(No Model.) 2 Sheets—Sheet 1.

J. H. DUFFINS.

CAR COUPLING AND BRAKE.

No. 304,628. Patented Sept. 2, 1884.

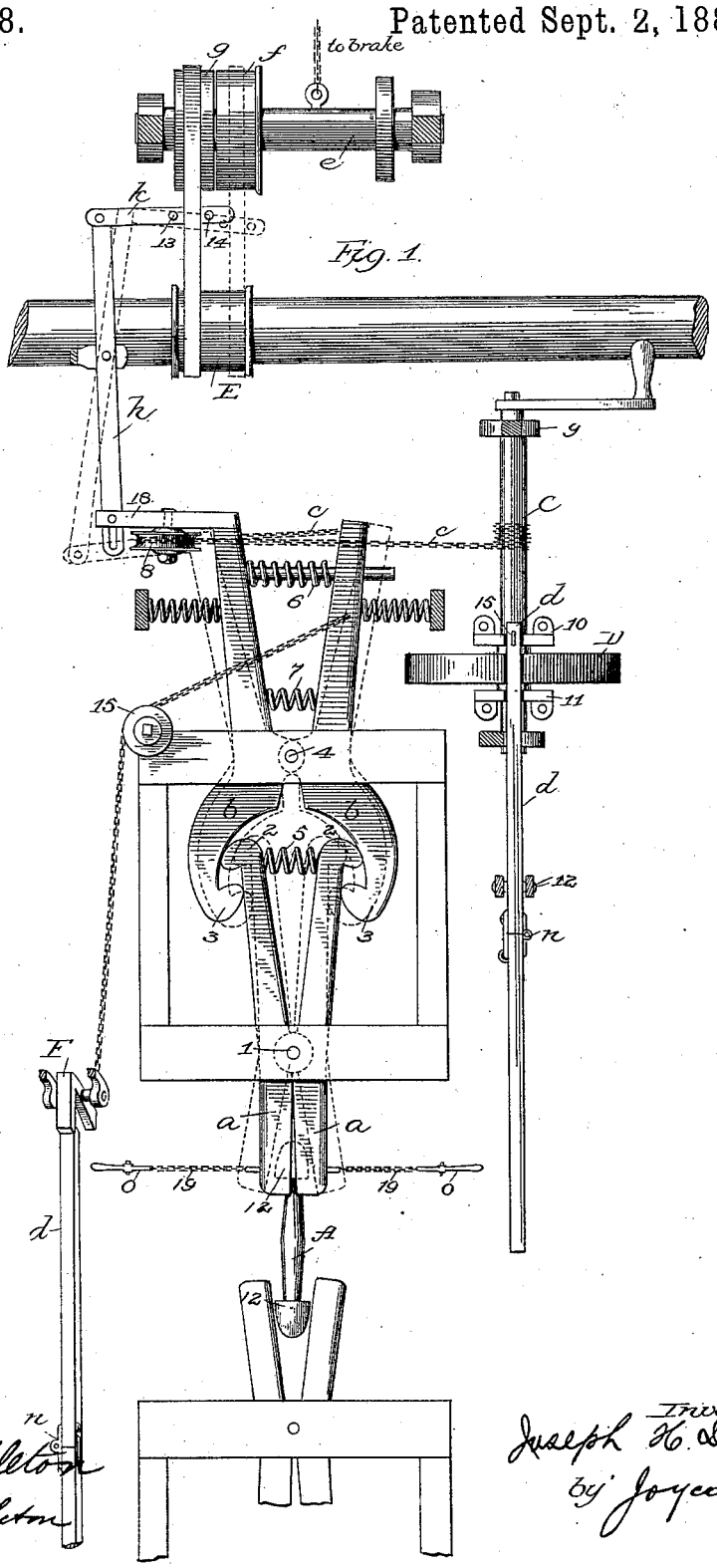

Fig. 1.

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

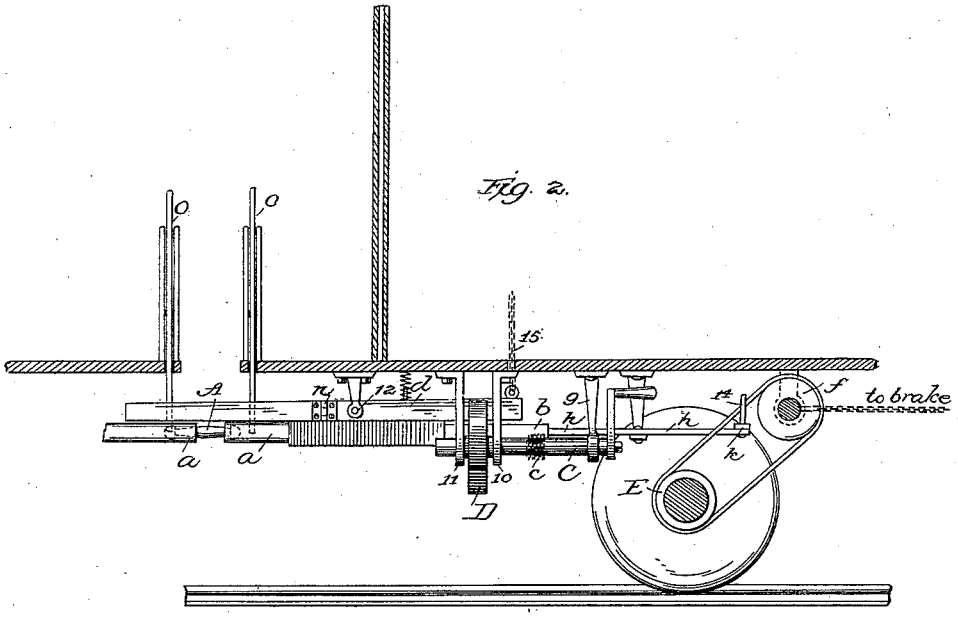

Fig. 3.

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UNITED STATES PATENT OFFICE.

JOSEPH H. DUFFINS, OF HARRISBURG, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO JAMES H. HOWARD, OF SAME PLACE.

CAR COUPLING AND BRAKE.

SPECIFICATION forming part of Letters Patent No. 304,628, dated September 2, 1884.

Application filed May 29, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH H. DUFFINS, of Harrisburg, in the county of Dauphin and State of Pennsylvania, have invented a new and useful Improvement in Car-Couplings; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to the automatic uncoupling of the cars of a railway-train, in connection with devices for automatically putting on the brakes.

In the accompanying drawings, Figure 1 is a plan view of the mechanism. Fig. 2 is a side elevation of the same. Fig. 3 shows a modified form of pin.

In the drawings, *a a* represent a pair of jaws forming the draw-bar, which jaws are pivoted at 1 on the cross-beam or other support on the car-frame. The front ends are adapted to receive and hold a bolt, A, having a cone-shaped head, 2, fitted to enter and automatically engage with the head. The rear parts of the jaws have offsets 2, adapted to like offsets 3 on jaws *b b*, pivoted on the frame at 4. The front ends of the jaws are held together by means of a spring, 5, between the rear ends. The jaws *a a* are caused to open by pressing together the rear ends of jaws *b*, which are pressed apart by springs 6 and 7. These springs, therefore, when permitted to do so, close the rear ends of jaws *a a* and open the front to release the coupling A. The jaws are connected by a chain, *c*, which is fixed to one end of the rear extension of jaw *b*, and is carried over pulley 8 on arm 18 of the other extension, and thence back to a drum, C. The drum C is mounted in bearings in suitable hangers underneath the car and over the frame thereof. It is provided with a handle whereby the chain *c* may be wound upon the drum, compressing the springs 6 and 7 and opening the jaws *b b*, so as to allow the jaws *a a* to close. As long as the drum C is held with the chain suitably wound upon it the jaws *a a* will be held in a closed position through the action of the spring 5, and the coupling will be complete. The locking and unlocking mechanism which controls the shaft acts upon a wheel, D, fixed on the shaft of the drum C. The hangers which support the drum and wheel are shown at 9, 10, and 11. The wheel D is provided with notches, into which drops a bar, *d*, pivoted underneath the car at the point 12. This bar extends to the front sufficiently to extend under the platform of the adjacent car, so that if that car drops it will depress the free end of the lever and raise the other end out of the notch in the wheel D. When so raised, the lever releases the drum C, lets free the joint *c*, and allows the springs 6 and 7 to cause the jaws *b b* to close, and, thus opening the jaws *a a*, releases the coupling. As the chain *c* is always under tension when wound upon the drum, it draws upon the lever *d*, and that lever is provided with a suitable support by letting it so slide in the hangers at 10 and 11. Thus any accident, as the derailing of the car or the breaking of an axle, which causes the body of the car to drop, will release it from the adjacent car and prevent it from dragging that car also from the track. For further security I provide means for applying the brake automatically. At the same time to accomplish this I place upon one of the axles a drum, E, and near I mount in suitable hangers underneath the car-frame a shaft, *e*, having a fixed pulley, *f*, and loose pulley *g*. A lever, *h*, pivoted for horizontal movement on the under side of the car-frame, is provided with a bar, *k*, carrying pins 13 and 14. The other end of the lever *h* is connected to an arm, 18, on the arm of the jaw *b*. Therefore, when this jaw is opened outward by the springs 6 and 7, it pushes the band from the loose pulley *g* to the fixed pulley *f* and causes the shaft *e* to turn and to wind upon itself the chain *c*, thus putting on the brakes.

In order to allow the mechanism to release the brakes of the contiguous car, I provide a bell-crank lever, F, pivoted to move in vertical plane, and with its horizontal arm projecting over the free end of the lever *d* of the next car. The lower end of the vertical arm of this lever is connected by rod and chain over pulley 15 to rear end of one of the arms of the jaws *b*, so that the outward movement of this arm pulls back the vertical arm of the bell-crank lever and throws down the free end of

the lever *d*, which releases the mechanism of the next car and allows the brakes of that car to be put on. The levers *d* are formed with a hinge-joint, as shown at *n*, so that the end may be swung out of the way when the occasion requires.

The coupling may be formed with one end adapted to an ordinary draw-head. The means heretofore described are provided for the automatic uncoupling. To uncouple by hand from the platform, I provide levers *o* on the front of the platform, the handles of which project up within reach of the brakeman, and the lower ends of which are connected to the jaws by chains 19. These move only the jaws *a a*, and do not interfere with the automatic mechanism. I have also provided means whereby the automatic mechanism may be set in motion from the inside of the car. This consists of a chain, 15, attached to the inner end of the lever *d*, which chain is carried up in the inside of the car over any suitable pulleys, and within reach, so that the conductor may release the automatic mechanism from within the car.

I claim as my invention—

1. Jaws *a*, having rear extensions between the jaws *b*, and provided with spring 5, said jaws *b* having the rear extensions provided with a spring or springs, in combination with the chain *c* and drum C, devices for turning said drum, and a lever, *d*, adapted to lock said drum and to project under the end of the next car, whereby the drum is released in case of accident, substantially as described.

2. In combination with the jaws *b* and their rear extensions, a spring or springs, a pulley on the axle, a shaft adapted to wind up the brake-chain, a fixed and loose pulley on said shaft, a belt connecting these pulleys with the drum E, and devices connected to the rear extension of the jaw *b* for shifting the belt, substantially as and for the purpose set forth.

3. In combination with the lever *d*, a bell-crank lever, F, and the chain-connection between its lower end and the rear extension of the jaw *b*, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOSEPH his × mark. H. DUFFINS.

Witnesses:
I. E. MIDDLETON,
F. L. MIDDLETON.