

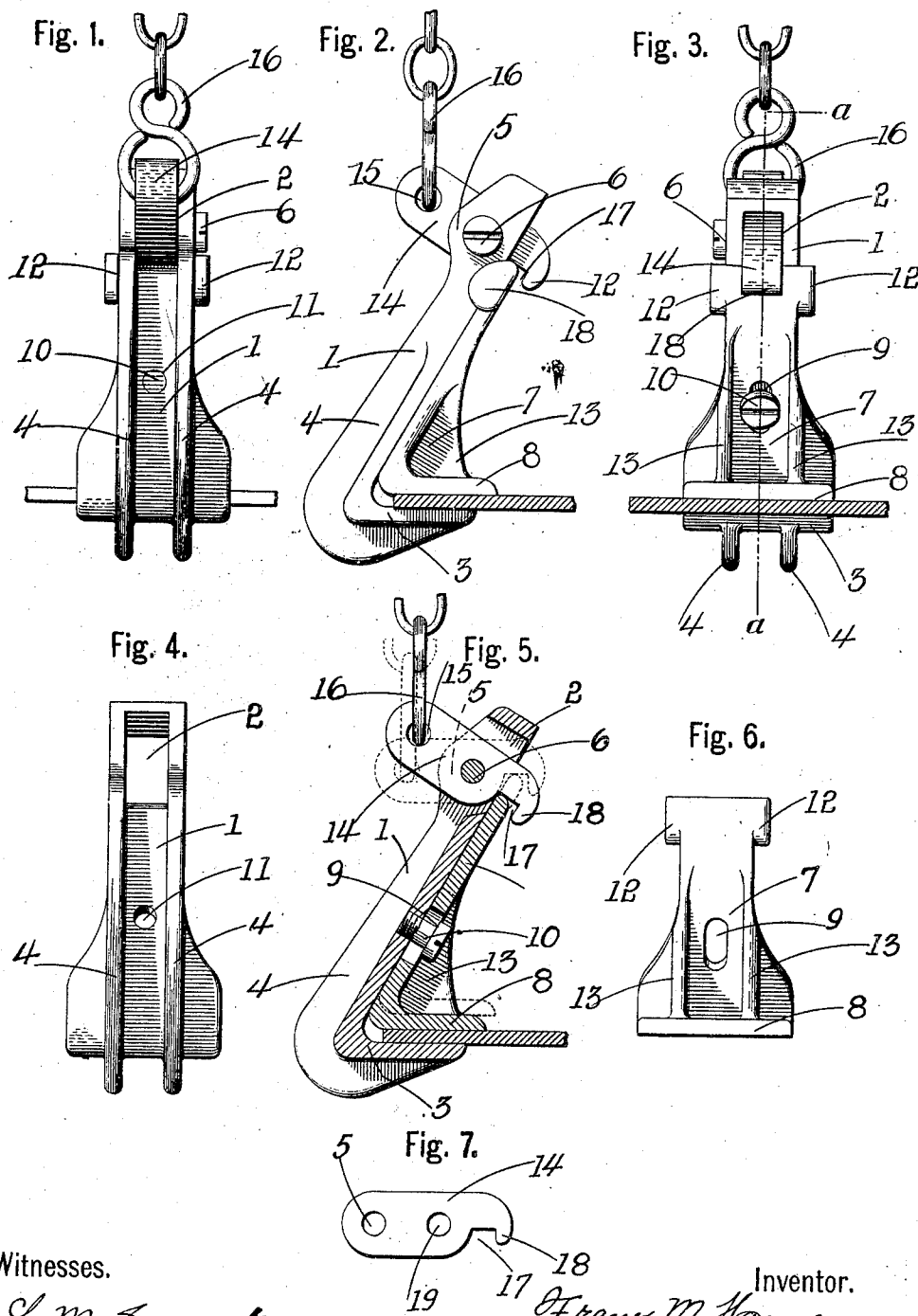
No. 747,065.

PATENTED DEC. 15, 1903.

F. M. HAMANN.
GRAPPLE.

APPLICATION FILED MAY 26, 1903.

NO MODEL.



Witnesses.

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GRAPPLE.

SPECIFICATION forming part of Letters Patent No. 747,065, dated December 15, 1903.

Application filed May 26, 1903. Serial No. 158,837. (No model.)

To all whom it may concern:

Be it known that I, FRANK M. HAMANN, a citizen of the United States, residing at Dunkirk, in the county of Chautauqua and State of New York, have invented certain new and useful Improvements in Grapples, of which the following is a specification.

This invention relates to an improved grapple for lifting heavy plates; and it consists of a plurality of gripping members adapted to operate by gravity to automatically grip a metal plate.

The main objects of the invention are to provide a grapple which is comparatively simple and strong in construction and efficient and automatic in its gripping action.

The adaptation shown in the drawings comprises two gripping members, one slightly attached to the other, and an operating-lever pivoted to one member and having one end connected to a supporting-chain or the like and the opposite end adapted to force the slidable member into gripping contact.

The invention also relates to certain details of construction, all of which will be fully and clearly hereinafter described and claimed, reference being had to the adaptation shown in the accompanying drawings, in which—

Figure 1 is a rear elevation of the improved grapple with a fragment of a plate in position between the gripping members. Fig. 2 is a side elevation of the grapple with a sectional fragment of a plate in position between the gripping members. Fig. 3 is a front elevation of the grapple with a sectional fragment of a plate in position between the gripping members. Fig. 4 is a detached rear view of the main or stationary member. Fig. 5 is a section on line *a a*, Fig. 3, with the lever in one position in dotted lines and in another position in full lines. Fig. 6 is a detached front view of the slidable member. Fig. 7 is a detached side elevation of the lever.

In referring to the drawings for the details of construction like numerals designate like parts.

This improved grapple is composed of a plurality of gripping members which move relatively to each other to receive and grip a metal plate and a means having attachment to the supporting rope, cable, or the like and adapted to force the members into gripping

position. In the preferred adaptation shown in the drawings the grapple is composed of a main or stationary member, a slidable member, and an operating-lever.

The main member has a body portion 1, which is provided with a substantially rectangular opening 2 near its upper end (see Fig. 4) and a jaw portion 3, projecting at an acute angle from its lower end. A plurality of strengthening flanges or ribs 4, preferably two, extend longitudinally on the rear surface of the body 1 and bend around the bend at the junction of the body and jaw 3 and extend beneath or on the outer side of said jaw 3. (See Figs. 1, 2, 3, 4, and 5.) The strengthening-ribs 4 extend nearly throughout the body and jaw and are thickest at the bend at the junction of the jaw and body, as that is the point of the greatest strain, and gradually taper off toward the outer end of the jaw and the upper extremity of the body. The flanges or ribs are widened or enlarged near their upper extremities, as shown at 5 in Figs. 2 and 5, and provided with openings, through which a pivoting pin or screw 6 is inserted for a purpose to be hereinafter explained.

The slidable member has a body portion 7, from the lower end of which a jaw portion 8 projects at substantially an acute angle corresponding to the angle of the jaw portion 3. The body portion 7 of the slidable member is provided at or near its center with a short longitudinal slot or elongated opening 9, and a screw 10 or the like is passed through said slot and screwed or otherwise secured in an opening 11 in the body 1 of the main member. Two lips 12 extend from the side edges of the body 7 from near the upper end thereof and oppositely to the jaw 8, which are adapted to project over the side edges of the body 1 to prevent lateral movement of the slidable member relatively to the main member. The slidable member is provided with longitudinal strengthening-ribs 13, which project from the front face thereof and are thickest in the inner space between the body 7 and jaw 8, forming webs connecting the same and constituting a very strong and light construction. These ribs extend nearly throughout the body and jaw and taper or thicken gradually from the ends inward to

ward the bend at the junction of the jaw and body.

A lever 14 is pivoted in the opening 2 by the pin or screw 6 and has an eye 15 at one end, which is connected to a supporting chain, cable, or the like 16. The opposite extremity of the lever projects over the top edge of the body portion 7 of the slidable member, having a bottom recess 17, in which said body 7 engages, and a downwardly-projecting lip 18, which extends below and on the front of the top edge of said body portion 7. (See Figs. 2 and 5.) The purpose of the lip 18 is to prevent the top part of the body from bending outward under great pressure, as it is not reinforced by strengthening-ribs. The opening in the lever 14, through which the pivoting-pin 6 passes, is designated by the numeral 19 in Fig. 7.

It will be noted that the jaw 8 is longer than the jaw 3 and projects appreciably in front of said jaw 3, so that the grapple can be quickly attached to a plate by dropping the grapple with the projecting portion on the jaw 8 on the top surface of a metal plate, then lowering the jaw 3, and moving the grapple laterally inward on the plate to bring the two jaws in gripping position on opposite sides of the plate, substantially as shown in Figs. 2 and 5. Now by elevating the chain 16 the lever is turned from the position shown in dotted lines to the position shown in full lines, which forces the slidable member down and brings the jaws together in gripping position.

In this invention the bodies of the members are parallel with each other, and the jaws extend in the same direction, one above and substantially parallel to each other.

The advantages of this grapple are that it is very convenient to manipulate, possesses a maximum of strength and a minimum of lightness, and is automatic in its gripping action, so that heavy plates can be moved from place to place with ease and despatch.

I claim as my invention—

1. An improved grapple for lifting heavy plates or the like comprising a plurality of members, one of which is vertically slidable relatively to another, a supporting-chain or the like, and means actuated from the chain for forcing said members into gripping position.

2. An improved grapple for lifting heavy plates or the like comprising a plurality of members, one of which is slidably attached to another, said members having gripping-jaws projecting in the same direction and one above the other, and means for moving said members to grip a metal plate, substantially as set forth.

3. An improved grapple comprising a plurality of members which move relatively to each other to grip a metal plate and have vertical parallel bodies and gripping-jaws projecting laterally from said bodies and in the same direction, a supporting-chain or the

like and means having connection to the chain and adapted to force the members into gripping position.

4. An improved grapple for lifting heavy plates or the like comprising a plurality of members having parallel bodies and gripping-jaws extending in the same direction and one above another, and means for moving said members relatively to each other.

5. An improved grapple for lifting heavy plates or the like comprising a plurality of members, having bodies and parallel gripping-jaws extending in the same direction and each projecting at an acute angle from the body of the member, a supporting-chain or the like and a lever having support from the chain and pivotal attachment to one of said members and controlling the gripping movement of another member.

6. An improved grapple for lifting heavy plates or the like comprising a main member, a slidable member having attachment to the main member and a lever having pivotal support from the main member and adapted to move the slidable member, substantially as set forth.

7. An improved grapple for lifting heavy plates or the like comprising two members movable relatively to each other, a lever having pivotal attachment to one of said members and adapted to move the other member.

8. An improved grapple for lifting heavy plates or the like, a main member having a body portion and a jaw projecting from the lower end thereof, a movable member having a body portion slidably attached to the main member and a jaw projecting from the lower end of said movable member and parallel to and above the jaw of the main member.

9. In an improved grapple for lifting heavy plates or the like, a main member having a body portion and a jaw projecting at an acute angle from the lower end thereof, a movable member having slidable attachment to the main member and a jaw projecting at a corresponding acute angle from the lower end of said movable member.

10. In an improved grapple for lifting heavy plates or the like, a main member having a body portion provided with an opening near its upper end and a jaw projecting from the lower end thereof, a movable member having a slidable attachment to the main member and a jaw projecting from the lower end of said movable member, a lever having pivotal support in the opening in the body portion of the main member with one end projecting over the movable member and a supporting-chain or the like connecting to the opposite extremity of the lever.

11. In an approved grapple for lifting heavy plates or the like, a main member having a body portion and a jaw projecting from the lower end thereof, a movable member having slidable attachment to the main member, a pair of lips projecting from the side of the movable member and extending over the

edges of the main member to prevent lateral movement and a jaw projecting from the lower end of said movable member.

12. In a grapple for lifting heavy sheets or the like, a plurality of members having lateral jaws which extend in the same direction and one above the other and longitudinal strengthening flanges or ribs extending on the lower surface of the lower jaw and the upper surface of the upper jaw, substantially as set forth.

13. In a grapple for lifting heavy sheets or the like, a plurality of members having parallel vertical bodies and gripping-jaws extending in the same direction from the lower extremity of said bodies and at an acute angle therefrom, substantially as set forth.

14. In a grapple for lifting heavy sheets or the like, a plurality of members having body portions and lateral gripping-jaws projecting from said body portions, a strengthening flange or rib projecting from each member and extending along and nearly throughout the surface of both the body portion and gripping-jaw, substantially as set forth.

15. In a grapple for lifting heavy sheets or the like, a main member, a movable member having a longitudinal slot, a pin extending through the slot into the main member, strengthening-flanges extending from the rear of the main member and strengthening-flanges extending from the front of the movable member.

16. A grapple comprising a plurality of members, the gripping-jaws of one of said

members extending at an angle to the body thereof and a longitudinal strengthening flange or rib extending across and forming a web connecting the jaw to the body.

17. A grapple comprising a plurality of members, the gripping-jaws of one of said members extending at an acute angle to the body thereof and a longitudinal strengthening flange or rib extending across and forming a web connecting the jaw to the body; said rib being thickest in the inner space between the body and jaw.

18. A grapple comprising a plurality of members, the gripping-jaw of one of said members extending at an angle to the body thereof, and a strengthening flange or rib projecting from said member which projects from the body thereof bends around the bend at the junction of the body and jaw and extends on the outer side of said jaw, substantially as set forth.

19. A grapple comprising a plurality of members, the gripping-jaw of one of said members extending at an angle to the body thereof, and a strengthening flange or rib projecting from said member which projects from the body thereof bends around the bend at the junction of the body and jaw and extends on the outer side of the jaw; said rib being thickest at the junction of the jaw and body, substantially as set forth.

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Witnesses:

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