

(No Model.)

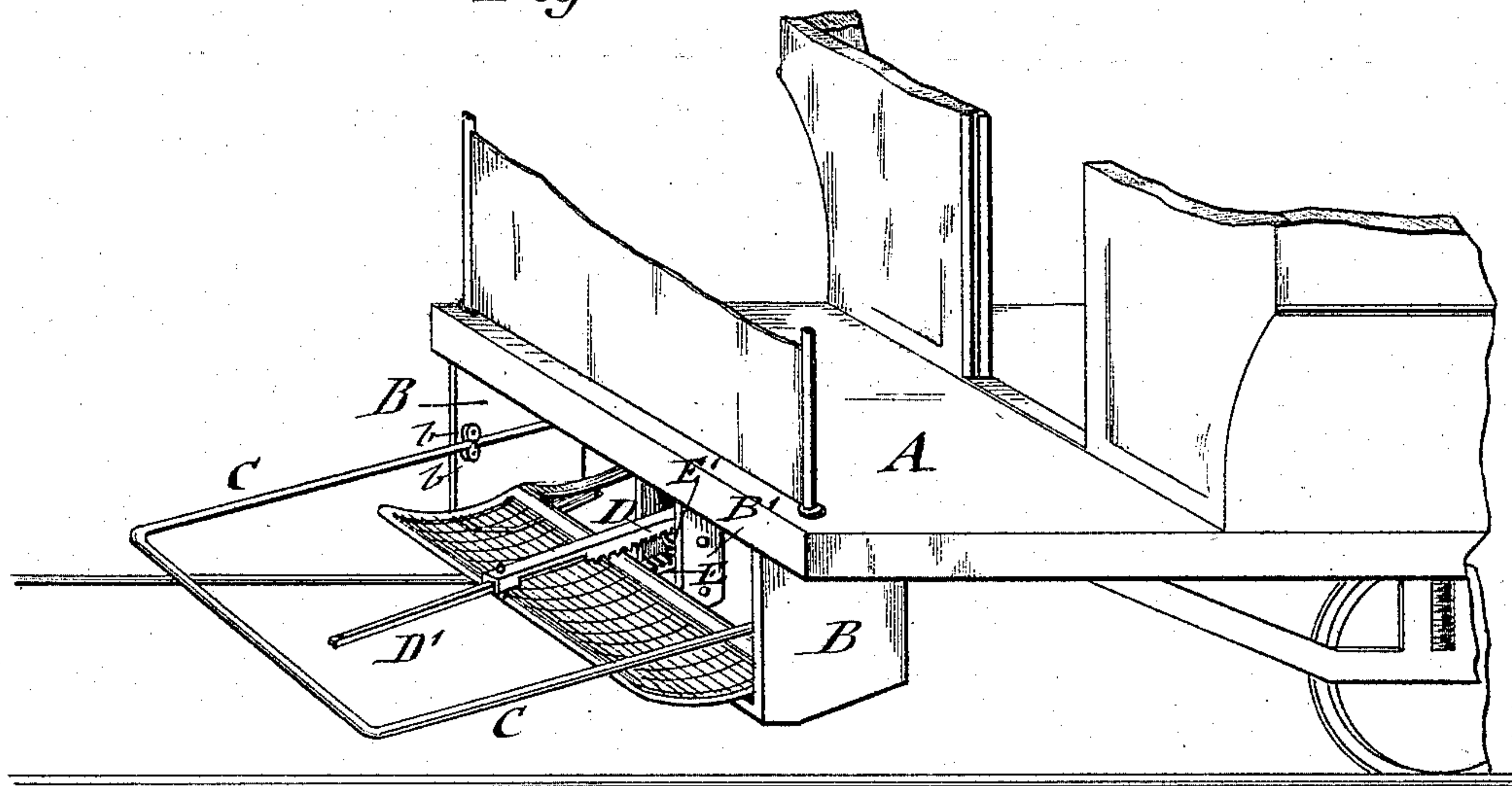
2 Sheets—Sheet 1.

F. KRYSSING.  
FENDER ATTACHMENT FOR CARS.

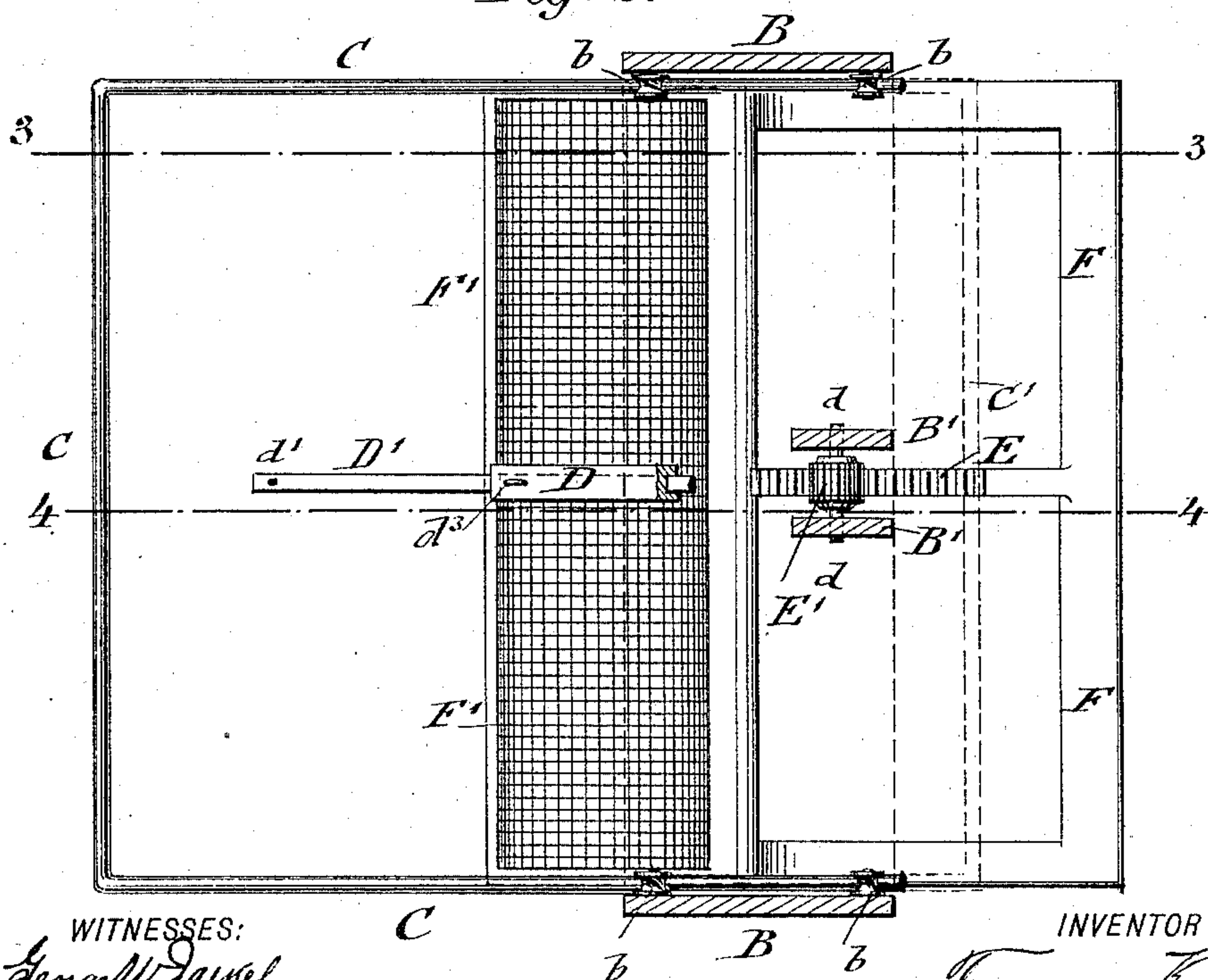
No. 533,198.

Patented Jan. 29, 1895.

*Fig: 1.*



*Fig: 2.*



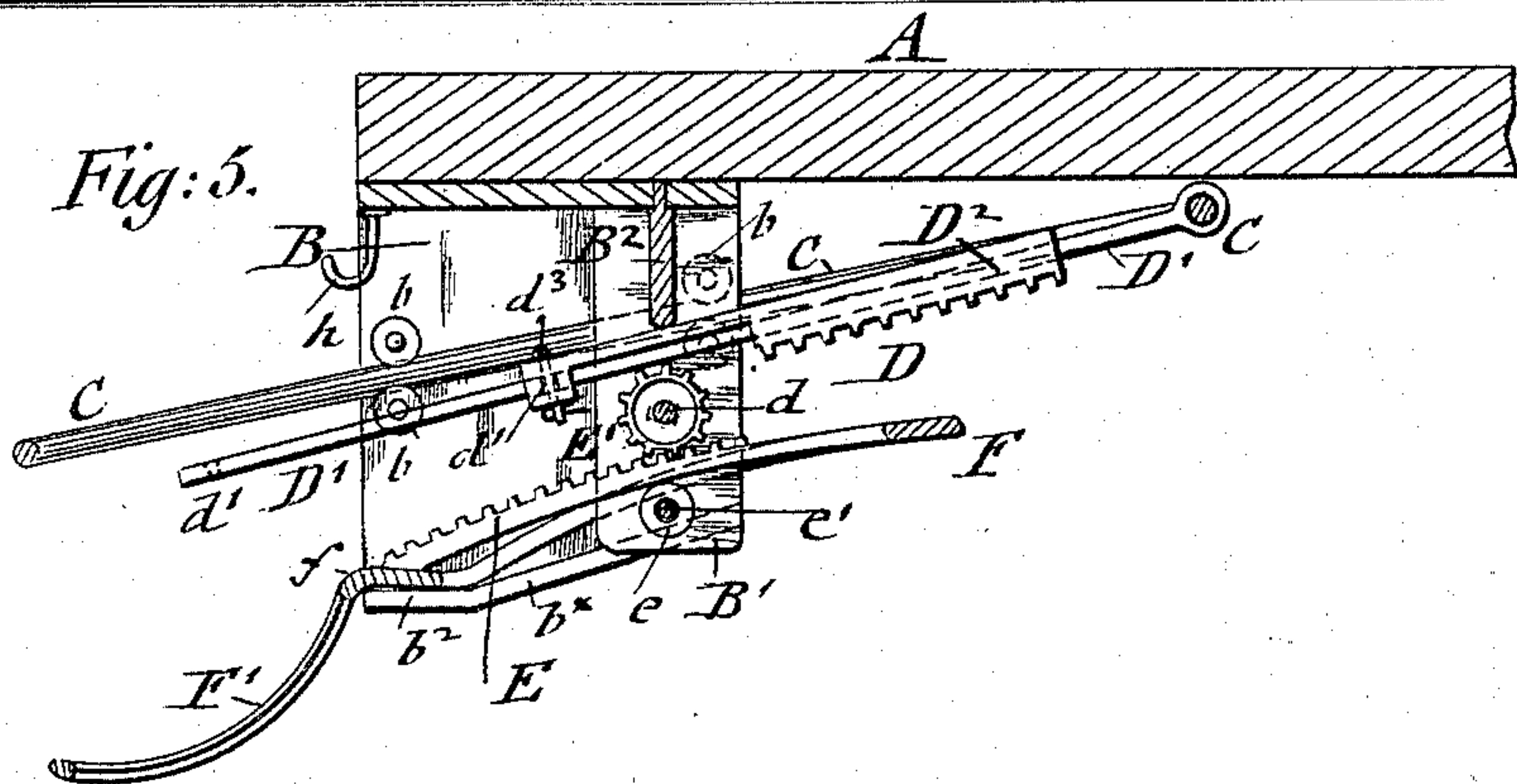
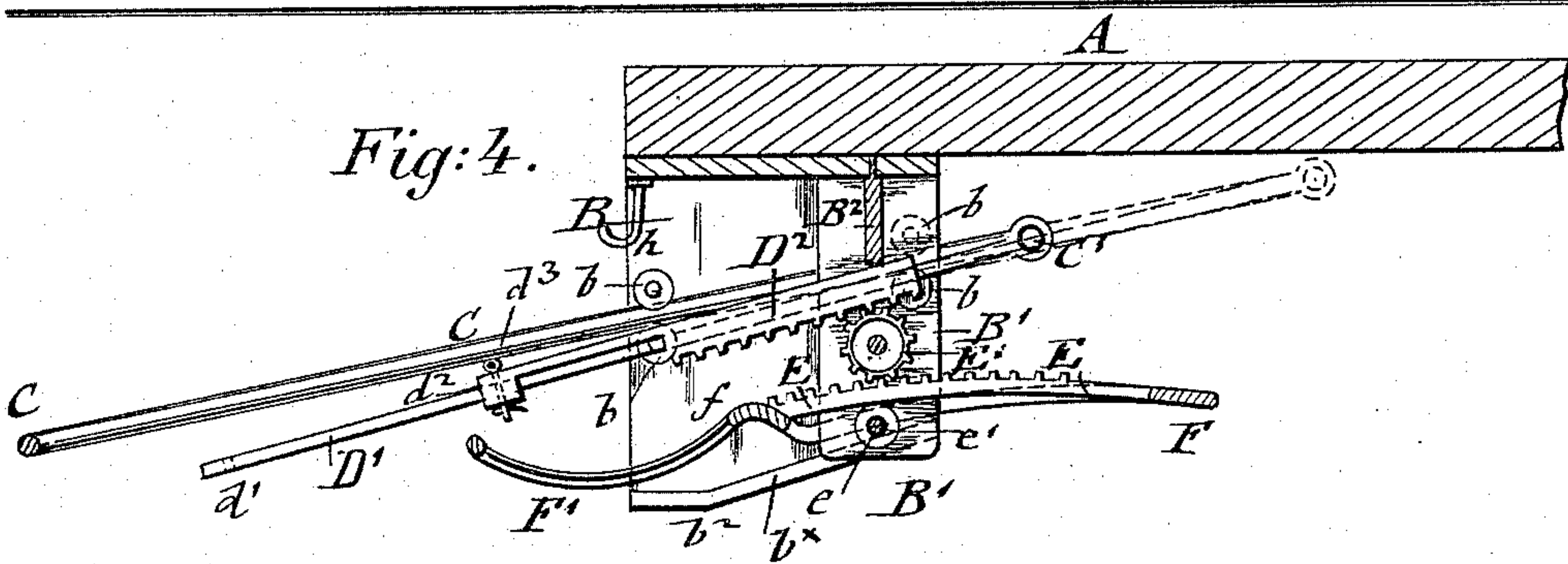
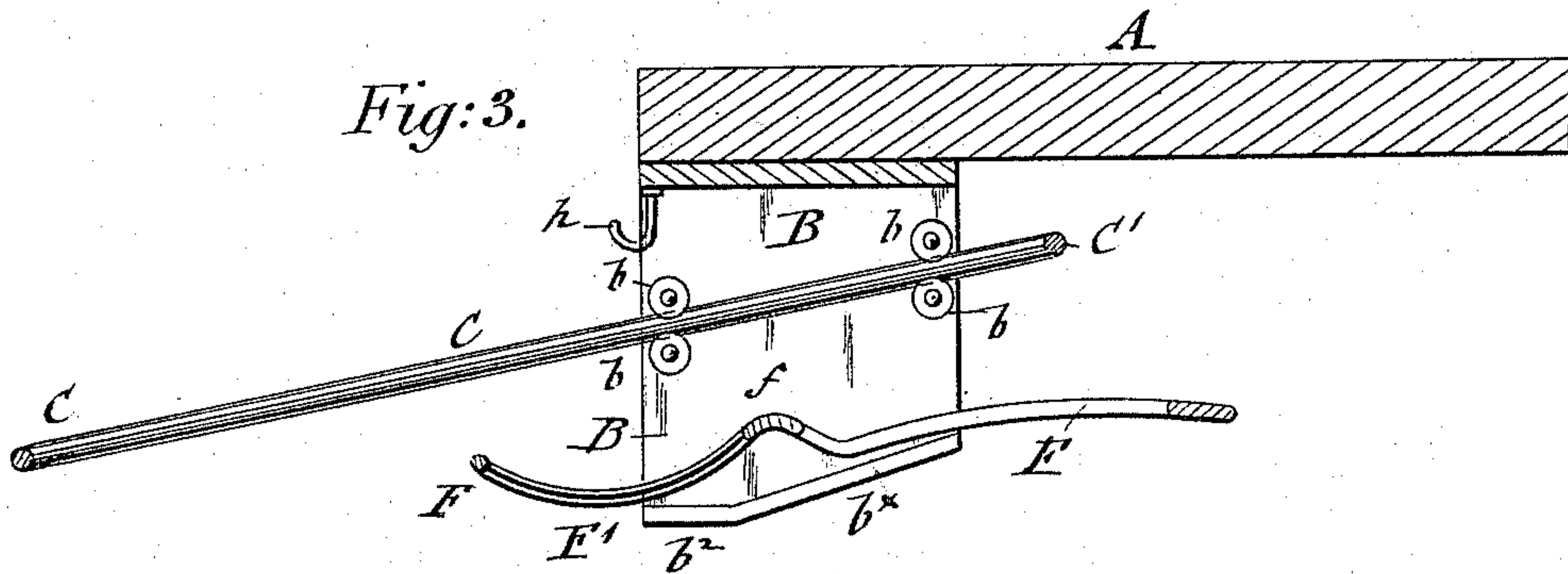
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# UNITED STATES PATENT OFFICE.

FREDERICK KRYSSING, OF BROOKLYN, NEW YORK.

## FENDER ATTACHMENT FOR CARS.

SPECIFICATION forming part of Letters Patent No. 533,198, dated January 29, 1895.

Application filed November 14, 1894. Serial No. 528,709. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK KRYSSING, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Fender Attachments for Cars, of which the following is a specification.

This invention has reference to an improved fender-attachment for trolley, cable and other surface cars, in which a scoop-like fender is moved forward by means of a guard-frame, which is pushed back by the body or other obstruction on the track, so that the fender is enabled to take up the obstruction and prevent it from going under the wheels of the car; and the invention consists of a fender-attachment for street-cars, in which an inclined guard-frame is arranged below the platform of the car and guided in grooved rollers, said frame having a centrally pivoted rack-bar which is placed in gear with an intermediate pinion that meshes also with a central rack-bar at the rear-part of a fender frame having a scoop-shaped fender-net at its front part, so that while the guard-frame is moved in backward direction by the obstruction on the track, the fender is moved in forward direction for scooping it up and preventing injury thereto.

The invention consists further of means for guiding the fender-frame and supporting it so that it is retained when in its backward and forward position and not liable to be operated by the concussions of the car or otherwise.

The invention consists lastly of certain details of construction, which will be fully described hereinafter and finally pointed out in the claims.

In the accompanying drawings, Figure 1 represents a perspective view of the platform-end of a street-car, showing my improved fender-attachment applied to the same. Fig. 2 is a plan view of the same, partly in horizontal section on line 2—2, Fig. 3. Figs. 3 and 4 are vertical longitudinal sections of the fender-attachment, respectively on lines 3—3, and 4—4, Fig. 2, and showing the same in its

normal position below the platform, and Fig. 5 is also a vertical longitudinal section, showing the parts of the fender-attachment in position after an obstruction is scooped up.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents the platform of a trolley, cable or other street car, and B B are brackets or hangers, which are attached to the under side of the platform and on which are arranged grooved guide-rollers  $b b$ , which are arranged in pairs, the rear-pairs being located above the level of the front-pairs so as to support between them a guard-frame C at a suitable downward inclination. The guard-frame C extends in front of the platform, its front end being at a sufficient height above the track so as to not interfere with any projecting portions of the pavement.

The guard-frame C is bent of iron rods of suitable thickness and connected at the rear by a transverse brace-rod C', the front-corners of the frame being preferably rounded off. To the middle portion of the brace-rod C' is pivoted an extensible rack-bar D, which meshes with a pinion E', that is keyed to a transverse shaft  $d$  which turns in bearings of shorter intermediate hangers B' B' arranged at both sides of the rack-bar D. The pinion E', also meshes with a central arc-shaped rack-bar E of a fender-frame F having a scoop-shaped fender-net F' at its front-part. The rack-bar E connects the middle and rear-part of the fender-frame F and is guided on a roller  $e$  that is placed on a short shaft  $e'$ , supported by the hangers B' B' below the shaft of the pinion E'. The scoop-shaped fender-net F' is supported by strong concave side-rods, which are connected by transverse-rods at the front and rear-ends, the net being made of wire or other material, as desired.

The side-rods of the fender-frame F are supported when in normally raised and nearly horizontal position on inclined flanges  $b^x b^x$  at the lower ends of the brackets B B, said flanges having horizontal front-portions or dwells  $b^2 b^2$ , on which the side-rods of the fender-frame F are supported, as shown in Figs. 2 and 3. The side-rods of the fender-



frame F are also provided with straight portions  $f f$  at the rear of the fender-net, as shown in Figs. 3, 4 and 5, by which the fender-frame F is supported firmly when it is moved into forward position, as shown in Fig. 3. The dwells  $b^2 b^2$  prevent the sudden forward motion of the fender-frame, while the straight portions  $f f$  retain the fender-frame firmly in forward position in connection with the dwells  $b^2 b^2$ . The central rack-bar E of the fender-frame is made stationary with said frame, while the rack-bar D of the guard-frame C is pivoted to the rear-part of the latter and retained by its own weight and a stationary bar  $B^2$  in mesh with the motion-transmitting pinion  $d'$ . In case the weight of the rack-bar is not sufficient, a suitable spring may be employed for retaining the rack-bar D of the guard-frame in mesh with the transmitting-pinion E'.

The rack-bar D of the guard-frame C is made of two sections, the main-rod  $D'$  and the rack-portion  $D^2$  proper, which latter is provided with a longitudinal guide-way and a keeper  $d^2$  at its front-end so as to be shifted on the main-rod  $D'$ . The main-rod  $D'$  is provided at its front-part with two holes  $d' d'$  to either one of which the keeper of the rack-portion  $D^2$  may be attached by a spring-key  $d^3$ . When the rack-portion  $D^2$  is attached to the rear-hole  $d'$ , the rack-bar is in proper position for actuating the fender, but when it is attached to the front-hole  $d'$ , the fender can be pushed back to such an extent that it is placed entirely out of action. In this case the fender can be hung up on a stationary hook  $h$ , at the front-part of the platform so as to be in a position of rest when the fender is not required for use as when the car is running in the opposite direction.

In the normal position of the fender-attachment, the guard-frame C projects considerably beyond the platform and fender-frame F, which latter is supported by the flanges  $b^x$  and dwells  $b^2$  in nearly horizontal position at some distance above the track, as shown in Figs. 3 and 4. As soon as an obstruction strikes against the front-part of the inclined guard-frame C, the same is pushed back, its backward motion being facilitated by the anti-friction rollers, in which the side-rods of the guard-frame are guided. Simultaneously with the backward motion of the guard-frame C, the rack-bar D of the same meshes with the pinion E', the rotary motion of which imparts forward motion by means of the central rack E of the fender-frame F to the latter, so that the scoop-shaped fender-net is placed close to the track and enabled to scoop up the obstruction on the same, so as to prevent it from getting under the wheels of the car and protect it thereby against injury. The forward position of the fender-frame and fender-net is shown in Fig. 5.

During the backward motion of the guard-

frame, the rack-bar  $D^2$  of the same is retained in mesh with the motion transmitting pinion E' by the stationary bar  $B^2$ , which is located above the rack-bar  $D^2$  and extended transversely between the auxiliary hangers  $B' B'$ , as shown in Figs. 4 and 5. As soon as the guard-frame C strikes an obstruction, it is moved backward and simultaneously therewith the fender-frame and fender-net is quickly moved forward, so that accidents are prevented in an effective manner.

To re-set the fender-attachment, the guard-frame C is moved forward again whereby the fender-frame and fender-net are moved backward and into their former raised and nearly horizontal position, as shown in Figs. 2 and 3. In this position the fender-attachment is again ready for action, the same forming a comparatively simple, reliable and effective guard and fender-device for street-cars.

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

1. The combination, with the platform of a car, of an inclined guard-frame, a rack-bar pivoted to the rear part of said guard-frame, an intermediate pinion meshing with said rack-bar, and a fender-frame guided below the guard-frame and provided with a central rack-bar and with a scoop-shaped fender-net at its front end, said fender-net being moved forward when backward motion is imparted to the guard-frame, substantially as set forth.

2. A fender-attachment for street cars, consisting of an inclined guard-frame supported in guide-rollers below the platform of the car, a rack-bar hinged to the rear-part of the guard-frame, a pinion meshing with said rack-bar, a fender-frame provided with a central rack-bar also meshing with said pinion and with a scoop-shaped fender-net at its front-end, and means for guiding the fender-frame when it is moved in either direction by the motion of the guard-frame, substantially as set forth.

3. The combination, with the platform of a car, of stationary hangers at the under side of the same, an inclined guard-frame below the platform, grooved rollers for guiding the side-rods of said guard-frame, a rack-bar hinged to the rear-part of the guard-frame, a pinion meshing with said rack-bar, a fender-frame provided with a central rack-bar also meshing with said pinion, and with a scoop-shaped fender-net at its front-part, and means for guiding the side-rods of the fender-frame during its forward or backward motion, substantially as set forth.

4. The combination of the platform of a car, an inclined guard-frame guided below the platform and provided with a longitudinal bar, a sliding rack-bar guided on said bar and means for locking said rack-bar in different positions on said longitudinal bar, a pinion meshing with said rack-bar, a fender-frame



having a rack-bar also meshing with said pin-  
ion, and means for guiding said fender-frame,  
the shiftable rack-bar of the guard-frame  
being adapted to actuate the fender-frame or  
5 to move it out of action into a position of rest,  
substantially as set forth.

In testimony that I claim the foregoing as

my invention I have signed my name in pres-  
ence of two subscribing witnesses.

FREDERICK KRYSSING.

Witnesses:

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GEORGE W. JAEKEL.