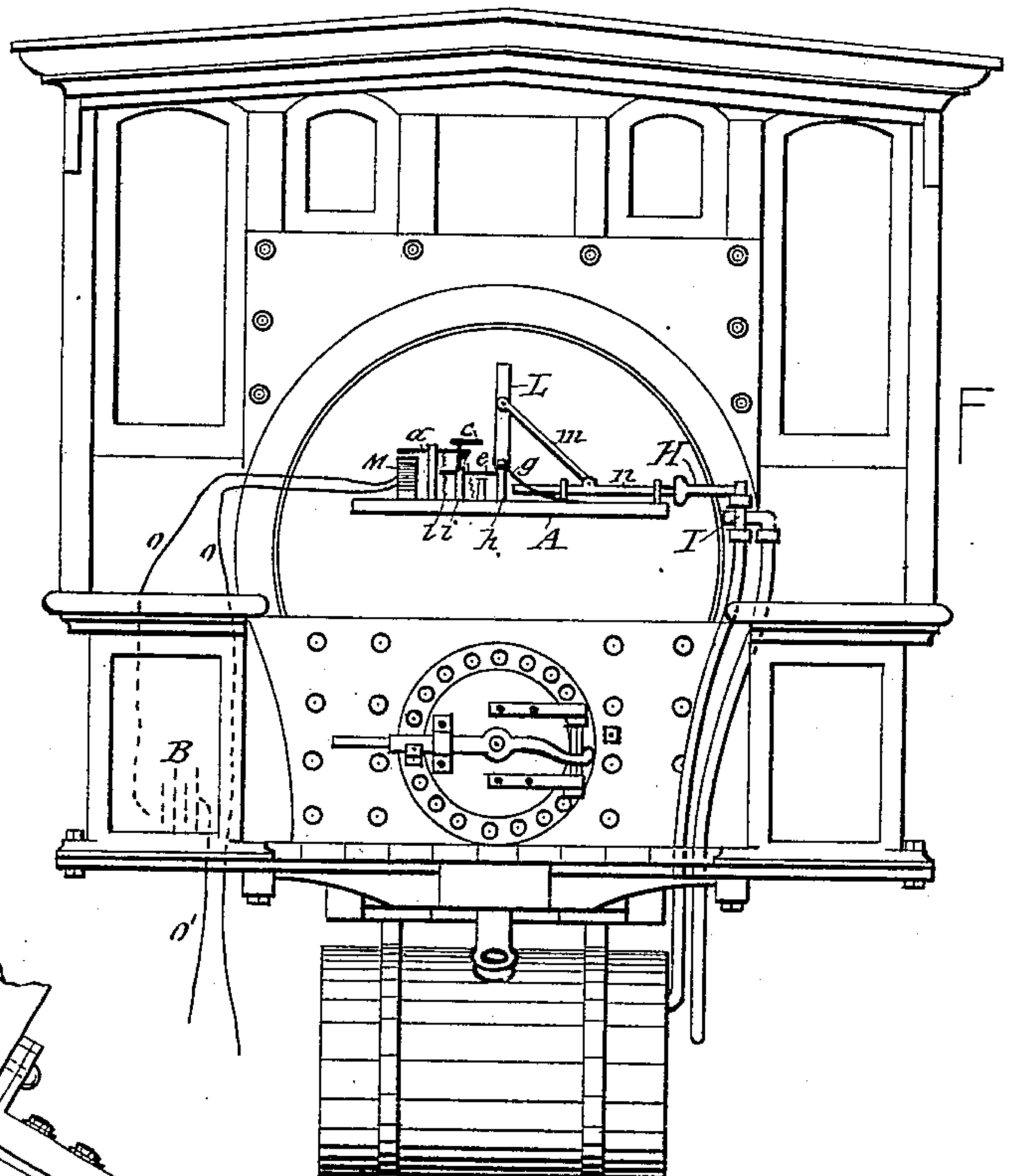


FIG-1-

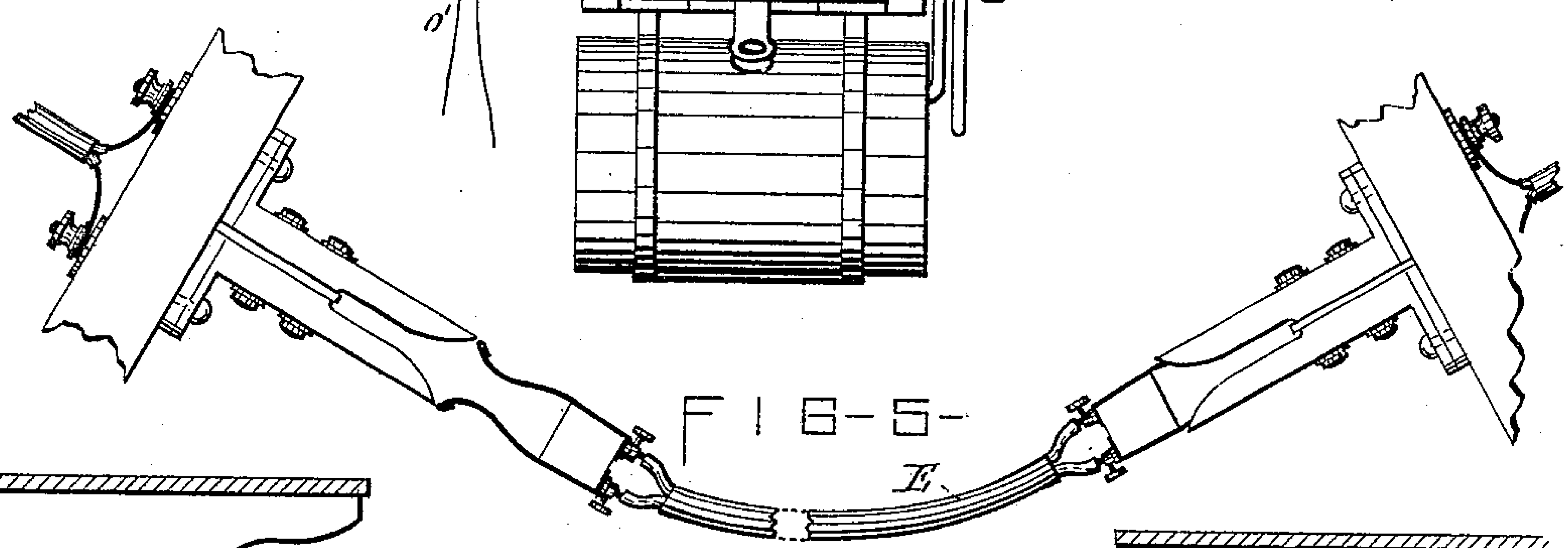
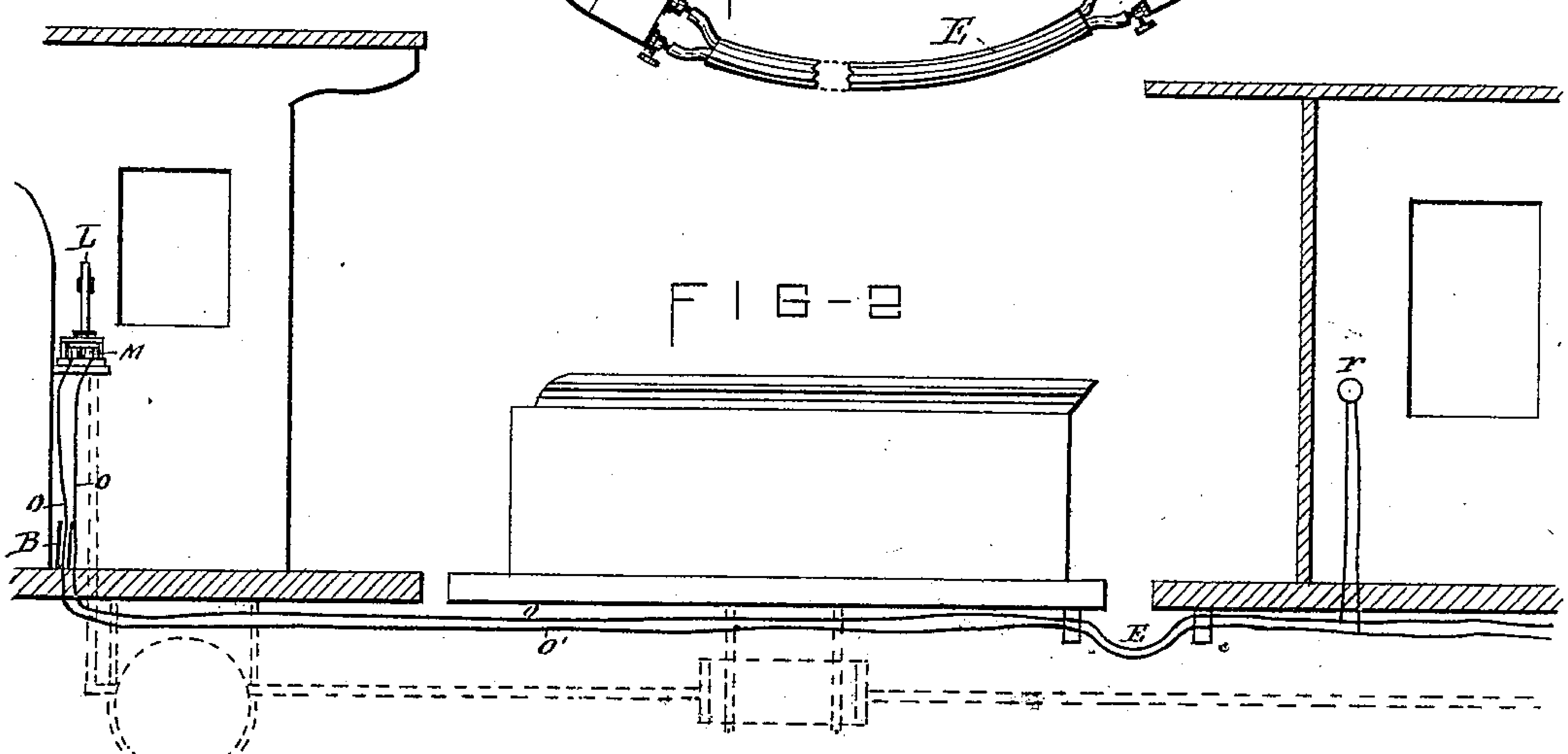


FIG-5-

FIG-2



WITNESSES—
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(No Model.)

2 Sheets—Sheet 2.

J. B. LOW.

ELECTRIC BRAKE SETTING APPARATUS.

No. 271,721. Patented Feb. 6, 1883.

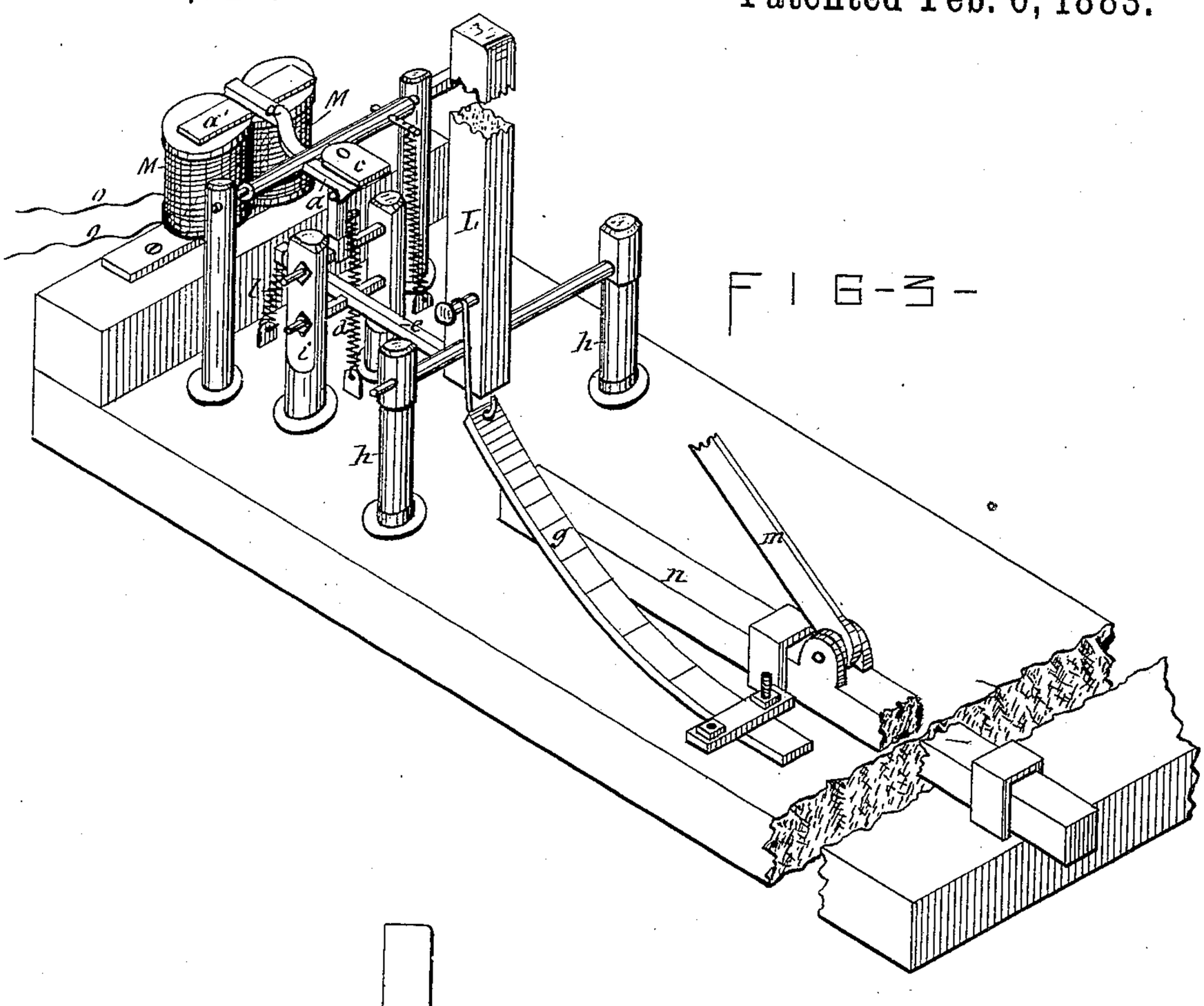

FIG-3-

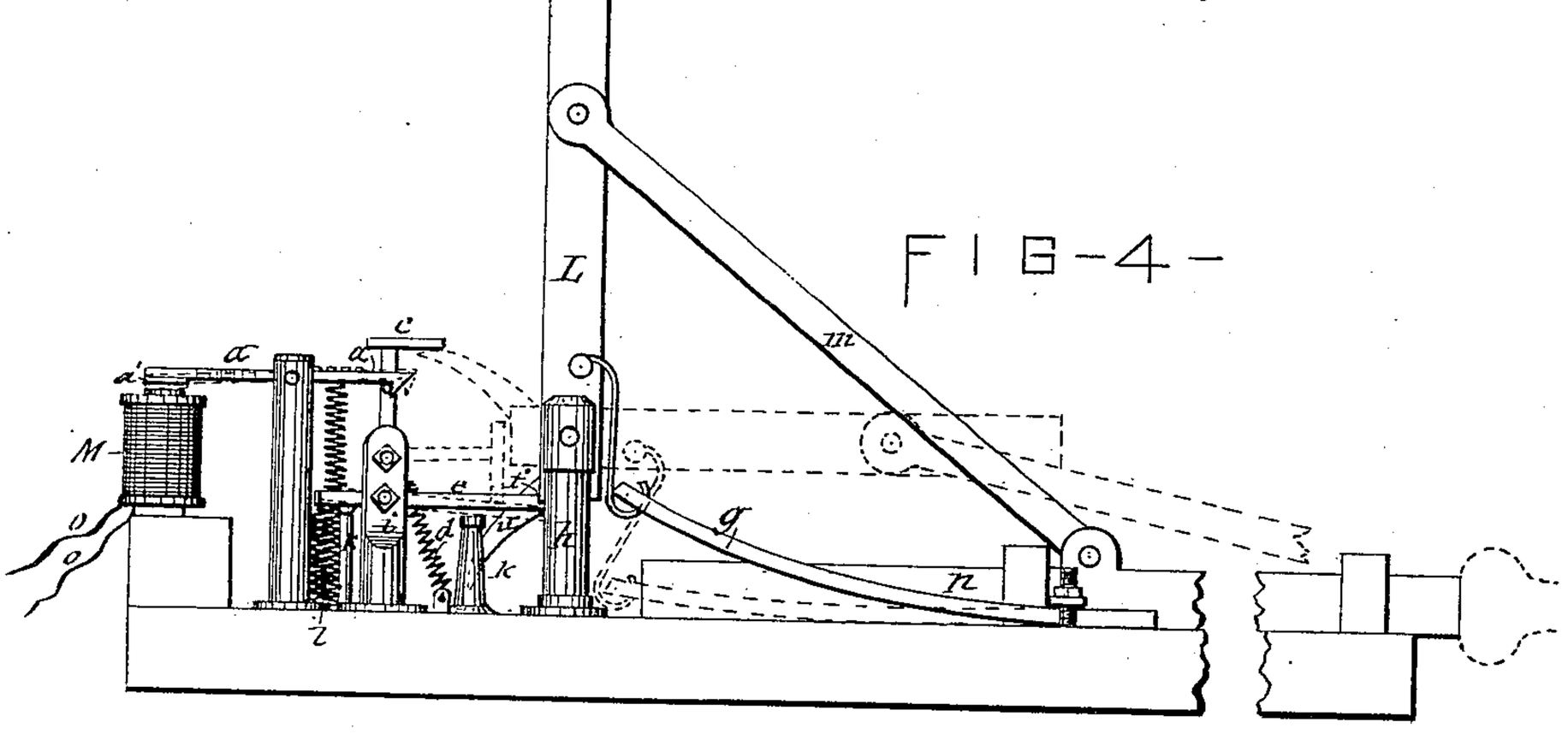

FIG-4-

WITNESSES—

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UNITED STATES PATENT OFFICE.

JESSE B. LOW, OF PULASKI, NEW YORK.

ELECTRIC BRAKE-SETTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 271,721, dated February 6, 1883.

Application filed August 12, 1882. (No model.)

To all whom it may concern:

Be it known that I, JESSE B. LOW, of Pulaski, in the county of Oswego, in the State of New York, have invented new and useful Improvements in Electric Brake-Setting Apparatus, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

The object of this invention is to provide simple, convenient, and effective means by which the air-brake may be set to check or stop the motion of the train of cars from most any point thereof, and without the necessity of first calling for the aid of the engineer in charge, thus avoiding to a great extent accidents to the train.

This invention consists in a novel construction and combination of a tripping device adapted to actuate the lever or handle by which the engineer in charge usually controls the air-brake, and certain novel electrical appliances for actuating the aforesaid tripping device from different points in the train of cars, all as hereinafter more fully explained, and specifically set forth in the claims.

Referring to the annexed drawings, Figure 1 is a rear end view of a locomotive, illustrating the application of my invention to the controlling lever or handle of the air-brake. Fig. 2 is a side elevation of a portion of a railway-train, illustrating the electric communication between the cars and the engine of the train. Fig. 3 is an enlarged isometric view of the apparatus for operating the manipulating lever or handle of the air-brake. Fig. 4 is a side view of the same, and Fig. 5 is a detached view of the electric conductors between the cars.

Similar letters of reference indicate corresponding parts.

H denotes the lever or handle of the usual three-way cock, I, arranged in the cab of the locomotive for controlling the Westinghouse air brake. (Shown in its dormant position in Fig. 1 of the drawings.)

On a suitable support, A, in proximity to the three-way cock I, is arranged the following mechanism, viz:

Between two posts, *h h*, is pivoted a lever, L, the long arm of which receives a forward or downward pressure by means of a spring, *g*, connected therewith.

In front of the lever L is arranged a slide-rod, *n*, which is connected with the long arm of the lever L by a rod, *m*, and adapted to operate, during its sliding movement, the handle H of the three-way cock I. The rods *n* and *m* being of such lengths that when the lever L is raised, as shown in Figs. 3 and 4 of the drawings, the rod *n* will be retracted sufficient to clear the handle H, turned to liberate the brake. Back of the lever L is a small lever, *e*, pivoted intermediately of its length on a post, *i*, and having a vertical oscillating motion limited by two posts, K K, underneath said lever respectively at opposite sides of the pivot thereof, said lever *e* being depressed at its rear end by means of a spring, *l*, and provided at its forward end with a shoulder, *f*, in such relative position as to encounter the rear edge of the short arm of the lever L when swung into a vertical position, as shown by full lines in Figs. 3 and 4 of the drawings, and thereby arrest the descent of said lever.

Over the lever *e* is a pivoted hammer, *c*, strained into a forward and downward tendency by means of a spring, *d*, and held in an elevated position by means of a hook on the end of a pivoted iron bar, *a*, engaging with a stud-pin on the side of the stem or arm of the hammer. The aforesaid bar *a* constitutes the armature, having a cross-bar, *a'*, directly over two electro-magnets, M M, the electric conductors *o o* of which are extended respectively to a suitable battery, B, and to the several cars of which the train is composed. Another conductor, *o'*, extended from the battery along the length of the train, serves to form a circuit when communication is effected between the two latter conductors, said communication being produced by means of the ordinary push-button, *r*, or other well-known suitable devices connected with the cars at any desired point and electrically connected with the aforesaid conductors.

The operation of my invention is as follows: The engineer in charge of the train throws up the long arm of the lever L until it is retained by the engagement therewith of the shoulder *f* on the lever *e*. This allows the engineer to freely manipulate the handle H of the three-way cock I, by which the air-brake is controlled, the handle H standing in proximity to the

end of the slide-rod *n* when said handle is turned to liberate the brakes. In case the conductor or train-hands find it necessary to apply the brakes to the wheels of the cars without the engineer having become aware of that fact, the former or other occupant of the cars can press on the push-button *r*, thereby closing the circuit and sending an electric impulse to the electro-magnets M M, which immediately draw down the armature *a*. The resultant lifting of the opposite end of the pivoted armature throws the hook *b* thereof out of engagement with the arm of the hammer *c*, and thus allows the said hammer to be drawn down by the spring *d*. The descending hammer strikes the forward portion of the lever *e*, and thereby knocks the same out of its engagement with the short arm of the lever L. The released lever L is drawn forward and downward by the spring *g*, and this movement of said lever forces forward the sliding rod *n*, which in turn pushes around the handle H of the three-way cock I, and thereby applies the air-brakes to the wheels of the cars.

The electric conductors *o o'* of each of the several cars I connect with those of the adjacent car by the flexible and detachable electric conductors E, (shown in Fig. 5 of the drawings hereto annexed, and more fully shown and described in my Patent No. 258,859, May 30, 1882, of which it constitutes the subject-matter claimed,) said coupling being so arranged as to close the circuit by a disconnection of the cars, and in this case causing the application of the brakes.

In order to automatically carry the tripping-hammer *c* back to its requisite operative position, I provide the heel of the lever L with a cam or spur, *u*, which is in such relative position and of such contour and length as to encounter the hammer *c* and press the same upward and back into its engagement with the hooked armature *a* simultaneously with the descent of the lever L, as illustrated in Fig. 4 of the drawings.

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

1. In combination with the manipulating lever or handle of an air-brake, a spring-actuated lever or arm adapted to operate the aforesaid lever or handle, a catch for holding said lever in a dormant position, a tripping device adapted to disengage said catch, a pivoted armature restraining the tripping device from action, electro-magnets in juxtaposition to said armature, an electric battery, and electric conductors extended from the electro-magnets through the train of cars, as and for the purpose set forth.

2. In combination with the handle H, the battery B, electric conductors *o o'*, the electro-magnets M M, the pivoted armature *a*, provided with the hook *b*, the spring *s*, the pivoted hammer *c*, adapted to engage with said hook, the spring *d*, the lever *e*, provided with the shoulder *f*, the lever L, spring *g*, and mechanism for transmitting motion from the lever L to the handle H, substantially as and for the purpose shown and described.

In testimony whereof I have hereunto signed my name and affixed my seal, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 26th day of July, 1882.

JESSE B. LOW. [L. S.]

Witnesses:
WM. C. RAYMOND,
F. H. GIBBS.