N. MANDABACH.

MINING CAR COUPLING.

APPLICATION FILED OCT. 7, 1918.

1,298,238.

Patented Mar. 25, 1919.

2 SHEETS—SHEET 1.

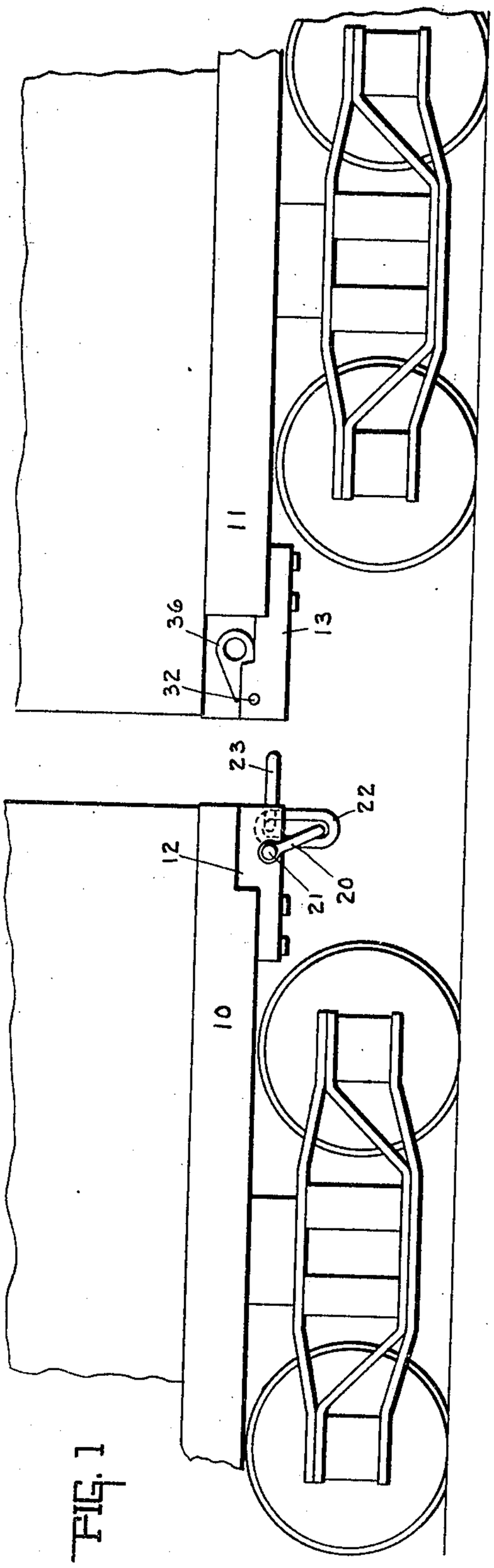

FIG. 1

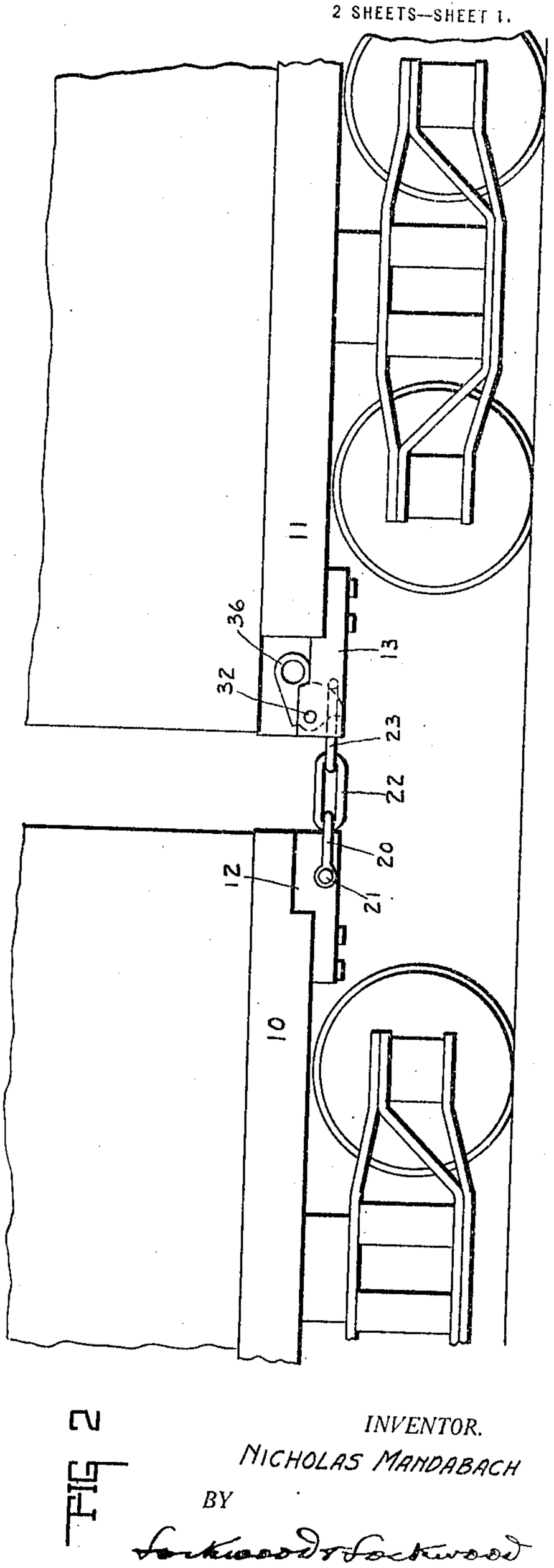

FIG. 2

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2 SHEETS—SHEET 2.

FIG. 5

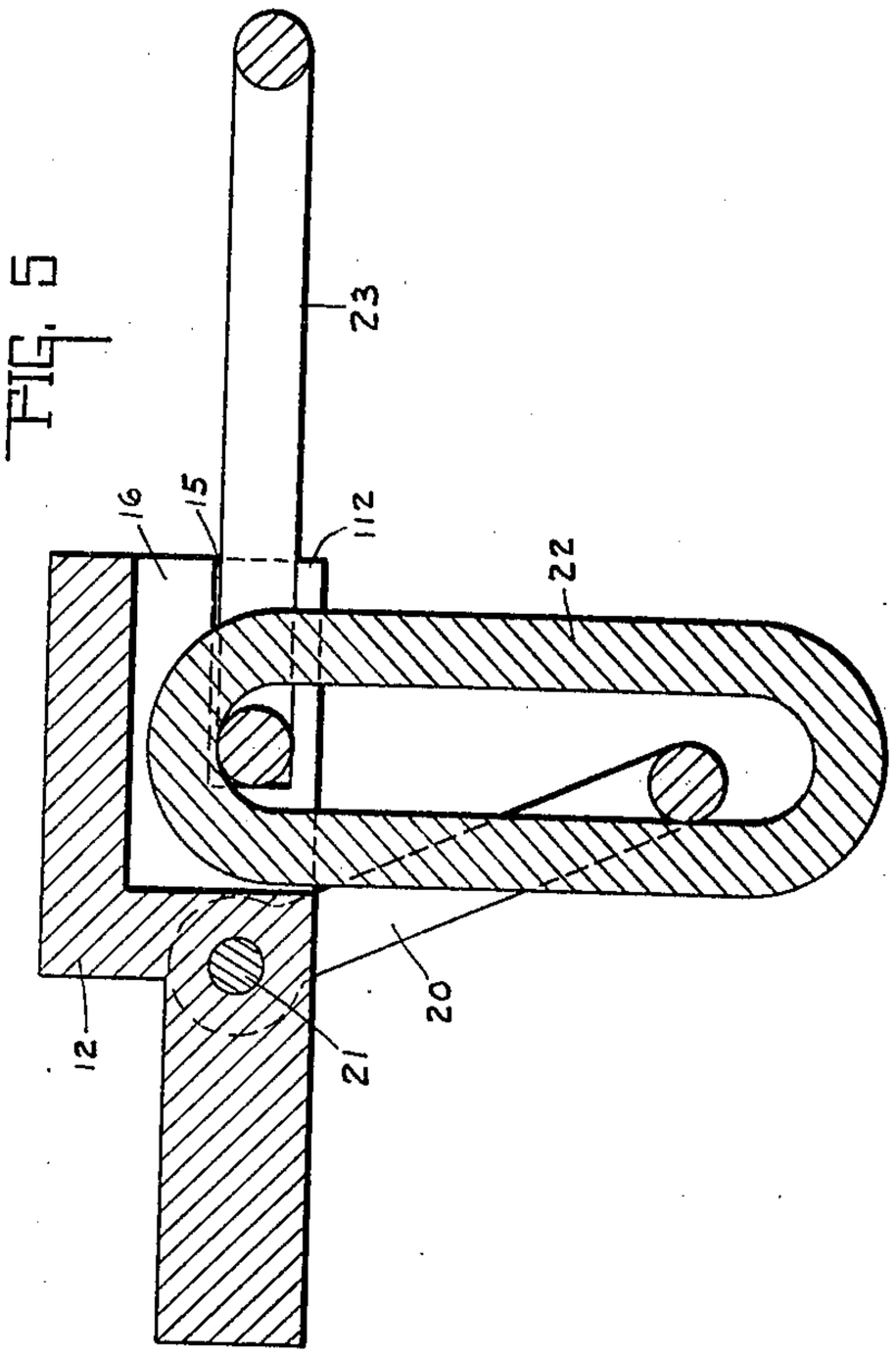


FIG. 6

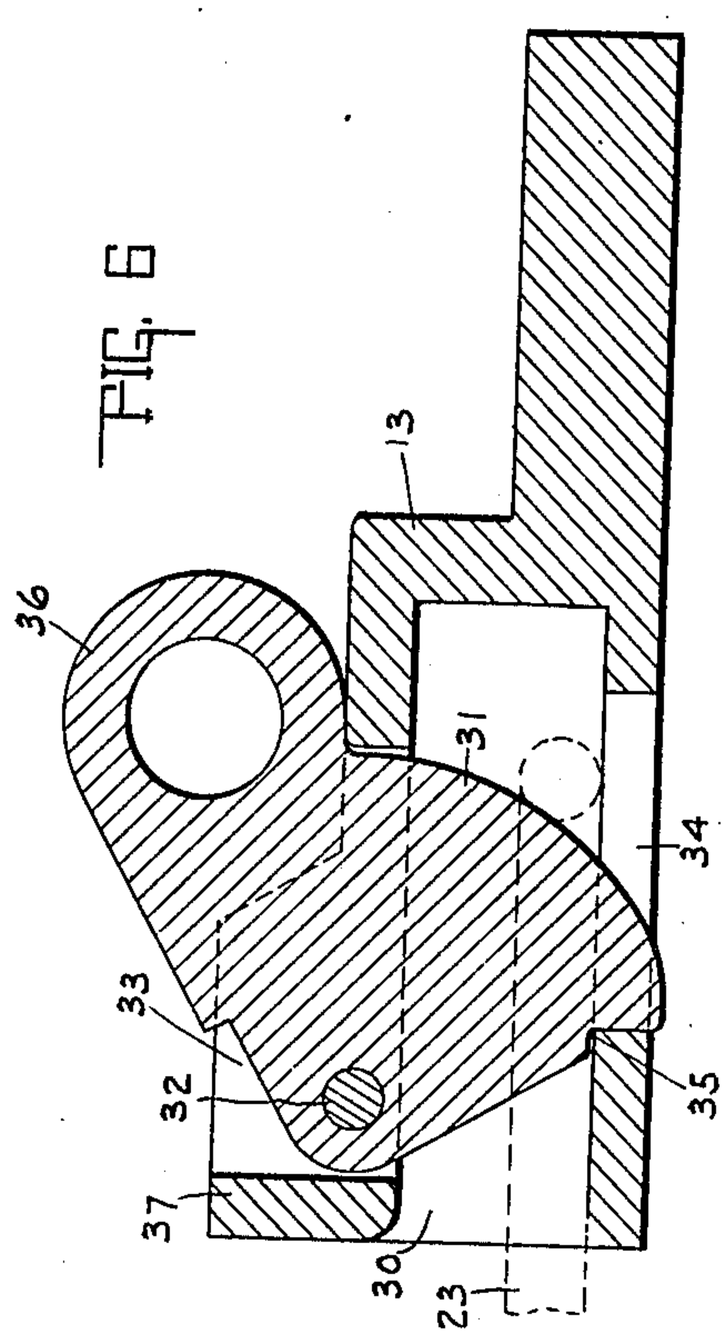


FIG. 3

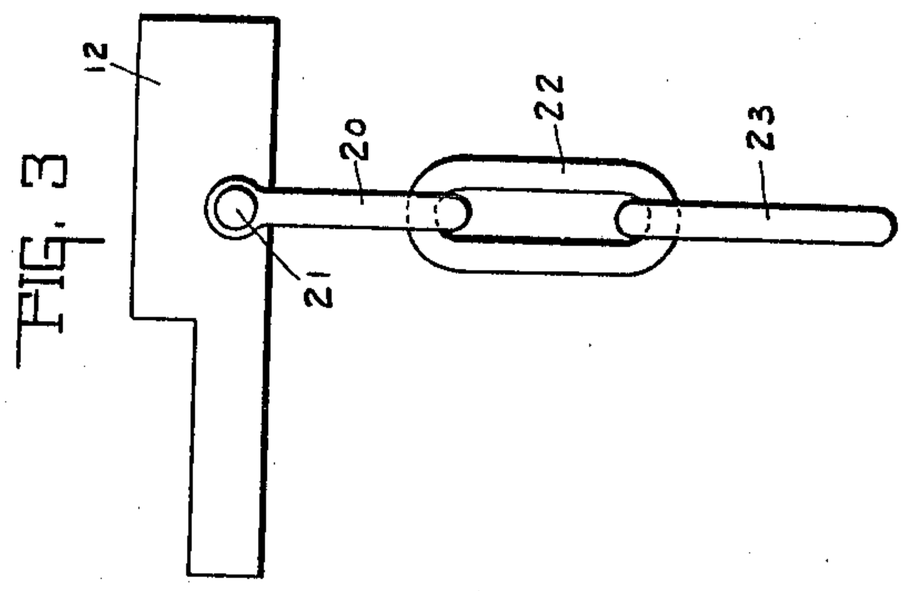
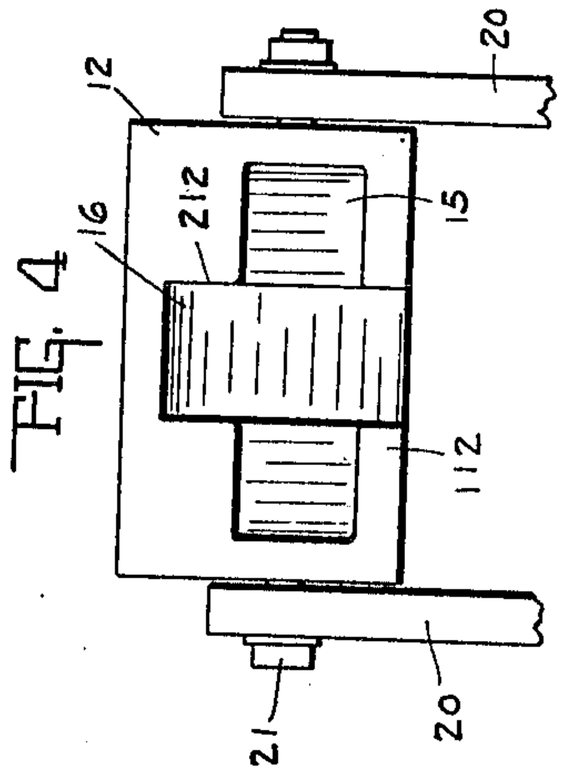


FIG. 4



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UNITED STATES PATENT OFFICE.

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MINING-CAR COUPLING.

1,298,238. Specification of Letters Patent. Patented Mar. 25, 1919.

Application filed October 7, 1918. Serial No. 257,304.

To all whom it may concern:

Be it known that I, NICHOLAS MANDABACH, a citizen of the United States, and a resident of Vincennes, county of Knox, and State of Indiana, have invented a certain new and useful Mining-Car Coupling; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like numerals refer to like parts.

The object of this invention is to provide a practical coupling mechanism for mining cars, which will couple automatically, and prevent injury to trip riders, and which will not break if one car happens to get off the track while coupled, and in which the coupling means will not project beyond the car when uncoupled, so as to interfere with the elevation of the car through the shaft.

A feature of this invention consist in providing a flexible coupling having a plurality of links and a draw bar arranged so as to support said links when ready for coupling with the outer link projecting horizontally so as to automatically couple with the other member of the coupling on the other car, and, when pulling, said outer link will be withdrawn from the draw bar and the flexible coupling will extend full length, and when uncoupled the flexible coupling will hang down from and under the draw bar.

The foregoing and other features of this invention will be more fully understood from the accompanying drawings and the following description of claims.

In the drawings, Figure 1 is a side elevation of the adjacent ends of two mining cars with parts ready to be coupled, the remaining parts of the cars being broken away. Fig. 2 is the same with the cars coupled and pulling. Fig. 3 is a side elevation of the draw bar on one car with the flexible coupling member suspended therefrom in its position after the cars have been uncoupled. Fig. 4 is an end elevation of the draw bar and portions with which it is connected, parts being broken away and parts omitted. Fig. 5 is a central, vertical, longitudinal section with the draw bar and flexible coupling member, with the links of said coupling member in their position ready for coupling. Fig. 6 is a similar section of the other draw bar and coupling member on the other car.

To illustrate this invention there is shown herein portions of two mining cars 10 and 11 to which draw bars 12 and 13, respectively, are secured in any suitable manner. So far as this invention is concerned it is immaterial just what may be the construction of the cars or draw bars, excepting in the particulars hereinafter specified.

The draw bar 12, with which the flexible coupling member is connected, is provided in its outer end with a horizontal recess 15, and a vertical recess 16 in a plane midway of the horizontal recess. The horizontal recess is wider than the vertical recess, so as to have bottom walls 112. The vertical recess is higher than the horizontal recess and extends entirely through the bottom of the draw bar and therefore it has vertical side walls 212, and it also extends rearwardly beyond the recess 12, as seen in Fig. 5.

The flexible coupling member, as is herein shown, consists of a clevis 20 pivoted by the pins 21 to the draw bar, so that the clevis fits astride the draw bar and to the rear of the recess 16. A link 22 is connected with the clevis 20, so as to be in a plane longitudinally of the draw bar, and the link 23 is connected with the link 22, so as to assume a position in a plane transversely of the draw bar as seen in Fig. 3.

It is immaterial how many links are in this flexible coupling member, provided there are at least two besides the clevis.

When the trip driver desires to place the flexible coupling member in position for automatically coupling, he inserts the rear end of the outer link horizontally into the recess 15, so that the side members of the link will be supported horizontally by the bottom walls 112, of said recess, and said link 23 will project forwardly as shown in Fig. 5, in position to enter the recess of the draw bar on the other car, when the cars are bumped together for coupling.

When the link 23 is placed in its recess 15, such action will at the same time insert the upper end of the intermediate link 22 into the recess 16, as shown in Fig. 5, then the link 22 will be suspended in vertical position hanging on the inner end of link 23. To accomplish this result, the link 22 is preferably somewhat longer than the clevis 20, so that when the link 22 is in the position as shown in Fig. 5 ready for coupling, the clevis 20 will lie loosely in connection with said link.

The coupling 13, on the other car, has a recess 30 in position to receive the outer end

of the link 23 when the cars are bumped together for coupling. Any suitable coupling member may be associated with the draw bar 13 to engage and couple the link 23 therewith, but it should be an automatic arrangement and preferably that herein shown in Fig. 6, which is a gravity coupling member 31, in the form of a plate substantially triangular shape and pivoted in its upper front corner by transverse pin 32 in the vertical slot 33 in the top of the draw bar. This enables the coupling member 31 to be rocked into and out of coupling position. The lower end of said coupling member is adapted to enter and extend through slot 34 in the bottom wall of the draw bar, and engage the shoulder 35 of the bottom wall of the draw bar during the pull. The upper end of the coupling member 31 has a finger piece or extension 36, so that said coupling member can be rocked by hand or a tool into the upper position for disengaging it, the link 23 being stopped in such upper movement by engaging the transverse wall 37 of the draw bar; and when the coupling member 31 is released, gravity will automatically return it to the coupling position as shown in Fig. 6. When in such coupling position its outer edge inclines downwardly and rearwardly as shown in Fig. 6, so that during the coupling of the two cars, the link 23 will enter the recess 30 and push against the inclined forward edge of the coupling member 31 and rock it up out of the way until the link 23 has passed in and beyond the coupling member 31, whereupon said coupling member 31 will automatically return by gravity to the coupling position shown in Fig. 6 and complete the coupling of the two cars.

From the foregoing explanation it will be apparent that the cars can be automatically coupled by merely bumping them together, when using the coupling apparatus herein shown. The trip driver merely places the flexible coupling member in the position shown in Fig. 5 for that purpose and when the cars have bumped together the coupling will be complete. When the cars are pulled the flexible coupling member will be drawn out its full length as shown in Fig. 2. When uncoupled the flexible coupling member will hang down as in Fig. 3, which is important because it is necessary that there be no extension at the end of the car to interfere with the side walls of the shaft as the car is being elevated from the mines.

If a car should happen to get off the track, which is a very common occurrence in mines, the coupling would not be broken or injured because it is flexible and relatively long and it could be readily uncoupled in such an event by merely rocking the coupling 31. Also there would be no opportunity for the cars to be uncoupled by coal falling from the shafts thereof upon the coupling members.

The invention claimed is:—

1. Coupling mechanism for cars including a chain coupling member, a draw bar to which one end of said coupling member is attached and provided with means for holding the outer link of said coupling member in horizontal position and projecting outwardly substantially for the purpose set forth.

2. Coupling mechanism for cars including a flexible coupling member formed of a clevis and an intermediate link and an end link, and a draw bar with which the clevis is connected in transverse position and provided with means for supporting the end link in horizontal position and projecting outwardly, substantially as and for the purpose set forth.

3. Coupling mechanism for cars including a flexible coupling member having a plurality of links, and a draw bar with which one end of the coupling member is connected, said draw bar having a horizontal recess in the outer end and above the bottom thereof to receive the inner end of the outer link and hold it in horizontal position and projecting outwardly, and a vertical recess extending through the end and bottom of said draw bar for receiving the outer end of the second link, when the end link is inserted in said draw bar, substantially as set forth.

4. Coupling mechanism for cars including a flexible coupling member having a plurality of links, and a draw bar with which one end of the coupling member is connected, said draw bar having a horizontal recess in the outer end and above the bottom thereof to receive the inner end of the outer link and hold it in horizontal position and projecting outwardly, and a vertical recess extending through the end and bottom of said draw bar for receiving the outer end of the second link when the end link is inserted in said draw bar, said vertical recess being located centrally of the horizontal recess and extending rearwardly thereof.

In witness whereof I have hereunto affixed my signature.

NICHOLAS MANDABACH.