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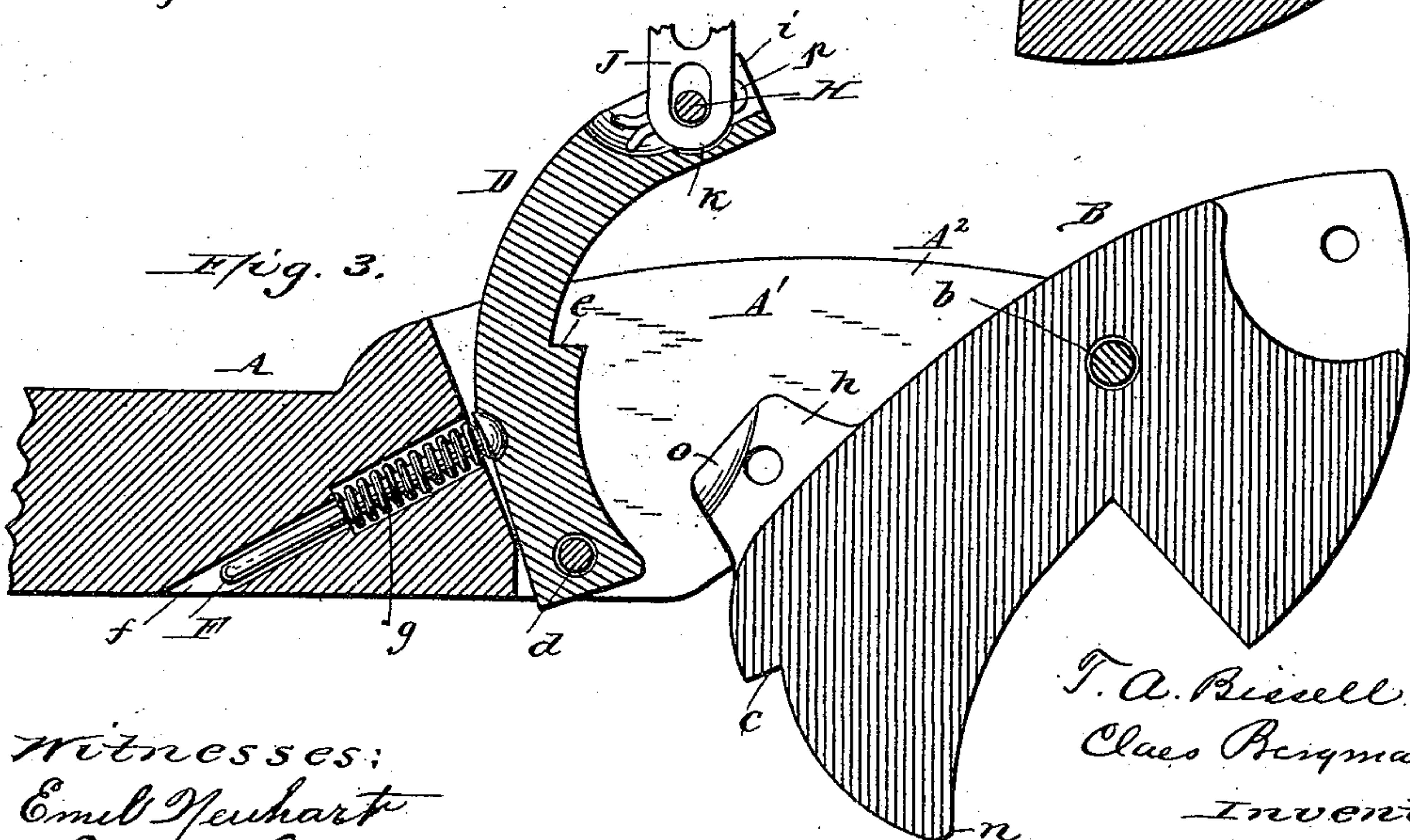
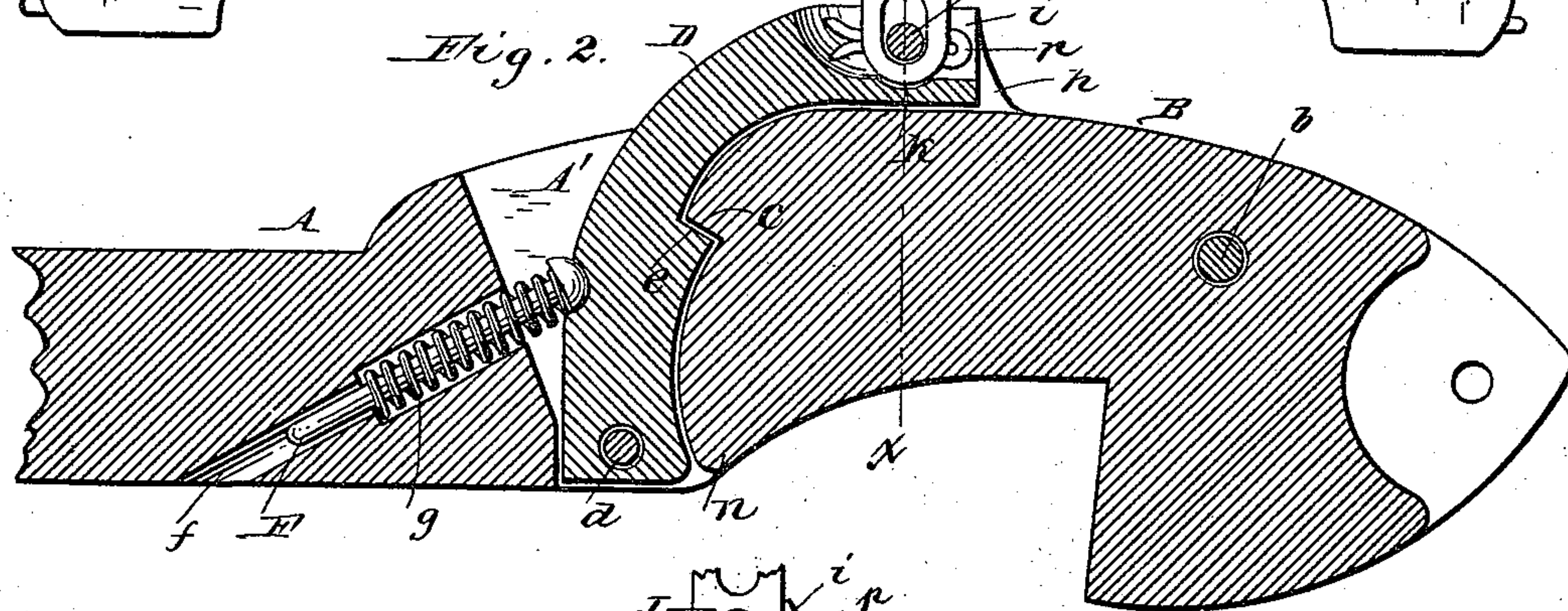
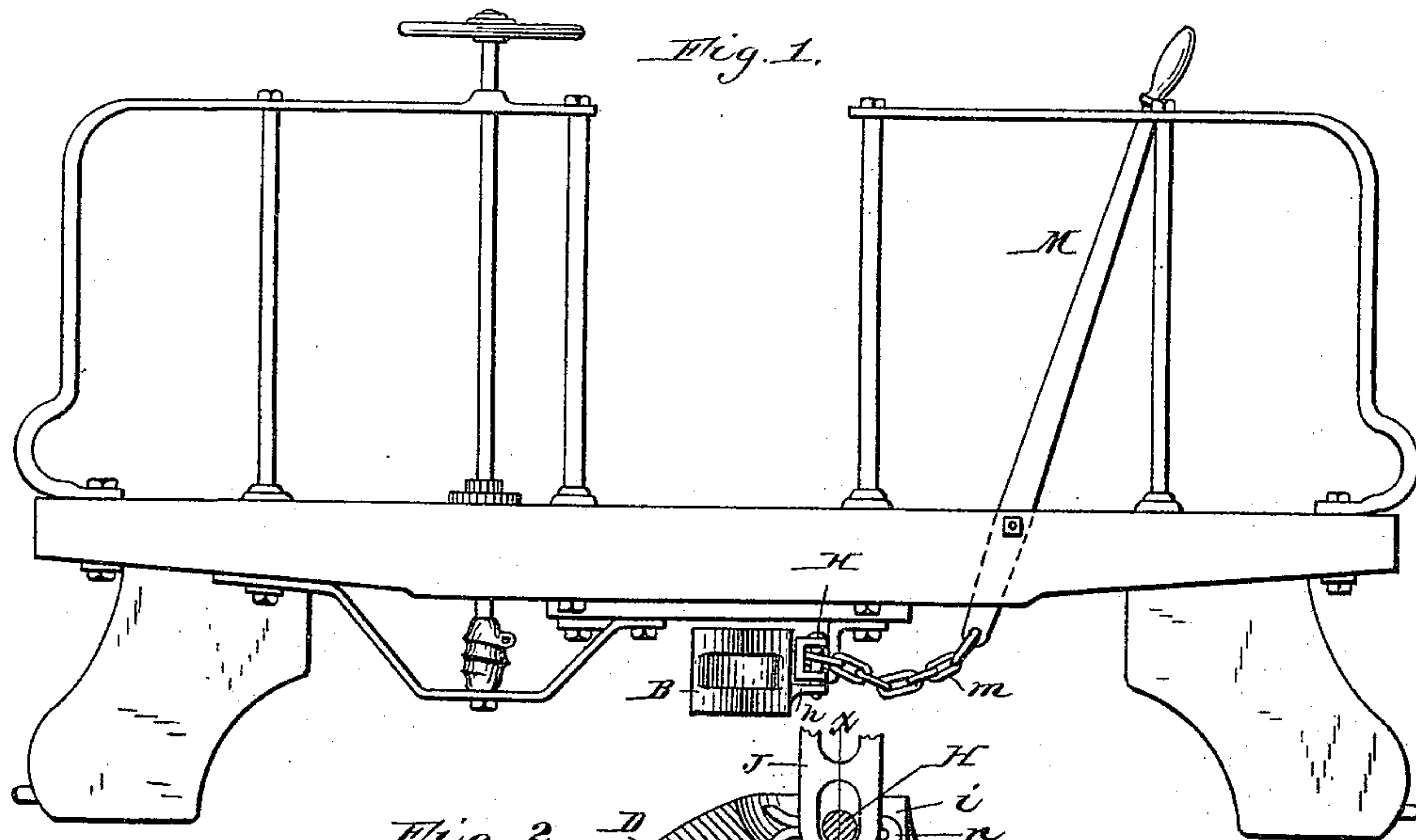
2 Sheets—Sheet 1.

T. A. BISSELL & C. BERGMAN.

CAR COUPLING.

No. 440,299.

Patented Nov. 11, 1890.



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(No Model.)

2 Sheets—Sheet 2.

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Fig. 4.

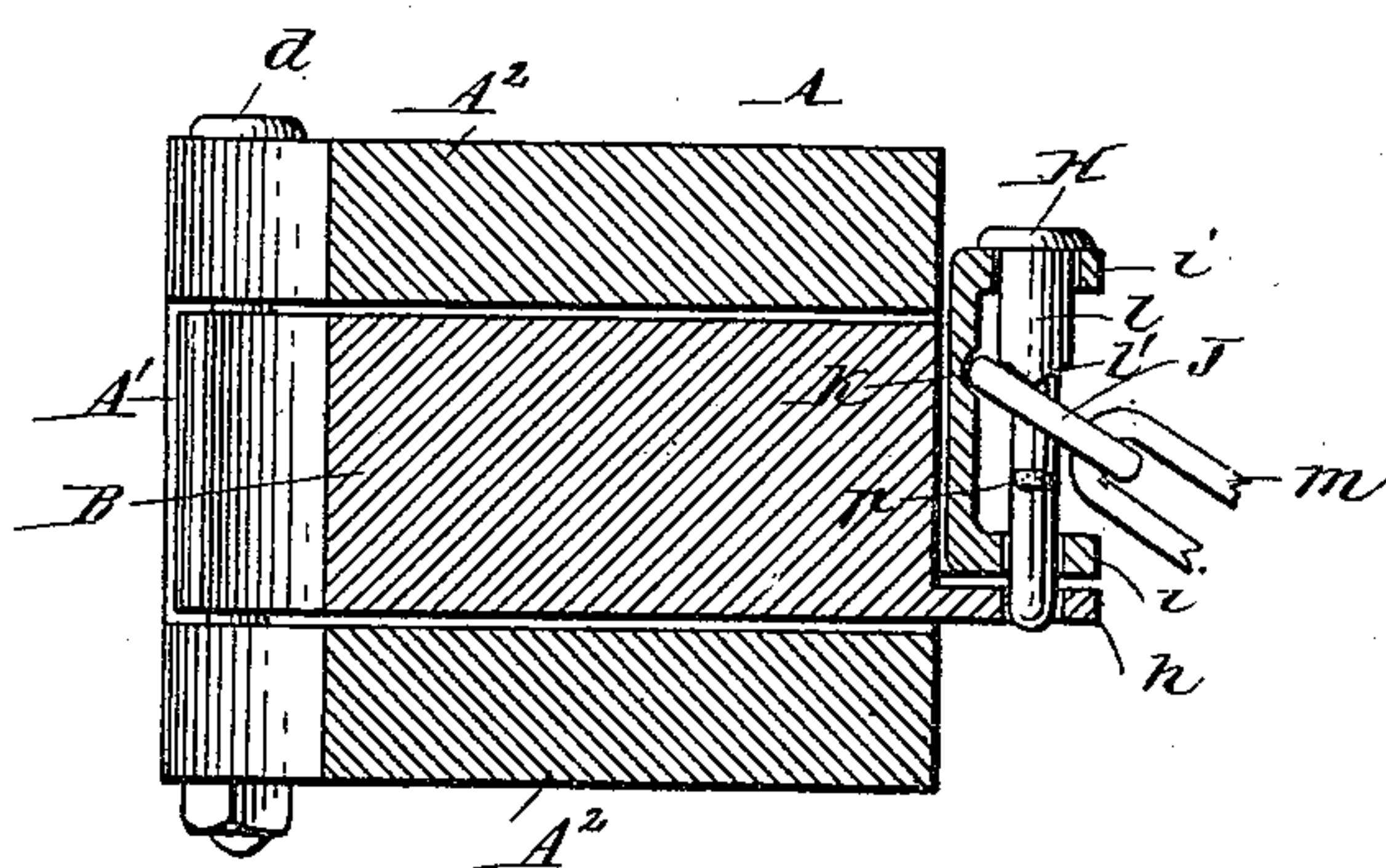


Fig. 5.

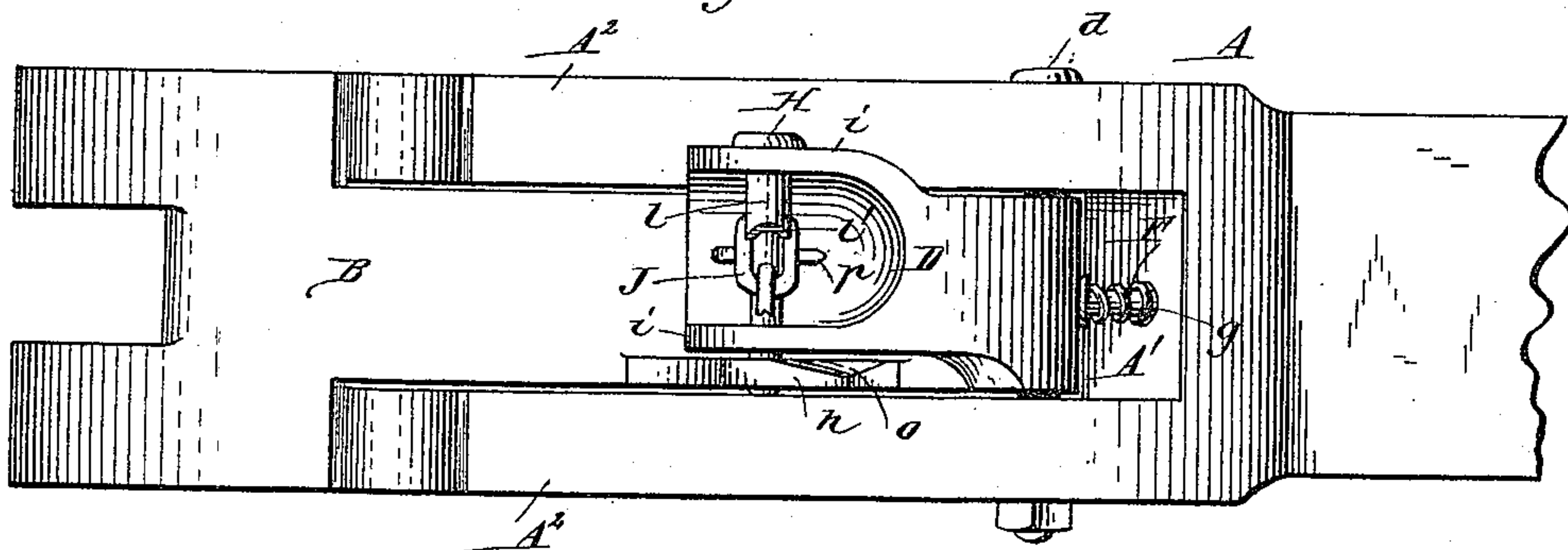
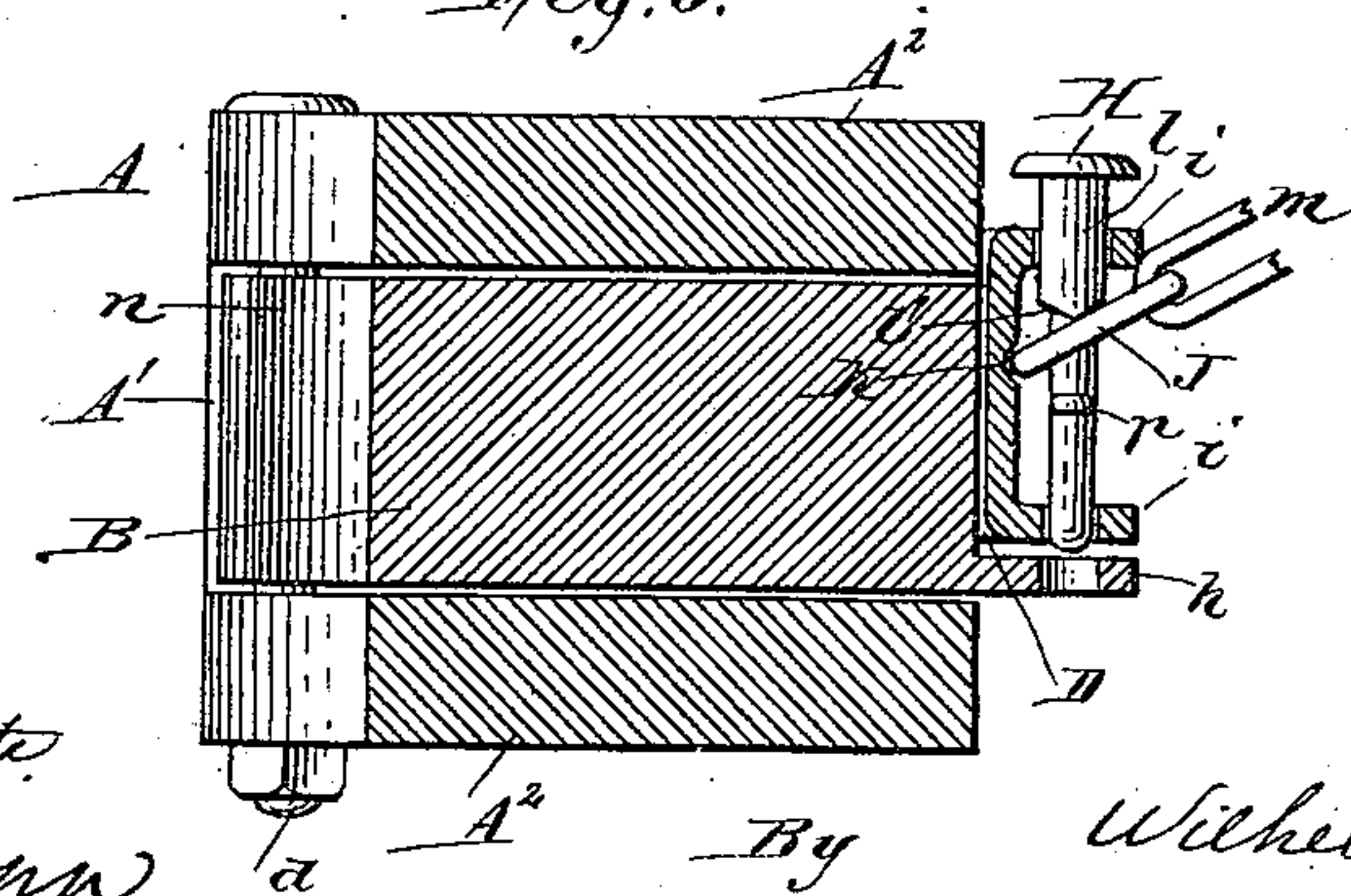


Fig. 6.



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# UNITED STATES PATENT OFFICE.

THOMAS A. BISSELL AND CLAES BERGMAN, OF BUFFALO, NEW YORK.

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 440,299, dated November 11, 1890.

Application filed July 1, 1890. Serial No. 357,353. (No model.)

*To all whom it may concern:*

Be it known that we, THOMAS A. BISSELL and CLAES BERGMAN, citizens of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Car-Couplings, of which the following is a specification.

This invention relates to that class of car-couplings in which each draw-head is provided with a pivoted coupling-hook and a catch or locking-bar, whereby the hook is locked in a normal or coupled position.

One of the objects of our invention is to simplify the construction of this class of coupling so that the same may be conveniently constructed of wrought-iron, thereby increasing the strength of the coupling and reducing its cost of manufacture.

Another object of the invention is to provide the coupling with a simple and reliable safety-lock, which is readily operated and not liable to get out of order.

In the accompanying drawings, consisting of two sheets, Figure 1 is an end view of a railway-car provided with our improved coupling. Fig. 2 is an enlarged horizontal section thereof, showing its hook in a normal or locked position; and Fig. 3 is a similar view showing the hook in its abnormal or unlocked position.

Fig. 4 is a cross-section of the coupling in line  $x x$ , Fig. 2, showing the safety-pin in a locked position. Fig. 5 is a side elevation of the coupling. Fig. 6 is a cross-section of the same, showing the safety-pin in an unlocked position.

Like letters of reference refer to like parts in the several figures.

A represents the draw-head, which is bifurcated at its front end to form a horizontal chamber or recess  $A'$ , which is open at both sides, as shown.

B is the horizontally-swinging coupling-hook, pivoted in said chamber or recess by a vertical bolt  $b$ , passing through the front portions of the jaws or cheeks  $A^2$ , forming said chamber. The shank of the coupling-hook is provided at its rear end with a shoulder  $c$ .

D represents a horizontal catch or locking-bar whereby the pivoted hook is locked in position, and which is arranged in the rear part of the recess  $A'$  of the draw-head and pivoted at its inner end by a vertical bolt  $d$ ,

passing through the jaws of the draw-head. The catch D extends outwardly and forwardly beyond the rear side of the draw-head, and is provided on its front side with a nose or shoulder  $e$ , which is adapted to engage with the shoulder  $c$  of the coupling-hook and thereby lock the latter in its normal position, as represented in Fig. 2. The catch is held in engagement with the coupling-hook by a spring-bolt F, which slides in a horizontal opening  $f$ , formed in the draw-bar in rear of the catch, and which rests with its head in a notch or recess in the back of the catch.

$g$  is the spring of the bolt, which surrounds the latter and is interposed between the head of the bolt and an annular shoulder or offset formed in the opening  $f$ , so as to resist the inward movement of the bolt.

H is a vertically-movable safety-pin or locking-bolt attached to the projecting front end of the catch and engaging with its lower end in an opening in an ear or lug  $h$ , arranged on the rear side of the coupling-hook, as represented in Figs. 2, 3, and 4. The front end of the catch is recessed in its outer side, and the safety-pin H is seated in openings in the projecting horizontal flanges  $i i$ , formed by recessing the catch, as clearly shown in Figs. 4, 5, and 6.

J represents a releasing-link surrounding the safety-pin H between the flanges  $i$  of the catch, and which rests loosely with its inner end in a recess or cavity  $k$ , formed in the adjacent outer side of the catch, the cavity forming a fulcrum or support upon which the link swings vertically. The safety-pin is arranged at the proper distance from the outer side of the catch to retain the inner part of the releasing-link in the cavity  $k$ . The safety-pin is provided above the releasing-link with an annular shoulder or enlargement  $l$ , which is so arranged with reference to the link that when the link hangs in its natural downwardly-inclined position, as represented in Fig. 4, it does not affect the position of the safety-pin, while when the link is raised to or above a horizontal position, as represented in Fig. 6, the side bars of the link bear against the shoulder of the pin and lift the same out of engagement with the perforated ear of the coupling-hook. The shoulder of the safety-pin is chamfered or inclined on opposite



sides, as shown at  $l'$ , to increase the range of movement of the pin.

M represents a hand-lever pivoted to the car-platform, and  $m$  is a chain connecting the releasing-link J with the lower end of said hand-lever. Upon swinging this hand-lever in the direction to cause the chain to be drawn taut the depending releasing-link is raised and caused to lift the safety-pin, and as soon as the pin is released from the perforated ear of the coupling-hook the catch is swung rearwardly into the position represented in Fig. 3 by the continued movement of the hand-lever, releasing its shoulder from the shoulder of the coupling-hook and leaving the latter free to disengage itself from the hook of an adjoining car. The rearward movement of the catch causes the spring of the bolt to be compressed. Upon swinging the hand-lever in the opposite direction, so as to slacken the connecting-chain, the spring-bolt reacts and swings the catch back to the position represented in Fig. 1. When the open or unlocked coupling-hook is struck by the locked hook of an adjoining car, it is swung inwardly into the position represented in Fig. 1, the inner end of the interlocked hook swinging the catch inwardly against the pressure of the spring-bolt until the shoulder of the hook has passed the shoulder of the catch, when the latter is again pressed forwardly by the spring-bolt and retained in engagement with the coupling-hook.

To facilitate the rearward movement of the catch when the coupling-hook is swung inwardly, the inner end of the hook is curved, as shown, and to facilitate the inward movement of the coupling-hook when open or unlocked the inner front end of the hook is formed with a projecting nose  $n$ .

The perforated ear of the coupling-hook is provided on its upper side with an incline  $o$ , leading from the outer lower edge of the ear to the upper edge of the opening in the ear. The inward movement of the coupling-hook causes the incline of the perforated ear to engage under the lower end of the safety-pin and lift the same until the opening of the ear arrives under the pin, when the latter drops by gravity into the opening and reliably locks together the coupling-hook and the catch. The safety-pin is thus released from the ear of the coupling-hook and the catch disconnected from the hook by a single movement of the hand-lever in uncoupling the cars, and the pin is automatically interlocked with the coupling-hook when the coupling-hook is swung inwardly in coupling the cars.

$p$  is a transverse pin or key secured to the safety-pin below the releasing-link J, and which serves the double function of preventing the pin from being withdrawn or accidentally jarred out of the openings in the catch and holding the pin against turning, so as to prevent disarrangement of its inclined portions with reference to the side bars of the releasing-link.

By the use of our improved lock the catch is reliably held in engagement with the hook in the event of its spring-bolt becoming inoperative, thereby increasing the safety of the coupling.

By constructing the draw-head with a chamber or recess open on both sides and arranging both the locking-catch and coupling-hook horizontally between the jaws of the draw-head no cavities or pockets are required in the draw-head, and the latter can therefore be conveniently forged of wrought-iron, forming a strong coupling, which is more reliable than couplings in which the draw-heads must be formed with such pockets, which latter construction renders it impracticable to forge the draw-head of wrought-iron.

We claim as our invention—

1. The combination, with a draw-head provided at its front end with a horizontal recess having open sides, of a coupling-hook pivoted in said recess, a horizontally-swinging catch pivoted in said recess in rear of the coupling-hook, a spring-bolt arranged in an opening in the draw-head in rear of said recess and bearing against the rear side of the horizontally-swinging catch, whereby the catch is held in engagement with the coupling-hook and the latter held from turning on its pivot, and a safety-lock arranged on the forward end of the swinging catch and engaging with the coupling-hook, whereby the catch is held in engagement with the coupling-hook independently of the spring-bolt, substantially as set forth.

2. The combination, with the draw-head, of a coupling-hook pivoted to the draw-head and provided at its rear end with a shoulder a horizontally-swinging catch pivoted to the draw-head in rear of the pivoted coupling-hook and having on its front side a shoulder which engages with the shoulder of the coupling-hook, and a locking-pin arranged on the swinging catch and engaging with the coupling-hook, substantially as set forth.

3. The combination, with the draw-head and a coupling-hook pivoted to the draw-head, of a movable catch or locking-bar engaging with the hook, and a safety-lock carried by said catch and engaging with the coupling-hook, substantially as set forth.

4. The combination, with the draw-head and a coupling-hook pivoted to the draw-head, of a movable catch or locking-bar engaging with the hook, and a locking pin or bolt arranged on the catch and interlocking with the coupling-hook, substantially as set forth.

5. The combination, with the draw-head and a coupling-hook pivoted to the draw-head, of a movable catch or locking-bar engaging with the hook, a locking-pin, also engaging with the hook, and provided with a shoulder or projection, and a releasing-link supported upon the catch and adapted to engage against the shoulder or projection of the locking-pin, substantially as set forth.

6. The combination, with the draw-head, of



the pivoted coupling-hook having a perforated ear, a horizontally-swinging catch pivoted to the draw-head and interlocking with the coupling-hook, a vertically-movable safety-pin arranged on the catch and adapted to engage with the perforated ear of the coupling-hook, and a releasing-link supported at one end upon the catch and engaging against a shoulder or projection on the safety-pin, substantially as set forth.

7. The combination, with the draw-head, of the pivoted coupling-hook having a perforated ear provided with an incline, a horizontally-swinging catch pivoted to the draw-head and interlocking with the coupling-hook,

a vertically-movable safety-pin arranged on the catch and adapted to engage with the perforated ear of the coupling-hook and provided with a shoulder having reverse inclines, and a releasing-link supported at its inner end in a recess or cavity in the catch and engaging against the shoulder of the pin, substantially as set forth.

Witness our hands this 24th day of June, 1890.

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