

Nov. 18, 1930.

R. C. HOPKINS

1,781,875

PICKLING TONGS

Filed June 22, 1929

2 Sheets-Sheet 1

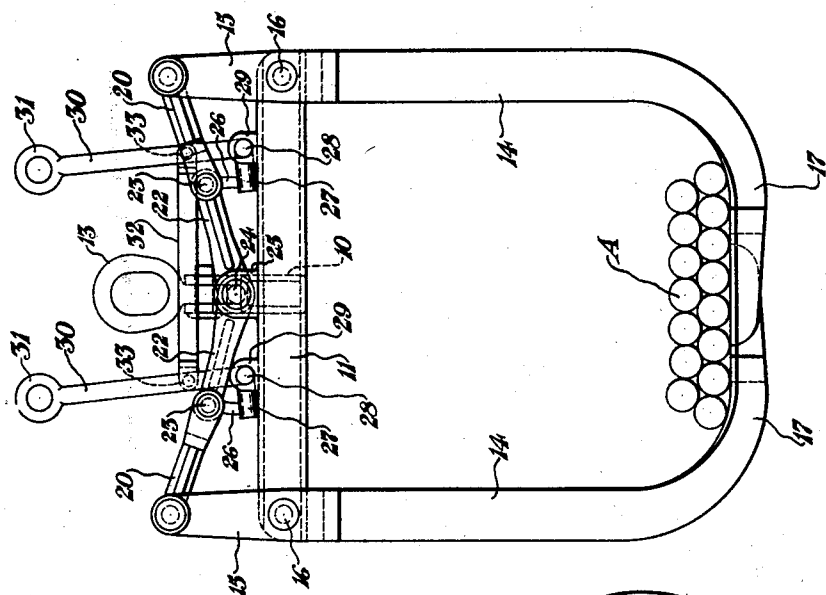


Fig. 2

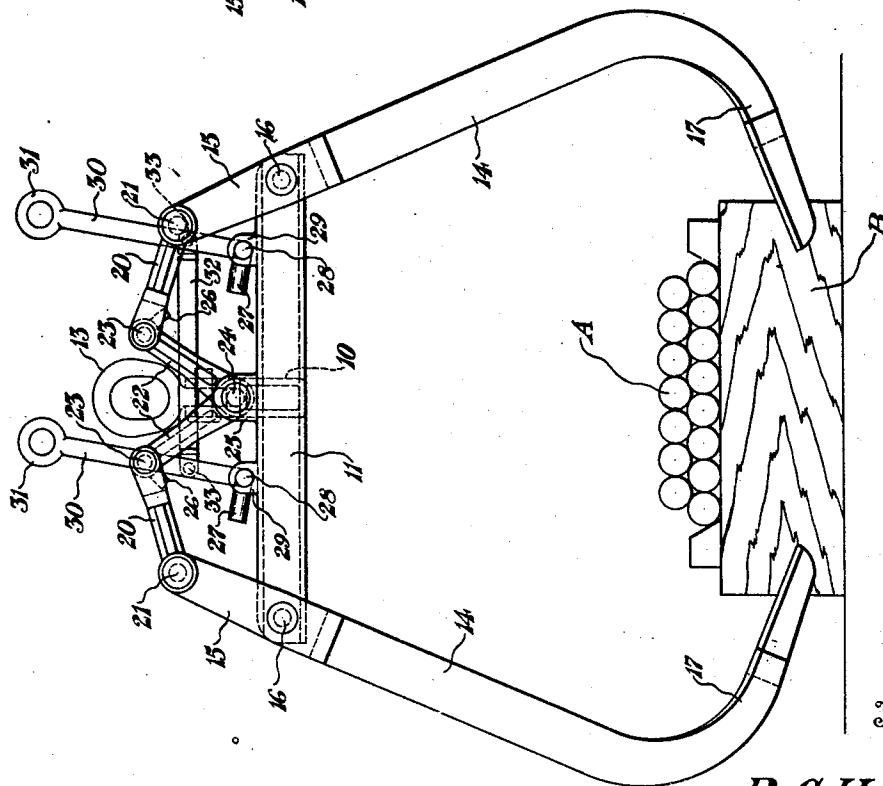


Fig. 1

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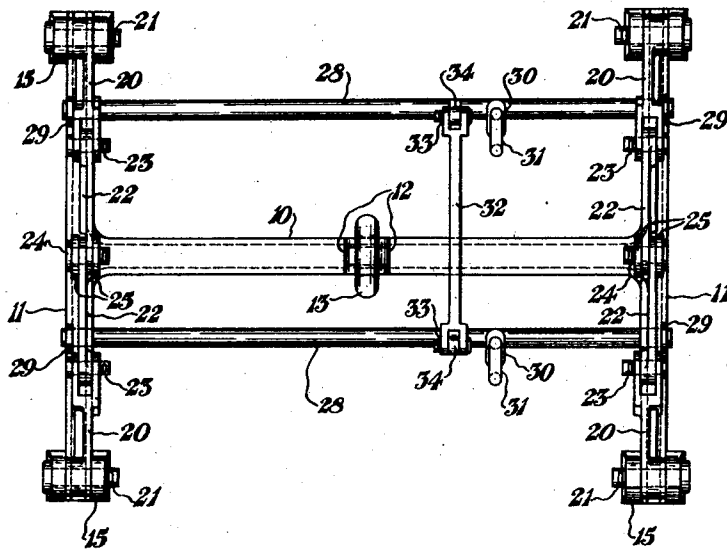


Fig. 3

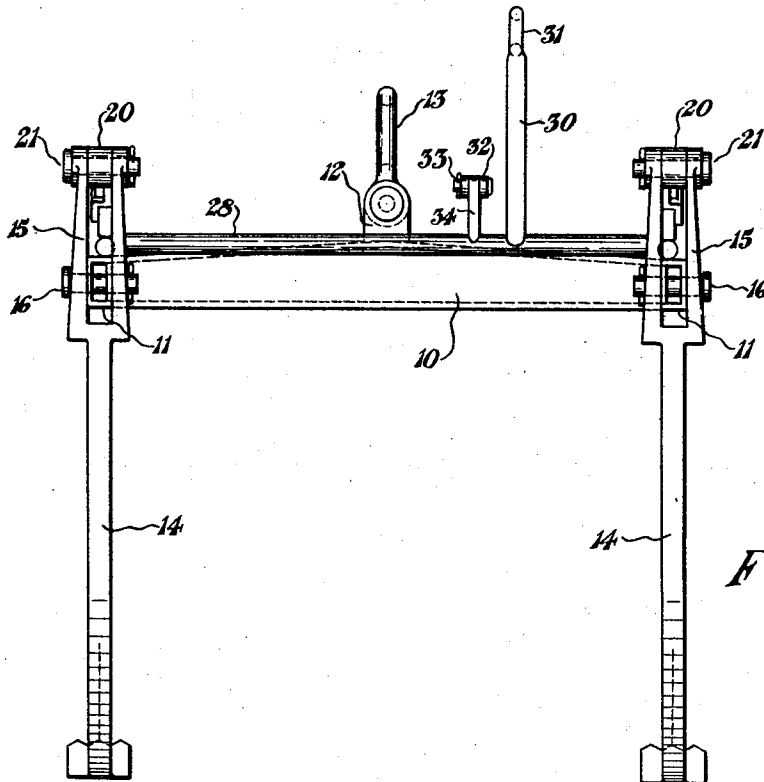


Fig. 4

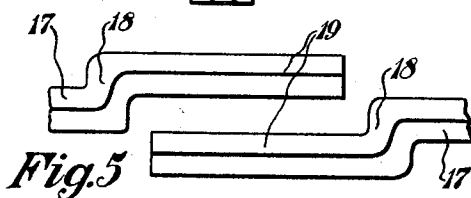


Fig. 5

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PICKLING TONGS

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The invention relates to tongs for handling bars or forgings such as automobile axles and the like and is particularly adapted for the quick handling of such articles for pickling and the like.

The object of the improvement is to provide tongs which will quickly and economically handle bars and the like during the pickling operation.

The above and other objects may be attained by providing a supporting frame having the jaws hingedly connected to each end thereof, toggle joints being provided for automatically locking the jaws in closed position, and means being provided for releasing all of the jaws simultaneously.

An embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is an end elevation of the improved tongs, showing the jaws in open position preparatory to picking up a load of bars or the like;

Fig. 2, a similar view showing the jaws in

closed position with the load carried thereby;

Fig. 3, a top plan view of the tongs;

Fig. 4, a side elevation of the tongs; and

Fig. 5, a fragmentary plan view of the cooperating ends of two jaws.

Similar numerals refer to similar parts throughout the drawings.

The supporting frame is of substantially H shape in plan and comprises the central bar portion 10 and the end portions or spaced, parallel arms 11 connected at their centers to the ends of the bar 10. Upright ears 12 may be formed at the center of the bar portion 10 for the connection of an eye 13 by means of which the tongs may be raised and transported by a crane or the like.

A jaw 14 is hingedly connected to each end of each of the arms 11 of the frame, each of these jaws being bifurcated at its upper end as at 15 for pivotal connection to the end portion of the arm as by the pin 16.

The lower end portion of each jaw is turned inward as at 17 and the free end portions thereof are offset, in opposite directions, as at 18 so that the ends of each adjacent pair of jaws may overlap as at 19, permitting both

jaws of each pair to be placed beneath the load.

Toggle links are connected to the upper ends of the bifurcated portions 15 of the jaws and comprise the links 20 pivoted as at 21 between the bifurcations and the links 22 pivoted as at 23 to the links 20 and as at 24 to an upright ear 25 formed at the central portion of each arm 11 of the supporting frame.

A depending stud 26 is fixed upon the free end of each link 22 and adapted to contact with a short rocker arm 27 mounted upon the adjacent end of a rocker shaft 28 journaled at opposite ends in ears 29 formed upon the arms 11 of the supporting frame.

An upright lever arm 30 is fixed upon each rocker shaft 28 and may be provided at its upper end with an eye 31 whereby a hooked rod may be inserted therein for operating the rocker shafts.

In order that both rocker shafts may be operated in unison, a link 32 may be pivotally connected at opposite ends, as at 33, to the arms 34 upon the shafts 28.

In operation the axles or other articles to be pickled, as shown at A, are loaded upon a horse or the like indicated generally at B in Fig. 1 and the jaws of the tongs are opened to the position indicated in said figure.

The tongs are then lowered to the position shown in Fig. 1 and the jaws are closed by simply pushing them together to the position shown in Fig. 2 at which time the pivots 23 of the toggle levers will pass below dead center, locking the jaws in the closed position with the load therein.

The load is then taken to the pickle tank where it is pickled and then to the rinsing tank where it is washed and the unloading is accomplished by pulling one of the levers 30 in the direction of the arrow shown in Fig. 2.

This may be accomplished by a long hooked rod similar to a poker which may be inserted into one of the eyes 31, a slight pull upon the same raising the pivotal points 23 of the toggles above dead center by means of the rocker arms 27 contacting with the studs 26. As soon as these toggles pass over dead center

the jaws will be released and the load deposited wherever desired.

Although these tongs are especially adapted for use in pickling, it will be understood that they may be used for various purposes where it is desired to quickly pick up or deposit a load. Where they are to be used for pickling, all of the parts should be made of acid resisting bronze or the like.

I claim:

1. Tongs including a supporting frame, a pair of jaws hinged upon said frame, toggle levers connected to the jaws for automatically locking the jaws in closed position, and a rocker shaft for releasing the jaws to permit them to open.

2. Tongs including a supporting frame, a pair of jaws hinged upon said frame, toggle links connected to the jaws and arranged to pass beyond dead center for automatically locking the jaws in closed position, and a rocker shaft for moving the toggle links over dead center to permit the jaws to open.

3. Tongs including a supporting frame having spaced, parallel arms, a jaw hinged to each end of each arm, toggle links connected to the jaws for automatically locking the jaws in closed position, and a rocker shaft for releasing the jaws to permit them to open.

4. Tongs including a supporting frame having spaced, parallel arms, a jaw hinged to each end of each arm, a pair of toggle links connected to each jaw and to the frame, and arranged to pass beyond dead center for automatically locking the jaws in closed position, and a rocker shaft for moving the toggle links over dead center to permit the jaws to open.

5. Tongs including a supporting frame having spaced, parallel arms, a jaw hinged to each end of each arm, a pair of toggle links connected to each jaw and to the frame, and arranged to pass beyond dead center for automatically locking the jaws in closed position, a rocker shaft for moving the toggle links on each side over dead center to permit the jaws to open, and means for simultaneously operating both rocker shafts.

6. Tongs including a supporting frame, a pair of jaws hinged upon the frame, a toggle link pivotally connected at one end to each jaw, a second toggle link pivotally connected at one end to the other end of the first toggle link and pivotally connected at its other end to the frame, the pivotal connection between each pair of toggle links being arranged to pass beyond dead center for automatically locking the jaws in closed position, and a rocker shaft for moving the pivotal connection between each pair of toggle links over dead center for permitting the jaws to open.

7. Tongs including a supporting frame, a pair of jaws hinged upon the frame, a toggle link pivotally connected at one end to each jaw, a second toggle link pivotally connect-

ed at one end to the other end of the first toggle link and pivotally connected at its other end to the frame, the pivotal connection between each pair of toggle links being arranged to pass beyond dead center for automatically locking the jaws in closed position, a rocker shaft for moving the pivotal connection between each pair of toggle links over dead center for permitting the jaws to open, and means for simultaneously operating both rocker shafts.

In testimony that I claim the above, I have hereunto subscribed my name.

ROBERT C. HOPKINS.