

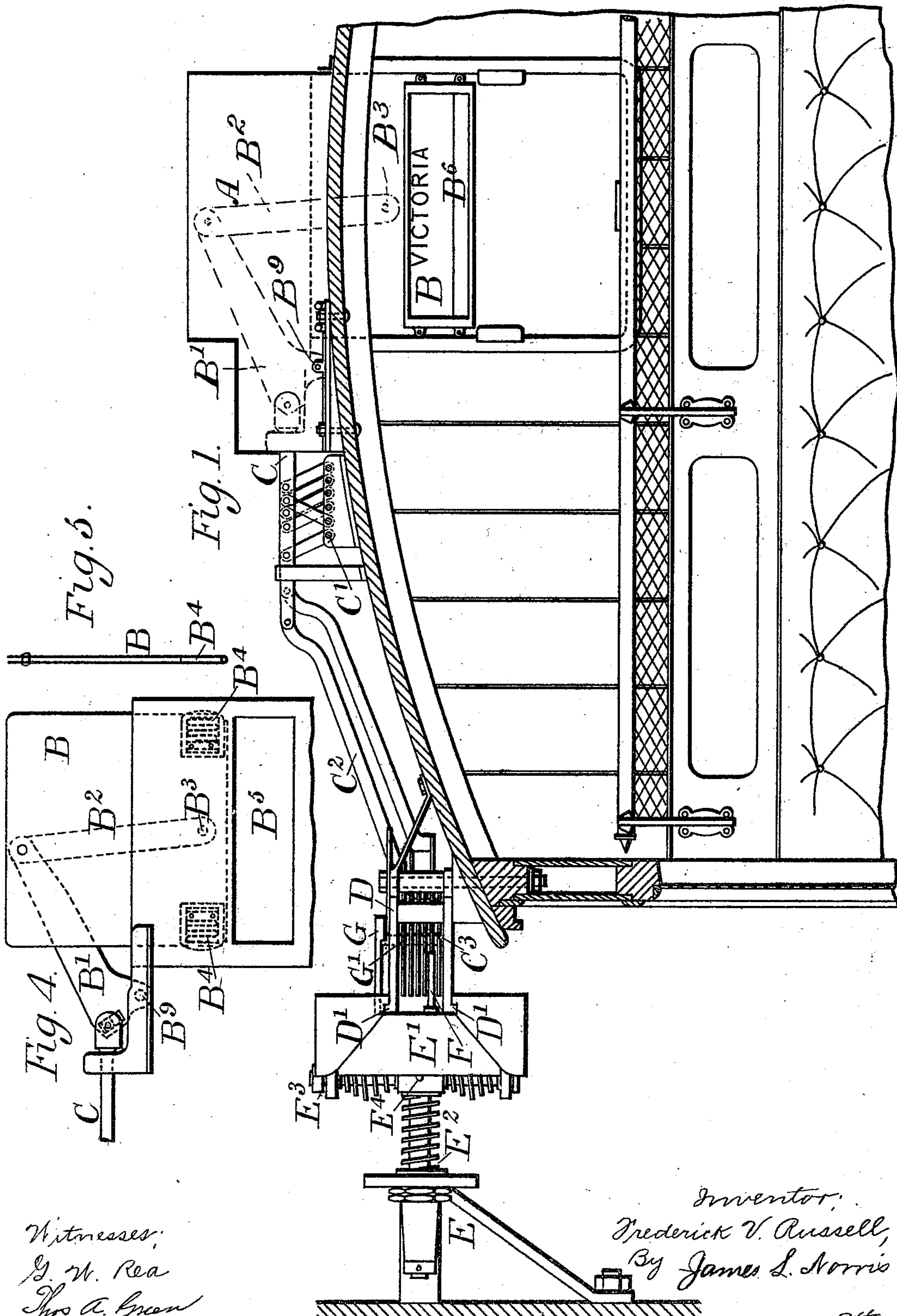
(No Model.)

2 Sheets—Sheet 1.

F. V. RUSSELL.  
STATION INDICATOR.

No. 516,944.

Patented Mar. 20, 1894.



Witnesses:  
G. W. Rea  
Thos. A. Green

Inventor,  
Frederick V. Russell,  
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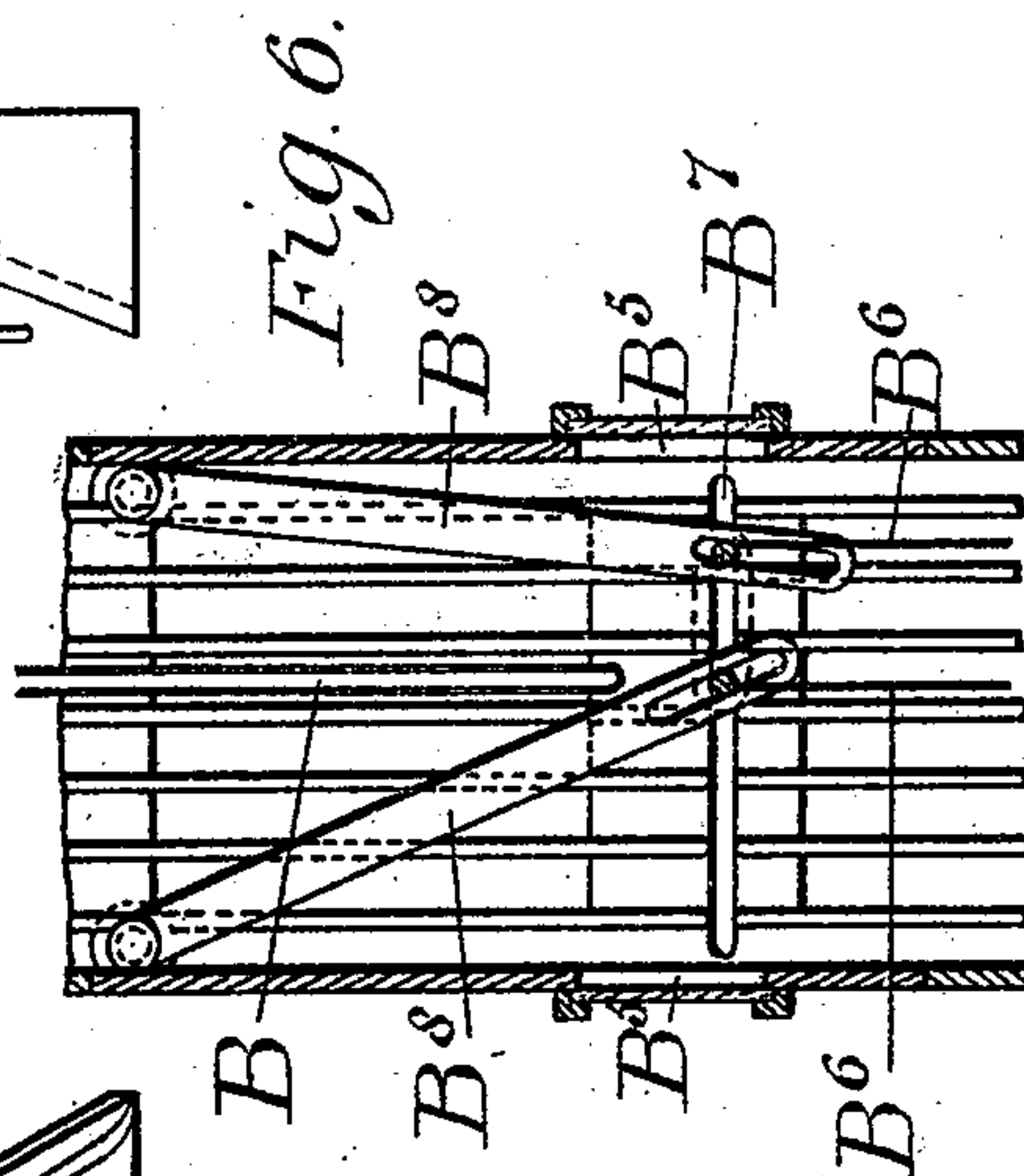
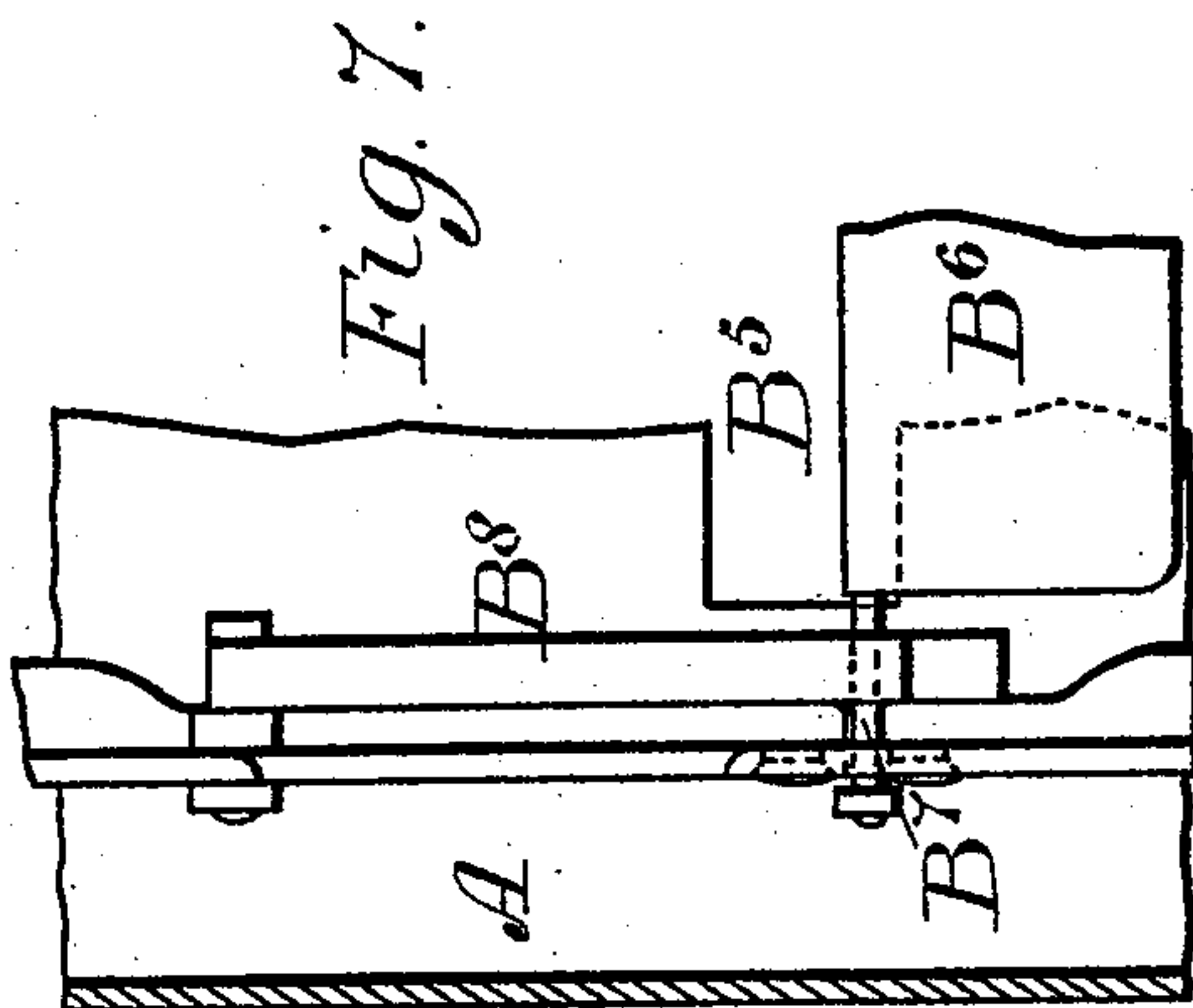
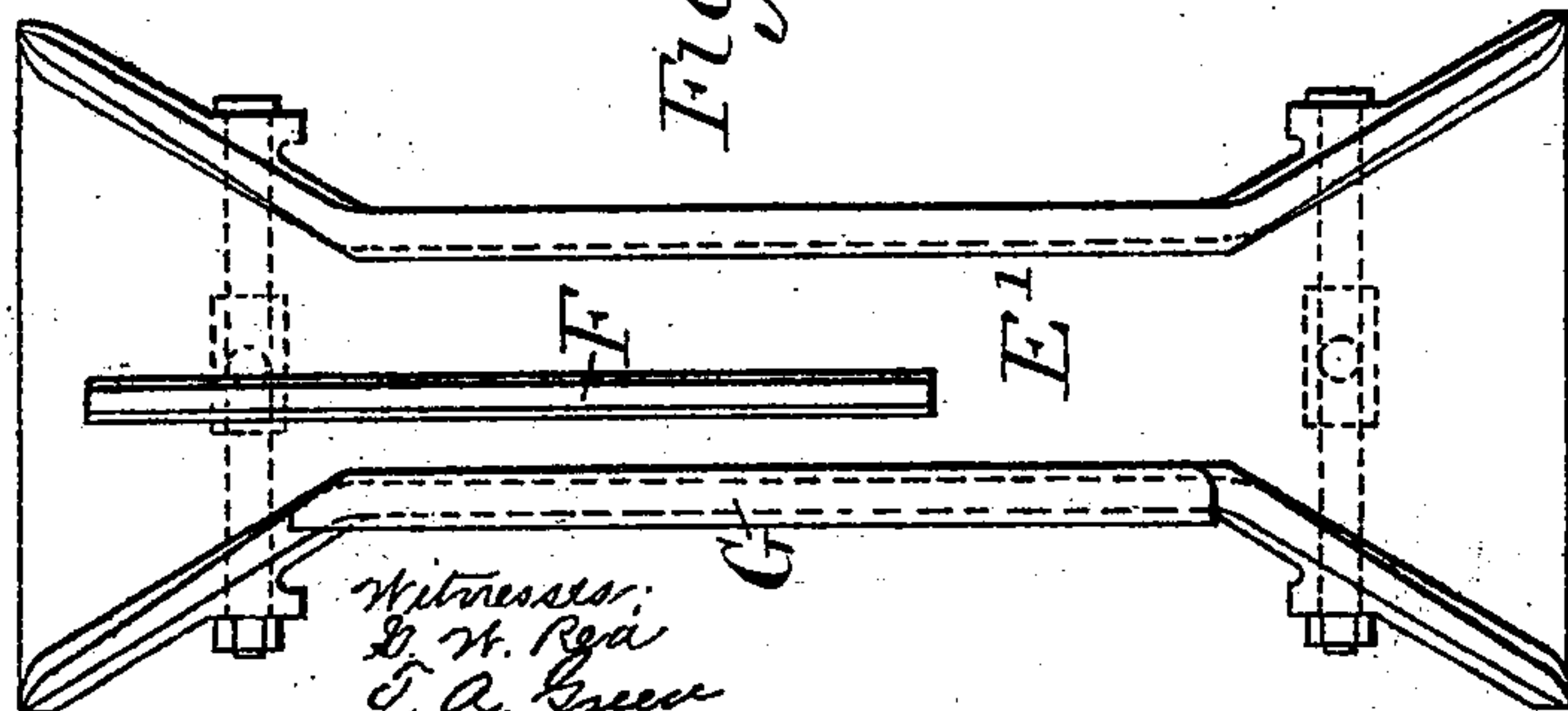
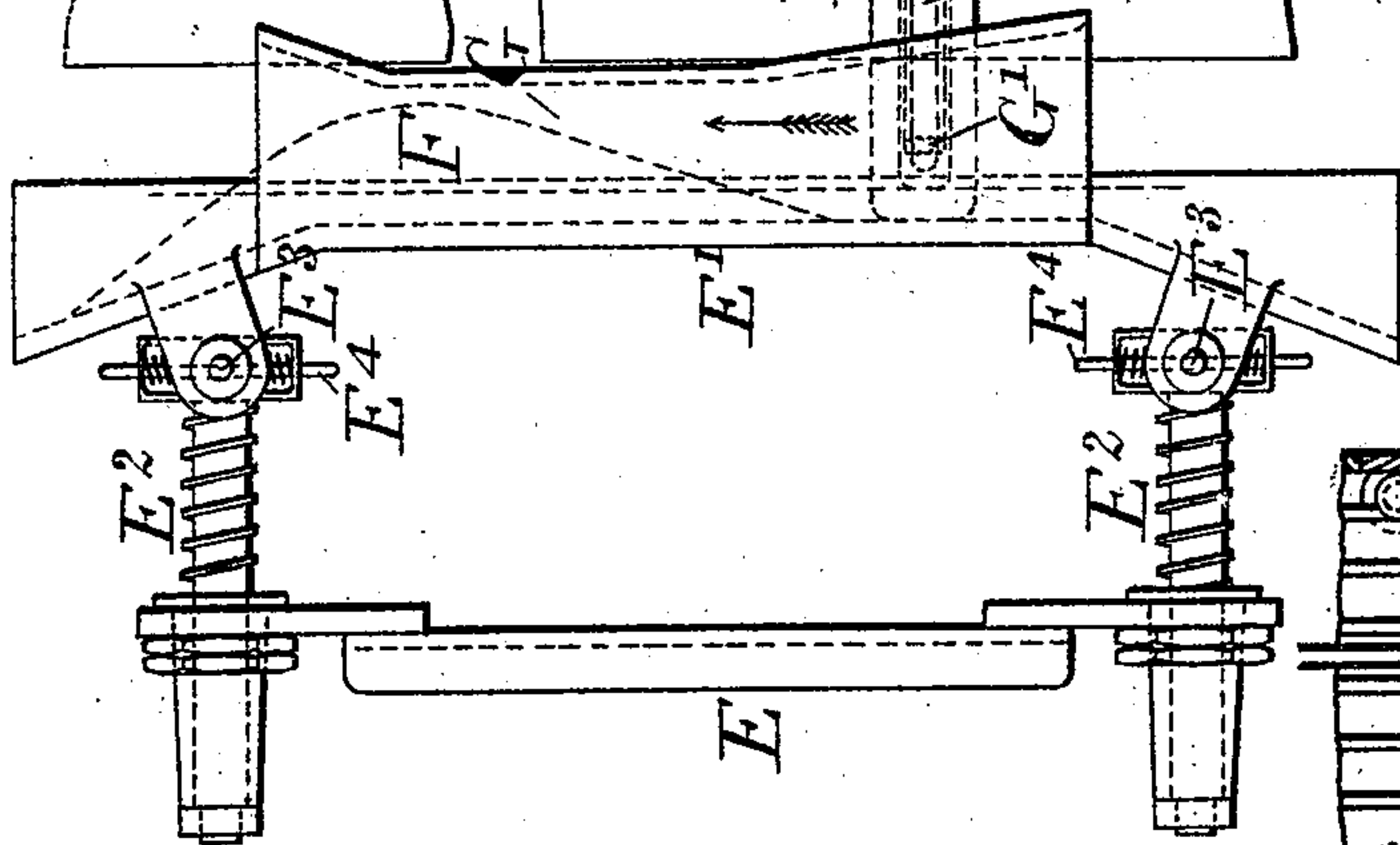
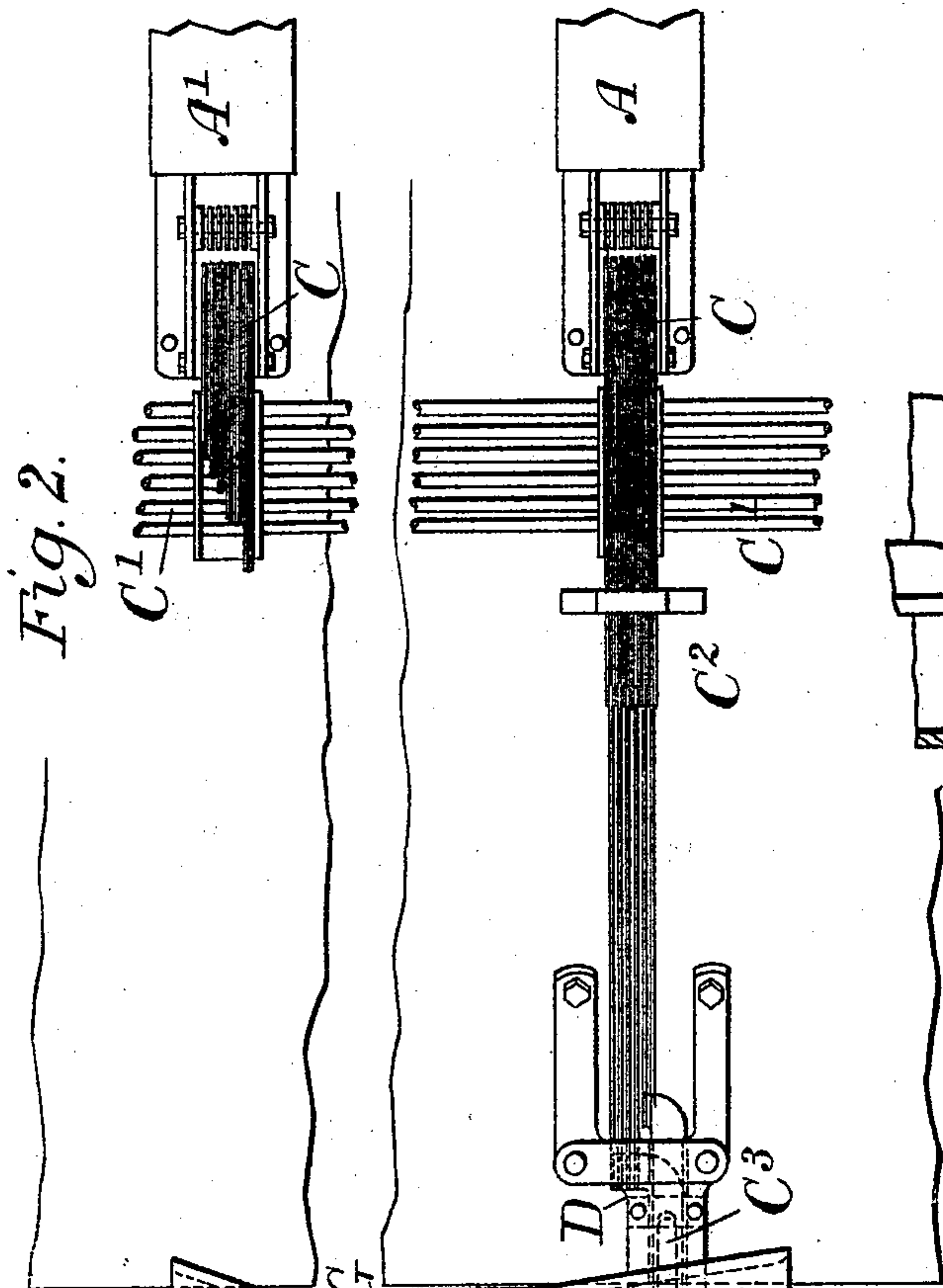
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2 Sheets—Sheet 2.

F. V. RUSSELL.  
STATION INDICATOR.

No. 516,944.

Patented Mar. 20, 1894.



Inventor:  
Frederick V. Russell  
By James L. Morris  
att'y.



# UNITED STATES PATENT OFFICE.

FREDERICK VERNON RUSSELL, OF STRATFORD, ENGLAND.

## STATION-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 516,944, dated March 20, 1894.

Application filed September 20, 1893. Serial No. 486,001. (No model.) Patented in England September 8, 1892, No. 16,110.

*To all whom it may concern:*

Be it known that I, FREDERICK VERNON RUSSELL, a citizen of England, residing at 64 Bolton Road, Romford Road, Stratford, in the county of Essex, England, have invented a new and useful Automatic Apparatus for Indicating in a Railway-Train the Successive Stations, (for which I have obtained a patent in Great Britain, No. 16,110, bearing date September 8, 1892,) of which the following is a specification.

My invention relates to apparatus whereby as a railway train proceeds, the name of the station toward which it is proceeding is automatically displayed in a compartment or in several compartments of the train. For this purpose, in the wall or partition of the compartment preferably near the ceiling or over a low partition I provide a frame in which can slide vertically a plate bearing on its face or on both faces the names of successive stations, it may be with advertisements or other matter. Through an opening, which may be glazed, passengers in the one compartment or in both of the compartments separated by a partition, can see the name of a station and the other matter on that part of the sliding plate which faces the opening, the other station names being hidden. For automatically moving the plate so as to present the name of the station toward which the train is proceeding, I employ mechanism of the following kind: Near each station, preferably a little beyond it, I mount on a wall or on an upright a frame which presents its face toward the carriages as they pass, this frame being mounted on springs so that it can accommodate itself horizontally and vertically to mechanism on the carriage on which this frame acts. This mechanism consists of bars which, engaging with the frame, set it in correct position so that an incline on the fixed frame moves to a certain extent a sliding rod connected to the sliding plate in the carriage. The inclines on the fixed frames at the several stations are of various degrees of inclination, so that as the train passes them successively the sliding plate in the carriage is moved by successive steps, and thus the plate is made to present the names of the successive stations. After the plate has been thus moved its whole stroke, or it might be after

each partial stroke, it is brought back to its initial position by the action of an opposite incline on one of the stationary frames or several of these. When there is a considerable number of stations, I provide a number of the sliding plates each with its sliding rod, and in the frames fixed at the stations I provide inclines, at different levels of the frame, each giving more or less motion to one set of the rods and plates. When there are many plates in the carriage frame, I prefer to provide screens between which the plates slide, these screens being moved by the plates in such manner that passengers looking obliquely toward the nearest or farthest plate shall see only the station name and other matter then presented clear of the screens.

The accompanying drawings represent apparatus according to my invention applicable in a case where there may be as many as thirty successive stations to be indicated. It is to be understood however, that this is only given as an example, as the number may be obviously altered according to circumstances.

Figure 1 is a part transverse section and Fig. 2 is a part plan of a railway carriage with my apparatus applied thereto. Fig. 3 is a front view of the appliance at the side of the line which actuates the indicator. Fig. 4 is a front view and Fig. 5 is a vertical section of one of the indicating plates. Fig. 6 is a part vertical section of the casing and screens for the indicating plates, and Fig. 7 is a part elevation of the same.

In a casing A on the top of the carriage I accommodate a number of plates B, in the case shown, six such plates, which can slide vertically in a corresponding number of grooves formed at the sides of the casing as shown in Fig. 6. Each of the plates B is made double of thin sheet metal which may be folded at the middle as shown in Fig. 5 so as to form the two sides of the plate with a narrow space between them, in which there are accommodated the end of the actuating lever B' and two side links B<sup>2</sup> connecting the lever to a pin B<sup>3</sup> joining the two sides of the plate, the parts B' and B<sup>2</sup> being of thin sheet metal so that they can freely move within the double plate B, in which there are also fitted spring rubbers B<sup>4</sup> which bear against the sides of the



casing producing a certain degree of friction and also springing into recesses so as to prevent the plate from sliding out of the position in which it is placed. When there are only a small number of plates such as two or three in the casing, there is a simple opening  $B^5$  at each side of the casing through which is seen part of the plate which is presented to the opening. But when there is a greater number such as six of the plates, some of them necessarily present themselves farther back from the opening than others of them; a passenger in the compartment having his eye above the level of the opening  $B^5$  would see lower parts of the plates which are some distances behind the opening  $B^5$ , and thus might read a wrong station name. To provide against this I apply within the casing as shown in Figs. 6 and 7 a pair of screens  $B^6$  which have pins at their upper edges linked together; these pins being guided in horizontal slots  $B^7$  at the sides of the casing, and being engaged in slots of two pendent arms  $B^8$ . When one of the plates such as that marked B in Fig. 6 descends, so as to present itself at the opening  $B^5$ , its lower edge bearing against the inclined edge of one of the arms  $B^8$  pushes these arms and with them the screens  $B^6$  into such a position that the plate descends between them. These screens then conceal all of the plate that is below the lower edge of the opening  $B^5$ . When the line of sight of the passenger is directed upward, he cannot see any part of the plate above the upper edge of the opening  $B^5$  because it is concealed. Each of the levers  $B'$  which is pivoted at  $B^9$  has jointed to it a rod C which is jointed to an arm projecting up from a rocking shaft  $C'$ .

As in the case shown there are in each of the casings A six plates, there are six rocking shafts  $C'$  each having an arm linked to one of the six levers  $B'$ . Arms on the rocking shafts have also jointed to them rods  $C^2$  one to each.

When it happens as shown in Fig. 2 that one of the casings A is in line with the actuating apparatus, the same arms of the rocking shafts that are linked to the levers  $B'$  are jointed also to the rods  $C^2$ . But when, as at A' in Fig. 2 the casing is not in line with the actuating apparatus, there are on each of the rocking shafts  $C'$  besides the arms to which the rods  $C^2$  are jointed other arms, one for each casing A' (of which there may be several at different parts of the carriage) linked to the levers  $B'$  of that casing. Thus from one set of the actuating apparatus, which will presently be described, the rocking shafts  $C'$  transmit along the carriage corresponding motions to the plates in each of the casings A A'. The six rods  $C^2$  extend to a guide frame D fixed near the edge of the carriage roof. Here the rods are turned at right angles and arranged one over the other as shown at  $C^3$  so as to present six flat bars  $C^3$  between the upper and lower cheeks of the guide

frame D. These cheeks project somewhat beyond the ends of the bars  $C^3$  and terminate in parts thickened outward so as to present external shoulders  $D'$  which might be furnished with antifriction rollers. On a bracket E projecting from any convenient structure at the side of the line, such as the wall of a tunnel or of an office or warehouse, or it might be a post, is mounted a grooved piece  $E'$ , which being held by sliding bolts  $E^2$ , and vertical and horizontal pins  $E^3$ ,  $E^4$ , all provided with springs has certain freedom to be moved to or fro horizontally or up or down, or to take a position somewhat inclined horizontally or vertically. At each end the slot of  $E'$  is trumpet mouthed so that the ends  $D'$  of the guide frame D, which is fixed on the carriage, can enter the slot as the carriage passes along, these ends serving to bring the piece  $E'$  into correct position so that their shouldered parts are engaged in grooves in the upper and lower sides of the slot holding the piece  $E'$  in correct position until they issue from the slot. On the face of  $E'$  at a level corresponding with one or other of the bars  $C^3$  is fixed an inclined piece F which, as the bar C facing it passes along its slope in the direction of the arrow Fig. 2, pushes that bar and its continuation  $C^2$ , partly turning one of the rocking shafts  $C'$  and partly lowering one of the plates B in each casing A. As the piece F can be fixed at a level corresponding to any of the six bars  $C^3$ , any of the six plates in each casing A can be moved. Moreover the piece F may be made to project more or less from  $E'$  so as to give more or less motion to the plate. By making pieces F for example of five different degrees of projection and fixing these pieces at the six different levels every one of the plates B can be moved down by five successive stages showing at each stage the name of a station, and thus the names of thirty successive stations can be indicated. Besides carrying the pieces F, changed in level for each plate and in prominence for each stage of the plates movement, the piece  $E'$  carries also in each case an inclined piece G which has a lip projecting downward to engage the upper end of a key  $G'$  which passes down through slots of all the six bars  $C^3$ . When by means of the piece F any one of the bars  $C^3$  is pushed more or less back as described, the key  $G'$  is carried back with it, the slots of the other bars  $C^3$  allowing it to move along them without disturbing these bars, but when the upper end of the key  $G'$  becomes engaged behind the downwardly projecting lip of G, the key is drawn forward bringing with it the bar  $C^3$  which had moved it. Like the pieces F, the pieces G are changed for each station to suit the pieces F their slope being such that while F is acting to push one of the bars  $C^3$  the lip of G is confining the key  $G'$  so that the bar  $C^3$  cannot be pushed too far. When one of the bars  $C^3$  has been moved through all its stages by pieces F at successive stations acting on it,



the piece G at the next succeeding station is so shaped as to draw quite back the bar that had been acted on and the piece F acts on a fresh bar. The bars  $C^3$  and the key  $G'$  may be furnished with antifriction rollers. In some cases I provide each of the plates B with a series of projecting studs, one of which, when the plate is moved, pushes aside a spring lever carrying the hammer of a bell or gong, which when the stud has passed gives an audible signal to the passengers that a station is announced.

Having thus described the nature of this invention and the best means I know of carrying the same into practical effect, I claim—

1. In apparatus for indicating in a railway train, successive stations, the combination of sliding plates having names of successive stations marked thereon, a lever rod and a guided bar connected directly or through a rocking shaft to each plate, a piece fixed adjustably near each station with an incline on it arranged to push more or less one or other of the bars and with a contrary incline arranged to draw back a key passing through slots of all the bars, substantially as described.

2. In apparatus for indicating in a railway train, successive stations, the combination of several casings on each carriage of a train, each casing having lateral grooves in which are guided several vertically sliding plates, each plate being linked to a lever which is linked to the arm of a rocking shaft, the said rocking shaft extending along the carriage and having an arm for a plate in each casing, whereby corresponding plates in all the casings are simultaneously moved, substantially as described.

3. In an apparatus for indicating, in a railway train, successive stations, the combination with each casing upon the carriage of a

railway train of several vertically sliding plates, levers linked to said plates, rock-shafts upon which said levers are mounted, screens mounted upon pins arranged in grooves in said casing and pendent arms having slots engaging said pins and having their upper ends pivotally connected to the casing, substantially as described.

4. In an apparatus for indicating, in a railway train, successive stations, the combination with the guide-frame D, rigidly mounted upon the roof of the carriage and having shouldered ends  $D'$ , of a piece  $E'$  mounted by springs on a stationary bracket E arranged beside the line of track, said piece being provided at each end with a trumpet-mouthed groove and lips adapted to engage the shouldered ends  $D'$ , to retain the parts in proper relative position, substantially as described.

5. In apparatus for indicating, in a railway train, successive stations, the combination with the grooved projecting pieces  $E'$ , mounted upon stationary brackets E arranged beside the line of track, and provided with sloped projecting pieces F and having sloped lip-pieces G of bars  $C^3$  arranged in the guide-frame, rock-shafts  $C'$ , rods  $C^2$ , keys  $G'$ , passing through slots in all the bars  $C^3$ , a series of sliding plates arranged in indicator casings, and connections between said sliding plates and rock-shafts, substantially as described.

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

FREDERICK VERNON RUSSELL.

Witnesses:

W. J. NORWOOD,

T. F. BARNES.

*Both of 17 Gracechurch Street, London, E. C.*