July 6, 1926.

1,591,584

P. W. VISHNER ET AL

SAFETY APPLIANCE FOR RAISING AND LOWERING DEVICES

Filed March 5, 1926

Fig. 1.

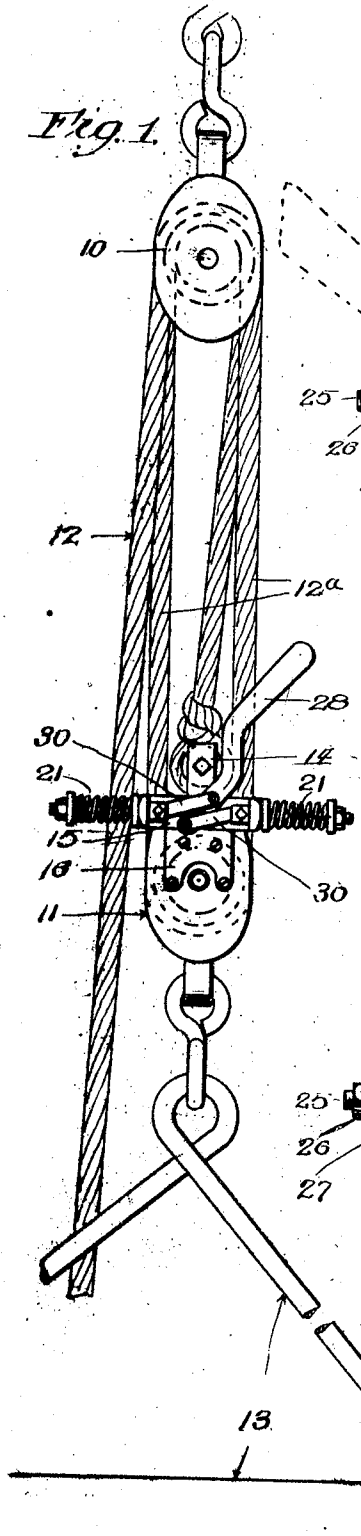


Fig. 2.

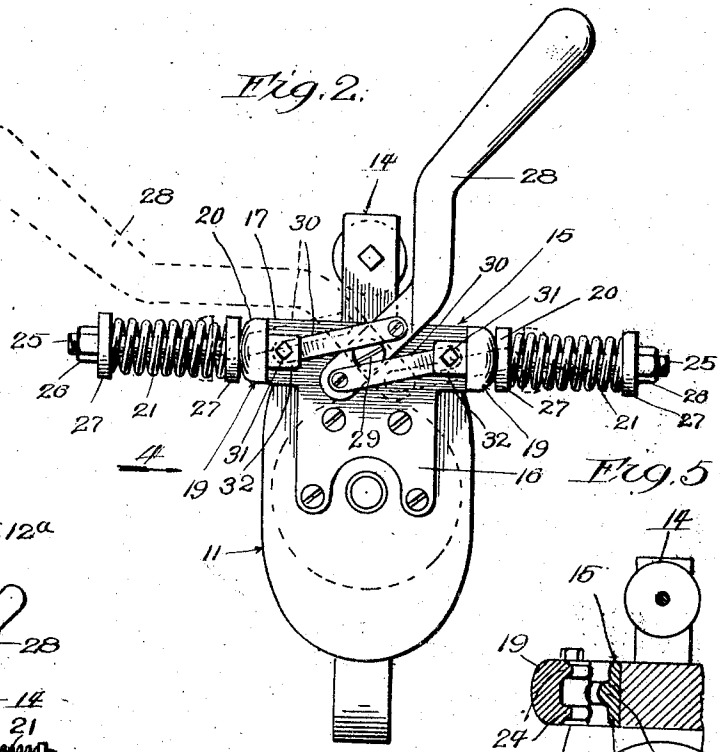


Fig. 5

Fig. 3.

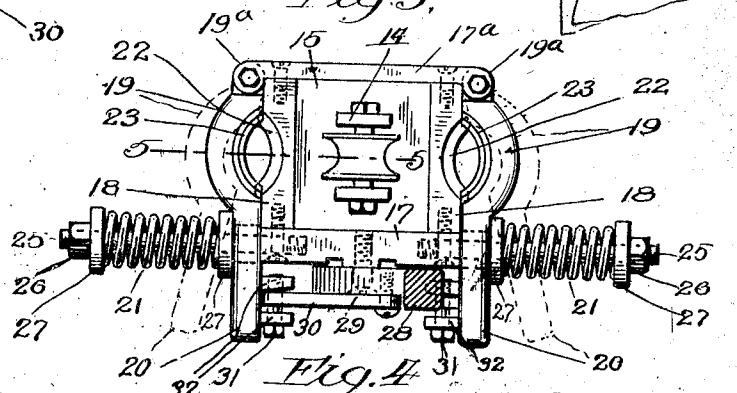
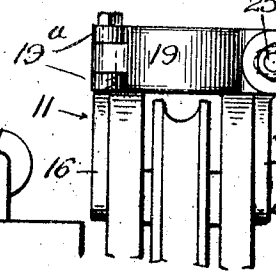


Fig. 4



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UNITED STATES PATENT OFFICE.

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SAFETY APPLIANCE FOR RAISING AND LOWERING DEVICES.

Application filed March 5, 1926. Serial No. 92,383.

This invention relates to a safety appliance for raising and lowering devices, and its principal object is to prevent swinging stages, scaffolds and the like, from falling, in case one of the supporting ropes breaks. Another object is to provide automatically operating rope clamping means in connection with the lower block of block and tackle mechanism, whereby in case the rope breaks, one or more of the bights of the rope will be clamped against movement and the fall of the stage, scaffold or the like, will be prevented. Another object is to provide an automatically operating rope clamp which is simple, easy to manipulate, is sturdy, strong and not likely to get out of order. Another object is to provide an automatically operating rope clamp which may be readily applied to a pulley block. With these and other objects and advantages in view, this invention consists in a rope clamp for swinging stages, scaffolds and the like, having spring-pressed rope clamping jaws, for clamping the rope against movement and manually operative lever mechanism for separating the clamping jaws and releasing the rope. The invention further consists in the several novel features hereinafter fully set forth and claimed.

The invention is clearly illustrated in the accompanying drawing, in which:

Fig. 1 is a side elevation of a block and tackle, supporting a swinging stage, and showing a simple form of the present invention applied thereto; Fig. 2 is a side elevation of the lower pulley block equipped with the device; Fig. 3 is a plan of the parts seen in Fig. 2 with the operating lever shown in cross section; Fig. 4 is a side elevation of the parts seen in Fig. 2, partly broken away, the view being taken in the direction of the arrow 4 in Fig. 3; and Fig. 5 is a detail, vertical cross section taken on line 5—5 of Fig. 3.

Referring to said drawing, the reference numeral 10 designates the upper pulley block 11 the lower pulley block, and 12 the rope of a block and tackle mechanism of common and well known type, and 13 designates a fragment of a swinging stage supported by said block and tackle. The rope 12 is secured to the top of the lower pulley block 11 by the rope attaching member 14, and runs to the upper pulley block 10, where it is trained over a pulley, then runs down to the lower pulley block 11, where it is trained around a pulley, then up and around a second pulley in the upper pulley block and then down, as is well understood by those skilled in the art to which this invention pertains.

Secured to the top of the pulley block 11 is a frame member 15, which may be formed with downwardly extending plates 16, one on each side of the pulley block 11, and secured thereto by screws or the like. Conveniently the frame member 15 may be formed of horizontal lengthwise and crosswise frame members 17, 17a, 18, fastened together by screws, bolts, or the like. Pivotally mounted on ears 19a on the frame member 17a are rope clamping jaw members 19 which have arms 20 that extend forward and are engaged by springs 21 that act to press the clamping jaws upon the rope. In order to obtain a secure hold on the rope, the frame member 18 and jaw members 19 are made concave as at 22, 23, and at these places are formed with teeth or beads 24 that bite upon the rope when the device is in operation. The concaved parts of the jaw members 19 and frame members 18 form rope gripping jaws that clamp the rope between them, and the concaves are so located that the bight 12a of the rope extends directly through them.

The springs 21 are preferably in the form of stout coiled compression springs, and they surround rods or stems 25 that extend through apertures in the jaw members 19 and are secured in the frame member 17. Nuts 26 or other shoulders are secured on the outer ends of the rods 25 and confine the springs 21 under compression. If desired, washers 27 may be interposed between the springs, jaw members and nuts.

As will be observed, the springs 21, force the jaw members 19 upon the rope and clamp it against the stationary jaws 22; the rope is gripped at two separate places and held against any possible movement. To release the rope from the grip of the jaws thereon, a hand operating or jaw opening lever 28 is provided, which is pivotally mounted on the frame member 17, by a bolt or screw 29. Secured to the operating lever 28 at points located on opposite sides of its fulcrum, are links 30, which extend to the jaw members 19, and are connected thereto by bolts or screws 31, and threadedly secured in ears 32 formed on the jaw members. Fig. 2 shows in solid lines, the jaw opening lever

28 in the position occupied when the jaw members are in gripping position and, in dotted lines, the position occupied when the jaw members are swung back to release the rope. Fig. 3 shows the jaw members in gripping position, in solid lines, and in released position in dotted lines.

In operation, the jaw members 19 are impinged upon the rope 12 by the action of the springs 21 and clamp the rope firmly in place. To lower the stage, the workman swings the operating or jaw opening lever 28 back into the position seen in dotted lines in Fig. 2, thereby releasing the rope. In this position of the parts the rope may be freely played out and passes freely between the jaws. To clamp the rope, the workman releases his hold on the lever 28 permitting the springs 21 to impinge the jaw members 19 upon the rope. The same movement of the jaw members returns the operating lever to the position seen in full lines in Fig. 2.

In case the rope breaks while the jaws are open, the workman releases his hold on the lever and the jaws instantly grip the rope in two places, thereby preventing it from being paid out. One or both of the jaws will grip some part of the rope regardless of the place where it parts, and thereby prevent it from being paid out over the upper pulley.

We claim as new and desire to secure by Letters Patent:

1. A safety appliance for raising and lowering devices, comprising a supporting member, a frame supported thereby, and having two spaced, fixed rope gripping jaws, two spring pressed, movable jaw members, pivotally mounted on said frame, and each having a jaw cooperating with a fixed jaw to grip a length of rope therebetween, a jaw opening lever pivotally mounted on said frame, and operative connections between said lever and jaw members.

2. A safety appliance for raising and lowering devices, comprising a pulley block around which a bight of rope extends, a frame secured to and supported by said pulley block having two spaced, fixed rope gripping jaws, two movable jaw members pivotally mounted on said frame, and each having a jaw, coacting with a fixed jaw to grip the rope between them, coiled compression springs, one for each jaw member, arranged to impinge an associated movable jaw member upon the rope, abutment members for said springs to abut against, a jaw opening lever, and operative connections between said lever and jaw members.

3. A safety appliance for raising and lowering devices, comprising a pulley block around which a bight of rope extends, a frame secured to said pulley block, and having two spaced, fixed rope gripping jaws, two movable jaw members pivotally mounted on said frame, and each having a rope gripping jaw cooperating with a fixed jaw to grip the rope between them, a jaw opening lever pivotally mounted on said frame, spring holding rods secured to said frame, coiled compression springs held under compression against said movable jaw members by said rods, and jaw operating links connecting said lever with said movable jaws.

4. A safety appliance for raising and lowering devices, comprising a pulley block around which a bight of rope extends, a frame secured to said pulley and having two spaced, fixed rope gripping jaws, two movable automatically closing jaw members pivotally mounted on said frame and cooperating with said fixed jaws to grip a length of rope between them, a jaw opening lever, and link connections between said lever and movable jaw members.

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