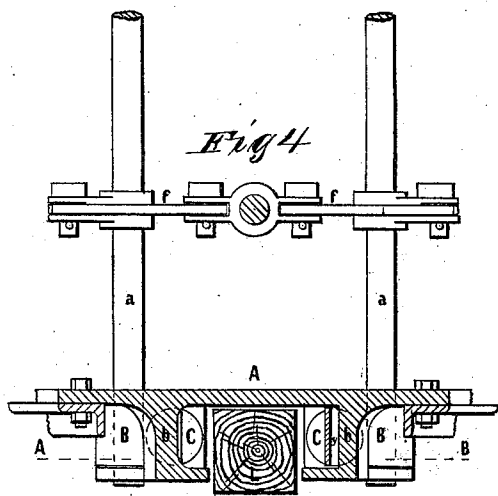
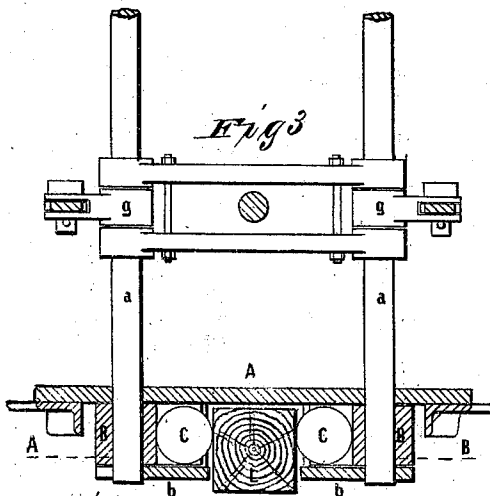
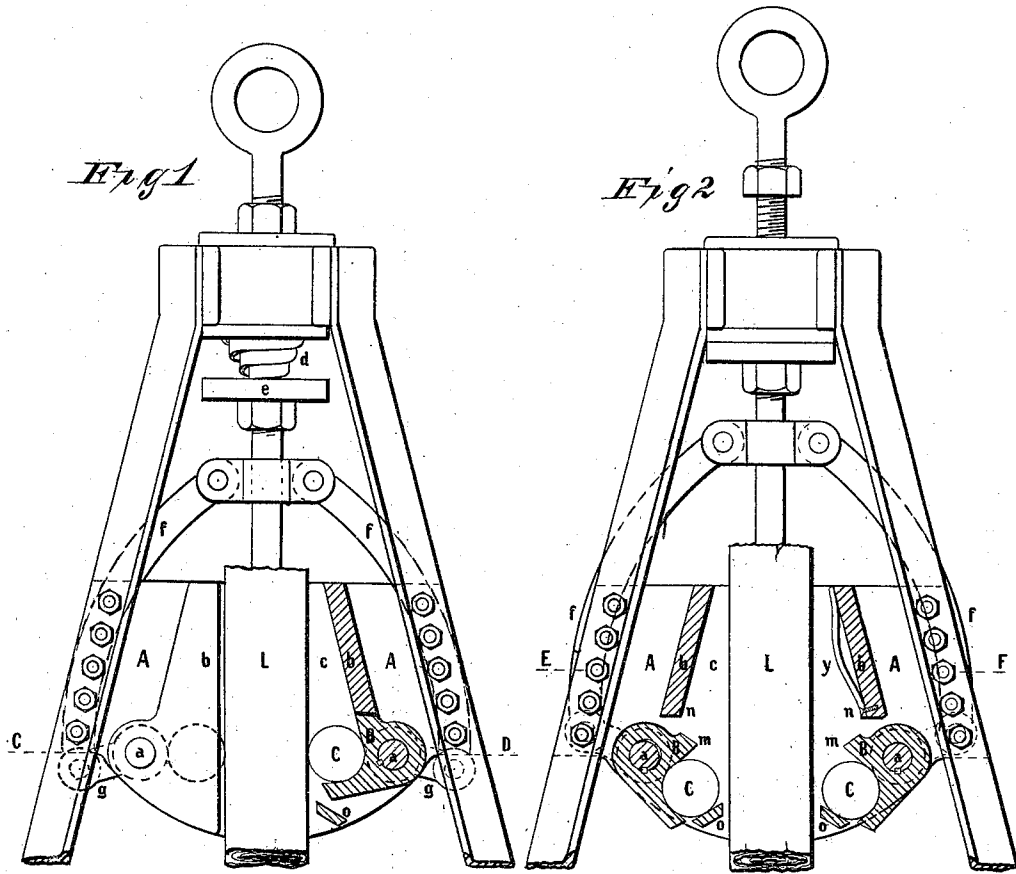


M. MUHLIG.

SAFETY HOISTING-CAGE.

No. 173,325.

Patented Feb. 8, 1876.



Witnesses
Louis Muhlig
Robert H. Smith

Inventor
Mos Muhlig

UNITED STATES PATENT OFFICE.

MAXIMILIAN MÜHLIG, OF FALKENAU ON THE EGER, AUSTRIA.

IMPROVEMENT IN SAFETY HOISTING-CAGES.

Specification forming part of Letters Patent No. **173,325**, dated February 8, 1876; application filed January 22, 1876.

To all whom it may concern:

Be it known that I, MAXIMILIAN MÜHLIG, of Falkenau on the Eger, Austria, have invented a Safety Apparatus for Cages for Hoisting, of which the following is a specification:

This safety apparatus is represented on the annexed sheet of drawings in four different views. Figure I is an elevation partly in section, according to line A B of Fig. III, while the latter is a plan, with section at C D, of Fig. I. These two views show the apparatus in action, while Figs. II and IV represent the same out of action.

A is the top part of the frame on the one side of the cage, the other frame (not shown in the drawing) being, of course, alike. This part is, by preference, made of cast-iron. On the same are cast two ribs, *b b*, inclined to the center line, or to the guide-post L. B B are two pieces keyed on the shafts *a a*. To the centers of the latter the levers *g g* are fixed, which are connected to the cross-head of the suspension-rod by the bars *f f*. The suspension-rod is provided with two nuts and a disk, *e*. The spring *d*, placed into a cavity of the top beam of the cage, serves to press the suspension-rod down, in case of breakage of the rope, as usual. This spring, however, may be made of any other design. C C are two balls or rollers, which I prefer to make of an elastic substance, such as india-rubber or leather, with a core of metal; but they may be made out of any other suitable material.

So long as the cage is suspended by the rope, its weight bears against the spring *d*, and presses the same so far together that the top beam rests on the disk *e*, as shown in Fig. II. The cross-head of the suspension-rod at the same time has drawn the rod *f*, and, consequently, the levers *g*, upward, so that the pieces B allow the balls or rollers C to remain at a certain distance from the guide-post L, so as not to hinder the upward or downward motion of the cage in any manner. The balls C are prevented from dropping out of their place by the stops *o o*.

In case of breakage of the rope the spring *d* is no more kept in tension, and, consequently, it immediately acts upon the described mechanism in such a manner as to cause the same to assume the position of Figs. I and III, so that the pieces B B press the balls C C against the guide-post. The point *m*, Fig. II, of B, comes into contact with the point *n* of the inclined rib *b*, forming thereby a continuous inclined surface for the balls to roll on. The cage, immediately upon the breakage of the rope, assuming a downward motion will cause the balls C to roll between the guide-post and the ribs *b*. The latter being inclined the balls will gradually be pressed together, slackening the downward speed of the cage in proportion, until they are fully jammed, and the cage is stopped.

By these means a sudden stoppage of the cage, which may easily cause a breakage of the same, is avoided; but if it should be considered advantageous, a strong spring, *y*, may yet be fixed to the rib *b*, as shown in Fig. II, for the purpose of taking up any final jerk which may occur at the moment of stopping.

With cages of large dimensions, two such safety apparatuses coupled with each other may be used, and in case two guide-posts are applied the apparatus may be arranged between these.

I claim as my invention—

The combination of the inclines *b*, the balls and rollers C, and the pieces B or their equivalent, in a safety apparatus, acted upon through suitable intermediate mechanism, as described, by a spring, *d*, as and for the purpose specified.

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

MAX. MÜHLIG.

Witnesses:

LOUIS MÜHLIG,
ROBERT R. SCHMIDT.