

May 9, 1933.

M. NIEMI

1,907,436

HOISTING BLOCK

Filed Feb. 15, 1932

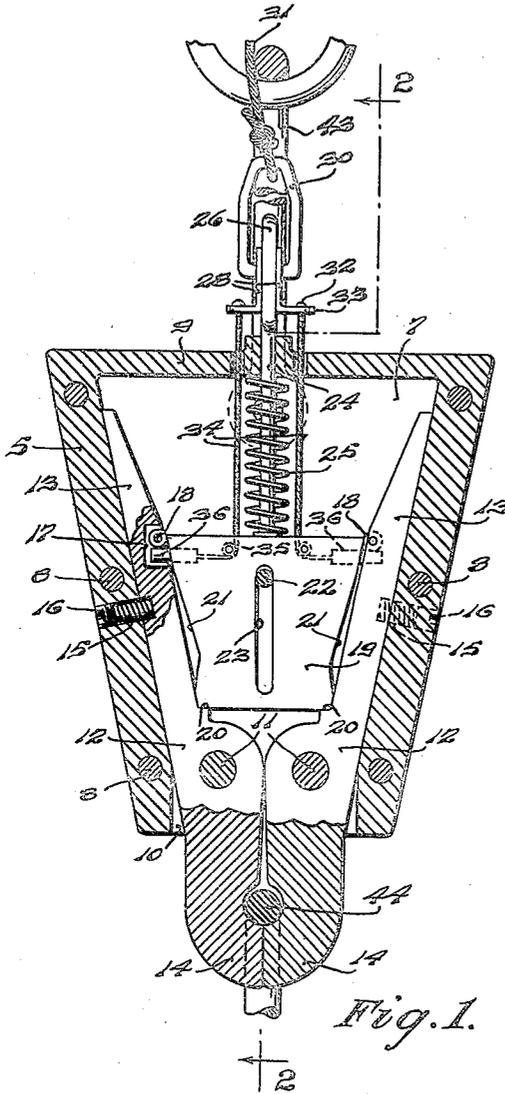


Fig. 1.

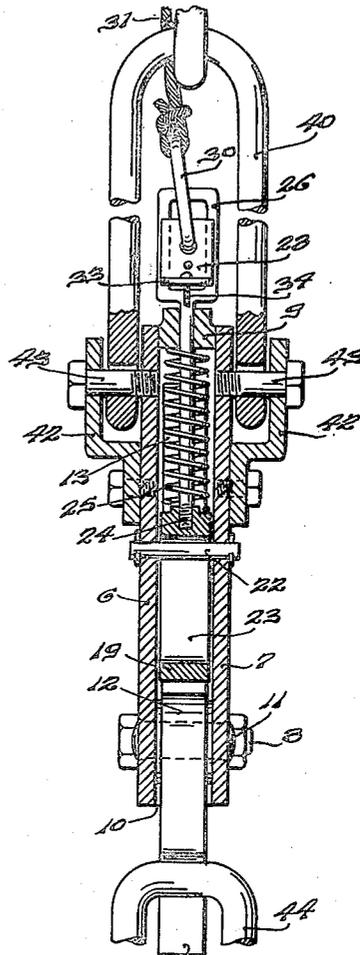


Fig. 2.

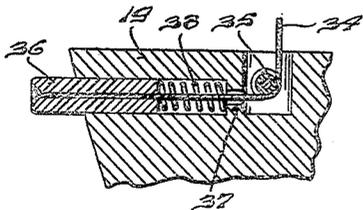


Fig. 3.

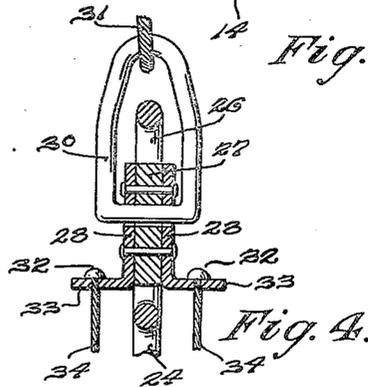


Fig. 4.

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HOISTING BLOCK

Application filed February 15, 1932. Serial No. 593,033.

This invention relates to hoisting blocks, and more especially to improvements over structure illustrated and described in my co-

pending application, Serial Number 573,912. The present invention utilizing, as with my prior invention, a pair of wedge-closing jaws, the wedge being actuated by a spring, an object of the present invention is the provision of a most advantageous arrangement of lock plungers preventing accidental wedge retraction.

A further object is the provision, co-operative with said lock, of a safety release therefor so designed that the locking plungers are fully retracted prior to wedge movement.

The foregoing, together with further and more particular objects and advantages, such as have reference to details of construction in affording most efficient action, strength and durability of the component parts, should become apparent in the course of the following detailed description and claims, the invention consisting in the novel construction, adaptation and combination of parts hereinafter described and claimed.

In the drawing:

Figure 1 is a longitudinal vertical section, parts being indicated in side elevation, of my improved block.

Figure 2 is a transverse vertical section thereof, taken on the line 2-2 of Figure 1.

Figure 3 is an enlarged detail longitudinal section illustrating one of the companion locking pins; and

Figure 4 is a detail transverse vertical section, taken to an enlarged scale, of the control mechanism for said pins.

Reference had thereto, the present invention, as with my aforementioned hoisting block, includes a housing conformed of a medial generally horse shoe configured member 5 adapted for interposition between co-operating closure plates 6, 7, being joined thereto by bolts 8. As indicated, the inner side walls of said member 5 are plane, converging directly of one another from a head wall 9 to a throat 10. At opposite sides of a transverse vertical center line taken through said throat are a pair of laterally spaced-apart fulcrum pins 11 serving to sup-

port medially of their lengths, a pair of levers 12 having their upper terminal or power arms 13 normally seating against the member 5, the work arms below said fulcrums providing companion jaws 14. 15 indicates springs introduced in sockets of the power arms for spreading the jaws, said springs retained in associated sockets of the member 5 by means of plugs 16.

Said inner faces of the power arms being parallel or nearly so with the outer seating surfaces and providing a recession 17 adjacent terminal ends of the same, upper portions of such recesses receiving rollers 18, the invention introduces a vertically-movable wedge member 19 in the space between said arms for tracking engagement of its side walls 21 over said rollers, said wedge normally seating against a shoulder 20 formed relatively adjacent the lever fulcrums 11. The tracking walls of said wedge recede inwardly in accommodating the movement of the lever power arms about their respective fulcrum. A wedge guide comprises a transverse pin 22 acting in a slot 23 of the wedge to co-operate with a bolt 24 secured to the wedge. Said bolt, receiving a spring 25 thereabouts for influencing the wedge against the lever power arms, projects through the head wall 9 and terminates in an eye 26, said eye having parallel side arms adapted to receive a slide member formed of a center guide 27 riveted or otherwise secured between plates 28 conformed to overlap the eye. A ring or the like 30 connects said slide with a release line 31. The arrangement allows relative vertical activity of the slide prior to an abutting engagement of the same with the upper cross arm of the eye.

Secured to said slide through suitable means, the arrangement shown being a soldered head 32 engaging laterally turned out wings 33 of the slide side plates 28, are cables 34 projecting through apertures of the housing head, said cables passing about rollers 35 supported in a vertically bored recess of the wedge and through center bores of a respective horizontally movable lock plunger 36 for connection therewith. The cylinder bore for said plungers provides a shoulder 37 ac-

commodating the introduction of a spring 38 rearwardly of the plunger, said cylinder located to normally dispose the plunger for socketed engagement below the lever-supported rollers 18.

40 indicates a bail for elevating or lowering the housing, being mounted between brackets 42 and the housing side plates on supporting trunnions 43.

I have represented the jaws as adapted to the engagement of a work-supporting ring 44. A designing of the same, however, to accommodate the various characters of work is believed obvious. In the operation of the structure disclosed, the lock plungers normally engage in the lever power arm recesses below the rollers, preventing wedge retraction. In releasing the same, the slide is actuated to extract the plungers, such being fully disengaged prior to contact of the center guide 27 against the eye with subsequent wedge movement.

Various modifications within the scope of the invention are believed obvious.

What I claim is:

1. In a hoisting block, a chambered housing having a throat communicating with the chamber thereof at the lower end of the same, an elevating bail for said housing, a pair of horizontally spaced pivot pins supported by said housing to locate the same at opposite sides of a transverse center line taken through said throat, levers fulcrumed on said pins to provide companion jaws at their lower ends and power arms projecting within the chamber, a wedge supported in the space between said power arms within said chamber, a spring serving to influence said wedge to spread the power arms in closing said jaws, rollers supported by said power arms for riding engagement with said wedge, means for retracting said wedge in opposition to the spring, and springs socketed rearwardly of each of said power arms for opening the jaws responsive to said wedge retraction.

2. The structure as defined in claim 1, including lock plungers engageable between said power arms and the wedge for preventing accidental retraction of said wedge.

3. In hoisting apparatus, a block having a bail attached thereto for elevating the same, a pair of horizontally spaced pivot pins supported by said block, levers fulcrumed on said pins to provide companion jaws at their lower ends and power arms at their upper ends, a wedge engageable with said power arms and supported for movement therebetween, a spring serving to influence said wedge to spread said power arms in closing the jaws, said power arms providing sockets in respective inner faces of the same, a roller supported in the upper portions of each of said sockets for tracking engagement with the wedge, lock plungers supported by said wedge for horizontal movement into and

from the sockets below said rollers for locking and releasing the wedge with respect to the levers, springs for influencing said plungers into the sockets, and means for releasing said plungers from their locking dispositions co-incident with retraction of the wedge.

4. The structure as defined in claim 3, said plungers being fully released prior to transmission of retraction power to the wedge.

5. In a hoisting block, a pair of lever members fulcrumed for movement about a respective horizontal axis, said axes horizontally spaced, one from the other, said levers being formed to provide work-engaging jaws below and diverging power arms above the horizontal plane of the fulcrums, a wedge supported for movement between said power arms, plungers adapted to normally interconnect said wedge and the power arms for locking the same against movement, and means for releasing said plungers and for retracting said wedge, said means being inoperative to the wedge prior to full disengagement of the plungers.

6. In grappling structure, a pair of lever members supported to provide work-engaging and power arms below and above the point of pivotal suspension, said power arms diverging upwardly from one another, a wedge engageable between said power arms, means for normally locking said wedge with respect to the power arms to retain the work-engaging arms in operative dispositions, and means for releasing said lock and for retracting said wedge, said release means being inoperative with respect to the wedge prior to full release of the lock.

7. In grappling structure, levers collectively providing work-engaging arms, a wedge engageable with said levers for closing the arms, springs engageable with the levers for opening said jaws responsive to wedge retraction, and releasable means for locking said wedge and levers to normally maintain said arms in their work-engaging dispositions.

8. The combination with a movable member, a track way therefor, said track including rollers supported at opposite sides of said member, of means for locking said member against movement, said means comprising plungers movable at cross angles to the direction of member movement and supported for engagement below the rollers, springs serving to influence said plungers into engaging relation, and means for retracting said plungers in opposition to said springs.

9. The structure as defined in claim 8 including means for moving said member, said means being inoperative with respect to the member prior to full retraction of the plungers.

10. The combination with a slidable member, and means for locking the same against

movement, of means for releasing said lock and for moving said member, said means being inoperative with respect to the member prior to disengagement of the lock.

5 11. In grappling structure, levers collectively providing work-engaging jaws, a wedge engageable with said levers for closing the same, lock means for preventing movement of said wedge from its jaw-closing
10 disposition, means for releasing said lock, and means for retracting said wedge.

Signed at Seattle, Washington, this 25 day of November 1931.

MATTI NIEMI.

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