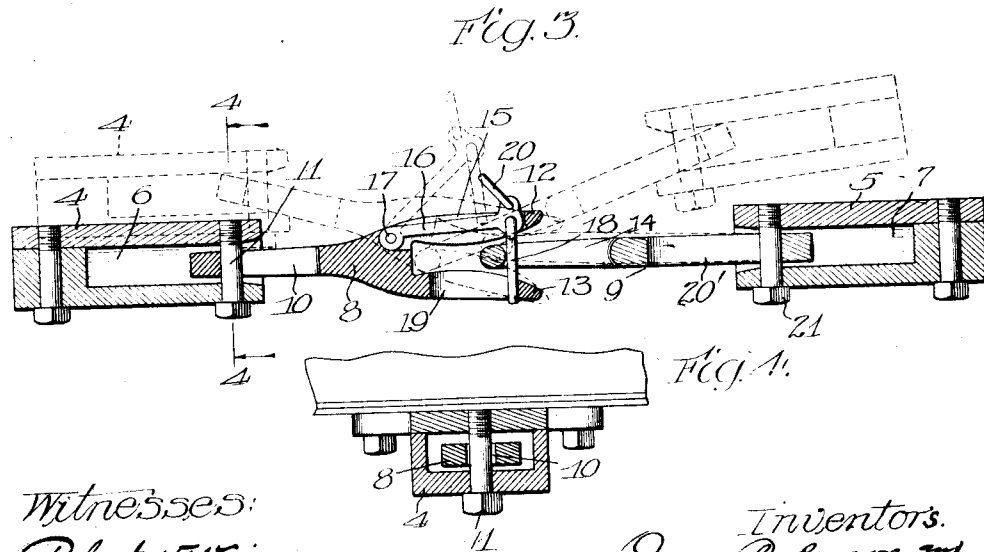
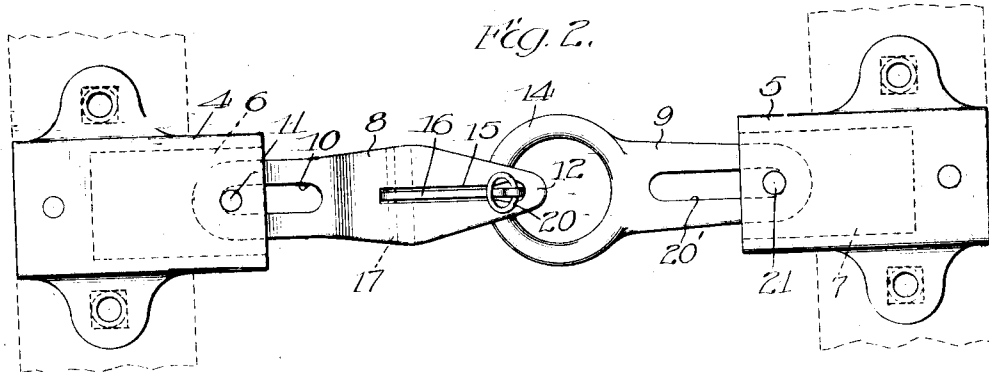
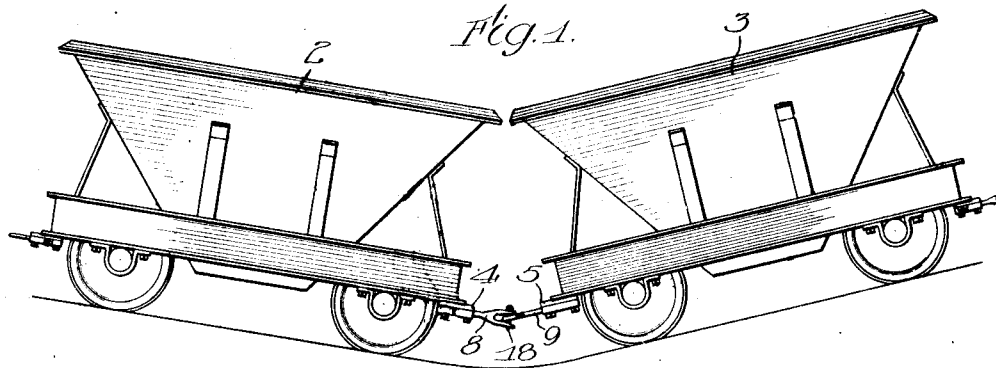


O. & C. ANDERSON.
MINE CAR COUPLING.
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1,051,536.

Patented Jan. 28, 1913



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UNITED STATES PATENT OFFICE.

OSCAR ANDERSON AND CHARLES ANDERSON, OF BITUMEN, PENNSYLVANIA.

MINI-CAR COUPLING.

1,051,536.

Specification of Letters Patent.

Patented Jan. 28, 1913.

Application filed April 5, 1909. Serial No. 487,852.

To all whom it may concern:

Be it known that we, OSCAR ANDERSON and CHARLES ANDERSON, of Bitumen, Clinton county, Pennsylvania, have invented certain new and useful Improvements in Mini-Car Couplers, of which the following is a specification.

Our invention relates to car couplers and has particular reference to couplers adapted for service under the peculiar conditions which exist in a mine.

The general objects of the invention are to provide a simple and serviceable coupling particularly adapted for cars which must travel over very uneven tracks with sharp bends, violent dips and risers, and which under these conditions will not cause the derailing of the cars; to provide improvements in couplings which contemplate doing away with a waste of time and labor involved in the ordinary use of couplers where electric motors are used to move the cars; to provide a coupling free from springs or other comparatively delicate parts not adapted for use in a mine where the atmosphere is damp and the cars must often travel through water, all of which would cause such parts to rust and be destroyed; to provide a coupling adapted to withstand severe usage such as couplers are exposed to by falling of chunks of ore, coal and the like; and to provide a coupler construction the cost of which will not be such as to prevent its adoption in such service.

With the above named general objects in view our invention consists in the novel construction, combination and arrangement of parts hereinafter described in detail, illustrated in the drawing and incorporated in the appended claim.

In the drawings—Figure 1 is a side view of two mine cars coupled together with a coupler embodying our invention. Fig. 2 is an enlarged plan view of the coupler. Fig. 3 is a longitudinal section in side elevation, the dotted lines indicating the freedom of movement of the couplers. Fig. 4 is a section taken substantially on lines 4--4 of Fig. 3.

In the several views 2 and 3 represent a couple of mine cars provided with draw-

heads 4 and 5. These draw-heads which are substantially alike are provided with boxes or pockets 6 and 7 for the respective coupling members 8 and 9. The inner end of the member 8 is slidably mounted within the pocket 6. This is accomplished by providing said member 8 with elongated slot 10 which is engaged by a bolt 11 passing vertically through the box of pocket 6. This bolt may be fastened in any suitable manner, as for instance, by having threaded engagement with upper wall of the pocket as shown in pockets 6 and 7, where the bolt is also shown inverted, or inserted from below, the upper threaded end being flush with the upper surface of the boxes 4 and 5. The forward end of the member 8 is tapered forwardly and formed into jaw members 12 and 13, between which jaw members the opening is flared as shown in Fig. 3 to insure the ready engagement with the companion member which is an eye or ring 14. This eye or ring 14 is made sufficiently large to permit the jaws 12 and 13 to dip through the ring either upwardly or downwardly. In the upper surface of the jaw 12 is a vertical slot 15 which contains a bar 16 pivoted at 17 at the end of the slot. To the forward end of the bar is pivoted the upper end of the coupling, pin 18 which is hung on the free end of the bar so as to swing freely in the vertical plane parallel to the longer axis of the coupling member 8. The lower jaw 13 is also provided with a vertical slot 19 in which the lower end of the coupling pin may swing freely toward the rear and it is held against swinging out of vertical position forwardly by the end of the slot 19. The forward end of the coupling pin bar 16 is provided with a ring or hand-grip 20 for the convenience of the operator in lifting the pin out of engagement with the ring 14. Like the coupling member 8 the member 9 is provided with a vertical slot 20' which is engaged by a bolt 21 mounted and secured in substantially the same manner as the bolt 11.

The object of the longitudinal movement of the coupling members in the pockets 6 and 7 is to facilitate the starting of a train of cars. In other words, make it easier for

the motor to start said cars, as the mining laws do not allow the mine owner to use a high voltage of electricity in the mines. The maximum allowed is usually 500 volts only. Another object of these pockets or boxes is to force the coupling members near enough into alinement to cause the pin 18 to engage the ring 14 even when one member happens to be swung sidewise or angularly to the limit of its angular movement to one side while the opposite member is similarly swung to the opposite side, as when the members are fully drawn out as in Figs. 2 and 3. This alinement is accomplished automatically by the large ring contacting with any portion of the member 8, as one side of the ring striking the bottom of the opening between the jaws of the companion member. Such contact would force both coupling members into their pockets and the sides of the latter would then force the coupling members toward alinement with each other at least sufficiently to effect engagement between coupling pin and ring 14. After the coupling members have thus been pushed together in coupling up the cars, there would then remain the slack between the cars represented by the lengths of the slots 10 and 20' and the inside diameter of the ring 14, which would enable a comparatively weak motor to start the cars of a train one by one. After being thus started our improved coupler has substantially the same advantages, as to flexibility, as if a chain were used to connect the pins 11 and 21 and the additional advantage that at sharp curves the pull from 11 to 21 would not be in a direct line, which would tend to pull the cars off the track, but the coupler with its three joints at 11, 21 and 18, would tend to conform somewhat to the curvature of the track; that is (looking at Fig. 2 for instance) the coupling member 9 would swing on its pivot a part of the distance, or until the side of the coupler came into contact with the side of the pocket 7. The other member would yield partly to the same extent and the pin 18 would be free to slide to and pull at one side of the ring 14, thus approximating the result of shifting the pull of the forward car from, say, pin 11 to one side of the pin 21, or hitching said pin 11 to the corner of the following car which is at the inside of the curve. While our improved coupler is not capable of hitching together the near corners of adjoining cars, which would make an ideal connection to prevent derailling, it does yield sufficiently in that direction to prevent derailling under all the ordinary conditions in mines. Mine cars are particularly susceptible to derailment on account of inadequate couplers, by reason of the fact that they are usually constructed to dump

endwise and to that end the forward and rear axles are placed very near together. Thus a car eight feet in length may have its axles only two feet, or less, apart at the middle of the car. Another object of the horizontal boxes or pockets 6 and 7, aside from the function of providing for slack and automatic alinement and engagement of the coupling members, is to protect these members, especially in their movements, against interference from chunks of coal or ore dropping on them. When the cars are pushing each other as when traveling down hill or backing up, the usual bumpers (not shown in these drawings) on the cars relieve the coupling members from all strain, in the usual manner. In a mine the rails of the mine track are usually farther apart than the axles of each individual car and especially in going down hill the cars tend to swing from side to side owing to the unevenness of the track, and freedom for such movements is provided by the large ring 14, thus relieving the coupling members from the leverage that would otherwise be imposed upon them and which has broken many of the old forms of coupling heretofore in use. This is the function of the ring when it is held rigid by the members 8 and 9 being forced into their sockets or pockets 6 and 7. Our construction and arrangement of coupling members thus provides for side play whether the cars are pulling or pushing, for longitudinal play or starting slack, for a great degree of lateral or angular adjustment to enable the ring and pin 18 to engage when the cars are very much out of line, to cause any kind of endwise contact of the coupling members to throw them automatically sufficiently into alinement with each other to effect engagement automatically, to shift the pulling strain from a drawing car to a drawn car on a line lateral to the center line of said drawn car for the purpose stated, to insure the presence of the coupling pin at all times and its automatic engagement, etc., and all through a form of construction which is simple and does not involve complicated mechanisms liable to breakage or disarrangement.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

The combination with a pair of socket-members, of a coupling-member slidably engaging each of the socket of said socket-members, said sockets permitting increasing lateral movement of the coupling-members as the latter move out of said socket-members and decreasing said lateral movement to substantial rigid alinement with the sockets of the coupling-members by the latter's inward movement into its respective socket,

a pair of jaws on one of said coupling-members, a large ring on the other coupling-member to be engaged by said jaws, a coupling-pin on said jaws arranged to engage
5 said ring, and means limiting the outward movement of each coupling-member relative to its socket member.

In testimony whereof we have hereunto

set our hands in the presence of two subscribing witnesses.

OSCAR ANDERSON.
CHARLES ANDERSON.

Witnesses:

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R. H. KESSLER