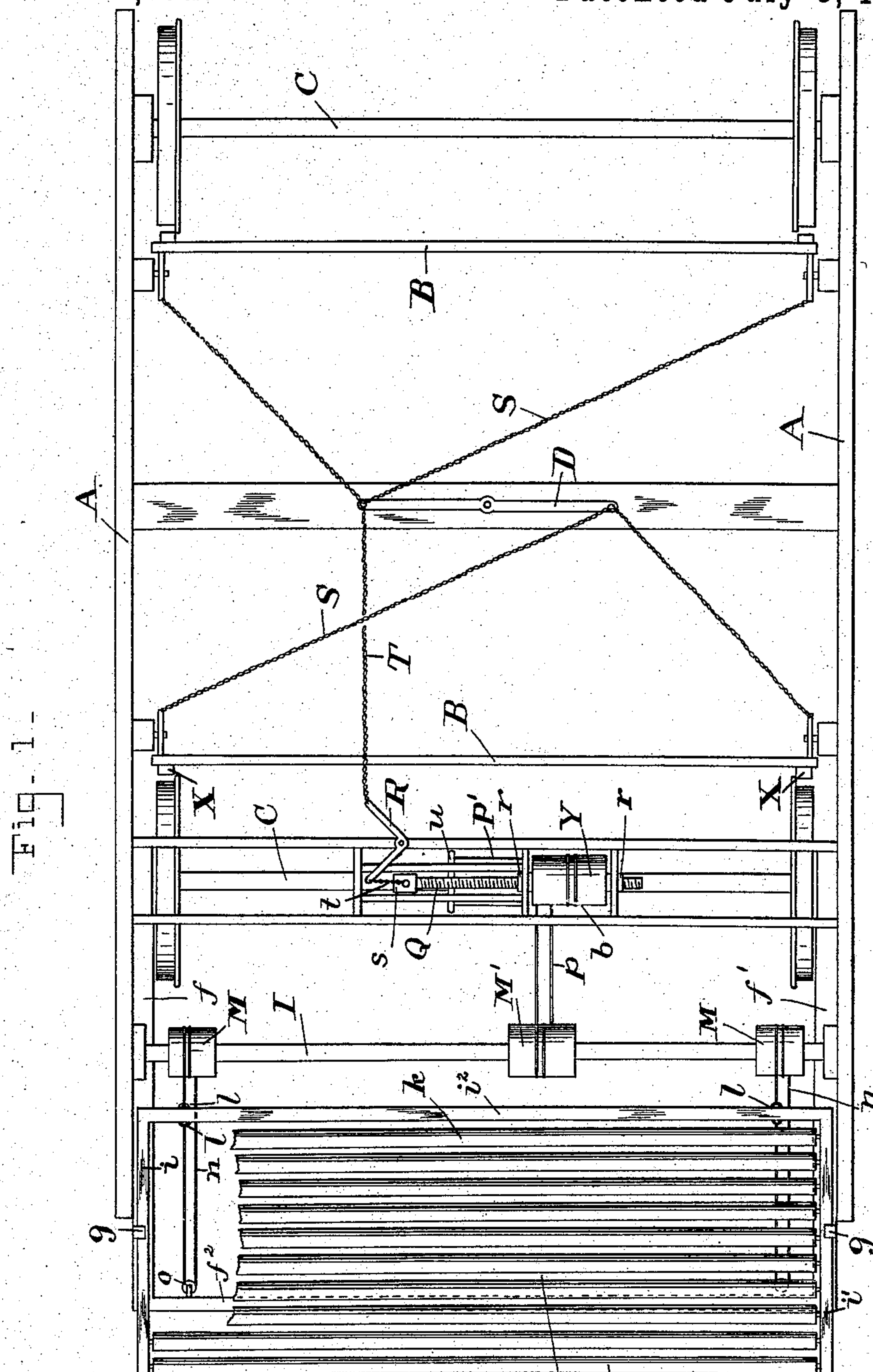


2 Sheets—Sheet 1.

No. 522,412.

Patented July 3, 1894.



WITNESSES:

L. J. Van Horn.  
Chas. B. Mann Jr.

INVENTORS:

By Daniel Harding  
Wm L. Fitzhugh  
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ATTORNEY.

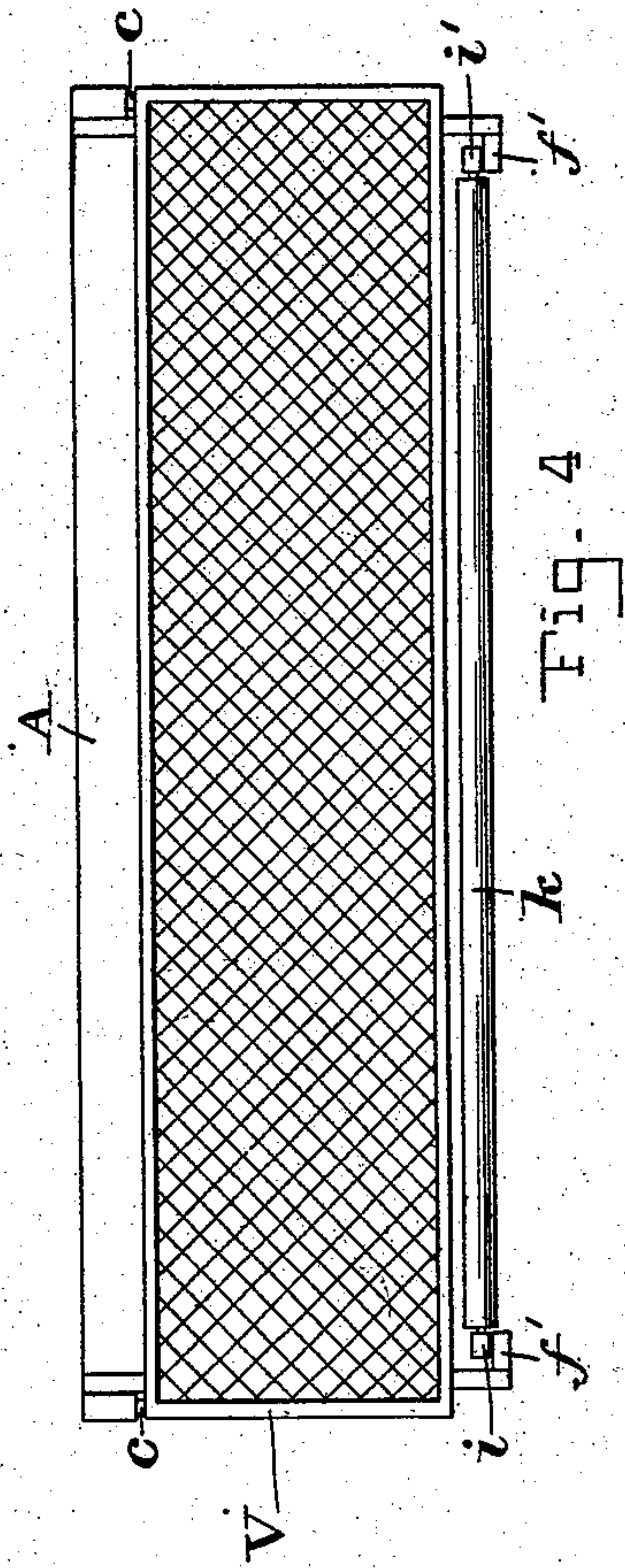
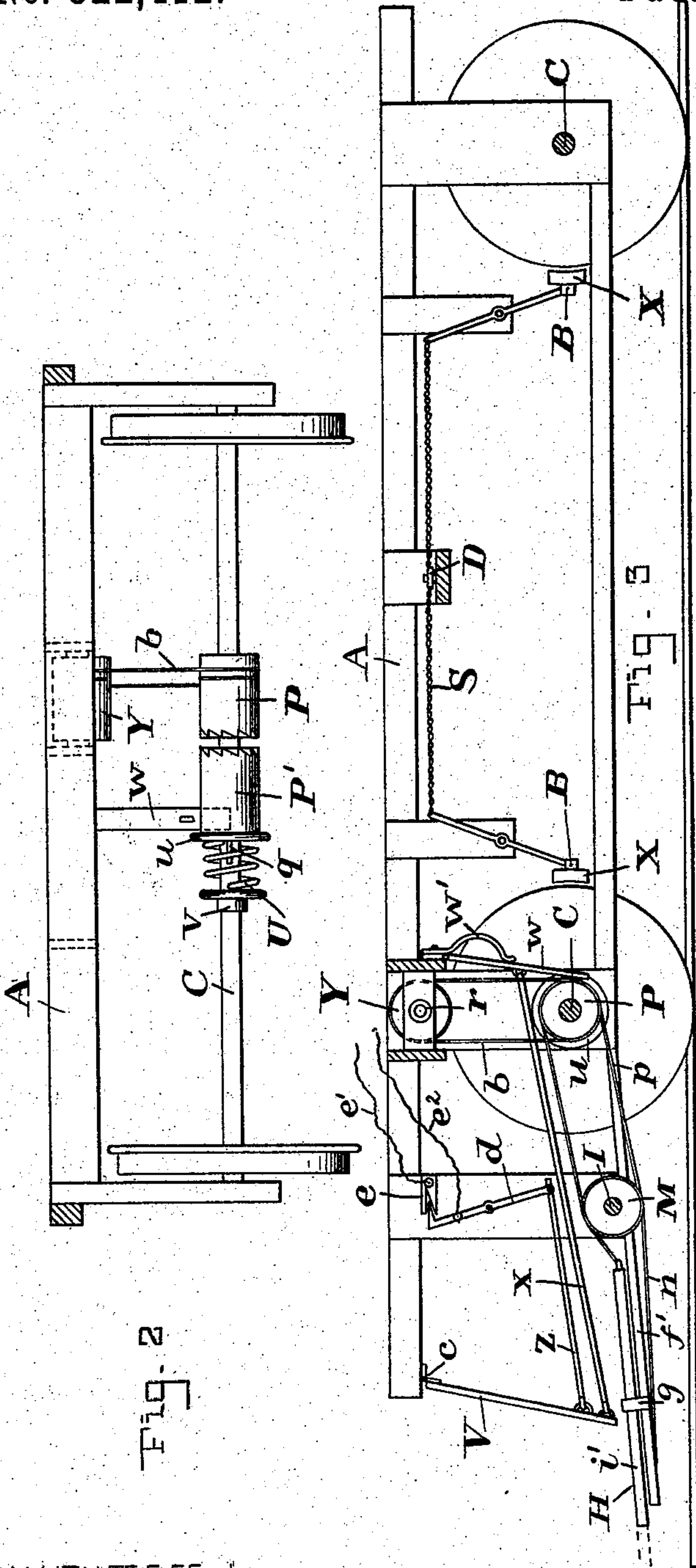
(No Model.)

2 Sheets—Sheet 2.

D. HARDING & W. L. FITZHUGH.  
SAFETY CAR FENDER.

No. 522,412.

Patented July 3, 1894.



WITNESSES:

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INVENTORS

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# UNITED STATES PATENT OFFICE.

DANIEL HARDING, OF TOWSON, AND WILLIAM L. FITZHUGH, OF BALTIMORE, ASSIGNORS, BY DIRECT AND MESNE ASSIGNMENTS, TO SAID HARDING, AND JOHN I. YELLOTT, OF TOWSON, MARYLAND.

## SAFETY CAR-FENDER.

SPECIFICATION forming part of Letters Patent No. 522,412, dated July 3, 1894.

Application filed April 9, 1894. Serial No. 506,824. (No model.)

*To all whom it may concern:*

Be it known that we, DANIEL HARDING, residing at Towson, county of Baltimore, and WILLIAM L. FITZHUGH, residing at Baltimore, State of Maryland, citizens of the United States, have invented certain new and useful Improvements in Safety Car-Fenders, of which the following is a specification.

Our invention relates to an improvement in safety car fenders.

The object of the invention is to provide improved means combined with a fender whereby the fender will be projected, the motive power shut-off and the brakes applied when a person is run down by the car and struck by the fender.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a top or plan view of the fender and the mechanism connected therewith. Fig. 2 is a front view of the car-frame showing the clutch mechanism. Fig. 3 is a side elevation of a car-frame and the fender and brake mechanism. Fig. 4 is a front view of the swinging operating gate of the fender.

Referring to the drawings, the letter, A, designates the framework of a car; B, the brake-beams; C, the axles, and, D, a centrally-pivoted lever attached to the framework, for drawing on the brake-beams through the medium of the chains, S, and applying the brake-shoes to the wheels. Two slightly-inclined side bars,  $f$   $f'$ , project forward from the truck-frame and are connected by a cross-bar,  $f^2$ , and are each provided with an inward-turned guide,  $g$ ; the side bars and guides serve as guideways on which moves a projectible fender, H, having a three sided frame; a number of rollers,  $k$ , covered or sheathed with rubber or other elastic cushioning material are journaled in the two side rods,  $i$ ,  $i'$ , of this frame, and the rear cross-rod,  $i^2$ , is provided with eyes,  $l$ . A transverse shaft, I, is journaled in the truck-frame at either side and carries three drums or pulleys, one at each end designated, M, and one in the middle designated, M'; a cord,  $n$ , at each side of the frame passes over each of the drums and over a pulley,  $o$ , on the cross-rod,  $f^2$ , which connects the two inclined bars,

and is attached to the eyes,  $l$ , on the rear cross-rod of the fender-frame. Another cord,  $p$ , connects the drum, M', with the loose half, P, of a drum-clutch on the axle, and thereby the transverse shaft, I, will be revolved when the other half, P', of said clutch is engaged with the said loose half; the shaft revolving will project the fender-frame, H, forward, as indicated by dotted lines in Fig. 3. The mechanism to effect this result comprises besides the loose clutch half, P, before mentioned, the other half, P', which is attached to the axle, C, by the ordinary spline,  $q$ , and groove in such manner that while it revolves with the axle it may be moved laterally thereon. This clutch half, P', is provided at one end with a circumferential flange,  $u$ , and the axle has a collar,  $v$ ; a spiral spring, U, on the axle between the collar and flange normally tends to move the clutch-half, P', laterally into engagement with the loose half, P. To prevent this lateral movement and keep the clutch halves separated a pendent swinging rod,  $w$ , is provided which presses against the side of the clutch half and is held in engagement therewith by a curved plate spring,  $w'$ ; as long as the collar,  $u$ , is in contact with the pendent rod, the clutch half, P', cannot engage with the other clutch half, P. The means for disengaging the pendent swinging rod to release the rigid clutch half will be presently described.

A jack-screw, Q, is mounted loosely in and moves longitudinally in two bearings,  $r$ , and is provided with a head,  $s$ , which is connected to one end of an auxiliary brake-lever, R, by a short chain,  $t$ , and the other end of the auxiliary lever is connected by a chain, T, with the brake-lever, D, to which latter the operating chains, S, are attached, and by pulling on these operating chains the brake-beams, B, apply the brake-shoes, X, to all the wheels.

A drum-nut, Y, is mounted on the jack-screw between the two bearings,  $r$ , whereby when said nut is revolved the jack-screw is caused to move endwise freely through the said bearings,  $r$ ; an endless cord,  $b$ , passes over the drum-nut, Y, and also over the loose half, P, of the clutch, by which arrangement



when this part of the clutch is revolved the drum-nut actuates the screw and applies the brakes.

An operating gate, V, is hinged at, c, so as to swing and a rod, x, connects between the swinging gate and the swinging pendent rod, w.

When a person on the car-track is run down by the moving car and is struck by the swinging gate, the latter will be forced backward and the pendent rod, w, thrown out of engagement with the collar, u, of the half clutch, P', whereupon the spiral spring, U, will force said half into engagement with the loose half, P', causing said loose half to revolve and communicate motion to the transverse shaft, I, and thereby project the fender-frame, H, to prevent said person from getting under the wheels; and at the same time the loose clutch half, P, will impart motion to the drum-nut, Y, and thereby move the jack-screw, Q, and apply the brakes.

In Fig. 3 means are shown for shutting off the electric current from a car automatically. This comprises a pivoted contact lever, d, to which a rod, z, connecting it with the swinging gate, V, is attached; a contact piece, e, is on the car-frame and the lever, d, makes and breaks contact therewith; wires, e', e<sup>2</sup>, lead from the lever and contact piece to the feed wires of the car, and when said lever is caused to break contact by the action of the swinging-gate, the current will be shut off from the car-motors.

In instances where the improved fender and brake-mechanism are employed on cable cars, a suitable device for releasing the grip from the cable is employed instead of the current shut-off means herein shown and described.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination of the two inclined side bars, f, f', having a cross-bar, f<sup>2</sup>; a fender, H, movable on said bars; the car-axle provided with a clutch-drum; cords, n, wound on the clutch-drum and having both ends attached to the movable fender and passed over pulleys, o, on the said cross-bar.

2. The combination of a car-axle provided

with a clutch and clutch-drum; means to keep the clutch disengaged from the clutch drum; a jack-screw connected with the brake gear of a car to apply the brakes; and a swinging gate connected with the said means which keeps the said clutch disengaged.

3. The combination of the two inclined side bars, f, f', having a cross-bar, f<sup>2</sup>; a fender, H, movable on said bars; the car-axle provided with a drum-clutch; a transverse shaft carrying at each side a pulley, M, and in the middle a pulley, M'; a cord, p, wound around the drum-clutch and middle pulley, M'; and cords, n, wound around the pulleys, M, and having both ends attached to the movable fender and passed over pulleys, o, on the said cross-bar.

4. The combination of the projectible fender, H; a jack-screw connected with the brake-gear of a car; a drum-nut operating on the jack-screw; clutch mechanism on the car-axle comprising a loose clutch half, P, and a clutch-half, P', laterally movable on the axle to engage the said loose clutch-half; a cord wound around the said drum-nut and loose clutch-half; and a swinging gate operating to simultaneously project the fender and move the clutch halves into engagement.

5. The combination of a projectible fender, H; the axle having a collar, v; clutch mechanism on the axle comprising a laterally-movable clutch half, P', provided at one end with a circumferential flange, u, and a loose clutch-half, P; a spring between said axle-collar and circumferential flange; a jack-screw laterally-movable in bearings, r, and connected with the brake-gear of the car; a drum-nut acting to move said jack-screw and connected with the loose clutch-half by a cord wound around them; means for holding the clutch-halves out of engagement with each other; and means for simultaneously moving the said clutch-halves into engagement and projecting said fender, H.

In testimony whereof we affix our signatures in the presence of two witnesses.

DANIEL HARDING.

WILLIAM L. FITZHUGH.

Witnesses:

C. CALVERT HINES,  
CHAS. B. MANN.