W. A. GREEN.

BRAKE MECHANISM.

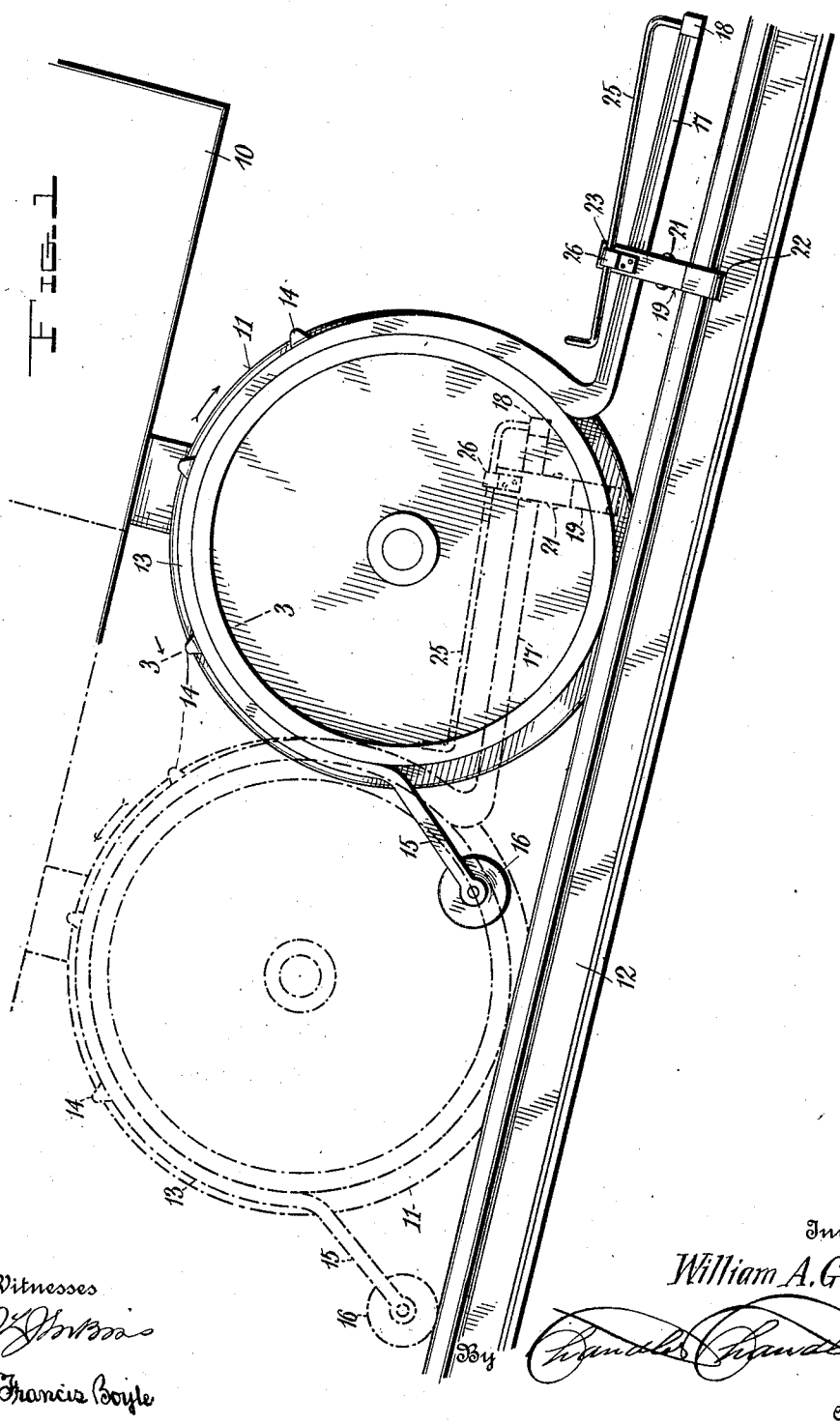
APPLICATION FILED APR. 6, 1911.

1,003,251.

Patented Sept. 12, 1911.

2 SHEETS—SHEET 1.

FIG. 1



Witnesses

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2 SHEETS—SHEET 2.

FIG. 2

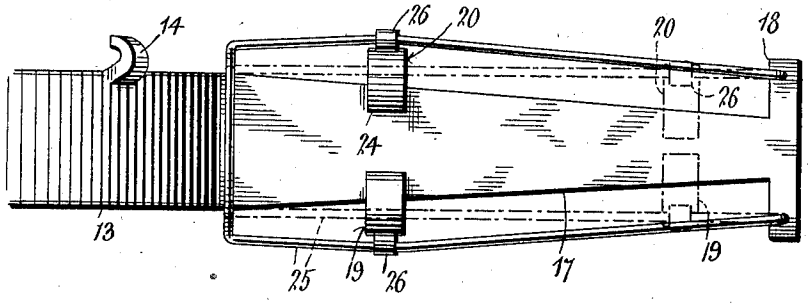


FIG. 3

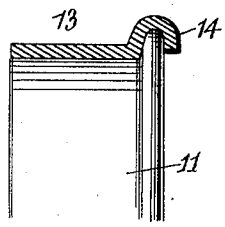
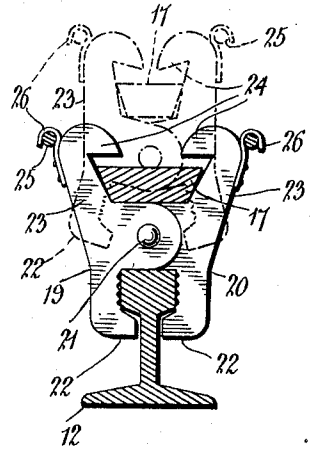


FIG. 4



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UNITED STATES PATENT OFFICE.

WILLIAM A. GREEN, OF PRATT CITY, ALABAMA.

BRAKE MECHANISM.

1,003,251. Specification of Letters Patent. **Patented Sept. 12, 1911.**

Application filed April 6, 1911. Serial No. 619,392.

To all whom it may concern:

Be it known that I, WILLIAM A. GREEN, a citizen of the United States, residing at Pratt City, in the county of Jefferson, State of Alabama, have invented certain new and useful Improvements in Brake Mechanism; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to that class of emergency brakes designed to anchor tram cars to the inclined track in a mine or the like upon breaking of the hauling cable.

An object of the present invention is to provide a simplified form of brake that will ride on the tread of one of the car wheels, and will when the car is going up grade be moved by the wheel into such a position that the rail head clutching jaws are elevated considerably above the rail and offer no resistance to the advance of the car, the brake being moved in a rearward direction upon the car starting back down the incline and the clutch jaws being thereby dropped on to the rail head and by a novel form of wedge moved almost instantly into clamping contact with the rail head so that the farther progress of the car down the incline is positively prevented.

With the above object in view the invention consists in certain novel details of construction and combination of parts hereinafter fully described and claimed, it being understood that various modifications may be made in the minor details of construction within the scope of the appended claims.

In the accompanying drawing forming part of this specification:—Figure 1 is a fragmentary view in side elevation of a tram car equipped with a brake embodying my improvements. Fig. 2 is a fragmentary plan view of the brake. Fig. 3 is a cross sectional view taken on the line 3—3 Fig. 1. Fig. 4 is a front elevation of the clutch jaws in closed position.

Referring now to the drawing in which like characters of reference designate similar parts, 10 designates a tram car, 11 one of the tram car wheels and 12 an inclined traffic rail, these parts being of the ordinary construction utilized in carrying coal, ore, and the like out of mines.

The brake comprises an arcuate band 13, which is designed to be slipped transversely across the wheel tread up to the flange of the wheel, and is of sufficient length to extend more than half way around the wheel. The band is provided on one edge with a plurality of spaced hooks 14 which hook over and conform to the contour of the flange, the hooks and band engaging the wheel with sufficient friction to cause the band to rotate to a certain extent with the wheel during the first revolution of the latter upon starting the car. The object of this momentary rotation of the band will presently be explained.

One extremity of the band is bent abruptly forwardly and forms a straight trolley arm 15 which is terminally equipped with a trolley wheel 16, this wheel being designed to ride on the rail head during advance of the tram car up the inclined track and limit forward rotation of the band with the tram car wheel. The opposite end of the band is bent abruptly outwardly and is gradually constricted to form a wedge 17, this wedge terminating at its smallest end in a transversely disposed bar like head 18. The wedge when the trolley wheel is riding on the rail will be disposed at such a distance above the rail as to permit of the hereinafter described rail clamping jaws being held bodily spaced above the rail head. When the car stops, due to accidental breaking of the cable and starts to back down the inclined track, the band as above described will rotate to a certain extent with the tram car wheel so that the trolley wheel is lifted free from the rail and the wedge is brought into such a position that the clamping jaws will be lowered into operative engagement with the rail.

The clutch comprises two jaws 19 and 20 provided centrally with interfitting hinge ears through which a pivot pin 21 is passed. The lower end 22 of each jaw is L-shaped and conforms when the jaws are closed together to the side and underneath face of the rail head as shown in Fig. 4, the jaw being further serrated to bite the rail head and prevent slipping of the jaw. The upper end 23 of the jaw is inclined outwardly from the jaw pivot, and terminates in a hook 24 which extends in the direction of the jaw pivot. By virtue of the upper ends of both jaws inclining outwardly, a wedge shaped space exists between the jaws, this space being of sufficient extent to receive the wedge 17 of the brake band. The hooks of

the jaws overhang the wedge and prevent escape of the wedge. The upper ends of both jaws are normally closed upon the smaller end of the wedge by a substantially U-shaped wire spring 25 the sides of which extend in parallelism along the wedge and engage in miniature outwardly opening hooks 26 carried upon the jaws, the extremities of the spring legs being bent abruptly downwardly and secured to the outer ends of the wedge head in order that the jaws will be entirely supported by the spring and not bear with their hooks 24 upon the wedge so that frictional engagement between the wedge and jaw is reduced to a minimum and the wedge may run outwardly between the jaws as will presently be described to close the jaws upon the rail head.

The sides of the spring 25 are so spaced apart as to normally hold the upper ends of both jaws closed, the sides yielding outwardly from each other when the upper ends of the jaws are forced open by the wedge and storing up energy to return the jaws to their open position upon release of the wedge.

Suppose that a tram car has broken away and started down the inclined track rails in the direction of the arrow head. By virtue of the band hooks frictionally engaging the car wheel, the band will be rotated bodily simultaneously with the wheel during the first revolution of the wheel as the car starts back down the inclined track. This rotation of the band will lift the trolley wheel from the rail and depress the wedge and jaws to such an extent that the latter will, while still open, be lowered into engagement with the rail tread. There will immediately exist a sufficient friction between the jaws and rail to slow up the advance of the jaws along the rail tread, this slowing up of the jaws permitting of the advance of the wedge due to the rotation of the band upon the wheel to become greater than the advance of the jaws along the rail head so that the wedge runs outwardly between the upper ends of the jaws and forces the upper ends of the jaws wide apart thereby closing the rail gripping lower ends of the jaws into clamping contact with opposite sides of the rail head as shown in Fig. 4. The jaws are now rigidly anchored to the rail and anchor the car wheel embracing band in stationary position thus positively preventing further advance of the car down the inclined track.

It will be noted that that portion of the band adjacent to the wedge is considerably thicker than that portion of the band adjacent to the trolley wheel, the object of this being to accelerate the action of the brake, it being obvious that the weight of the jaws together with the wedge and thickened end of the band will be sufficient to accelerate the dropping of the jaws into loose contact with the rail prior to the first revolution of the car wheel as the car starts down the incline. It will thus take a very limited revolution of the car wheel to run the wedge out through the jaws and clamp the latter upon the rail head as above described.

What is claimed, is:—

1. A brake including a wheel embracing band, attaching means on said band coupling the band and wheel together for momentary simultaneous rotation, a wedge carried by said band, a pair of pivotally connected jaws having ends on one side of the pivot embracing said wedge, tension means engaging said ends and holding the ends closed whereby the working ends of the jaws on the opposite side of the pivot are maintained open, said wedge being adapted to run out between said jaws and move the working ends of the jaws closed against the action of said tension means.

2. A brake mechanism including a wheel encircling band, means limiting rotation of the band with the wheel in one direction, a wedge assembled with the band, oppositely disposed clamping jaws pivotally connected together, the ends of said jaws on one side of the pivot engaging said wedge, and tension means supporting said jaws upon said wedge and normally holding the wedge engaging ends of the jaws closed whereby the working ends of the jaws on the opposite side of the pivot are maintained open, said jaws being adapted to ride upon a rail tread and limit movement of the band with said wheel in the opposite direction, said wedge being adapted to run out between said jaws during rotation of said band with said wheel in said opposite direction and move the jaws against the action of said tension means into clamping contact with said rail.

In testimony whereof, I affix my signature, in presence of two witnesses.

WILLIAM A. GREEN.

Witnesses:
T. M. GILBERT,
C. D. COMSTOCK.