

No. 887,299.

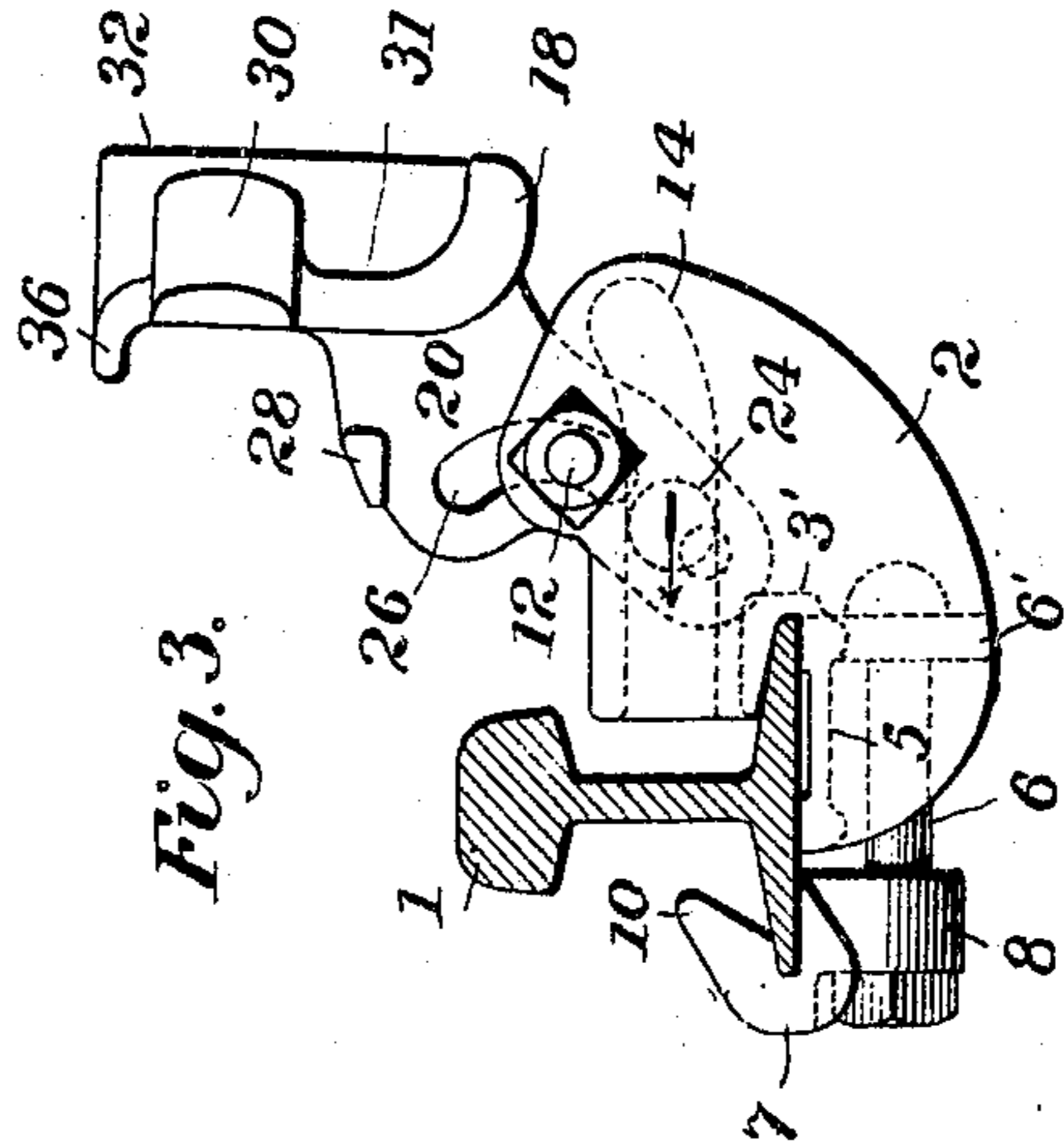
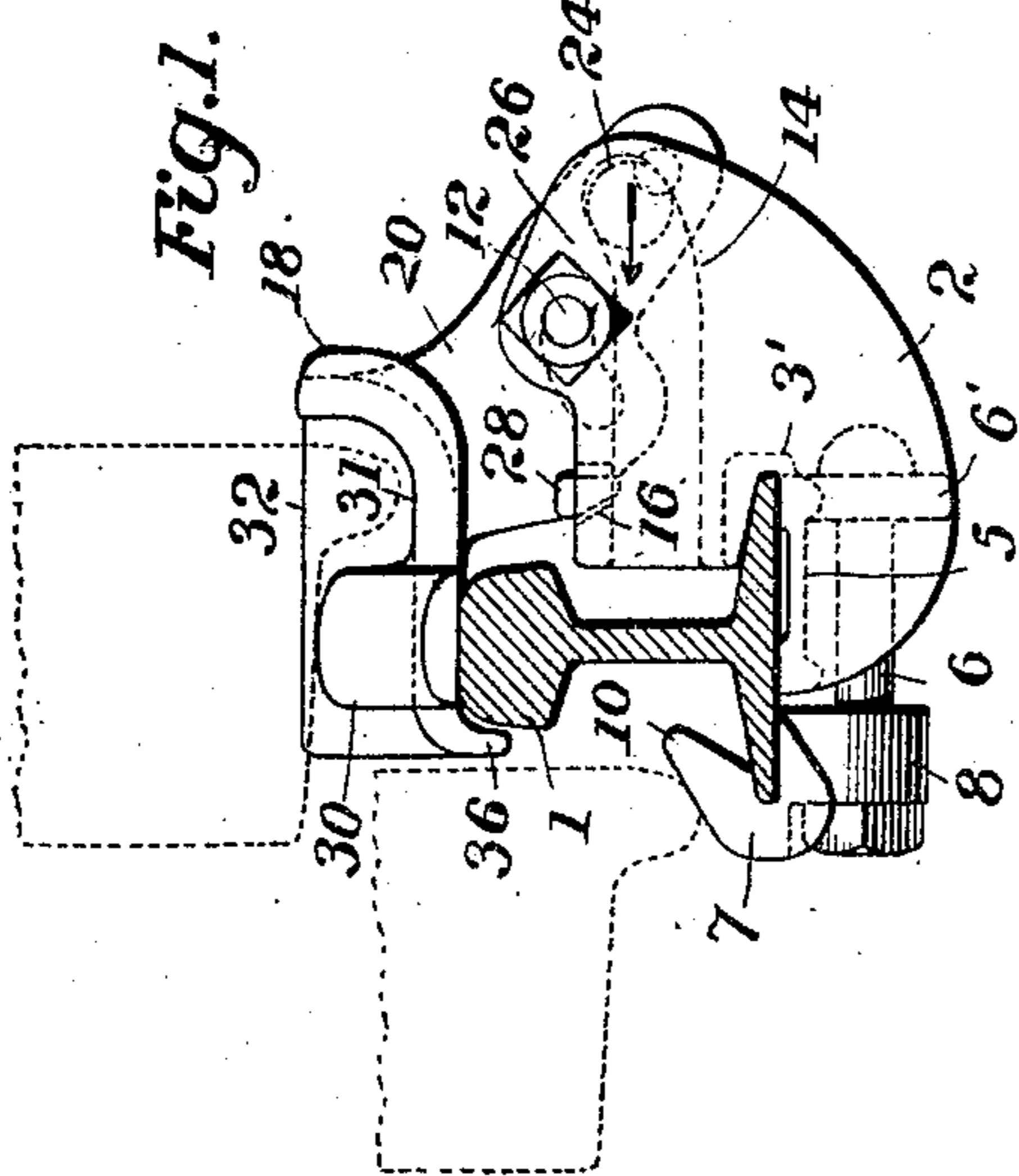
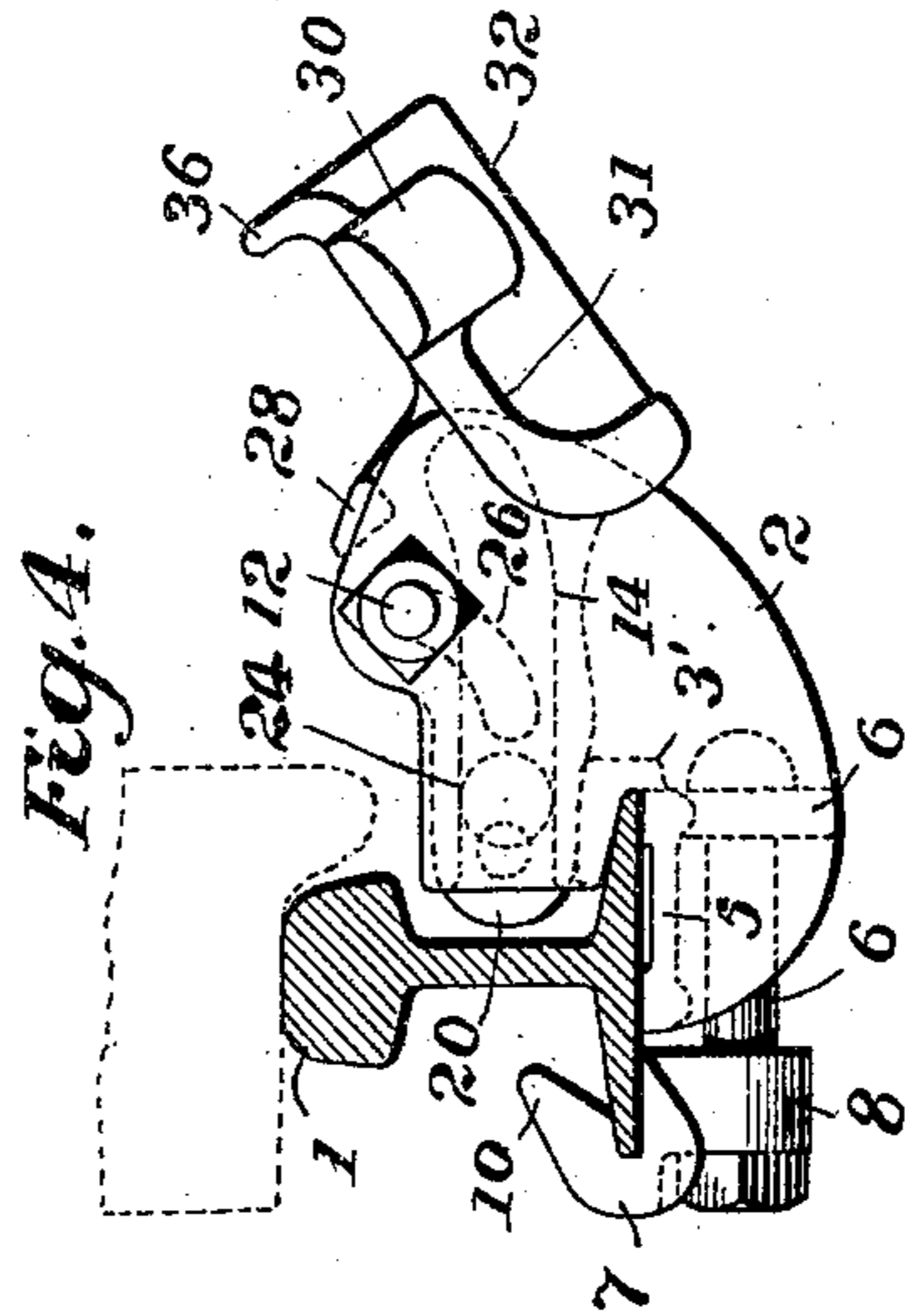
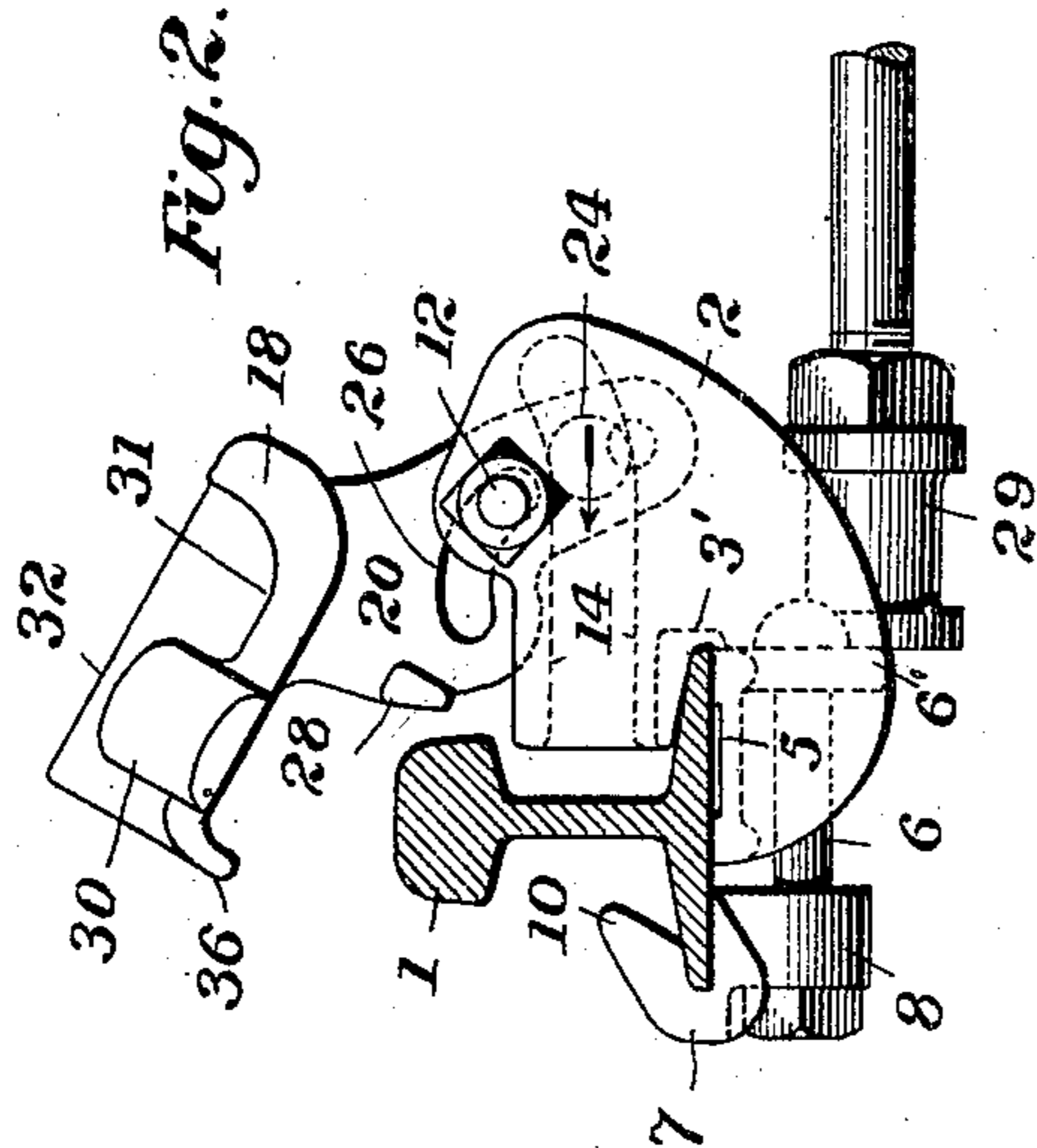
PATENTED MAY 12, 1908.

E. H. ALLFREE & W. H. ENGLAND.

DERAILER.

APPLICATION FILED AUG. 28, 1907.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 5.

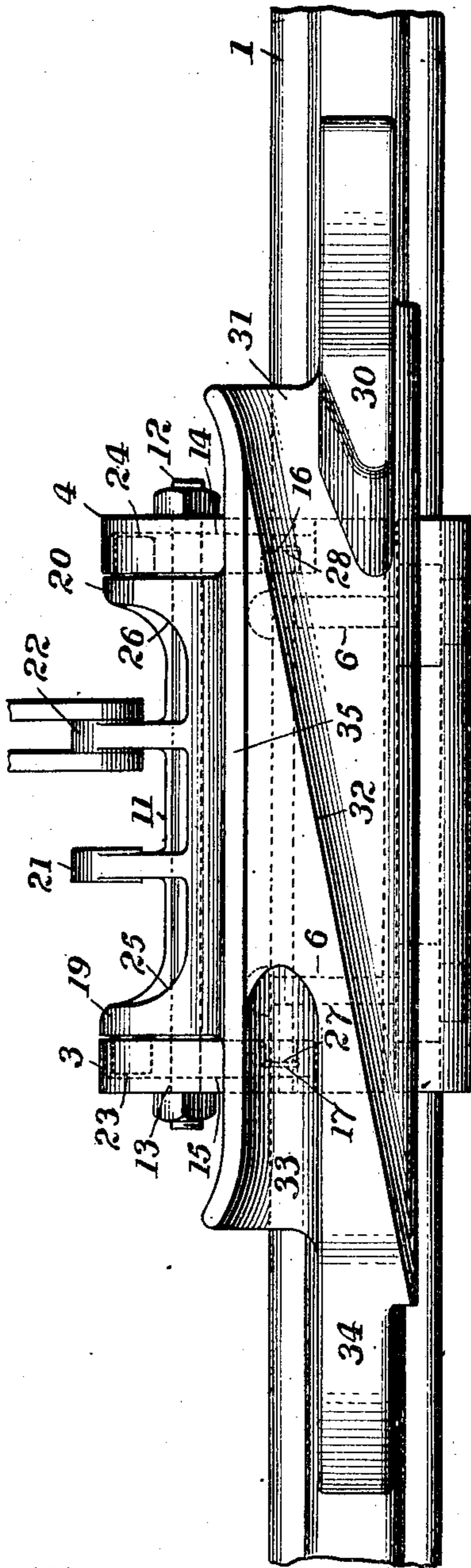
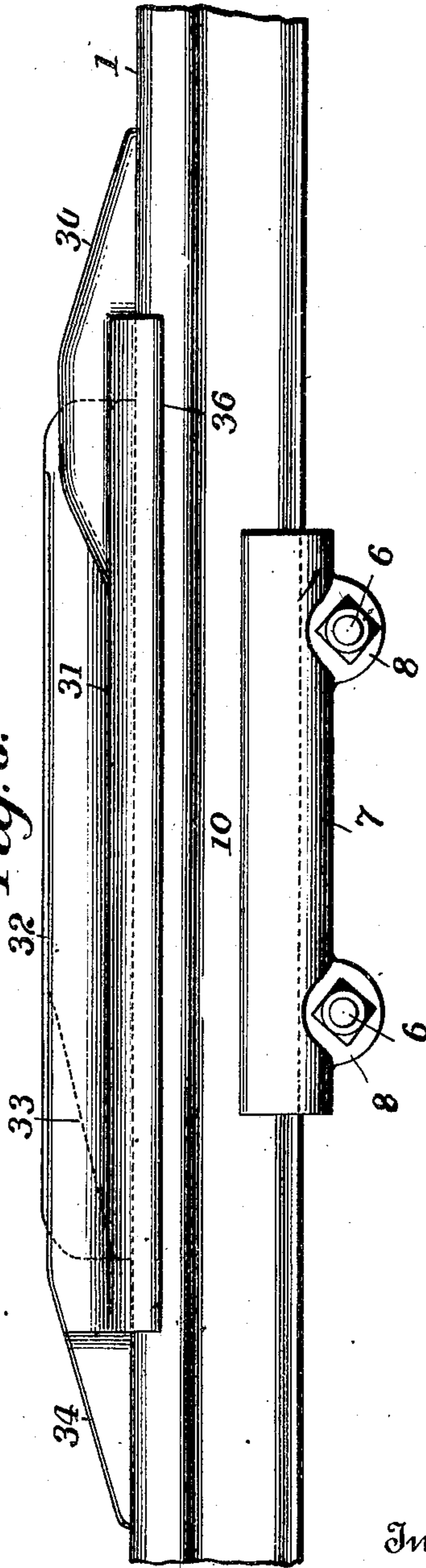


Fig. 6.



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# UNITED STATES PATENT OFFICE.

EDWIN H. ALLFREE AND WILLIAM H. ENGLAND, OF CHICAGO, ILLINOIS.

## DERAILER.

No. 887,299.

Specification of Letters Patent.

Patented May 12, 1908.

Application filed August 28, 1907. Serial No. 390,502.

*To all whom it may concern:*

Be it known that we, EDWIN H. ALLFREE and WILLIAM H. ENGLAND, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Derailers, of which the following is a specification.

Our invention relates to improvements in derailing devices of the type adapted to lift the wheels of a car from the rail and guide them diagonally away therefrom.

The objects of the invention are, first to provide a derailer so arranged that a car may safely run backward over it without derailment; second, to construct an efficient device of the type described which may be entirely supported for operation from the bottom flange of the rail; third, to provide an improved operating mechanism constructed as disclosed with a tumbling motion for disposing the device in operative or idle position at will.

Further objects are to provide increased efficiency and durability of the apparatus, ease of manipulation thereof, and other advantages which will more fully appear hereinafter.

The invention consists in structural embodiments of the above features and in a specially effective relative arrangement of parts, all of which will be more particularly described in the following specification and then clearly pointed out in the appended claims.

Referring to the accompanying two sheets of drawing in which the same reference characters refer to the same parts in the several figures: Figure 1, is a side elevation of the device clamped to a rail and in operative position thereon; Fig. 2, is a like view showing the initial movement of parts in throwing the derailer to idle position; Fig. 3, is a similar view showing a further movement, while Fig. 4, shows the device resting in idle or inoperative position when as appears a wheel may pass without touching the derailer; Fig. 5, is a plan view of the device in position on a rail; and Fig. 6, is a front elevation showing the derailer as it appears from the outside of the track.

At 1 is shown a section of a rail having secured thereto the bracket 2 of our improved derailer. This bracket is preferably composed of two projecting arms 3, 4, having rail engaging portions 3', bolt lugs 6' and a

connecting rib 5 therefor, this latter forming the bracket into one solid piece. The bracket 2 has arranged to co-act therewith for clamping it upon the rail a clamp piece consisting of a rail fitting portion 7, bolt lugs 8, 8, and an inclined angular portion 10, this latter being for a purpose hereinafter explained. The said bracket and clamp piece are firmly engaged with opposite sides of the rail flange by means of clamp bolts 6, which may be of a length to accommodate different sizes of rails or different sets of bolts may be substituted as is obvious to enable a wider range of adjustment. The arms 3, 4, of the bracket 2 are provided with a fulcrum bolt 11, secured in holes 12, 13 therein and extending between the arms. Said arms are further provided with channels 14, 15 on their inner side faces and with slots 16, 17 in their upper edges all for the purposes hereinafter made plain. The derailing piece 18 carries two supporting arms 19, 20 and two operating arms 21, 22. It is arranged to swing with a tumbling movement between the bracket arms 3, 4 and for this purpose the supporting arms 19, 20 are provided with lugs 23, 24 arranged to engage and move in said channels 14, 15, and with curved slots 26 arranged to receive the said fulcrum bolt 11 and guide the derailing piece thereon in its movement. The supporting arms 19, 20 of the derailing piece are further provided with projections 27, 28, so disposed thereon that they will engage with the slots 16, 17 when the derailing piece is in operative position and thus securely hold said piece against lateral movement towards the rail.

The changes in relative position of the parts in shifting the derailing piece from operative to inoperative position are clearly shown in Figs. 1 to 4. Starting with the derailing piece on the rail as in Fig. 1, it will be seen that a pressure exerted in the direction of the arrow upon an operating arm 21 or 22 will cause the lugs 23, 24 to slide along the channels 14, 15 while the bolt 11 held stationary in the bracket supports and guides the derailing piece by means of slots 25, 26. Said bolt 11 therefore forms a fulcrum or pivoted point upon which the derailing piece moves with a combined revolving and sliding motion or what might be called a tumbling action passing successively from the position of Fig. 1, through the positions shown in Fig. 2, and Fig. 3 to the final position of Fig. 4.

To close the derailer piece upon the rail in derailing position, the process is of course reversed.

It will be seen that the necessary movement of the operating rod attached at 21 or 22 is small compared with the total movement given the derailing piece which is of considerable advantage on account of keeping within the standard movement of switch stands, interlocking plants, etc. At the same time it will be seen from Fig. 4, that the derailing piece is thrown entirely clear of and below the track, providing ample clearance for passing cars. It will be further seen that in starting the derailing piece from either of its final positions, Fig. 1 or Fig. 4, the lifting movement is at first quite slow, making the action easy to start, but after the action is started it picks up rapidly, and the derailing piece is thrown over quickly. This feature together with the fact that after the derailing piece passes over its central position the movement is augmented by its own weight, makes an easily operated derailer and one which is thoroughly reliable in its action. The ordinary switch rod connection may be bent to proper shape and attached to the operating arms 21, 22 or the special connection 29, shown in Fig. 2, may be used and the switch rod screwed into it from either side of the rail. Two operating connections are shown, but any number may be used according to what signal connections, interlocking connections, etc., it is desired to use.

By our improved means for applying and securing a derailer to the bottom flange of the rail it will be apparent that the derailer will be held in correct position more rigidly and permanently and will not be affected by the shifting of crossties as may be the case with derailers which are spiked to ties. Considerable latitude is also afforded with regard to size and shape of rails since as noted the bracket can be clamped to any width of rail base by lengthening or shortening the clamp bolts 6, or by providing bolts long enough for the wide rail bases, and simply adjusting to fit the narrow rail bases. It will be noted that the clamp 7 is so designed that the nuts of bolts 6 fit into recesses therein and when a wheel is derailed it falls upon the inclined part 10 which tends to throw the wheel out away from the rail, thus protecting the clamp bolts and taking away undue strain from the clamp due to the wheel dropping upon it.

Our improved construction of the active portion of the derailing piece 18 constitutes an important feature of the invention and this we will now proceed to describe.

On the derailing piece there is an inclined portion 30 at the front end, a guideway 31, a deflecting rib 32, a grooved inclined guideway 33 at the tail end, an inclined portion 34 at the tail end, a deflecting or guiding ridge

35 and a lip or flange 36 which fits over the outside of the rail to hold the derailing piece in place. It is apparent that a wheel approaching from the front will mount the incline 30, its flange passing along up the guideway 31 and by engagement with the deflecting rib 32 said flange will be diagonally guided off the rail. It will be further seen that a wheel approaching from the tail end will mount the rear incline 34, its flange engaging and running up the grooved guideway 33 until finally it rides over the rib 32 down into the front guideway 31 and incline 30 safely to the rail again, the while being guided and restrained from dropping off by the parallel ridge 35, thus enabling a car to pass over the derailer in a rearward direction without derailment. The derailing piece is effectively held against accidental movement, the bracket arms 3, 4 holding it against slipping lengthwise while the lip 36 by engaging with the head of the rail and the lugs 23, 24 engaging the ends of channels 14, 15 prevent lateral movement away from the rail and the projections 27, 28 on the arms of the derailing piece engage the slots 16, 17 of the bracket preventing lateral movement towards the rail. In this way the derailing piece is held rigidly in its derailing position and is secure against movement in any direction thus making its action thoroughly safe and reliable even for the heaviest railroad equipments.

We do not desire to limit ourselves to the exact construction shown, as there are many variations from the design shown which would produce substantially the same results, as for example, channels 14, 15 and slots 26 could be straight instead of curved as shown; two lugs engaging the slots 26 could be used instead of the bolt 11; and numerous ways of fastening the device to the bottom of the rail could be substituted.

Having now fully described our invention what we claim as new and desire to secure by Letters Patent is as follows:—

1. A derailing device comprising a supporting bracket, means for securing the same to a rail, a derailing piece carried by said bracket and means for swinging and tumbling said derailing piece to operative or inoperative position at option.

2. A derailing device comprising a supporting bracket, a clamp for securing the same to a rail, said clamp having an inclined guiding and protecting portion extending substantially from the vertical plane of the outer side of the rail head, a derailing piece movably mounted on said bracket and means for throwing the same to operative or inoperative position.

3. A derailing device comprising a supporting bracket having lateral arms and an intermediate web, a clamp for securing said bracket to a rail said clamp having an outer

inclined guiding and protecting portion extending substantially from the vertical plane of the outer side of the rail head, a derailing piece movably mounted on said bracket and means for operating the same.

4. A derailing device comprising a supporting member, a derailing piece and a connection therebetween, and means constructed and arranged with said connection to give a swinging and tumbling movement to the derailing piece.

5. A derailing device comprising a supporting member and a derailing piece supported for swinging and sliding movement thereon at two transverse points, and means for giving a tumbling motion to said derailing piece.

6. A derailing device comprising a supporting member having arms, channels formed in said arms, and a pivot secured thereto, and a derailing piece having lugs to engage said channels and extended slots to be engaged by said pivot whereby a tumbling motion will be imparted to said derailing piece.

7. A derailing device comprising a supporting bracket having lateral arms, channels formed in the inner faces of said arms, a fulcrum bolt secured to and extending between said arms and a derailing piece having lugs to engage said channels, and arcuate slots to be engaged by said bolts whereby a tumbling motion will be given to said derailing piece.

8. A derailing device comprising a supporting bracket having lateral arms, ways formed in said arms, a pivot secured to said arms, transverse slots formed in said arms, and a derailing piece having lugs to engage the said ways, curved slots to be engaged by said pivot and projections to engage said transverse slots in said bracket arms whereby to lock said piece against lateral movement.

9. A derailing device comprising a supporting member and a derailing piece mounted for movement thereon, said derailing piece having a front incline, a forward guideway, an oblique deflecting rib extending across said derailing piece, a rear incline, and means to prevent derailment of a wheel passing up from the rear.

10. A derailing device comprising a member adapted to be placed upon a rail and having means for elevating a wheel thereto from the front, a deflecting member extending obliquely across said member upon the rail, means for elevating a wheel thereto from the rear, and means to prevent derailment of a wheel elevated from the rear.

11. A derailing device comprising a mem-

ber adapted to be placed upon a rail and having means for elevating a wheel thereto from the front, an oblique deflecting member extending across said member upon the rail, means for elevating a wheel thereto from the rear and a parallel rib to prevent derailment of a wheel elevated from the rear.

12. A derailing piece comprising supporting arms and an operative face, said face having means for elevating a wheel from the front, an oblique deflecting member extending across the operative face, means for elevating a wheel thereto from the rear and means for restraining a wheel elevated from the rear against derailment.

13. A derailing device comprising a bracket forming one member of a rail clamp, a co-acting member adapted to clamp said bracket to a rail flange and a derailing member movably mounted on said bracket and means for swinging and tumbling said derailing member in operative or idle position at option.

14. A derailing device comprising a bracket forming one member of a rail clamp, a co-acting member adapted to clamp said bracket to a rail flange and a derailing member mounted to swing on said bracket, said derailing member and bracket having connections to impart a tumbling movement to said member.

15. A derailing device comprising a bracket formed to fit a rail flange, a co-acting member to clamp said bracket to the rail, and a derailing member arranged to have a tumbling movement on said bracket, said derailing member having a front incline, an oblique deflecting rib, a rear incline and means to prevent derailment of a wheel passing up from the rear.

16. A derailing device comprising a bracket formed to fit a rail flange, and adapted to be clamped to a rail, said bracket having lateral arms spaced apart, and a derailing piece supported by said arms and arranged for tumbling movement thereon.

17. A derailing device comprising a bracket forming one member of a rail clamp, a co-acting member adapted to clamp said bracket to a lower rail flange, a derailing member pivotally mounted on said bracket to swing at right angles to the rail and means for swinging said derailing member in operative or idle position.

In testimony whereof we affix our signatures in presence of two witnesses.

EDWIN H. ALLFREE.

WILLIAM H. ENGLAND.

Witnesses:

JOSEPH WILSON,

C. H. WARDEN.