July 24, 1923.

1,462,741

S. A. CROW

SAFETY BRAKE FOR CARS, ETC

Filed Oct. 10, 1922

3 Sheets-Sheet 1

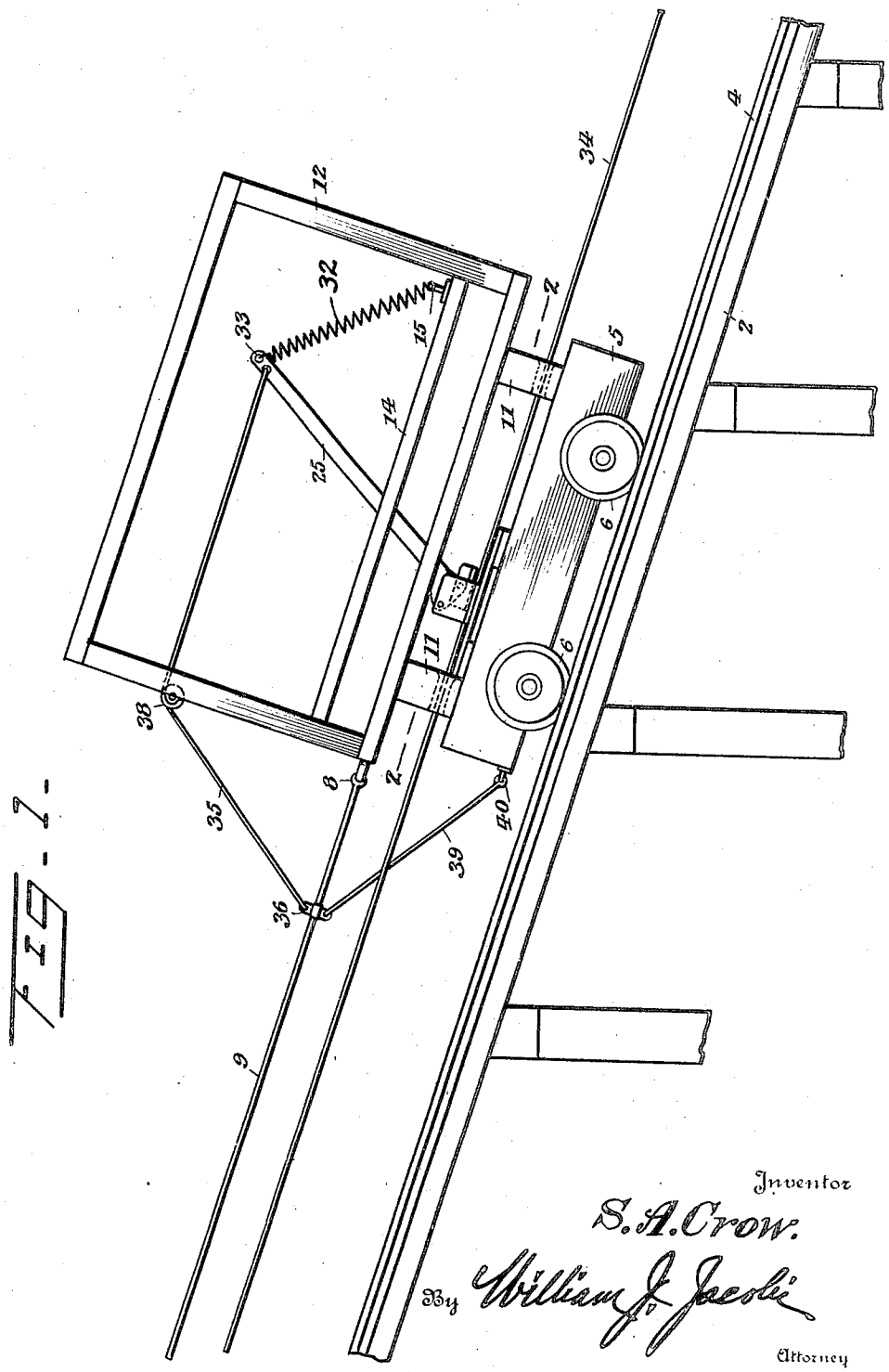


Fig. 1.

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Fig. 2.

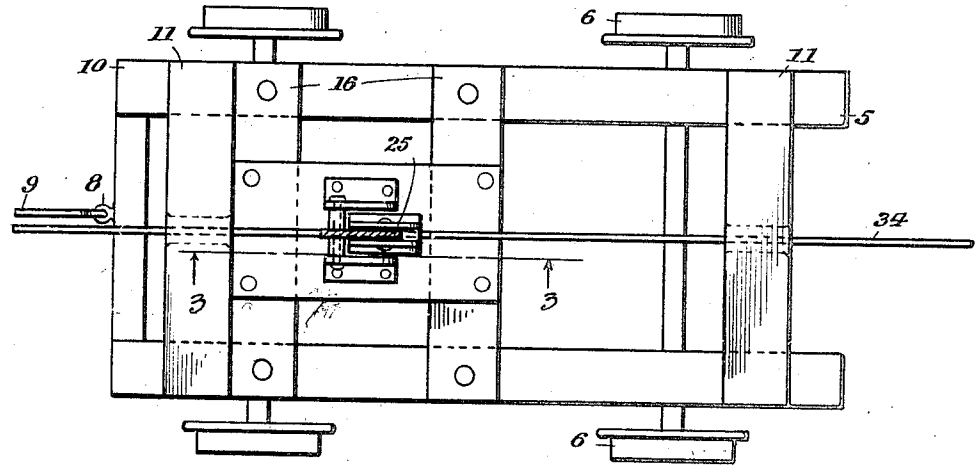


Fig. 3.

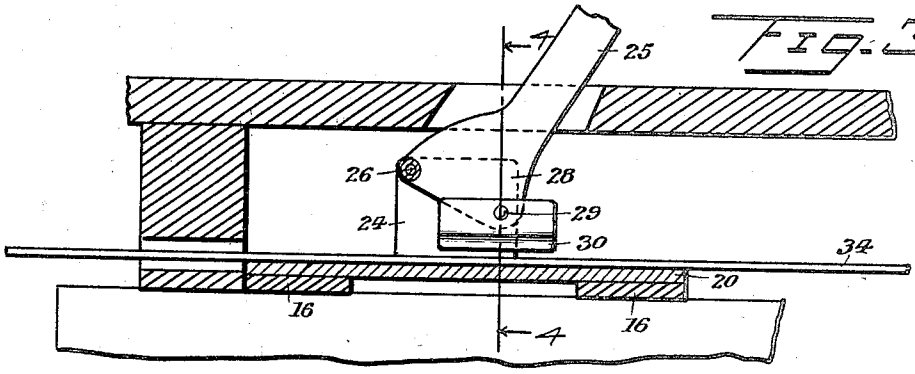
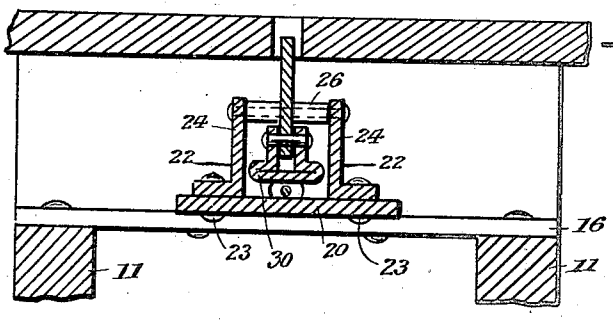


Fig. 4.



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Fig. 5.

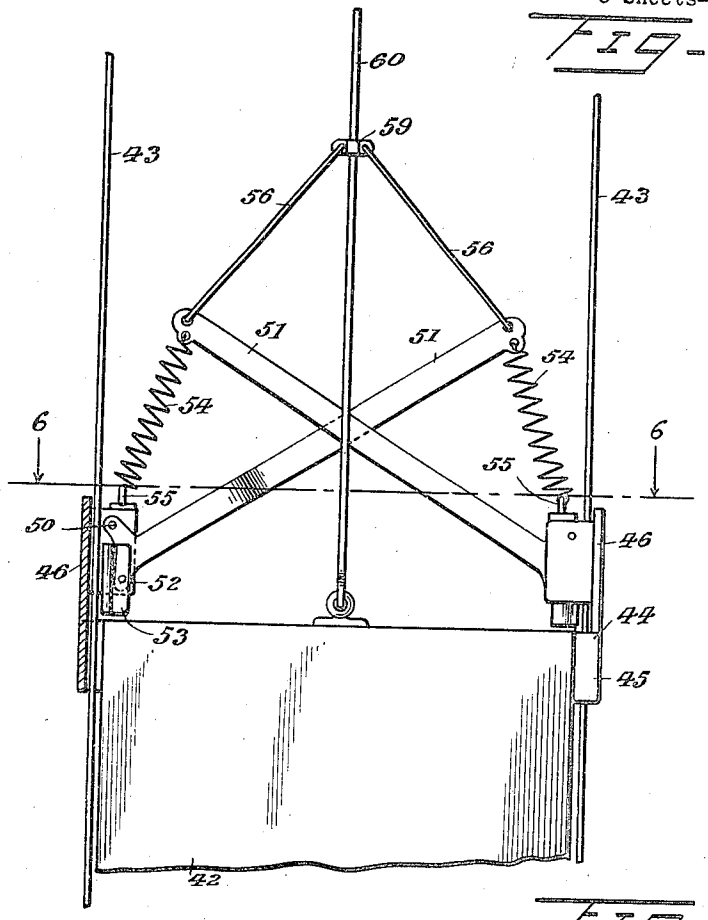
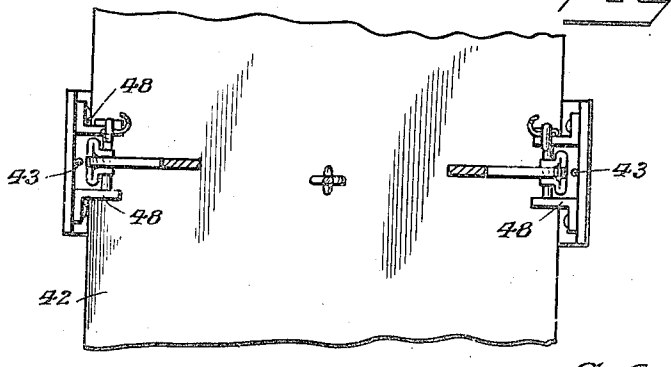


Fig. 6.



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Patented July 24, 1923. 1,462,741

UNITED STATES PATENT OFFICE.

SHELTON A. CROW, OF GLOMAWR, KENTUCKY.

SAFETY BRAKE FOR CARS, ETC.

Application filed October 10, 1922. Serial No. 593,602.

To all whom it may concern:

Be it known that SHELTON A. CROW, a citizen of the United States of America, residing at Glomawr, in the county of Perry and State of Kentucky, has invented certain new and useful Improvements in Safety Brakes for Cars, Etc., of which the following is a specification.

This invention relates to a brake mechanism generally applicable to cars adapted to operate on inclined railways, and is particularly adapted for use on mine cars or as they are sometimes called, "mine cages."

The particular object of my invention is to provide a simple mechanism, which when the draft or elevating cable is broken or becomes slack for any reason, will operate to set a brake which will initially retard the movement of the car and quickly bring it to a stop before said car has descended any appreciable distance.

The particular feature of my invention, thru the combination and arrangement of which the breaking action is accomplished reside in the novel, yet simple construction of the brake plate, the brake lever, the brake-shoe and its relative mounting, thru which the maximum leverage is obtained, the means whereby it is normally held in inoperative position and the automatic spring device for operating the lever to set the brake device upon slack or break of the draft cable.

The numerous advantages incident to the construction hereinafter described and the simplicity of the elements thereof will be apparent, especially to those familiar with the operation of cars with which my invention is associated.

In the accompanying drawings which illustrate preferred embodiments of my invention;

Figure 1 is a side elevation of a car on which my device is mounted and showing the brake mechanism in released position;

Figure 2 is a horizontal sectional view thru the car on the line 2—2 of Figure 1;

Figure 3 is a vertical section on the line 3—3 of Figure 2;

Figure 4 is a transverse vertical sectional view on the line 4—4 of Figure 3;

Figure 5 is a plan view of a car to which is attached a slightly modified form of brake mechanism, and,

Figure 6 is a front view of the car on the line 6—6 of Figure 5.

Referring more specifically to the accompanying drawings, 2 indicates an inclined railway, the rails supported on which are shown at 4, the car with which my invention is associated being indicated at 5 and the wheels therefor at 6. Attached to the forward end of the car, by means of an eye 8, is the draft cable 9, connected at its other end to the windlass, (not shown) but which is common practice.

Mounted upon a rectangular bed-frame 10 by transverse beams 11 secured upon the main body of the car and at each end thereof, is a frame super-structure 12 having supported in its lower portion, a longitudinal beam 14 toward the rear end of which is attached an eye 15.

Toward the forward end of the car, is arranged a pair of transverse, preferably metal plates 16, secured at their ends to the top faces of the side body-beams of the car, said plates supporting in turn, a metal brake plate 20 extending centrally and longitudinally of the car and secured to said transverse plates by bolts or rivets. Mounted upon the longitudinal metal plate 20, are a pair of spaced longitudinal angle-irons 22, the horizontal flanges of which, with the bolts or rivets 23 constitute the attaching means, while the vertical flanges 24 constitute the supporting means for an upwardly and rearwardly extending lever or arm 25, fulcrumed between the forward upper ends of the vertical flanges on a transverse pivot pin 26. The lower end of the lever or arm 25 is provided with a rearwardly and downwardly disposed integral extension 28 to which is pivotally connected by a pin 29, a brake shoe 30 which when the arm or lever 25 is urged rearwardly by a tension coiled spring 32, secured respectively at its ends to the eye 15 and to an eye 33 upon the upper end of the said lever, when the lifting cable is broken as will be further mentioned, engages a fixed brake rod or cable 34, and pressure against the relatively movable plate 20 to retard and stop the descent of the car.

The shoe 30 is normally maintained in elevated position and out of engagement with the brake rod or cable 34 thru the medium of a rope or wire 35 attached respectively at its ends to the upper end of the arm or lever 25, and to the eye of a clamp 36 fixed to the draft cable 9 in advance of the point of attachment of the latter to the car, said

rope 35 being guided over a pulley or sheave 38 on the frame superstructure. A tension wire 39 is also provided and is attached respectively at its ends to the clamp 36, and to the lower front end of the car body as at 40.

When the car is being drawn up the inclined track, or is in fact desending under its weight or that of a load, the draft cable 9 will be maintained taut and the lever, as shown by Figures 1 and 3, supporting the shoe 30 out of engagement with the brake cable 34. If then, the draft cable 9 should break, the latter will become slack, and under tension of the spring 32 the lever or arm 25 will be permitted to be rocked on its fulcrum and the shoe 30 brought forcibly into contact with the brake cable 34 and the car consequently brought to a stop.

In Figures 5 and 6, I have shown an alternative form of my apparatus, the car body 42 being in general substantially the same as that in Figures 1, 2, 3 and 4. In the present embodiment, in lieu of a single brake cable, I employ a pair of lateral cables or rods 43 fixed at their ends in a suitable manner against longitudinal movement.

Attached to the forward ends of the car body upon each side thereof, is an angular metal plate 44 having attaching flanges 45 and a brake rope engaging flange 46, which latter extends forwardly of the car.

Perpendicular to the plane of the flange 46 and inwardly directed, are a pair of attached spaced flange plates 48 between the forward ends of which is pivoted at 50 a forwardly and laterally directed lever or arm 51 having a rearwardly disposed integral extension 52 to which is pivoted a brake shoe 53 identical in construction with the shoe shown in Figures 2, 3 and 4. It is, of course, understood that two of these arms are employed and that each carries a brake shoe upon each side of the car and to provide for simultaneous operation, said arms or levers are crossed at substantially intermediate their length, each of said arms having attached at its outer end, a coiled tension spring 54 which latter is secured at its opposite end to an eye 55 fixed to the flange plates 48.

Each of these levers is also connected thru a rope 56 with a clamp 59 fixed on the draft cable 60, and the arrangement is such that when the draft cable is tensioned under load, the levers will be rocked to cause the brake shoes to be released from gripping engagement with the fixed brake cables 43, but should the draft cable be broken, the slack will permit the springs 54 to rock the arms or levers to cause the shoes to grip the brake cable to the brake plate 46 and stop the descent of the car.

From the foregoing description of the construction of my device, it will be seen that I have provided a simple, inexpensive, and efficient means for carrying out the objects of the invention, and while I have particularly described the elements best adapted to perform the functions set forth, it is obvious that various changes in form, proportion, and in the minor details of construction may be resorted to, without departing from the spirit or sacrificing any of the principles of the invention.

Having described my invention, what I claim as new and desire to protect by Letters Patent is:

1. In a brake mechanism for cars, in combination with the car body, a draft cable attached thereto, and a fixed brake cable, a lever support mounted on said car body, a lever pivotally mounted on said support, a brake shoe carried by said lever to one side of its pivotal connection, means connected with the free end of said lever and with the draft cable for maintaining the lever in a forward position to disengage the brake shoe carried thereby from the brake cable, a spring connected with said lever and a part of said car for urging said lever rearwardly, upon the slacking of the draft cable, to move said brake shoe into engagement with said fixed brake cable.

2. In brake mechanism for cars on an inclined railway, a car body adapted to travel on said inclined railway, a draft cable attached at the forward end of said car body, a fixed brake cable, a lever pivotally mounted on said car body, a brake shoe pivotally mounted on said lever in the rear of its pivoted connection with the car body, a brake plate rigidly secured to said car body beneath said brake shoe and between which brake shoe and brake plate said brake cable is adapted to pass, means connected with the upper end of said lever and the draft cable for normally maintaining said lever in elevated position to raise the brake shoe above the said brake plate and a coiled tension spring connected with the upper end of said lever and the rear portion of said car body and adapted to move the said lever rearwardly on its pivot when the draft cable becomes slack, and rock the said brake-shoe into contact with said brake cable to clamp it between the opposed faces of said brake-plate and brake-shoe.

3. In a car brake, a car, a draft cable attached to said car, at its forward end, a brake lever, a fixed centrally disposed brake plate on said car, a pair of spaced longitudinal, vertical flanges secured to said plate, said brake lever being pivoted to, and between said vertical flanges at their upper forward ends, a pivoted brake shoe pivotally mounted on a rearward extension of said brake lever adjacent its pivot, a fixed brake cable passing longitudinally thru said car and disposed between said fixed brake

plate and said brake shoe, a rope connected at one end with the upper end of said brake lever and fixed at its other end to said draft cable in advance of said car and adapted to maintain said lever in elevated position to lift said brake shoe, and a tension spring connected respectively at its ends with the upper end of said lever and with a fixed part of the rear of said car, and adapted to urge said lever rearwardly upon a slack in the draft cable, and whereby said brake shoe is permitted to grip said fixed brake cable to said fixed brake plate on said car.

In testimony whereof I affix my signature.

SHELTON A. CROW.