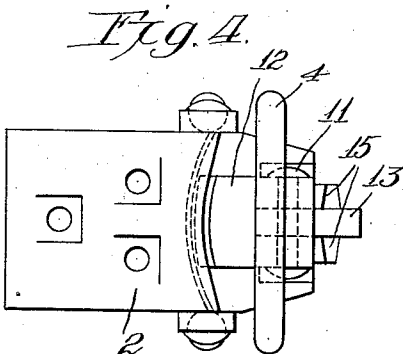
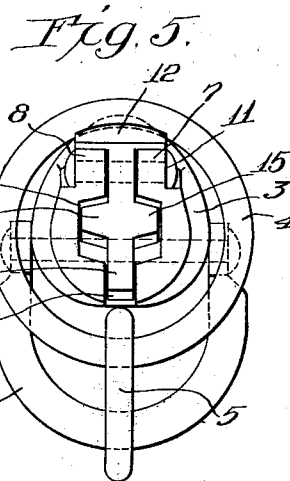
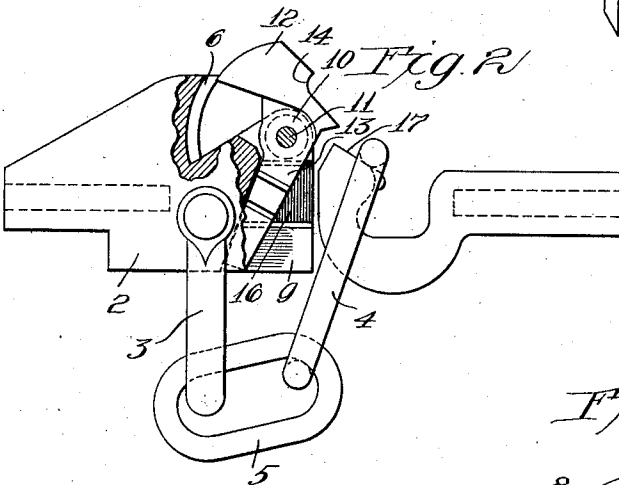
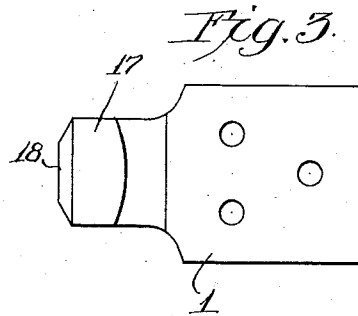
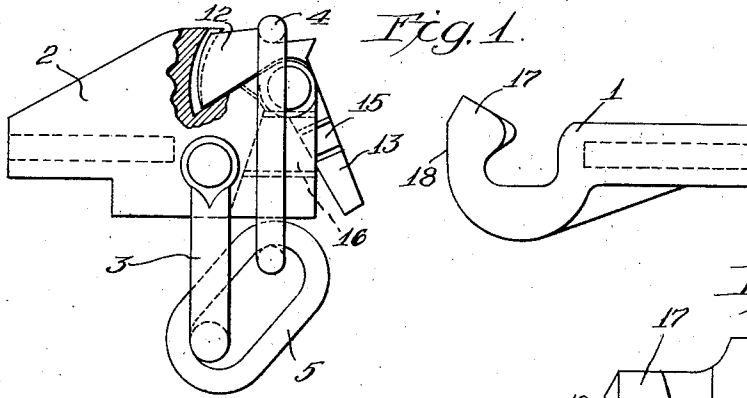


J. DUBOIS, S. NOVARIO & J. E. JONES.
COUPLING FOR MINING CARS.
APPLICATION FILED OCT. 25, 1912.

1,062,823.

Patented May 27, 1913.



Witnesses:
Harry S. Gaither
Ruth E. Gettewall

Inventors:
James Dubois,
Socorro Novario, Jr.
John E. Jones,
by Chamberlins, Preudenreich, Attys

UNITED STATES PATENT OFFICE.

JAMES DUBOIS, SECONDO NOVARIO, AND JOHN E. JONES, OF WESTVILLE, ILLINOIS.

COUPLING FOR MINING-CARS.

1,062,823.

Specification of Letters Patent.

Patented May 27, 1913.

Application filed October 25, 1912. Serial No. 727,750.

To all whom it may concern:

Be it known that we, JAMES DUBOIS, SECONDO NOVARIO, and JOHN E. JONES, citizens of the United States, residing at Westville, county of Vermilion, State of Illinois, have invented a certain new and useful Improvement in Couplings for Mining-Cars, and declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

Our invention has for its object to produce a simple and durable coupling mechanism for automatically coupling together mining cars or the like and adapted to respond efficiently to the various service conditions encountered in this field.

The various features of novelty whereby our invention is characterized will hereinafter be pointed out with particularity in the claims; but for a full understanding of our invention and of its object and advantages, reference may be had to the following detailed description taken in connection with the accompanying drawing, wherein:

Figure 1 is a side elevation of one of our improved couplers in uncoupled condition, a portion of one of the coupling members being broken away to show a part normally concealed; Fig. 2 is a view similar to Fig. 1 showing the parts in the act of coupling; Fig. 3 is a top plan view of the hook member of the coupler; and Figs. 4 and 5 are respectively a top plan view and a front elevation of the other member of the coupler.

Referring to the drawing, 1 represents a heavy hook of any suitable form adapted to be attached to a draw bar or directly to one end of a car in any suitable manner. 2 is a coupler head, also adapted to be attached to a draw bar or to one end of a car. In equipping cars with our improved couplers, each car will have arranged at one end one of the hook members and at the opposite end one of the coupler heads, so that as two cars are brought together in the proper end relation to each other, a coupler head will meet with one of the hooks.

On the coupler head is a heavy clevis, 3, to which are connected one or more links; there being preferably two links as illus-

trated. One of the links, 4, is preferably made in the form of a round ring large enough to be slipped longitudinally upon the coupler head from the front end of the latter, while the other link, 5, may take any suitable form which will adapt it to serve as a connecting device between the link 4 and the clevis. The top of the coupler head, at the front end thereof, is cut away to provide a recess, 6, while the front face of the coupler head is slotted at the center to provide two ears, 7 and 8, at the front end of the recess and a passage or channel, 9, extending downwardly from between the ears and opening out through the bottom of the head, if desired. Between the ears 7 and 8 lies the hub, 10, of a supporting and tripping dog for the main coupling link 4, the dog being secured in place by means of a pintle, 11, extending horizontally through the ears and the hub. The dog comprises an upper part, 12, projecting rearwardly from the top of the hub and a stem, 13, projecting downwardly from the hub; the member 12 being adapted to lie and move within the recess, 6, and the stem being adapted to swing within the channel 9. The parts are so proportioned that normally the dog assumes or tends to assume the position illustrated in Fig. 1, the upper member 12 being seated within the recess, 6, and the stem projecting out beyond the front end of the coupler. The member 12, or what may be termed the head of the dog, is made comparatively wide and has a step-formation in its upper face; the front half being lower than the rear half to provide a forwardly-facing vertical face or shoulder, 14, and being curved to conform to the curvature of the main coupling link so as to provide a secure bearing seat for the main coupling link when the latter is placed in position for coupling as will hereinafter be described. Furthermore, the upper face of the dog is preferably so shaped as to have a downward inclination from the front edge to the shoulder 14 when the dog is in the position of rest. The proportions are further such that when the dog is in its normal position of rest and the main coupling link is slipped over the front end of the coupler head and is allowed to rest on the head of the dog in engagement with the shoulder 14, the weight of the main coupling link and of the connecting link is added to the weight of the head of the dog

to overbalance the dog and hold it in its position of rest with the center of gravity of the movable parts at a considerable distance behind the axis about which the dog may swing. Consequently, the link is
 5 securely supported and is in no danger of accidental displacement between the time it is set and the time the coupling is made. When the dog is swung out of its position
 10 of rest so as to bring the front edge of the stem flush with or behind the front face of the coupler head, the point of support of the link on the dog travels forward past the axis of rotation of the dog and therefore a leverage is afforded through which the
 15 weight of the two links can act to swing the dog around far enough to let the link slide off.

In order to increase the effective width of the stem of the dog, it may be provided with lateral projections, 15, between its ends, these projections traveling through a widened portion, 16, of the channel 9; thus insuring a tripping engagement between the
 20 dog on one car and the hook member on another car when two cars are brought together to make a coupling in the manner now to be described.

When it is desired to couple two cars together, the main coupling link is slipped
 30 over the coupling head and upon the dog as indicated in Fig. 1 and, when the hook on the next car approaches the coupling head the front face of the hook strikes the stem
 35 of the dog and swings it back into the channel; causing the head of the dog to be swung forwardly into a position to permit the link to slide off. The upper face of the end of the coupling hook is preferably inclined
 40 downwardly from the outer end toward the inner end, as indicated in Fig. 1, so that when the coupling link leaves the dog it drops down upon this inclined face and naturally drops into operative relation upon
 45 the hook. In Fig. 1 the parts are illustrated in the positions which they occupy just before the two members of the coupler come together, while in Fig. 2 the parts are shown in the positions which they occupy during
 50 the short interval between the time the coupling link drops from the dog and the time it comes to rest in the hook; the link being shown in the act of sliding down the inclined face, 17, on the hook. As soon as
 55 the dog is released from the weight of the coupling links, it swings back to its position of rest indicated in Fig. 1.

It will thus be seen that by reason of the peculiar arrangements of parts illustrated,
 60 the coupler may be set so as to be ready for automatic coupling with the assurance that the parts will not accidentally be disturbed by being jarred out of position; that the act of coupling will be completed upon bringing
 65 together the two cars, regardless of whether

the contact between the two members of the coupler is gentle or violent, a gentle contact sufficient to swing the stem of the dog back into the channel being sufficient to make the coupling, while a more violent contact serves
 70 equally well, acting simply to accelerate the movement of the link into engagement with the hook. By making the stem of the dog of considerable length inequalities in the
 75 heights of the couplers above the rails is of no importance because some portion of the stem of the dog on one car will always lie in the path of the front face of the hook on the other car. Similarly, the widening of the
 80 stem by means of the projections, 15, insures that there will be sufficient contact between the dog and the hook member of the coupler on a curve or where one or both members of the coupler are out of alinement to make cer-
 85 tain that the coupling will be effected. After the coupling has been made there is great elasticity in the connection between two cars and either of the two cooperating coupling members may move vertically or
 90 horizontally, relative to the other, within a considerable range and, furthermore, a train of cars may be drawn around sharp curves without in any way interfering with the efficient operation of the coupler. It will
 95 also be seen that when the coupling is first made, there is considerable slack in the connection between cars, on account of the links and clevises, thus permitting one car in a train after another to be set in motion and making it possible to start a train with much
 100 less power than would be necessary if all the cars had to be started simultaneously or substantially so. If it be desired, the coupling hooks and coupler heads may be used as bumpers so as to do away with other bump-
 105 ers, or they may be used in connection with other bumpers. In order that the coupler hooks may serve as bumper members, they may have their front faces flattened as indicated at 18, thereby giving a face of con-
 110 siderable area for engaging with the adjacent face of the opposing coupler head.

While we have illustrated and described with particularity only a single preferred form of our invention, we do not desire to be limited to the exact structural details thus
 115 illustrated and described; but intend to cover all forms and arrangements which fall within the terms employed in the definitions of our invention constituting the appended
 120 claims.

We claim:

1. A car coupler comprising a coupler head and a coupler hook, a dog pivoted on the coupler head and comprising an upper
 125 head member and a lower stem member adapted to project in advance of the coupler head in position to be engaged by said hook, and a flexible member connected to the coupler head, and a link large enough to sur- 130

round the front end of the coupler head and rest upon the head member of the dog secured to said flexible member.

2. A car coupler comprising a coupler head and a hook, a dog pivoted on the front end of the coupler head and comprising an upper head member and a lower stem member adapted to project in advance of the coupler head so as to be engaged and swung back by the hook when the coupler head and hook are brought together, a link large enough loosely to surround the front end of the coupler head and rest upon the head member of the dog, and a flexible member connected at one end to the coupler head and at the other end to said link.

3. A car coupler comprising a coupler head and a cooperating hook, a flexible member connected at one end to the head and having at its opposite end a substantially circular link, and a dog mounted on said head, and having a link-supporting position and a tripping position, said dog having a part adapted to be engaged by the hook when the dog is in its link-supporting position and to be moved thereby in a position to drop the link over the hook.

4. A car coupler comprising a hook and a coupler head having a substantially cylindrical front end, a dog pivoted within the front end of said head and having an upper link-supporting part and a lower stem adapted to project in advance of the coupler head so as to be engaged by said hook when the head and hook are brought together, and a flexible member connected to the coupler head and having at its end a substantially circular link large enough loosely to surround the front end of the head and overlie said link-supporting part of the dog, the parts being proportioned and arranged to cause the link to be dropped down over the hook by said dog when the hook engages the stem of the dog and forces it back.

5. A car coupler comprising a hook and a coupler head, said coupler head having a recess cut in the top thereof and extending inwardly from the front edge and having also a central vertical slot cut in the front face and communicating with said recess, a dog having a head member lying in said recess and a stem member projecting downwardly in the slot, means for pivotally supporting the dog on the coupler head, the parts being so proportioned and arranged that the head member of the dog normally overbalances the stem member and causes the dog to swing outwardly with the stem projecting beyond the front end of the coupler head, the head member of the dog having in the top thereof a link-receiving seat arranged at some distance behind the pivotal axis of the dog when the dog occupies its normal position, and a flexible member con-

nected to the coupler head and having a link large enough loosely to surround the front end of the coupler head and rest in said seat on the dog.

6. A car coupler comprising a coupler head and a coupler hook, a dog pivoted at the front and near the top of the coupler head and comprising an upper rearwardly-extending member and a lower downwardly-extending stem member adapted to project in advance of the coupler head in position to be engaged by said hook, said head member having a link-supporting seat so positioned that in one angular position of the dog the seat is behind the pivotal axis of the dog while in another angular position said seat lies in front of said axis, and a flexible member connected to the coupler head and including a link large enough to surround the front end of the coupler head and rest upon the seat on the head member of the dog.

7. A car coupler comprising a coupler head and a cooperating hook, a flexible member connected at one end to the head, a substantially circular link connected to the other end of said flexible member, and a dog pivotally mounted on said head and having a link-supporting position and a link-delivering position, said dog having a part adapted to be engaged by the hook when the dog is in its link-supporting position so as to cause the dog to be swung into its link-delivering position and permit the link to drop over the hook, said link being large enough completely to surround the coupler head and the part on the dog adapted to support the link.

8. A car coupler comprising a hook and a coupler head having a substantially cylindrical front end, a dog pivoted within the front end of said head and having an upper rearwardly-extending supporting part and an elongated lower stem adapted to project in advance of the coupler head so as to be engaged by said hook when the head and hook are brought together, said stem being widened at a point between its ends and a flexible member connected to the coupler head and having at its end a substantially circular link large enough loosely to surround the front end of the head and overlie said link-supporting part of the dog, the parts being proportioned and arranged to cause the link to be dropped down over the hook by said dog when the hook engages the stem of the dog and forces it back.

9. A car coupler comprising a hook and a coupler head, said coupler head having a recess cut in the top thereof and extending inwardly from the front edge and having also a central vertical slot cut in the front face and communicating with said recess, a pivoted dog having a head member lying in said recess and a stem member project-

ing downwardly in the slot, the parts being
so proportioned and arranged that the head
member of the dog normally overbalances
the stem member and causes the dog to swing
5 outwardly with the stem projecting beyond
the front end of the coupler head, the head
member of the dog having in the top thereof
a link-receiving seat so disposed as to lie
behind the pivotal axis of the dog when the
10 dog occupies its normal position, and in
front of the said axis when the dog is in a
link-delivering position, and the upper face
of the dog being so disposed that it inclines
downwardly from the front end toward said
15 seat when the dog occupies its normal posi-

tion and inclines downwardly from said seat
to the front end of the dog when the latter
occupies said link-delivering position, and
a flexible member connected to the coupler
head and having a link large enough loosely 20
to surround the front end of the coupler
head and rest in said seat on the dog.

In testimony whereof, we sign this speci-
fication in the presence of two witnesses.

JAMES DUBOIS.
SECONDO NOVARIO.
JOHN E. JONES.

Witnesses:

ED. KOEPKE,
W. H. KOEPKE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."