Feb. 13, 1923. 1,445,116

W. M. VENABLE

STOP MECHANISM FOR CABLEWAY CARRIAGES

Filed June 3, 1919 4 sheets-sheet 1

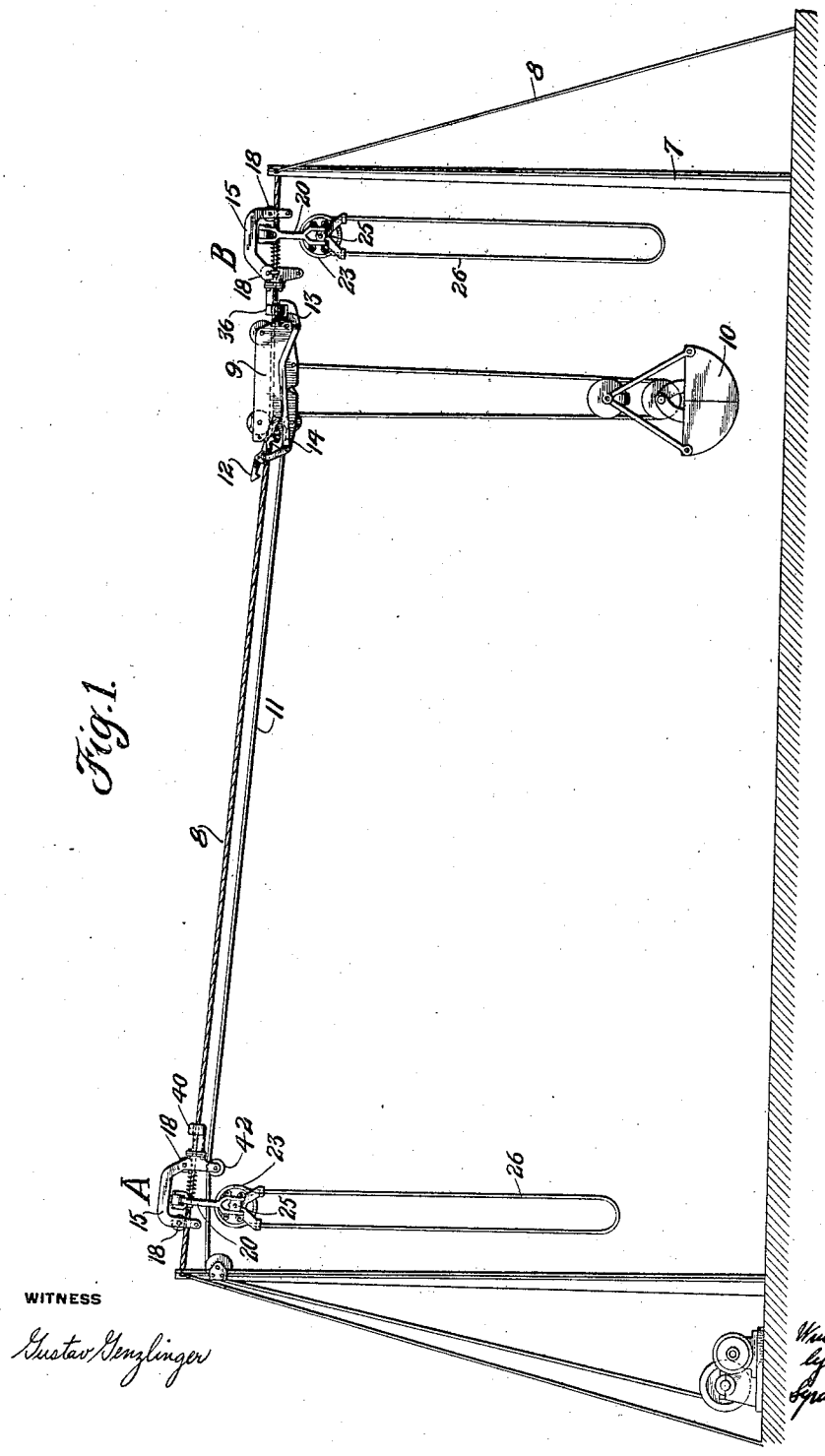


Fig. 1.

WITNESS

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STOP MECHANISM FOR CABLEWAY CARRIAGES

Filed June 3, 1919 4 sheets-sheet 2

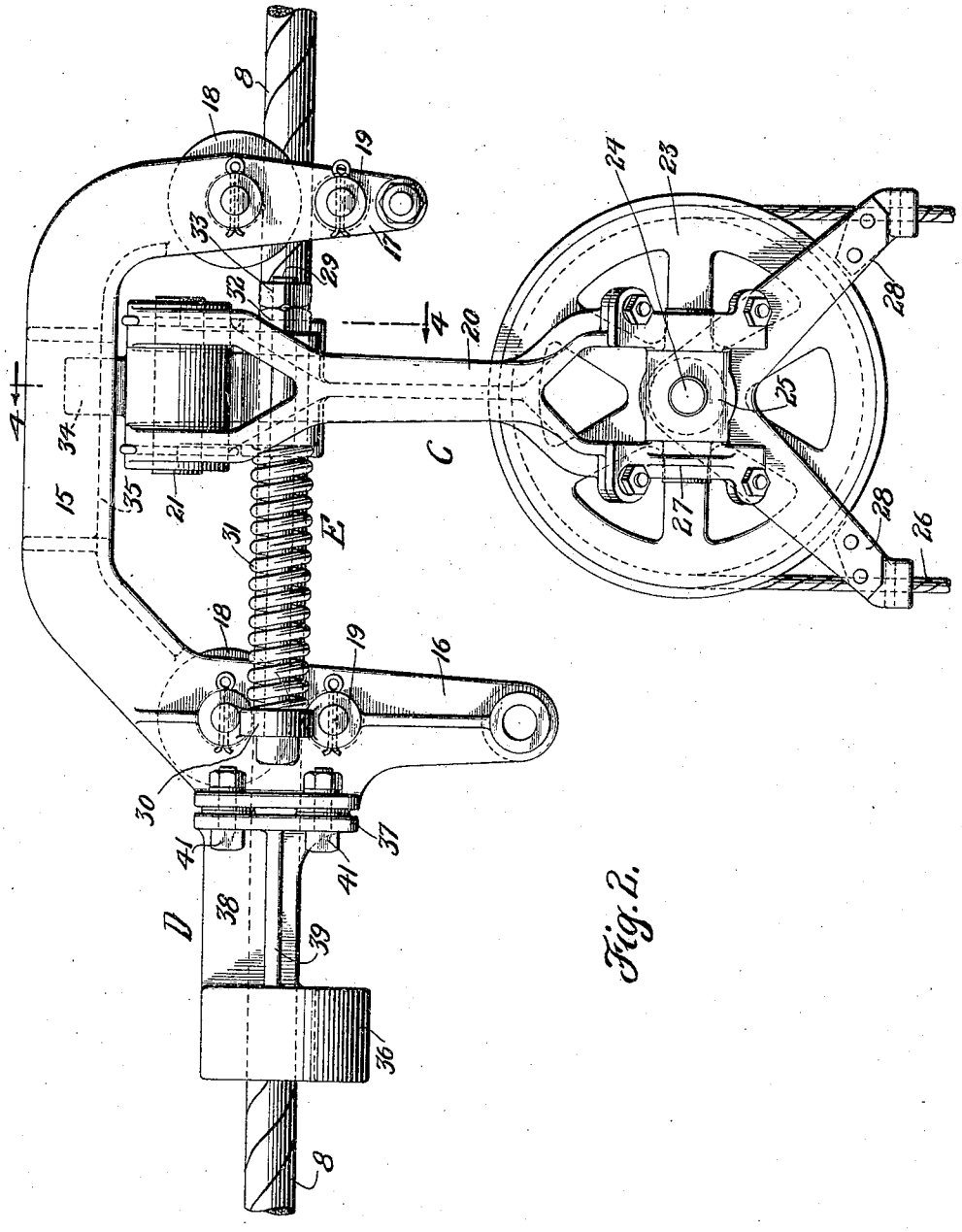


Fig. 2.

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STOP MECHANISM FOR CABLEWAY CARRIAGES

Filed June 3, 1919 4 sheets-sheet 3

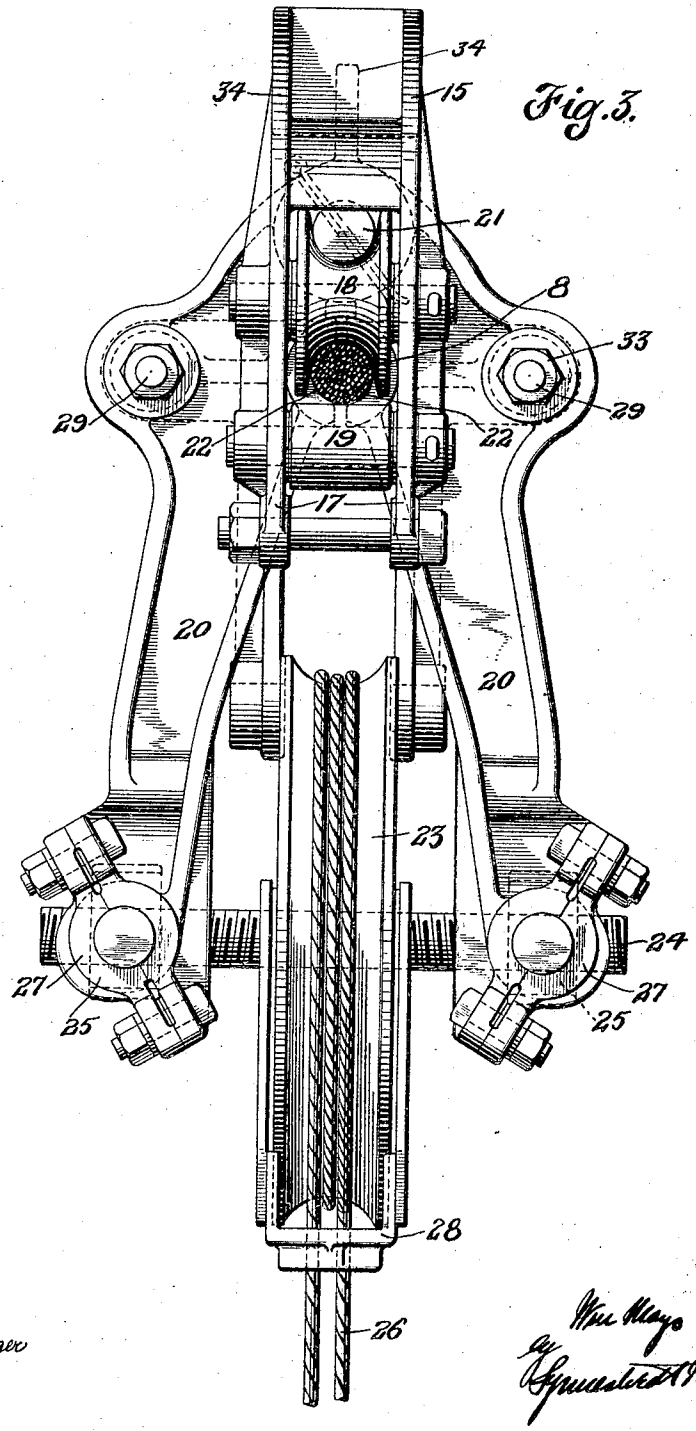


Fig. 3.

WITNESS

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STOP MECHANISM FOR CABLEWAY CARRIAGES

Filed June 3, 1919 4 sheets-sheet 4

Fig. 4.

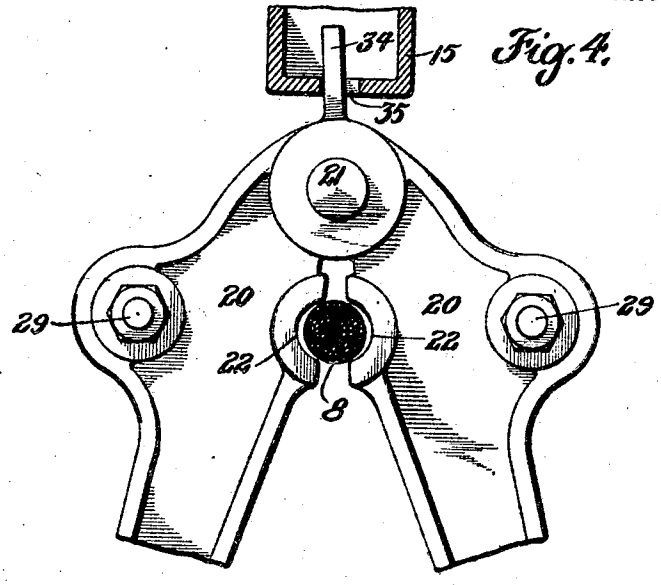


Fig. 5.

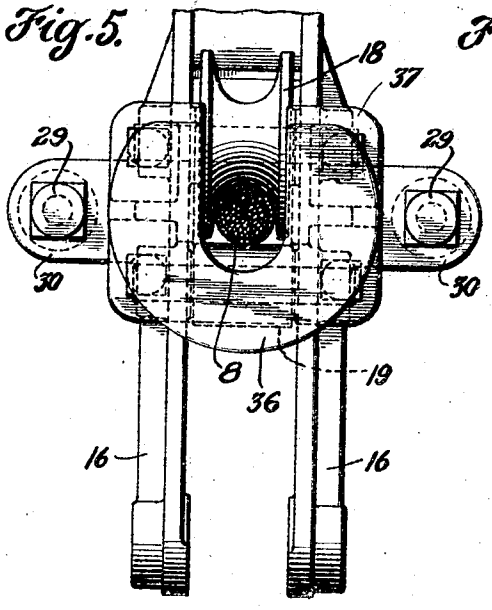
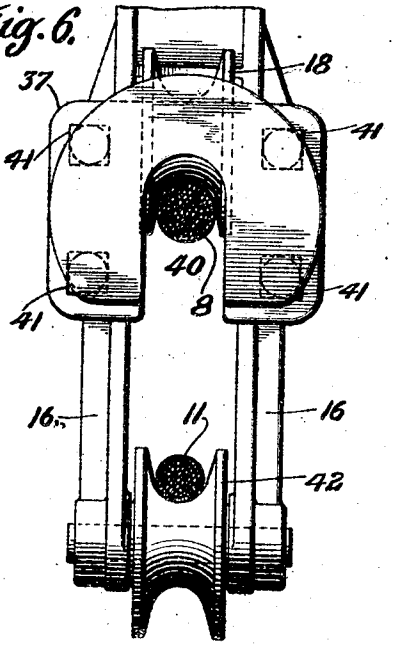


Fig. 6.



WITNESS

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Patented Feb. 13, 1923. 1,445,116

UNITED STATES PATENT OFFICE.

WILLIAM M. VENABLE, OF PITTSBURGH, PENNSYLVANIA, ASSIGNOR TO BLAW-KNOX COMPANY, OF PITTSBURGH, PENNSYLVANIA, A CORPORATION OF NEW JERSEY.

STOP MECHANISM FOR CABLEWAY CARRIAGES.

Application filed June 3, 1919. Serial No. 301,417.

To all whom it may concern:

Be it known that I, WILLIAM M. VENABLE, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Stop Mechanism for Cableway Carriages, of which the following is a specification.

This invention relates to movable or adjustable stop devices suitable, for example, in connection with cableway trolleys and load supporting devices of an analogous character.

One of the primary objects of my invention is the provision of an improved stop mechanism so constructed that it may be readily adapted for use at either end of the cable, or more properly speaking, on either side of the cableway carriage.

Another object of my invention is the provision of an improved stop mechanism designed to relieve the cableway of the shock incident to the engagement of the respective stops by the cableway carriage.

Still another object of my invention is the provision of an improved clutch mechanism operable from the ground to position the stops.

My invention also contemplates the provision of an improved stop carrying trolley, and in the combination of such trolley with the clutch mechanism.

The foregoing, together with such other objects as may hereinafter appear, I obtain by means of a construction which I have illustrated in preferred form in the accompanying drawings, wherein:

Figure 1 is a side elevation of a more or less diagrammatic character of a cableway trolley equipment supplied with my improved stop mechanism; Figure 2 is a side elevation of the stop mechanism, drawn on an enlarged scale; Figure 3 is an end elevation of Figure 2; Figure 4 is a fragmentary view taken on the line 4—4 of Figure 2 with the clutch in open position; Figure 5 is an end elevation of the stop proper, as adapted for use on one side of the load supporting carriage; and Figure 6 is an end elevation of the stop proper, as applied on the other side of the load supporting carriage.

Referring to Figure 1, it will be seen that I have therein illustrated in conventional form, a cableway carriage equipment comprising poles 7, the cable 8, the cableway carriage 9, the load bucket 10, and the load rope 11. The parts thus far referred to may be of any standard type, but the cableway carriage 9, as shown, is of that type described and claimed in my copending application, Serial No. 219,481, filed February 27, 1918.

The carriage 9 is provided at one end with a latch 12, located above the cable 8, and at the other end with a latch 13, located below the cable 8, such latches being connected by intermediate mechanism 14 adapted to operate the load locking means (not shown). The latches 12 and 13 are respectively adapted to engage the stops A and B, to which my invention has primary reference. Since the stops are of counterpart construction, but one will be described in detail.

The stop comprises a trolley composed of a frame having forked ends 16 and 17 adapted to be passed over the cable 8, a pair of sheaves 18, adapted to ride upon the cable, and a pair of rollers 19, engaging the cable from beneath; the clutch mechanism indicated as a whole at C; and the stop proper, indicated as a whole at B.

The clutch comprises a pair of arms 20 hinged together at their upper ends on the pin 21, and provided internally with semicircular, cooperating clutch surfaces 22; the sheave 23, keyed to shaft 24, the respective ends of which are oppositely threaded, as indicated in Figure 3; and the swiveled blocks 25 with which the shaft 24 has threaded engagement.

It will be seen from the foregoing, that when the sheave 23 is rotated by the manila rope 26, which depends sufficiently far to be within reach from the ground, the arms will be brought together or separated, according to the direction of rotation.

In order to facilitate assemblage and that the clutching thrusts may be taken directly by the arms 20, the bearing for the swivel pins of the blocks 25 is arranged as shown in Figure 3, from inspection of which it will be seen that the joint between the bearing caps 27 and the ends of the arms 20 are disposed on a bias with respect to the arms 20. By this arrangement the pull is transmitted directly to the arms 20, and the only thrust to which the bearing caps 27 are sub-

jected is the outward thrust incident to the opening of the clutch, which thrust, it will be readily understood, is negligible. It will also be apparent that the bearing bolts will be readily accessible.

Interposed between the carriage 15 and the clutch mechanism C is a buffer, indicated as a whole at E, said buffer comprising a pair of bolts 29, one located on each side of the carriage, each bolt passing through an apertured lug 30, and through an arm 20 (see Figs. 2 and 3). Each bolt carries a spring 31 which bears at one end against one of the lugs 30, and at the other end against an arm. Each bolt is provided with a nut 32 and a nut lock 33. Since the bolt 29 will be laterally displaced as the clutch arms are opened or closed, I prefer that the bolts shall have a rather loose fit in the lugs 30. At the top one of the arms 20 is provided with an upstanding lug 34 which projects through a slot 35 formed in the bottom of the carriage frame 15. (See Fig. 4.) The lug 34 serves to maintain the trolley and the clutch mechanism in proper relation with respect to each other.

From inspection of Figures 2, 5, and 6, it will be seen that the stop D comprises a casting having a head 36 at one end and a flanged seat portion 37 at the other end, the body 38 of the stop being reinforced by strengthening ribs 39. The stop is longitudinally slotted as at 40 to receive the cable 8 and it is bolted to an end of the carriage frame 15 by means of four bolts 41. The bolt holes are so located that the stop is reversible and can be applied to the trolley frame either with the groove on the upper side, as shown in Figure 5, or on the lower side as shown in Figure 6. In one position the head 36 projects downwardly in position to receive and be engaged by or interlocked with the latch 13, and in the other position it projects upwardly in a position to be similarly engaged by the latch 12. By this simple expedient the stop mechanism can be adapted for use at either end of the cable.

It will be observed that the clutch C is the fixed element of the stop so that when the cableway carriage 9 strikes a stop D, the springs 31 will act as a buffer permitting the trolley and the stop D to yield thereby relieving both the clutch mechanism C, and the cable H of violent shock. Breakage of the cable, which is not at all infrequent in standard equipments, and also breakage of the stop mechanism is thus prevented.

From the foregoing it will be seen that I have provided a simple stop mechanism which can be readily adjusted in position from the ground by releasing the clutch and utilizing the clutch rope to shift the stop. The stop mechanism is of course applicable to all cableway road supporting devices and its manufacture is simplified because it is unnecessary to provide right and left handed members. The stop mechanism which is applied to the cable on the load rope side of the carriage 9 is provided with a sheave 42 adapted to be mounted between the forked arms 16 of the trolley carriage (see Fig. 1) in order to prevent the load rope 11 from fouling the stop mechanism. When the stop mechanism is applied on the other side of the cableway carriage, it is of course unnecessary to provide such a sheave.

I claim:

1. A stop mechanism for cableway supported load devices comprising in combination a cable clutching member, a trolley, a stop member detachably secured to the trolley, and a buffer interposed between the clutch and the trolley.

2. A stop mechanism for cableway supported load devices comprising in combination a cable clutching member, a trolley member carrying a stop, said trolley member being supported from the cable, and a buffer interposed between said members.

3. A stop mechanism for cableway supported load devices comprising in combination a trolley carrying a stop movably supported on said cable, a cable clutching member cooperating therewith, and means for maintaining said trolley and its stop and said clutching member in operative relation.

4. A stop mechanism for cableway supported load devices comprising a portion adapted to grip the cable, and a portion adapted to be engaged by the latching mechanism of the load supporting device, said last portion being mounted for inversion whereby the stop mechanism is adapted to be used at either end of the cable or on either side of the load supporting device.

5. A stop mechanism for cableway supported load devices comprising a frame, a clutch, and a latch receiving portion mounted on the frame for inversion.

6. A stop element for cableway supported load devices comprising in combination a pair of hinged arms having cable clutching portions and means for operating said arms.

7. A stop element for cableway supported load devices comprising a pair of hinged arms having cable clutching portions, a shaft having oppositely threaded portions adapted to operate said arms, and means for turning the shaft.

8. A stop element for cableway supported load devices comprising a pair of hinged arms having cable clutching portions, a compensating member in each arm, a shaft having oppositely threaded portions engaging said compensating members, and means for operating the shaft.

9. A stop member for cableway supported load devices, said member having a head and means for invertibly mounting said

stop member so that in one position the head projects downwardly and in the other position the head projects upwardly.

10. A stop mechanism for cableway supported load devices comprising in combination a cable clutching member, means depending from from the clutch for actuating the clutch to engage or release the cable, a stop member, and a buffer interposed between the stop and the clutch.

11. A stop mechanism for cableway supported load devices comprising in combination a cable clutching member, means depending from the clutch for actuating the clutch to engage or release the cable, a trolley carrying a stop member supported from the cable, and a buffer interposed between the stop and the clutch.

12. A stop mechanism for cableway supported load devices comprising a stop carrying trolley riding on the cable, a cable clutch member, a buffer, and means for maintaining the trolley in upright position.

13. A stop mechanism for cableway supported load devices comprising in combination a member adapted to be secured to the cable, and a second member provided with a substantially U-shaped frame straddling said first member and movable with respect thereto.

14. A stop mechanism for cableway supported load devices comprising a member adapted to be secured to the cable and a latch receiving and interlocking portion mounted on said member for inversion.

In testimony whereof I have hereunto signed my name.

WILLIAM M. VENABLE.