

A. ANDERSON.
CLAMP.
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1,086,574.

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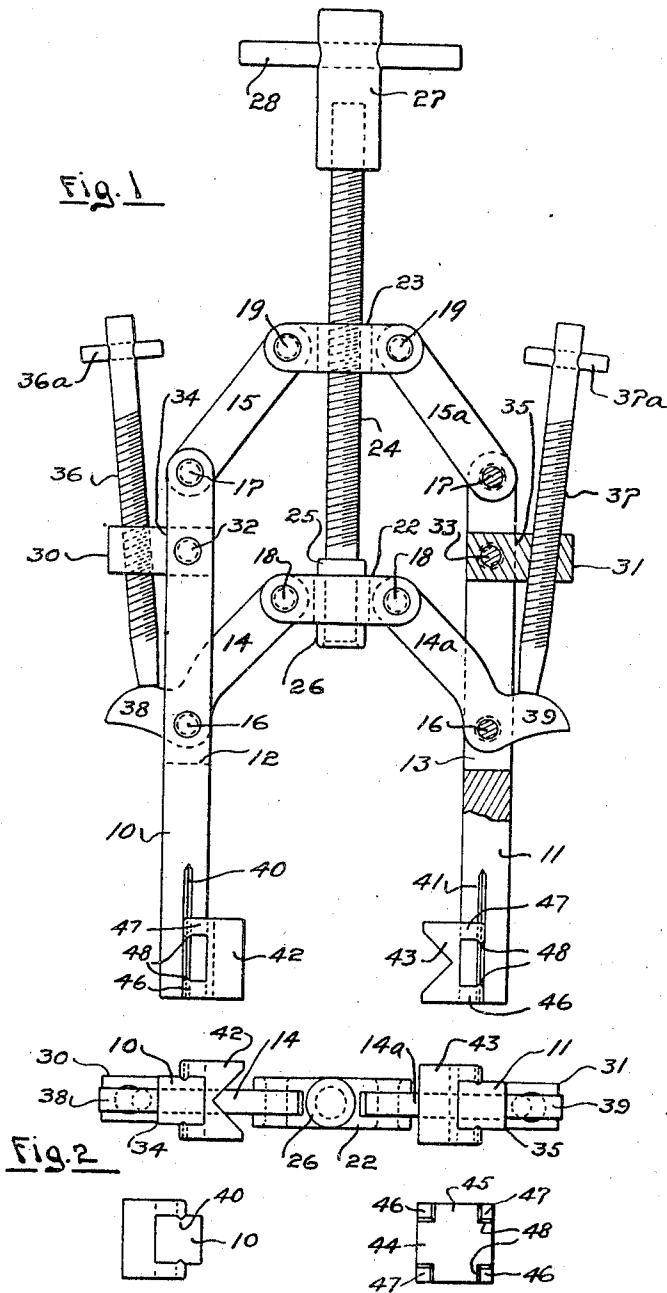


Fig. 1

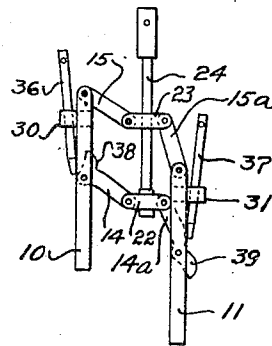


Fig. 2

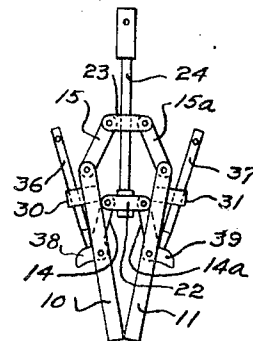


Fig. 3

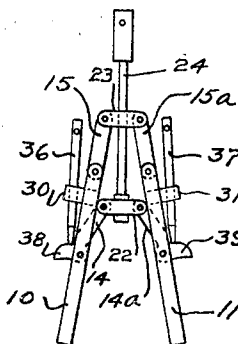


Fig. 4

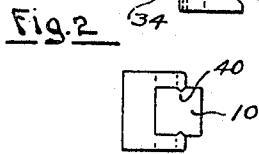


Fig. 5

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CLAMP.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ANTON ANDERSON, a citizen of Sweden, and resident of the borough of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Clamps, of which the following is a specification.

This invention relates to a device particularly adapted for clamping objects of various shapes, whether straight, curved or irregular, and to hold them either by outward or inward pressure, at option, as different conditions may require.

One of the objects of the invention is to produce a strong and conveniently operated clamp which can be manufactured at low cost.

A further object is the production of a clamp whose members can be set independently of each other and of the main tightening means.

Another object is to provide the clamp with separable jaws that may be applied to either the inside or the outside of its members.

Other objects and advantages will become apparent as the specification proceeds.

With the aforesaid objects in view the invention consists of the improved construction, arrangement and combination of parts hereinafter described, with reference to the accompanying drawing, and pointed out in the appended claims.

In the said drawing, which illustrates the preferred embodiment of the invention, the same reference numerals indicate corresponding parts throughout the several views.

Figure 1 is a front elevation partly in section of the entire clamp; Fig. 2 is a bottom plan view of the same device; Fig. 3 is a detached view showing a jaw of modified construction. Fig. 4 is a plan view of the socket end of the jaws; and Figs. 5 to 7 are diagrammatic views on a reduced scale indicating some of the many different positions which it is possible for the clamping members to assume.

In these views, the numerals 10, 11 designate a pair of clamping members designed to work conjointly in various positions, that is, on lines that may be either parallel, or convergent, or divergent, as the several figures of the drawing plainly indicate. The said members may be solid in their lower portions, as shown, while their upper halves

12, 13 are preferably bifurcated, and hingedly connected one with the other by means of two pairs of links 14—14^a, 15—15^a, and intermediate heads 22, 23. The outer ends of the lower or middle links 14, 14^a are pivotally secured one to each of the forked portions of the clamping members by headed pins 16, and the inner ends thereof are likewise attached one each to the head 22 also by pins 18. Similarly the upper links 15, 15^a are joined at their outer and inner ends, respectively, to the forked clamping members and the head 23 by headed pivot pins 17, 19. A screw threaded spindle 24, passes centrally across and through the two said heads 22 and 23, the former having a swivel connection with its lower end, and the latter being tapped to receive its threaded body. The lower end of this spindle, it will be seen, acts like a follower upon the head 22, with which it is rotatably engaged. Collars 25, 26 on the spindle bear respectively upon the top and bottom of the head 22 and hold it against axial movement therein. At the opposite, upper end, the spindle has an enlargement 27, through which passes a cross-pin 28, constituting the manipulating grip for the device.

Shouldered lugs 30, 31 are located on the outside of the bifurcated portions of the clamping members, to serve as bearings for adjusting screws 36, 37, provided with finger grips 36^a, 37^a, and designed to limit the throw of the lower set of links 14, 14^a, up or down, or lock them in a predetermined position. The thin portions of these lugs are secured by pins 32, 33 within the forks of said clamping members, whereas their shoulders 34, 35 abut against the outside thereof. The screws 36, 37 have threaded engagement with said lugs, preferably on lines slightly converging toward the adjacent outer sides of the clamping members, and their somewhat tapering lower ends are adapted to come in contact with and bear upon or against extensions 38, 39 of the links 14, 14^a, which extensions constitute each the short arm of a lever for the respective link, 14 or 14^a considered as being fulcrumed at 16. When the tapered ends of the screws are caused to bear down upon the link extensions, they operate to check further movement of the head 22 downward through the agency of the spindle 24, and also to lock the clamping members in their assigned positions whenever the several parts of the

device have been adjusted. The extensions 38, 39 it will be observed, are turned upward at approximately right angles to their respective links 14, 14^a that they may clear the way for the passage of the side screws 36, 37 whenever necessary in which case they move inward between the forked portions of the clamping members, as exemplified on the left hand side of Fig. 7. When these extensions are thus drawn in, the lower ends of the screws will bear laterally against their outer edges and stop upward movement of the head 22. The enlargement 27 at the upper end of the spindle performs analogous functions when brought or coming in contact with the head 23.

Grooves 40, 41 are formed in opposite sides of the clamping members, at the lower ends thereof, to provide opposed retaining guides for jaw blocks 42, 43. The latter may be either V-shaped as shown in Figs. 1 and 2 or straight faced as in Fig. 3, and are applicable to either the inner or the outer faces of the clamping members. Figs. 1 and 2 show these jaws located inside the clamping members, while Fig. 3 shows a jaw on the outside of the member provided with the same.

The V-shaped blocks may be turned so that their V's will either be parallel with the clamping members or lie cross-wise with relation thereto, depending upon the nature of the work clamped between them. To this end, they are formed with intersecting ways 44, 45 leaving portions 46, 47 at the corners of each block, the inner faces 48 of which corner portions are of suitable shape to engage the grooves 40, 41.

It will be understood that the side screws can be so manipulated that the jaw ends of the clamping members may be moved to any desired position independently one of the other. Although several operative positions of the device have been shown, it is obvious that other positions embodying intermediate adjustments of the various parts illustrated may be had. The device is universal in its adjustment.

While certain preferred embodiments of the device have been shown and described it will be understood that changes in the form, arrangement, size, proportions and details thereof, may be made without departing from the scope of the invention as defined by the appended claims.

Having described my invention what I desire to secure by Letters Patent and claim is:—

1. A clamp comprising a pair of side members, two sets of links hingedly connecting said members, heads intermediate of said links, a spindle capable of moving said heads and links to produce various adjustments of the clamping members, and means acting in the same plane as the side

members and bearing against one of said sets of links so as to lock the latter and said members in their clamping positions.

2. A clamp comprising a pair of side members having bifurcated portions, two sets of links pivotally connected therewith at their outer ends, heads similarly connecting the inner ends of said links, an operating spindle passing across said heads having threaded engagement with one head and being held against axial movement in the other head, means for checking the movement of the first named head and the links thereof, and other means on the spindle for limiting its movement with respect to the said other head.

3. A clamp comprising a pair of side members, sets of links hingedly connected to said members, heads pivoted to the inner ends of said links, a spindle having a swivel connection with one of said heads and a screw connection with the other head, means carried by the side members movable for engagement with one set of links and adapted to limit their throw and that of the swivel head connected therewith, and means for turning the spindle to obtain the desired throw of the threaded head together with its links and the side members.

4. A clamp, comprising a pair of side members, two sets of links hingedly connecting the same, one of said sets having outward extensions, a pair of pivoted heads pivoted to the inner ends of said links, a spindle in engagement with both of said heads by a swivel connection and a threaded connection respectively, stops adapted to bear against said extensions and thereby check the throw of the swivel connection, and means for turning said spindle.

5. A clamp, comprising a pair of side members, two sets of links joining the same together, the outer ends of one set of said links having lever extensions, screws carried by said members adapted to bear against said extensions and thereby check the movement of said last named set of links, and an operating spindle connected with both sets of links.

6. A clamp comprising relatively movable side members, detachable jaws adjustable at different distances from the ends of said side members, and means for moving the side members with the adjusted jaws thereon and locking the same in predetermined positions.

7. A clamping device comprising a pair of relatively movable clamping members, said members having grooves in opposite sides thereof, jaws formed with retaining portions adapted to detachably engage said grooves, and means for moving the side members carrying the adjusted jaws.

8. A clamping device comprising a pair of clamping members having retaining

means with the sides thereof, jaws having portions adapted to slidably engage said means from either the inside or the outside of the members, and means for moving the side members.

9. In a clamping device, the combination with clamping members formed with retaining means at their lower ends, of jaws having sockets adapted to slidably engage said means either parallel with or transversely of the clamping members at different distances from their said ends, and other means for actuating said side members.

10. A clamp comprising a pair of side members, two sets of links hingedly connecting said members, intermediate heads pivotally connected with said sets of links, a spindle having a swivel connection with one of said heads and a threaded connection with the other head, extensions on the set of links connected with the swivel head, guides on the clamping members, and screws engaging said guides adapted to bear against said extensions.

11. A clamp comprising a pair of bifurcated members, two sets of links hinged to said members by their outer ends, heads pivotally connected with the inner ends of said links, a spindle having operative connections with said heads, one set of said links having extensions arranged to swing in and out of the bifurcated portions of the clamping members, guides located outside of the latter, screws engaging said guides adapted to bear upon or against said extensions to check the throw of the respective set of links and head connected therewith, and jaws applicable to the clamping members on the side toward which they are respectively moved.

Signed at the borough of Manhattan in the county of New York and State of New York this 29th day of May A. D. 1913.

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Witnesses:

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