Sept. 3, 1940. H. PERSSON 2,213,227

FLANGE JACK

Filed Sept. 18, 1939

Fig. 1.

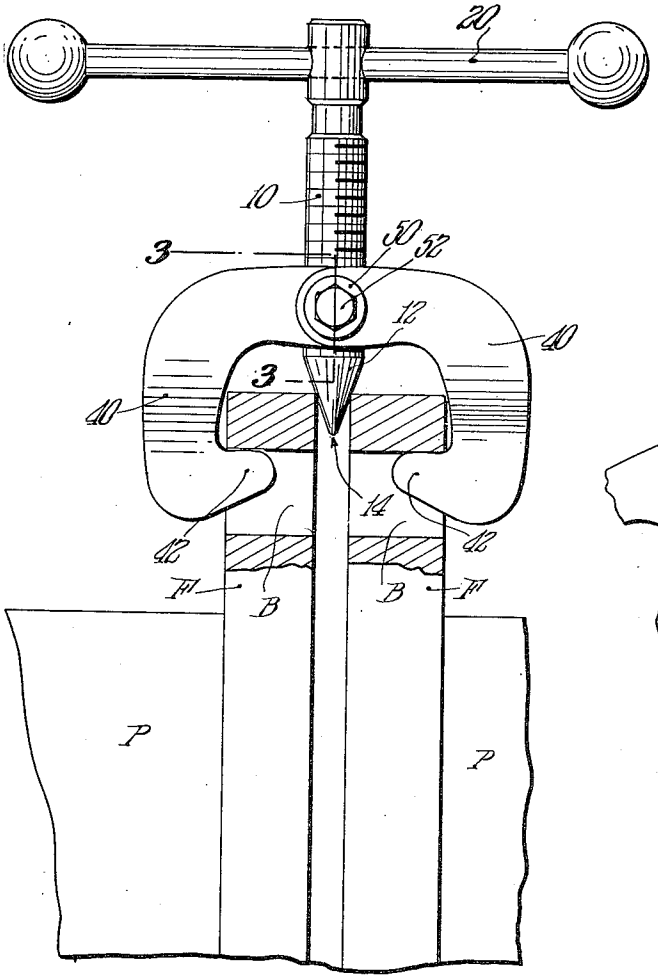


Fig. 2.

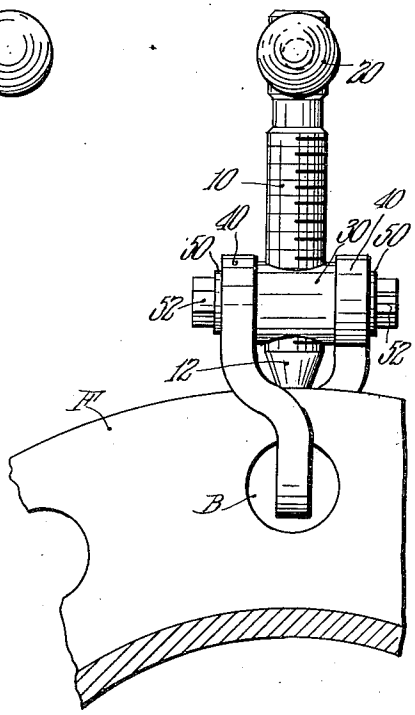
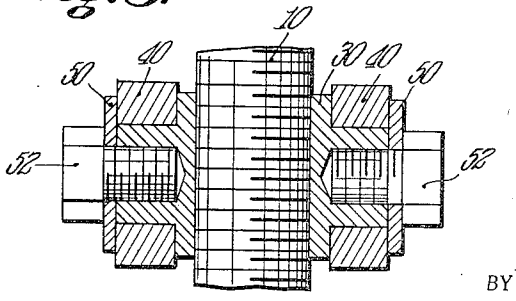


Fig. 3.



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FLANGE JACK

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4 Claims. (Cl. 254—100)

My invention relates to improvements in a flange jack and it is directed more particularly to a new and improved flange jack which is adapted to separate adjacent flanges of flanged pipe or the like so as to provide spaces between these adjacent flanges for various and sundry purposes all as may be desired.

It is the principal object of my invention to provide a unique and novel flange jack which is more simple in its construction and more efficient in its operation than any of the devices heretofore known and used.

The device of the invention is so constructed that it may be readily and quickly attached to the object or objects which it is desired to operate upon, and it has the added advantage of being simple in its construction so that two of the devices may be used as a pair if it is so desired, so that an object may be more easily operated upon.

Among the other various objects of my invention are: first, to secure a high degree of accuracy in the performance of the work; second, to attain a high degree of speed in the construction of the device; third, to attain a flexibility or capability of adjustment by which a large variety of work can be produced; fourth, to attain an ease in adjustment and in repairs for the device; fifth, to provide an improved jack which may be made more economically and with fewer operations in the manufacture of its parts as well as in the assembly thereof than prior devices known in the art; and sixth, to provide a device in which the parts, when once assembled, are positively and securely retained in operative relation and cannot readily be separated from each other either accidentally or otherwise.

With the foregoing and various other novel features and advantages and other objects of my invention as will become more apparent as the description proceeds, my invention consists in certain novel features of construction and of combination and arrangement of parts as will be hereinafter more particularly pointed out in the claims hereunto annexed and more fully described and referred to in connection with the accompanying drawing, wherein:

Fig. 1 is a side elevational view of the device of my invention shown in association with two adjacent sections of pipe;

Fig. 2 is an end elevational view of the device of my invention shown in association with a part of a pipe flange; and

Fig. 3 is a cross-sectional view of the device of my invention taken along the line 3—3 of Fig. 1.

Referring now to the drawing in detail, my invention will now be described. Like numerals refer to like parts in different figures of the drawing.

A jack screw, indicated by the character 10, is screw-threaded along its central body portion substantially as shown. This is made of steel or of some other equally suitable rigid material. The lower end portion 12 of the screw is preferably cone-shaped and has a more or less pointed end 14 adapted to be inserted between adjacent faces of pipe flanges, as shown.

On the opposite end of the jack screw 10, there is an operating handle 20 which is provided for manual engagement, as will hereinafter be more fully explained. The handle 20 is preferably adapted to slide on a horizontal plane relative to the jack screw so that various positions may be obtained therewith to assist the operator in using my device. This may be accomplished by having the handle 20 slidable through an opening in the jack screw.

A hub 30 has a central bore which is internally threaded so that the hub is in threaded engagement with the jack screw 10. Thus the hub and screw are adapted for vertical movements relative to one another by rotation of one member relative to the other.

The hub 30 is provided with journals on its outer sides on which are journalled a pair of hook members 40 substantially as shown in Fig. 3. The hooks are preferably disposed closely adjacent the opposite sides of hub 30 and are offset at their lower or free ends as is shown in Fig. 2.

These free or offset ends are disposed directly opposite each other at their free extremities where prongs 42 oppose each other. The extremities are receivable in the bolt holes B of flanges which it is desired to separate.

The hooks are so formed and journalled or pivoted relative to the hub and screw that they tend to swing inwardly as the screw applies pressure to the flanges.

Washers 50 may abut the exposed faces of the hub and the hooks as shown. Screws or bolts 52 in conjunction with the washers are adapted to retain the members 40 in journalled relation on the hub 30 for operating purposes.

The operation of the device will be described with the ends of the hooks disposed in bolt holes such as B and the end of the screw member disposed on the edges of adjacent faces.

It will be understood that several of the devices may be used simultaneously if desired.

By rotation of the operating handle 20, the jack screw 10 is likewise rotated, and when the hub in engagement with the jack screw is held secure in its position as will be hereinafter observed, the jack screw moves relative thereto so as to force the hub upwardly or downwardly along the threaded portion of the jack screw.

The free end portions 42 of the hook members 40, which, as stated, are offset and extend inwardly towards one another are adapted and intended to engage a portion of the object to be moved below the top thereof. In the drawing, these prongs 42 engage the adjacent flanges F of pipes P by extending into bolt openings B of the flanges as seen in Fig. 1. The prongs engage the flanges, and thus the hooks are positioned so that upon rotation of the jack screw, the screw moves relative to the hooks.

By rotation in one direction, the screw is moved downwardly whereby the cone 42 at its lower extremity is adapted to extend between two pipe sections substantially as shown in Fig. 1. By continued rotation, the cone moves further inwardly so as to make the opening between the two sections wider.

In practice, the device of this invention is so associated with the object that the cone portion 12 engages the top of the object and the hook members are swung so that its offset parts engage the object at some point below the top, such as in the bolt openings of the pipe as is shown. Then the operating handle 20 is grasped by the hand and when rotated, pressure is exerted upwardly by the hooks and more pressure is caused to be exerted downwardly against the top of the object.

If it is desired, there may be a plurality of hook members of different sizes, shapes and lengths. These which may be interchangeable upon the jack screw 10 so that objects of different sizes and shapes may be operated upon.

If it is desired, the hook member may have a series of sharply pointed prongs or teeth instead of a single prong. These teeth, if more than one is used, when attached will facilitate in the work of operating on certain objects more efficiently in that the teeth or prongs would bite into the wood or object more readily.

While I have described the invention in great detail and with respect to the present preferred form thereof, it is not desired to be limited thereto since changes and modifications may be made therein without departing from the spirit and scope of the invention. The invention may be embodied in other specific forms without departing from the essential characteristics thereof. The present embodiments are therefore to be considered in all respects as illustrative and not restrictive, the scope of the invention being indicated by the appended claims rather than by the foregoing description, and all changes which come within the meaning and range of equivalency of the claims are therefore intended to be embraced therein.

What it is desired to claim and secure by Letters Patent of the United States is:

1. A device for separating adjacent pipes having adjacently-disposed flanges provided with bolt-openings comprising in combination, a hub, a wedge member in the form of a screw adjustable vertically with respect to said hub and having a lower wedge-shaped end for entering between the peripheral edges of adjacent faces of adjacent flanges to separate them with a wedging action, a pair of unitary hook members each including an upper portion and a side portion extending outwardly and then downwardly away from said upper portion, said upper portions being pivoted to opposite sides of said hub on substantially aligned axes disposed transversely to the axis of said wedge member and in a plane passing through that of said axis, one of the side portions extending outwardly in one direction from said hub and the other extending outwardly in the opposite direction from said hub, said side portions having extensions on their lower ends which extend inwardly towards one another and are receivable in the bolt-openings of adjacent flanges.

2. A device for separating adjacent pipes having adjacently-disposed flanges provided with bolt-openings comprising in combination, a hub, a wedge member in the form of a screw adjustable vertically with respect to said hub and having a lower wedge-shaped end for entering between the peripheral edges of adjacent faces of adjacent flanges to separate them with a wedging action, a pair of unitary hook members each including an upper portion and a side portion extending outwardly and then downwardly away from said upper portion, said upper portions being pivoted to opposite sides of said hub on substantially aligned axes disposed transversely to the axis of said wedge member and in a plane passing through that of said axis, one of the side portions extending outwardly in one direction from said hub and the other extending outwardly in the opposite direction from said hub, said side portions having extensions on their lower ends which extend inwardly towards one another and are receivable in the bolt-openings of adjacent flanges, said side portions being offset inwardly relative to said upper portions whereby said extensions thereof are disposed in substantial alignment for entering aligned bolt-openings of adjacent flanges.

3. A device for separating adjacent pipes having adjacently-disposed flanges provided with bolt-openings comprising in combination, a hub, a wedge member in the form of a screw adjustable vertically with respect to said hub and having a lower wedge-shaped end for entering between the peripheral edges of adjacent faces of adjacent flanges to separate them with a wedging action, a pair of unitary hook members each including an upper portion and a side portion extending outwardly and then downwardly away from said upper portion, said upper portions being pivoted to opposite sides of said hub and at opposite sides of the wedge member, one of the side portions extending outwardly in one direction from said hub and the other extending outwardly in the opposite direction from said hub, said side portions having extensions on their lower ends which extend inwardly towards one another and are receivable in the bolt-openings of adjacent flanges, said side portions being offset inwardly relative to said upper portions whereby said extensions thereof are disposed in substantial alignment for entering aligned bolt-openings of adjacent flanges.

4. A device for separating adjacent pipes having adjacently-disposed flanges provided with bolt-openings comprising in combination, a hub, a wedge member in the form of a screw adjustable vertically with respect to said hub and having a lower wedge-shaped end for entering between the peripheral edges of adjacent faces of adjacent flanges to separate them with a wedging action, and a pair of unitary hook members each

including an upper portion and a side portion extending outwardly and then downwardly away from said upper portion, said upper portions being pivoted on journal parts provided on opposite sides of said hub, one of the side portions extending outwardly in one direction from said hub and the other extending outwardly in the opposite direction from said hub, said side portions having extensions on their lower ends which extend inwardly towards one another and are receivable in the bolt-openings of adjacent flanges.

HENRY PERSSON.