

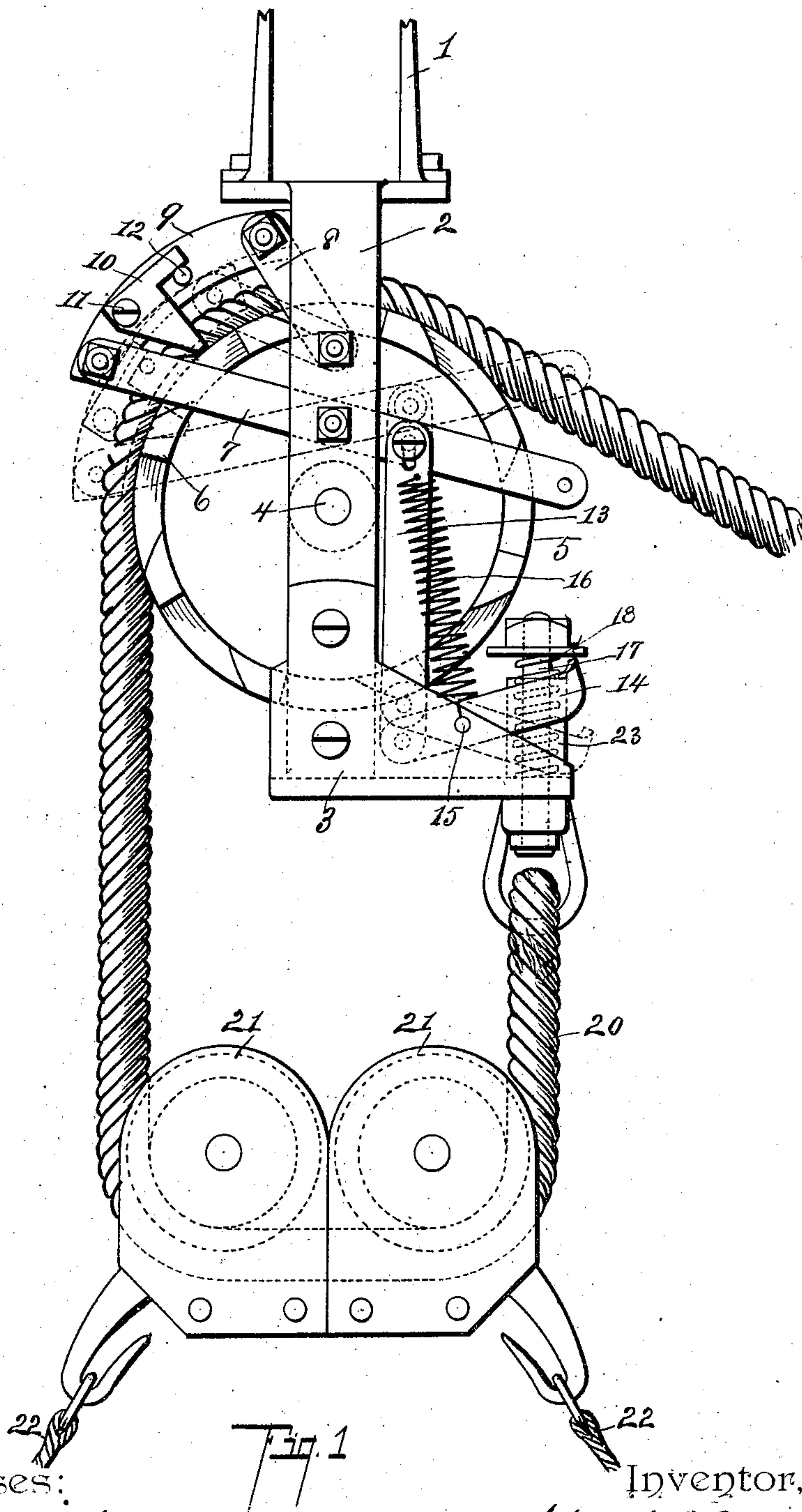
No. 876,991.

PATENTED JAN. 21, 1908.

H. A. MYERS.
HOISTING PULLEY.

APPLICATION FILED AUG. 14, 1906.

2 SHEETS—SHEET 1.



Witnesses:

Lulu G. Greenfield
E. Lora E. Braden

Inventor,

Hubert A. Myers
By *Chapman & Co.*
Att'y's.

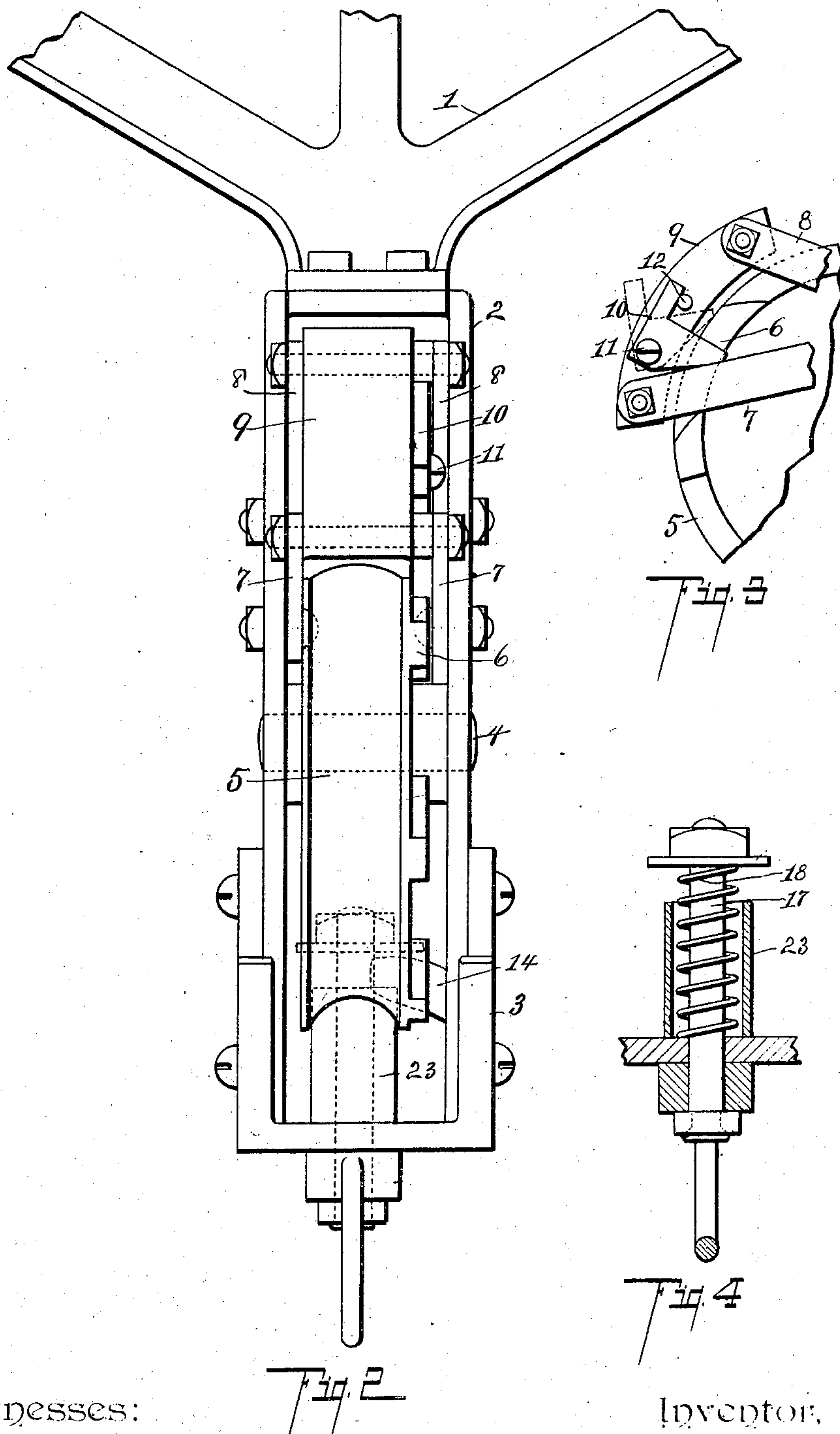
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Witnesses:

Lucas J. Greenfield
Clara E. Braden

Inventor,

Hubert A. Myers

By *Chapman & Earl*
Attys

UNITED STATES PATENT OFFICE.

HUBERT A. MYERS, OF GOSHEN, INDIANA, ASSIGNOR TO ALLEN P. BOYER, OF GOSHEN, INDIANA.

HOISTING-PULLEY.

No. 876,991.

Specification of Letters Patent.

Patented Jan. 21, 1908.

Application filed August 14, 1906. Serial No. 330,550.

To all whom it may concern:

Be it known that I, HUBERT A. MYERS, a citizen of the United States, residing at Goshen, county of Elkhart, and State of Indiana, have invented certain new and useful Improvements in Hoisting-Pulleys, of which the following is a specification.

This invention relates to improvements in hoisting apparatus.

My improved hoisting apparatus is particularly designed for use in carriers, such as hay carriers and the like, although it is adapted and desirable for use in any relation where it is desired to lock a load in an elevated position.

The main object of this invention is to provide a hoisting apparatus adapted to automatically lock the load in position.

Further objects, and objects relating to structural detail, will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

The invention is clearly defined and pointed out in the claims.

A structure embodying the features of my invention is clearly illustrated in the accompanying drawing forming a part of this specification in which.

Figure 1 is a side elevation of a structure embodying the features of my invention. Fig. 2 is an elevation thereof, looking from the left of Fig. 1, the hoisting rope being removed. Fig. 3 is an enlarged detail side elevation showing the clutch member 9 in its clamping position. Fig. 4 is a detail section showing structural details.

In the drawing, similar reference characters refer to similar parts throughout the several views.

Referring to the drawing, 1 represents the frame of a carrier or other support. The frame 2 is suspended from the support 1 and is preferably formed of vertical side pieces and a laterally projecting portion 3 at their lower ends.

The pulley 5 is journaled on a suitable spindle as 4. On the pulley 5 are laterally projecting teeth or projections 6 arranged at suitable intervals about the same. A clutch member 9, the inner face of which is preferably curved to correspond to the pulley, is carried by the lever 7 and the link 8. These supports for the clutch member or clamping

jaw 9 are so arranged that when the clutch member is swung downwardly, it is forced inwardly against the rope arranged on the pulley clamping the same thereon. On the clutch 9 is a pawl 10 adapted, when the clutch is forced downwardly and inwardly from its normal position, to engage the teeth on the pulley so that on the backward movement of the pulley, when the pawl is in engagement therewith, the clutch is carried downwardly and drawn inwardly against the rope, as appears in dotted lines in Fig. 1.

In order that the clutch may be automatically actuated by the load, I provide a lever 14 which is pivoted at 15 and connected to the lever 7 by a suitable link 13. When this lever 14 is forced downwardly, it actuates the lever 7 throwing the pawl 10 into engaging position with the pulley so that on the rearward movement of the pulley, the clutch is drawn against the rope. The pulley itself serves as the other clamping member. Thus arranged, the greater the load the greater the clamping force of the clutch.

The hoisting rope, as 20, is connected to a movable member 17, preferably a swivel bolt which is arranged through the projection 3 of the pulley frame. A spring 18 is arranged on this bolt, the tension of the spring being sufficient to sustain the weight of the tackle, so that the clutch 9 is not actuated when there is no load. As soon as the rope 20 is carrying a load, the bolt is drawn downwardly engaging the lever 14, and, through the connections described, actuates the clutch by throwing it downwardly until the pawl 10 thereof is in position to engage the pulley.

A stop in the form of a sleeve 23 is provided for limiting the movement imparted by the weight of the load to the bolt so that the rope passes freely under the clutch until it is brought down into its clamping position by the rearward movement of the pulley.

The pawl 10 is pivoted at 11 so that on the forward movement of the pulley, it slips over the teeth. A stop 12 is provided for the pawl so that, as soon as the pulley moves rearwardly, as has been stated, the clutch is brought down into its clamping position.

In the structure illustrated, I show a pair of pulley blocks 21, having slings 22 connected thereto. These, of course, form no part of the invention.

The clutch is held normally out of its en-

gaging position by the spring 16 which is connected to the link 13 and to the frame.

By arranging the parts as I have illustrated and described, I provide a device by which the load is automatically locked in any position, the weight of the load serving to actuate the clutch. The pulley forms one of the clutch members, thereby simplifying the construction. The rope is clamped so that the wear thereon is reduced to a minimum.

In cases where it is desired to release the clutch while the rope is carrying a load, the same may be tripped by means of the lever 7, a rope or other connection being attached to the projecting end thereof.

I have illustrated and described my improved hoisting apparatus in detail in the form preferred by me on account of its structural simplicity and economy. I am, however, aware that it is capable of great variation in structural detail without departing from my invention.

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

1. The combination with a frame, of a pulley having teeth thereon; a clutch member; a pawl carried thereby; a lever pivoted to said frame and to said clutch member; a link pivoted to said frame and clutch member, coacting with said lever to support said clutch member; a hoisting rope; a vertically movable member to which said rope is attached; a stop for limiting the downward movement of said member; a spring for holding said member normally upward; a lever actuated by said member on the downward movement thereof, connected to said clutch-carrying lever, whereby the clutch member is shifted to bring the pawl thereon into engaging position with said pulley; a spring for returning said clutch member to its initial position when released; and a trip for said clutch member, for the purpose specified.

2. The combination with a frame, of a pulley having teeth thereon; a clutch member; a pawl carried thereby; a lever pivoted to said frame and to said clutch member; a link pivoted to said frame and clutch member, coacting with said lever to support said clutch member; a hoisting rope; a vertically movable member to which said rope is attached; a stop for limiting the downward movement of said member; a spring for holding said member normally upward; a lever actuated by said member on the downward movement thereof, connected to said clutch-carrying lever, whereby the clutch member is shifted to bring the pawl thereon into engaging position with said pulley; a spring for returning said clutch member to its initial position when released, for the purpose specified.

3. The combination with a frame, of a pulley having teeth thereon; a clutch member

a pawl carried thereby; a lever pivoted to said frame and to said clutch member; a link pivoted to said frame and clutch member, coacting with said lever to support said clutch member; a hoisting rope; a vertically movable member to which said rope is attached; a stop for limiting the downward movement of said member; a spring for holding said member normally upward; a lever actuated by said member on the downward movement thereof, connected to said clutch-carrying lever, whereby the clutch member is shifted to bring the pawl thereon into engaging position with said pulley; and a trip for said clutch for the purpose specified.

4. The combination with a frame, of a pulley having teeth thereon; a clutch member; a pawl carried thereby; a lever pivoted to said frame and to said clutch member; a link pivoted to said frame and clutch member, coacting with said lever to support said clutch member; a hoisting rope; a vertically movable member to which said rope is attached; a stop for limiting the downward movement of said member; a spring for holding said member normally upward; and a lever actuated by said member on the downward movement thereof, connected to said clutch-carrying lever, whereby the clutch member is shifted to bring the pawl thereon into engaging position with said pulley, for the purpose specified.

5. The combination with a frame, of a pulley having teeth thereon; a clutch member; a pawl carried thereby; a lever pivoted to said frame and to said clutch member; a link pivoted to said frame and clutch member, coacting with said lever to support said clutch member; a hoisting rope; a vertically movable member to which said rope is attached; a lever actuated by said member on the downward movement thereof, connected to said clutch-carrying lever, whereby the clutch member is shifted to bring the pawl thereon into engaging position with said pulley; a spring for returning said clutch member to its initial position when released; and a trip for said clutch member, for the purpose specified.

6. The combination with a frame, of a pulley having teeth thereon; a clutch member; a pawl carried thereby; a lever pivoted to said frame and to said clutch member; a link pivoted to said frame and clutch member, coacting with said lever to support said clutch member; a hoisting rope; a vertically movable member to which said rope is attached; a lever actuated by said member on the downward movement thereof, connected to said clutch-carrying lever, whereby the clutch member is shifted to bring the pawl thereon into engaging position with said pulley; and a spring for returning said clutch member to its initial position when released, for the purpose specified.

7. The combination with a frame, of a pulley having teeth thereon; a clutch member; a pawl carried thereby; a lever pivoted to said frame and to said clutch member; a link pivoted to said frame and clutch member, co-acting with said lever to support said clutch member; a hoisting rope; a vertically movable member to which said rope is attached; a lever actuated by said member on the downward movement thereof, connected to said clutch-carrying lever, whereby the clutch member is shifted to bring the pawl thereon into engaging position with said pulley; and a trip for said clutch, for the purpose specified.

8. The combination with a frame, of a pulley having teeth thereon; a clutch member; a pawl carried thereby; a lever pivoted to said frame and to said clutch member; a link pivoted to said frame and clutch member, coacting with said lever to support said clutch member; a hoisting rope; a vertically movable member to which said rope is attached; and a lever actuated by said member on the downward movement thereof, connected to said clutch-carrying lever, whereby the clutch member is shifted to bring the pawl thereon into engaging position with said pulley, for the purpose specified.

9. The combination with a frame, of a pulley having teeth thereon; a clutch member; supporting links for said clutch member; a pawl carried by said clutch; a hoisting rope; a movable member to which said rope is attached, connected to said clutch, whereby the same is actuated to bring the pawl thereof into engagement with said pulley; a spring for returning said movable member to its initial position; a spring for returning said clutch member to its initial position when released; and a trip for said clutch member, for the purpose specified.

10. The combination with a frame, of a pulley having teeth thereon; a clutch member; supporting links for said clutch member; a pawl carried by said clutch; a hoisting rope; a movable member to which said rope is attached, connected to said clutch, whereby the same is actuated to bring the pawl thereof into engagement with said pulley; a spring for returning said movable member to its initial position; and a spring for returning said clutch member to its initial position when released, for the purpose specified.

11. The combination with a frame, of a pulley having teeth thereon; a clutch member; supporting links for said clutch member; a pawl carried by said clutch; a hoisting rope; a movable member to which said rope is attached, connected to said clutch, whereby the same is actuated to bring the pawl thereof into engagement with said pulley; and a trip for said clutch member, for the purpose specified.

12. The combination with a frame, of a

pulley having teeth thereon; a clutch member; supporting links for said clutch member; a pawl carried by said clutch; a hoisting rope; and a movable member to which said rope is attached, connected to said clutch, whereby the same is actuated to bring the pawl thereof into engagement with said pulley, for the purpose specified.

13. The combination with a frame, of a pulley having teeth thereon; a movably supported clutch member; a pawl carried by said clutch; a hoisting rope; a movable member to which said rope is attached, connected to said clutch whereby the same is actuated to bring the pawl thereof into engagement with said pulley; a spring for returning said movable member to its initial position; a spring for returning said clutch member to its initial position when released; and a trip for said clutch member, for the purpose specified.

14. The combination with a frame, of a pulley having teeth thereon; a movably supported clutch member; a pawl carried by said clutch; a hoisting rope; a movable member to which said rope is attached, connected to said clutch whereby the same is actuated to bring the pawl thereof into engagement with said pulley; a spring for returning said movable member to its initial position; and a spring for returning said clutch member to its initial position when released, for the purpose specified.

15. The combination with a frame, of a pulley having teeth thereon; a movably supported clutch member; a pawl carried by said clutch; a hoisting rope; a movable member to which said rope is attached, connected to said clutch whereby the same is actuated to bring the pawl thereof into engagement with said pulley; and a trip for said clutch member, for the purpose specified.

16. The combination with a frame, of a pulley having teeth thereon; a movably supported clutch member; a pawl carried by said clutch; a hoisting rope; and a movable member to which said rope is attached, connected to said clutch whereby the same is actuated to bring the pawl thereof into engagement with said pulley, for the purpose specified.

17. The combination with a frame of a pulley having teeth thereon; a movably supported clutch member; a pawl carried by said clutch member; means for holding said clutch member yieldingly out of its engaging position; and means for actuating said clutch member to bring the said pawl carried thereby into engagement with said pulley, said pawl being arranged so that the rearward revolution of the pulley draws the clutch member into clamping engagement with the rope, said clutch actuating means being adapted to be actuated by the load upon the hoisting rope.

18. The combination with a frame of a pulley; a movably supported clutch member adapted to co-act with the pulley in clamping a rope; means for holding said clutch member normally out of its engaging position; means for connecting said clutch member to said pulley, arranged so that the rearward revolution of the pulley draws the clutch member into clamping engagement with the rope, the said means being adapted to be actuated by the hoisting rope when the load thereon is sufficient to counteract the means for holding said clutch member out of its engaging position, said clutch member being adapted to automatically return to its initial position when the hoisting rope is relieved of the load.

19. The combination with a frame of a pulley; a movably supported clutch member; means for connecting said clutch member to said pulley arranged so that the rearward revolution of the pulley draws the clutch member into clamping engagement with the rope, said means being adapted to be actuated by the load on the hoisting rope; and means for automatically disengaging said connecting means from said pulley when the hoisting rope is relieved of its load.

20. The combination with a frame, of a pulley having teeth thereon; a clutch member having a curved gripping face arranged to co-act with the pulley in gripping a rope; supporting links for said clutch member arranged in pairs so that both ends of said clutch member have a substantially uniform movement throughout the movement of the clutch member; and a pawl carried by said clutch member adapted to engage the teeth on said pulley whereby said clutch member is actuated.

21. The combination with a frame, of a pulley having teeth thereon; a clutch member having a curved gripping face adapted to co-act with the pulley for clamping a rope; supporting links for said clutch member arranged so that all parts of the gripping face of the said clutch member are at substantially uniform distances from the axis of the pulley throughout the movement of said clutch; and a pawl carried by said clutch member adapted to engage the teeth of said pulley whereby said clutch member is actuated.

22. The combination with a frame, of a pulley having teeth thereon; a clutch member having a curved gripping face adapted to co-act with the pulley for clamping a rope; supporting links for said clutch member ar-

ranged so that all parts of the gripping face of the said clutch member are at substantially uniform distances from the axis of the pulley throughout the movement of the said clutch; and means for connecting said clutch member to said pulley whereby said clutch is brought into action on the rearward movement of the pulley, for the purpose specified.

23. The combination with a frame, of a pulley; a clutch member having a curved gripping face adapted to co-act with the pulley for clamping a rope; supporting links for said clutch member arranged so that all parts of the gripping face of the said clutch member are at substantially uniform distances from the axis of the pulley throughout the movement of the said clutch; and means for connecting said clutch member to said pulley whereby said clutch is brought into action on the rearward movement of the pulley, for the purpose specified.

24. The combination with a frame of a pulley; a movable clutch member adapted to co-act with the pulley in clamping a rope, said clutch member being normally held in an inoperative position; means for connecting said clutch member to said pulley arranged so that the rearward revolution of the pulley draws the clutch member into clamping engagement with the rope, said means being adapted to be actuated by the load on the hoisting rope, and means for automatically returning said clutch member to its initial, or disengaging position and disengaging the said pulley connecting means thereof when the hoisting rope is relieved of its load.

25. The combination with a frame of a pulley; a movably supported clutch member; a pulley engaging pawl carried by said clutch member arranged so that when it is in its engaging position the rearward revolution of pulley draws the said clutch member into clamping engagement with the rope; a hoisting rope, connections therefor to said clutch member whereby the same is actuated to bring said pawl connecting means into its pulley engaging position, and means for automatically returning said clutch member to its initial position when said pawl is disengaged from said pulley.

In witness whereof, I have hereunto set my hand and seal in the presence of two witnesses.

HUBERT A. MYERS. [L. s.]

Witnesses:

J. A. SNAPP,

FRANK DRIFF.