(No Model.)

3 Sheets—Sheet 1.

R. S. FLINT.

CAR FENDER.

No. 555,083. Patented Feb. 25, 1896.

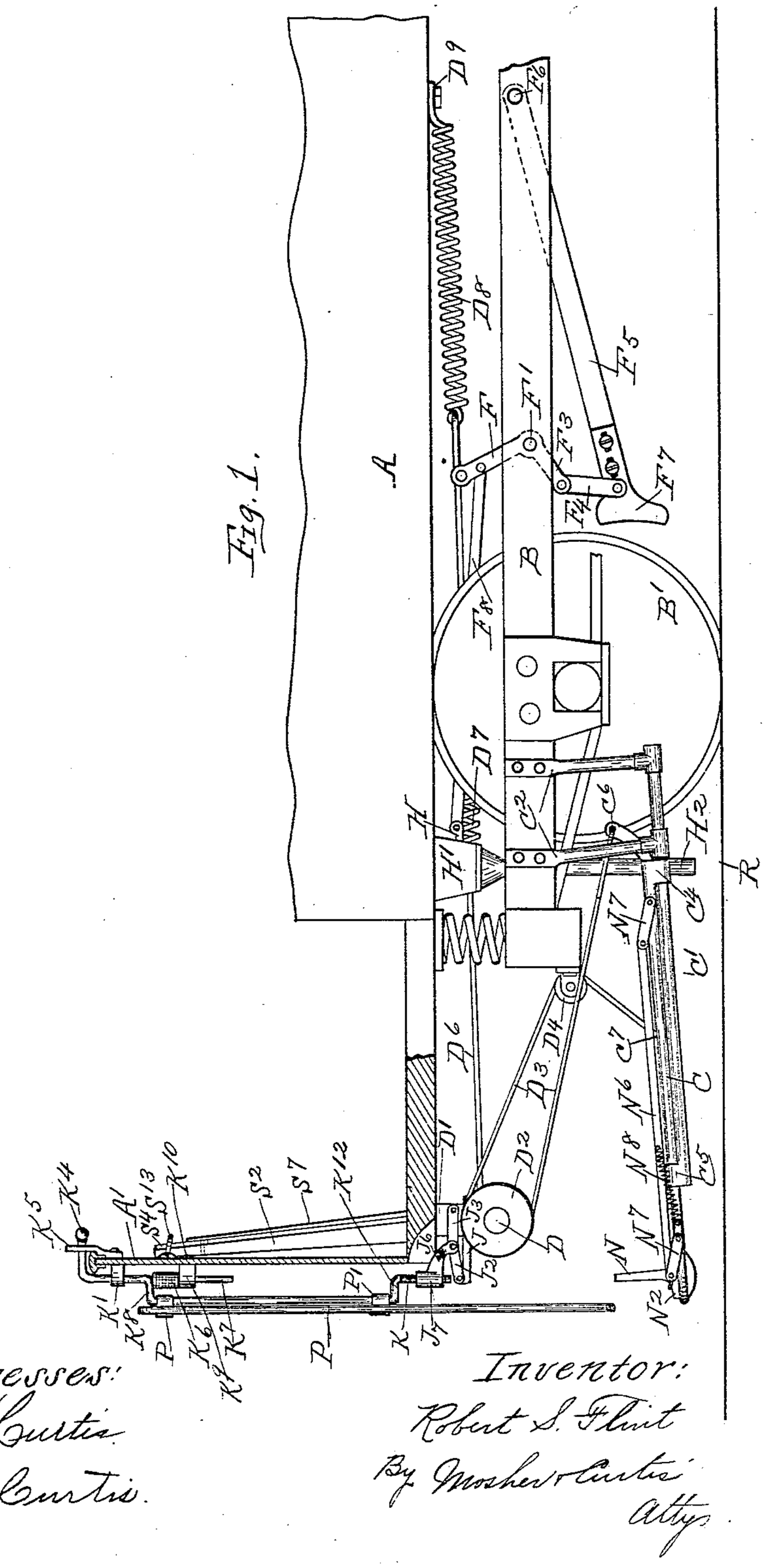

Fig. 1.

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(No Model.)

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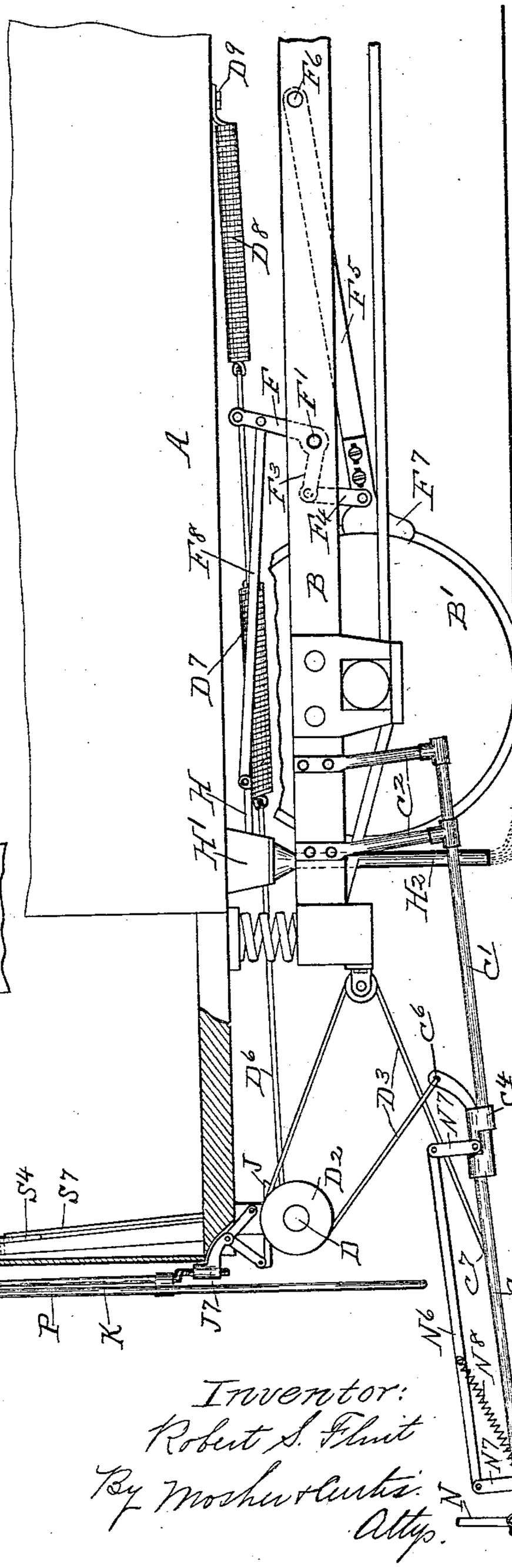
Fig. 2.



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(No Model.) 3 Sheets—Sheet 3.

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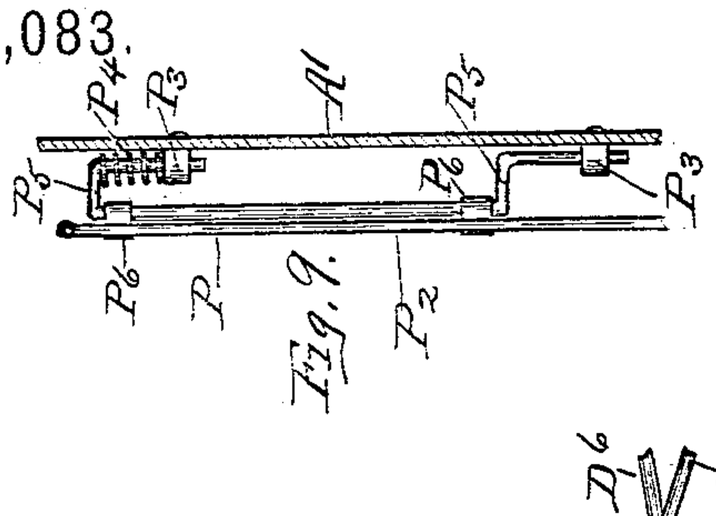

Fig. 9.

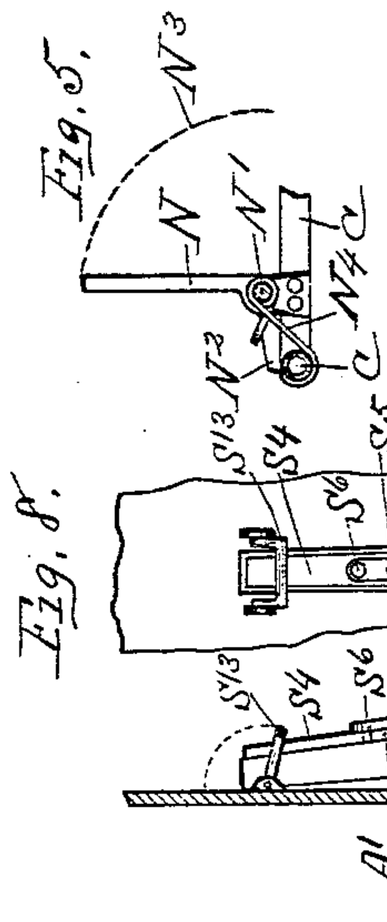

Fig. 5.

Fig. 8.

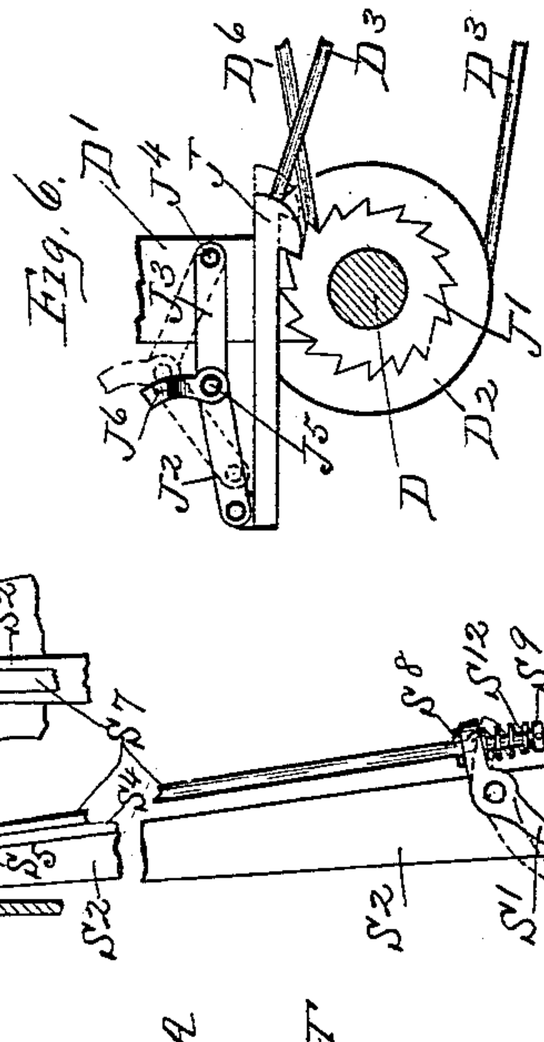

Fig. 6.

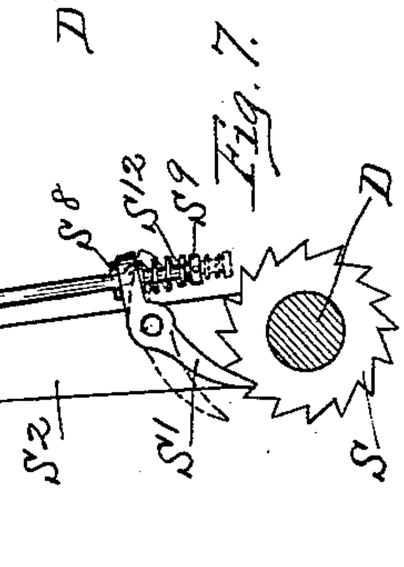

Fig. 7.

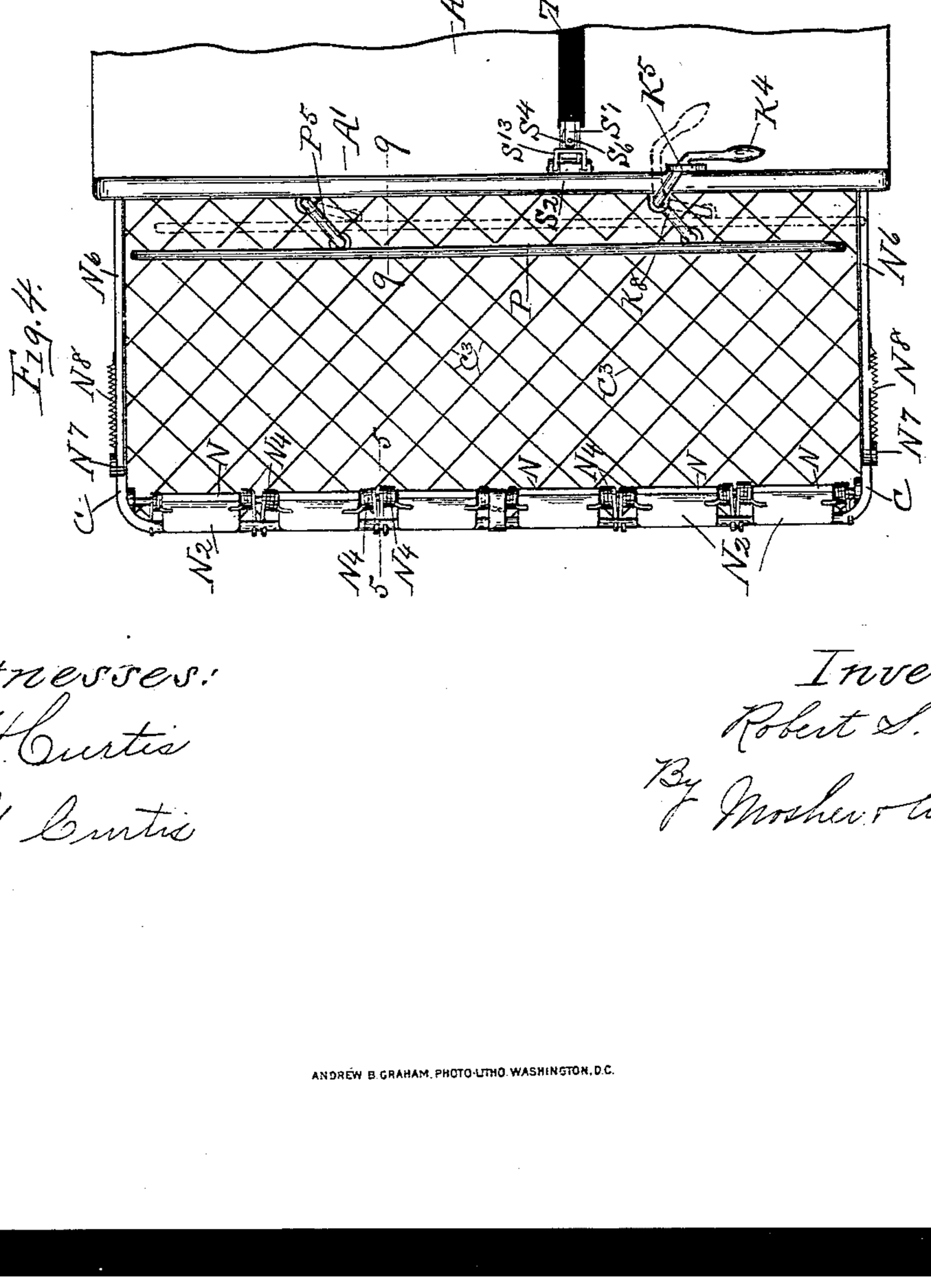

Fig. 4.

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UNITED STATES PATENT OFFICE.

ROBERT S. FLINT, OF TROY, NEW YORK, ASSIGNOR OF NINE-TWENTIETHS TO T. HENRY DUTCHER, OF SAME PLACE.

CAR-FENDER.

SPECIFICATION forming part of Letters Patent No. 555,083, dated February 25, 1896.

Application filed April 18, 1895. Serial No. 546,219. (No model.)

To all whom it may concern:

Be it known that I, ROBERT S. FLINT, a citizen of the United States, residing at Troy, county of Rensselaer, and State of New York, have invented certain new and useful Improvements in Car-Fenders, of which the following is a specification.

The invention relates to such improvements; and it consists of the novel construction and combination of parts hereinafter described and subsequently claimed.

Reference may be had to the accompanying drawings, and the letters of reference marked thereon, which form a part of this specification.

Similar letters refer to similar parts in the several figures therein.

Figure 1 of the drawings is a view in side elevation of a portion of a car provided with my improved fender, showing the movable frame in a rearward position beneath the car-platform. Fig. 2 is a similar view showing the frame in a forward position in advance of the car-platform. Fig. 3 is an inner side elevation of a portion of the dashboard, showing the hook for locking the detent mechanism. Fig. 4 is a top plan view of the forward end of the car with the fender in the position shown in Fig. 2. Fig. 5 is a cross-section of the front portion of the fender-frame, taken on the broken line 5 5 in Fig. 4. Fig. 6 is a cross-section of the fender-operating shaft, showing the ratchet, detent, and release mechanism in elevation. Fig. 7 is a similar view showing the ratchet mechanism for operating the shaft. Fig. 8 is a front elevation of a portion of the dashboard and the upper end of the shaft-operating lever-handle shown in Fig. 7. Fig. 9 is a vertical section of the dashboard, taken on the broken line 9 9 in Fig. 4, showing one of the supports for the tripping-frame in elevation.

A is the car-body having the dashboard A′, and supported upon the truck B mounted upon wheels B′ in the usual manner.

C is a fender-frame movable longitudinally of the car upon a slideway formed by the rods C′ supported on opposite sides of the car by hangers C^2 depending from the truck-frame. The fender-frame is preferably composed of a piece of steel bent to the required form and provided with a meshed wire-netting C^3. The inner end of each side bar of the frame terminates in an eye C^4, which loosely incloses the respective slideway-rod C′, and the slideway-rod terminates at its outer end in an eye C^5, which loosely incloses the respective side bar of the fender-frame.

D is a fender-operating shaft supported in hangers D′ depending from the car-body. The shaft is provided with a pulley or drum D^2 fixed thereon. A cable D^3 passing around the drum with one or more turns and around a guide-pulley D^4 is secured at one end to the rear end of the fender-frame, as at C^6, and at the other end to the middle part of the frame, as at C^7. Another cable, D^6, is secured at one end to the shaft D and wound thereon by a few turns, the other end of the cable being secured to the forward end of coil-spring D^7. The rear end of this spring is connected with the brake-actuating lever F, and the lever is connected by another spring, D^8, with some fixed support, as the bottom of the car at D^9.

The actuating-lever is an arm projecting from the rock-shaft F′ extending crosswise of the car and having end bearings in the side bars of the truck. The rock-shaft has at each end an arm F^3 connected by link F^4 with the forward end of the brake-supporting lever F^5 pivoted at its rear end upon the truck, as at F^6. The forward end of this supporting-lever is provided with a brake-shoe F^7 adapted to engage with the neighboring wheel and perform the function of a brake.

The actuating-lever F is connected by link F^8 with the slide-valve H of the sand-box H′. The sand-box, which may be of any known form, is secured to the bottom of the car in position to deliver sand through the outlet-tube H^2 upon the track-rail R in the usual manner.

It is obvious that if the cable-shaft is rotated in a direction to wind the cable upon it the springs will be distended, the sand-box valve forced inward, which movement closes it, and the brake-shoe thrown out of engagement with the wheel. At the same time the frame-cable will be actuated by the shaft-drum to force the frame from the position shown in Fig. 2 to that shown in Fig. 1. The frame is held in the position shown in Fig. 1,

against the force of the springs, by the detent J engageable with the teeth of the ratchet-wheel J′ fixed upon the shaft D.

If the ratchet-wheel and shaft are released from the control of the detent, the springs instantly force the movable frame forward into position for use, and simultaneously operate the brake and sand-box, as seen in Fig. 2.

As a means for releasing the ratchet from the detent, I pivotally connect the heel of the detent-latch with one link, J^2, of a toggle-joint, and connect the other link, J^3, of the joint with a fixed support J^4, preferably located near the head of the latch, as shown.

The joint-pivot J^5 is pivotally connected with the offset J^6 on the screw-threaded nut J^7. The nut fits and is screwed onto the lower threaded end of the rod K, which forms a joint-operating lever adapted to be given a rotary and a slide movement in the bearings K′, secured to the dashboard of the car-platform.

The lever K extends upward from the nut J^7 to the top of the dashboard, where it is provided with an operating-handle K^4, by which the joint can be forced open to the position shown in Fig. 6, and secured in such position by swinging the handle-arm around beneath the hook or stop K^5 on the dashboard.

To release the ratchet from the detent-latch it is only necessary to swing the handle-arm out from beneath the stop and raise the lever to close the toggle-joint and allow the head of the detent-latch to move back out of the path of the ratchet-teeth.

When desired, a lifting-spring of coiled wire, K^6, may be made to lift the lever and close the joint when the handle-arm is swung out from beneath its controlling-stop. The spring incloses the rod K^7 projecting downwardly from the offset K^8 in the lever, and passes through an aperture in the bracket K^9 secured to the dashboard, as by bolt K^{10}. The lower end of the spring bears upon the bracket and its upper end upon the offset K^8.

As a means for automatically releasing the lever from its stop and operating the joint to release the ratchet from its detent, I provide a tripping-frame P, which covers the front of the dashboard and projects below it, as shown.

The tripping-frame is supported on one side or edge by the lever K, which is bent at its upper and lower portions to provide the offsets K^8 and K^{12}, the frame being secured to the straight portion of the lever connecting the upper and lower offsets by the clips P′. The other side or edge of the tripping-frame is secured to a swinging support P^2, as shown in Fig. 9. The support has a swinging and sliding movement in its bearings P^3 and is provided with a lifting-spring P^4.

The offsets P^5 are preferably of the same length as the similar offsets in the joint-operating lever, and the tripping-frame is secured to the support by the clips P^6.

When the parts are in the position shown in Fig. 1, being locked therein by the detent and controlling-joint, the offsets P^5 and K^8 project from the front of the dashboard at an angle of approximately forty-five degrees, as seen in Fig. 4. If, therefore, any obstruction is encountered in the path of the moving car, it is first engaged by the tripping-frame, which is forced backward against or in closer proximity to the car, as to the position indicated by dotted lines in Fig. 4, thereby imparting a rotary movement to the joint-operating lever and forcing the handle-arm out from engagement with its controlling-stop, whereupon the springs lift the tripping-frame and lever, closing the joint and releasing the ratchet from the detent.

As a means for rotating the cable-shaft against the force of the springs to bring the parts into position shown in Fig. 1, I provide a second ratchet, S, upon the cable-shaft, and a pawl S′ pivoted upon an actuating-lever S^2, which lever is pivoted upon the shaft, which can be operated in the usual manner to wind up the cable upon the shaft. The lever passes up through an elongated aperture T in the car-platform.

As a means for throwing the pawl out of engagement with the ratchet after the cable is wound sufficiently, and so that the shaft may be under the control of the detent J only, I provide a short hand-lever S^4 pivoted at S^5 upon the main lever and pivotally connect the hand-lever at S^6 with the upper end of push-rod S^7, the lower end of the rod passing through an aperture in the tail end of the pawl. The lower part of the rod is provided with two stops S^8 and S^9. The stop S^8 engages the upper side of the pawl to force the tail downward and the head out of engagement with the ratchet-teeth. The stop S^9 at the extreme end of the rod engages the lower end of the coil-spring S^{12}, while the upper end of the spring engages the lower side of the pawl to force the head of the pawl into engagement with the teeth.

When the parts are in the position shown in Fig. 7, if the link S^{13} pivoted to the dashboard is swung over the upper end of both levers, as shown, the parts will be locked in such position, and the fender mechanism cannot be operated by releasing the other ratchet from the detent J. By swinging the upper end of the short lever down below its fulcrum, as indicated by dotted lines in Fig. 7, the pawl will be forced out of engagement with the ratchet and the detent J will not be under its control. When desired, the pawl and its actuating mechanism can be applied to the detent-ratchet, thereby dispensing with the necessity of a second ratchet.

The movable fender-frame may be provided with any known form of apron, as the wire-netting shown. When desired, the forward edge of the frame may be provided with a series of yielding guard-posts N in the form of angle-pieces, pivoted in the angle, as at N′, upon the frame, with the short leg N^2 of the

post resting upon the frame when the longer leg stands vertically, as seen in Fig. 5. The longer leg or main part of the post is adapted to be oscillated over the path indicated by the curved broken line N^3 and is normally maintained in the vertical position by the spring N^4, one end of which bears upon the lower side of the frame and the other end upon the upper side of the short leg.

Should the fender-frame while in use come into engagement with an object prostrate on the car-track, the posts engaged will yield to allow the object to pass over onto the apron and afterward assume an upright position to prevent the object from falling off the apron when the car is quickly stopped.

I also provide guide-rails for the sides of the movable fender-frame, consisting of the rods N^6, one on each side of the frame. Each rod is pivotally connected at its ends with the side bars of the frame by one of the links N^7. The normal position of the rods when not in use is upon the frame, as shown in Fig. 1, in which position they are retained by the springs N^8; but when the fender-frame is thrust forward to the position shown in Fig. 2, ready for use, the rear connecting-links N^7 engage the eye on the frame-slideway and are forced into an upright position, as shown, which lifts the rods, thereby forming an effectual guide-rail to prevent an object on the fender-apron from being thrown therefrom.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a car-fender, the combination with a movable fender-frame and operative mechanism for imparting to the frame a forward movement, of a valved sand-box, a wheel-brake, and operating connections between the fender-frame, sand-box valve and brake, whereby all are simultaneously operated by the frame-operating mechanism, substantially as described.

2. In a car-fender, the combination with a supporting-slideway, and fender-frame movable on the slideway, of a pair of side rails, pivotal link connections between the side rails and frame, and mechanism whereby the rails are elevated and depressed by the respective forward and rearward movements of the fender-frame, substantially as described.

3. In a car-fender, the combination with the car-body and truck, of a slideway fixed upon the truck, a fender-frame movable on the slideway, a shaft supported in bearings on the car-body; oppositely-wound cable connections between the fender-frame and shaft, whereby the frame can be moved forward and back by the opposite rotary movements of the shaft; a spring for rotating the shaft in one direction; pawl-and-ratchet mechanism for rotating the shaft in the opposite direction; a detent and releasing mechanism, substantially as described.

4. In a car-fender, the combination with a movable fender-frame; and operating mechanism for imparting to the frame a forward movement, a pawl-and-ratchet detent for supporting the frame in a rearward position; a tripping-frame supported vertically in front of the car-body; pivotal link connections between the tripping-frame and car-body, whereby said frame is movable toward and from the car-body while maintained in parallel planes; and releasing mechanism interposed between the tripping-frame and detent, substantially as described.

5. The combination with the spring-actuated shaft; and ratchet fixed thereon; of a detent-latch engageable with the ratchet; a toggle connection between the heel of the latch and a fixed support; and means for operating the toggle connection, whereby the latch yields in a longitudinal direction and releases the ratchet, substantially as described.

6. In a car-fender, the combination with the spring-actuated shaft and ratchet fixed thereon; of a detent-latch engageable with the ratchet; a toggle connection between the heel of the latch and a fixed support; a joint-actuating lever; a stop for holding the lever in position to maintain the joint open; an actuating-spring for operating the lever to close the joint; and a tripping-frame for releasing the lever from its controlling-stop, substantially as described.

In testimony whereof I have hereunto set my hand this 10th day of April, 1895.

R. S. FLINT.

Witnesses:
GEO. A. MOSHER,
FRANK C. CURTIS.