

J. B. GRANGER.
CAR COUPLING.

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UNITED STATES PATENT OFFICE.

JAMES B. GRANGER, OF FRANKLIN, NEW YORK.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 492,328, dated February 21, 1893.

Application filed July 27, 1892. Serial No. 441,420. (No model.)

To all whom it may concern:

Be it known that I, JAMES B. GRANGER, a citizen of the United States, residing at Franklin, in the county of Delaware and State of New York, have invented certain new and useful Improvements in Automatic Car-Couplers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to automatic car couplers, and is specially an improvement on my coupler patented to me October 24, 1891, No. 462,078.

My present invention consists in a novel combination, comprising a novel tail pin, a novel construction of divided shank to which the coupling head, carrying the swinging jaw, is jointed; whereby convenience for applying the new coupler to the ordinary draw-timbers and irons, without changing the springs, is afforded.

It also consists, in combination with the cross supporting irons and the coupling head, of the tail pin, and the divided shank of the coupling head; the tail pin having a T-head and the shank, guides therefor of less length than the divided shank, this construction insuring the holding of the parts of the shank together, and admitting of the same being readily separated and withdrawn from the coupling head, as will be hereinafter described.

It also consists in a novel construction of the knuckle-joint of the movable part of the coupling head, whereby the connecting pin is relieved from strain and the strain thrown upon the shoulders of the coupling head.

It also consists in a novel construction of locking notched interlocking means, in lieu of a locking pin, whereby an even bearing on the jaw from top to bottom is secured. Under this construction the jaw is raised a certain distance until the teeth of the interlocking device coincide with the spaces on the coupling head, when the jaw can be forced open; and then when the jaw is closed the teeth are free to descend behind the teeth of the jaw, and the jaw descends by its gravity and becomes locked by the two sets of teeth abutting solidly against one another from top

to bottom of the head; and it also consists in a novel mechanism for raising the jaw out of its locked position and also for locking it open, and preventing the coupling of cars during the operation of switching the same.

In the accompanying drawings, Figure 1 is a front elevation of my improved coupler as it appears in its locked position; Fig. 2 is detail vertical, longitudinal section of the coupling as adjusted in Fig. 1. Fig. 3 is a similar section to Fig. 2, the coupling jaw being adjusted to its unlocked position. Fig. 4 is a horizontal section of the coupling. Fig. 5 is a detail view of a part of the coupling as adjusted when the jaw is locked. Fig. 6 is a similar view to Fig. 5, showing the jaw in its unlocked position. Fig. 7 is a partial vertical section of the coupling jaw and side elevation of the coupling head, the parts being in the position shown in Figs. 1, 2 and 5. Fig. 8 is a cross section of the T-head pin and the divided shank of the coupling head, and Fig. 9 is a perspective view of the T-head pin.

A in the drawings represents the longitudinal draft timbers; and A' the transverse sill timber of the car; B the coupling head provided with a movable coupling jaw C provided as usual with a vertical pin hole *a* for an ordinary coupling pin when a common link is used.

D D' is the divided shank; E E' transverse supporting irons or bearers clamped in position by bolts *b* and nuts *c*, as shown.

E is the T-head pin; G a guide-plug set in the rear iron E', and H a key for holding the pin in place and keeping the T-head in connection with the guides *d d'* of the shank. I the bumper springs placed between the irons or bearers E E'.

The coupling head B is constructed with knuckle joint rear projections *e e'* which fit corresponding joint sockets *f f'* in the meeting portions of the parts forming the shank D D'. This head is also formed with a front, upper knuckle joint projection *g* which fits a corresponding joint socket *g'* in the movable coupling jaw C, which jaw is connected by a pin *h* to the head B. The tail *i* of this jaw is slotted or notched and fits in a curved recess *j* of the head, thereby forming stop locking teeth K on it. In the head, between its top

and bottom, similar slots or notches are made and similar teeth K' formed, as shown. When the jaw is raised so that its teeth coincide with the notches in the head, the jaw can swing freely on its pin, and thus can be set for the automatic coupling operation; or can be locked open for switching of cars about the yard, or for any purpose.

In Figs. 1, 2, 4, 5 and 7, the coupling jaw is shown as locked after the coupling has been effected, its teeth being behind those of the jaw; thus the jaw is kept from becoming incidentally uncoupled; and in Figs. 3 and 6, the jaw is shown as raised, both its teeth coinciding with the notches or slots of the head; and thus adjusted the jaw is free to swing horizontally on its pin, and is in condition for the automatic coupling operation. This construction gives the jaw a firm support against the head when the strain of the load is upon the coupling, and removes said strain from the pin to the teeth of the head and jaw, thus rendering the coupling very strong and substantial.

In order to effect the adjustment of the jaw a vibrating or swiveling lever frame piece J is provided at the bottom of the jaw, and the jaw is fitted to slide on its pivot pin h , and said pin is fastened tight in an intermediate lug k of the head by means of a screw or key pin k' . The lower end of the pivot pin is formed with an eye h' , and in this eye the curved top cross bar of the lever frame piece is fitted loosely, while the lever frame piece is journaled at l in downwardly extending lugs m of the jaw.

In the lever frame piece a is fitted a vertical locking pin n , having its upper end notched to fit the lower curved end of the pivot pin, and its lower end provided with a connecting eye n' . To the eye of the locking pin n , a rod L extending from the side of the car is connected, and by turning and pulling upon the rod, the lever frame-piece can be made to swing from the vertical position shown in Fig. 1 to the horizontal position shown in Fig. 6. When the lever frame piece is drawn to the position shown in Fig. 6, the coupling jaw will be raised, as shown in Figs. 3 and 4, and its teeth made to coincide with the notches of the head, and the jaw can swing longitudinally on its pivot h , and the coupling can take place automatically; or by locking the adjusting lever, the jaw can be locked open

for switching cars about the yard; and when the lever frame has been manipulated, by thrusting upon it with the rod horizontally so as to force the teeth of the coupling jaw behind the teeth of the head, the coupling pin will descend by its gravity, and the lever frame will assume a vertical position, as shown in Figs. 1, 2, 5, and 7, and the coupling will be held firmly closed.

In order to connect the halves of the shank with one another, the guides d d' are formed on the respective halves, and these guides are fitted in grooves o formed in the construction of the T-head on the pin, and thus, when the reduced rear end of the shank is inserted into the bearing iron, the halves will be firmly held together. The separation of the halves of the shank from the head can readily be effected by shoving in the tail pin until the T-head clears the guides d , d' , then separating the rear ends of the halves, and drawing their joint ends out of connection with the knuckle joint portions of the head.

What I claim as my invention is—

1. The combination of the head, with the swinging and sliding coupling jaw, the said head and jaw being formed with notches and interlocking teeth, and the jaw with notches and interlocking teeth, and connected by a pivot pin and arranged to swing horizontally on said pin and slide up and down on the same substantially as described.

2. The combination with the notched and toothed head, and notched and toothed swinging and sliding coupling jaw, of the pivot pin and the lever frame piece provided with locking pin, substantially as described.

3. The combination of the coupling head, divided shank provided with guides and connected to the head by knuckle joints and the tail pin having T-head, and suitable supporting irons, substantially as described.

4. The combination of the divided shank, the head having notches and interlocking teeth, the horizontally swinging and vertically sliding coupling jaw having notches and interlocking teeth, and the vertical pivot pin, substantially as and for the purpose described.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

JAMES B. GRANGER.

Witnesses:

E. C. BARTLETT,
LEWIS F. RAYMOND.