(No Model.)

E. L. GRANGER.

CAR COUPLING.

No. 294,124. Patented Feb. 26, 1884.

Fig 1

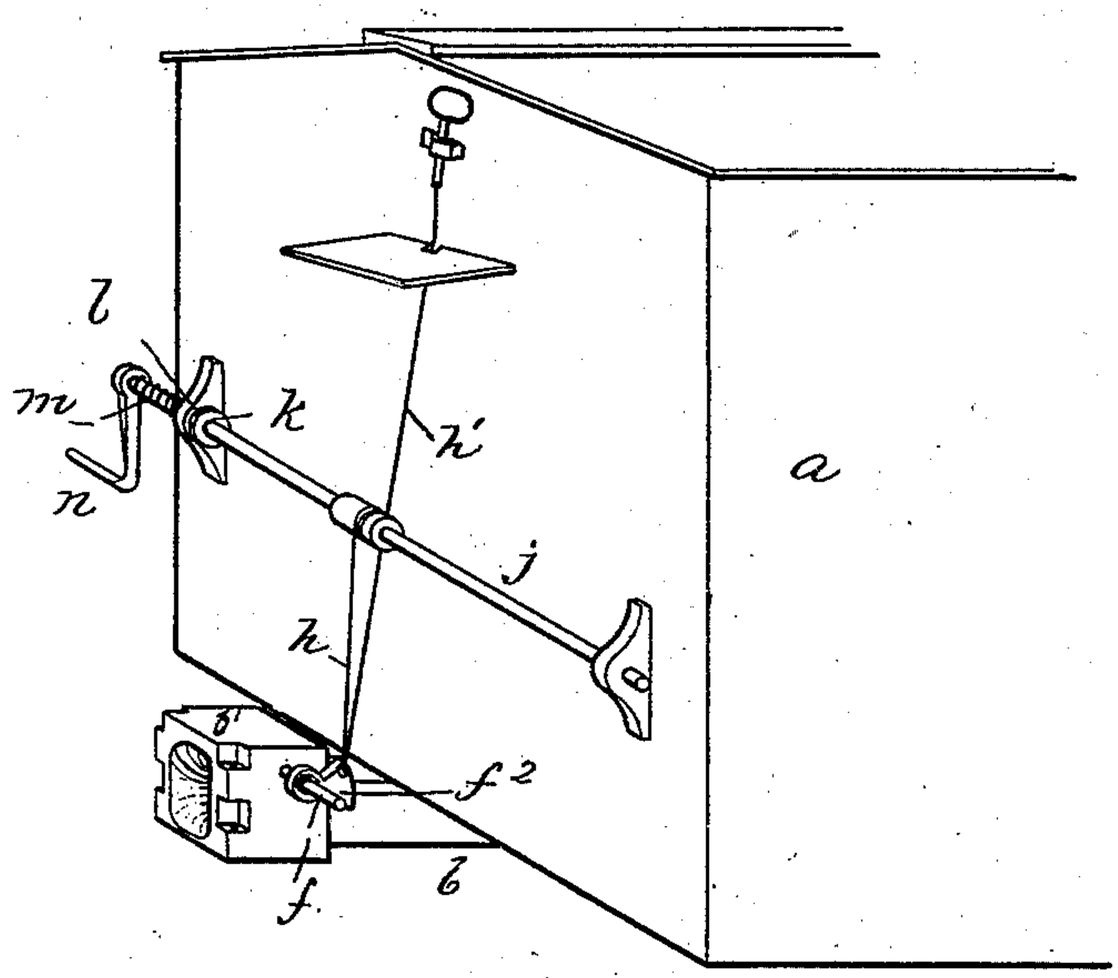


Fig 2.

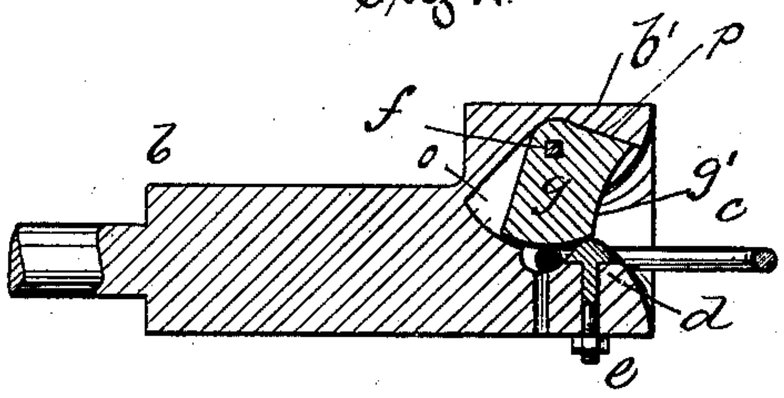


Fig 3.

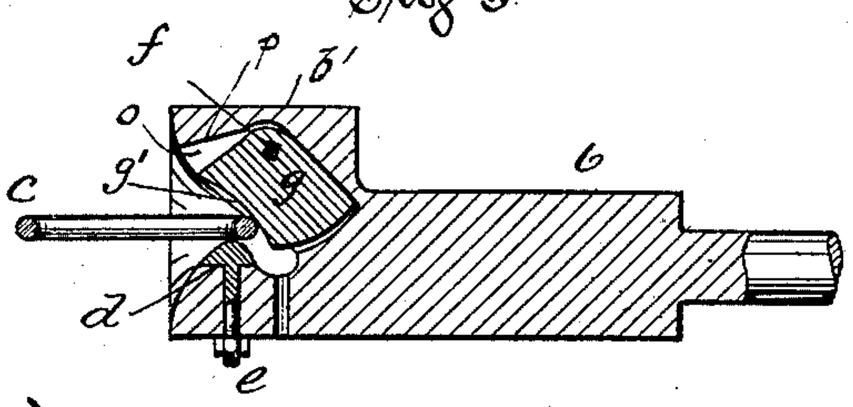
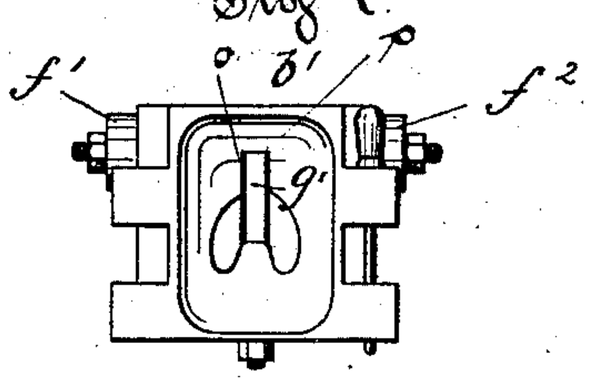


Fig 4.



Witnesses
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UNITED STATES PATENT OFFICE.

EDWARD L. GRANGER, OF SOUTH MANCHESTER, CONNECTICUT, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE GRANGER AUTOMATIC CAR COUPLING COMPANY, OF NEW YORK.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 294,124, dated February 26, 1884.

Application filed February 26, 1883. (No model.)

To all whom it may concern:

Be it known that I, EDWARD L. GRANGER, of South Manchester, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Car-Couplings, of which the following is a description, reference being had to the accompanying drawings, where—

Figure 1 is a view of the end of a freight-car provided with my improved device. Fig. 2 is a view in central vertical section of a draw-head fitted with my device, showing the cam closed. Fig. 3 is a view of same, showing the cam thrust back by the link in entering the draw-head. Fig. 4 is a face view of the draw-head.

My improvement relates to the class of car-couplings known as "self-couplers;" and it has for its object the providing of a simpler and more convenient coupling than has heretofore been in use.

In the accompanying drawings, the letter *a* denotes the end of a freight-car; *b*, the draw-bar, of usual general form, attached to the under side of the car at its ends in the usual manner, and provided with the draw-head *b'*, hereinafter more particularly specified. *c* is a link of standard size and form, held and guided in the flaring or bell-shaped mouths of the draw-heads by the means hereinafter described. Within the draw-head, upon its lower surface, an upward-projecting hook, *d*, is cast; or, to give added strength and durability, it may be formed of steel removably secured in proper position by bolt and nut *e*. The draw-head is pierced transversely by a rotary shaft, *f*, to which is fast a locking-cam, *g*, arranged to swing in a vertical slot or mortise, *o*, within the draw-head *b'*, and in the vertical plane of the hook. The mortise *o* in the draw-head has vertical walls for the cam, and its roof *p* is the solid upper surface or wall of the draw-head, so that the said cam is inclosed on all sides and edges, except its curved face *g'*, by the solid substance of the draw-head, and even this curved face *g'* is so far back in the draw-head as to be substantially inclosed, whereby snow and ice and other foreign matter are effectually excluded from interfering in anywise materially with the free working of the cam. On the outer ends of this shaft are added weights or counterpoises *f' f²*, to keep the locking-cam depressed; but the cam itself may be of such obvious construction as to dispense with the added weights and act of its own gravity. The front or vertical face, *g'*, of the cam *g* is situated at the rear and contracted part of the bell-mouth of the draw-head, so that when the link is pushed into the mouth it is guided to and against this surface and lifts the cam, allowing the link to fall over the hook *d*. The foot or bottom of the locking-cam moves near the upper surface of the hook, and closes over it by the forward return of the cam as soon as the link has passed back of the hook. When the link is pulled forward, it rises on the back of the hook, and, pressing between it and the foot or bottom of the cam, forces the cam forward and upward, as indicated in Fig. 2, the head of the cam then coming in contact with the roof *p* of its mortise *o*, and throwing the burden of the thrust and strain of the link upon the solid substance of the draw-head, instead of on its shaft *f*, thereby making a much stronger and more durable coupling pin or device. To the outer end of the counterpoise a cord or chain, *h*, is fastened, having its other end wound upon a transverse horizontal rod, *j*, pivoted to the front of the car. The rod bears a pawl, *k*, held against a fixed ratchet, *l*, by means of a spiral spring, *m*, or its equivalent, and has a crank, *n*, at one or both ends, for the purpose of turning it from the side of the car, relieving the train-hand from the necessity of entering between the cars to operate the coupling. A chain or rod, *h'*, leads to the top of the car, so that cars may be uncoupled from the tops.

When it is desired to disconnect the cars, the rear of the cam-lever *g* is raised by the chain *h* being wound upon the bar *j*. This allows the link *c* to slip off from the hook *d*. The cam-lever is left in this position so long as it is desired to prevent the cars from becoming connected when they are run together, and when it is wished to connect or couple them the cam *g* is dropped by pushing in the crank

n, to disconnect the ratchet and unwind the chain *h*. Then, whenever a link *c* is placed in one of the couplings and moved against another, it immediately becomes hooked, and is firmly held until the locking-cam is again raised. The coupling on either car can be operated in this manner to connect or disconnect the link *c*.

What I claim is—

1. In a car-coupler, the combination of the draw-bar with the head bearing the swinging cam *g*, covered within it and fast to the rotary shaft *f*, the counterpoise f^2, also fast to the shaft, the chain *h*, and the rod *j*, pivoted to the car-front, and bearing the pawl *k*, held in contact with the fixed ratchet *l* by means of the spring *m*, all substantially as described.

2. In combination, the draw-bar *b*, having a head with a flaring mouth and hook *d* therein, the shaft *f*, and the locking-cam *g*, covered and arranged within the draw-head, and the counterpoise f^2 and the link *c*, with cam-operating mechanism, all substantially as described.

3. In a car-coupler, the combination of the draw-bar *b*, having a head with a flaring mouth, and within the head the hook *d*, and the swinging cam *g* on the shaft *f*, the cam being seated in a mortise within the head, and arranged to hold the link in place by its foot or bottom, and to then bear with its head upon the under side of the roof of said mortise, and not on the shaft or pivot, and the link *c* and cam-lifting mechanism, all substantially as described.

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Witnesses:

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