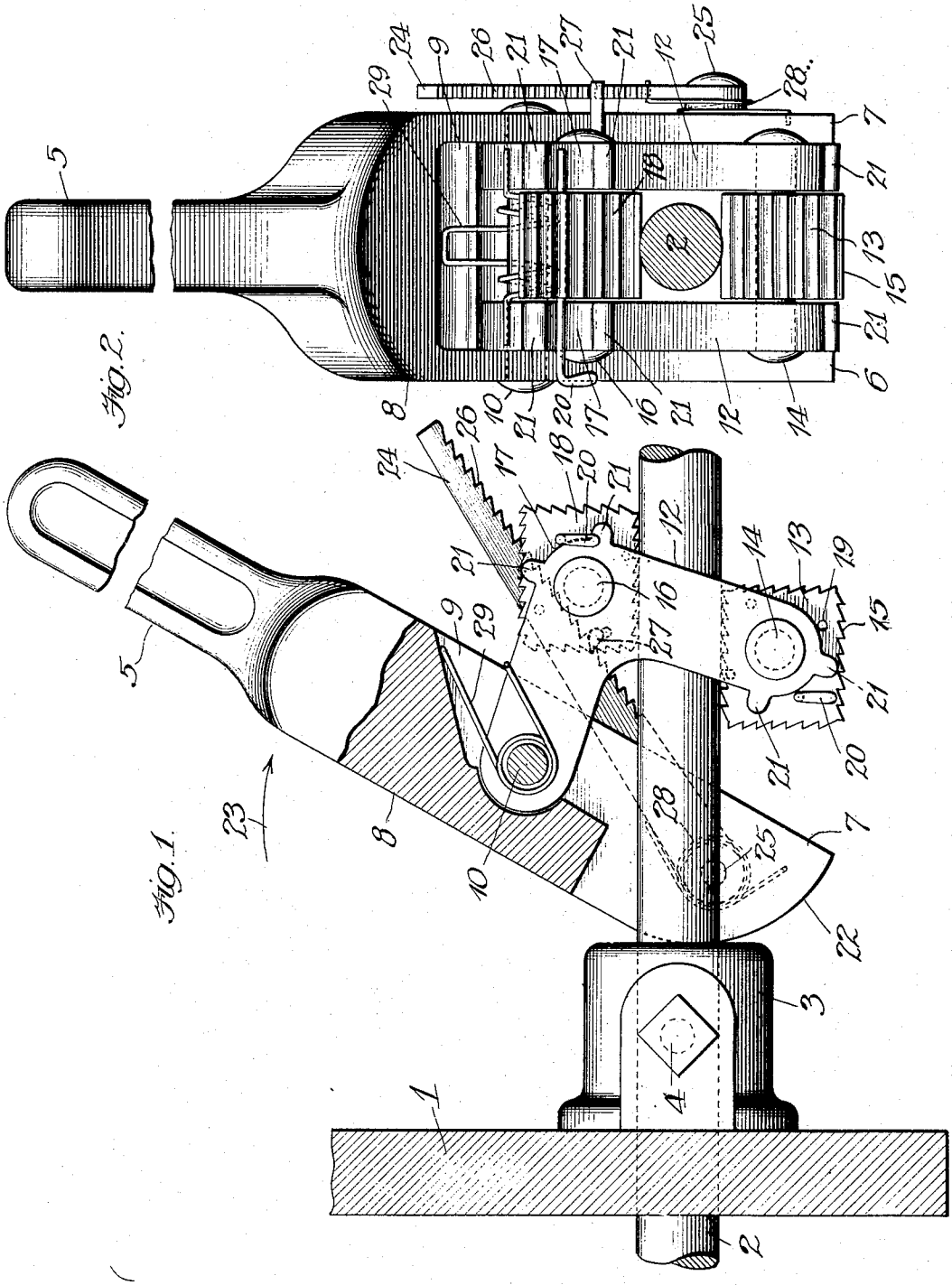
H. H. LAMPERT.

JACK.

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1,097,338. **Patented May 19, 1914.**



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UNITED STATES PATENT OFFICE.

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JACK.

1,097,338. Specification of Letters Patent. Patented May 19, 1914.

Application filed April 16, 1913. Serial No. 761,516.

To all whom it may concern:

Be it known that I, HENRY H. LAMPERT, a citizen of the United States of America, and a resident of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Jacks, of which the following is a specification.

This invention relates to improvements in tools, such as wrenches, jacks, etc., having the function of grasping one of two members operated upon and forcing it relatively of the other member.

The main objects of the invention are to provide an improved tool particularly adapted for grasping rods, bolts, stakes, etc., while obtaining a purchase on some member associated with said rod, etc., and forcing the same relatively of said member; to provide a tool of this nature capable in a novel manner of gripping an object while applying a leverage between said object and another object associated therewith; to provide an improved lock for said tool whereby when it is operated to a certain extent it cannot return to its normal position; to provide in a tool of this class, improved adjustable gripping members.

An illustrative embodiment of this invention is shown in the accompanying drawings in which:

Figure 1 is a side elevation, partly in section and partly broken away, of a wrench or jack constructed according to this invention, and showing the same applied to a rod in position to tighten a clamp mounted on said rod. Fig. 2 is an end view of the wrench.

In a co-pending application for patent on clamps for concrete forms, Serial Number 761,515 filed April 16, 1913, the present applicant discloses an improved means for securely holding in place the mold walls or other structural parts employed in concrete construction; the said means include rods passing from one side wall to another, and having mounted thereon clamps by means of which the walls are prevented from separating when the concrete is poured therein. In Fig. 1, one of said mold walls is designated by the numeral 1, the rod passing through said wall by the numeral 2, and a clamp 3 is shown secured to the rod. In this view the tool to which the present invention has direct relation is shown coöperating with one of said rods and clamps for the purpose of forcing the clamp against the mold wall 1, previous to fastening the clamp to rod 2, by means of a set screw 4. The tool is thus shown in connection with said rod and clamp as it is particularly designed for tightening such clamps, but it may be understood that the wrench or jack is applicable to many other uses.

In the drawings, the operating handle 5 of the wrench is shown forked at its lower end to provide a pair of arms 6 and 7, connected together by a solid integral piece of metal 8, the latter having a recess 9 therein to which is pivoted, by a pin 10, a pair of arms or bell-crank levers 12. Pivoted to the free end of the arms 12 is a gripping block 13, having a pivotal connection 14 with the arms 12, which is eccentrically located with respect to the toothed sides 15 of the block. Similarly eccentrically pivoted by a pin 16 to arms 12, preferably at its elbow 17, is a gripping block 18. The eccentric pivotal connection between the blocks 13 and 18 and the supporting arms 12 results in the gripping surfaces 15 of each block, being located at different distances from the center of the pivots of the blocks. Thus, by turning the blocks on their pivots their respective opposing gripping surfaces may be adjusted toward or away from each other for the purpose of coöperating with different sizes of rods. For the purpose of retaining either of the blocks in whatever position they have been adjusted to each of the blocks is provided with four holes 19, for receiving a pin 20, which by coöperating with pairs of shoulders 21 on the arms 12, prevent the blocks from turning on their pivots except for a certain limited distance. Provision is made for such limited turning of the blocks in order that they may adapt themselves to the surfaces of the rod operated upon, irrespective of the rocking of lever 5 and a slight rocking movement of the arms 12.

The lower ends of the fork portions 6 and 7 of the lever 5 are preferably rounded as designated by the numeral 22, Fig. 1, to better adapt the lever for coöperating with such surfaces as presented by clamp 3. It may be seen that when the wrench is applied in the manner shown in Fig. 1, that rocking of lever 5 in the direction indicated by the arrow 23, the lower ends 22 of the lever will force clamp 3 to the left while the

blocks 13 and 18 are both caused to grip the rod 2, while also pulling the rod to the right with respect to clamp 3.

In order that the clamp 3 and rod 2 may be retained in the relative positions in which they are placed by the operation of the wrench before the set screw 4 is tightened, and even after pressure is released from lever 5, means are provided which while permitting lever 5 to rock in the direction indicated by arrow 23, normally prevents the lever from rocking in the opposite direction. This means consists of a pawl 24 pivoted to arm 7 by a pin 25 and having a number of teeth 26 for coöperating with a pin 27, carried by one of the arms or bell-crank levers 12. A spring 28 normally urges the pawl 24 into engagement with pin 27 while permitting the pawl to ratchet over the pin when lever 5 is rocked in the direction indicated by arrow 23. A spring 29 is preferably provided for normally urging the arms 12 to rock in such direction with respect to lever 5, that pin 27 is held into engagement with the teeth on pawl 24, and thus does away with the free and loose connection which would otherwise exist between the arms 12 and the lever 5. The spring is shown wrapped around pivot pin 10 and bearing between the upper edges of arms 12 and the upper surface of the recess 9 in the lever 5.

In the operation of the device, assuming that it is employed to pull outwardly on a rod such as rod 2, while bearing against a clamp 3, to force the same inwardly relatively of the rod, the wrench is first slipped over the end of the rod, the latter passing between the fork ends 6 and 7 of the lever 5 and between the blocks 13 and 18; then when the rounded faces 22 are in contact with clamp 3, the lever 5 is swung to the right, Fig. 1, around pivot 10. This causes the rounded faces of the lever to bear against the clamp at each side of the rod and thereby have a tendency to force the pivot 10 rearwardly, and thus through the blocks 13 and 18, pulling the rod 2 to the right, while forcing these blocks toward each other, and thereby tightening their grip on the rod, as, because of the location of pivot 10, the bell-cranks 12 are both forced rearwardly from their upper ends and thereby have a tendency to turn in a clockwise direction around their pivotal connection 16 with block 18. Pressure at any time may be relieved from lever 5 without fear of releasing the rod 2, as the pawl 4 by coöperating with pin 27 will prevent the lever 5 from rocking back toward its former position. Thus, when the operator has adjusted clamp 3 and rod 2 to the desired position with respect to each other he may release the lever 5 and be free to tighten the set screw 4.

It may be seen that the wrench may be adjusted to rods of different sizes simply by removing pins 20 and turning the gripping blocks to bring the desired surfaces into operative position. By this means the spaces between the blocks may be regulated, as the gripping surfaces 15 thereof are located at different distances from the centers of the pivotal connections between the blocks and the levers 12. After an adjustment of the blocks, by again inserting the pins 20 in the holes 19, which are between the shoulders 21, the blocks are prevented from rocking out of said adjusted positions.

Although but one specific embodiment of this invention has been herein shown and described, it will be understood that numerous details of the construction shown may be altered or omitted without departing from the spirit of this invention, as defined by the following claims:

I claim:—

1. In a device of the class described, the combination of an operating lever, an arm pivoted at one end to said lever, said arm being provided with gripping means at its opposite end, a second gripping means between said ends, and a connection between said lever and arm whereby they may be prevented from rocking relatively to each other in one direction.

2. In a device of the class described, the combination of an operating lever, an arm pivoted at one end to said lever, said arm being provided with a pivoted gripping member at its opposite end, a second pivoted gripping member between said ends, and means for normally preventing said arm and lever from rocking relatively to each other in one direction.

3. In a device of the class described, the combination of an operating lever, an arm pivoted at one end to said lever, said arm being provided with gripping means at its opposite end, and a second gripping means between said ends, one of said gripping means being of prismatic form and provided with a plurality of gripping surfaces and having an eccentric pivotal connection with said arm.

4. In a device of the class described, the combination of an operating lever, an arm pivoted at one end to said lever, said arm carrying a pair of opposed gripping blocks, pivots connecting said blocks with said arm, and each of said blocks having a plurality of gripping surfaces located at different distances from said pivots.

5. In a device of the class described, the combination of an operating lever, an arm pivoted at one end to said lever, said arm being provided with a pair of opposed gripping elements, one of said elements having a plurality of gripping surfaces and being adjustable to make any of said surfaces operative, and means for maintaining a predetermined adjustment of said element.

6. In a device of the class described, the combination of an operating lever, an arm pivoted at one end to said lever, said arm being provided with a pair of opposed gripping elements, one of said elements being adjustable with respect to the other, means for maintaining a predetermined adjustment between said elements, and a device whereby relative rocking in one direction between said lever and arm may be prevented.

7. In a device of the class described, the combination of an operating lever, a bellcrank pivoted to said lever, said bellcrank being provided with a pair of opposed gripping elements, and a spring for normally urging said bellcrank and lever to rock relatively to each other in one direction.

Signed at Chicago this 14th day of April 1913.

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Witnesses:
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