L. GILCHRIST & C. VAN WINKLE.

AUTOMATIC RELEASING TIMBER CARRYING HOOK.

APPLICATION FILED JULY 8, 1913.

1,129,664. **Patented Feb. 23, 1915.**

2 SHEETS—SHEET 1.

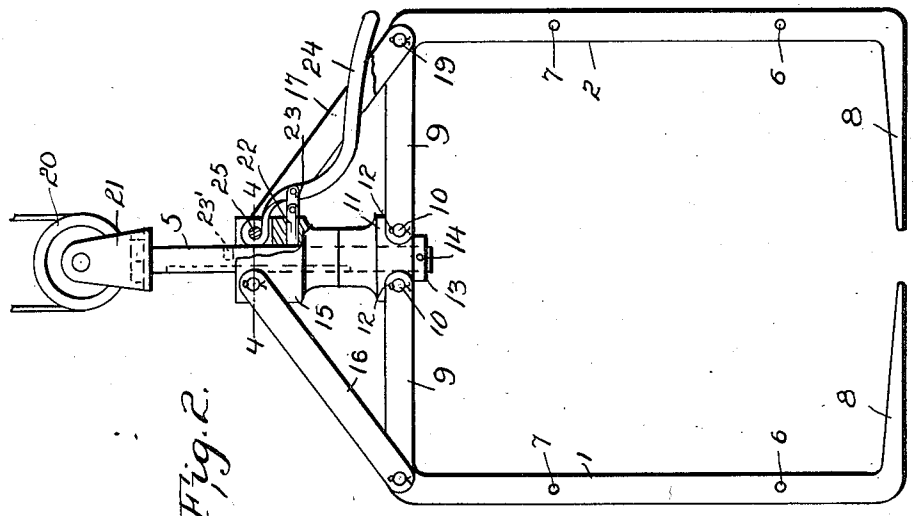


Fig. 2.

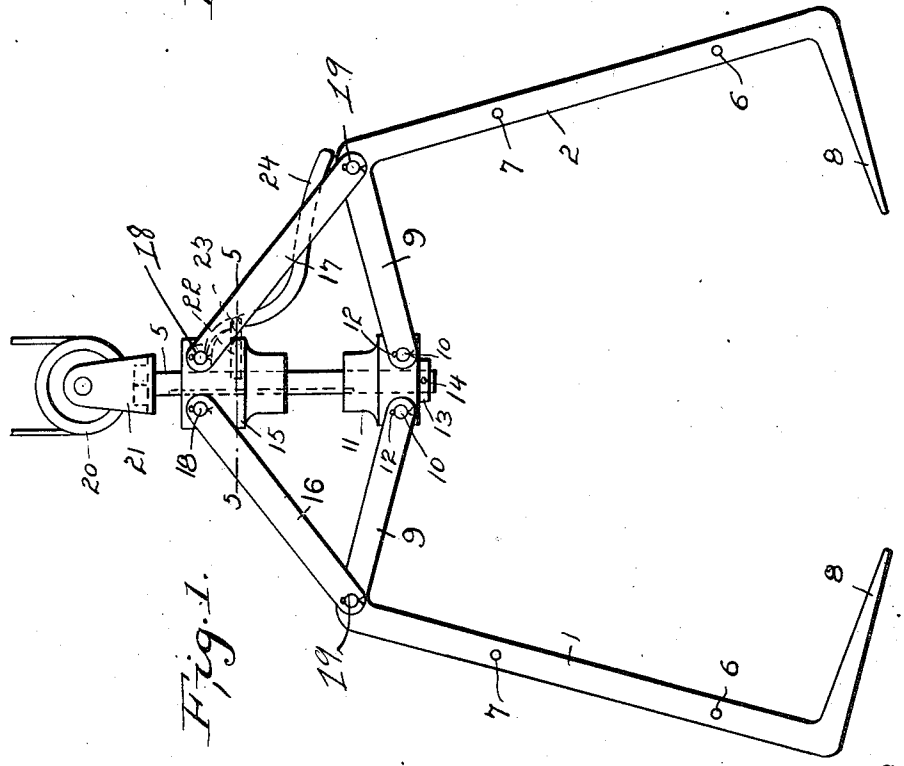


Fig. 1.

Witnesses

R. N. Jones

C. H. Gaudow.

Inventors

L. Gilchrist & C. Van Winkle.

By A. Randolph Jr.

Attorney.

L. GILCHRIST & C. VAN WINKLE.

AUTOMATIC RELEASING TIMBER CARRYING HOOK.

APPLICATION FILED JULY 8, 1913.

1,129,664. Patented Feb. 23, 1915.

2 SHEETS—SHEET 2.

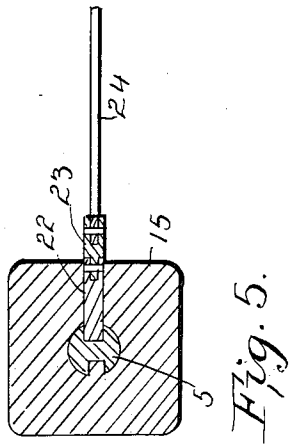


Fig. 5.

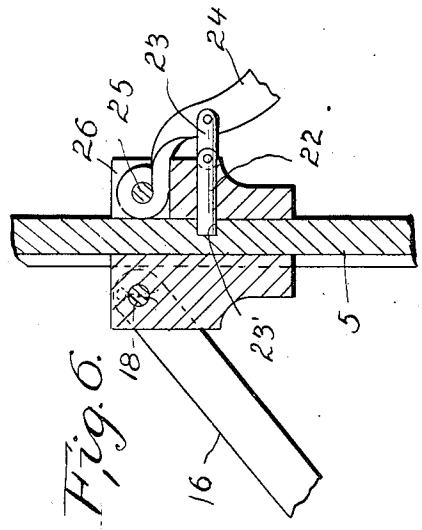


Fig. 6.

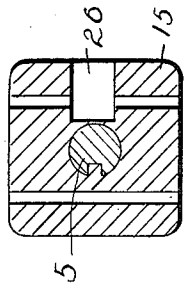


Fig. 4.

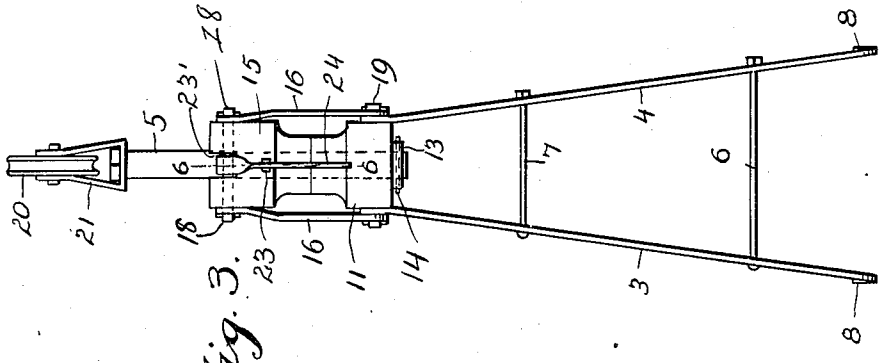


Fig. 3.

Inventors

L. Gilchrist & C. Van Winkle.

Witnesses:

R. N. Jones.

C. L. Landon.

By Randolph Jr.

Attorney

UNITED STATES PATENT OFFICE.

LIONEL GILCHRIST AND CALVIN VAN WINKLE, OF ANDERSON, INDIANA.

AUTOMATIC-RELEASING TIMBER-CARRYING HOOK.

1,129,664. Specification of Letters Patent. Patented Feb. 23, 1915.

Application filed July 8, 1913. Serial No. 777,944.

To all whom it may concern:

Be it known that we, LIONEL GILCHRIST and CALVIN VAN WINKLE, citizens of the United States, residing at Anderson, in the county of Madison and State of Indiana, have invented certain new and useful Improvements in Automatic-Releasing Timber-Carrying Hooks; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to new and useful improvements in reaching or gripping hooks and has particular reference to that type of such devices designed especially for the conveying of timber and like material from one place to another.

As a principal object, this invention aims to provide a gripping hook which may be readily attached to the cable of a hoisting crane, and employed to carry lumber or any other material of an analogous nature from one place to another.

A further object is to provide means for automatically locking the grappling arms of the device in inoperative position upon the deposit of the material in the desired place.

An object of equal importance to the foregoing is to provide a simple and efficient means for holding the grappling arms in operative relation to the material to be conveyed.

A yet further object contemplates the provision of a device of the character above set forth constructed with such regard to proportion and arrangement of parts that it may be cheaply manufactured and will be durable and efficient in its action and may be employed in hoisting and conveying material or goods of a varied nature.

The above and additional objects are accomplished by such means as are illustrated in the accompanying drawings, described in the following specification and then more particularly pointed out in the claims which are appended hereto and form a part of this application.

With reference to the drawings, wherein we have illustrated the preferred embodiment of our invention as it is reduced to practice, and throughout the several views of which similar reference numerals designate corresponding parts: Figure 1 is a side elevation illustrating the grappling arms in open position. Fig. 2 is a side elevation illustrating the grappling arms in closed operative position. Fig. 3 is an end view. Fig. 4 is a section on the line 4—4 of Fig. 2. Fig. 5 is a section on the line 5—5 of Fig. 1. Fig. 6 is a section on the line 6—6 of Fig. 3.

Proceeding now to the description of the drawings, the numerals 1 and 2, respectively, designate two pairs of grappling arms, each of which is U-shaped and is formed of any suitable metal. As stated, the grappling arms are arranged in pairs, the arms of each pair being opposed to the corresponding arms of the other pair. In Fig. 3 there has been illustrated an end view, in which the grappling arms of the pair 2 are designated by the numerals 3 and 4. The arms of the pair 1 are similar to the pair 2 in every detail and are connected to the spindle 5 in the same manner, so it is therefore deemed necessary only to describe the second pair in detail. The grappling arms 3 and 4 are upwardly converging and are held in desired spaced relation by a pair of bars or rods 6 and 7. The lower terminals of the arms 3 and 4 are provided with right angle extensions as at 8, these extensions being designed to act as hooks in gripping the material to be conveyed, as will be hereinafter more fully disclosed. The upper terminals of the arms 3 and 4 are provided with somewhat similar extensions as at 9. These extensions are pivoted on pins 10, extending laterally from the movable collar 11 and from opposite sides thereof. Cotter pins 12 or other suitable fastening devices are employed in holding the extensions 9 from displacement from the pins 10. The collar 11 is formed of cast iron or any other suitable material and is mounted for sliding movement on the spindle 5, being held against complete displacement therefrom by a set collar 13 secured by a bolt 14 or other suitable fastening device to the lower terminal of the spindle. A second collar 15 which is similar in construction to the member 11 is mounted above the collar 11 for sliding movement on the spindle 5 and is operatively connected to the grappling arms 3 and 4. A pair of link members 17 and 16 which are pivoted at their upper terminals to the upper terminal of the collar 15 by a bolt 18 and are pivotally attached at their lower terminals to the arms 3 and 4 by a bolt 19 which connects the grappling arms 3 and 4, and is secured at each terminal at the juncture of the extension 9 of each grappling arm with the main body

portion thereof. The spindle 5 is connected to the pulley 20 of a hoisting crane by a clevis 21, in which the upper terminal of the spindle is swiveled.

As a means for automatically locking the grappling arms in open position when the load has been deposited, there has been provided a locking key 22 which is slidably mounted in a lateral bore formed in the collar 15 and is arranged to seat in the notch or recess 23′ formed in the spindle 5 when the spindle 5 is allowed to move downward by a slackening in the hoist cable, with the resultant spread of the hook members 8 of the grappling arms 3 and 4. The locking key 22 is connected by a pivot link 23 to a hand lever 24, the upper terminal of which is offset and is pivoted on a bolt 25 in a slot 26 formed at the upper end of the collar 15. In practice, the collars 11 and 15 are splined on the spindle 5 for the obvious purpose of bringing the locking key 22 into registry with the notch 23′ when the arms are open as illustrated in Fig. 1.

The actual construction and arrangement of the several parts being thus disclosed, it now remains to describe the operation of the device. Briefly the operation is as follows: The arms being in open position as illustrated in Fig. 1, the hoist cable is lowered to dispose the arms around the material to be hoisted. The operator then manipulates the hand lever 24 to withdraw the latch key 22 from locking engagement with the notch 23′, and the hoist cable is tightened. It will be obvious that upon tightening the hoist cable, the spindle 5 moves upwardly drawing the hook members 8 of the grappling arms toward each other by reason of the upward pull communicated to the extensions 9 through the collar 11. When the cable has been thus tightened, the collars 15 and 11 abut, and the terminals of the members 8 are spaced from each other but a slight distance, so that the lumber or other material to be conveyed is firmly inclosed within the pairs of arms and is supported by the hook terminals.

When the crane has been swung to deposit the lumber or other material in the desired place, the cable is again slackened to permit the spindle 5 to slide downwardly. When the cable is slackened, the spindle 5 will be urged downwardly by its own weight. When the spindle is moved down to a sufficient distance to bring the notch 23′ opposite the inner terminal of the locking key 22, it is obvious that the weight of the hand lever 24 will force the locking key into engagement with the notch 23′. Apparently therefore, when the hoist cable is again tightened and the spindle 5 is drawn upwardly, the hook terminals 8 of the grappling arms will be drawn into open position, by reason of the pull communicated to the body portion of the hooks through the members 16 and 17. When the cable is slackened and the spindle 5 moves downwardly through the collars 11 and 15 and the locking pin 22 moves into engagement with the notch 23′ in the spindle, the point of suspension of the grappling arms is shifted from the inner ends of the members 9 to the outer ends thereof, thus changing the fulcrum. It will be readily seen that upon the tightening or upward movement of the cable the pull communicated to the grappling arms through the arms 16 and 17, at the outer ends of the members 9 of the grappling arms will be sufficient to open the grappling arms sufficiently to permit the load to be disengaged therefrom and to move the arms in open position such as illustrated in Fig. 1 in the drawings. This action is aided by the weight of the collar 11.

In reduction to practice, we have found that the form of our invention, illustrated in the drawings and referred to in the above description, as the preferred embodiment, is the most efficient and practical; yet realizing that the conditions concurrent with the adoption of our device will necessarily vary, we desire to emphasize the fact that various minor changes in details of construction, proportion and arrangement of parts may be resorted to, when required, without sacrificing any of the advantages of our invention, as defined in the appended claims.

Having thus described our invention, what we claim is:

1. A grappling device including a spindle, a pair of collars splined on said spindle, grappling arms pivoted to the lowermost of said collars, links pivotally connected at their terminals to the said grappling arms and to the uppermost of said collars, and means for automatically locking the said arms in open position when the spindle is lowered.

2. A grappling device including a spindle, a pair of collars splined on said spindle, means for holding said collars against displacement on said spindle, pairs of grappling arms pivotally connected to the lowermost of said collars, pivoted links connecting said arms to the uppermost of said collars, a locking key slidable in said upper collar and arranged for engagement with the notch formed in said spindle when the said spindle is lowered through the said collar, and a hand lever pivoted to said upper collar and operably connected to said locking key.

3. A grappling device including a spindle, a pair of collar members splined thereon, means for holding said collar members against displacement in said spindle, pairs of grappling arms pivotally connected to the lowermost of said collars, pivoted links

connecting the uppermost of said collars to the upper terminal of the bight portion of the said grappling arms, and a latch key carried by said upper collar and arranged to automatically seat in a notch formed in said spindle when said spindle is lowered through said uppermost collar.

4. A grappling device comprising a spindle, a pair of collars slidable on the spindle, grappling arms pivoted to the lowermost of said collars, means for pivotally connecting the grappling arms with the uppermost of said collars, and means for automatically locking the grappling arms in open position when the spindle is lowered.

5. A grappling device comprising a spindle, a pair of collars slidably mounted on the spindle, grappling arms operatively connected with the collars, means for connecting the grappling arms with the collars, and means for automatically locking said arms in open position when the spindle is lowered.

6. A grappling device including a spindle, a pair of collars splined on said spindle, grapping arms pivoted to the lowermost of said collars, links pivotally connected at their terminals to said grappling arms and to the uppermost of said collars, and means for automatically locking said arms in open position.

In testimony whereof we affix our signatures in presence of two witnesses.

LIONEL GILCHRIST.
CALVIN VAN WINKLE.

Witnesses:
C. OMER GREGORY,
Miss OMER GREGORY.