

No. 803,015.

PATENTED OCT. 31, 1905.

F. NORMAN.  
GRAPPLE.

APPLICATION FILED APR. 16, 1904.

Fig. 1.

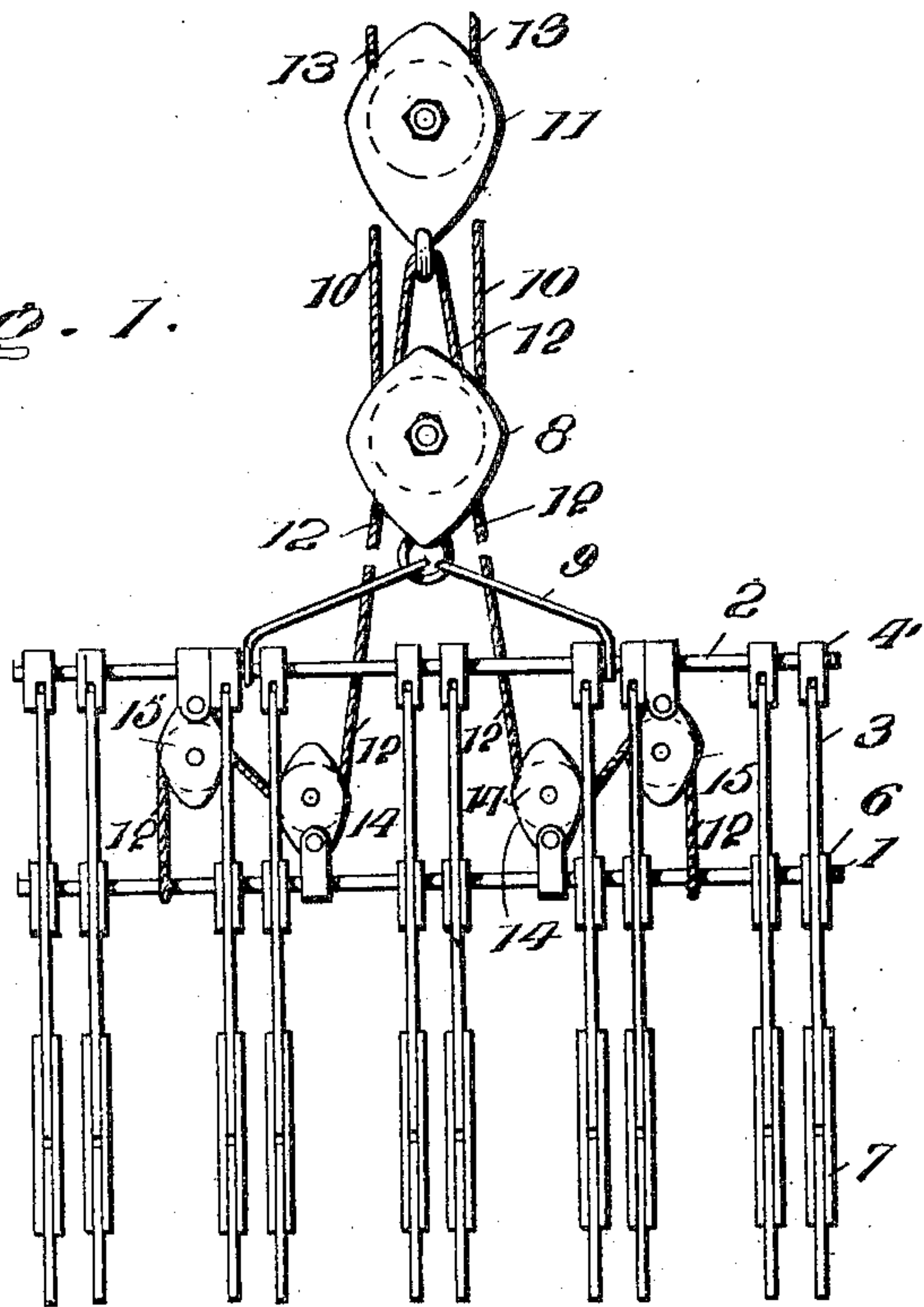


Fig. 2.

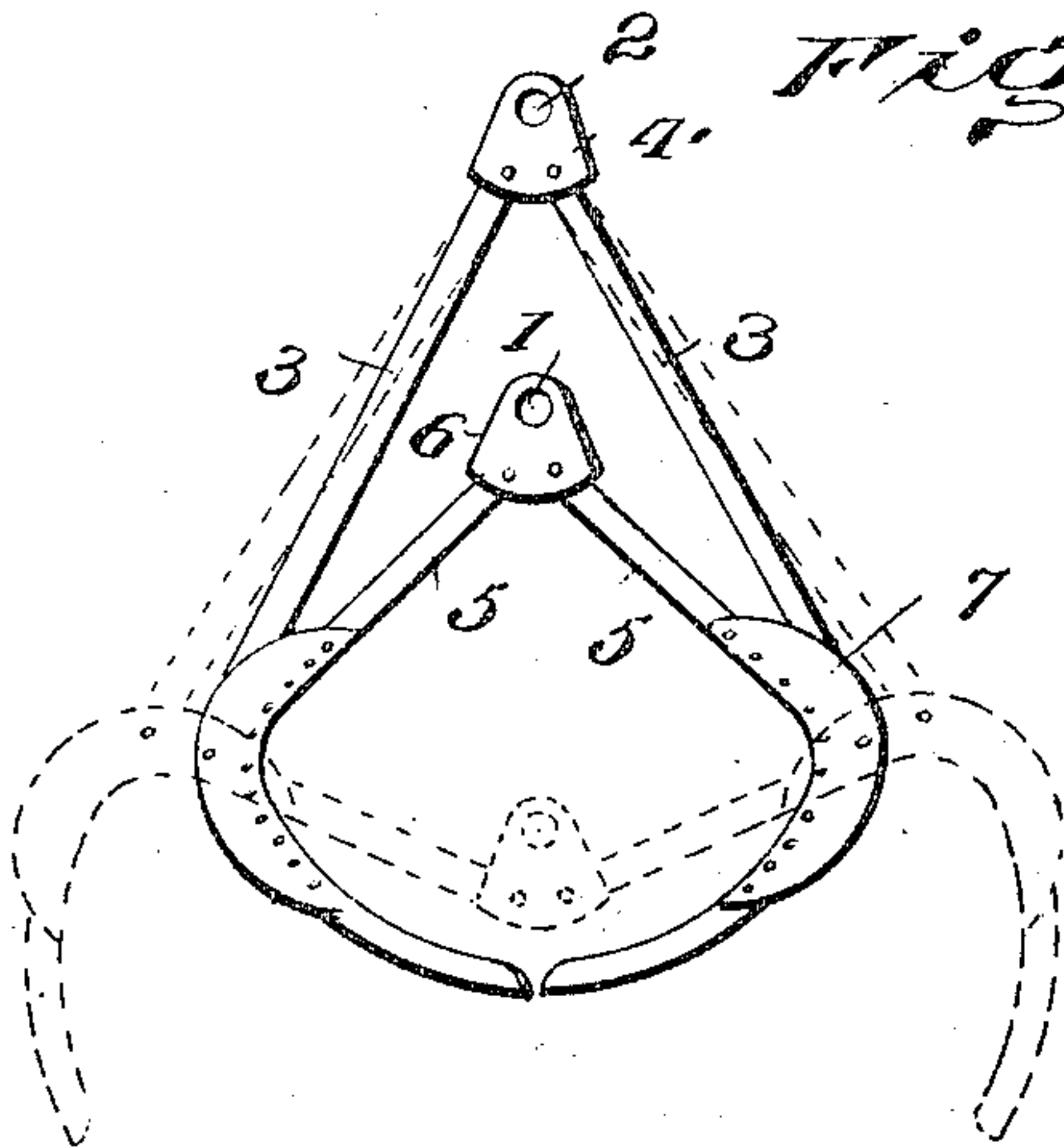
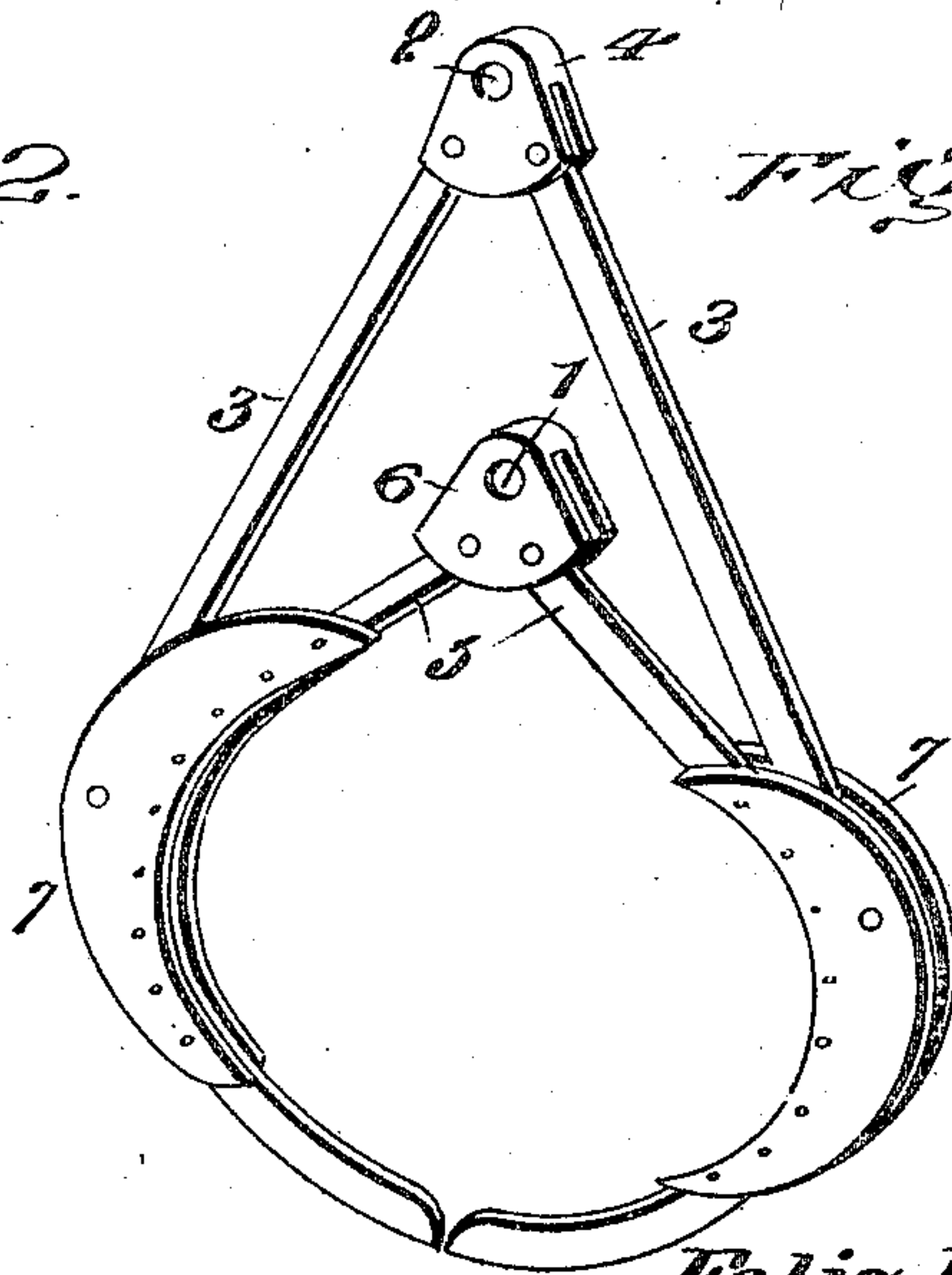


Fig. 3.



Inventor

*Felix Norman*

Witnesses

*W. H. Hoodson*

By

*Ph. B. Racy*, Attorneys



# UNITED STATES PATENT OFFICE.

FELIX NORMAN, OF PATTERSON, LOUISIANA.

## GRAPPLE.

No. 803,015.

Specification of Letters Patent.

Patented Oct. 31, 1905.

Application filed April 16, 1904. Serial No. 203,516.

*To all whom it may concern:*

Be it known that I, FELIX NORMAN, a citizen of the United States, residing at Patterson, in the parish of St. Mary and State of Louisiana, have invented certain new and useful Improvements in Grapples, of which the following is a specification.

This invention appertains to lifting means of the type commonly designated as "grapples," the purpose being to provide a structure of this species which is adapted to be elevated or lowered and opened and closed by mechanical appliances from a determinate point, the opening and closing of the grapple being accomplished at any elevation or relative position of the grapple.

An important feature is the construction and arrangement of the parts whereby the opening and closing of the grapple is rendered certain and the device made wholly subservient to the will of the operator and responsive to the controlling means.

The improvement consists, essentially, of the structural details, novel features, and combinations of parts, which hereinafter will be more particularly set forth, illustrated, and finally claimed.

In the accompanying drawings, forming a part of the specification, Figure 1 is a side view of a grapple embodying the invention. Fig. 2 is an end view thereof, the full lines showing the relation of the parts when the grapple is closed and the dotted lines showing the position of the parts when the grapple is open. Fig. 3 is a detail perspective view of a set of tongs or claws comprising the grapple.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

In the construction of the grapple a plurality of tongs are employed, the number depending upon the size, capacity, and character of work for which the device is designed. The tongs or claws are connected in series by means of a rod or bar 1, and a similar rod or bar 2 connects the lifting means, consisting of links 3 and head 4. Each pair of tongs or claws consists of curved members 5, pivotally connected to a head 6, which is similar in construction to the head 4, both being transversely apertured to receive the respective connecting rods or bars 1 and 2. The claw members 5 are oppositely curved and are of a construction best calculated to meet the re-

quirements of the work for which the grapple is particularly constructed. The links 3 are pivotally connected at their lower ends to the claw members 5 and are pivoted at their upper ends to the head 4. The means for connecting the links to the members 5 may be of any determinate construction; but it is preferred to provide each claw member with a pair of plates 7, between which the lower end portions of the respective links are received, thereby bracing the sides of the links and holding the latter in the plane of the claw members 5.

A sheave-pulley 8 is connected by links 9 to the upper rod or bar 2, and the elevating-rope 10 coöperates with said sheave-pulley to effect a raising and a lowering of the grapple. A sheave-pulley 11 is connected, by means of a rope or cable 12, with the rods or bars 1 and 2, so as to cause the grapple to open and close. An operating rope or cable 13 coöperates with the sheave-pulley 11. Sheave-pulleys 14 are connected to the rod or bar 1, and corresponding sheave-pulleys 15 are attached to the rod or bar 2, the end portions of the rope or cable 12 passing around the sheave-pulleys 14 and 15 and being connected to the rod or bar 1.

The rope 12 is connected intermediate of its ends in any manner to the sheave-pulley 11, and its extremities are secured in any substantial way to the end portions of the bar 1. The end portions of the rope 12 have running connection with the bars 1 and 2 through the instrumentality of the sheave-pulleys 14 and 15. Hence relative movement of the sheave-pulleys 8 and 11 toward and from each other effects closing or opening of the claws.

When the grapple has been elevated or moved to the required position, the sheave-pulley 8 remains stationary. An upward pull upon the sheave-pulley 11 draws upon the end portions of the rope or cable 12, thereby pulling the sheave-pulleys 14 and 15 and the rods or bars 1 and 2 together, with the result that the claws or members of the grapple are closed and held shut. Upon slacking the rope or cable 13, so as to permit the sheave-pulley 11 to descend, the rope or cable 12 is correspondingly slackened, and the rod or bar 1 gravitating turns the claws or members 5 upon their pivotal connection with the links 3, whereby the grapple opens either to discharge the load or admit of the grapple receiving the load. After the grapple has been closed by an upward pull upon the rope or cable 12 the load

may be elevated or lowered by proper manipulation of the rope or cable 10, as will be readily comprehended.

Having thus described the invention, what  
5 is claimed as new is—

In a grapple, a series of tongs, a corresponding series of links pivoted to the members of the tongs, rods or bars connecting the tongs and links in series, sheave-pulleys connected  
10 to both of said rods or bars, a rope or cable having its end portions passed around said

sheave-pulleys and connected to the device, and a sheave-pulley 11 applied to the central portion of said rope or cable, substantially as specified.

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

FELIX NORMAN. [L. s.]

Witnesses:

FELIX HAUSMANN,  
B. O. MORLY.