J. B. GAUSSIRAN.

GRAPPLE.

APPLICATION FILED MAR. 6, 1911.

1,003,352.

Patented Sept. 12, 1911.

2 SHEETS-SHEET 1.

Fig. 1.

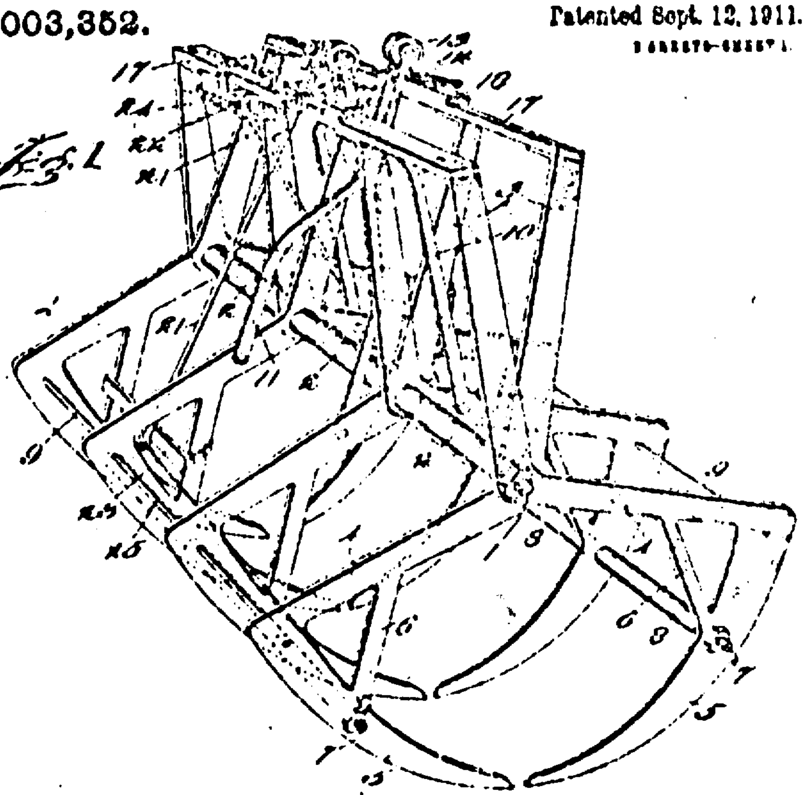
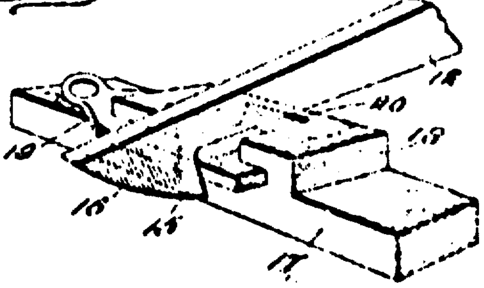


Fig. 2.



Witnesses

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2 SHEETS—SHEET 2.

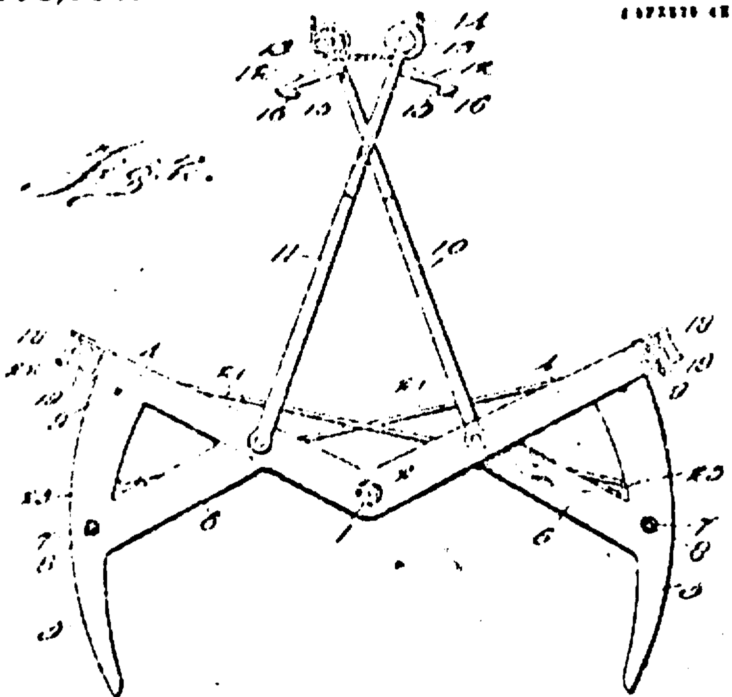
Fig. 2.

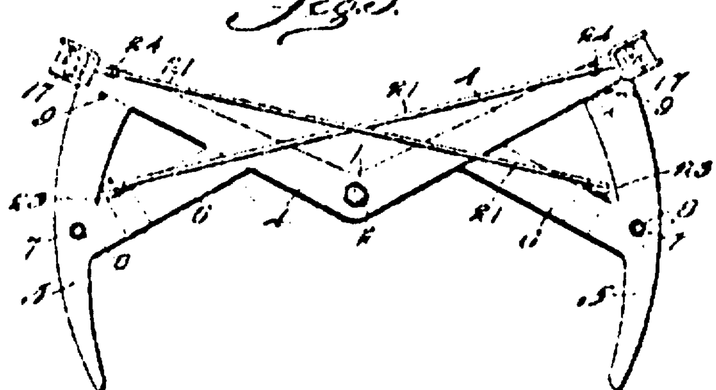
Fig. 3.

Witnesses
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1,003,352. GRAPPLE. JULES B. GAUSSIRAN, Baldwin, La. Filed Mar. 2, 1911. Serial No. 611,914.

To all whom it may concern:

Be it known that I, JULES B. GAUSSIRAN, a citizen of the United States, residing at Baldwin, in the parish of St. Mary and State of Louisiana, have invented certain new and useful Improvements in Grapples; and I 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 grapples and is designed especially for hoisting purposes.

The object of this invention is to provide a grapple which is capable of handling large loads, may be used to grip the object or as a sling, and is positive in its action and easily manipulated to release the load.

With the above and other objects in view as will appear, the invention consists in certain combinations and arrangements of the parts hereinafter described, and the novel features thereof will be particularly pointed out in the appended claims.

For a clear understanding of the invention, reference will be had to the accompanying drawings illustrating the preferred embodiment thereof, and in which drawings like characters of reference indicate corresponding parts.

Figure 1 is a perspective view of a grapple in closed position constructed in accordance with my invention. Fig. 2 is a vertical central section of Fig. 1, except that the gripping members are in open position. Fig. 3 is a similar view taken between the last two pairs of gripping members, and Fig. 4 is a partial detail perspective view of the latch and latch-bar.

Referring to the drawings, 1 represents the main shaft on which are pivotally mounted a plurality of oppositely disposed gripping members arranged in pairs which are held in spaced relation by sleeves 2 on said shaft, the two central gripping members on one side of the main shaft being preferably outside of the two central gripping members on the other side of the shaft. The gripping members consist of arms 3 and 4 forming substantially right angular bell-cranks and the latter arms carry tapering downwardly and inwardly curved fingers or prongs 5 suitably strengthened by diagonal braces 6 and terminating in points for biting into the object to be carried, or the fingers may pass under the load. Passing through the fingers 5 of the gripping members arranged on the same side of the main shaft 1, preferably near the juncture of the braces 6, is a rod 7 on which are separating sleeves 8, and passing through the corners of the fingers 5 and arms 4 is a bracing rod 9 which also acts as a stop for the arms 3.

The gripping members are caused to exert a gripping action by the following mechanism:—A pair of yokes 10 and 11, one of which straddles and crosses the other, are each formed of bars pivotally connected to the arms 4 of the two central gripping members at opposite sides of the main shaft 1, and between the converging end portions of the bars of each yoke is pivoted an outwardly disposed latch 12 and is mounted a sheave 13, under which sheaves passes a cable 14 for supporting the grapple. The latch 12 is provided with an angular end 15 having an inclined lower edge 16 to form a guide for the latch. The gripping members are balanced on the main shaft, and as they are supported by the yokes as described, they remain normally in open position.

Secured to the upper ends of the arms 3 of the corresponding gripping members is a cross bar 17, which carries on its outer face a centrally arranged guide 18 slotted from one end for receiving a longitudinally slidably mounted latch-bar 19 which extends laterally beyond the outer edge of the guide, and said edge is adapted to be engaged by the angular end 15 of the latch 12. The guide 18 is preferably recessed as at 20 in order to allow the use of a narrower latch-bar. Each latch is operated by means of a forked lever 21 which is pivotally connected to each of the bars 17 between the last two gripping members, and having pivotally connected to its projecting arms a hook 22 attached to an eye at the free end of the latch-bar 19. The levers 21 cross each other above the main shaft and the free end of each is slidingly supported on a bar 23 fastened to the braces 6 of said gripping members. The latch-bars 19 are normally held in locking position by means of a spring 24 connected to the inside lever 21 and the arm 3 of the outer gripping member. To the end of the outside lever 21 is connected a rope 25 or other flexible member which passes through the space between the braces 6 and the fingers 5 of the intermediate gripping members and through an aperture in the last gripping member, by means of which rope the latch-bars are withdrawn and the latches released.

It is apparent from the foregoing that if the grapple, with the gripping members in open position, is lowered onto a load to be carried, that as the cable is slackened the yokes will rotate on their pivots, the sheaves

are widely separated, and the latches will engage the latch-bars. As the load is hoisted, the sheaves are brought toward each other and the gripping members at the opposite sides of the main shaft rotate thereon to grip the load, which may be released by pulling on the rope to disengage the latches.

Although the elements set forth and described are well adapted to accomplish the purposes for which they are intended, it is to be understood that slight changes in the form, proportion and minor details of construction may be resorted to without sacrificing any of the advantages or departing from the spirit of the invention.

Having fully described my invention, what I claim is:—

1. In a grapple the combination of a plurality of oppositely disposed gripping members pivoted on a shaft, a cross-bar connecting the gripping members on the same side of the shaft together, a yoke pivotally connected to the central pair of gripping members on each side of the shaft, a latch-bar carried by each cross-bar, and a latch carried by each yoke for engaging the latch-bar for causing the gripping members to close when a pulling strain is exerted on the yokes, substantially as described.

2. In a grapple the combination of a plurality of oppositely disposed bell-cranks pivotally mounted on a shaft, inwardly curved fingers carried by the bell-cranks for engaging a load to be carried, a cross bar connecting the free arms of the bell-cranks on the same side of the shaft, a yoke pivotally connected to the central pair of bell-cranks on each side of the shaft and crossing each other, means carried by the free ends of the yokes for operating the bell-cranks to cause the fingers to grip the load, and means for causing the gripping members to release the load, substantially as described.

3. In a grapple the combination of a plurality of oppositely disposed bell-cranks pivotally mounted on a shaft, inwardly curved fingers carried by the bell-cranks, a cross bar connecting the free arms of the bell-cranks on the same side of the shaft, a slidably mounted latch-bar carried by each cross bar, a yoke pivotally connected to the central pair of gripping members on each side of the shaft and crossing each other, a latch pivoted to each yoke for engaging each latch-bar, a sheave carried by the free end of each yoke, and means for withdrawing the latch-bars, to release the load, substantially as described.

4. In a grapple the combination of a plurality of oppositely disposed bell-cranks pivotally mounted in pairs on a shaft, inwardly curved fingers carried by the bell-cranks, a cross bar connecting the free arms of the bell-cranks on the same side of the shaft, a slidably mounted latch-bar carried by each cross bar, a yoke pivotally connected to the central pair of bell-cranks on each side of the shaft, a latch pivotally connected to the free end of each yoke for engaging the lateral edge of each latch-bar, a sheave pivotally mounted at the upper end of each yoke, a lever pivotally connected to each cross bar, means for connecting the upper end of each lever to a latch-bar, means for holding the latch-bars in closed position, and means for operating the levers to withdraw the latch-bars to release the latches, substantially as described.

5. In a grapple the combination of a plurality of oppositely disposed bell cranks pivotally mounted in pairs on a shaft, spacing sleeves on the shaft between the pairs of bell-cranks, inwardly curved fingers carried by the bell-cranks, a rod connecting the fingers on the same side of the shaft, a cross bar connecting the free arms of the bell-cranks on the same side of the shaft, a guide carried by each cross bar, a latch-bar slidably mounted in each guide, a yoke pivotally connected to the central pair of bell-cranks on each side of the shaft, a latch pivotally connected near the free ends of each yoke, a sheave rotatably mounted at the end of each yoke, a forked lever pivotally mounted on each cross bar, means for connecting the projecting arms of each lever to a latch-bar, means for slidably supporting the free end of each lever, a spring connecting one lever to an adjacent bell-crank for holding the latch-bars in closed position, and means for operating the levers to withdraw the latch-bar for releasing the latches, substantially as described.

In testimony whereof, I affix my signature, in presence of two witnesses.

JULES B. GAUSSIRAN.

Witnesses:
C. J. BOATNER,
W. C. BAKER.