

(No Model.)

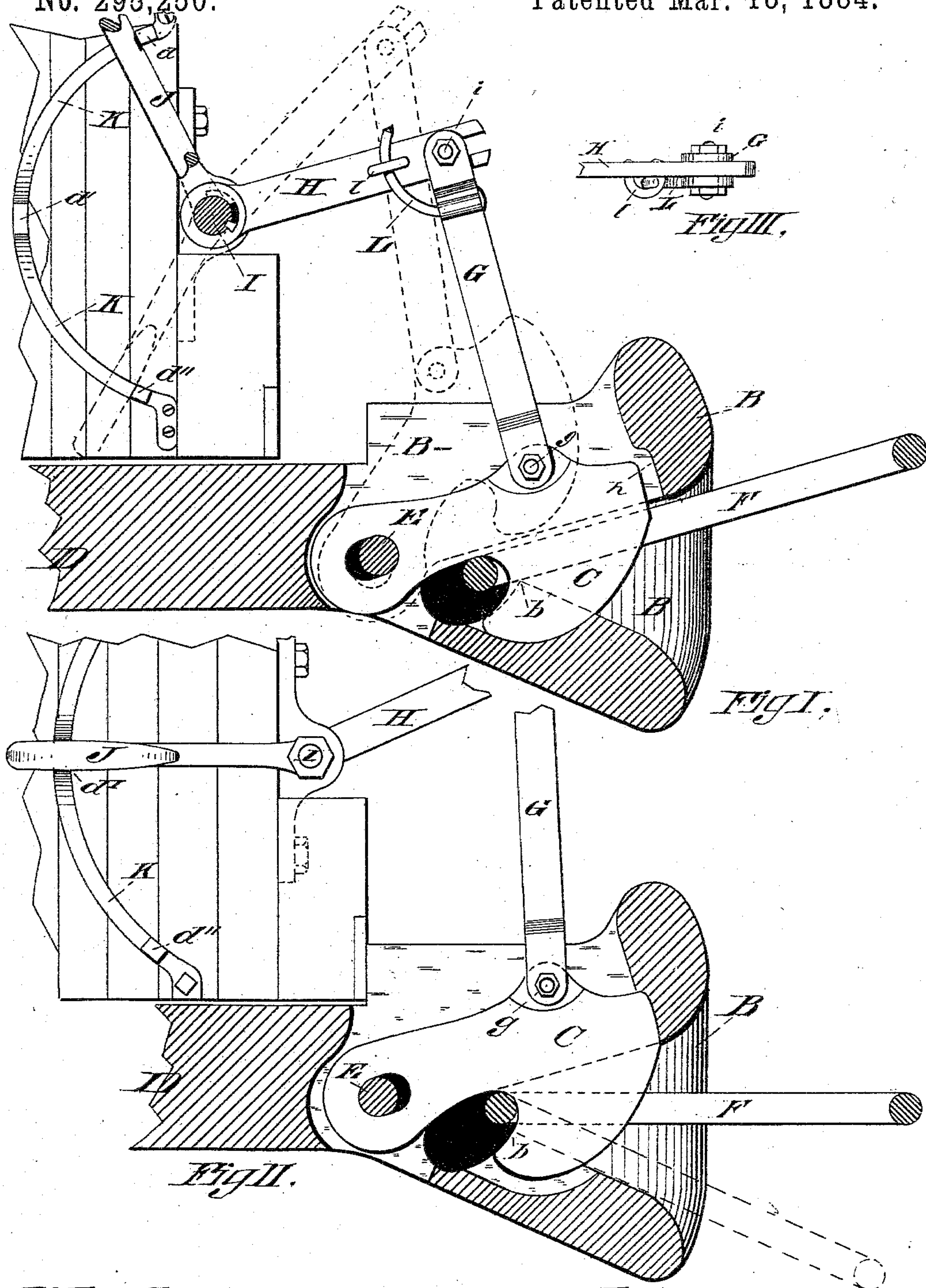
2 Sheets—Sheet 1.

R. HITCHCOCK.

CAR COUPLING.

No. 295,250.

Patented Mar. 18, 1884.



With respects,  
Frederick of Parby  
Junior & George Brown

Invention,  
Robert Hittcock,  
By R. Thijde *orig.*

(No Model.)

2 Sheets—Sheet 2.

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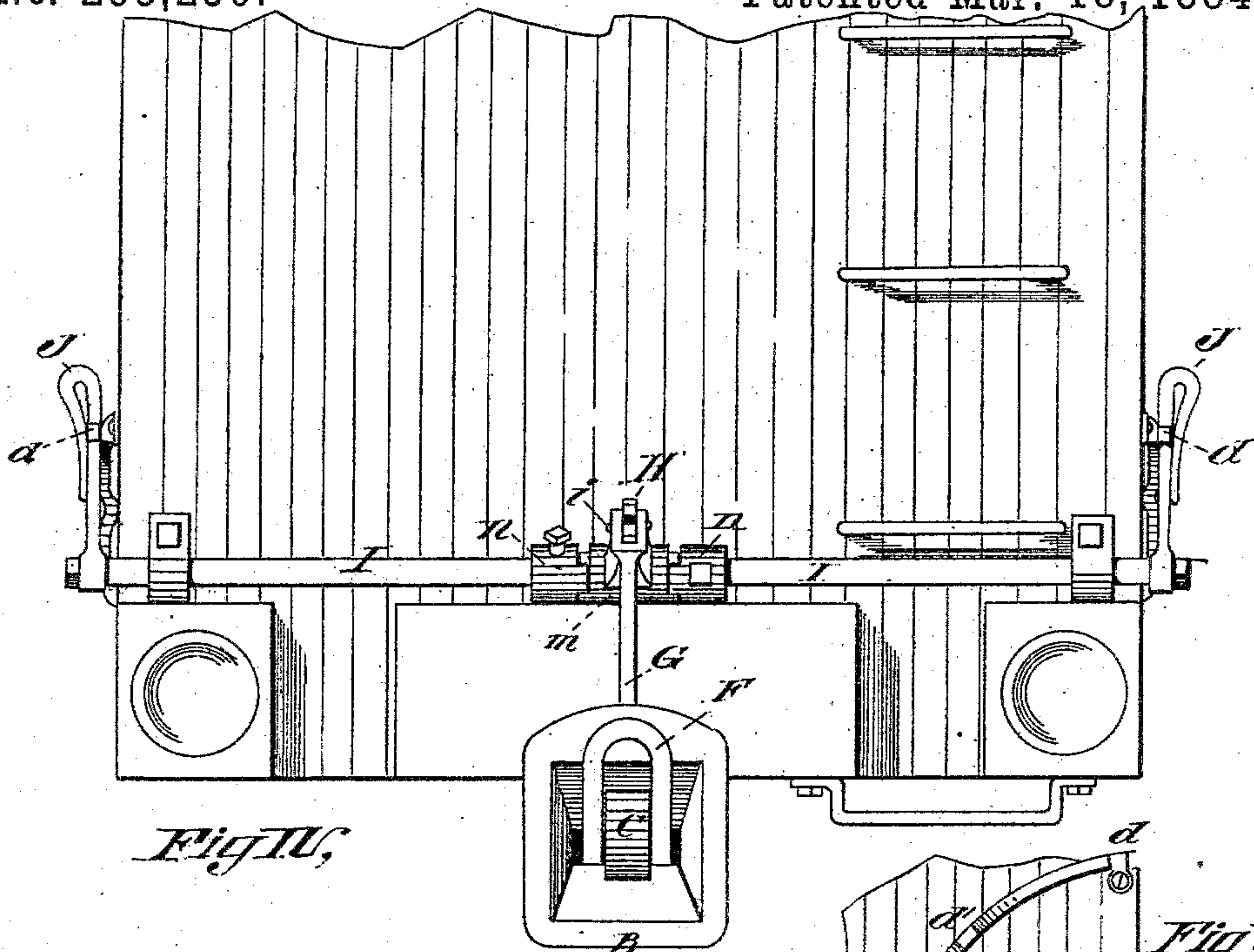


Fig IV,

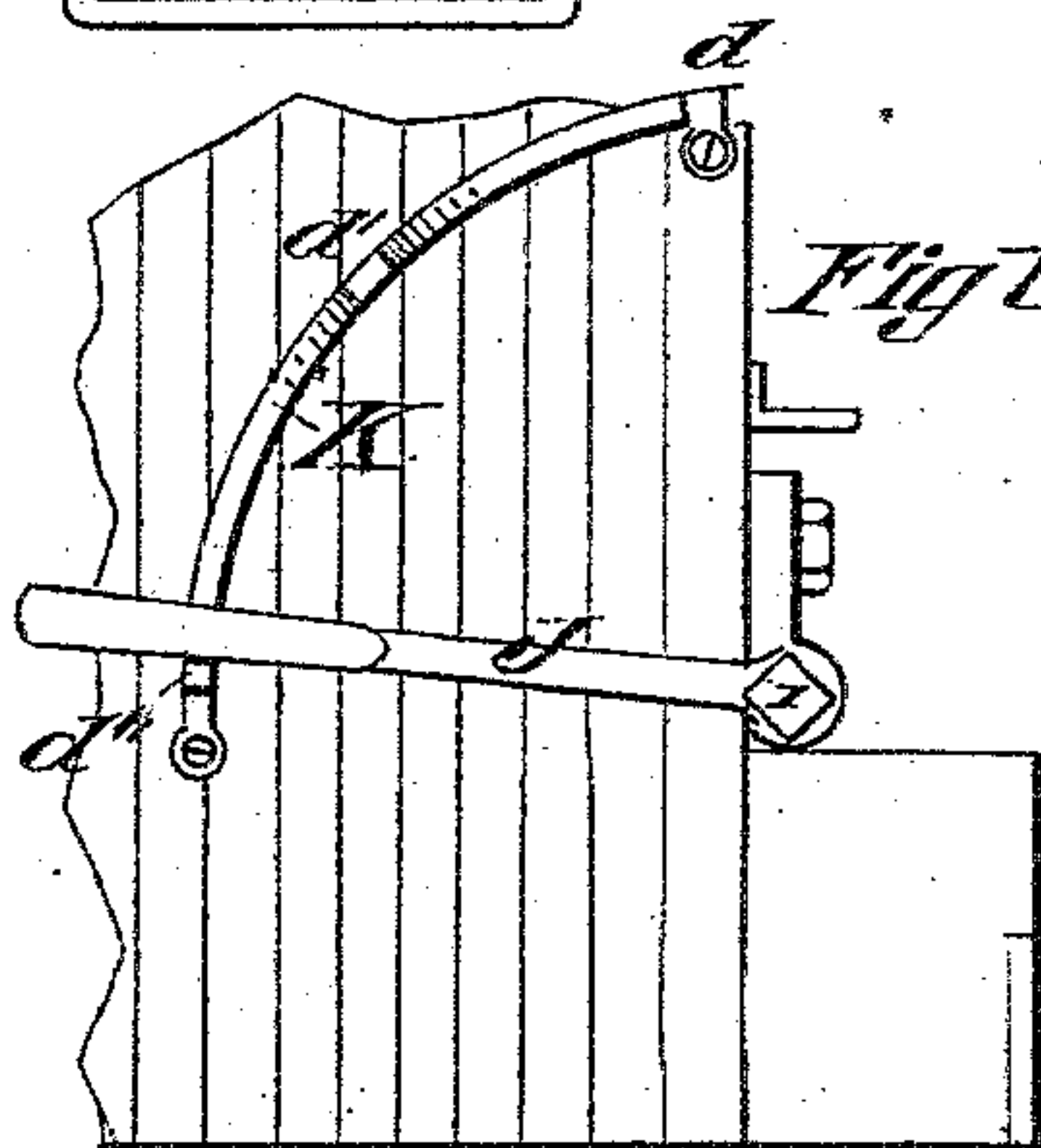


Fig V,

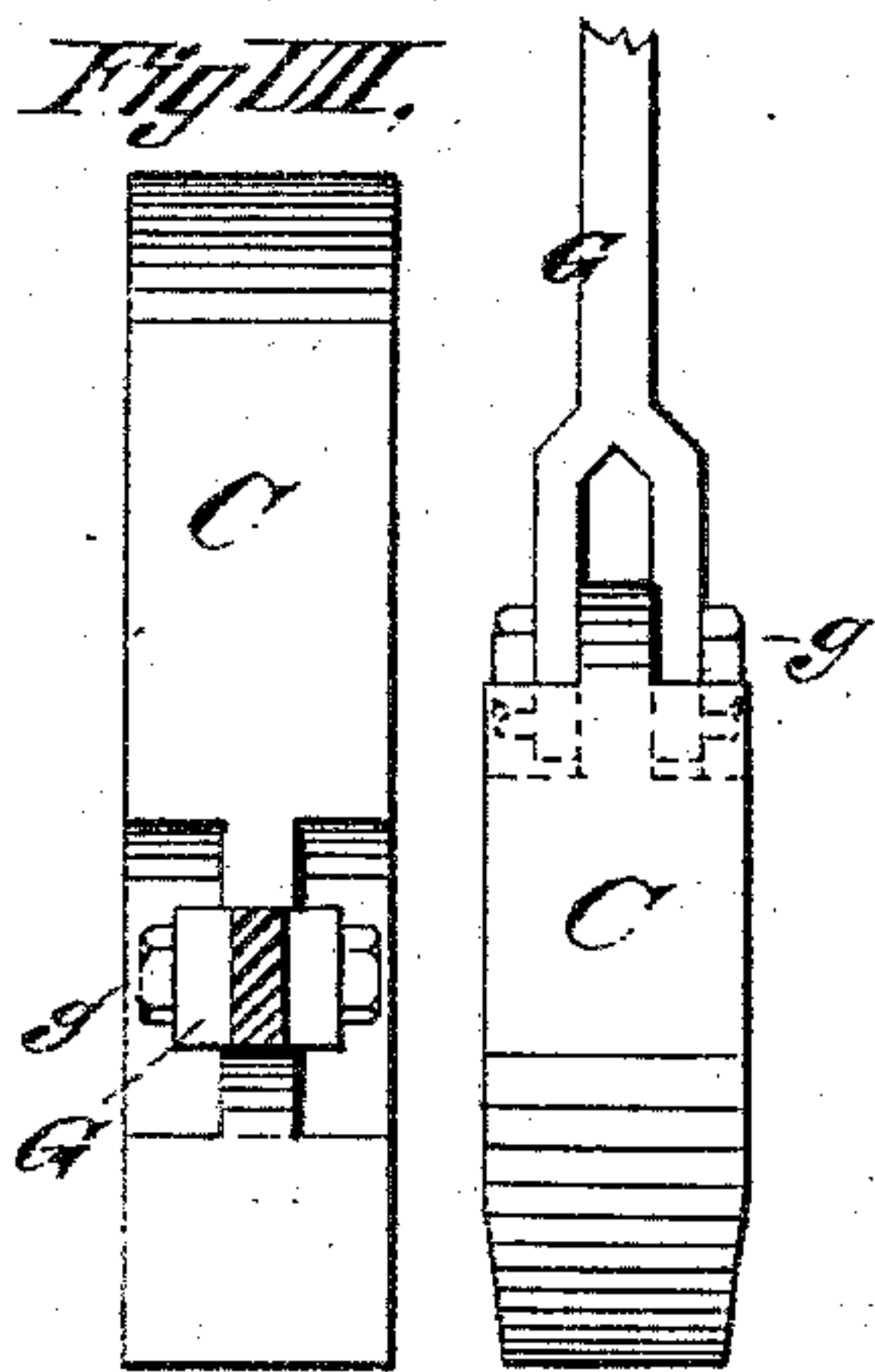


Fig III,

Fig III,

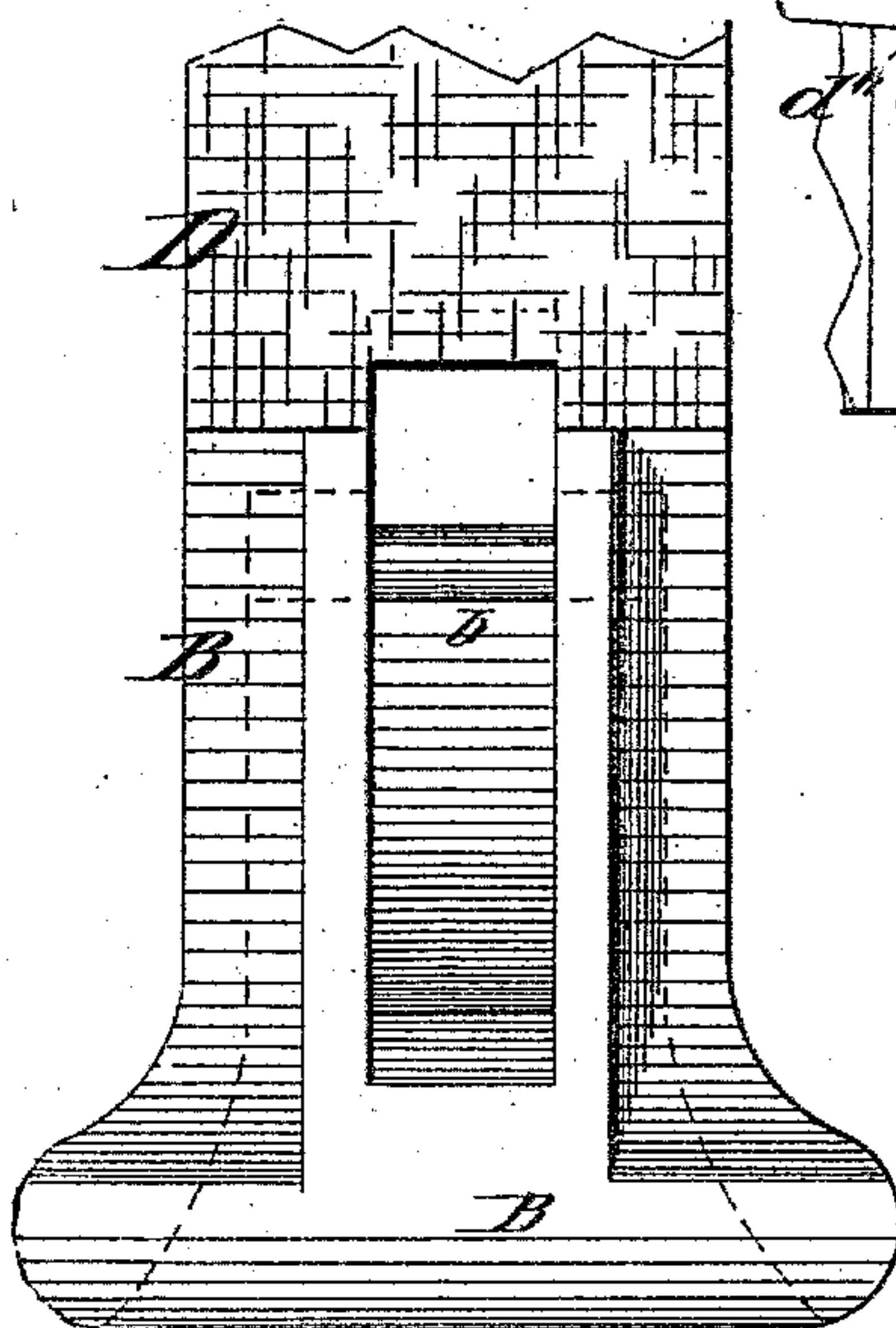


Fig II,

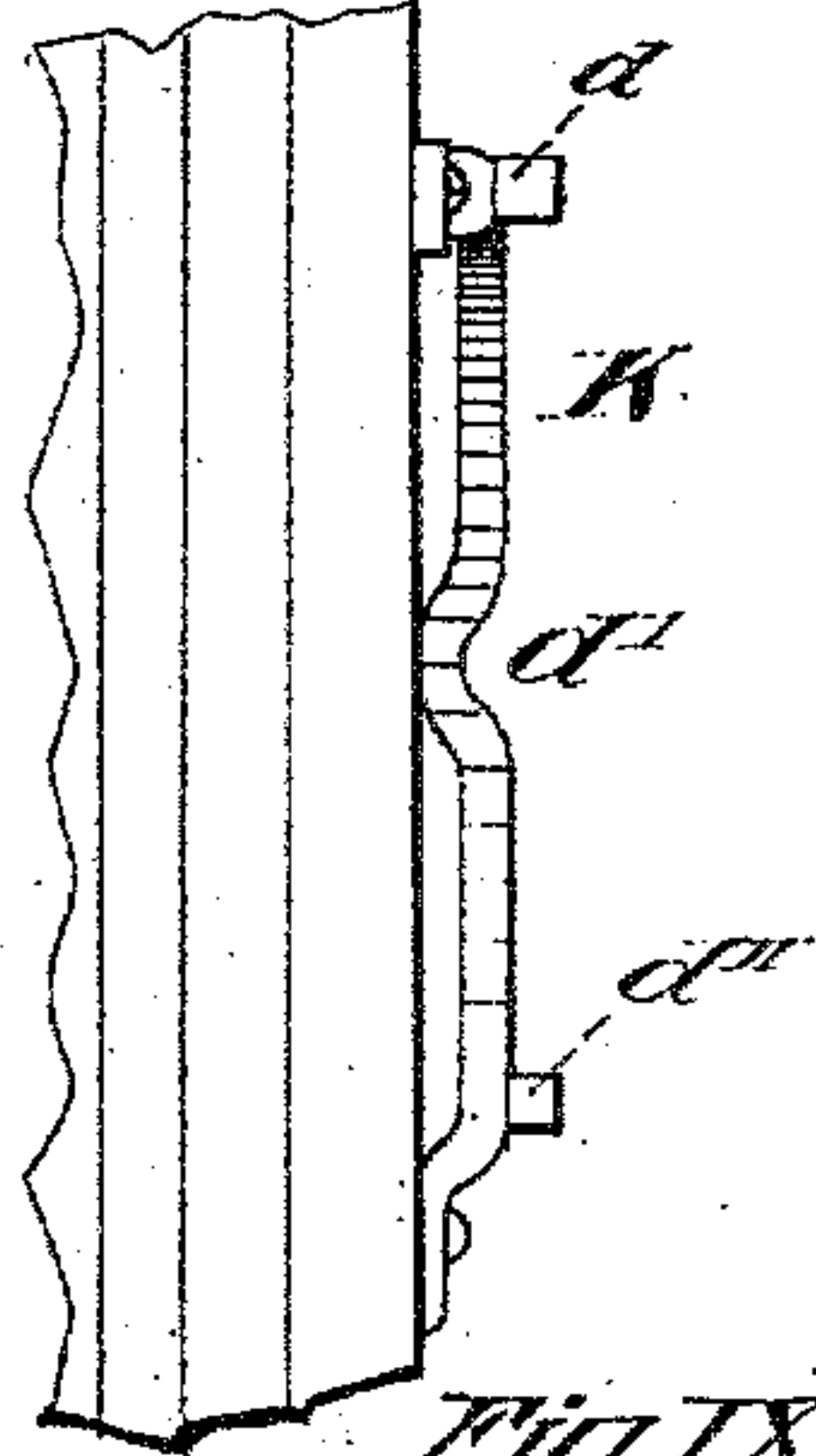


Fig IX,

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Frederick S. Bailey,  
James H. Brown

Inventor,  
Robert L. Hitchcock,  
By R. F. Hyde,  
Att'y.



# UNITED STATES PATENT OFFICE.

ROBERT HITCHCOCK, OF SPRINGFIELD, MASSACHUSETTS.

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 295,250, dated March 18, 1884.

Application filed February 9, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT HITCHCOCK, a citizen of the United States, residing at Springfield, Hampden county, State of Massachusetts, have invented a new and useful Improvement in Car-Couplings, of which the following is a specification.

The first part of my invention consists, in brief, in a draw-head having a self-coupling hook hinged thereon to swing vertically, a bearing corner or shoulder in its lower mouth-surface upon each side of the hook, and a crank-shaft connected by an arm and toggle to the swinging hook, and arranged across the end of the car to have a handle upon its end swing upon the side of the car upon a track provided with stops, which, through said handle, regulate and indicate the position of the hook in the draw-head, and by means of which mechanism a link in the draw-head is tilted or released, or the link from an opposing draw-head permitted to couple itself. The second part relates to a device connected with the hinge to the ends of the toggle and crank-arm, whereby, upon the parting of the draw-bar from its fastenings, the toggle releases itself from the rock-shaft and its connections; and the third part of the invention relates to the arrangement of the operating-handle relative to the ladder upon one end of the car, whereby the brakeman, from the ladder, may safely operate the handle, either by hand or foot.

The construction and operation of my device are fully illustrated in the accompanying drawings, in which—

Figure I is a side elevation in partial section. Fig. II is the same with the parts in a different position. Fig. III is a detail view. Fig. IV is an end view of a car having my improvements attached. Fig. V is a portion of a side of a car, showing a part of the invention. Fig. VI is a top view of the draw-head with the hook removed. Fig. VII is a top view of the hook. Fig. VIII is an end view of the same, and Fig. IX is a side elevation of the track for the operating-handle in place upon the side of a car.

B is the draw-head, slotted vertically to receive the hook and permit it to swing freely between the walls of the slot and across the mouth of the draw-head. The draw-head having the usual bell-mouth has said mouth en-

larged at its apex and cutting into the lower surface, to leave a shoulder or corner, *b*, in said lower surface, for a purpose hereinafter described, and has a depression, *h*, in the upper front wall of its vertical slot, to receive and hold at times the hook from any upward movement.

C is the hook, hinged upon the transverse pin E at its lower rear end in an opening therein elongated in the direction of the longer axis of the hook. The hook is formed to have an inclined front end, and the depression therein to receive the link or hook proper has its surface to coincide, when in the position seen in Fig. II, with the upper surface of the draw-head near its apex, and the hook is arranged in the draw-head to adapt it either to swing entirely above the upper surface of the mouth to intersect said surface, as shown in Fig. I, or to take the position seen in Fig. II, where the draft of the link retains it in said position. When no link F is in the draw-head, and the hook C is held in the position shown in Fig. II, an approaching link strikes the hook, pushes it back on its hinge to clear its upper corner from the notch *h* in the draw-head, and raises it to pass under, the hook falling back over the link, and the solid upper surface of the mouth of the draw-head receiving most of the shock of the impact. Upon a reverse movement of the link, the hook C moves into the position shown in Fig. II, and it will be seen that no reciprocation of the link, when the cars are in motion, can operate to depress or raise the hook from this position, as the depression *h* and the shoulder *b* prevent the link from moving forward, while the surface of the draw-head mouth receives any backward thrust of the link. When the link is resting in the draw-head in the position seen in dotted lines, Fig. II, and the hook C is swung downward from its place, (shown in the same view,) its surface above the link, intersecting the surface of the mouth, bears the link near its end against the corner *b*, upon each side of the hook, and tilts the link up to any angle intermediate to its position shown in Fig. I. When the hook is raised to the point shown in dotted lines, Fig. I, a link is free to fall out of or be removed from the draw-head.

To operate a draw-head and hook so con-



constructed, and from the side of the car, I hinge to the top of the hook, at *g*, a toggle, G, which is at its other end, at *i*, hinged to the end of a crank-arm, H, from a shaft, I, extending across the end of the car. The shaft I is hung in bearings at a point above the usual buffer-blocks, and is adapted to be rotated by handles J upon each end and lying close to the sides of the car. The arm H is sleeved upon the shaft I, between the collars *n n*, bolted to the shaft and contiguous edges of sleeve *m*, and collars *n n* are formed into a clutch, which permits a limited free motion to the crank-arm H upon its shaft, and which, upon a partial rotation of the shaft I in either direction, rocks the arm H by making it fast to the shaft.

Beneath the handles J, and bolted to the sides of the car, are the tracks K, provided with stops *d d' d''* upon different points upon its surface.

The handles J may have a spring, to cause them to hug the surface of the track with the required friction; or the track, of the form of a bar set off from the car, may be compressible, to supply the required friction; or a spring may be formed to both, it only being necessary that the handle, at any point of the swing given it to govern the angle of arm H, should retain said position upon its track until moved by the brakeman.

In practice I form the tracks K of a bar of the form of a quadrant, as seen in Fig. V, having the hinge of the handle J as a center, and upon the opposite ends arrange the stops *d d''*, against which the handle J is brought at the extremes of its swing, while centrally arranged is a stop, *d'*, formed by a depression of the track-surface, as seen in profile, Fig. IX.

The stops *d d' d''*, the handles J, and the clutch to arm H upon shaft I are so relatively arranged that when the handle J is in the stop *d'*, as seen in Fig. II, the hook C is in position for self-coupling, as well as in its operative position when the cars are moving. From this position of handle J its movement to that indicated in dotted lines, Fig. I, raises the hook C, to enable a link, F, to be withdrawn, while its movement in the reverse direction, as also seen in Fig. I, tilts up the outer end of the link to any required angle to meet the draw-head of an approaching car.

It will be seen that when the handle J is in the stop *d'*, and the hook C in what may be called its "normal" position, if it is desired to remove a spare link, the toggle G may be grasped as a handle to lift the hook, the free motion allowed crank-arm H at its clutch permitting this movement to the hook as well as in self-coupling. The handles J, from their position upon their tracks, indicate the position of the hook in the draw-head, and the stops enable the handles to move the hook into all required positions without care.

Heretofore the operation of the coupler manually from the car itself has been from the top, either by rods, chains, or similar means, and the operator has been subject to the dan-

ger of being thrown between the cars, either by the shutting off of steam, or by the sudden starting of the train, while, now, to obviate this danger, I combine with the ladder upon one end of the car the operating-handle J, by arranging it relatively thereto as seen in Figs. IV and V, by means of which arrangement the brakeman can, by either hand or foot, while holding securely to the ladder, operate the handle to give it all of its movements, and is also in position to give the required signals to the engine-driver. Upon the fastenings of the draw-bar D parting, as frequently occurs, the draw-head and all of its attachments are taken from the car; but by the device as shown in Figs. I and III the toggle alone is carried with the draw-head.

A segmental bar, L, having the hinge *i* for its center, is secured to either the toggle G or arm H, and has its free end pass through a staple, *l*, fast to the other, while the end of the arm or toggle to which the staple is fast is forked, to pass over the rivet making the hinge, so that when the two arms form a certain angle to each other they are free to part.

Now, having described my invention, what I claim is—

1. The within-described improved car-coupling, consisting of a draw-head, B, having a vertical slot bisecting its mouth, a depression, *h*, in the front wall of said slot and immediately above the upper mouth-surface, a shoulder, *b*, in the lower surface of the mouth, a hook, C, hinged at its rear end within the slot of the draw-head, within an elongated opening, having an inclined front end and a hook-depression adapted to hold the link, and means, substantially as shown, for suspending the hook upon its hinge to have its front upper corner bear in the depression *h*, the upper surface of its hook-depression coincide with the upper wall of the draw-head mouth, and for swinging the hook upward and downward from said position, while permitting it an independent upward swing, all operating as shown and described.

2. In a car-coupling, the combination, with a draw-head, B, and self-coupling hook C, adapted to swing in both directions from a self-coupling position, of a shaft, I, hung in bearings across the end of the car, provided with handles, as J, upon its ends, arranged to swing upon the sides of the car, a track, K, arranged upon the side of the car and provided with stops *d d' d''*, and adapted to form a friction-surface with handle J, a toggle, G, hinged to the hook C, a crank-arm, H, hinged at one end to the toggle G and sleeved upon its other to shaft I, and a clutch formed upon the sleeve of arm H and shaft I, and adapted to permit an upward movement to hook C, to self-couple, while becoming operative to raise or depress the hook through the rotation of shaft I.

3. The combination and relative arrangement of a swinging operating-handle, J, and friction-track having stops of a car-coupling,



with the end ladder of a car, whereby from the ladder the handle upon the side of the car is adapted to be operated either by one hand or one foot.

- 5 4. In a car-coupling, the release-joint consisting of the segment L and staple or eye l, arranged and combined with the hinged ends

of toggle G and arm H, one of which is provided with a forked end, all as shown and described.

ROBERT HITCHCOCK.

Witnesses:

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N. A. LEONARD.