J. F. GROSS.
Car Coupling.

No. 229,400. Patented June 29, 1880.

Fig. 1.

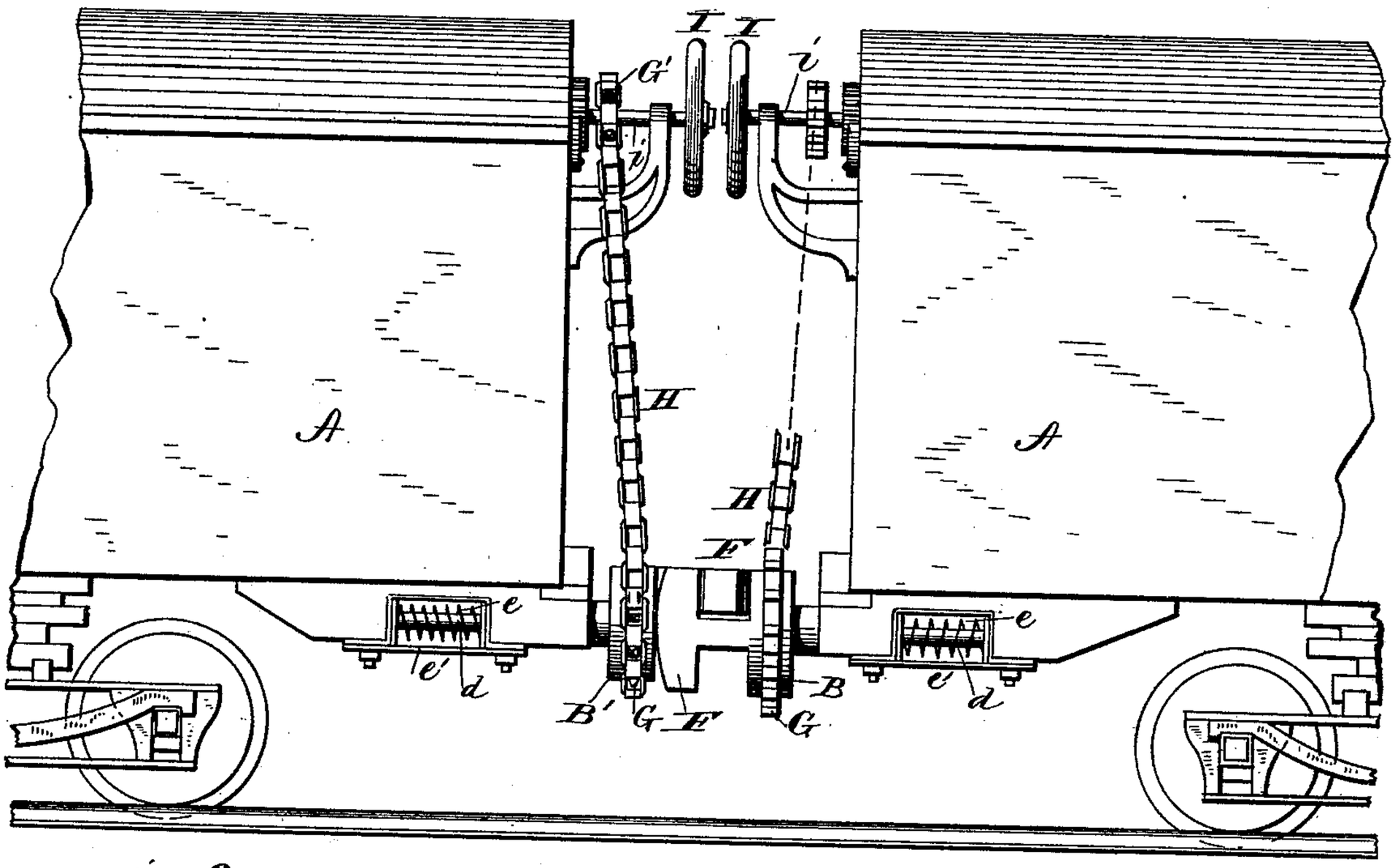


Fig. 2.

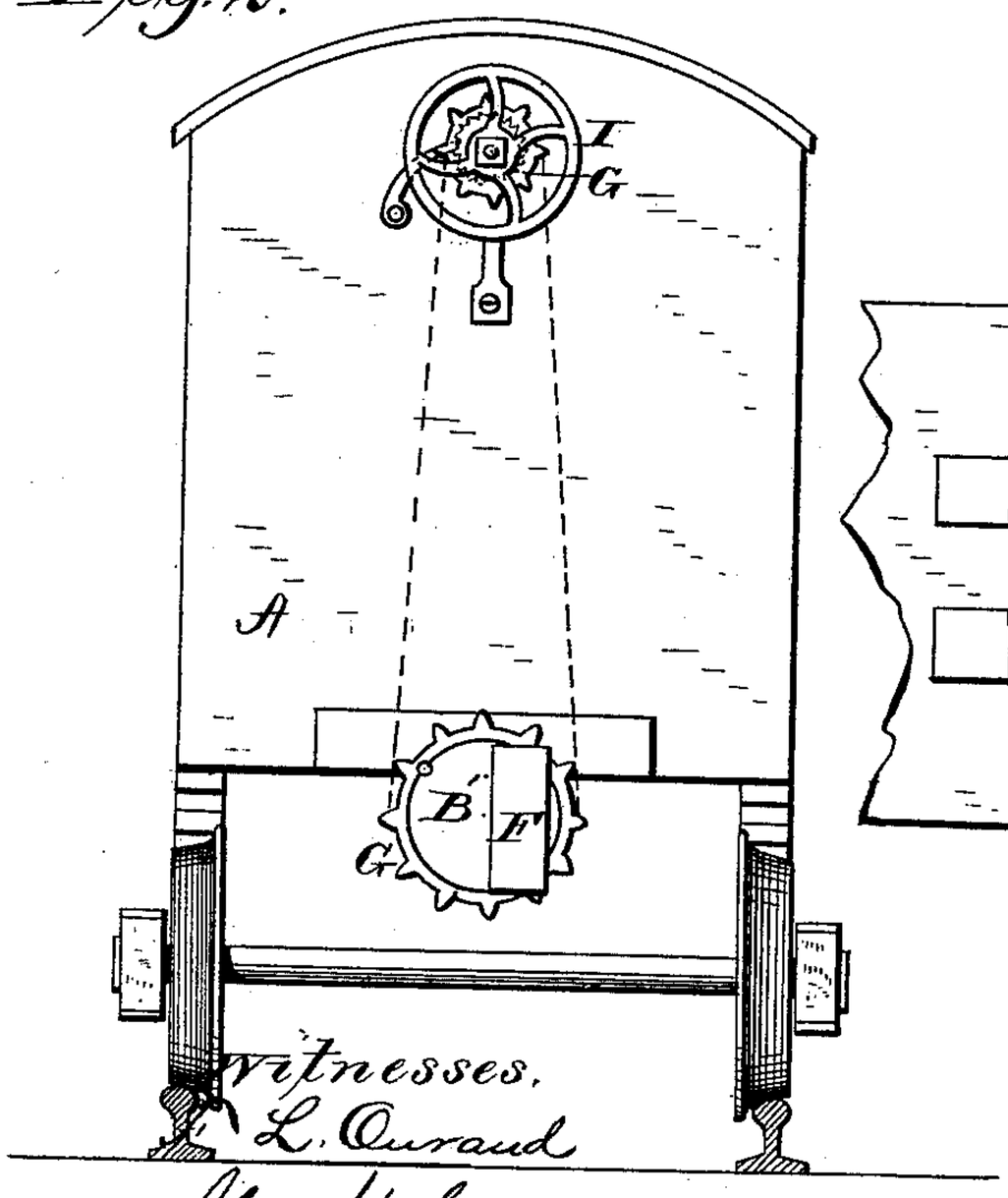
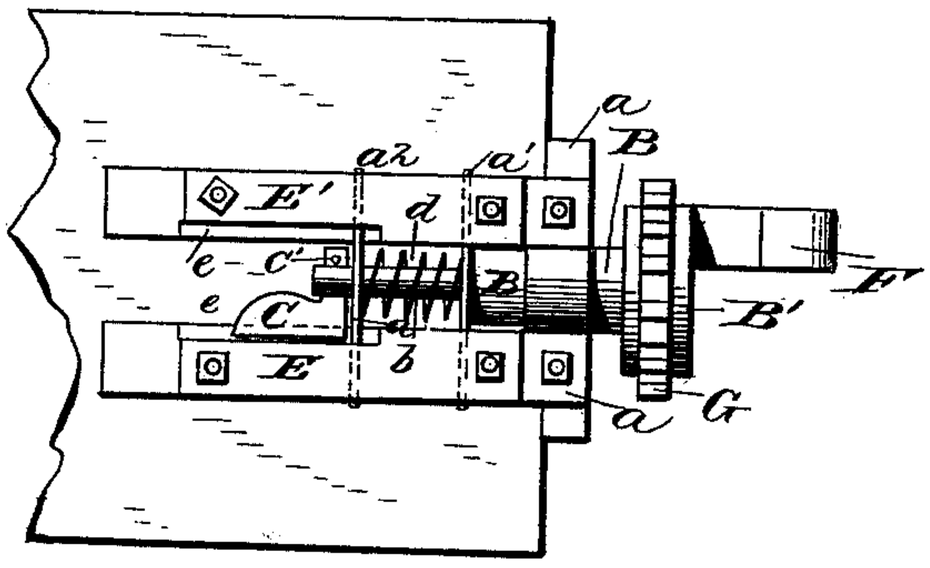


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN F. GROSS, OF CANTON, OHIO.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 229,400, dated June 29, 1880.

Application filed December 15, 1879.

To all whom it may concern:

Be it known that I, JOHN F. GROSS, of Canton, county of Stark, State of Ohio, have invented certain new and useful Improvements in Car-Couplings, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a side elevation, showing the ends of two cars connected by my improved coupling device. Fig. 2 is an end elevation of one of said cars, and Fig. 3 is a bottom view, showing the arrangement of the coupler.

Similar letters of reference denote corresponding parts wherever used.

My invention relates to a novel construction of the coupling device and to a novel means for operating the same for coupling and uncoupling cars, having for its purpose the obviating of the dangers to the operator incident to the use of the ordinary coupling, while at the same time facilitating the operation of coupling and uncoupling of cars; and to this end the invention consists, first, in the employment of a coupling arm or head having an arrangement eccentric to the bumper, or to the rock-shaft to which it is attached and by means of which it is operated, as hereinafter explained.

It further consists in providing the rock-shaft which carries the eccentric coupling arm or head with a hand, sprocket, or gear wheel for operating the same, as hereinafter explained.

In the accompanying drawings, A represents a car, the form shown being that of a freight-car with appliances adapting my invention for use thereon; but it will be apparent that my improved coupling may be applied to any form or construction of car, and it will not be necessary to describe the latter. In suitable bearing or bearings *a*, underneath the car-body, is mounted a longitudinal shaft, B, which is free to rock or rotate in its bearings, and is made capable also of receiving an endwise movement therein. The rear or inner end of this shaft is reduced in diameter at *b*, and passes through two bearing or steady plates, a' a^2, one resting against the shoulder at the junction of the smaller part *b* of the shaft with the part B, and the other at the inner end of part *b*, held in place thereon by a collar or pin on the end of said part or by the shank c' of a stop, C, acting as a pin.

In practice I prefer to cast the shaft B in one piece with the bumper and coupling-arm, hereinafter described, the shaft at its rear end having a socket formed in it for the reception of the end of the smaller wrought-iron part *b*, held in place therein by a set-screw or other suitable device. The part *b* of the shaft is surrounded by a spring, *d*, of any suitable form, arranged between the plates or bars a' a^2, and serving by its tension to hold said plates, the one against the shoulder of shaft B and the other against the pin or collar on the end of part *b*, as shown.

The longitudinal timbers E E′, to which the bearings of the shaft B are connected, are mortised or cut away at *e*, and have plates e' bolted to their lower faces, covering the recess thus formed, and the ends of the steady plates or bars a' a^2 rest in said recesses or mortises, and are permitted to move back and forth therein to accommodate an endwise movement of the shaft B in its bearings *a*.

The outer end of shaft B is provided with a disk or bead, B′, forming the bumper, and which is permitted to yield to the blow of an opposing bumper by the arrangement of the sliding shaft B and its spring and sliding steady-plate, as described.

The bumper, made in the present instance in the form of a disk concentric to the shaft, has an L or T shaped arm or cross-head, F, formed upon its forward or outer face, and having an eccentric arrangement to shaft B, as shown, the arrangement being such that when two of said heads approach each other for coupling two cars together, if both the heads are in the vertical position shown in Fig. 2, they will pass by each other, and each will come into contact with the opposing bumper of the other, and while in this position, if one of the shafts with which they are connected be rotated so as to bring its cross-head at right angles to the opposing head, the two will interlock and couple the cars, as shown in Fig. 1.

For rocking or rotating the shaft B, and with it the coupling-arm or cross-head F, said shaft is provided with a gear or sprocket wheel, G, shown in this instance in the latter form

and applied to the bumper-disk; but it may be applied directly to the shaft in rear of the bumper, if preferred. For a freight-car of the kind shown a convenient arrangement for operating or rocking the shaft is shown in the driving-chain H, passing around the sprocket-wheel and over a sprocket-wheel, G′, near the top of the car, as shown.

Motion is imparted to the shaft *i*, on which sprocket-wheel G′ is secured, by a hand-wheel, I, or other convenient means for the purpose, and thence through the chain H to wheel G, shaft B, and cross-head or coupling-arm F as required for coupling or uncoupling the cars.

The movement of the shaft B is limited by the stop C to a half-revolution, which permits the cross-head or coupling-arm to be brought into a vertical position on either side as may be necessary to enable it to pass by the opposing head or arm.

In lieu of the sprocket-wheels and chain, bevel-wheels may be used, one on the shaft B and the other on a shaft rising into convenient position to be operated through a hand-wheel or equivalent device by the attendant on the platform.

By the construction and arrangement described all danger incident to the use of ordinary coupling-links to be inserted by hand is avoided.

To adapt cars provided with my improved coupling device to be coupled to old cars having the link-coupling, a link may be used made in the usual form at one end, and expanded in width at the other to adapt it to pass over and connect with the upper vertical arm of the cross-head.

Having now described my invention, I claim as an improvement in car-couplings—

1. A rock-shaft provided with the eccentrically-arranged cross-head or coupling-arm, substantially as and for the purpose described.

2. The sliding rock-shaft, in combination with the eccentric coupling arm or head and the bumper, applied and operating substantially as described.

3. The rock-shaft to which the coupling arm or head is applied, in combination with the sprocket or gear wheel, whereby the shaft and coupling-arm can be rotated in either direction, as described.

4. The combination, with the sliding rock-shaft B, of the bumper B′, draw-head or coupling-arm F, and gear or sprocket wheel G, substantially as and for the purpose described.

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Witnesses:

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