R. E. CHOATE.

LIFTING DEVICE FOR CAPSTANS.

APPLICATION FILED APR. 29, 1914. RENEWED SEPT. 12, 1916.

1,203,487. Patented Oct. 31, 1916.

Fig. 1.

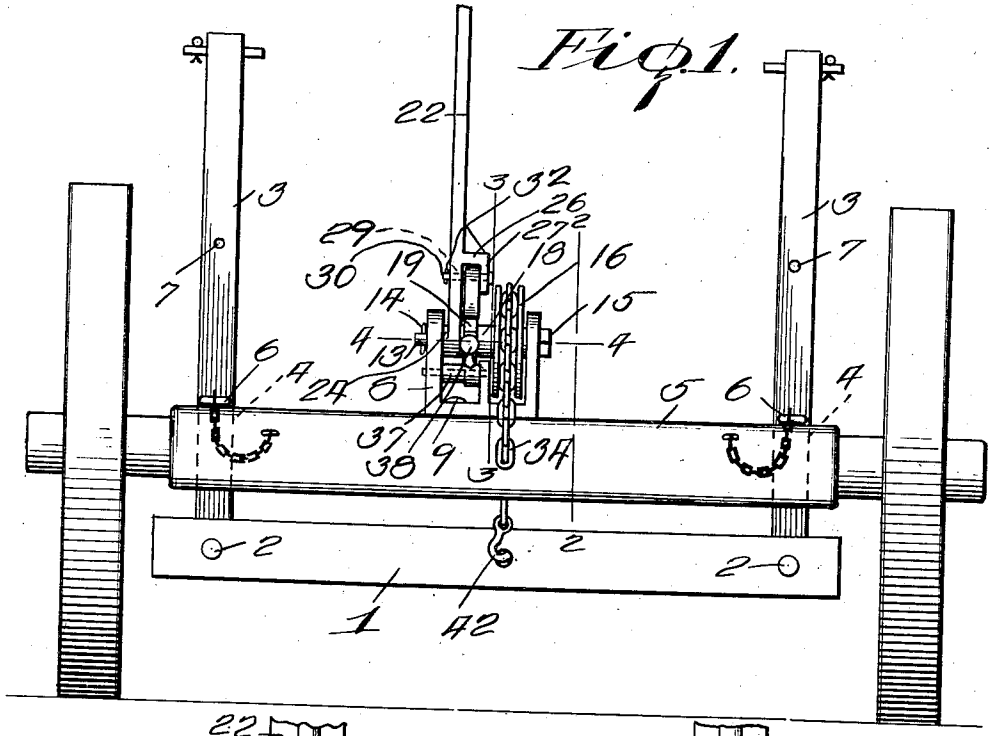


Fig. 3.

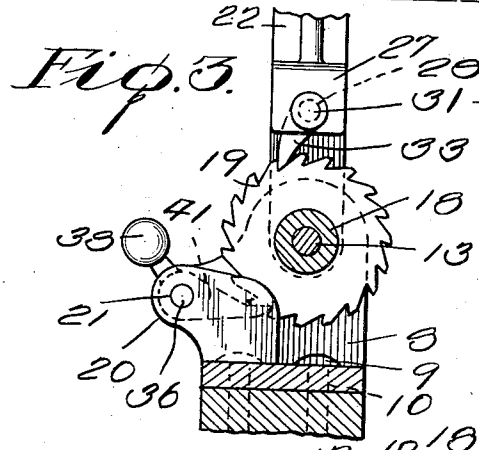


Fig. 2.

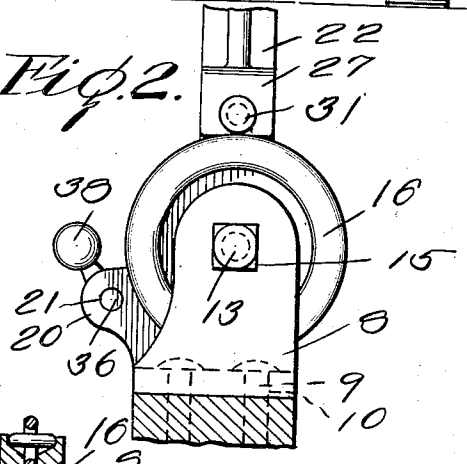
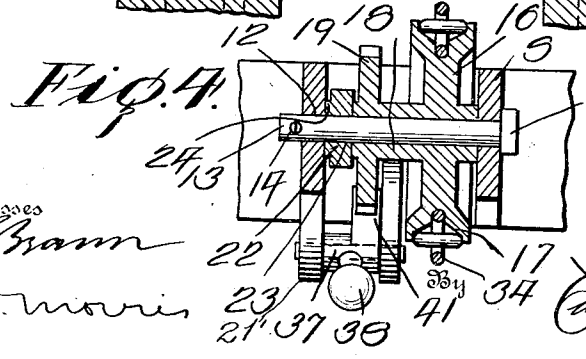


Fig. 4.



Witnesses

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LIFTING DEVICE FOR CAPSTANS.

1,203,487. Specification of Letters Patent. Patented Oct. 31, 1916.

Application filed April 29, 1914, Serial No. 835,303. Renewed September 12, 1916. Serial No. 119,776.

To all whom it may concern:

Be it known that I, ROY E. CHOATE, a citizen of the United States, residing at Cedar Rapids, in the county of Linn, State of Iowa, have invented certain new and useful Improvements in Lifting Devices for Capstans; 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 a lifting device for the frame of a capstan.

In order to facilitate the transportation of a capstan, the frame of the same is mounted upon wheels by being attached to the axles of the same so that the said frame may be either raised or lowered. When it is in its lowered position it rests upon the ground and it is in this position when it is in operation.

An object of my invention is to provide means by which the frame may be lifted from the ground to a position to be secured to the axle of the wheels.

A further object of my invention is to provide means which will hold the said frame in each of its adjusted positions during its upward movement.

With these and other objects in view, such as will appear as the description progresses, my device comprises the combination and arrangement of parts as herein set forth and subsequently claimed.

Referring to the drawing: Figure 1 is a rear elevation of my device attached to the axle of the rear wheels and showing the frame in its raised position. Fig. 2 is a section on the line 2—2 of Fig. 1. Fig. 3 is a section on the line 3—3 of Fig. 1. Fig. 4 is a section on the line 4—4 of Fig. 1.

Referring to the drawings by reference characters wherein like parts are indicated by like characters throughout the several views: The rear bar 1 of a capstap frame has secured thereto by bolts 2 and extending upwardly therefrom vertical bars 3, which are adjustable in apertures 4 in the rear axle 5 and are held in their adjusted positions by pins 6 which pass through the holes therein and bear against the upper face of the axle 5. After the frame of the machine has been lowered by withdrawing the pins 6 and allowing the members 3 to slide downwardly and it is desirable to again raise the frame to its uppermost position, I have provided a U-shaped frame 8 secured to the upper side of the axle casing by bolts 9 which pass through apertures 10 formed in the bight portion of the said U-shaped member. In each of the arms of this member 8 is formed an aperture 12 in which is mounted a shaft 13 held therein by a cotter pin 14 and a head 15. Rotatably mounted on this shaft is a casting which comprises a pulley 16 having a groove 17 in its periphery and depressions in said groove to engage the links of a chain to prevent the same from sliding around the said pulley.

Formed integrally with one side of the pulley 16 is a neck 18 on the end of which is integrally formed a ratchet wheel 19 spaced from the pulley 16, the purpose of which will hereinafter appear. Between the outer face of the ratchet wheel 19 and the adjacent leg of the U-shaped member is pivoted an actuating lever 22 having an aperture 23 in its lower end through which the shaft 13 passes and having a projection 24 on its outer face which bears against the U-shaped member to keep the said lever spaced from the adjacent arm of the U-shaped member. Formed on this lever at a point considerably above its pivotal point is a right angular arm 26 having a vertical portion 27 extending downwardly and parallel to the said lever. In the said arm is formed an aperture 28 and in the lever is formed an aperture 29 in alinement with the aperture 28. Through these apertures is passed a bolt 30 which is securely held therein by a head 31 formed thereon and by a cotter pin 32 passing through an aperture in the opposite end and lying in contact with the outer face of the lever 22.

Pivotally supported between the lever 22 and the arm 27 on this bolt 30 is a pawl 33 which extends downwardly and engages the teeth on the ratchet wheel 19 so that when the lever is pulled rearwardly the said pawl causes the ratchet wheel 19 to be rotated and consequently the pulley rotated therewith so that a chain 34 which is mounted on the pulley 16 may be raised. In order to prevent the pulley from rotating in the opposite direction during the backward oscillation of the lever 22 to get a new grip on the ratchet 19, I have provided on the base of the U-shaped member an outwardly projecting ear 20 having an aperture 21 therein in which is mounted a shaft 36. On the adjacent legs of the U-shaped member 8 is

formed an ear 21′ which has an aperture in alinement with the aperture 21 in the ear 20 in which the adjacent end of the shaft 36 is rotatably mounted. Pivoted on this shaft 36 and between the legs of the U-shaped member 8 is a pawl 41 having a spacing block 37 formed integrally therewith to hold the same spaced from the said ear 20 and in alinement with the ratchet wheel 19. On this pawl is formed a counter-weight 38, which is of spherical formation and tends to hold the said pawl into engagement with the ratchet wheel 19 to prevent rotation of the same in one direction, but to allow rotation in the other direction.

On the lower end of the chain 34 is formed a hook 42 which is attached to the rear beam 1 of the capstan frame.

In operating this device after the capstan has been lowered and it is desired to have the same in its uppermost position for transportation the lever 22 is gripped and pulled rearwardly, which causes the pawl 33 to engage the teeth on the ratchet wheel 19 and rotate said ratchet wheel. This causes the pulley 16 to be rotated and the chain 34 to be pulled upwardly, thus raising the capstan frame. During this movement of the lever the pawl 41 rides loosely over the teeth on the ratchet wheel 19, but as the lever 22 is thrown back into its initial position to get a fresh grip on the ratchet wheel 19, the pawl 41 engages one of the teeth of the ratchet wheel 19 and prevents the said ratchet wheel from rotating in the other direction, which also prevents the pulley 16 from rotating and thus holds the frame in its adjusted position until the lever 22 is again moved forwardly. After the capstan frame has been raised to the desired position pins 6 are inserted through the apertures 7 in the members 3, so that said pins bear against the upper face of the axle 5 and support the said frame in its raised position. The strain is then released from the raising device by loosening the chain 34 on the pulley 16 and the capstan is then ready to be transported.

From the foregoing description it may be seen that I have provided a device that will effectively and readily raise a frame on which a capstan is supported from its position upon the ground to a position so that it may be readily transported on a vehicle. I have still further provided such a device as will hold the said frame in each of its adjusted positions during the upward movement of the same.

I do not wish to be limited to the particular embodiment of my invention shown, but only so far as is necessary by the claims.

While I have described my device as used in lifting the frame of a capstan and the capstan itself from its operative position into a position in which it may be transported, I wish it to be understood that this device may be used in connection with other machines or for raising articles of a similar nature.

What is claimed is:—

1. In a lifting device for capstans, the combination with the rear axle of a vehicle, of a frame having bars extending vertically upwardly therefrom, which bars are slidably mounted in the rear axle, means for raising the frame and maintaining it in its raised position, the said means including a pulley, a chain connected to the frame and detachably engaged with the pulley and means for engaging the vertical bars for assisting the aforementioned means in maintaining the frame in its raised position.

2. The combination with the rear axle of a capstan truck, of a frame, vertically extending guide standards on the frame cooperating with the axle to prevent its turning, a winch mounted on the axle and comprising a sprocket, a ratchet connected with the sprocket, a ratchet lever, and a chain attached to the frame and passing around said sprocket.

3. The combination with the rear axle of a capstan truck, of a frame, means mounted on the axle and connected to the frame for raising the latter and means mounted on the frame and adjustably connected to the axle to prevent its turning during the operation of the raising means for the frame.

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

ROY E. CHOATE.

Witnesses:
E. W. L. PLANT,
W. L. CRISSMAN.