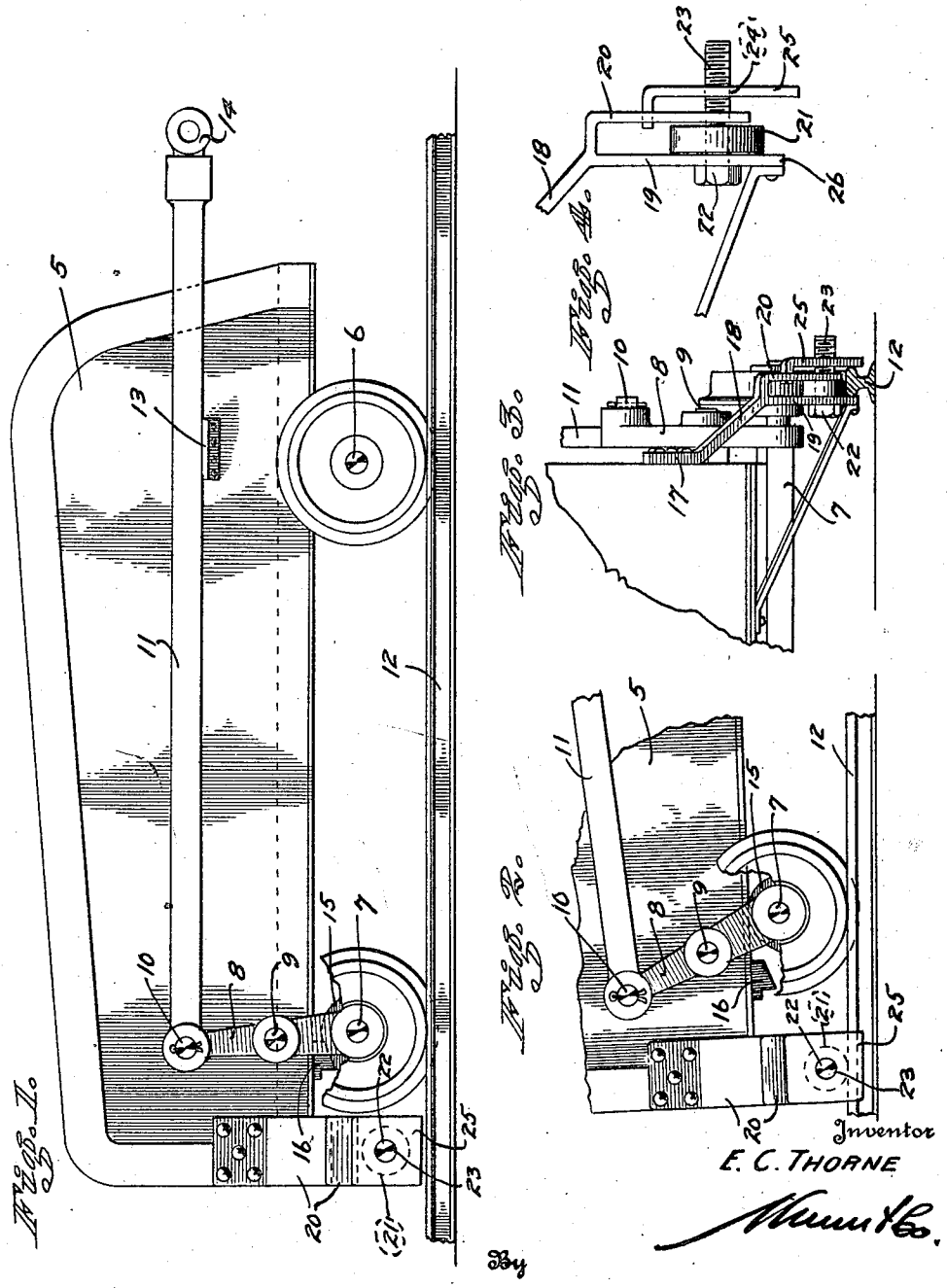
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E. C. THORNE

MINE SKIP

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UNITED STATES PATENT OFFICE.

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MINE SKIP.

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To all whom it may concern:

Be it known that I, EDWARD C. THORNE, a subject of the King of England, and resident of Turffontein, Transvaal, South Africa, have invented a new and useful Mine Skip, of which the following is a specification.

This invention relates to mine skips and has for its primary object the provision of an automatically controlled brake mechanism which operates on severance of the draft connections from the draft power to positively grip the rails of the track structure and immediately lock the skip to the rail and thereby bring it to a gradual but effective standstill.

When a mine skip is travelling upon a steep grade it frequently happens at critical times that the draft connection is severed or disconnected from the draft power. Unless the skip is provided with some positive means for counteracting the force of gravity, the skip, unretarded, proceeds down grade and is either derailed or brought headon into objects in its path. Many accidents and much loss of life have resulted in consequence thereof, and in carrying my invention into practice, it is a further and important object to move the skip body with respect to the rails and render the wheels of at least one axle inactive, and to simultaneously advance my brake mechanism into engagement with the rails so as to actuate the former vice like against the sides of the rails. In this manner I prevent the skip from gaining momentum and am able to apply the brake promptly at the time of an emergency and in a manner that will render its purpose decidedly effective.

Another object of the invention is to provide means which actuates as long as there is normal pull upon the draft connection to permit the skip to proceed forward or backwards unretarded, and which, when slack is formed in said connection to immediately render the brake mechanism responsive when the connection breaks.

My invention, therefore, comprises certain new features of construction and arrangement and combination of elements hereinafter set forth and pointed out in the claims annexed hereto. In the drawings:

Figure 1 is a side elevation of a skip showing my invention applied thereto;

Figure 2 is a similar view of a portion of the skip showing the brake mechanism applied;

Figure 3 is a view in end elevation of a portion of the skip showing the brake in positive engagement with the rail; and

Figure 4 is a detailed view in end elevation of the brake actuating means.

In carrying the invention into practice I employ a skip (5) mounted upon wheeled axles (6) and (7), the latter mounted to tilt and being preferably hung from rockers (8). These rockers are pivoted at (9) preferably to the opposite side walls of the skip body. It is preferred to employ two of such rockers and to mount same in the manner above set forth. However, one rocker may be entirely effective in some instances. Each of these rockers is provided at its point above the pivoted connection (9) with a pin (10) to which one end of a draft rod (11) is operatively connected. This draft rod normally occupies a position parallel to the supporting rails (12) and adjacent to the forward ends, these rods are in free resting engagement with bracket plates (13) secured to the sides of the skip body. These drafting rods extend to points in advance of the skip body and same are formed with eye members (14) adapted to be connected in any suitable well known manner with the rigging of the draft power.

The tilting rear axle (7) is provided with a block (15) which normally engages against a stub element (16) on the underside of the skip body. This is shown to proper advantage in Figure 1 and in Figure 2 the block (15) is shown parted or separated from the stub element (16) so as to cant the skip body and lower the rear end thereof with respect to the supporting rails (12). This position of the parts automatically occurs the moment the draft-connection is severed and slack is placed in the draft rigging that will cause the rockers (8) to assume the position shown in Figure 2.

Immediately at the rear of the axle (7) and secured to the body of the skip (5) are rigid brackets (17) having bifurcated extensions (18) whose long arms (19) are arranged inwardly of the rails (12) and whose short arms (20) terminate at points slightly above the rails as clearly shown in Figure 3. Between the arms (19) and (20) is a rail engaging wheel or roller (21)

adapted to come in rolling engagement with the rail when the body of the skip is lowered at one end as shown in Figure 2. This roller is mounted upon a stub shaft (22) and the latter and the former are designed to rotate together. This shaft is formed with a thread (23) which passes through a correspondingly threaded aperture (24) in a clutch plate or shoe (25). This shoe or plate is adapted to move laterally with respect to the clutch or shoe extension (26) of the long arm (19).

It shall be assumed that the skip is proceeding forward as would be indicated from the position of the parts shown in Figure 1. The brake mechanism is now clear of the supporting rails (12). It shall now be assumed that slack has been induced in the connections (11) due to severance of the draft cable and that incident thereto the retrograde action of the wheels of the rear axle (17) have caused the rockers (8) to assume the positions shown in Figure 2. In consequence of this last mentioned functioning of the parts, it follows that the rear end of the car is lowered with respect to the rails (12) and that in so doing the clutch or shoe extension (26) of the long arm (19) and the clutch or shoe element (25) are brought into operative positions at the respective sides of the rail. It also follows that at this time the roller (21) is advanced into traveling engagement with the rail and in so doing it actuates the screw portion of the stub axle to thereby move the element (25) toward the extension (26). As this action continues it is manifest that the rail becomes gripped, vice like, between the just mentioned parts and the skip is gradually brought to a standstill. The action of the brake mechanism is entirely automatic as depends upon conditions of the connections (11) which are controlled directly by the draft power.

I claim:

1. A mine skip having a vertically tilting wheeled axle, draft actuated means for tilting the axle to effect vertical adjustments of the body of the skip, and means movable with the body and adapted to come into positive braking engagement with a rail when the axle is tilted to one position, said means including coacting elements movably connected together and means for drawing the elements together to grip the rail therebetween vice like.

2. A mine skip having a vertically tilting wheeled axle, draft actuated means for tilting the axle to effect vertical adjustments of the body of the skip, and means movable with the body and adapted to come into positive braking engagement with a rail when the axle is tilted to one position, said means including coacting elements movably connected together and means for drawing the elements together to grip the rail therebetween vice like, said means including a roller adapted to travel on the rail and means actuated by the roller for moving one of said elements with respect to the other of said elements.

EDWARD C. THORNE.