

APPLICATION FILED APR. 4, 1912.

2 SHEETS—SHEET 1.

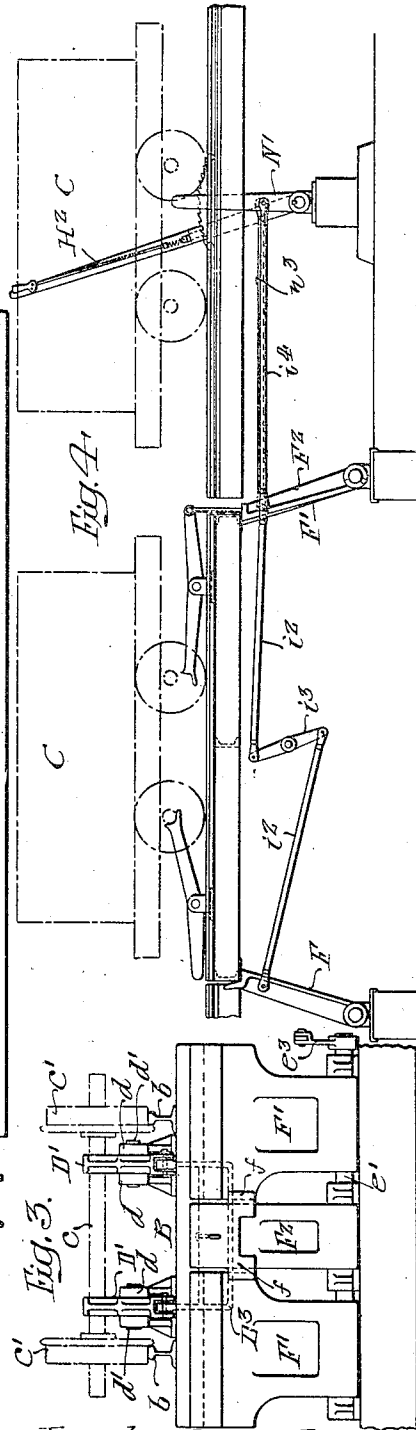
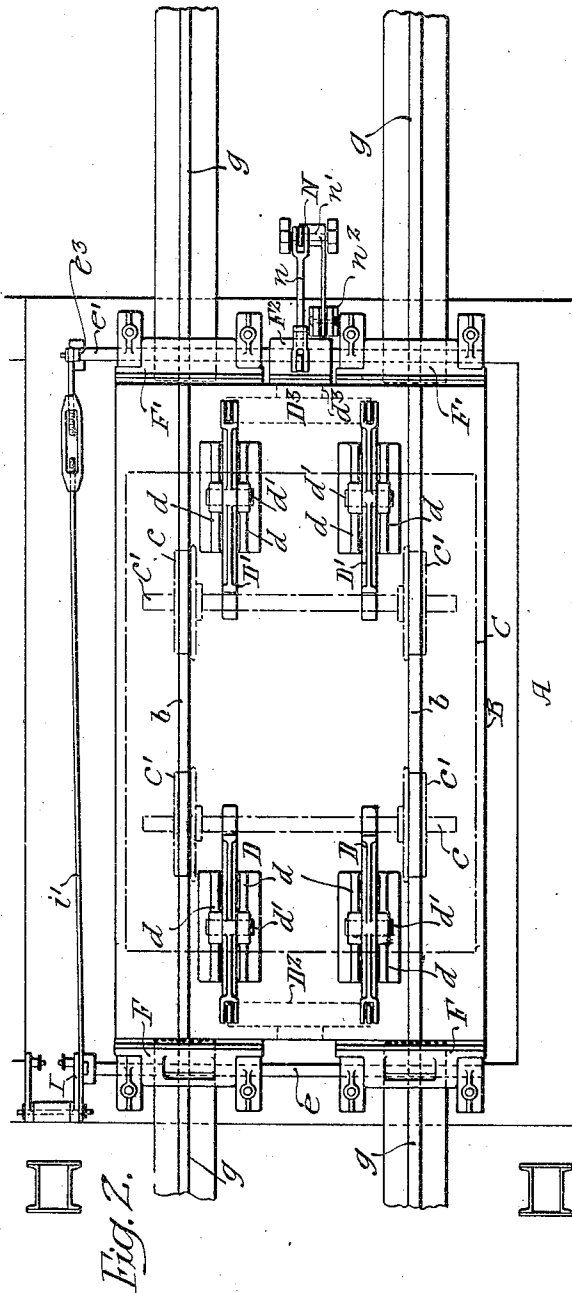
Inventor.
Charles A. Straw.
by his Attorneys—
Hosmer & Hanson

C. A. STRAW.
AUTOMATIC CAR STOPPER.
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1,046,345.

Patented Dec. 3, 1912.

2 SHEETS—SHEET 2.



Witnesses:
Walter E. Schum
Walter A. R. R. R.

Inventor—Charles A. Straw.
by his Attorneys—
Horn & Horn

UNITED STATES PATENT OFFICE.

CHARLES A. STRAW, OF LANSFORD, PENNSYLVANIA.

AUTOMATIC CAR-STOPPER.

1,046,345.

Specification of Letters Patent.

Patented Dec. 3, 1912.

Application filed April 4, 1912. Serial No. 688,479.

To all whom it may concern:

Be it known that I, CHARLES A. STRAW, a citizen of the United States, residing in Lansford, county of Carbon, State of Pennsylvania, have invented certain Improvements in Automatic Car-Stoppers, of which the following is a specification.

My invention relates to certain improvements in mine hoists in which empty cars are run onto a mine cage and loaded cars are run off the mine cage or vice versa.

The object of the invention is to provide an automatic car stop which will automatically center and secure the cars on the cage and which can be actuated so as to allow the cars to be pushed off of the cage, after the cage has been brought to a standstill and held by the cage keeps. This object I attain in the following manner, reference being had to the accompanying drawings, in which:—

Figure 1, is a side view of a mine cage, showing the shaft section; Fig. 2, is a plan view; Fig. 3, is a sectional view on the line 3—3, Fig. 1, and Fig. 4 is a view illustrating a modification of the invention.

Referring to the drawings, A is the pit in which the cage B travels. This cage consists of a platform and side members B' and a cover B², in the present instance. On the platform of this cage are rails b—b over which the cars travel. These rails, when the cage is in the elevation position, as illustrated in Fig. 1, aline with the rails g—g at each side of the pit, so that a loaded car can be removed from the cage and an empty car run upon the cage in position to be lowered into the pit. On the platform of the cage are bearings d, upon which are pivot pins d' supporting the car stops D—D'—four in the present instance. Two stops D—D being on the loading side of the cage and two stops D'—D' being on the discharge side of the cage. These stops have hooked ends d², which engage the axles c of the cars C. The wheels c' of these axles travel on the rails b—b.

When a car is lowered on a cage, the normal position of the car stops D—D is that of engagement with the axles of the car so as to hold the car centrally and securely on the cage. The car stops D are provided with a weight D² and the car stops D' are provided with a weight D³. This latter weight can be held by mechanism described hereafter, while a car is being removed from

a cage, but the other weight is free to swing. Consequently, the car stop D is turned on its pivot when a car is transferred to a cage and immediately reassumes its normal position in engagement with one axle of the car. The other stops in the meantime are in the raised position so as to prevent the car from moving forward to a greater extent than necessary. When the cage reaches the upper level and a car is to be removed from the cage, the cage is held by the pivoted keeps. Thus, the rails of the cage are brought into alinement with the fixed rails at each side of the pit.

In the present instance, the keeps are constructed as follows:—On one side of the pit A is a bearing E for a shaft e and secured to this shaft are two keeps F having flanged ends which rest under the edge of the cage, as illustrated in Fig. 1. On the opposite side of the pit is a bearing E' for a shaft e' to which are attached two keeps F', having flanged ends which extend under the cage. Loosely mounted on the shaft between the two keeps is a third keep F² having wings f which overlap the keeps F' so that while the center keep can be withdrawn with the keeps F', it has a movement independent of the two keeps for a purpose described hereafter.

In order to operate the keeps in unison, I provide a hand lever H, which is pivoted at h to a suitable bearing and this lever is connected by a rod h' to one arm of a bell-crank lever H'. The other arm of this lever is connected by a short rod h² to one arm of the three-armed lever I. Another arm of this three-armed lever is connected by a rod i to an arm e² secured to the shaft e. The other arm of this lever is connected by a long rod i' to an arm e³ on the shaft e' so that when the hand lever H is moved in the direction of its arrow, both sets of keeps are withdrawn to allow the cage to be lowered. In order to lower the car stops D' on the discharge side of the cage when it is desired to remove the car from the cage, I provide a weight D³ with an extension d³, which projects over the central keep F² so that when the keep is moved in the position illustrated in Fig. 1, it holds the weight in the raised position illustrated in said figure, and, consequently, the stops D' are held clear of the axle c of the car so that the car is free to be moved from the cage, but, as this car is removed, another car takes its place. The movement of the car as it enters the cage is

limited and, therefore, it is essential that the stop shall assume its normal position before the incoming car is fully in position. I so construct the weight or the car stop that it will be engaged by the central keep f^2 and when this central keep is withdrawn, the weight drops and allows the stops D' to assume their normal position. In order to automatically operate this central keep I connect it by a rod n to a lever N pivoted at n' and having a weight n^2 . One arm of this lever is in the path of the axle of the car as it leaves the cage so that the moment the leading axle comes in contact with the lever N , it moves said lever in the direction of its arrow, Fig. 1, and releases the weight D^3 . Consequently, the stops assume their original position; the rear axle of the car having passed the stops before the front axle acts upon the lever N .

In Fig. 4, I have illustrated a modification of the invention in which the two keeps F, F' and the keep F^2 are operated from a lever H^2 on the delivery side of the pit; the keeps being connected together so as to work in unison by rods i^2 and a two-armed lever i^3 . A separate rod i^4 extends to the lever H^2 from one or both of the side keeps F' ; while a rod n^3 connects the central keep F^2 with a lever N' actuated by the car axle as it leaves the cage.

It will be seen by the above construction that when the cage is raised to the mouth of the pit it is carried above the ends of the keeps. The keeps are then moved under the cage, as the cage is lowered, so as to bring the rails of the cage in line with the rails at the mouth of the pit. The central keep F^2 engages the weight D^3 of the car stops D' , and, consequently, as the cage is lowered the car stops D' are moved clear of the forward axle of the car so that the car can be pushed off of the cage. As the car is pushed off, its forward axle engages an arm of the lever N and this lever actuates the central keep F^2 so as to draw it from under the weight D^3 ; causing the car stops D' to be in line with the forward axle of the oncoming car; the rear axle of the car being removed from the cage—the stop having been passed—and, as the incoming car passes onto the cage, it automatically depresses the car stops D , which assume a position directly back of the rear axle, while the stops D' assume a position in front of the forward axle. Thus, while one car is removed the other car is placed in position and rigidly held while the cage is lowered.

I claim:

1. The combination of a cage; two car stops on the cage; one engaging the forward and the other the rear axle on a car; with means for holding the cage; means for moving the forward car stop out of the path of the car; and means actuated by the

car, as it leaves the cage, to allow the forward car stop to return to its normal position.

2. The combination of a cage; two pivotally mounted and weighted car stops on the cage; keeps pivotally mounted at the side of the pit and arranged to engage the cage; one of said keeps engaging one of the weighted car stops; means for actuating the keeps to allow the cage to be lowered; and automatic means, actuated by a car leaving the cage, to withdraw one of the keeps to release the car stop and to allow it to return to its normal position to limit the movement of an incoming car on the cage.

3. The combination of a cage; a track thereon; two pivotally mounted and weighted car stops; one engaging the rear axle of a car and the other engaging the forward axle; pivoted keeps mounted at the side of the shaft and arranged to extend under the cage; the keeps on one side being made in sections; one of said sections engaging the weight of a forward car stop; a weighted, pivoted lever on the discharge side of the pit and connected to said section of the keep engaging the stop so that as the car is pushed off of the cage, it will strike the lever and will release the car stop; allowing it to return to its normal position.

4. The combination of a cage; a track thereon; two pivotally mounted and weighted car stops; one at each side of the car; one adapted to engage the rear axle of a car and the other adapted to engage the forward axle; the stops engaging the rear axle being free to swing as a car is moved onto the cage; with keeps pivotally mounted on opposite walls of the pit to retain the cage in the raised position; the keeps on one side being made in three sections; the center section being arranged to engage the car stops on the discharge side of the cage; a lever in the path of the car axle and connected to the said central keep so that when the keeps are in position the forward car stop is lowered to allow the car to be pushed off of the cage; and as it is pushed off, it will engage the lever and will release the forward car stop so that it will engage the forward axle of an incoming car.

5. The combination of a cage; pivoted car stops mounted on each side of the cage; one set engaging the forward axle and the other set engaging the rear axle of a car; two shafts; one mounted at each side of the pit; a keep secured to one shaft; and two keeps secured to the other shaft; with a third keep loosely mounted on said latter shaft between the other two keeps and having wings extending over the other two keeps; hand-operated means for moving the keeps into and out of position; a central keep engaging the forward car stop and holding it out of the path of the car axle;

an arm within the path of the car and connected to the central section of the keep so that, as a car is pushed from the cage, it actuates the keep through the lever and releases the forward car stop, allowing it to assume its normal position in the path of an incoming car.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

CHARLES A. STRAW.

Witnesses:

T. D. LEWIS,

S. V. TENCH.