May 9, 1950 G. CARLSON 2,507,368

LIFTING TONGS FOR CONCRETE BLOCKS

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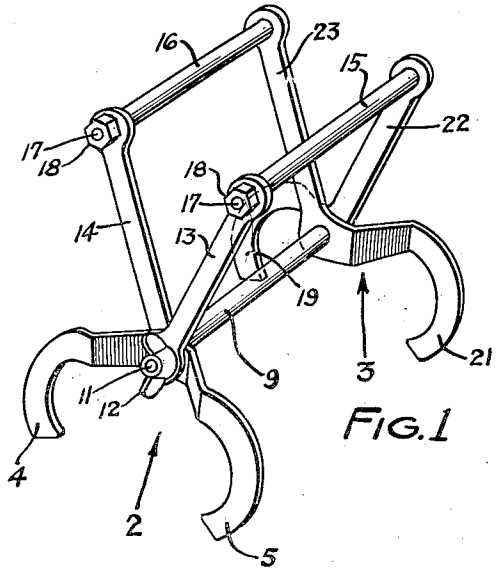


FIG. 1

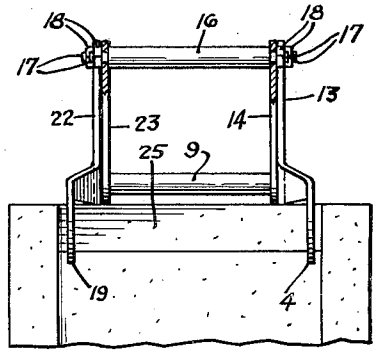


FIG. 4

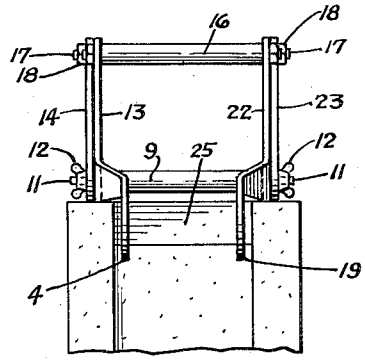


FIG. 6

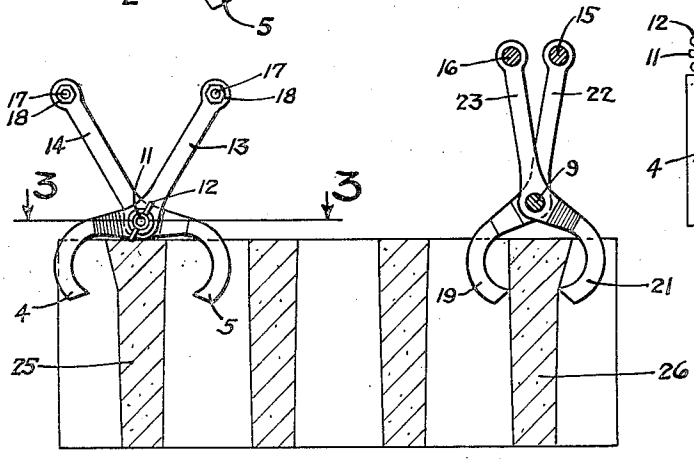


FIG. 2

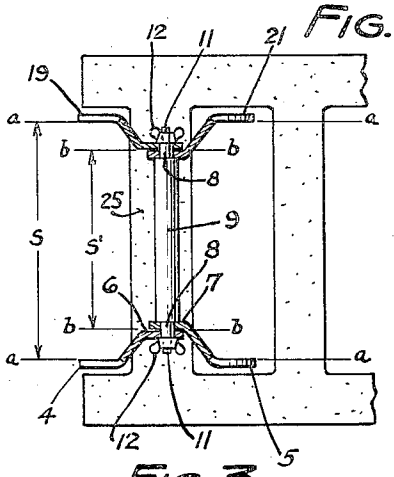


FIG. 3

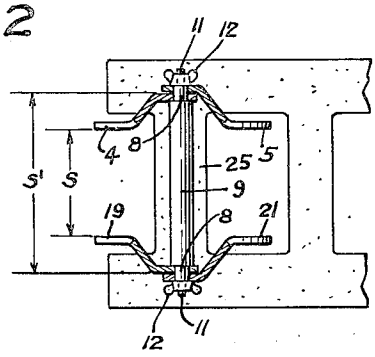


FIG. 5

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LIFTING TONGS FOR CONCRETE BLOCKS

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4 Claims. (Cl. 294—106)

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This invention relates to new and useful improvements in lifting tongs, and more particularly to such devices adapted for lifting concrete blocks in the building trade, although it is to be understood that they may be utilized for lifting other articles, where applicable.

Prefabricated concrete blocks are now commonly used in the building art in the construction of foundations and building walls. These blocks are usually placed one upon another in horizontal tiers with a layer or mortar being interposed between adjacent blocks to firmly bind them together and to prevent leakage between the blocks. In the construction of a wall, a thin layer of mortar is usually placed upon the rows of blocks as they are successively laid in the wall and as the mortar is comparatively soft, the concrete blocks must be carefully laid into place in the wall so as not to disrupt the layer of mortar placed on the previously laid blocks. In other words, to obtain a good joint between adjacent blocks, each block as it is laid into place, should be held in a horizontal position so that its bottom face will engage the mortar substantially over its entire area, and at the same time the block is gently shoved into contact with the mortar applied to the adjacent end of the previously laid block in a given tier, whereby the layers of mortar between the horizontal and upright faces of adjacent blocks will be substantially uniform in thickness. It is rather difficult to handle concrete blocks by hand, particularly the larger sizes, and it is, therefore, the purpose of this invention to provide a simple device adapted to be used by a stone mason or other workman to grasp concrete blocks, whereby the operation of constructing a wall of concrete blocks may be greatly facilitated.

The novel tongs herein disclosed is shown comprising a supporting shaft having two sets of jaws pivotally mounted thereon, one set at each end of the shaft. The handle portions of said pairs of jaws are so designed that they may readily be grasped by one hand whereby when the composite device is used to grasp a concrete block or other article, the jaws will engage the block with uniform pressure, whereby they may readily expeditiously place the blocks in position in a wall without danger of disrupting the layers of mortar applied to the previously laid blocks.

It is, therefore, an object of the present invention to provide a simple and inexpensive lifting device for concrete blocks, and the like, whereby a stone mason or workman may quickly and with a minimum of effort, pick up the concrete blocks and place them in proper position in a wall without disrupting the layer of mortar placed between adjacent blocks, thereby making it possible to construct a concrete block wall in a comparatively short period of time and with the assurance that the joints between adjacent blocks will be substantially weatherproof.

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A further object of the invention is to provide a lifting device of the class described comprising spaced-apart pairs of jaws, and the corresponding jaws of each pair of jaws being connected together by suitable tie rods which cooperate to provide a handle which may be readily grasped by the hand of an operator, thereby to simultaneously manipulate all of said jaws to grasp a concrete block or other article to facilitate moving it from one place to another.

A further object is to provide a device of the class described comprising a supporting shaft having a pair of jaws mounted at each end thereof, and the jaws of each pair of jaws being provided with means cooperating to provide an operating handle which may be readily grasped by a mason or workman, and means being provided whereby the spacing between said pairs of jaws may be varied in a direction lengthwise of the supporting shaft, thereby to adapt the device for lifting blocks or articles of different sizes.

Other objects of the invention reside in the simple and inexpensive construction of the tongs whereby they may be manufactured in quantity production at low cost; in the provision of such a device which comprises coacting pairs of jaws adapted simultaneously to engage and grasp an object when the handle of said jaws is grasped by a workman; in the means embodied in said device whereby all of the jaws thereof will grip the block or article with uniform pressure to assure a positive grip on the block; and in the provision of such a device which is extremely efficient and practical in operation, and by the ue of which the operation of successively laying concrete blocks in a wall is greatly facilitated.

Other objects of the invention will appear from the following description and the accompanying drawings and will be pointed out in the annexed claims.

In the accompaniyng drawings there has been disclosed a structure designed to carry out the various objects of the invention, but it is to be understood that the invention is not confined to the exact features shown, as various changes may be made within the scope of the claims which follow.

In the drawings:

Figure 1 is a perspective view of the device showing the jaws opened as if to grasp a block or other object;

Figure 2 is a view showing a conventional concrete block in longitudinal section, with my improved lifting tongs applied to each end thereof, the tongs at the left being shown with the jaws open;

Figure 3 is a detail sectional view on the line 3—3 of Figure 2, showing the jaws adjusted for a large block;

Figure 4 is an end view of Figure 2 showing only a portion of the concrete block;

Figure 5 is a view corresponding to Figure 3, but showing the jaws positioned for engaging a relatively smaller concrete block; and

Figure 6 is an end view of Figure 5.

The novel tongs herein disclosed are shown comprising spaced apart pairs of tongs, generally designated by the numerals 2 and 3. The tong 2 is shown comprising complemental jaws 4 and 5 having bearing portions 6 and 7, respectively, which are shown pivotally mounted on a reduced terminal 8 of a suitable supporting shaft 9. The reduced terminal 8 is further reduced to provide a threaded end portion 11 adapted to receive a wing nut 12, or other suitable nut, for pivotally retaining the jaws 4 and 5 on the terminal portion 8 of the shaft 9.

The jaws 4 and 5 are provided with operating levers 13 and 14, respectively, which have their upper ends suitably secured to the adjacent ends of a pair of tie rods 15 and 16, as best shown in Figure 1. The tie rods 15 and 16 have reduced threaded end portions 17 received in suitable apertures provided in the upper ends of the levers 13 and 14 adapted to receive suitable nuts 18 whereby the levers may be secured to the tie rods 15 and 16.

The tongs 3 at the opposite end of the supporting shaft 9 are shown comprising complemental jaws 19 and 21 which are similar to the jaws 4 and 5, and have operating levers 22 and 23, respectively, as shown in Figure 1. The upper ends of the levers 22 and 23 are secured to the offset ends of the rods 15 and 16 in a manner similar to the levers 13 and 14 of the opposite ends thereof whereby the jaws of the two pairs of tongs 2 and 3 are operatively connected together for simultaneous operation. The levers 22 and 23 are pivotally mounted on the supporting shaft 9 in a manner similar to the levers 13 and 14 at the opposite end thereof.

The connections between the tie rods 15 and 16 and the levers 13, 14, 22 and 23 are preferably such that when the device is grippingly engaged with a concrete block, as shown at the right hand end of Figure 2, all of the jaws 4, 5, 19 and 21 will grip the block with uniform pressure, even though the surfaces of the block which are engaged by the jaws may be more or less uneven. Such uniform gripping action of the jaws may readily be obtained by making the connection between the rods 15 and 16 and the levers slightly loose, the nuts 18, however, being inseparably secured to their respective rod ends 17.

One of the important features of the present invention resides in the arrangement of the jaws with relation to their respective operating levers. By reference to Figure 3, it will be noted that the jaws 4 and 5 are disposed in a plane *a*—*a*, spaced outwardly from the median plane *b*—*b* of the bearing portions 6 and 7 of the jaws. In like manner, the jaws 19 and 21 are disposed in

a plane *a*—*a* spaced outwardly from the median plane *b*—*b* of the bearing portions of said jaws. By this arrangement it will be noted that the spacing *s* between the two pairs of jaws is relatively greater than the spacing *s'* between the operating levers of the two pairs of jaws.

By so offsetting the jaws from their respective operating levers, the lifting tongs are readily adaptable for handling building blocks of different sizes by simply interchanging the jaws at the two ends of the supporting shaft 9, as will be understood by reference to Figures 3 and 5.

In Figure 3 the jaws are positioned for handling relatively wide concrete blocks, whereas in Figure 5 the jaws of the two pairs of tongs 2 and 3 have been interchanged to decrease the spacing *s* between the two sets of jaws for handling relatively smaller concrete blocks, as will be readily understood.

To interchange the jaws, as above described, it is only necessary to remove the nuts 18 from the tie rods 15 anl 16, and the wing nuts 12 of the supporting shaft 9. The entire device may then be readily taken apart after which the two sets of jaws may be interchanged, as will be understood by reference to Figures 3 to 6, inclusive. The offsetting of the jaws from their respective levers is such that the same supporting shaft and tie rods 15 and 16 may be utilized regardless of whether the tool is adjusted for handling large blocks or small blocks, it being understood that the spacing *s'* between the operating levers of each pair of jaws or tongs is always constant.

The tongs are preferably used as indicated in Figure 2. That is, the operator when handling large blocks will grasp the block at each end thereof with two separate pairs of tongs, one for each hand. The tongs are usually engaged with the cross ribs or members 25 and 26 provided at the ends of the block, as shown in Figure 2, and as is well known in concrete block construction. The shape of the jaws in relation to the operating levers is such that the firmer the operator grasps the tie rod handles 15 and 16, the tighter the jaws will grip the wall portions 25 and 26 of the concrete block, whereby the operator may readily and conveniently slip the block into proper position in the wall without danger of distorting or disrupting the soft mortar upon which the block is to be placed.

It will be apparent to those skilled in the art that I have accomplished at least the principal objects of my invention, and it will also be apparent to those skilled in the art that the embodiments herein described may be variously changed and modified without departing from the spirit of the invention, and that the invention is capable of uses and has advantages not herein specifically described; hence it will be appreciated that the herein disclosed embodiments are illustrative only, and that my invention is not limited thereto.

I claim as my invention:

1. In a device for lifting concrete blocks of different sizes, a supporting shaft, a pair of levers pivotally mounted on each end of said shaft, each lever having a work-engaging jaw, and the jaws of each pair of levers being laterally offset from their respective levers and disposed in a common plane, tie rods connecting together the corresponding levers of said pairs of jaws and cooperating to provide a lifting handle whereby the jaws may be conveniently manipulated to grasp a concrete block, and means whereby the two pairs of jaws may be interchanged on the sup-

porting shaft to vary the spacing between said pairs of jaws to adapt the device for handling concrete blocks of different sizes.

2. In a device for lifting concrete blocks of different sizes, a supporting shaft, a pair of levers pivotally mounted on each end of said shaft, each lever having a work-engaging jaw, and the jaws of each pair of levers being laterally offset from their respective levers and disposed in a common plane, tie rods connecting together the corresponding levers of said pairs of jaws and cooperating to provide a lifting handle whereby all of said jaws may be conveniently manipulated to grasp a concrete block, and said rods having movable connections with their respective levers whereby all of said jaws will grasp the block with uniform pressure.

3. In a device for lifting concrete blocks of different sizes, a supporting shaft, a pair of levers pivotally mounted on each end of said shaft, each lever having a work-engaging jaw, and the jaws of each pair of levers being laterally offset from their respective levers and disposed in a common plane, tie rods connecting together the corresponding levers of said pairs of jaws and cooperating to provide a lifting handle whereby all of said jaws may be simultaneously operated to grasp a concrete block, means whereby the two pairs of jaws may be interchanged on the supporting shaft to vary the spacing between said pairs of jaws to adapt the device for handling concrete blocks of different sizes, and said rods having movable connections with their respective levers whereby all of said jaws will grasp the block with uniform pressure.

4. In a device for lifting conventional concrete blocks each comprising opposed side walls connected together by a plurality of cross walls, a supporting shaft, a pair of levers pivotally mounted on each end of said shaft and having tie rods connecting together the upper ends thereof and cooperating to provide a handle for actuating the levers, each pair of levers being provided at their lower ends with work-engaging jaws which are offset from their respective levers in the same direction, whereby the jaws of said pairs of levers may be spaced apart to engage a cross wall of a concrete block adjacent the side walls thereof, and means whereby the jaws may be reversed to vary the spacing therebetween whereby the device may be utilized for transporting concrete blocks of different sizes.

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