

WILLIAM T. SANDS.

Improvement in Safety Apparatus for Hoisting-Machines.

No. 116,103.

Patented June 20, 1871.

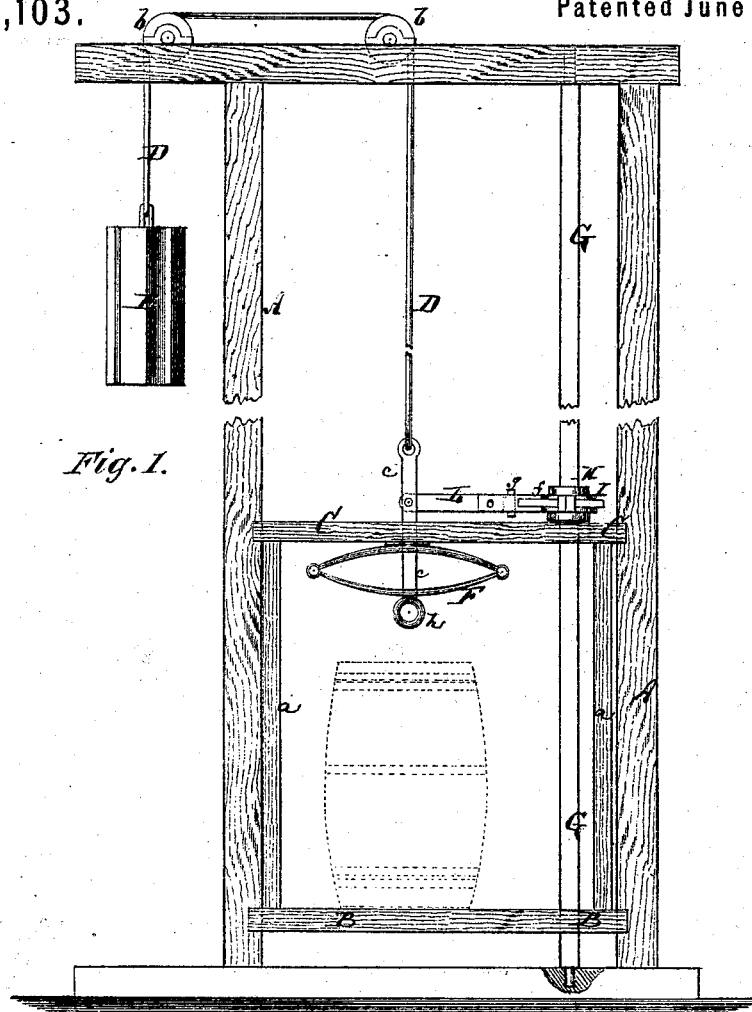


Fig. 1.

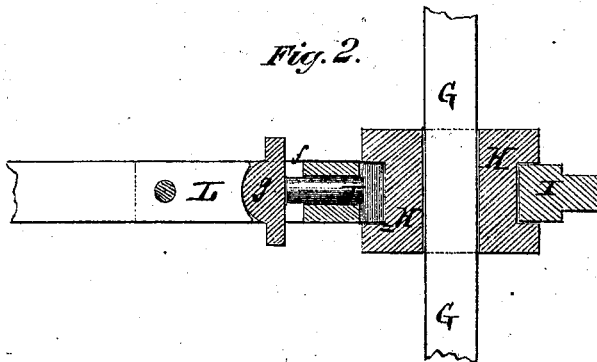


Fig. 2.

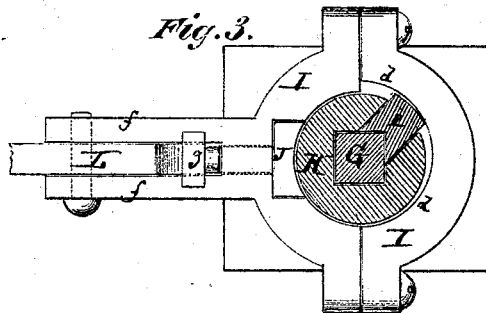


Fig. 3.

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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN SAFETY APPARATUS FOR HOISTING-MACHINES.

Specification forming part of Letters Patent No. 116,103, dated June 20, 1871.

*To all whom it may concern:*

Be it known that I, WILLIAM T. SANDS, of the city, county, and State of New York, have invented a new and Improved Brake and Safety Apparatus for Hoisting-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 represents a side elevation, partly in section, of a hoisting-machine provided with my improved safety apparatus. Fig. 2 is a vertical longitudinal section of the safety apparatus. Fig. 3 is a top view, partly in section, of the same.

Similar letters of reference indicate corresponding parts.

The object of this invention is to provide a hoisting apparatus with a device whereby the ascent of the unloaded platform, or its descent when overloaded, will be automatically stopped, and a regulating-brake, furthermore, obtained. The invention consists, first, in the use of a swinging lever, which is connected with the rope from which the platform is suspended, and with a spring attached to the cross-head, so that it will be swung up when the platform is overloaded, and down when the same is unloaded, in either case crowding a slide against a vertical rod or post, and locking the platform. The invention also consists in swiveling the said rod or post so that it can be turned, together with a sleeve through which it fits, to set a sliding brake-shoe on an eccentric jacket, and thereby release or lock the platform, at option.

A in the drawing represents the frame of the hoisting apparatus. B is the movable platform of the same, suspended by uprights *a a* from a cross-head, C. D is a rope or chain, passing over pulleys *b b* that hang in the upper part of the frame A. One end of the rope is secured to a bolt, *e*, that passes through the cross-head; the other end sustains a weight, E, which is heavy enough to hoist the loaded platform. Between the lower head of the bolt *e* and the cross-head is interposed a spring, F, which is slightly contracted when the platform is loaded in the required manner, still more contract-

ed when the platform is overloaded, and expanded when the same is unloaded. G is a vertical prismatic rod or post, extending from the lower to the upper part of the frame A, and swiveled at the ends, so that it can be turned. It passes through the cross-head and platform, and can be turned loose in the same. Directly above the cross-head the rod G passes through a sleeve, H, which is swiveled in a jacket or box, I, fastened to the platform. This jacket has a somewhat eccentric inner edge, as shown at *d* in Fig. 3, against which a loose section, *e*, of the sleeve fits. The inner end of the section *e* embraces one corner of the rod G. By turning the latter the section can be brought into the narrow or enlarged portion of the jacket, to be crowded against the rod for locking, or moved clear of the same for unlocking the platform—that is to say, when the movable section *e* is crowded against the rod the platform is locked and cannot move up or down; when, however, the rod G is turned to loosen the section, the platform will be free to move up or down. In an extension or arm, *f*, of the jacket I is a slide, J, which bears against the sleeve H. To the end of the same arm *f* is pivoted a lever, L, which is also connected with the bolt *e*, as shown. That end of the lever L which is pivoted to the arm *f* is concave, and bears against a button, *g*, that is interposed between the slide J and the lever L.

Whenever the latter is swung up or down it will crowd the button against the slide, and said slide against the sleeve, which, bearing against the rod G, clamps the platform thereto. When, however, the lever L is in a horizontal position, it will leave the slide and sleeve unmoved and the platform free to ascend or descend. Thus, whenever the platform is unloaded and the spring extended, the lever will be swung down, and the platform locked so that it cannot be carried up by the weight. When the right load is on the platform the lever L will be in a horizontal position, allowing the platform to be moved up or down. When the platform is overloaded the lever is inclined upward and the platform locked, so that it cannot move down too fast. An automatic safety attachment is thus provided, which can always be thrown out of gear by so turning the rod G as to carry the section *e* into

the enlarged portion of the eccentric chamber in I. A person on an unloaded platform can easily make it ascend by pulling the bolt *c'* until the lever L is level. A handle or loop, *h*, is for this purpose formed on the lower end of the bolt.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The spring F, combined by the bolt *c* and with the lever L, for automatically regulating the brake or safety attachment, as set forth.

2. The lever L, combined with the slide J, sleeve H, and rod G to operate and lock the platform, substantially as herein shown and described.

3. The rod G fitted through sleeve H, which has the loose section *e*, and works in the eccentric jacket I, substantially as herein shown and described.

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Witnesses:

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