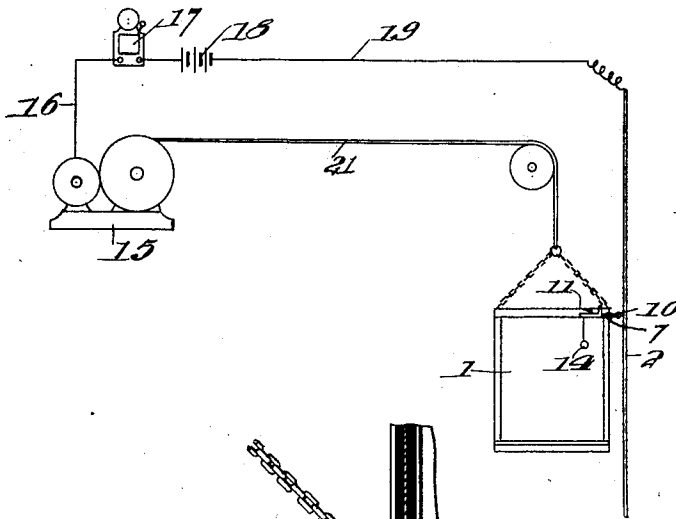


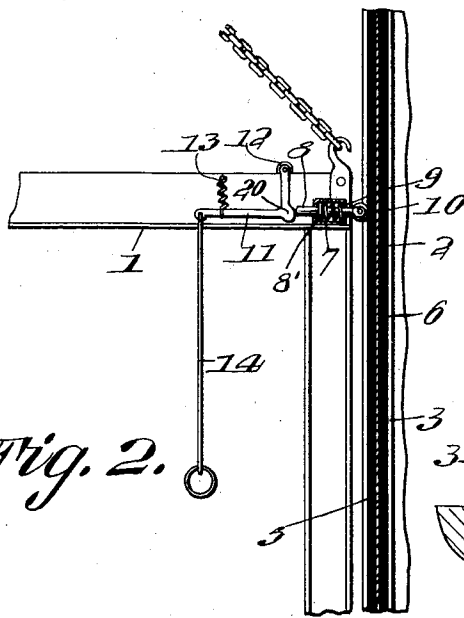
L. BAYER.  
MINE CAGE SIGNAL.  
APPLICATION FILED JUNE 6, 1910.

1,001,337.

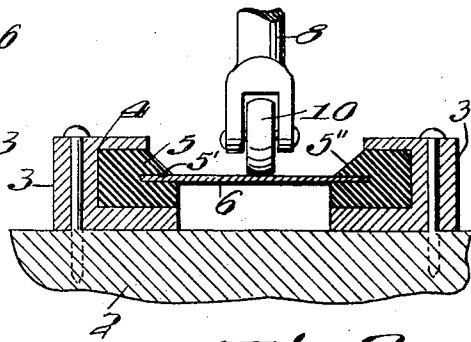
Patented Aug. 22, 1911.



*Fig. 1.*



*Fig. 2.*



*Fig. 3.*

Witnesses  
*George G. Anderson.*  
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Inventor:  
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# UNITED STATES PATENT OFFICE.

LEE BAYER, OF WILLISVILLE, ILLINOIS.

## MINE-CAGE SIGNAL.

1,001,337.

Specification of Letters Patent. Patented Aug. 22, 1911.

Application filed June 6, 1910. Serial No. 565,188.

*To all whom it may concern:*

Be it known that I, LEE BAYER, a citizen of the United States, residing at Willisville, in the county of Perry and State of Illinois, have invented certain new and useful Improvements in Mine-Cage Signals, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in signaling devices for mine cages.

The object of the invention is to provide a simple, novel and inexpensive signaling system which is applied to the car so that a passenger or passengers riding on the latter can at all times instantly signal the engineer who controls the hoist or haulage engine, thereby adding to the safety of the passengers.

Further and other objects of the invention will be later set forth and of themselves evidenced in the following specification.

In the drawings:—Figure 1 is a side elevation showing the respective locations of the various parts necessary to practice the invention, Fig. 2 is a fragmentary view partly in section showing the cage and a portion of the well in side elevation and the latter partly in section, and Fig. 3 is a transverse cross section taken through one wall of the well.

The invention as at present contemplated includes the cage 1 which operates in the usual well, one of the walls of the latter being designated 2 in the drawings. A pair of vertical strips 3 are arranged in spaced relation and secured by any suitable fastening means to the wall 2 of the well, each of the strips being formed on its inner side face with a U-shaped recess or opening 4. Strips of insulating material 5 are firmly fixed or secured in the openings 4, and are formed with comparatively narrow slots 5' within which slots there is secured a conducting strip 6 which latter is preferably aluminum. The insulating strips 5 have each a chamfered edge 5'' in order to allow the roll contact member carried by the cage to have free and easy access to the metal conducting strips.

The cage 1 carries on its top a housing 7 within which is slidingly mounted a plunger 8 which is engaged by a coil spring 9 on the interior of the housing which surrounds the plunger 8 and engages between

one end of the housing and a collar 8' carried by the plunger. The outer end of the plunger 8 carries a freely rotatable roller 10. By inspection of Fig. 2 of the drawings it will be seen that under normal action of the spring 9 the plunger 8 occupies a position wherein its roller 10 is out of contact with the metal conducting strip 6. A bell crank or L-shaped lever 11 is pivotally suspended from its shorter arm as at 12 and has its longer arm connected to a coil spring 13, the latter being of the retractile type and being supported at its upper end from the cage top. It will be seen that the normal action of the spring 13 is to hold the longer arm of the bell crank lever 11 in a suspended position so that the nose 20 of the bell crank lever 11 exerts but little, if any, pressure on the plunger 8. A cord or rope 14 is attached to the free end of the horizontal arm of the bell crank lever 11 and extends downwardly on the car so as to be conveniently reached or accessible to any of the occupants or passengers of the car.

By referring to Fig. 1 of the drawings, it will be seen that the housing engine 15 has connection by means of the usual wire cable or the like 21, with the cage 1. A bell 17 is placed in the engine room, or at such points that a ringing thereof will be audible to the engineer or operator of the engine. A wire 16 connects the frame work of the hoisting engine 15 with the bell 17 and the latter is in communication with a battery 18, a wire 19 leading from the battery to the metal conducting strip 6 in the wall 2 of the well.

In operation if a passenger in the cage desires to signal the engineer, he pulls the cord 14 downwardly thus pushing the nose 20 of the bell crank lever 11 into engagement with the plunger 8, causing the latter, against the tension of the spring 9, to have its roller 10 contact with the conducting strip 6. Thus a circuit is established from the battery through wire 19, conducting strip 6, roller 10, plunger 8, the metal frame of the cage through the supporting chain of the cage, cable 21, hoisting engine 15, wire 16 bell 17 and thence to the battery 18, energizing the bell 17 and causing a ringing thereof. It will be understood that any other signal such as a semaphore type may be used in lieu of the bell 17.

It will be seen from the above that it is thus possible for the occupant or occupants

of the cage to instantly communicate with the engineer by any prearranged signals or code of signals, thus to a great extent obviating the danger which usually attends  
 5 the operation of mine cages.

It will be understood that other means may be substituted for those here shown in order to fulfil the purposes and objects of the invention as above set forth.

10 Having fully described my invention, what I claim and desire to secure by Letters Patent of the United States, is:

1. In a signaling system for mine cages, in combination with the cage and an electrical circuit, a signal included in the circuit, a track in the well included in the circuit, and means carried by the cage to close the circuit and operate the signal, said means consisting of a slidable plunger for engagement with the track, an L-shaped lever having a long and a short arm, the short arm being vertically disposed and being pivoted at its upper end to the cage, an enlarged, rounded nose formed at the junction of the long and short arms of the lever, the long arm of the lever normally lying in a plane coincident with that in which the plunger lies, a retractile spring for normally holding the lever out of engagement with the plunger, and a depending cord attached to the free extremity of the long arm of the L shaped lever to operate the said lever.  
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2. In a signaling system for mine cages, in combination with the cage, and an electrical circuit, a signal included in the circuit, a track in the cage well, the track being included in the circuit, and means carried by the cage to close the circuit and operate the signal, said means including a movable contact on the cage to engage the track, an L-shaped lever, one of the arms of said lever having a vertical disposition and being pivoted at its upper end to the cage, a nose extending outwardly from the outer side of said vertical arm at the point of juncture thereof with the horizontal arm of said lever, said nose being for engagement with the movable contact, means connected to the free end of the horizontal arm whereby same may be operated, and a retractile spring having a vertical disposition, the top end of said spring being connected to the cage above the horizontal arm of the lever, and the lower end of the spring being connected to the horizontal arm of the lever adjacent the free end of the horizontal arm.  
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In testimony whereof I have hereunto affixed my signature in the presence of two witnesses.

LEE BAYFR.

Witnesses:

FRED METZ,  
 H. F. SCHMITT.