(No Model.) 2 Sheets—Sheet 1.

A. L. CROFT.

CAR COUPLING.

No. 515,933. Patented Mar. 6, 1894.

Fig. 1.

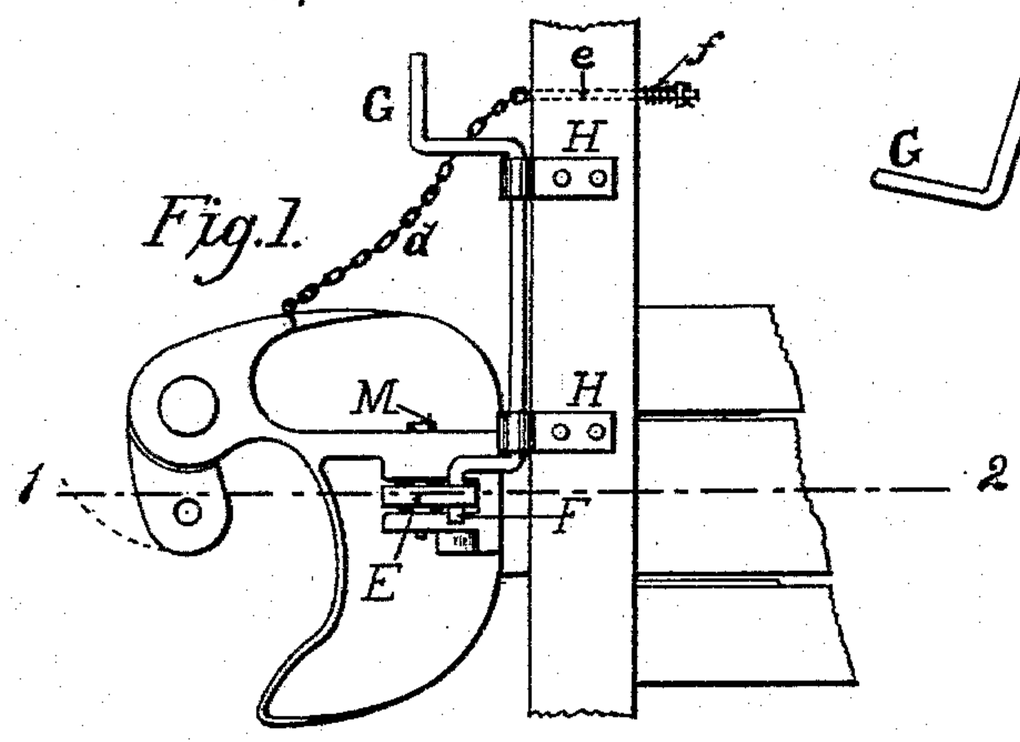


Fig. 5.

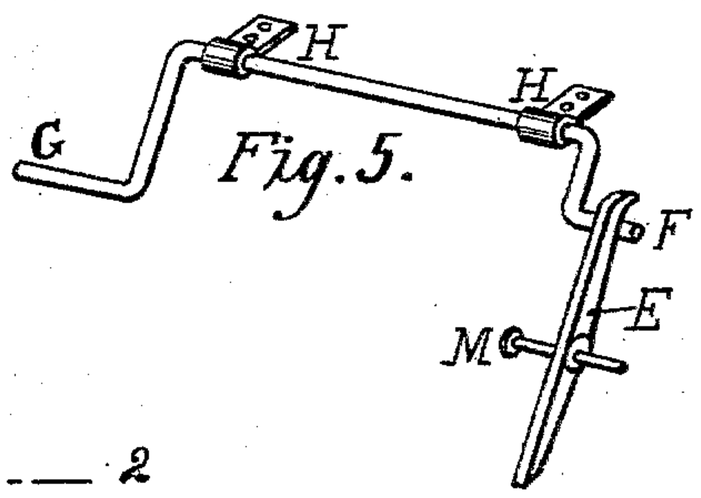


Fig. 6.

Fig. 2.

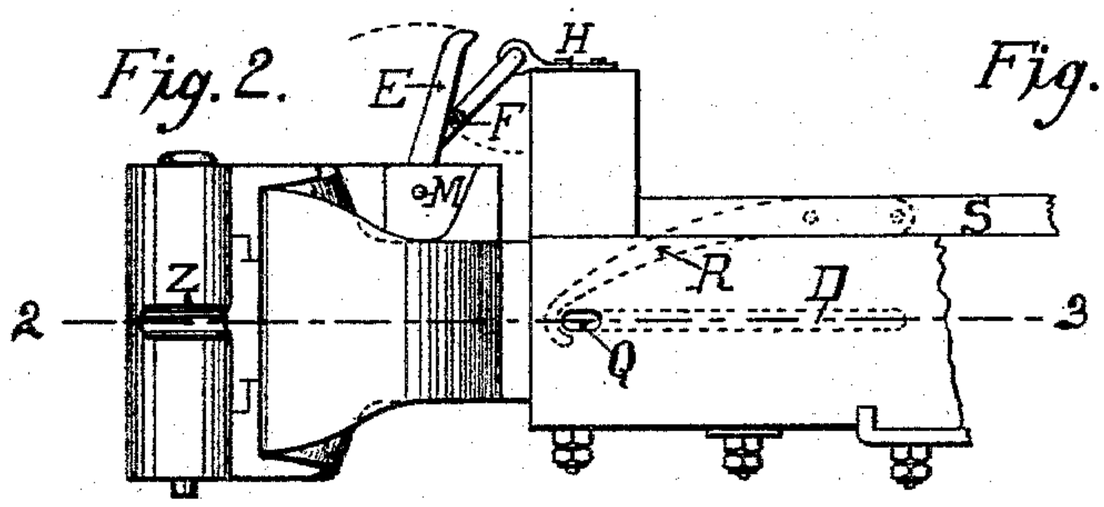


Fig. 7.

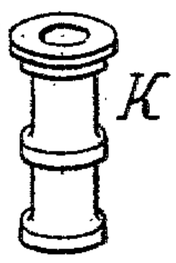


Fig. 8.

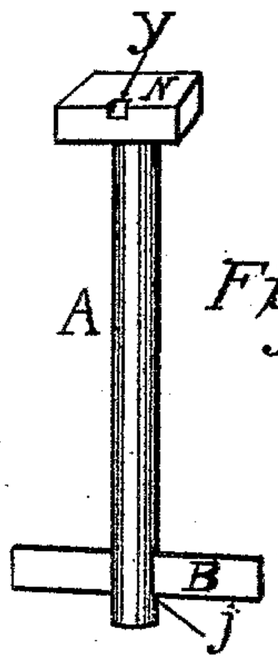


Fig. 13.

Fig. 3.

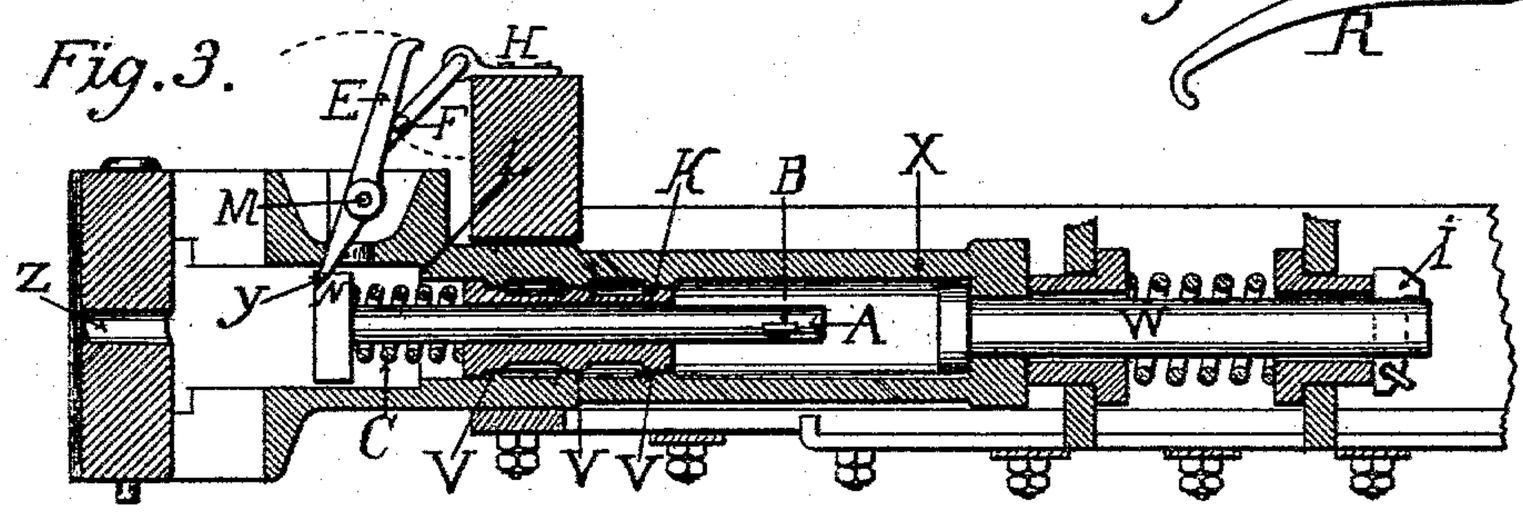
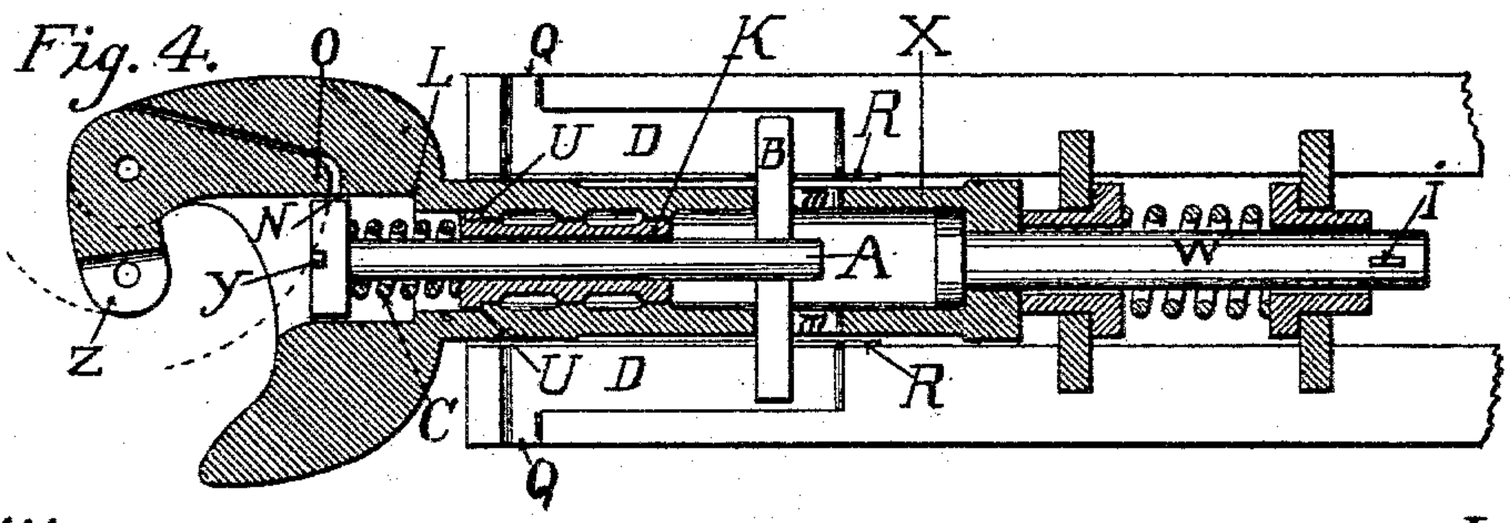


Fig. 4.



Witnesses.
John W. Eisendorff.
E. F. Bietsch

Inventor.
A. L. Croft
by Church & Church
Attorney.

THE NATIONAL LITHOGRAPHING COMPANY,
WASHINGTON, D. C.

(No Model.)

2 Sheets—Sheet 2.

A. L. CROFT.

CAR COUPLING.

No. 515,933.

Patented Mar. 6, 1894.

Fig. 11.

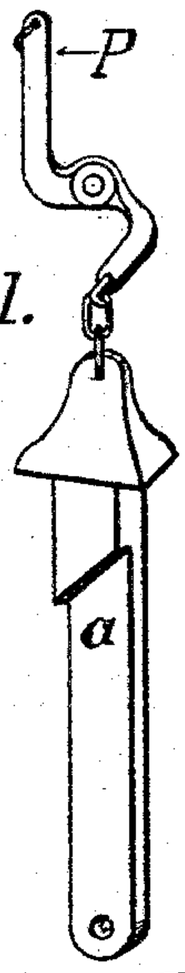


Fig. 12.

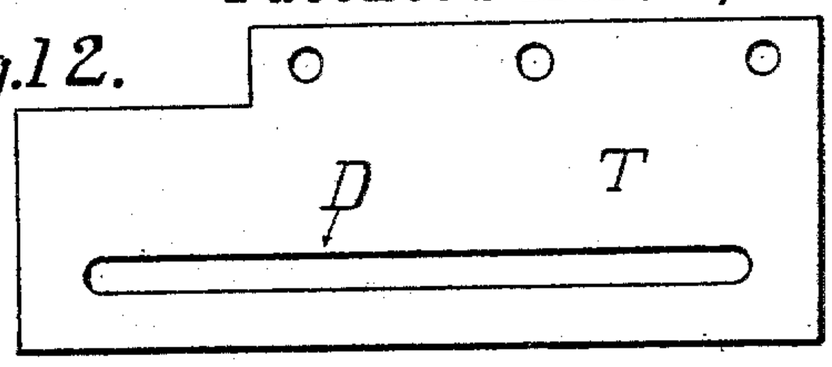


Fig. 9.

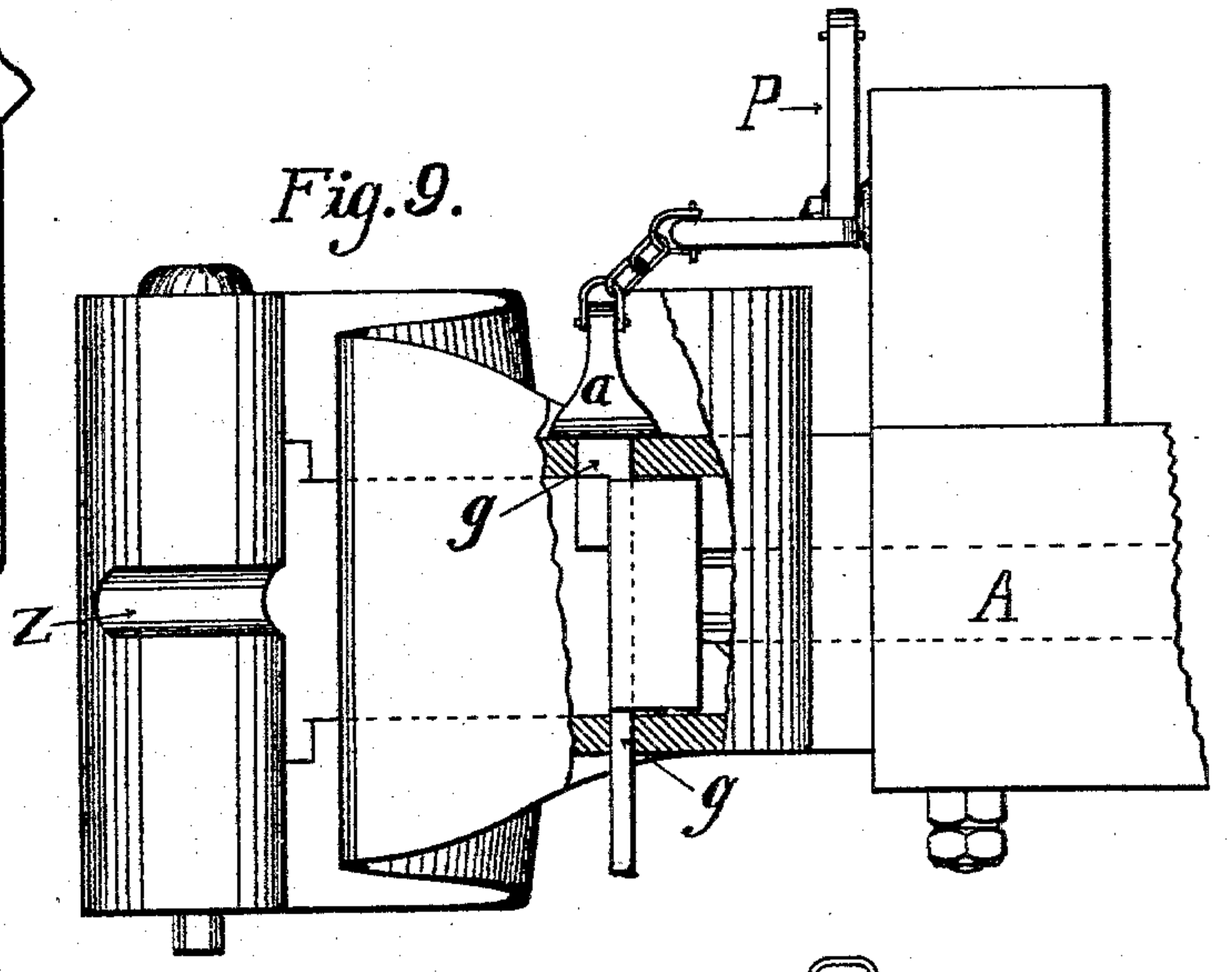


Fig. 14.

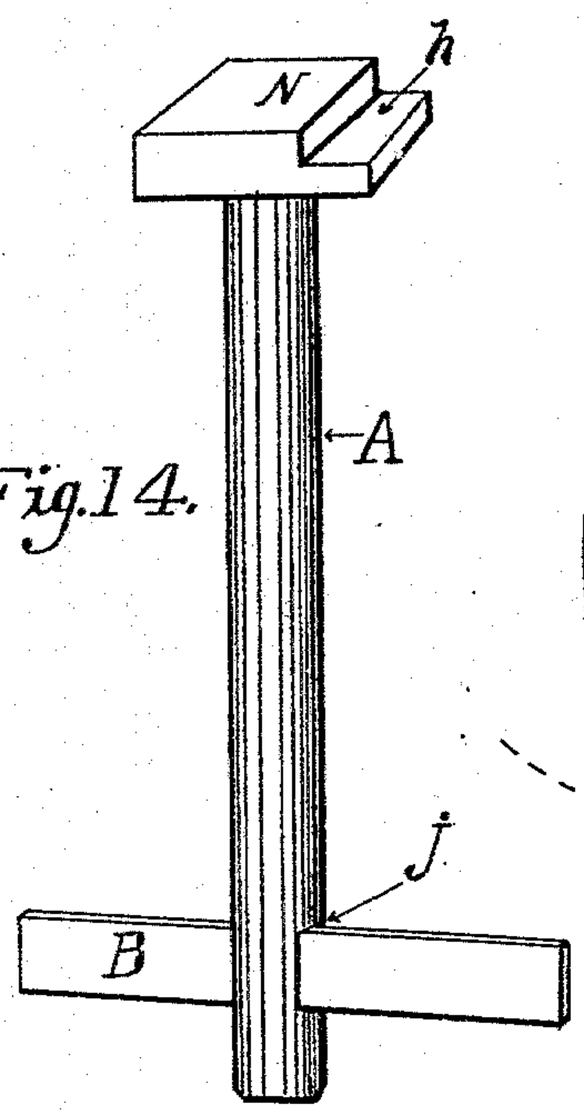
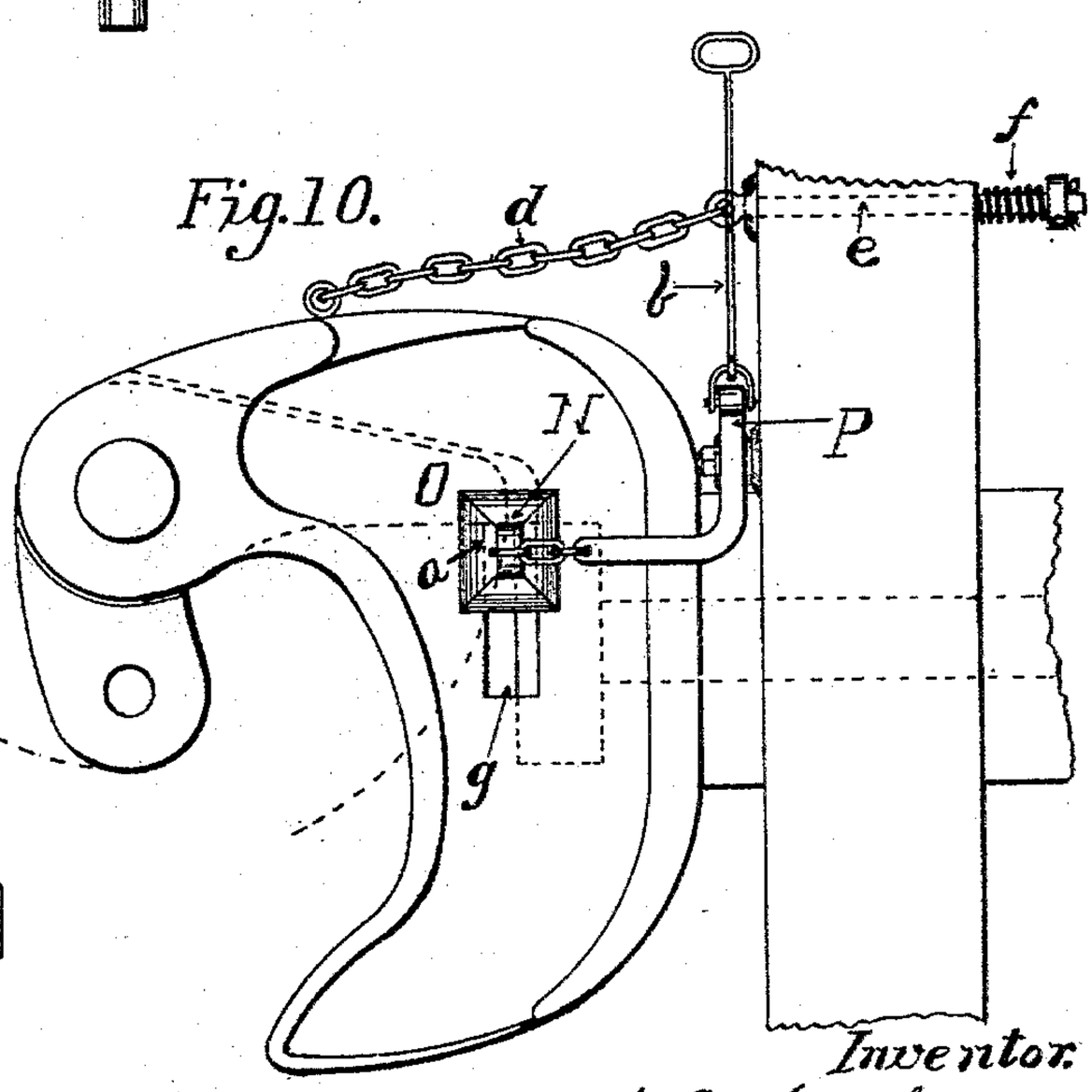


Fig. 10.



Witnesses.

John W. Teardorff.

E. F. Bietsch

Inventor.

A. L. Croft

C. A. Wiepercht

Attorney.

THE NATIONAL LITHOGRAPHING COMPANY,
WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ABRAHAM LINCOLN CROFT, OF CHAMBERSBURG, PENNSYLVANIA.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 515,933, dated March 6, 1894.

Application filed October 10, 1893. Serial No. 487,716. (No model.)

To all whom it may concern:

Be it known that I, ABRAHAM LINCOLN CROFT, residing at Chambersburg, in the county of Franklin and State of Pennsylvania, have invented an Improved Safety Car-Coupler, of which the following is a specification.

My invention relates to improvements in safety car couplers, by means of which the coupler is protected by its locking device, and in the event of a breakage or accident the coupler cannot pull out, but will unlock itself automatically, and not allow coupler to fall to the track or ground; and the coupler will not be entirely disabled except in the event of a total wreck of the car to which it is attached. The said improvements enable one, in the event of the breakage of the coupler to couple, by means of a link and pin; and also enables one operating the coupler, if desirable, to cut the car, without notice to the engineer to slacken the train. I attain these objects by the mechanism illustrated in the accompanying drawings.

Figure I is a top view of the coupler. Fig. II is a side view of the coupler. Fig. III is a vertical section of coupler on the line 1 and 2 Fig. I. Fig. IV is a horizontal section of coupler on the line 2 and 3 of Fig. II. Fig. V is a detailed perspective view of lock and lift lever. Fig. VI is a perspective view of spring C. Fig. VII is a perspective view of thimble K. Fig. VIII is a perspective view of lock and its key B. Fig. IX is a side view of a modified form of coupler with pin attached. Fig. X is a top view of the same coupler with pin attached. Fig. XI is a detailed view in perspective of pin and pin lifter. Fig. XII is a side view of plate T. Fig. XIII is a side view of lock R. Fig. XIV is a perspective view of lock bolt A, for pin action.

The operation of the coupler for train service is as follows: To operate the coupler take hold of handle G in Fig. I and lift lever at F in Fig. V which operates lever at E, and lever E will thus be placed in lever way Y in head at N of lock bolt pin A Fig. VIII; lever E is secured in coupler by pin M, as shown in Figs. I, II, III and V, thus pushing lock bolt pin A, Fig. VIII, releasing knuckle O and opening the coupler; by then dropping lever G the coupler will couple automatically. Lever G is never used to close knuckle O at N as shown in Figs. IV and VIII, and thus the coupler closes without the use of the lever, in this respect differing from other couplers.

The construction of the coupler is as follows: Pin A, in Fig. VIII is placed in spring C, Fig. VI and then in thimble K, in Fig. VII, and spring C, in Fig. VI, rests on end of thimble K, in Fig. VII, at head of pin A, Fig. VIII, as shown in Figs. III and IV. Pin A and spring C and thimble K are held in position by key B placed in key way J as shown in Figs. VIII and IV at end of pin A; and these parts mentioned (namely pin A, spring C and thimble K) are held in position in barrel of coupler by tension of spring C resting against the head of pin A and against the top of thimble K, and key B is placed in key way M in barrel of coupler at key way J which will come up to shoulder of key way M in barrel of coupler and key B will be placed in through key way M of barrel of coupler in key way J of pin A (as shown in Fig. IV). Thimble K is arrested on shoulders of barrel of coupler at letters U, U, as shown in Fig. IV, and thimble K rests on ribs in barrel of coupler, and on ribs of thimble K as shown by letters V, V and V in Fig. III.

In order to further describe the construction and advantage of my improved car coupler, I will show the results, should breakage occur at different points: Should key I (in Fig. III) be broken, coupler will pull up through the timbers until the key B strikes against the hook R (see Fig. XIII) or the end of the slot D in plate I (see Fig. XII) when the head of the pin A will be drawn inward against the spring C and allow the knuckle O to open at N; thus preventing the coupler from pulling out. This accident can readily be repaired without interference with the other parts by pushing back the coupler and a new key put in. Should draft bolt W break at any point key B will act in the same way and allow knuckle O to open at N. This will prevent coupler from falling on track and prevent damage to lives and property. Should a break occur at X there would be the same result, as a break at W before described. Should coupler break at point between U and L and U and C (Fig. IV) head of pin A will arrest head of coupler at shoulder L and al-

low knuckle O to open, which will prevent coupler from pulling out and falling on the track. It will thus be seen that should breakage occur to coupler at any point from shoulder at the head of coupler to end of draft bolt (including barrel and draft bolt) the coupler would be arrested and could not pull from the car to fall to track and cause damage. The head of pin A preventing same in breakage occurring in front of key way M in barrel of coupler, and the key B preventing the same in breakage occurring at key way M or any place back of key way M to rear of draft bolt (see Figs. III and IV).

To prevent the pulling out of the knees of the car I have devised safety plate, as illustrated by Fig. XII and hook as illustrated by Fig. XIII, which are bolted to the sill of the car as shown in Fig. II letter S, said safety plate is provided with a groove or long key way (D Fig. XII) through which key B works to prevent the knees of the car or the coupler placed therein from falling upon the track in case of accident, in that key B will pull up to front end of key way D in plate T, Fig. XII, which will release knuckle O at N and uncouple car: said device viz. safety plate and hook being also intended as a protection to the wood work of the car.

I have devised the application of safety chain as shown in Figs. I and X to prevent coupler from falling on track should pin A be broken or should coupler be broken off at right arm (said safety chain being attached to bolt *e* through end sill of car said bolt being protected from sudden jar by spring *f* as shown in Fig. I).

It will be observed that the chain *d* is long enough to always hang loose when in use and thus is under no strain upon either the chain or spring when the coupling is in condition for use, for if the chain were under strain in ordinary use it would probably be broken when the coupling broke, but with my arrangement there is no strain on the chain or the spring, and therefore no wear on these parts, and consequently said chain and spring may be comparatively light and cheap, as they only come into use in case of breakage when they act to save the draw-head from falling on the track.

Lever G for operating lever E, is attached to the car at the face of the end sill by means of plates H, H, as shown in Figs. I and V.

In Figs. IX, X, XI and XIV, I have shown a different device for locking the knuckle by means of a pin *a*, having a different form of lifting device. In this form the locking-pin *a* is provided with a lifting device consisting of a peculiar form of lever P, operated by pulling the rod *b*. The pin *a* is placed in pin-way G (see Fig. X) with its side against the head N (see Fig. XIV) and in contact with the walls of the recess *h*, therefore holding pin *a* into position, same as described in description in Figs. I, II, III and IV hereinbefore stated, and placed in such position as to throw strain or pull on narrow edge of pin *a* (Fig. XI) and therefore giving full strength to pin. The operation in case of breakage of any part of coupler or rigging is the same as mentioned for Figs. I, II, III and IV and pin *a* placed in pin way *g* will move to left arm of pin way and allow knuckle O to open at N. To open knuckle O to prepare for coupling, you raise pin *a* (Fig. XI) by pulling on rod *b* thereby operating the lever or lifter P (Fig. X) thereby lifting pin *a* (Fig. X) to its coupling height, the knuckle O is released and opens freely, and by letting go lever *b* pin *a* (in Fig. X) will drop to former position when the coupler is ready for action.

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

1. The combination with the head and barrel of a coupler, having a shoulder L, of a pin A, provided with a head at one end larger than the bore of the barrel at the shoulder, and a key B at the other, substantially as described.

2. The combination with the head and barrel of a coupling, having a recess in the head of larger diameter than the bore of the barrel, of a thimble having a bearing against a projection in the barrel, a pin having at one end a head larger than the head of the thimble and a key at the other end passing through slots in the barrel, and a spring arranged between the thimble and the head of the pin, substantially as described.

3. The combination with the head and barrel of a coupling having a recess in the head of larger diameter than the bore of the barrel, of a thimble having a bearing in the barrel, a pin having at one end a head larger than the bore of the barrel, and a key in the opposite end passing through slots in the barrel, a plate attached to the timbers of the car to limit the motion of the barrel in case of breakage, and a spring between the head of the pin and thimble, substantially as described.

4. The combination in a coupler having a pivoted knuckle, a pin A in the bore of the coupler, having a head for locking the knuckle in its closed position, a spring C for forcing said pin toward the knuckle, a lever E acting on the head to force it backward, and a rock-shaft having a crank F on one end to act on lever E, and a crank handle G at the other, substantially as described.

ABRAHAM LINCOLN CROFT.

Witnesses:
JOHN W. DEARDORFF,
EMIL F. BIETSCH.