

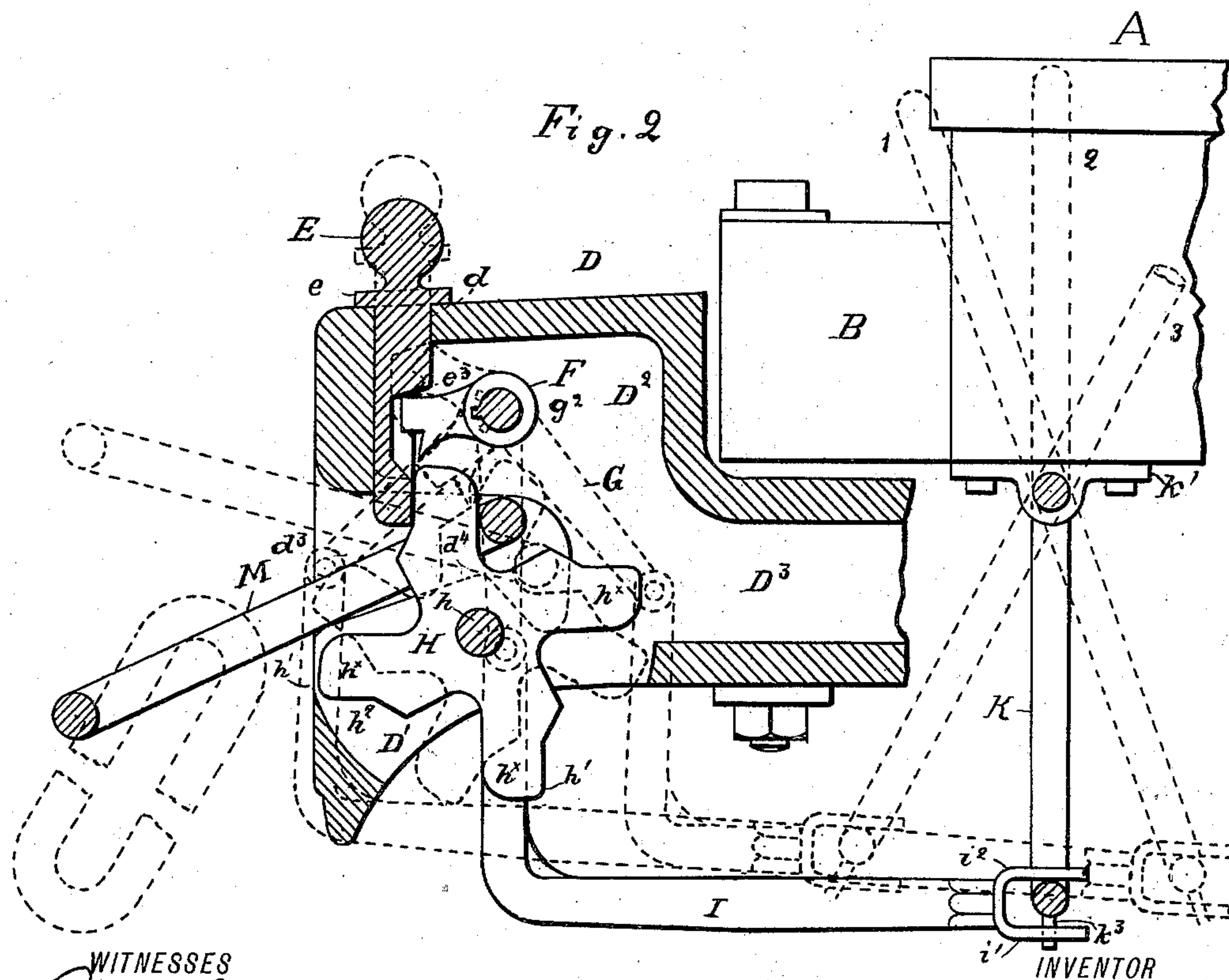
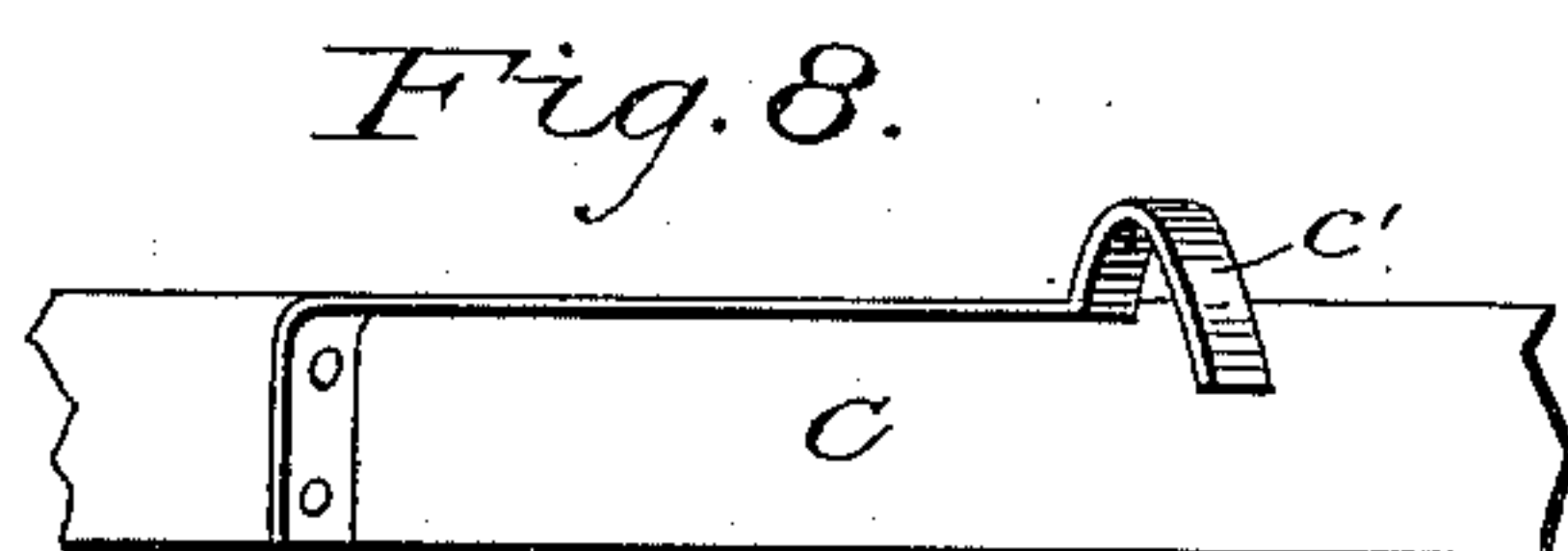
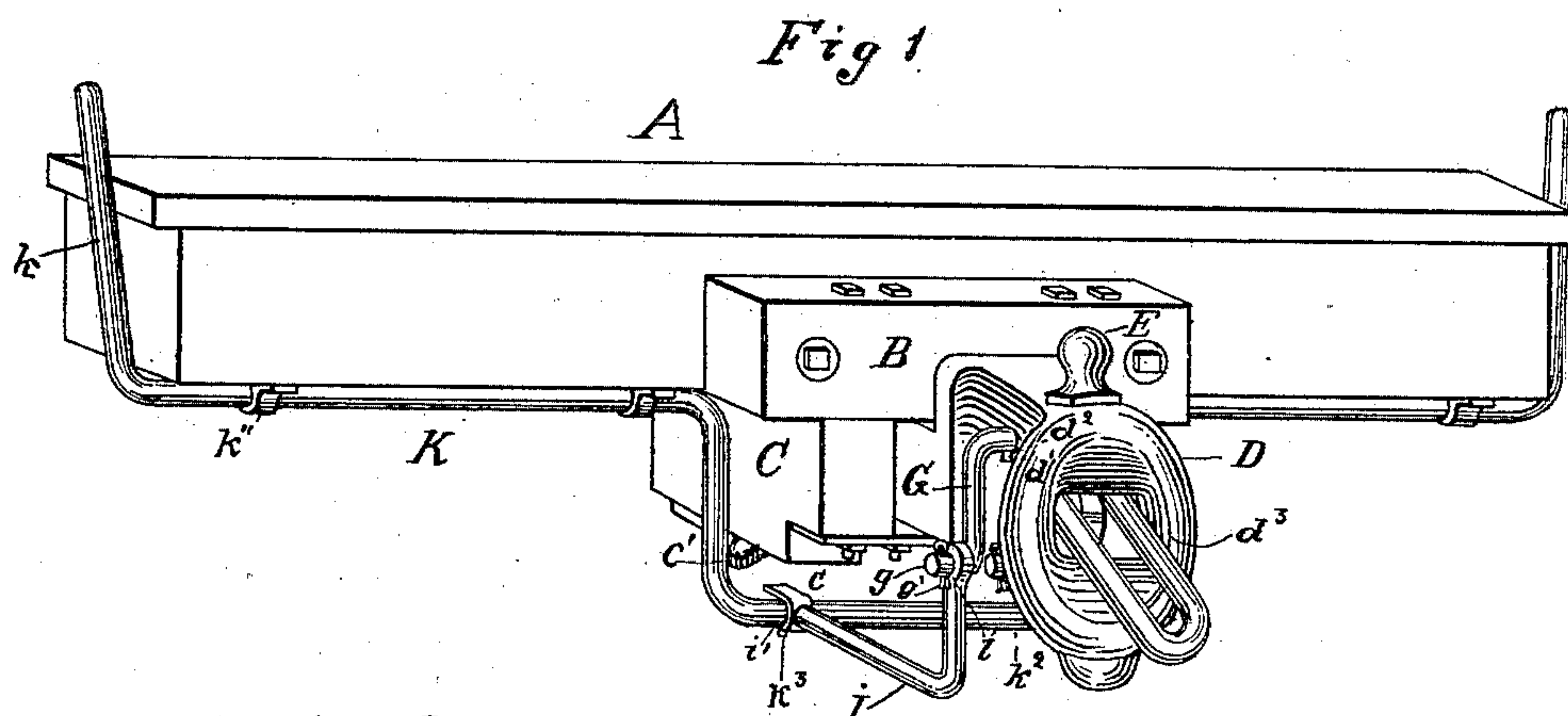
(No Model.)

2 Sheets—Sheet 1.

R. POWELL.
CAR COUPLING.

No. 334,804.

Patented Jan. 26, 1886.



WITNESSES

J. W. Powell
H. W. Polk

INVENTOR

Robert Powell
By *his Attorney*
Richard H. Manning

(No Model.)

2 Sheets—Sheet 2.

R. POWELL.
CAR COUPLING.

No. 334,804.

Patented Jan. 26, 1886.

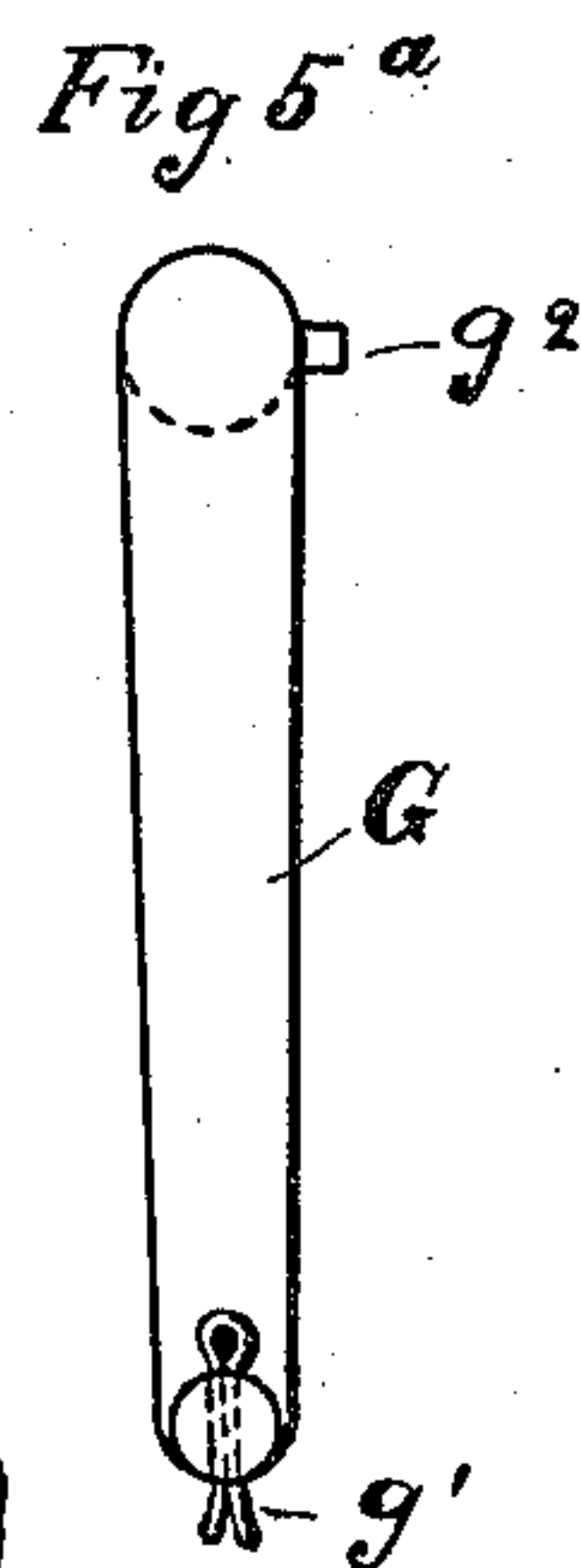
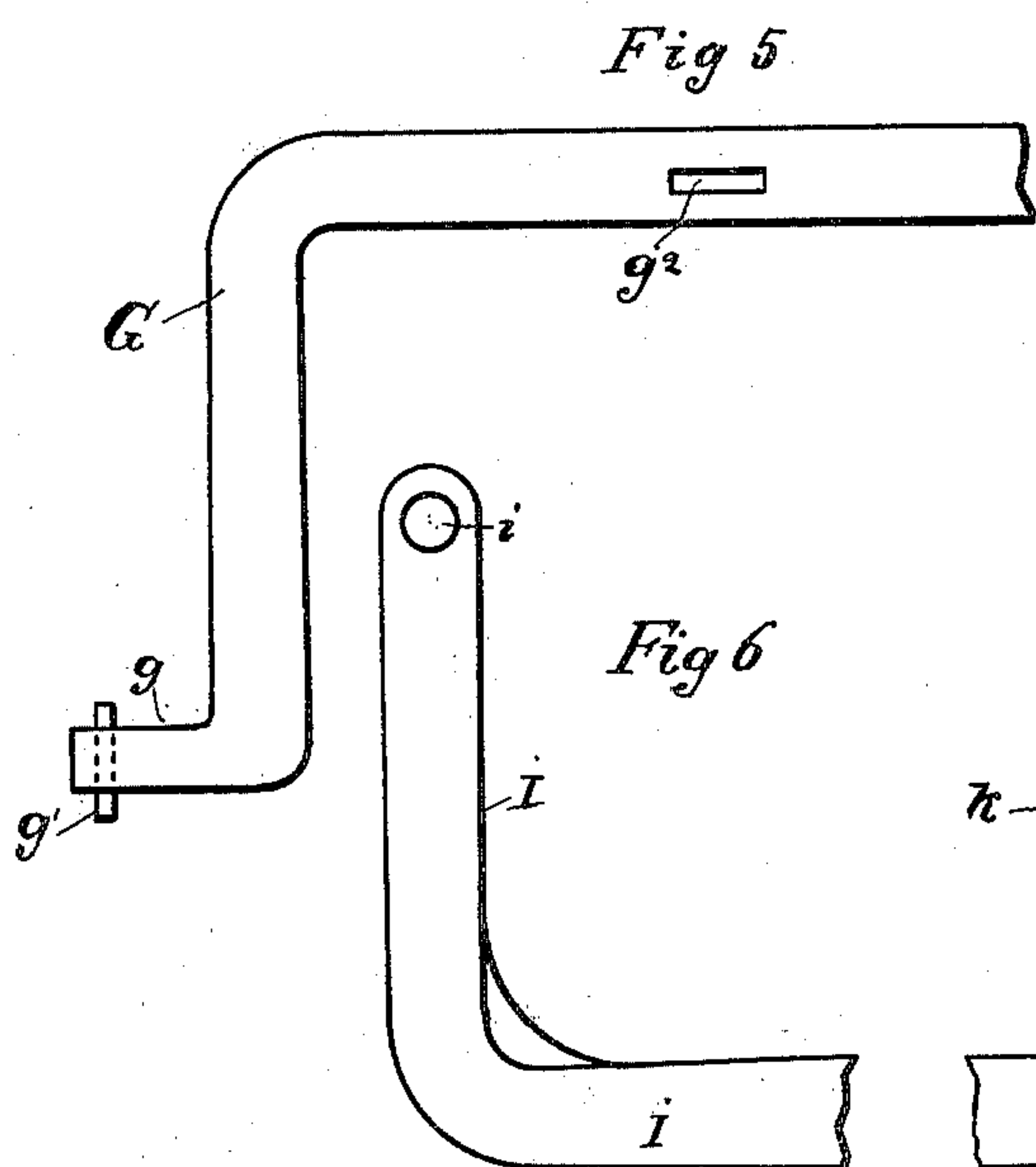
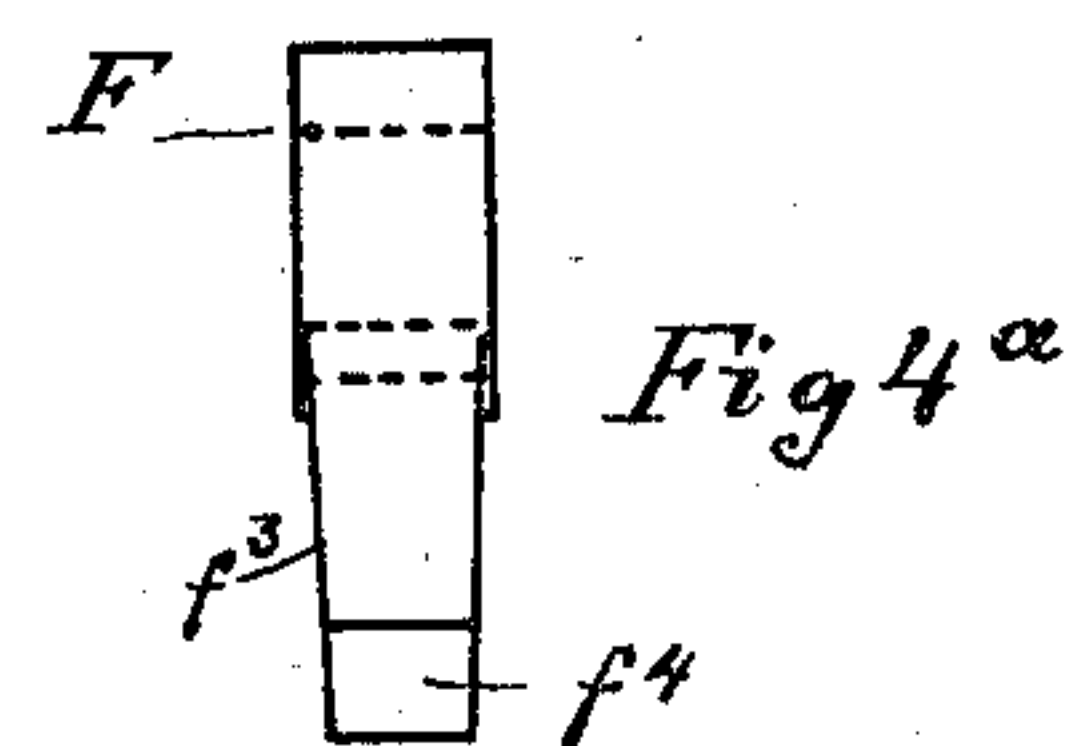
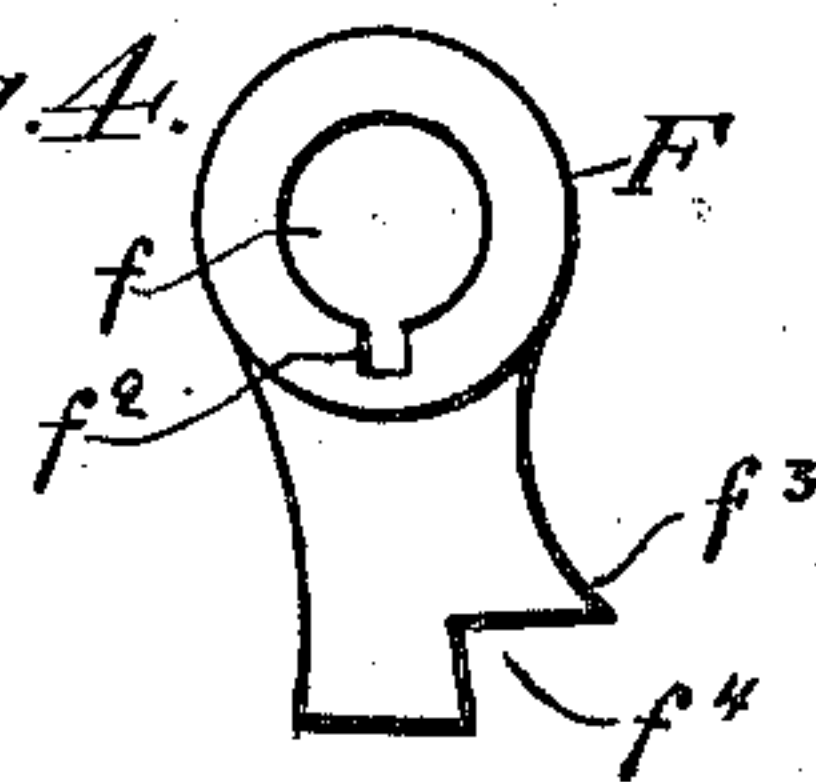
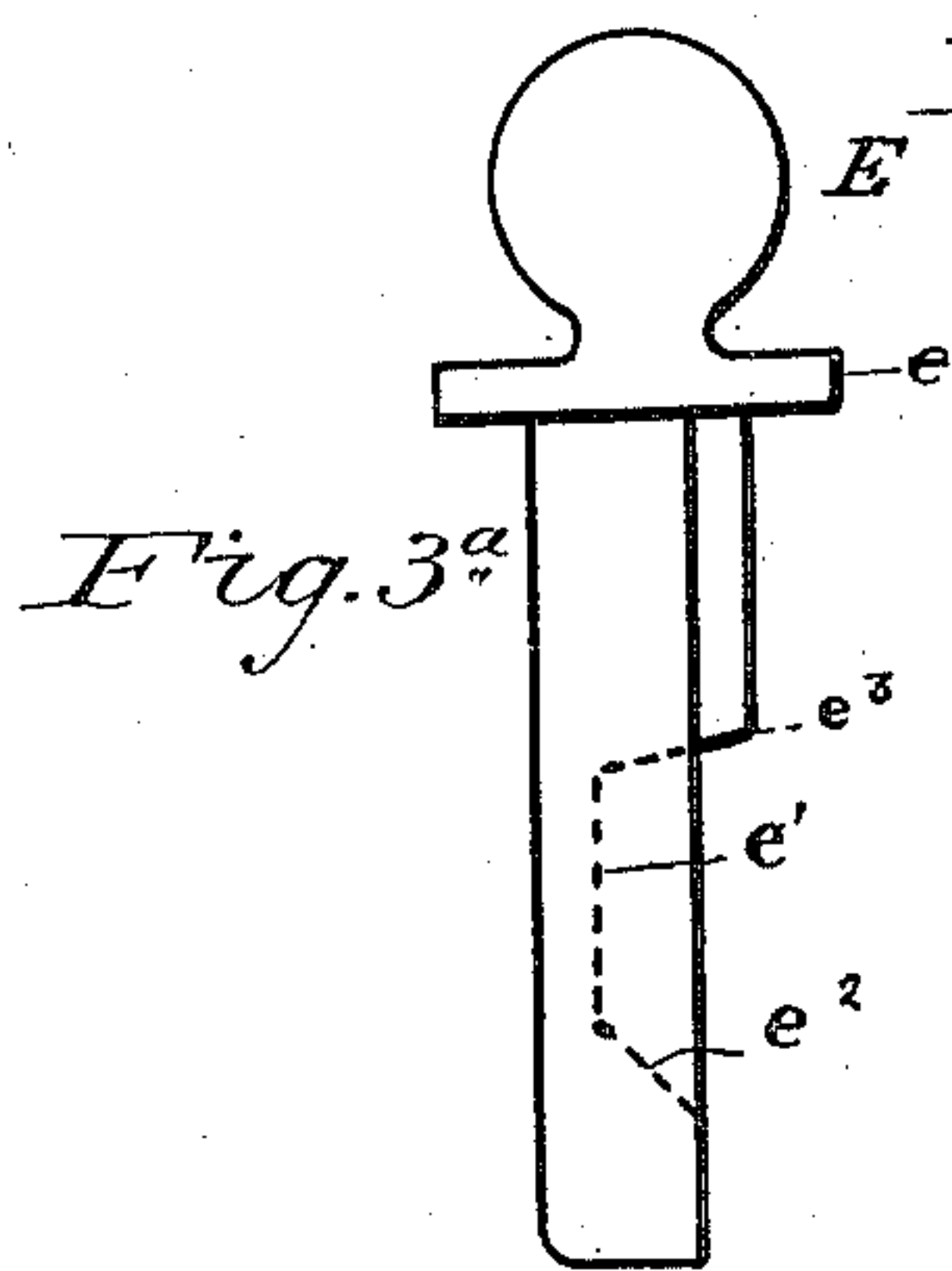
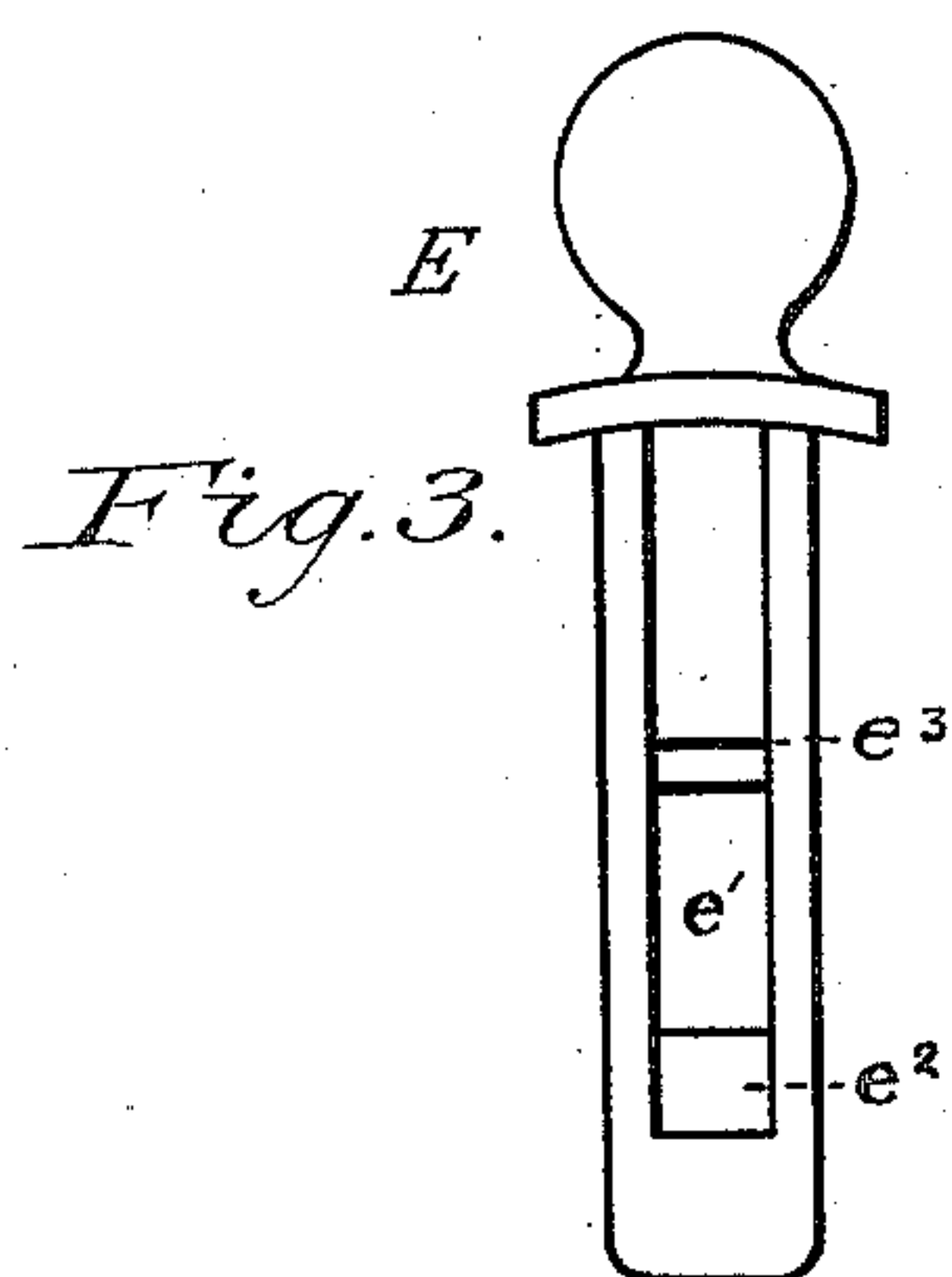


Fig 6

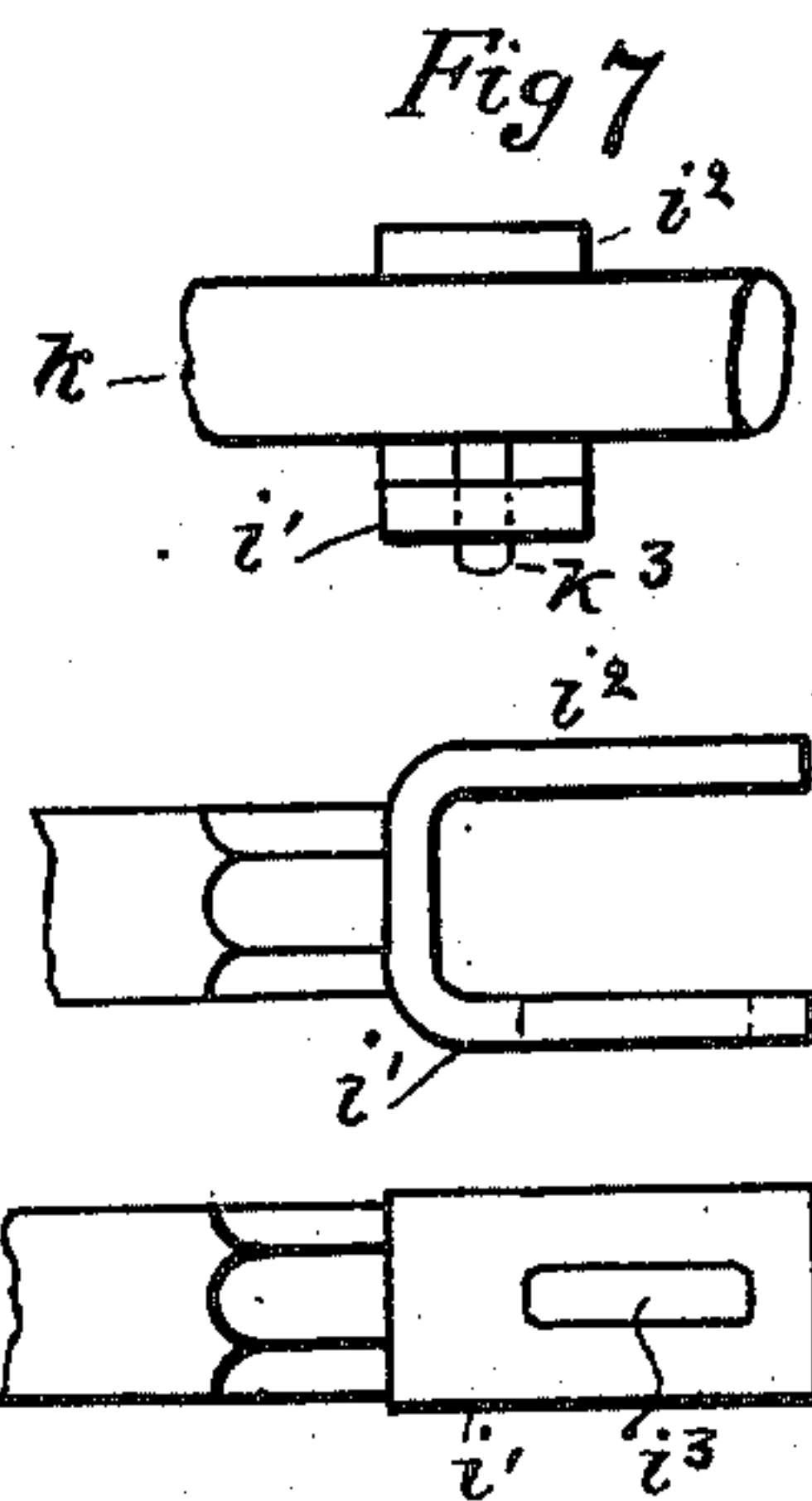
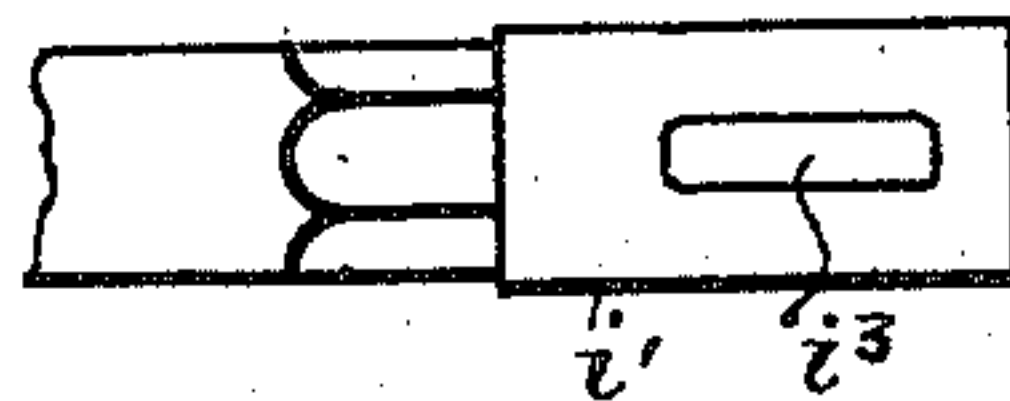


Fig 6^a



WITNESSES

J. W. Potter
W. H. Polk

INVENTOR

Robert Powell
By *his Attorney*
Richd. H. Manning

UNITED STATES PATENT OFFICE.

ROBERT POWELL, OF KANSAS CITY, MISSOURI, ASSIGNOR TO THE POWELL
PERFECT COUPLER COMPANY.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 334,804, dated January 26, 1886.

Application filed June 30, 1885. Serial No. 170,299. (No model.)

To all whom it may concern:

Be it known that I, ROBERT POWELL, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Car-Couplings; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to

which it appertains to make and use the same, reference being had to the accompanying drawings, forming a part of this specification. My invention relates to that class of car-couplings in which the shackle is automatically locked by the arms of a rotary wheel arranged within the draw-head and embraced in the invention in car-couplings for which Letters Patent were granted to me on the 28th day of August, 1883, and numbered 283,920; and it consists in certain novel means whereby the elevation of the locking-bolt, and its retention when elevated and disengaged from the arms of the wheel, may be accomplished, and also the elevation of the outer end of the shackle in a more expeditious and simple manner, dispensing with openings in the draw-head, which would admit snow and water, and affording a reliable coupler under all conditions and in all places; and it further consists in the means whereby, in the event of accidental breakage of the draw-bar or the separation of the draw-bar from the car, the connecting-bar will automatically disengage itself from the lever permanently attached to the car, thereby preventing destruction of the lever on the car and the attachments to the draw-head.

In the drawings, Figure 1 is a perspective view of the end portion of a car, and of the coupling and uncoupling devices applied thereto. Figure 2 is a longitudinal sectional view through the draw-head, and showing the relative position of the operating parts. Fig. 3 is a rear elevation of the catch-bolt, showing the groove therein. Fig. 3^a is a side view of the catch-bolt and groove. Fig. 4 is a side view of the cam. Fig. 4^a is an end view of the cam. Fig. 5 is a side view of the transverse lever which passes through the draw-head, and showing key for operating the cam. Fig. 5^a is an end view of Fig. 5. Fig. 6 is a side view of the detachable connecting-bar. Fig. 6^a is a bottom view of the forked end of the

connecting-bar, showing the slot therein. Fig. 7 is a sectional view through the forked end of the connecting-bar, and showing also a portion of the operating-lever on the car and the pin engaging with the slot. Fig. 8 is a view of the friction-spring attached to the timber which supports the draw-bar.

A represents the end portion of a car. D is the draw-head attached to the end of the car in the ordinary way. The said draw-head D is constructed with a vertical longitudinal slot, D', extending through the lower center portion of said draw-head, and is made of the proper width to receive the armed wheel H and permit its free rotation therein. The said wheel H is retained in the draw-head by and rotates upon the bolt *h*, which bolt passes transversely through the draw-head and through the wheel H a suitable distance below the center of said draw-head to permit, in the rotation of the wheel H, the arms of said wheel to be automatically engaged by the catch-bolt E. The said wheel H is provided with a number of arms, *h*^x, which are placed eccentrically upon the axis of said wheel, and the portions of the arms *h*^x which in rotation are brought opposite the opening *d*³ in the draw-head are provided with the cam-projections *h*². The curved ends of each arm *h*^x which come in contact with the catch-bolt E, I make curved or rounded at *h*¹, to enable cam F to engage with and slide past the curved end, and thereby force backward and downward said ends of arms. The opposite portions of the ends of said arms *h*^x are curved in a greater degree to permit said arms to more easily elevate the catch-bolt E. A suitable fulcrum is formed in the bottom of the throat of the draw-head by the rear and opposite inclination of the bottom of the said throat in the draw-head, as shown in dotted lines. Near the outer portion of the draw-head D, and near the end thereof and extending a suitable distance into the throat or opening *d*³, is a vertical slot, *d*, which receives the catch-bolt E. The sides of the opening or vertical slot *d* are made to extend laterally over the sides of the catch-bolt E, so as to form a groove to guide said catch-bolt. The said catch-bolt E is provided with a shoulder, *e*, restricting its extension beyond a certain point in the draw-head, or so far within the longitudinal opening *d*³ as to lock one of the

arms of the wheel H. Catch-bolt E is made with a groove, e' , which extends a suitable distance within the side of said bolt and the requisite distance longitudinally to permit the action of the cam F, and terminates at its upper end in a shoulder, e^3 . The lower end of the groove e^3 is inclined outwardly at e^2 , affording room for the downward play of the cam F. I then make transversely through the upper portion of the draw-head in rear of the catch-bolt E and nearly in a vertical line with the bolt h , which supports the wheel H in said draw-head, a perforation, d' , and connected with and extending a slight distance below said perforation a key-seat, d^2 . Through the transverse perforation d' , I then insert a lever, G, the outer end of which lever is bent at right angles on the outside of the draw-head, and terminates in an arm, g , which arm is bent outwardly in a horizontal direction.

Upon the portion of the lever G which extends through the draw-head and is opposite the opening G^2 in the upper portion of the draw-head I form a fixed key, g^2 . I then form the cam F with a transverse perforation, f , of a suitable size to receive the lever G, and extending from one side of the perforation in said cam, in the same transverse relation, is a key-seat, f^2 , of the proper dimensions to receive the key g^2 on said lever G. The said cam F is made of a sufficient length to enter the groove e' of the catch-bolt E and beneath the shoulders e^3 of said catch-bolt, which bolt E, when inserted in the vertical slot d of the draw-head, is directly opposite the cam F. The lower portion of the cam F is provided with a curved extension, f^3 , of a sufficient length to engage with the curved outer end, h' , of one of the arms of the wheel H.

Between the curved extension f^3 and the opposite or upper portion of the cam extending into the groove e' of the bolt E, I make in the end portion of said cam a transverse rabbet, f^4 , which rabbet, when the bolt E is acted upon by one of the arms of the wheel H, permits said bolt to be elevated and fall by its own weight to its normal or locking position without disturbing the cam F or any of the attachments. The upper portion of the draw-head D is provided with an interior longitudinal space or opening, D^2 , and of a sufficient width to admit the cam F and permit its free movement therein.

Connected to the arm g on the outside of the draw-head is a detachable connecting-bar, I, which is provided with an eye, i , at one end, and which eye is fitted on the said arm g and secured from removal by the split key g' . The connecting-bar I extends downwardly a suitable distance, and is then bent at right angles toward the car, and the end of said bar opposite to that provided with the eye i is made with a forked extremity, i' . The lower portion, i' , of the forked end of the bar I is provided with a longitudinal slot, i^3 . I then make a rod or lever, K, of a sufficient length to extend the width of and transversely beneath

the car A. The ends of said rod K are bent upwardly at each side of the car, and midway beneath the draw-head D the said rod K is given a U shape, in order to avoid the timbers of the car and to form a lever, the said rod K being loosely mounted in the journal-boxes k , which journal-boxes are suitably fastened to and beneath the bottom of the car A. The forked ends i' i^2 of the connecting-bar I are made to pass over the U-shaped portion of the rod K, and at the point upon the said rod K whereon said forked end rests a pin, k^3 , is formed upon the under side of said rod or lever, which pin enters a slot, i^3 , of said portion i' of the forked end of said bar and secures said connecting-bar removably to the end of the U-shaped portion of the rod or lever K.

In the operation of my improved coupling and uncoupling devices, when it is desired to uncouple or release the shackle, the arm k of the rod or lever K is thrown backward from the end of the car, as shown in Fig. 2 by dotted lines marked 3. This result throws the lower or U-shaped portion of the rod or lever K forward, and also the connecting-bar in the same direction, which bar acts upon and also throws forward the lower end of the transverse lever in the draw-head, upon which the cam is keyed. The end of the cam by this movement is elevated against the shoulder in the groove of the catch-bolt, thereby elevating said bolt and causing the release of the arm of the rotating wheel held by said bolt in the draw-head, thereby permitting the said wheel to rotate and at once to release the shackle and permit a shackle from an opposite draw-head to enter without coupling. When the rod or lever K is thrown into the described position, as indicated in dotted lines marked 3, it is automatically held from returning to a normal position by its own gravity by a spring, c' , attached to the timbers supporting the draw-bar, and projecting a sufficient distance to enable the U-shaped portion of the rod or lever to come in frictional contact with the said spring, and thereby hold the coupling device in an uncoupled position and prevent coupling when not desired. Upon releasing the rod K from contact with the spring c' , attached to the timbers of the car, the bolt E falls by its own weight, and the lower end of said bolt extends within the opening d^3 a suitable distance in the path and in front of one of the arms h^x of the wheel H in the draw-head. A shackle when introduced in opening d^3 will then meet one of the arms of wheel H, carrying said arm in rear and elevating a following arm, which being elevated comes in contact with the lower end of bolt E and raises the same, the said bolt E falling by its own gravity in front of the said following arm and the coupling effected thereby. When the shackle from an opposite draw-head comes in contact with one of the arms of the wheel and throws up the catch-bolt E, the said bolt is prevented from being thrown out of the draw-head by means of the curved extension of the

cam F, which impinges on the lower end of the said catch-bolt, the said cam F being retained in its normal position by the weight of the lever G.

5 When it is desired to elevate the outer end of the shackle M, the arm *k* of rod or lever K is thrown in the direction of the draw-head D, as shown in dotted lines marked 2 in Fig. 2, which action throws the U-shaped portion of
10 the rod or lever K backward, and also the connecting-bar I and the arm of the lever G in the same direction, and depresses the end of cam F downward and backward, and in this movement engages with the curved outer
15 end of the perpendicular arm upon which the shackle is locked, throwing said arm rearward and downward, thereby depressing the rear end of shackle and causing the elevation of the outer end of said shackle. The shackle
20 M is readily thrown out of the draw-head by suddenly throwing the levers into an uncoupled position.

In the event that the draw-bar should from accident be forcibly removed from the car, the
25 release of the connecting-bar from the rod or lever K on the car is accomplished by the separation of the draw-bar from the car, this act drawing the U-shaped portion of the rod or lever K farther outwardly and upwardly
30 than when in its proper working relation, thereby the pin *k*³ which operates in slot *i*³ is lifted out and the connecting-bar automatically releases itself from the rod or lever upon
35 levers attached to said car. The cam F is inserted through the opening *d*³ in the draw-head. The lever G is inserted through the perforation in the draw-bar, and also through
40 cam F, and when said lever is brought to its proper working position or relation with the connecting-bar the said lever and cam are automatically locked within and to the draw-bar, the said fixed key being rotated away from key-seat in the draw-head.

45 Having fully described my invention, what I now claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a draw-head of a car provided with a rotary coupling device
50 having arms so arranged within the draw-head that they will engage with and lock the shackle, and a vertical slot in said draw-head, of a catch-bolt having a suitable longitudinal groove, a lever, a transverse perforation
55 through the draw-head in rear of said catch-bolt adapted to receive said lever, and a cam keyed upon said lever and arranged in a suitable opening in the draw-head, and adapted to operate as shown and described.

60 2. The combination, with the draw-head provided with a rotary coupling device having arms adapted to engage with and lock the shackle and a vertical slot in said draw-head, of a catch-bolt having a suitable longitudinal groove, a lever, a transverse perforation
65 through the draw-head in rear of said catch-bolt adapted to receive said lever, and

a cam keyed upon said lever and arranged in a suitable opening in the draw-head, and a curved extension of said cam adapted to engage with and depress an arm of said wheel, as shown and described.

3. The combination, with the draw-head provided with a rotary coupling device having arms adapted to engage with and lock the
75 shackle and a vertical slot in said draw-head, of a catch-bolt having a suitable longitudinal groove, a lever, a transverse perforation through the draw-head in rear of said catch-bolt adapted to receive said lever, and a cam
80 consisting of a curved extension keyed upon said lever within the draw-head, and adapted to operate as shown and described.

4. The combination, with the draw-head provided with a vertical slot therein, of a catch-
85 bolt having a suitable groove, and a lever extending through a suitable opening in the draw-head, and a cam provided with a curved extension keyed upon said lever, and a rotary coupling device arranged in a suitable opening
90 in the draw-head, and having arms adapted to engage with and lock the shackle, and provided with curved outer ends, for the purpose specified.

5. In combination with the draw-head of a
95 car provided with a rotary coupling device having arms adapted to engage with and lock the shackle, a lever for operating said device, and a transverse rod or lever upon and extending beneath the car, and a connect-
100 ing-bar attached to said rod or lever on the car and to said coupling device upon the draw-head and adapted to automatically release itself from said lever, as herein described, for the purpose specified.

6. In combination with a vertical catch-
105 bolt in the draw-head and a transverse lever connected with said bolt, a connecting-bar pivotally attached at one end to said lever and provided with an opposite forked end,
110 and arranged to operate as shown and described.

7. In combination with a vertical catch-
bolt in the draw-head and a transverse lever connected with said bolt, a connecting-bar
115 pivotally attached at one end to said lever and provided with an opposite forked end, and a slot in said forked end, and a transverse lever upon and extending beneath the car, and a pin upon said lever adapted to en-
120 gage with the slot in said connecting-bar, as described.

8. The combination, with a transverse lever arranged upon the car and provided with a bent portion extending beneath the coupling
125 devices, of a spring having one end attached to the car near the coupling devices, and the opposite end engaging with the said bent portion of said transverse lever, as herein shown and described.

ROBERT POWELL.

Witnesses:

J. W. POTTER,
FRED. W. PERKINS.