To all whom it may concern:

Be it known that I, JAMES WILSHIR, of Germiston, Transvaal, a British subject, of the Simmer & Jack Gold Mining Company, Limited, Germiston, in the Colony of the Transvaal, have invented certain new and useful Improvements in Safety Devices for Mine Skips, Cages, Lifts, and the Like, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to an improved safety device wherein the hoist or hauling rope is fastened by a yoke or similar element which is secured to the skip-body in a manner to bear directly against the same when the skip is being raised or lowered and the rope is taut and to engage suitable dogs or hooks on the skip with stationary parts when the rope breaks or is slackened in order to arrest movement of the car.

One embodiment of the invention is here-with shown in the accompanying drawings, wherein—

Figure 1 is a side elevation. Fig. 2 is a bottom plan, and Fig. 3 an end elevation.

Referring specifically to the structure shown, A designates an inclined track on which the skip A' is operated, the said track being secured to a substructure provided with transverse members or sleepers p. The skip A' carries a yoke comprising lateral bars a, connected at their rear ends by a rod b and at their front ends with a bar b', to which a hoist or hauling rope is secured. The bars a are slidably supported on the sides of the skip-body by blocks a' and are supported at their rear ends on arm c, which permit the yoke to assume a retracted position, as shown in Fig. 1, when tension on the rope is released or to assume a normal position, bringing the rod b into engagement with the rear wall of the skip when the rope is taut. The yoke is connected with devices serving when said yoke occupies normal and retracted positions to disengage and engage suitable hooks with the transverse sleepers p of the track structure, which device comprises mechanism operating as follows: The arms c are mounted upon a rock-shaft d, secured in bearings e to the rear of the skip-body. Said shaft d carries a lug n, adapted for engagement with a lug o, mounted upon an actuating-rod f. Said rod f is slidably mounted in bearings f' to the lower wall of the skip-body and is provided with a coil-spring k, interposed between the bearing f' and a collar m.

The coil-spring k normally holds the rod f in a forward position, as shown in Fig. 1, thereby engaging the lugs o and n and retracting the yoke, bringing the rod b out of engagement with the end of the skip-body, as shown in Fig. 1. When the hoist or hauling rope is taut, the yoke will be drawn forwardly to bring the rod b into engagement with the skip-body and against the action of the spring k and reciprocate the rod f rearwardly. Hooks j or equivalent elements are secured to shaft i, which is mounted in bearings j' to the lower wall of the skip-body, and serve to engage the sleepers p when the rope is slackened or broken. The shaft i carries a gear-pinion h, which meshes with a rack g, formed, preferably, upon the lower face of the rod f. It will be obvious that when the spring holds the rod f in a forward position, as shown, the hooks j will be forced downwardly into a position to engage the sleepers p and that when the yoke is drawn forwardly, effecting rearward movement of the rod f, the hooks j will be held against the bottom of the skip-body out of engagement with the sleepers.

One great advantage of my improved safety device is that the means for operating the hooks is not subjected to any strain in the normal operation of the skip owing to the direct engagement of the yoke with the skip-body when the rope is taut, said yoke and rope sustaining the entire strain. By means of this construction the spring operating the rod f is never subjected to excessive strain and is therefore not liable to be broken. A further feature of great practical importance is that the safety device is frequently operated—i.e., every time the rope or cable is slack—thereby serving to maintain the parts in an operative condition and preventing the same from rusting in the bearings or otherwise becoming inoperative.

What I claim is—

1. A safety device comprising a movable yoke a, a shaft b, arms c carried thereon, a shaft d on which said arms are mounted, a lug n on said shaft, a spring-actuated bar f having a rack formed thereon, a lug o thereon engaging said lug n, a shaft i carrying a pinion h engaging said rack, and a hook j mounted on said shaft i.

2. In combination a skip, car or the like, a slidably-mounted member therefor served to directly engage said skip to operate the same, means for maintaining said member engaged with said skip, and an element operatively connected with said means and adapt-
ed to engage stationary parts to arrest movement of the skip, said means serving when holding said member out of engagement with said skip to throw said element into an engaging position and serving when said member engages the skip to hold said element in a non-engaging position.

3. In combination a skip, car or the like, a yoke embracing the skip-body and being slidably mounted thereon, a hook or the like adapted for engagement with stationary parts to arrest movement of the skip, and spring-actuated means operatively connected with said yoke and hook and serving normally to hold the yoke in a retracted position and the hook in an engaging position and when the yoke is in an operated position to hold the hook in a non-engaging position.

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

JAMES WILSHIR.

Witnesses:

HAROLD E. KISCH,
WILLIAM HENRY HILMAN VINCENT.