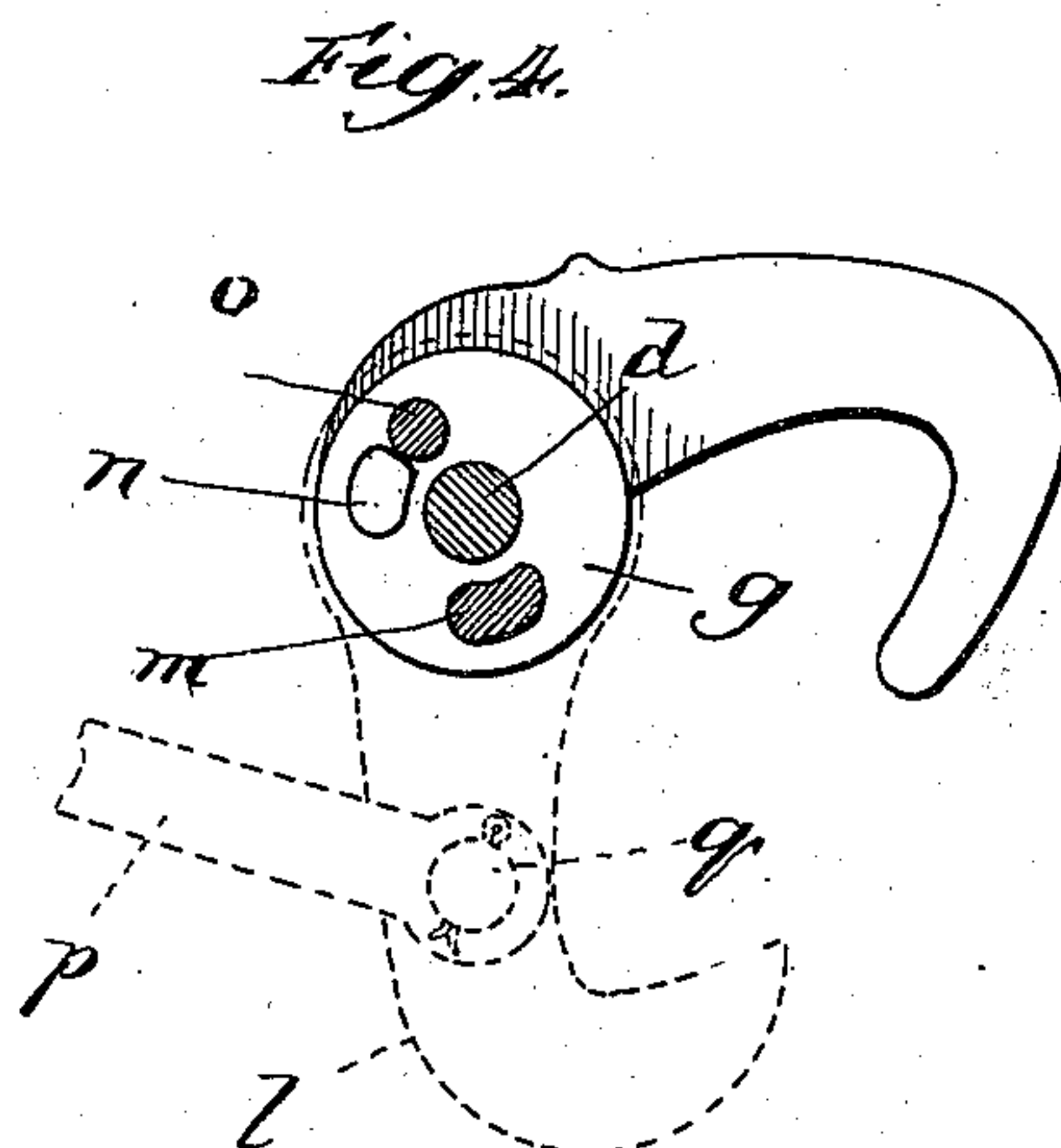
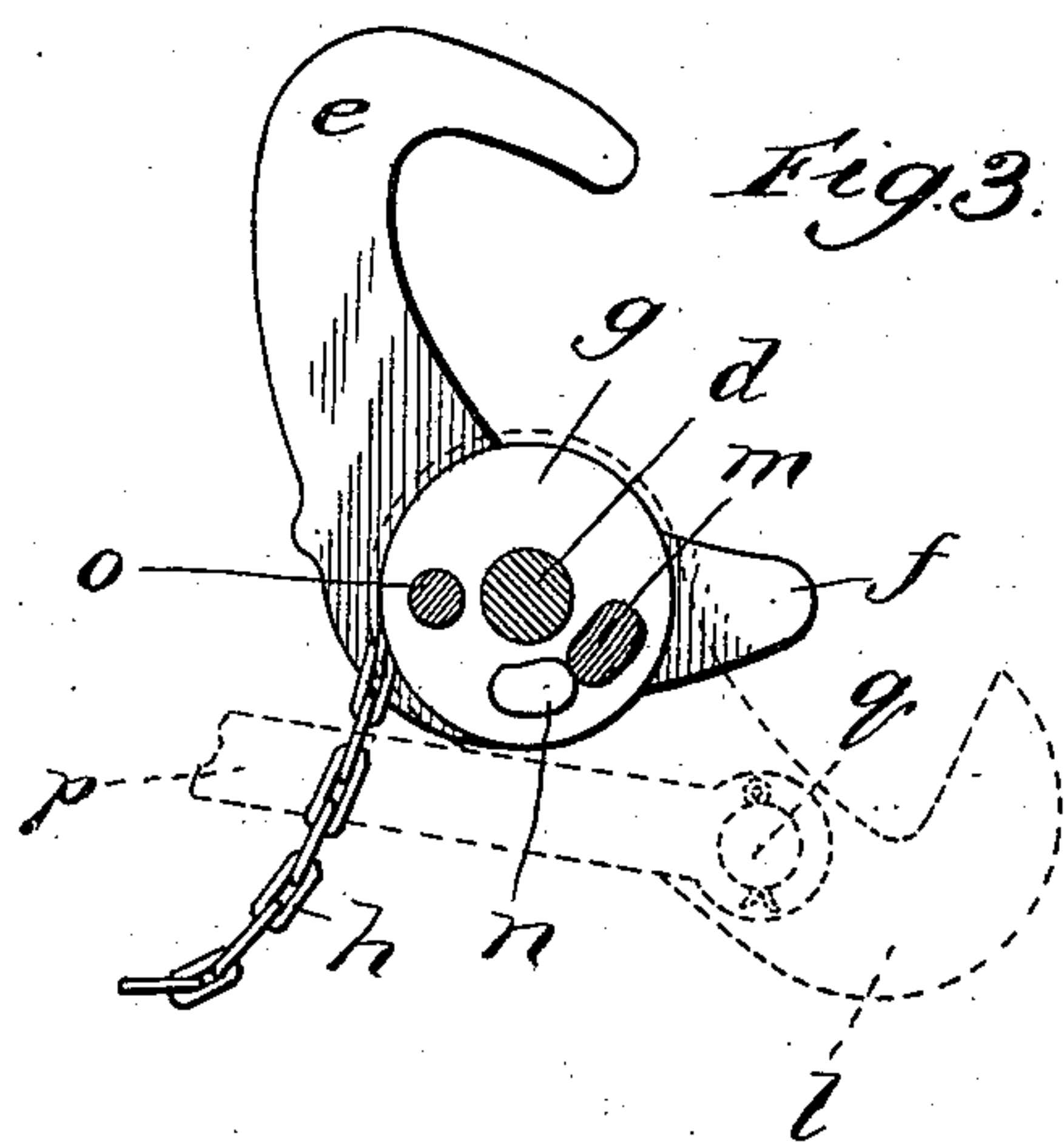
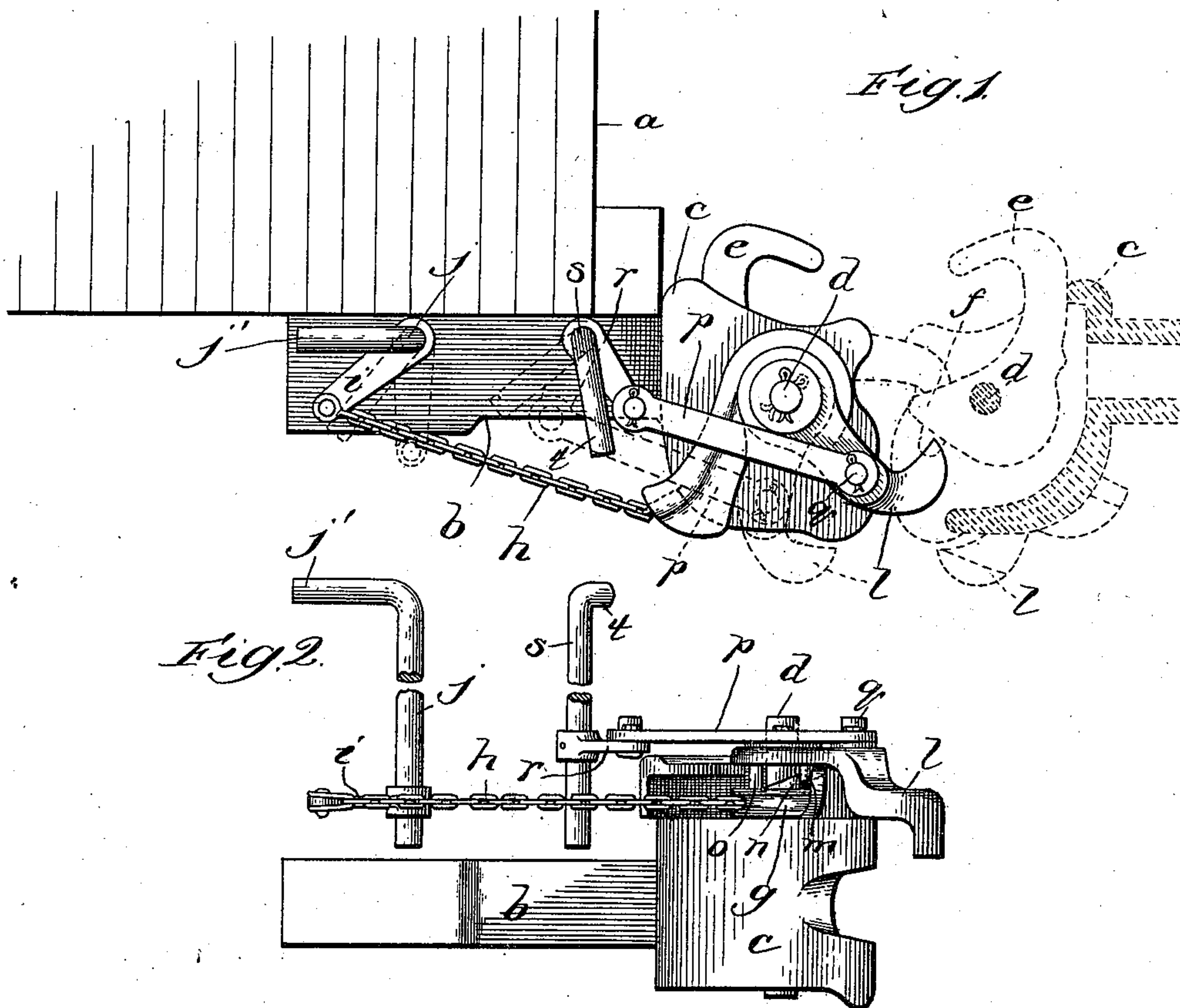


(No Model.)

R. S. BARNUM.
CAR COUPLING.

No. 503,939.

Patented Aug. 29, 1893.



Witnesses:
Clifford White,
E. C. Fletcher

Inventor:
Russell S. Barnum,
By David H. Fletcher
Attorney

UNITED STATES PATENT OFFICE.

RUSSELL S. BARNUM, OF CHICAGO, ILLINOIS, ASSIGNOR TO ALEXANDER
C. MARTIN, OF SAME PLACE.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 503,939, dated August 29, 1893.

Application filed June 5, 1893. Serial No. 476,551. (No model.)

To all whom it may concern:

Be it known that I, RUSSELL S. BARNUM, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Automatic Car-Couplers, of which the following is a description, reference being had to the accompanying drawings, forming a part of this specification, in which corresponding letters of reference in the different figures indicate like parts.

The object of my invention is to provide a car coupler which may be so constructed that it may be coupled automatically by impact, and which may be uncoupled and set for automatic coupling from the side of the car.

To these ends my invention consists in the combination of elements hereinafter more particularly described and claimed.

Figure 1 of the drawings is a side view of my improved car coupler, and a portion of the side of a car to which the same is applied. Fig. 2 is a bottom of said coupler showing means for actuating the same. Fig. 3 is a side view in detail of the coupling hook as it appears when in its normal position, and Fig. 4 is a like view of the same in the position assumed thereby when coupled.

Referring to the drawings *a* Fig. 1 represents the body of a car to which is attached in any well known manner, a draw bar *b* having a head *c* cast or otherwise formed thereon. Within a recess formed in said head is pivoted upon a horizontal axis *d* a hook *e* integral with which hook is a loop *f*, which, when the hook is thrown back, is in a horizontal position so as to receive the hook from the opposite draw head when the latter is thrown down as indicated in dotted lines in Fig. 1. The hook *e* is rigidly attached to the pivot shaft *d* upon which shaft outside of the draw head *c* is also rigidly attached a sheave *g* to which is secured one end of a chain *h* which chain is trained over the top of said sheave in the manner shown. The other end of said chain is attached to a crank arm *i*, rigidly secured to a rock shaft *j* maintained in suitable bearings beneath the car. A crank *k* enables said rock-shaft to be tilted. When the hook is down as indicated in dotted lines in Fig. 1 the tilting of said rock shaft *j* enables the hook to be uncoupled and thrown

back to its normal position. The chain *h* is protected and retained in position upon the sheave by means of a shield *k* Figs. 1 and 2, which is rigidly attached to the head *c*.

For the purpose of automatically throwing the hook forward and causing it to engage with the loop in the opposite draw head, I provide the following described tripping mechanism which is adapted to be set at will by the operator.

Loosely secured to the shaft *d* is an arm *l* which is bent inwardly as shown so that when it hangs in its normal position as indicated in dotted lines in Fig. 1, the lower end is extended beneath the draw head. Upon the inner face of said arm near its axis, is a stud *m* beveled upon the end as shown, which is adapted to engage with a similar stud *n* when the arm *l* is thrown forward as shown in Figs. 1, 2 and 3 which serves to hold said arm in an oblique position so that its outer end is projected in front of the draw head. The arm *l* is not only loose on the shaft so as to permit said shaft to be freely rotated without actuating said arm, but it is sufficiently loose to permit the lower end to be moved laterally far enough to enable the stud *m* to pass the stud *n* when the arm *l* is thrust forward. When thrust forward, however, a slight inward or lateral movement of said arm enables the studs to engage as shown in Fig. 2 and thus hold said arm extended in the manner shown in Fig. 1. I prefer to employ a secondary stud *o* upon the inner face of the arm *l* which serves to retain said arm far enough away from the sheave to prevent the studs *m*, *n* from engaging or binding during the forward movement of the arm *l* and thus preventing or impeding the completion of said movement. One end of a link *p* is loosely attached to a stud *q* upon the arm *l* while the other is in like manner attached to a corresponding stud upon an arm *r* attached to a rock-shaft *s* secured in bearings beneath the car and having a crank *t* by which it is adapted to be operated.

The operation of my improved automatic coupler is as follows: Assuming the hooks to be in their respective normal positions as indicated in Fig. 1 in which they may be placed by the operator standing at the side of the

car and tilting the rock-shafts *j*, the arm *l* upon one of the couplers is set in an operative position by likewise tilting the rock-shaft *s* and throwing said arm forward far enough to enable the stud *m* to pass the stud *n* when the crank is released which causes the studs to engage and thus hold the arm *l* in a forwardly inclined position as shown. As the cars are brought together the opposite draw head indicated in dotted lines in Fig. 1, in which the tripping arm *l* is not set, strikes against the extended arm *l* and the studs *m*, *n* being in engagement as indicated in Fig. 3, the hook *e* is thrown forward into engagement with the opposite loop *f*. The relative positions of said hook and arm after said engagement are indicated in Fig. 4. As the arm *l* hangs loosely upon its shaft, except when set as described, it cannot interfere with the action of the hook and loop when in use; and upon actuating the rock-shaft to uncouple the hook, the latter is thrown back to its normal position without in any wise affecting the gravity arm.

My improved automatic coupler is simple, cheap and durable, easily and safely set and uncoupled, and the absence of springs renders it especially desirable. The arm *l* is self adjusting inasmuch as the gravity of the inwardly bent portion throws the stud *m* out sufficiently to enable it to pass the stud *n* in its forward movement and as soon as the crank *t* is released the reverse action causes said studs to engage. It is obvious that the tripping arm *l* may be pushed forward and set by the operator without the use of the rock-shaft *s* and its connecting parts.

Having thus described my invention, I claim—

1. The combination in a car coupler of an elbow shaped coupling device pivoted upon a horizontal axis, said coupling device being provided with a hook upon one end and a loop upon the other, a tripping arm loosely secured to said axis and arranged to swing forward in front of said draw head, said arm being provided with a shoulder or stud thereon, and a detent or stud eccentric to, and in operative connection with said axis and adapted to engage with the stud upon said tripping lever and hold the same in an oblique position when the latter is thrust forward, substantially as described.

2. The combination in a car coupler of the hook *e*, pivoted as described, stud *m* in operative connection with the pivotal shaft thereof, and the tripping arm *l* having a corresponding engaging stud or shoulder *n*, said tripping arm being loosely mounted upon said pivotal shaft, substantially as described.

3. The combination with the opposite draw heads of a car coupler, of a coupling device, pivotally mounted upon a horizontal shaft in each of said draw heads, said coupling device consisting of two arms arranged obliquely to each other, one being provided with a hook and the other with a corresponding loop, a stud *m* in operative connection with each of said shafts and a tripping arm *l* loosely mounted upon each of said shafts and provided with a projection adapted to engage the stud *m* and hold said arm in an oblique forwardly projecting position, substantially as described.

4. The combination in a car coupler of the hook *e*, a tripping arm loosely mounted upon said pivotal shaft, studs, or shoulders *m*, *n* for enabling said tripping arm to be set in an operative position, a rock-shaft and means for operatively connecting the same with said tripping arm, substantially as described.

5. The combination of the hook *e* rigidly attached to the shaft *d* sheave *g* rigidly attached to said shaft and provided with the stud *n*, tripping arm *l* having the stud *m* and chain *h* in operative connection with a rock shaft secured to the body of the car, substantially as described.

6. The combination with the hook *e* rigidly attached to the shaft *d*, sheave *g* rigidly attached to said shaft and provided with a stud or projection *n*, a tripping arm *l* having a projection thereon adapted to engage the stud *n* means for operatively connecting said tripping arm with a crank attached to a rock shaft upon the body of the car and chain *h* in operative connection with a separate rock shaft upon said car, substantially as described.

In testimony whereof I have signed this specification, in the presence of two subscribing witnesses, this 31st day of May, 1893.

RUSSELL S. BARNUM.

Witnesses:

D. H. FLETCHER,
E. C. FLETCHER.