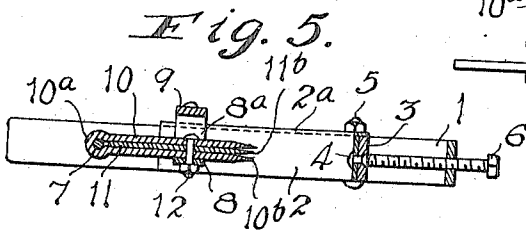
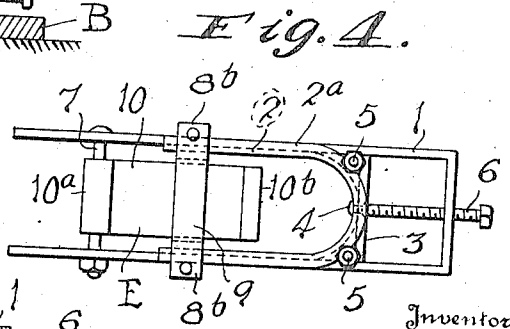
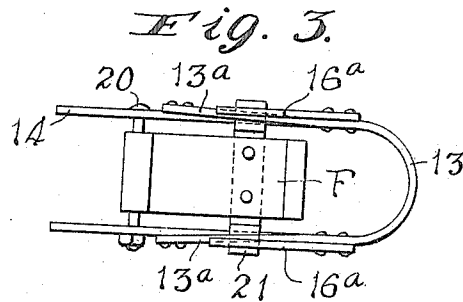
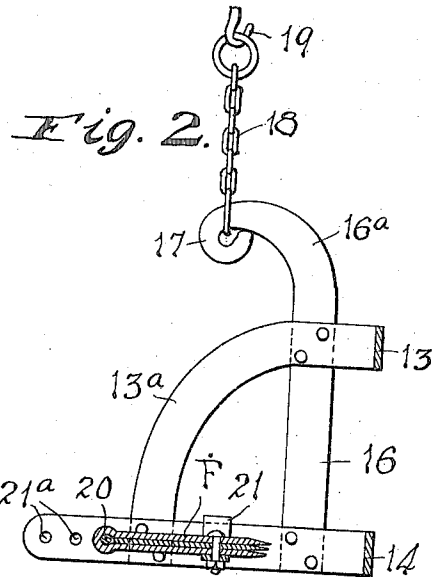
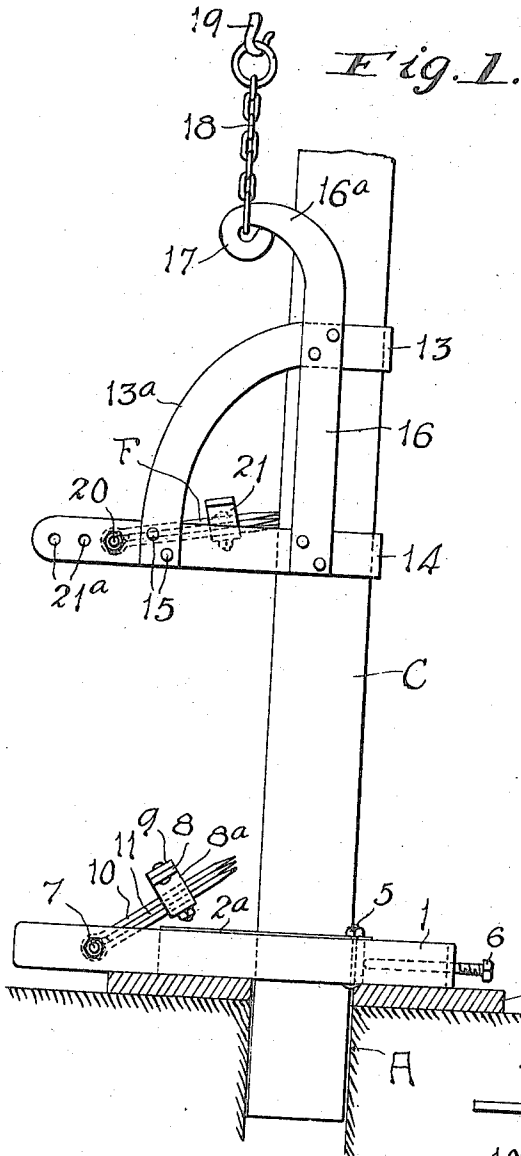


1,264,472.

Patented Apr. 30, 1918.



Inventor
ERICH ARTZT

By

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UNITED STATES PATENT OFFICE.

ERICH C. ARTZT, OF TWIN SISTERS, TEXAS.

WELL-CASING GRAPPLE.

1,264,472.

Specification of Letters Patent.

Patented Apr. 30, 1918.

Application filed September 8, 1917. Serial No. 190,343.

To all whom it may concern:

Be it known that I, ERICH C. ARTZT, a citizen of the United States, residing at Twin Sisters, in the county of Blanco, State of Texas, have invented a new and useful Well-Casing Grapple; 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.

The present invention relates to a well casing grapple, and has for its object to provide a device of that character which embodies novel features of construction whereby a positive grip can be obtained upon the casing or pipe when lowering it into position within the well opening or withdrawing it therefrom, thereby enabling the casing to be handled without danger of slipping or accident.

Further objects of the invention are to provide a well casing grapple which is comparatively simple and inexpensive in its construction, which can be adjusted to fit different sizes of casings, which can be easily taken apart for repairs, and which will enable a well casing or pipe to be raised or lowered without difficulty.

With these and other objects in view, the invention consists in certain novel combinations and arrangements of the parts as will more fully appear as the description proceeds, the novel features thereof being pointed out in the appended claims.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawings, in which:—

Figure 1 is a side elevation of a well casing grapple constructed in accordance with the invention, the locking pawl of the fixed frame at the orifice of the well being shown as swung into inoperative position for the purpose of lowering the casing into the well opening.

Fig. 2 is a vertical sectional view through the hoisting grapple.

Fig. 3 is a top plan view of the same.

Fig. 4 is a top plan view of the fixed grapple member which is arranged at the orifice of the well to support the casing and prevent retrograde movement thereof when the hoisting grapple is being moved to obtain a fresh grip upon the casing.

Fig. 5 is a longitudinal sectional view through the same.

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.

Referring to the drawings, the reference character A designates a well opening, B a bed or platform which is arranged at the orifice of the well opening, and C a conventional casing or pipe with which the sides of the well opening are to be cased off. A horizontally disposed open frame 1, which preferably has a U-shaped formation, rests upon the bed B, and will be termed the fixed frame to distinguish it from the grapple frame, since it remains stationary upon the bed B during the operation of raising or lowering the casing C, while the trap or frame is connected to the hoisting means and is movable up and down therewith. A yoke 2 is slidably mounted within the U-shaped frame 1, the curved end of the yoke facing toward the closed end of the U-shaped frame, and the upper edge of the yoke being formed with an outstanding flange 2^a which rests upon the upper edges of the sides of the fixed frame 1. The sides of the yoke slidably engage the inner faces of the sides of the U-shaped frame 1, while the curved end of the yoke forms a fixed abutment for one side of the casing C. A cross bar 3 is applied to the curved end of the yoke, being secured to the middle thereof by a suitable fastening member 4, the ends of the cross bar sliding against the sides of the frame 1 and openings being provided between the said ends of the crossbar and curved portions of the yoke for the reception of clamping bolts 5 which are adapted to be tightened to assist in holding the yoke in an adjusted position. An adjusting screw 6 is threaded in the end of the U-shaped frame 1 and provides additional means for holding the yoke in operative position and enabling it to resist the side thrust of the casing C due to engagement thereof with the locking pawl E when the latter is in operative engagement with the pipe. This pawl has an opposed relation to the abutment provided by the curved end of the yoke, and is pivotally mounted upon a removable bolt 7, both the bolt and pawl being taken out of position when fitting the frame 1 to the well casing C or removing it therefrom. A cross bar 8 is secured to the locking pawl E, the ends of the cross bar being extended upwardly at 8^a for slid-

ably engaging the sides of the yoke 2 to hold the pawl against lateral movement, while the extremities thereof are extended outwardly at 8^b to provide stop arms for engagement with the upper edges of the yoke to limit the downward swinging movement of the pawl. The upper bar 9 connects the outwardly extended ends 8^b of the cross bar 8 and provides a handle member which can be conveniently grasped when swinging the pawl upwardly into operative position to release the casing, this being necessary when lowering a length of well casing or pipe into the well.

The specific formation of the pawl E is an important feature of the invention, since it provides a very effective arrangement whereby a secure grip is always insured, thereby making any accidental slipping of the well casing practically impossible. This locking pawl is shown as formed of a double thickness of material 10, a pivot eye 10^a for the reception of the bolt 7 being provided at the fold of the doubled thickness, while a third thickness 11 is interposed between the two thicknesses 10, the several thicknesses being held together by a removable fastening member 12 which may also be utilized for securing the locking pawl to the cross bar. The ends of the thicknesses 10 and 11 at the swinging end of the pawl terminate in sharpened edges 10^b and 11^b, respectively, said edges being transversely disposed and having a spaced relation to each other so that they will bite into the casing and obtain a secure grip upon the same at all times. When the sharp edges 10^b and 11^b become dull, after a period of use, the fastening member 12 can be removed and the intermediate thickness 11 withdrawn from between the doubled thicknesses 10, thereby enabling the edges to be readily sharpened by the use of a file. If necessary, the doubled thicknesses 10 can be sprung apart to provide additional clearance space for a file or similar tool when sharpening the same. After being sharpened the thicknesses can be readily assembled and secured in working relation to each other. It will be understood that by moving the yoke member 2 toward and away from the locking pawl E the grapple member can be adjusted for operation upon smaller or larger sizes of casings or ties.

The hoisting grapple includes spaced upper and lower horizontally disposed U-shaped frames 13 and 14, the ends of the upper frame 13 being curved downwardly at 13^a and secured at 15 to the sides of the lower frame 14, and the two frames being connected by vertical side bars 16. The upper ends of these side bars 16 are curved outwardly at 16^a to clear the casing or pipe C, terminating in eyes 17 which are engaged by hoisting chains 18, said chains being

shown as connected to the hook 19 of some conventional hoisting means, such as a block and tackle. The curved ends of the superposed frames 13 and 14 provide a fixed abutment for one side of the casing C, the opposite side of the casing being engaged by a locking pawl F which is substantially identical in construction with the locking pawl E. The bolt 20 upon which the locking pawl F is mounted is adapted to be inserted into any one of a series of openings 21, thereby enabling the pawl to be moved in and out and properly adjusted for larger and smaller sizes of well casings. A cross bar 21 which is secured to an intermediate portion of the locking pawl F is similar to the before mentioned cross bar 8 of the pawl E, and operates in the same manner to provide a stop for engagement with the upper edges of the horizontal frame 14 to limit the downward movement of the pawl.

In the operation of the device the two grapple members are assembled and applied to the casing in substantially the same manner for either raising or lowering the same. When it is desired to lower a section of casing or pipe into the well opening, the locking pawl E of the stationary grapple member is swung into operative position and caused to engage the casing to support the same while the hoisting grapple member is moved upwardly upon the casing to obtain a firm grip thereon, the pawl F of the hoisting grapple being swung into inoperative position during this upward movement. When the hoisting grapple is in proper position the pawl F thereof is swung into operative engagement with the casing and the pawl E of the stationary grapple member swung away from the casing. The casing can then be lowered, being securely gripped during the lowering movement by the hoisting grapple. When it is necessary to move the hoisting grapple upwardly on the casing to obtain a fresh grip, the pawl E of the stationary grapple means is again swung into operative position to support the casing and hold it against backward movement or slipping. When pulling a length of casing or pipe from the well opening the locking pawls of both the stationary grapple member and the hoisting grapple member are swung into operative position, and the hoisting grapple member moved up and down by the action of the hoisting means. Upon the downward movement of the hoisting grapple the locking pawl F thereof will automatically swing upwardly to release the casing, while the locking pawl E of the stationary grapple member will automatically swing downwardly and grip the casing. In a reverse manner the pawl E of the stationary grapple means will swing upwardly and release the casing, while the pawl F of the hoisting

grapple means will swing downwardly and grip the casing upon the upward movement of the hoisting grapple.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent, is:—

1. A casing grapple member including an open frame through which the casing passes and which is provided with an abutment for one side of the casing, a pivot bolt extending transversely across the open frame, and a swinging locking pawl mounted upon the pivot bolt in operative relation to the abutment, said pawl being formed of several superposed thicknesses of material which terminate at the swinging end of the bolt in spaced transversely extending sharpened edges adapted to bite into and grip the casing.

2. A casing grapple member including an open frame through which the casing passes and which is provided with an abutment for one side of the casing, a pivot bolt extending transversely across the open frame, and a swinging locking pawl mounted upon the pivot bolt in operative relation to the abutment, said pawl being formed of doubled

thicknesses of material having an eye at the fold thereof to receive the pivot bolt, and a third thickness of material interposed between the doubled thicknesses, the ends of the three thicknesses of material terminating in spaced transversely extending sharpened edges adapted to bite into and grip the casing.

3. A casing grapple member including an open frame through which the casing passes, a yoke fitted within the frame and slidable longitudinally thereon, a cross bar applied to the curved end of the yoke, the ends of the cross bar slidably engaging the frame and spaces being provided between the said ends of the cross bar and curved portions of the yoke, and clamping bolts extending through the said spaces and serving to lock the yoke in an adjusted position.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ERICH C. ARTZT.

Witnesses:

EDWIN BINDSEIL,
OSCAR MUELLER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."