A. O. ALSTEN.

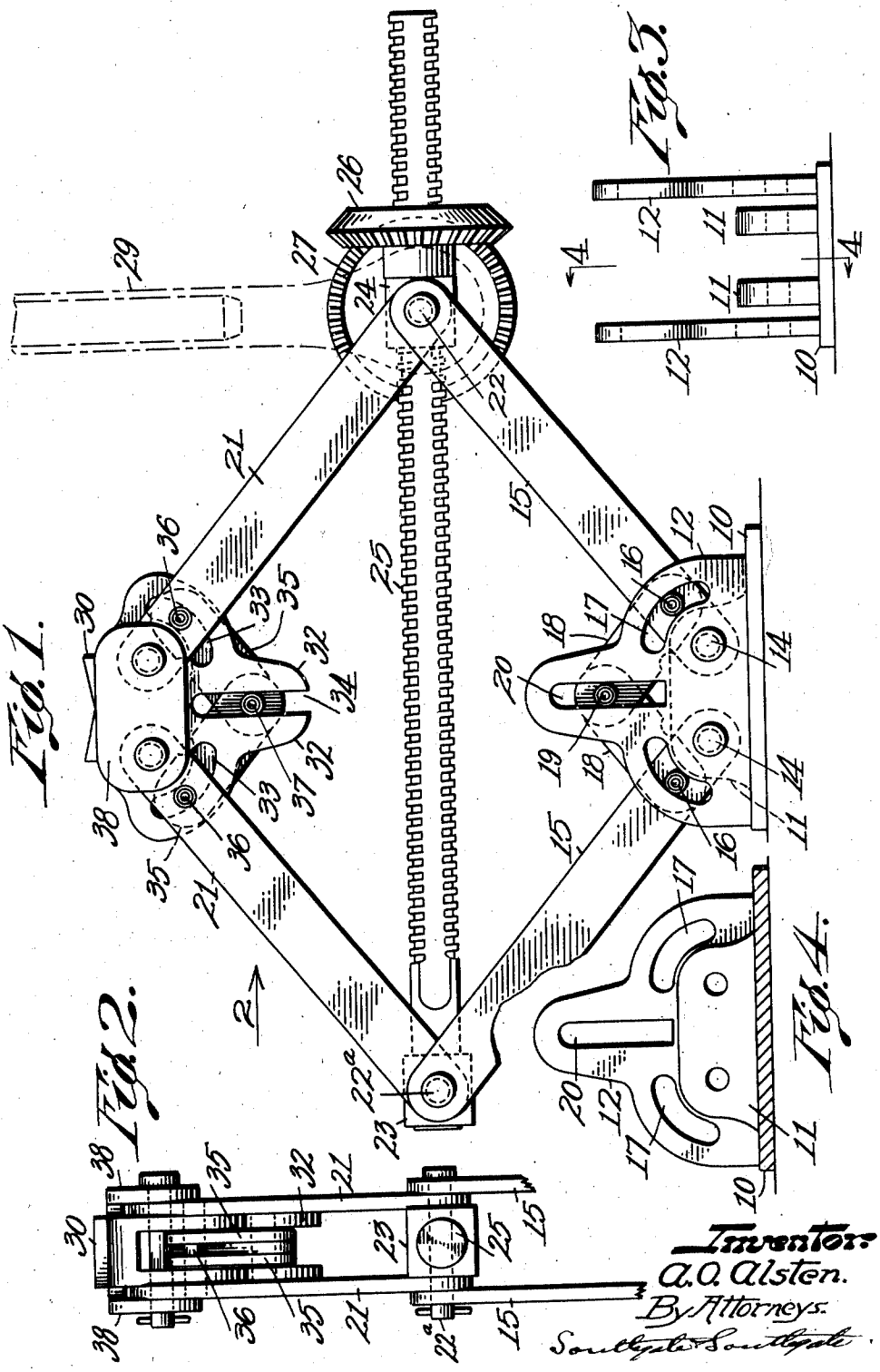
JACK.

APPLICATION FILED JAN. 2, 1917.

1,349,801.

Patented Aug. 17, 1920.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

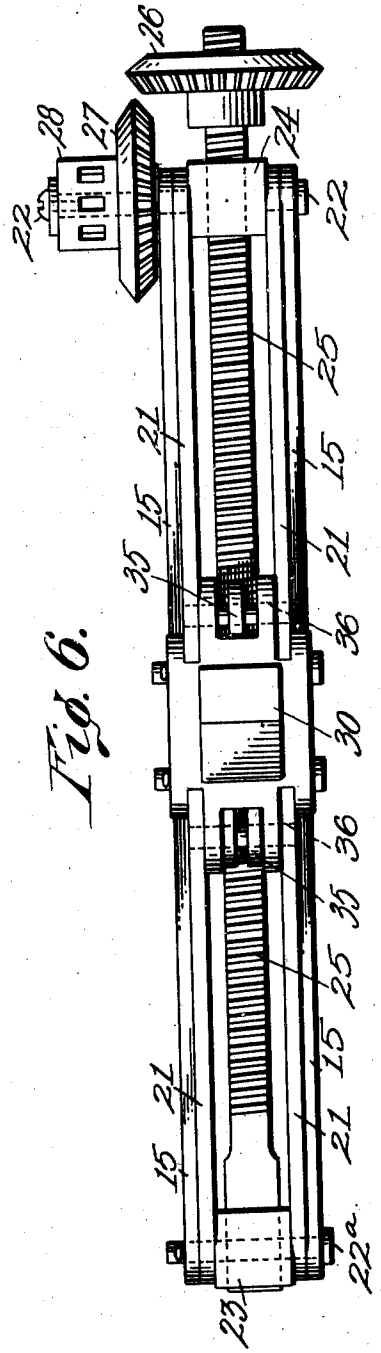


Fig. 6.

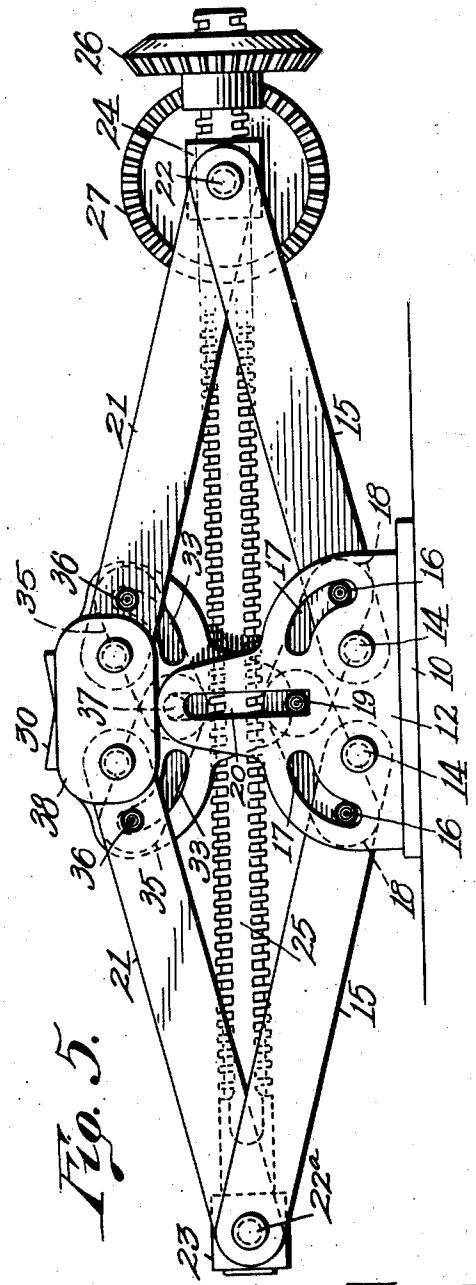


Fig. 5.

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UNITED STATES PATENT OFFICE.

ALFRED O. ALSTEN, OF WORCESTER, MASSACHUSETTS, ASSIGNOR OF ONE-THIRD TO FRANK A. SANDERSON AND ONE-THIRD TO ALVIN L. JOHNSON, BOTH OF WORCESTER, MASSACHUSETTS.

JACK.

1,349,801. Specification of Letters Patent. Patented Aug. 17, 1920.

Application filed January 2, 1917. Serial No. 140,023.

To all whom it may concern:

Be it known that I, ALFRED O. ALSTEN, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Jack, of which the following is a specification.

This invention relates to a jack of the lazy tongs type, and the principal objects thereof are to provide a simple and convenient device consisting of few parts, most of which can be made of metal stampings, and to provide an improved stabilizing device to prevent the rocking of the jack back and forth. Further objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings in which—

Figure 1 is a side elevation of a jack constructed in accordance with this invention shown partly extended;

Fig. 2 is an end elevation of the same as indicated by the arrow 2 of Fig. 1;

Fig. 3 is an end elevation of the bottom or base casting;

Fig. 4 is a sectional view of the same on the line 4—4 of Fig. 3, showing the interior thereof in side elevation;

Fig. 5 is a side view like Fig. 1, but showing the device collapsed, and

Fig. 6 is a plan of the same.

The jack is shown in a form in which it is provided with a base 10, preferably consisting of a casting. On the top are two upright, integral, supporting members 11 and two upright guide members 12. These guide members preferably are located on the outside and the supporting members are provided with perforations for carrying pivot pins 14 on which links 15 are pivoted. Each of these links is provided with a pin 16 extending across the device and into arcuate guide openings 17 in the members 12 to stabilize sidewise. These pins are provided with endwise stabilizing links 18 which are connected by a pin 19 that is guided in a vertical guide slot 20 in each of the members 12. In this way it will be seen that the tipping of the links back and forth is absolutely prevented by the guiding devices which are provided. These links 18 are shown to help steady the device and avoid side play.

The upper ends of the links are connected with another pair of links 21 by two pivot studs 22 and 22ª supported by blocks 23 and 24. Each of these blocks 23 and 24 is non-rotatable, and the former has secured to it a screw 25 which is slabbed off at the side or otherwise made non-circular so that it will fit in a similar shaped hole through the block 24. Rotation of the parts about the axis of the screw is thus prevented. What has been referred to as a stud 22 really consists of two concentric studs extending in opposite directions from the block 24.

The screw is provided with a bevel gear 26 having a screw-threaded hub, and on the corresponding stud 22 is rotatably mounted another bevel gear 27 meshing with the previously mentioned gear 26 and having a hub 28 thereon adapted to be rotated by a ratchet handle 29, the construction of which can be of any desired character.

The two links 21 are connected to a support 30 on which the load to be raised is placed. This is also provided with stabilizing features, practically the same as those shown on the base piece 10. It has in addition to the holes for the pivot pins, similar to the pins 14, a pair of downwardly-extending integral guide pieces 32, guide slots 33 and 34, similar to those described in connection with the member 12. Stabilizing links 35 are also arranged having pins 36 and 37 adapted to be guided in the slots 33 and 34 respectively. In this case, however, the members 32 are located inside so that when the parts are collapsed, as shown in Figs. 5 and 6, they just straddle the screw 25 and enable the parts to be brought down to the position shown. They also come inside the members 12 so that there is no interference between them. Two flanges 38 are shown constituting supporting members for the pivot pins and corresponding with the members 11 but located outside the links.

In the use of the device, supposing it to be collapsed in the position shown in Fig. 5, the gear 26 is screwed up into mesh with the gear 27 and the handle turned to force the block 24 to slide along the screw. In this way a strong leverage is secured, and on account of the stabilizing devices the jack will remain in proper position throughout the operation whether there is a load on it or not. When there is no load on the jack it will be understood of course that the supporting member 30 can be raised by drawing in on the screw block forcing the screw to the right and the block 24 in to the left without manipulating the gears.

By this construction no screw thread in

the block 24 is necessary or desired. It is also obvious that the stabilizing is performed by means of simple links that can be made of metal stampings so that the cost of the device is comparatively slight.

I am aware of the fact that lazy tongs jacks have been proposed having a central horizontal circular screw and provided with extra links connected with the second joint of the lazy tongs or thereabouts, and guided by a vertical slot at the base and top, but by my construction the stabilizing links can be made short and therefore need not be of excessive strength, and furthermore, they act with an advantageous leverage.

Although I have illustrated and described only one form of my invention I am aware of the fact that modifications can be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims. Therefore I do not wish to be limited to all the details of construction herein disclosed, but what I do claim is—

1. In a jack of the lazy tongs type, the combination with four links constituting the lazy tongs, of a screw connecting the opposite pivot points thereof, said screw being non-circular in cross section, and a block to which two of the links of the lazy tongs are pivotally connected, said block having a passage therethrough of non-circular shape for preventing the turning of the parts on the axis of the screw.

2. In a jack, the combination of a base, two links pivotally mounted thereon and extending upwardly in opposite directions therefrom, two additional links pivoted to their ends and extending inwardly, a support pivotally connected to the last-named links at the top, a non-rotatable continuous threaded screw connected with the pivot points of one pair of said links, and a block connected with the pivot points of the other pair, said screw having two parallel vertical flat sides and the last-named block having an opening fitting said screw.

3. In a jack, the combination of a base, two links pivotally mounted thereon and extending upwardly in opposite directions therefrom, two additional links pivoted to their ends and extending inwardly, a support pivotally connected to the last-named links at the top, a non-rotatable screw connected with the pivot points of one pair of said links, a block connected with the pivot points of the other pair, said screw having two parallel flat sides and the last-named block having an opening fitting said screw, and a nut on the screw beyond the block for operating the jack.

4. In a jack, the combination of a base, two links pivotally mounted thereon and extending upwardly in opposite directions therefrom, two additional links pivoted to their ends and extending inwardly, a support pivotally connected to the last-named links at the top, a non-rotatable continuous threaded screw connected with the pivot points of one pair of said links, and a block connected with the pivot points of the other pair, said screw having two parallel vertical flat sides and the last-named block having an opening fitting said screw, said base and support having inwardly projecting vertical guide members, one set of which receives the flat-sided screw when the jack is collapsed, the other set being located outside the same.

5. In a jack of the lazy tongs type, the combination with four links constituting the lazy tongs pivotally mounted and free from relatively fixed interacting connections, effecting the relative swinging of the respective links on their respective pivots, of a non-rotatable screw connecting the opposite pivot points thereof, said screw having a longitudinal straight guide throughout its length, a block to which two of the links of the lazy tongs are pivotally connected, said block having a passage therethrough of a shape to receive the screw and fit against said guide for preventing the turning of the parts on the axis of the screw, and a nut on the screw adapted to engage the block.

6. In a stabilizing device for a lazy tongs jack, the combination of a member at one end of the lazy tongs having a pair of guide members each provided with a vertical guide slot and arcuate slots, links pivoted to the adjacent links of the lazy tongs near said member, and a pin by which they are pivoted to each other to constitute a parallel motion connection, said pin extending into said vertical guide slot and pins on said adjacent links and extending into said arcuate slots to stabilize the device in an endwise direction.

7. In a stabilizing device for a lazy tongs jack, the combination of a table supported by the lazy tongs having a pair of guide members provided with inclined arcuate slots, and pins supported by the lazy tongs projecting into said slots.

8. In a jack, the combination of a lazy tongs structure, with stabilizing links connected with two opposite links of the lazy tongs at points between their end pivots and with each other, said stabilizing links being centrally located, and those on one side of the jack straddling those on the other.

9. In a stabilizing device for a lazy tongs jack, the combination of a base for supporting the lazy tongs having a pair of guide members each provided with a vertical slot and two arcuate slots, and pins supported by the lazy tongs projecting into said slots.

In testimony whereof I have hereunto affixed my signature.

ALFRED O. ALSTEN.