

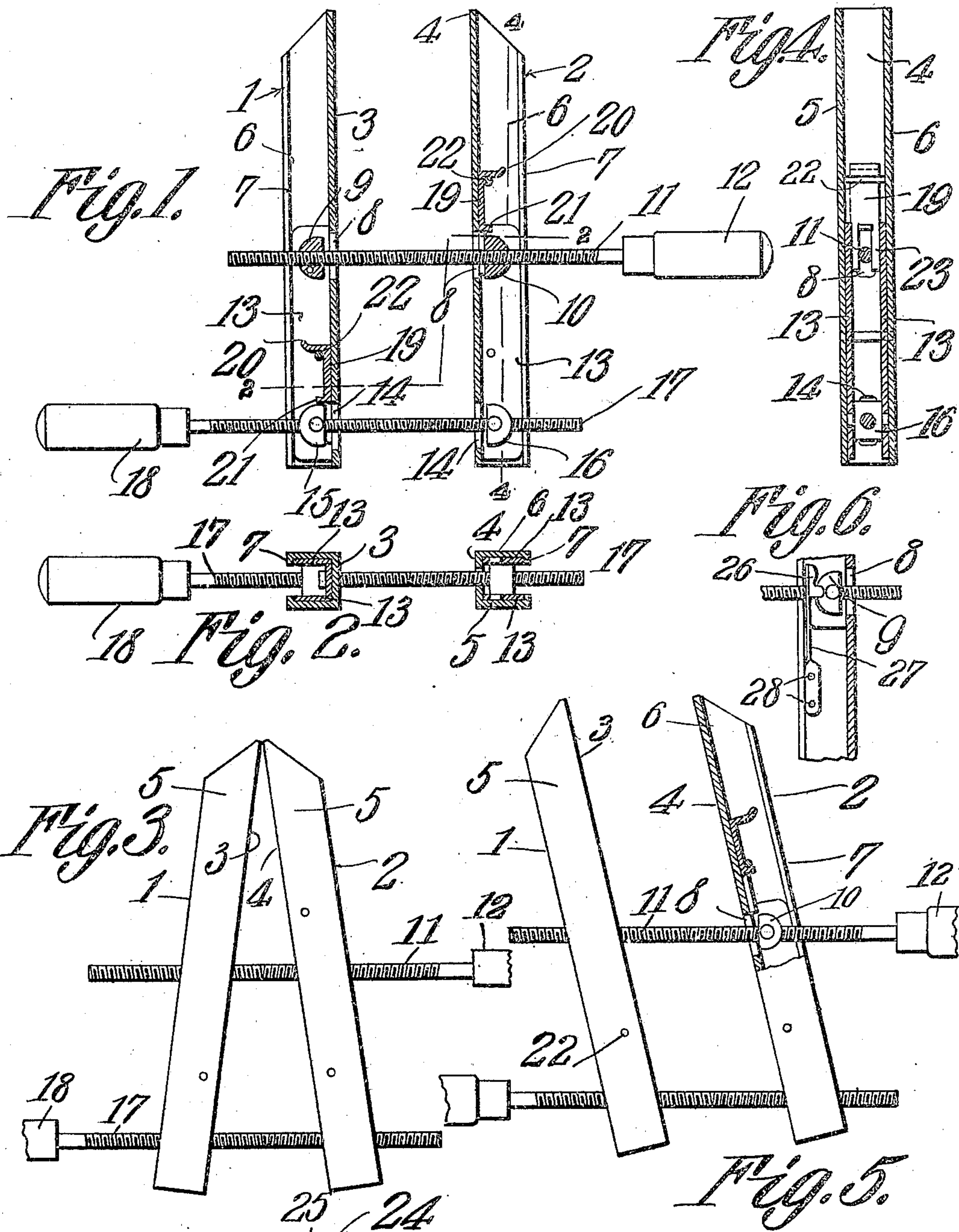
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CLAMP.

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UNITED STATES PATENT OFFICE.

NICHOLAS BOUMA, OF FREEPORT, MICHIGAN.

CLAMP.

952,182.

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To all whom it may concern:

Be it known that I, NICHOLAS BOUMA, a citizen of the United States, residing at Freeport, in the county of Barry and State of Michigan, have invented a new and useful Clamp, of which the following is a specification.

This invention relates to improvements in clamps, particularly to those employed by carpenters, cabinet-makers, and the like, and has for its object to provide a construction that will render the jaws readily adjustable to any angle that is ordinarily required by cabinet-makers and the like when applying the device to retain freshly glued joints.

Another object of this device is to employ a mechanism which will prevent rocking or angular movement of the arms when desired, and cause the device to operate as the ordinary straight screw clamp.

Still another object is to so construct the parts that the arms will rock independent of each other, or relatively, as may be desired.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings:—Figure 1 is a longitudinal sectional view of the device with the parts locked. Fig. 2 is a horizontal section taken on the line 2—2 of Fig. 1. Fig. 3 is a side elevation showing the device in one position. Fig. 4 is a rear view taken on the line 4—4 of Fig. 1. Fig. 5 is a view similar to Fig. 3, partly in section, and showing the locking mechanism open. Fig. 6 is a modification of the locking device. Fig. 7 is another form of locking device.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

In the construction of the device as illustrated the clamp proper consists of two jaws 1 and 2, formed of metal or other suitable material, having flat faces 3 and 4, from either side of which extend side

walls 5 and 6, having a portion adjacent their free edges turned inwardly, forming flanges or guides 7 for two plates 13, fitted against the side walls 5 and 6, and extending from the lower end of the latter up and beyond the central portion thereof, the function of which will presently appear. The jaws 1 and 2 are each provided at approximately their centers with openings 8, and disposed between the side walls 5 and 6, and registering with the openings 8, are rocker nuts 9 and 10 pivotally mounted in and between the plates 13. These rocker nuts are preferably formed of metal or other suitable material, and are approximately of semi-circular shape, the flat face of each nut lying adjacent the inner face of the front walls 3 and 4, and at a distance therefrom sufficient to permit a rocking movement on their pivots. Each nut is centrally provided with a transverse perforation, interiorly threaded, and extending from the flat front face to the rear curved face, forming a seat for the right and left screw 11, having on one end the handle 12. Adjacent the lower end of the jaws 1 and 2 are openings 14, similar to the central openings 8 and disposed to the rear of these openings are rocker nuts 15 and 16, similar to the rocker nuts 9 and 10 and pivotally mounted between the plates 13. These rockers are centrally provided with transverse perforations, interiorly threaded, and forming seats for the right and left screw 17, provided with a handle 18.

With the construction thus far shown, it is obvious that a movement of the handles 12 and 18 to the right or left will result in opening or closing the jaws 1 and 2, the right and left thread of each screw increasing the speed of operating the device to open and close. The jaws 1 and 2 can be inclined to either side of the vertical and manipulated to form a regular or inverted V, thus rendering the device applicable to most irregular surfaces. It frequently happens, however, that some surfaces met with by cabinet-makers and the like, cannot be clamped with the ordinary rocking clamp after gluing, owing to their isolated position in a structure, or an extremely irregular surface. The present device aims to overcome this difficulty by mounting the rocker nuts on the plates 13, the latter being disposed on the four side walls of the jaws and retained against lateral movement therein by the flanges or guides 7. The plates, how-

ever, can be moved longitudinally, carrying with them their respective rocker nuts, thereby rendering it possible to adjust either jaw above the other when the latter are in a vertical or oblique position. It will be understood that this operation is performed by simply pushing either jaw upwardly. When desired to operate the device so that the jaws 1 and 2 will move from or toward each other in a horizontal plane, the keys adapted to secure the rocker nuts against movement are employed. In the construction illustrated in Fig. 1, the key employed consists of a bifurcated metallic plate 19, of a width sufficient to slidably fit in the recess formed by the walls 5 and 6, and provided centrally and at the upper end with lugs 20 and 21. In the use of the device, one of these keys may be provided for each nut. In the construction illustrated, two are employed, disposed between the flat face of the upper nut 10 and outer face 4 of the jaw 2, and between the flat face of the lower nut 15 and face 3 of the jaw 1. The keys are retained in position by pins 22 fixed in the side walls of the jaws and the plates 13, and the lugs 20 and 21, contacting with the pins and nuts to limit the longitudinal movement of the keys.

In the construction shown in Fig. 1, the nuts 10 and 15 are locked, the bifurcated portion 23 of the keys, Fig. 4, straddling the screws 11 and 17 and contacting with the flat faces of the nuts and the inner faces of the front walls 3 and 4 of the jaws. When the parts are in this position, the device operates like an ordinary straight clamp, but when it is desired to adjust the parts as shown in Fig. 5, the keys are raised, thereby permitting the nuts to rock on their pivots.

A modification of the invention is shown in Fig. 6 wherein the rocker nut 9 is provided with a transverse recess to be engaged by a dog 26 carried by one end of a twisted spring 27, the other end of which is secured to the front wall of the jaw as by rivets 28. This dog, as will be obvious, will hold the nut against turning so long as it is in engagement with the nut recess, but by flexing the spring away from the front wall of the jaw, the dog will be moved out of the recess and the nut then be free to rock.

A further modification is shown in Fig. 7 wherein the front wall of the jaw is provided with a right angled opening 24 that is engaged by a similar shaped key 25, the vertical flange of which is designed to engage with a recess formed in the nut 9. It is designed that the key shall be adapted easily to slide within the opening, so as to permit it to be moved into and out of engagement with the nut 9.

It is obvious with the constructions just

described, that the jaws may have a relative or independent angular movement by adjusting the various keys, or in other words, either jaw may be kept vertical while the other is inclined.

It will be observed that the side walls of the channeled jaws are not cut away or reduced and, consequently, their full strength is preserved. Furthermore, it is not necessary to delay the shaping of the jaws to accommodate the assembling of the parts, as the work of assembling may be performed after the jaws are finished. The rocker-carrying plates 13 are fitted on the trunnions or pivots of the rocker nuts and these parts are then pushed endwise into position between the side walls of the jaws. The hand screws and keys are fitted in place after the slidable plates 13 are mounted in the jaws. The jaws are reinforced by the said plates and the rocker nuts are protected against displacement by a chance blow on their trunnions or pivots while angular adjustment of the jaws is facilitated by the pivotal mounting of the nuts.

What is claimed is:—

1. A clamping device embodying a pair of channeled jaws provided with openings in their faces, plates disposed on the side walls of the jaws, rocker nuts pivotally mounted in and between said plates and having flat faces adjacent the openings in the jaws, means passing through the rocker nuts and openings in the jaws adapted to actuate the latter to open and close, and locking devices arranged to engage between the flat faces of the rocker nuts and the jaws.

2. A clamping device embodying a pair of channeled jaws, plates carried thereby, rocker nuts pivotally supported between the plates, and means passing through the rocker nuts and jaws adapted to actuate the latter to open and close, and means adapted to lock said rocker nuts against rocking movement.

3. A clamping device embodying a pair of channeled jaws, plates disposed on the opposite walls thereof, and rocker nuts having flat faces pivotally supported between the plates, hand screws passing through the rocker nuts and jaws adapted to open and close the latter, and adjustable keys disposed between the rocker nuts and jaws and adapted to lock said rocker nuts and screws against oscillatory movement.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

NICHOLAS BOUMA.

— Witnesses:

JAMES W. GODFREY,
CHAS. R. JUNE.