May 24, 1927. 1,629,632

E. NOBLES

LOCOMOTIVE CELLAR BOX PULLER

Filed April 9, 1926

Fig. 1.

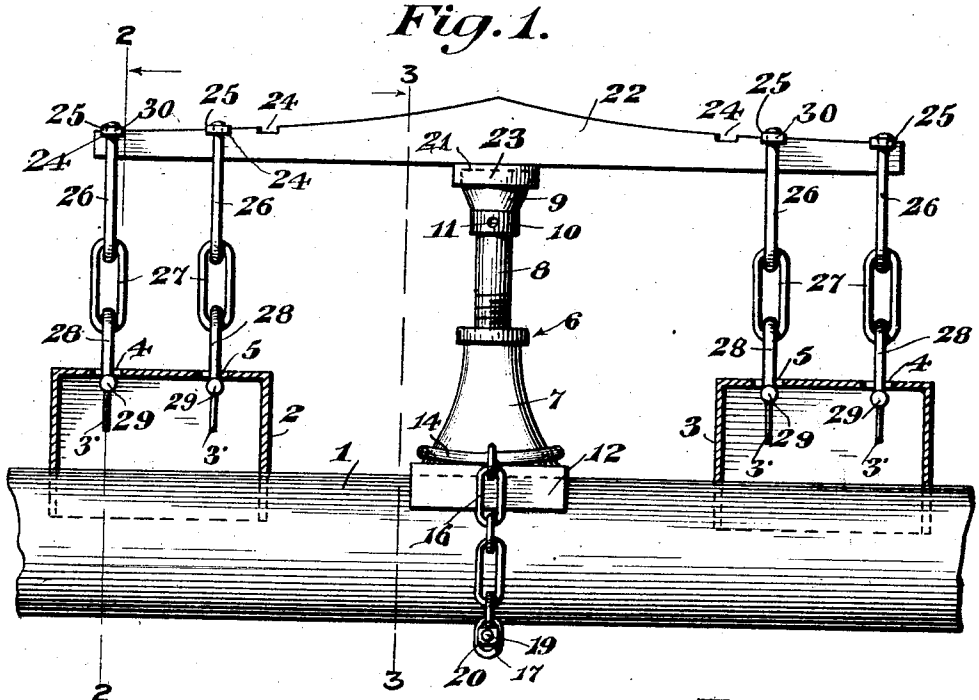


Fig. 2.

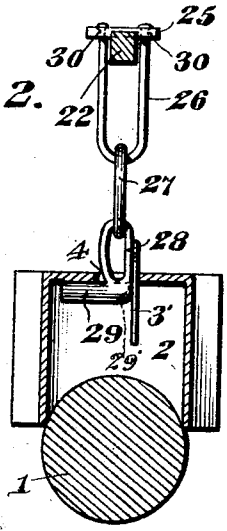


Fig. 3.

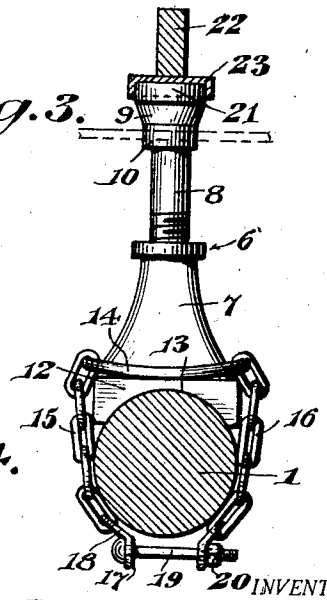


Fig. 4.

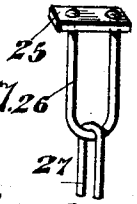
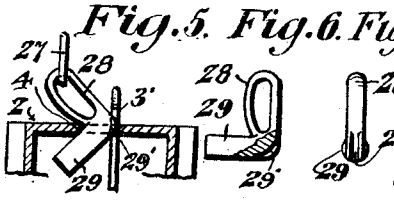


Fig. 5. Fig. 6. Fig. 7.



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UNITED STATES PATENT OFFICE.

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LOCOMOTIVE-CELLAR-BOX PULLER.

Application filed April 9, 1926. Serial No. 100,843.

This invention relates to a pulling device, designed primarily for removing oil cellars from driving axle boxes of locomotives, but it is to be understood that a pulling device, in accordance with this invention, can be employed for any purposes for which it is found applicable, and the invention has for its object to provide a device of the class referred to for inexpensively and expeditiously removing an oil cellar from a driving axle box, without damage to the cellar or box, in a manner to overcome the necessity of driving the cellar from the axle box by a heavy hammer, as is generally the case, and which method is liable to more or less damage the cellar or box and further entails considerable time and expense.

Further objects of the invention are to provide, in a manner as hereinafter set forth, a pulling device for the purpose referred to which is simple in its construction and arrangement, strong, durable, compact, thoroughly efficient and expeditious in its use, conveniently operated, readily positioned with respect to the oil cellar or cellars to be removed, and comparatively inexpensive to set up.

With the foregoing and other objects in view the invention consists of the novel construction, combination and arrangement of parts as hereinafter more specifically described and illustrated in the accompanying drawing, wherein is shown an embodiment of the invention, but it is to be understood that changes, variations and modifications can be had which will fall within the scope of the claims hereunto appended.

In the drawing wherein like reference characters denote corresponding parts throughout the several views:—

Figure 1 is an elevation of a pulling device, in accordance with this invention, showing the adaptation thereof with respect to a fragmentary portion of the driving axle of a locomotive and with a pair of oil cellar boxes, these latter being inverted and illustrated in section.

Figure 2 is a section on line 2—2, Figure 1.

Figure 3 is a section on line 3—3, Figure 1.

Figure 4 is a fragmentary view, in perspective, of the upper portion of a pulling element.

Figure 5 is a fragmentary view, in section, illustrating the position of a hook member as it is being passed into the cellar.

Figure 6 is a side elevation, partly in section of a hook member.

Figure 7 is an elevation looking toward the rear of a hook member.

In the drawing 1 indicates the driving axle of a locomotive and 2, 3 a pair of oil cellar boxes which are illustrated in an inverted position. Each oil cellar box at its bottom is formed with a pair of openings 4, 5 for a purpose to be presently referred to. The driving axle boxes are not illustrated. As is well known when the driving axle boxes are in normal position, the oil cellars are positioned at the bottom of such axle boxes, and are wedged into place by the weight of a locomotive when assembled, and it requires considerable working force to remove the oil cellars, usually by driving them out with heavy hammers. There are two oil cellar boxes to each set of driving wheels. The oil cellar boxes are for holding the heavy grease which lubricates the main bearings of the locomotive axles and the amount of grease in the boxes is indicated by a small rod called the indicator. The indicators 3′ project through the openings 4, 5 and have a relative position as to the amount of grease in the cellar boxes. Each of the openings is about one inch in diameter and the indicator rod usually about a quarter of an inch in diameter. The cellar boxes, when the upper structure of the locomotive is removed from the bearings on the journals, turn up due to the weight on the top of the axles and assume the position shown in Figure 1 and when in such position they are engaged by a pulling device, in accordance with this invention, for the purpose of removing the cellar boxes from the driving axle boxes.

A pulling device, in accordance with this invention, comprises a jack, preferably of the screw type and referred to generally by the reference character 6. The jack 6 includes a tapered body portion 7 provided with a socket having the wall thereof threaded for engaging with the vertically movable lifting screw 8. Integral or connected with the upper end of the screw 8 is a head formed of a flaring portion 9 and a cylindrical lower portion 10, and the latter is formed with one or more openings 11 for the insertion of a suitable instrument to provide for the revolving of the lifting screw 8

in a clock-wise or in an anti-clockwise direction. The lower end of the body portion 7 terminates in or has connected therewith a rectangular base 12, formed with a lengthwise extending semi-circular groove 13 for the purpose of seating the jack 6 on the axle 1, as shown in Figure 3.

The jack 6 is clamped, in a vertical position, to the axle 1, through the medium of an annulus 14 which surrounds the body portion 7 and is seated on the base 12. The annulus 14 has depending therefrom a pair of chains 15, 16 and said annulus 14 is bowed for the purpose of seating on and extending upwardly from the base 12. The chain 15, as well as the chain 16, has connected to the lower link thereof a plate formed with a vertically disposed lower arm 17 and an outwardly inclined upper arm 18. The vertical arms of said plates oppose each other and are apertured for the passage of a clamping bolt 19, which carries a securing nut 20. The head of the bolt 19 abuts against one of the vertical arms 17 and the nut 20 abuts against the other vertical arm 17 exteriorly thereof. When the nut 20 is screwed home the jack is tightly clamped, in a vertical position, to the axle 1.

Seating on the cylindrical upper portion 21 of the head of the lifting screw 8 is a beam 22 which has its lower edge, centrally thereof, formed integral with a cap 23 which is mounted on and surrounds the circular upper portion 21 of the head of the lifting screw. When the device is in operative position, the beam 22 is positioned above the axle 1 and is disposed is alignment with the longitudinal median of the latter. The beam 22 is of a length to extend in superposed relation with respect to the pair of oil cellar boxes 2, 3. The top edge of the beam 22 is formed with spaced sets of notches 24 extending transversely thereof. One of the notches of each set is positioned in proximity to a free end of the beam 22. The notches 24 are provided to receive coupling plates 25 for the pulling elements. The notches of each set are suitably spaced so that two of them will be positioned in alignment with respect to the openings 4, 5 of the cellar box. Two pulling elements are employed for removing a cellar box. The disposition of each pair of pulling elements with a cellar box is shown in Figure 1.

Each pulling element consists of a yoke 26, a link 27 depending therefrom and with the link of oval contour and of substantial width and length, and an L-shaped hook member having its vertical leg 28 in the form of a link and its horizontal leg 29 solid, of cylindrical cross section and of the desired length and diameter, but of a diameter whereby the leg 29 can be passed through an opening 4 or 5 and assume the position shown in Figure 2.

The rear lower corner of the hook member is grooved, as at 29′ to provide a clearance with respect to an indicator rod 3′ when inserting the horizontal leg 29 through the opening 4, see Figure 5.

Each coupling plate is of rectangular contour and of greater length than the width of the beam 22 and the plate is formed with a pair of openings 30 through which extend the upper ends of the arms of the yoke 26. The free or upper ends of the arms of the yoke 26 are upset for the purpose of securing the yoke 26 to the coupling plate. It is to be understood that the arms of the yoke 26 can be secured to its respective coupling plate in any suitable manner. When a coupling plate 25 is seated in the notch 24 the arms of the yoke 26 straddle the beam 22. See Figure 2.

When the pulling device is in the position, as shown in Figure 1, with respect to a pair of oil cellar boxes, the lifting screw 8 is revolved in a clock-wise direction, whereby the beam 22 is elevated, which carrying the pulling elements therewith, will provide for the removal of the cellar boxes from the axle boxes. The hook members engaging the cellar boxes in the position as shows in Figure 2, will necessarily provide for the pulling of said boxes from the axle boxes.

When the device is in operative position, it is mounted under the cab of a locomotive upon an axle between the pair of driving wheels on such axle. The device can be employed to remove a single cellar box or a pair of cellar boxes simultaneously.

In case one cellar box will become loose as the pressure is applied for the jack, then it will be necessary to put a chain around the end of the beam of the cellar box that has come loose, thus holding that end rigid. so all pressure can be exerted to the remaining cellar box to pull it out.

It is thought that the many advantages of a pulling device, in accordance with this invention for the purpose set forth can be readily understood, and although the preferred embodiment of the invention is as illustrated and described, yet it is to be understood that changes in the details of construction can be had which will fall within the scope of the invention as claimed.

What I claim is:—

1. In a pulling device for the purpose set forth a coupling plate adapted to be carried by a vertically movable element, a yoke having the upper ends of the arms thereof connected to said plates, a link depending from the lower end of the yoke, a hook shaped member depending from the lower end of the link, said hook shaped member being of L-shaped contour and having its vertical leg in the form of a link and its horizontal leg solid.

2. A pulling device for oil cellar boxes

comprising a jack including a lifting screw provided with a head, a beam formed centrally thereof with a depending cap mounted on said head, said beam vertically movable with the screw when the latter is operated, and a plurality of pulling elements mounted on and depending from each end of the beam, each of said elements including a hook member at its lower end adapted to extend into and abut against the inner face of an inverted cellar box for pulling the same from an axle box when the beam is moved upwardly.

3. A pulling device for oil cellar boxes comprising a jack including a lifting screw provided with a head, a beam formed centrally thereof with a depending cap mounted on said head, said beam vertically movable with the screw when the latter is operated, a plurality of pulling elements mounted on and depending from each end of the beam, each of said elements including a hook member at its lower end adapted to extend into and abut against the inner face of an inverted cellar box for pulling the same from an axle box when the beam is moved upwardly, each of said hook members formed with a groove to provide a clearance for the indicator rod of a cellar box.

4. A pulling device for the purpose set forth comprising a jack including a lifting screw provided with a head, a beam formed centrally thereof with a depending cap mounted on said head, said beam vertically movable with said screw, said beam having its top edge at each end terminal portion thereof formed with a set of spaced notches, coupling plates seated in certain of the notches of each set and extended from the side faces of said beam, and a pulling element connected to each coupling plate and depending from said beam, each of said elements including a hook-shaped member adapted to extend into and abut against the inner face of an inverted cellar box for pulling the same from an axle box when the beam is moved upwardly by the jack.

5. A pulling device for the purpose set forth comprising a jack including a lifting screw provided with a head, a beam formed centrally thereof with a depending cap mounted on said head, said beam vertically movable with said screw, said beam having its top edge at each end terminal portion thereof formed with a set of spaced notches, coupling plates seated in certain of the notches of each set and extended from the side faces of said beam, a pulling element connected to each coupling plate and depending from said beam, each of said elements including a hook-shaped member adapted to extend into and abut against the inner face of an inverted cellar box for pulling the same from an axle box when the beam is moved upwardly by the jack, and means mounted on, depending from and connected with the lower portion of the jack for anchoring it in stationary position to support the beam in superposed relation with respect to the cellar box.

6. In a pulling device for oil cellar boxes, a coupling plate carrying said plate a vertically movable element, a depending yoke having the upper end of each of its arms connected to an end of said plate, a link of loop-like form depending from the lower end of the yoke, and a hook member suspended from the lower end of the link, said member having its lower portion disposed at right angles with respect to its upper portion and said member adapted to extend into a cellar box and have its lower portion abut against the inner face of the box for pulling the same when the coupling plate is elevated.

7. In a pulling device for oil cellar boxes, a coupling plate carrying said plate a vertically movable element, a depending yoke having the upper end of each of its arms connected to an end of said plate, a link of loop-like form depending from the lower end of the yoke, a hook member suspended from the lower end of the link, said member having its lower portion disposed at right angles with respect to its upper portion and said member adapted to extend into a cellar box and have its lower portion abut against the inner face of the box for pulling the same when the coupling plate is elevated, said hook member formed with a groove to provide a clearance for the indicator rod of a cellar box.

In testimony whereof, I affix my signature hereto.

EDWARD NOBLES.