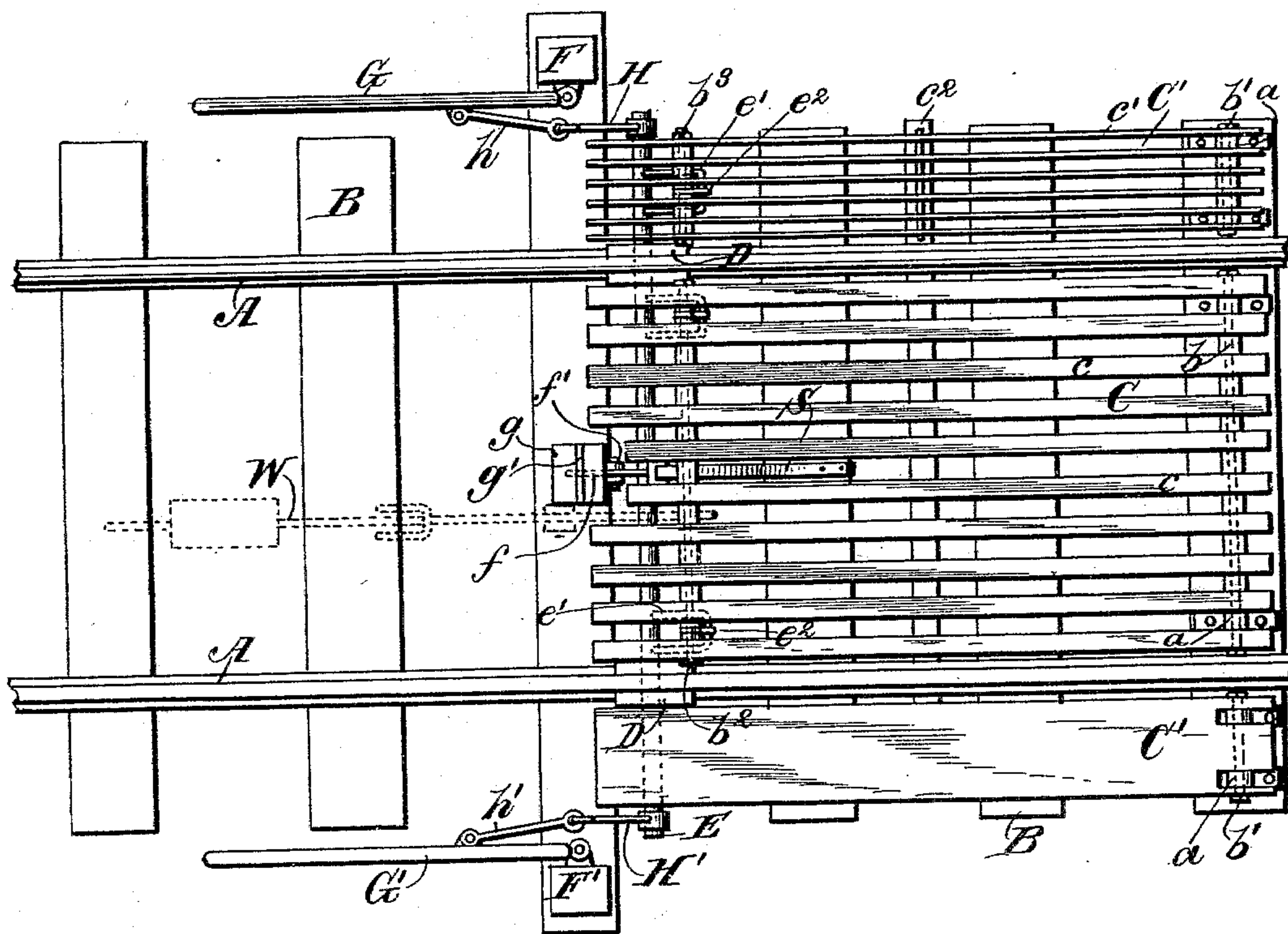


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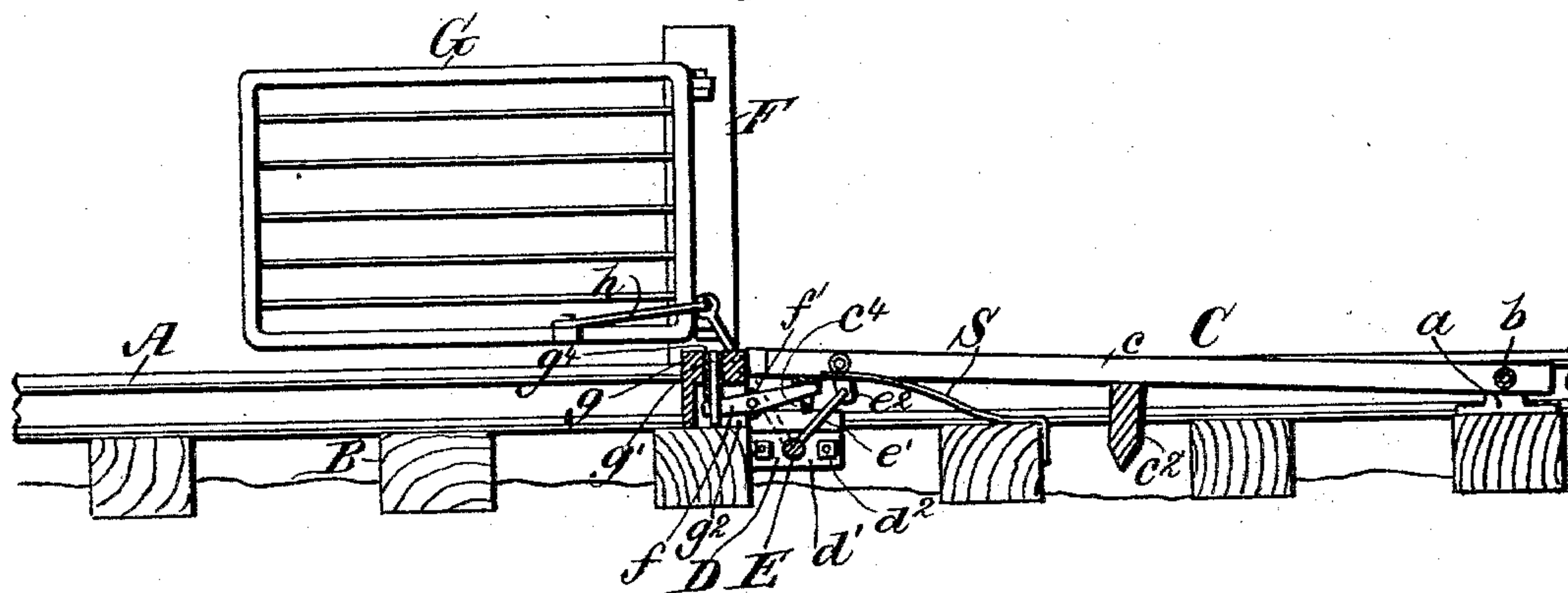
No. 596,962.

Patented Jan. 4, 1898.

*Fig. 1.*



*Fig. 2.*



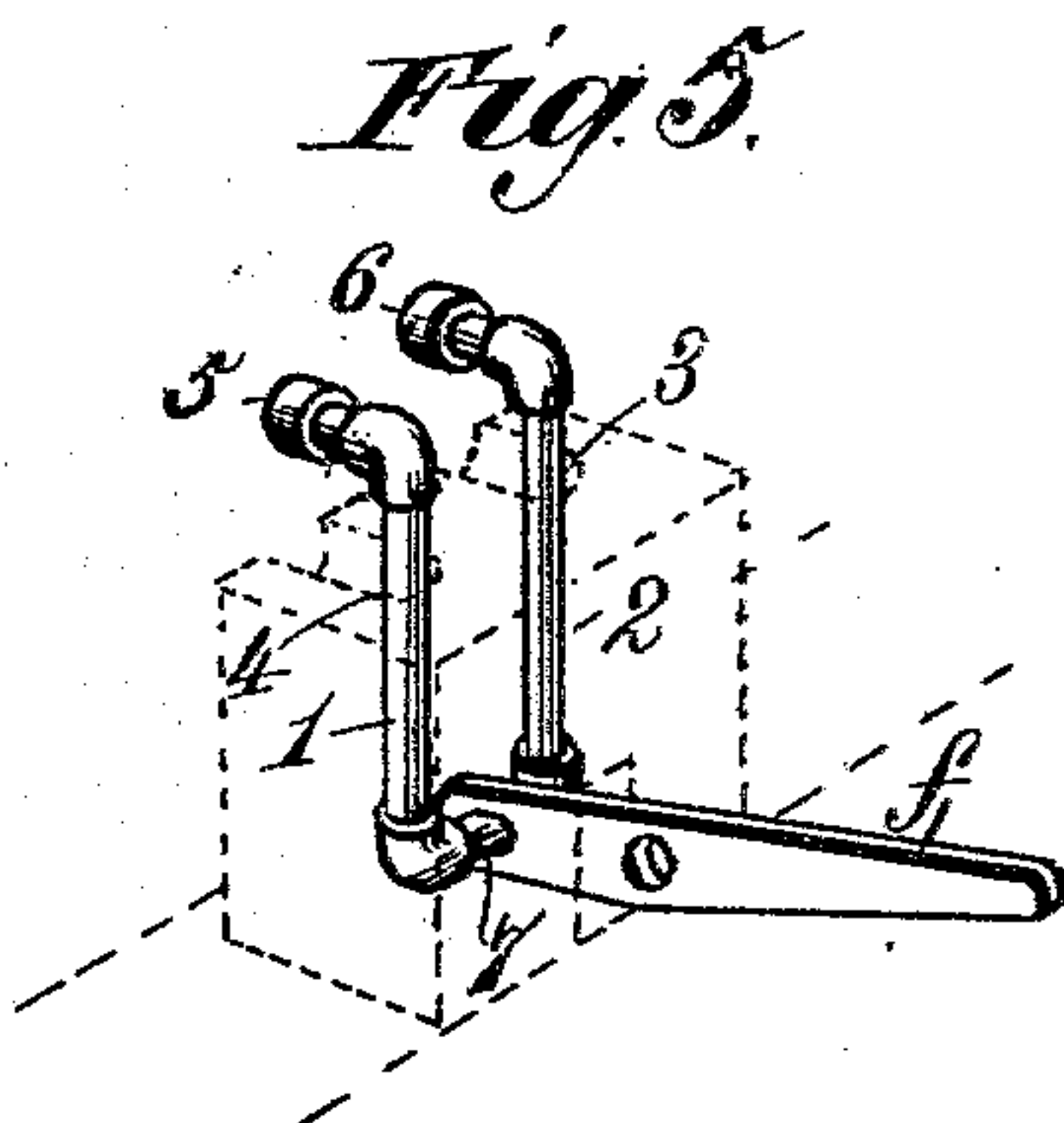
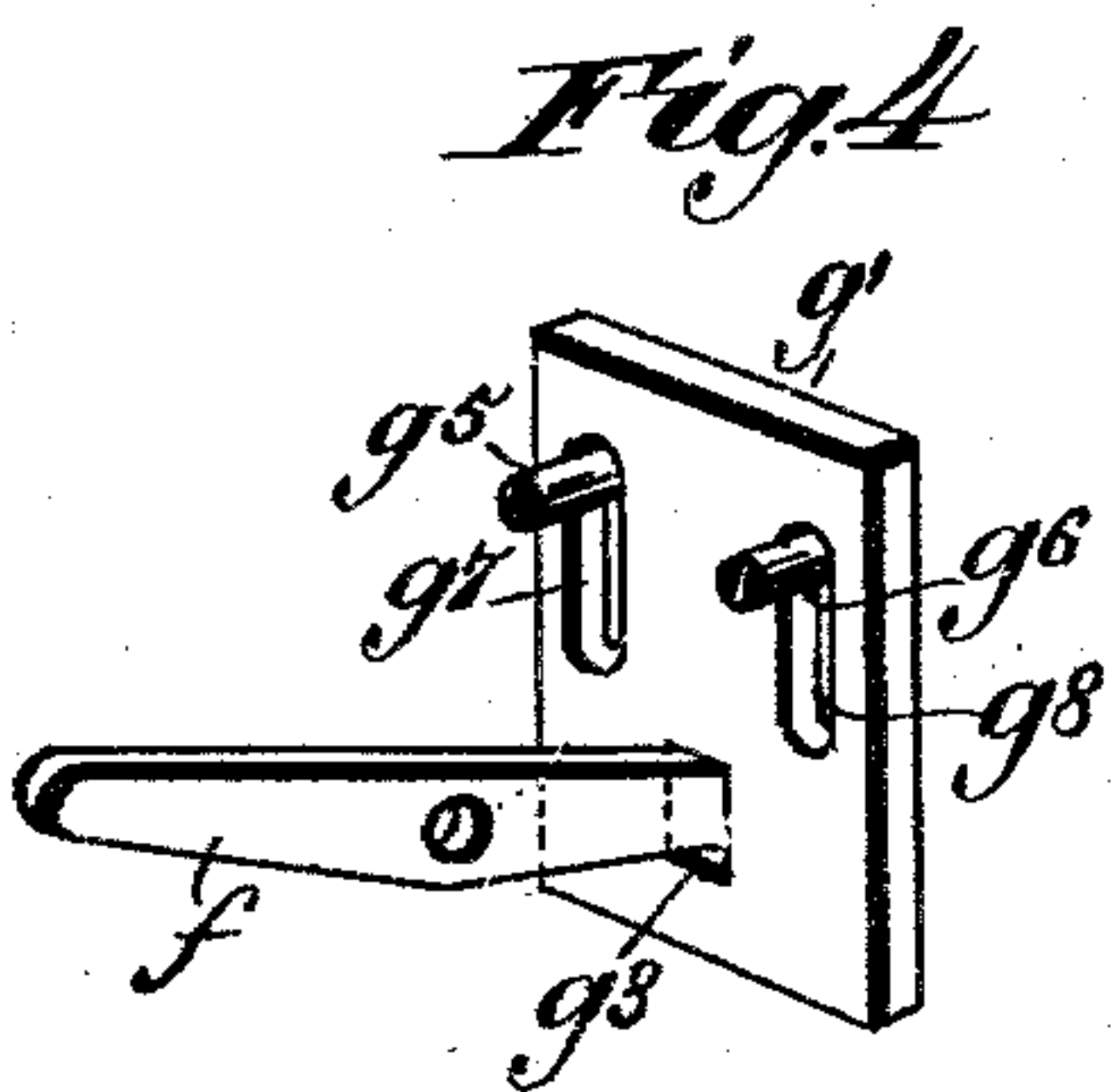
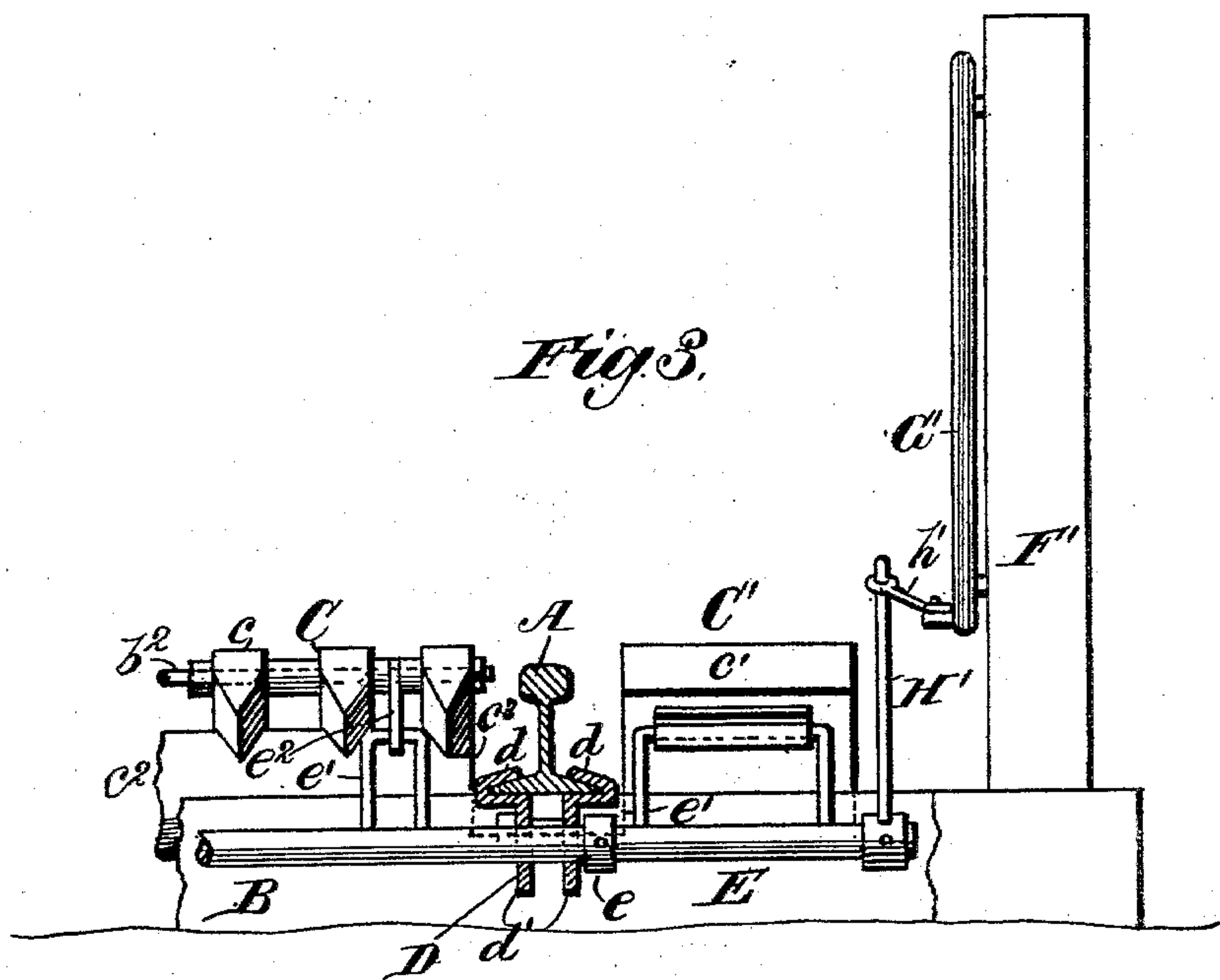
Witnesses,  
Robert Everett,  
J. B. Keefe

*Inventors.*  
*John W. Dodd.*  
*Shippley S. Smallwood.*  
*By James L. Norris.*  
*Atty.*

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# UNITED STATES PATENT OFFICE.

JOHN WILLIAM DODD, OF MARTINSBURG, AND SHIPPLEY S. SMALLWOOD,  
OF RIDGEWAY, WEST VIRGINIA.

## CATTLE-GUARD FOR RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 596,962, dated January 4, 1898.

Application filed October 5, 1897. Serial No. 654,137. (No model.)

*To all whom it may concern:*

Be it known that we, JOHN WILLIAM DODD, residing at Martinsburg, and SHIPPLEY S. SMALLWOOD, residing at Ridgeway, in the county of Berkeley and State of West Virginia, citizens of the United States, have invented new and useful Improvements in Cattle-Guards for Railways, of which the following is a specification.

This invention relates to certain new and useful improvements in cattle-guards for railways designed to be used at crossings; and it has relation to that form of cattle-guard employing movable gates connected with a pivoted spring-supported platform and adapted to be automatically closed by the weight of the stock bearing on said platform while crossing the track.

An important part of the invention relates to the operating mechanism whereby the gates are automatically closed and opened.

Still further parts of the invention relate to the location and arrangement of the gates and operating mechanism therefor relative to the depressible platform and to certain details of construction, all of which will more fully hereinafter appear.

Referring to the accompanying drawings, forming a part of this specification, and in which similar characters of reference indicate corresponding parts in all the views. Figure 1 is a plan view of the device. Fig. 2 is a longitudinal sectional view. Fig. 3 is a transverse sectional view on the line 3 3 of Fig. 1. Fig. 4 is a detail view of the vertically-moving bumper-plate and its operating-lever, and Fig. 5 is a view of a modified form of the same.

The letter A indicates the rails, and B the cross-ties, of an ordinary track. At the desired location we secure in one of the cross-ties, between and at the sides of the rails, staples or similar devices *a*, which form journal-bearings for the rods *b b'*, extending through and supporting the rear ends of the bars *c c'* of the platforms *C C'*. The other ends of the bars are connected by rods *b<sup>2</sup> b<sup>3</sup>*. The bars may also be braced in their central portion, if necessary, by a transverse beam *c<sup>2</sup>*, which

extends beneath the bars and to which they are secured and which is provided with slots *c<sup>3</sup>* for the rails A. At a point beneath the front end of the platform we secure to the rails the clamp-pieces D, formed in two parts, each part having an upper end *d*, bent to conform to the lower flange of the rail, and a downward-extending portion *d'*, the extensions *d'* being suitably apertured to receive screw-bolts *d<sup>2</sup>*. The device D is thus held clamped to the rail, and no holes have to be drilled through the latter. The downward-extending portions *d'* are also provided with openings which form journal-bearings for a rock-shaft E. Suitable collars *e* are applied to the rock-shaft to prevent lateral movement of the shaft in its bearings. Secured to the said rock-shaft and extending backward therefrom at a slight incline are crank-arms *e'*, and pivot-links *e<sup>2</sup>* pivotally connect the rods *b<sup>2</sup> b<sup>3</sup>* with said crank-arms. A cross-tie somewhat longer than the ones in ordinary use is provided at the front of the platform, and on this are supported and suitably braced uprights *F F'*, on the inner faces of which are supported in suitable bearings the gates *G G'*, which are adapted to swing laterally.

Secured to the rock-shaft E, near its outer ends, are upright lever-arms *H H'*, which are pivotally connected, by means of links *h h'*, with the gates *G G'*. To the cross-tie supporting the uprights and midway between the rails is secured a stop-block *g*, in which is slidably secured a bumper-plate *g'*. (Shown in detail in Fig. 4.) A lever-arm *f*, pivotally supported in its central portion in bearings *f'*, carried by the stop-block *g*, has one end extending through a slotted opening *g<sup>2</sup>* in the stop-block, which engages with an opening *g<sup>3</sup>* in the lower part of the bumper-plate *g'*. The other or free end of the lever-arm *f* extends beneath the platform C, by which it is adapted to be depressed in operation to raise the bumper-plate *g'*, and a catch *c<sup>4</sup>* is secured to the under side of one of the bars *c* and is adapted to bear against the under side of the lever-arm in the upward movement of the platform C to return said lever-arm and with it the bumper-plate *g'* to their normal posi-



tions. The bumper-plate works in a vertically-extending slot  $g^4$  in the stop-block  $g$ , and pins  $g^5$   $g^6$  extend through said stop-block and through vertical slots  $g^7$   $g^8$ , formed in the bumper-plate to limit and guide the movements of the same. Secured to one of the cross-ties is a leaf-spring  $S$ , which extends upward and outward and at its free end bears against the under side of the rod  $b^2$ . In addition to or in place of the spring  $S$  we may employ a pivoted weighted arm  $W$  of the well-known construction.

The operation of the device is as follows: Cattle or other stock in crossing the track will step upon the platform  $C$  or the supplemental platforms  $C'$  at the sides of the track and by their weight depress the forward end of said platform against the resistance of the spring  $S$  or weighted arm  $W$ , thereby, through the pivot-links  $e^2$  and crank-arms  $e'$ , revolving the rock-shaft  $E$  and throwing the lever-arms  $H$   $H'$  outward or away from the gates, said lever-arms, through the medium of the pivotal links  $h$   $h'$ , operating to close the gates. As the platform  $C$  is depressed it bears against the free end of the lever-arm  $f$ , which is thereby rocked on its bearings  $f'$ , and its other end and with it the bumper-plate  $g'$  are elevated. The bumper-plate serves as a stop to limit the inward swing of the gates. When weight is removed from the platform, the spring  $S$  or weighted arm  $W$  returns it to its normal position, thereby revolving the rock-shaft in the reverse direction to that just described and opening the gates. As the platform rises the catch  $c^4$  draws the free end of the lever-arm  $f$  upward and returns the bumper-plate to its normal lowered position. The stop-block  $g$  is normally on a level with the plane of the tops of the rails, and the reason for positive means for lowering the bumper-plate is to provide against contact of such plate with any part of the moving train.

In Fig. 5 we have shown a modified form of this part of our invention, in which, instead of a single plate, we employ two arms 1 2, moving in vertical passages 3 4 in the stop-block, and having their outer ends bent to extend in a horizontal direction and carrying blocks of rubber 5 6, which afford a yielding stop for the gate. Said arms 1 2 may, if desired, be made from ordinary gas-pipe and are connected at their lower ends by a cross-piece 7, which in turn is connected with the lever-arm  $f$ .

The platforms at the sides of the track are intended to prevent stock from getting in between the rails and the uprights without closing the gates.

While any form of platform may be used with our invention, we prefer the construction shown in the center platform  $C$ , which is formed of bars or beams of wood suitably connected, as described, the bars being V-shaped in cross-section to present a sharp edge for cutting through snow in the move-

ment of the platform. At the left of Fig. 1 we have shown the platform  $C'$  presenting an ordinary plane surface and at the right as made from flat bars of metal.

We have sought in our invention to produce a construction designed to overcome the obstacles which have hitherto rendered largely impracticable the general use of such devices.

Our cattle-guard is simple and accurate in operation, easily and cheaply manufactured, and perfectly adapted to the use for which it is designed.

Having thus fully described our invention, what we claim is—

1. In a cattle-guard, the combination with a spring-supported platform pivotally supported at its rear end, of a rock-shaft journaled in bearings beneath the free end of said platform carrying crank-arms, links pivotally connecting said platform and crank-arms, gates suitably supported in proximity to said rock-shaft and adapted to swing laterally, and means connecting said gates and rock-shaft, and operating in the respective movements of the rock-shaft to close or open the gates, substantially as described.

2. In a cattle-guard, the combination with a spring-supported platform pivotally supported at its rear end, of a rock-shaft journaled in bearings beneath the free end of said platform carrying crank-arms and lever-arms, links pivotally connecting said platform and crank-arms, gates suitably supported in proximity to said rock-shaft and adapted to swing laterally, and links pivotally connecting said gates and lever-arms, substantially as described.

3. In a cattle-guard, the combination with a pivoted spring-supported platform, of laterally-swinging gates suitably supported in proximity to said platform, gate-operating mechanism connecting the platform and gates and a vertically-movable bumper located in advance of said platform and adapted to limit the inward swing of the gates, and means operated by the platform to raise and lower the bumper, substantially as described.

4. In a cattle-guard, the combination with a pivoted, spring-supported platform of laterally-swinging gates suitably supported in proximity to said platform, gate-operating mechanism connecting the platform and gates, a stop-block located in advance of said platform, a bumper-plate slidably mounted in said stop-block, a lever-arm pivoted to said stop-block and having one end connected with the bumper-plate and its free end extended beneath the platform, and a catch carried by said platform and adapted to engage the under side of the free end of said lever-arm, substantially as described.

5. In a cattle-guard, the combination with a pivoted, spring-supported platform of swinging gates suitably supported in proximity to said platform, a rock-shaft journaled



beneath the free end of said platform and  
having a crank connection therewith, gate-  
operating mechanism connecting the rock-  
shaft and gates, and clamp-pieces secured to  
5 the base-flanges of the rails and affording  
journal-bearings for the rock-shaft, substan-  
tially as described.

In testimony whereof we have hereunto set

our hands in presence of two subscribing wit-  
nesses.

JOHN WILLIAM DODD.  
SHIPPLEY S. SMALLWOOD.

Witnesses:

NEWTON D. BAKER, Jr.,  
A. G. KEESECKER.