

H. E. SKELTON.

GRAPPLE.

APPLICATION FILED MAR. 10, 1915.

Patented June 29, 1915.

2 SHEETS—SHEET 1.

1,144,387.

Fig 1

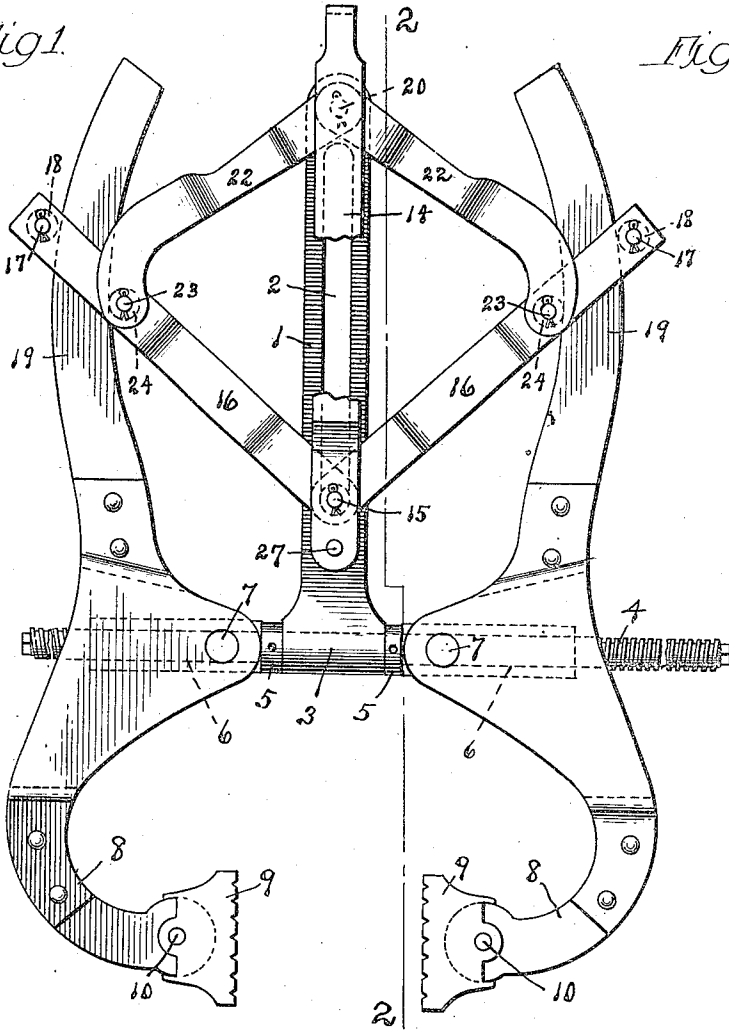
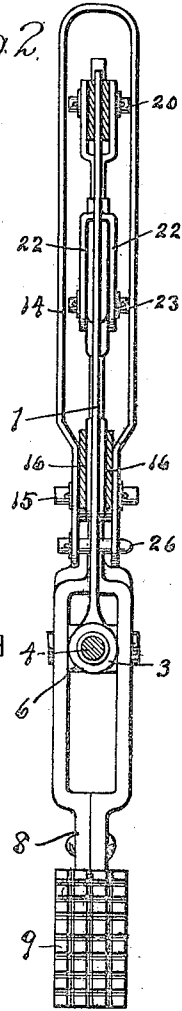


Fig 2



Witnesses

E. B. Barrett

H. W. Kleinbring

Inventor

Harry E. Skelton.

By. Pagelsen and Spencer.
attys

H. E. SKELTON.
GRAPPLE.

APPLICATION FILED MAR. 10, 1915.

Patented June 29, 1915.

2 SHEETS—SHEET 2.

1,144,387.

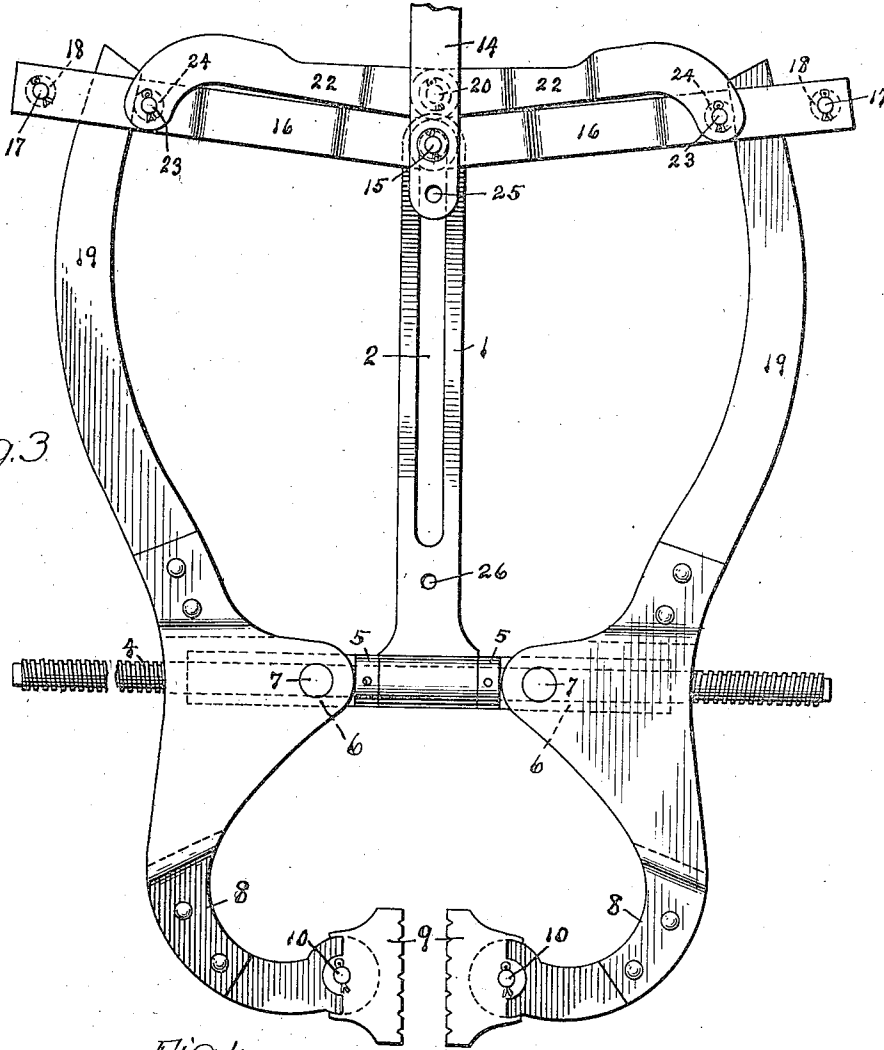
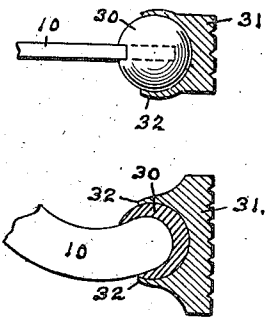


Fig. 3

Fig. 4



Witnesses:
E. R. Barrett

H. W. Kleinbring

Inventor
Harry E. Skelton.
by Pagelee and Spencer
Attys.

UNITED STATES PATENT OFFICE.

HARRY E. SKELTON, OF DETROIT, MICHIGAN.

GRAPPLE.

1,144,387.

Specification of Letters Patent.

Patented June 29, 1915.

Application filed March 10, 1915. Serial No. 13,317.

To all whom it may concern:

Be it known that I, HARRY E. SKELTON, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented a new and useful Grapple, of which the following is a specification.

This invention relates to means for lifting blocks of stone or other heavy material, and its object is to provide a grapple which may be readily adjusted for gripping blocks of different sizes, whose jaws shall exert a maximum of grip in proportion to the lifting stress, and which may be quickly and easily engaged or disengaged.

This invention consists, in combination with a central frame, of a pair of levers, adjustable pivots for the levers mounted on the central frame, and a pair of toggles slidably mounted on and guided by the central frame for forcing the lower arms of the levers toward each other.

This invention further consists in the details of construction illustrated in the accompanying drawings and particularly pointed out in the claims.

In the drawings, Figure 1 is an elevation of this improved grapple with the jaws open. Fig. 2 is a section on the line 2-2 of Fig. 1. Fig. 3 is an elevation of the grapple with the jaws "closed." Fig. 4 is a detail of a modified form of jaw.

Similar reference characters refer to like parts throughout the several views.

The central member or frame 1 is formed with a slot 2 and a head 3, in which is revoluble the screw 4 having right-handed threads on one end and left-handed threads on the other. Collars 5 may be secured to the screw on either side of the head 3 to prevent longitudinal movement of the screw. On this screw are mounted the nuts 6, preferably of considerable length, each having laterally projecting pins 7 on which the gripping levers are mounted. These levers may be formed of one or more pieces, and fit around the nuts 6, being provided with proper bearing holes for the pins 7. Their short lower arms 8 are bent inwardly and provided with jaws 9 of any desired form, mounted on the pins 10 carried by the arms 8 if desired. By turning the screw 4 by means of a tool applied to a squared end thereof, the distance between the pivots 7 may be varied.

A yoke 14 extends down on both sides of

the frame and carries a pin 15 near its lower end, which pin is slidable in the slot 2. On this pin the inner ends of the links 16 of the toggles are mounted, their outer ends of the links carrying the pins 17 which support the rollers 18 against which the long upper arms 19 of the gripping levers engage. It will be noticed that the links 16 and 22 are double and extend on both sides of the frame 1 and arms 19. The central frame has a pin 20 at its upper end on which are mounted the inner ends of the other links 22 of the toggles, the links 16 and 22 being connected by the pins 23 on which rollers 24 are mounted. At the lower end of the yoke 14, each of its sides is provided with a hole 25, through which and through the hole 26 in the frame 1 a pin 27 may be inserted to hold the parts in the position shown in Fig. 1.

While the grapple is being shifted about without a load, the pin 27 will hold the levers in the position shown in Fig. 1. When a block of stone or other heavy material is to be lifted, the grapple is lowered over the same until the head 3 rests on the block and the jaws 9 are adjusted by means of the screw 4, until they approach the block to be lifted. The pin 27 is then withdrawn. The jaws 9 will move toward each other when the yoke 14, to which the hoisting cable is attached, is raised. This causes the pin 15 to approach the pin 20 and the pins 23 to move out, forcing the arms 19 away from each other and the jaws 9 toward each other against the block to be lifted, the limit of such movement being indicated in Fig. 3. Instead of the jaws 9 on the circular ends of the arms 8, I may secure spheres 30 to these arms, as indicated in Fig. 4. The jaws 31 are formed with fingers 32 which may be bent down around the spheres, resulting in the usual ball-and-socket joint between the spheres and jaws.

Because of the simple construction of this grapple, it may be made to have great strength and rigidity. Its proportions and details may all be modified to meet the various requirements of such tools without departing from the spirit of my invention as set forth in the following claims.

I claim:—

1. An improved grapple consisting of a central member having a pin at its upper end, a double ended screw mounted in its lower end, a nut on each end of the screw, a gripping lever pivoted between its ends on

each nut, a yoke movable longitudinally of the central member and having a pin at its lower end, and two pairs of connected toggle links, the links of each pair connecting at a point of engagement with the adjacent gripping lever, the inner end of one link of each pair being pivoted on the pin carried by the lower end of the yoke and the inner end of the other link of each pair being pivoted on the pin carried by the upper end of the central member.

2. An improved grapple consisting of a central frame, a pair of gripping levers, an adjustable pivot for each of the levers mounted on the frame, and a pair of toggles slidably mounted on and guided by the frame for forcing the lower arms of the gripping levers toward each other, and means to actuate the toggles and lift the grapple.

3. An improved grapple consisting of a central frame, a pair of gripping levers, adjustable pivots for the levers mounted on the frame, and a pair of toggles slidably mounted on and guided by the frame for forcing the lower arms of the gripping levers toward each other, means to actuate the toggles and lift the grapple, and means for holding the gripping levers so that their lower arms are immovable relative to each other.

4. An improved grapple consisting of a central frame, a pair of gripping levers, adjustable pivots for the levers mounted on the frame, and a pair of toggles slidably mounted on and guided by the frame for forcing the lower arms of the gripping levers toward each other, and a yoke pivotally con-

nected to said toggles and slidably on the central frame by means of which the levers are actuated and the grapple is lifted.

5. An improved grapple consisting of a central frame, a pair of gripping levers, adjustable pivots for the levers mounted on the frame, and a pair of toggles slidably mounted on and guided by the frame for forcing the lower arms of the gripping levers toward each other, and a yoke pivotally connected to said toggles and slidably on the central frame, and means to lock the yoke to said central frame.

6. An improved grapple consisting of a frame having a pin at its upper end, a head at its lower end and a central slot, a double-ended screw mounted in said head, a nut on each end of the screw, a gripping lever pivoted between its ends on each nut and having an adjustable jaw at its lower end, a yoke extending along the frame and having a pin at its lower end extending through the slot in the frame, a toggle link for each lever mounted on said pin and extending to its lever, pins mounted in said links on both sides of the gripping levers, and links extending from the pin at the upper end of the frame to pins on the first named toggle links whereby the links are connected.

In testimony whereof I sign this specification in the presence of two subscribing witnesses.

HARRY E. SKELTON.

Witnesses:

EDWARD N. PAGELSEN,
HUGO W. KREINRRING.