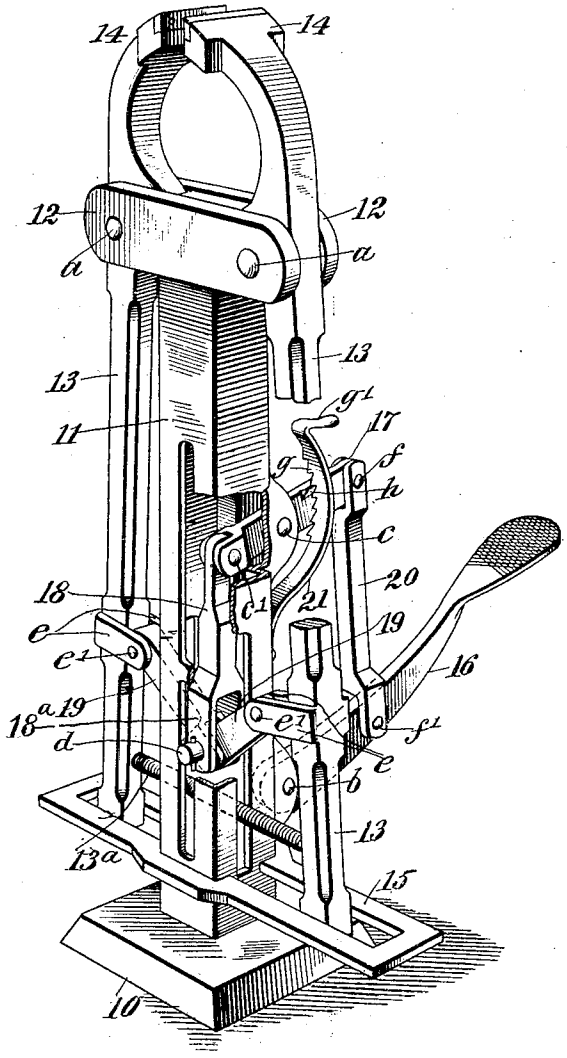
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C. H. RITTS.

VISE.

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NO MODEL.



WITNESSES:

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No. 771,097. Patented September 27, 1904.

UNITED STATES PATENT OFFICE.

CHARLES HENRY RITTS, OF WAUSA, NEBRASKA.

VISE.

SPECIFICATION forming part of Letters Patent No. 771,097, dated September 27, 1904.

Application filed March 18, 1904. Serial No. 198,710. (No model.)

To all whom it may concern:

Be it known that I, CHARLES HENRY RITTS, a citizen of the United States, and a resident of Wausa, in the county of Knox and State of Nebraska, have invented a new and Improved Vise, of which the following is a full, clear, and exact description.

This invention relates to vises for mechanical use of a class wherein the jaws of the vise are closed by foot-pressure, and has for its object to provide novel details of construction for a vise of the character indicated which adapt it to grip and hold articles very firmly and permit their release by slight manual effort.

The invention consists in the novel construction and combination of parts as is hereinafter described, and defined in the subjoined claims.

Reference is to be had to the accompanying drawing, forming a part of this specification, and to the characters of reference marked thereon, the perspective view representing the vise broken away to expose working parts.

As shown, a suitable base 10 is provided having sufficient area for the reliable support in an upright position of the vise and articles that may be held thereon. Centrally on the base 10 a preferably hollow rectangular post 11 is erected vertically, having its lower end firmly secured upon the base at the center of the latter. The post 11, of suitable height, is formed with two pairs of ears 12, that are projected therefrom on opposite sides at or near the upper end thereof.

The vise proper comprises as main elements two straight limbs 13 of a like form and equal length, having their upper ends similarly curved and terminating in like jaws 14, that are of proper width for effective service. Below the jaws 14 at suitable points the limbs 13 are pivoted between respective pairs of ears 12, as shown at *a*, and thus are held pendent at opposite sides of the post 11, the lower ends of the limbs being near the base 10. Upon the post 11 near the base 10 a longitudinally-slotted guide-plate 15 is secured at its center in a plane parallel with the base, thus projecting equal slotted portions at opposite sides of the post. As shown, the lower end portions of the limbs 13 are inserted down through these slotted members of the guide-plate, which prevent lateral movement of the limbs at their lower ends, but permit them to rock freely on their pivots *a*. At right angles to the plane occupied by the limbs 13 a treadle-lever 16 is pivoted upon the hollow post 11, as indicated at *b*, this pivotal connection being above and near to the guide-plate 15, whereby the lever is held to rock and projects outward from the post.

A rock-arm 17, which is positioned in a slot formed in the post 11 above the treadle-lever 16, is pivoted thereto, as shown at *c*, the pivot engaging integral ears formed on the post for its reception at each side of the slot, and preferably the pivot passes through the rock-arm near its longitudinal center. Upon the end of the rock-arm 17 that is within the hollow post 11 the upper end of a connecting-bar 18 is pivoted, as shown at *c'*, this bar extending a suitable length down in the post and having its lower portion forked. Between the forked members 18^a of the connecting-bar the lower end portions of two like toggle-arms 19 are lapped and pivoted, as shown at *d*. The toggle-arms 19 incline upward and outward, their upper ends being loosely held between paired lugs *e* on each limb 13 by pivots *e'*, that pass through the ears and the ends of said arms. Upon the outer end of the rock-arm 17 the upper end of a link-bar 20 is pivoted, the pivot *f* passing through the forked upper end of the link-bar, wherein the end of the rock-arm is inserted and loosely held. The lower portion of the link-bar is also forked and loosely embraces the treadle-lever 16 at a suitable point between the ends of the latter and is thereto pivoted, as at *f'*.

A strong contractile spring 13^a passes loosely through opposite slots in the post 11 and at its ends is secured upon the inner sides of respective lower portions of the limbs 13 above and near the guide-plate 15, the stress of the spring tending to separate the jaws 14 when free to do so. Upon the side wall of the post 11, through which the rock-arm 17 is inserted, and pivoted at one side of the rock-arm, an arched plate-metal detent-rack 21 is secured at its lower end and thence curves outward and upward. Upon the edge of the

detent-plate a series of ratchet-teeth g is formed that hook downward, these teeth being by the relative position of the arched plate so disposed as to normally engage a single tooth h, which projects laterally from the adjacent side of the rock-arm. A handle g' is formed on the upper end of the detent-rack 21, and as said rack is formed of a thin resilient plate-metal strip it will be seen that a lateral pull on the handle g' will release the rack from the detent-tooth. Upon the release of the rock-arm 17 the stress of the contractile spring 13^a will pull the lower portions of the limbs 13 toward each other, which will correspondingly actuate the toggle-arms 19 and pull down the inner end of the rock-arm, which will elevate the outer end of the treadle-lever 16.

It will be seen that when the normally open jaws 14 of the vise are to be forcibly closed upon an object to be held between them foot-pressure applied upon the free end portion of the lever 16 will pull down upon the link-bar 20, which will rock the outer end of the rock-arm 17 downward, and thus cause the tooth h thereon to slide over the series of ratchet-teeth g. When the lever has been sufficiently depressed to cause the jaws 14 to forcibly grip an object between them, the tooth h by engagement between adjacent teeth g will lock the vise-jaws 14 in closed adjustment, thereby holding material clamped between them until the detent-rack 21 is released by a pull on the handle g', as before explained.

As the base 10 is of sufficient area to prevent the vise and article held in it from tipping over, it will be seen that it may be placed at any point for use—on the ground or on a shop-floor—thus dispensing with a permanent bench or like fixture that may be at some distance from the point where work needing the use of the vise is to be performed.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A vise comprising a flat base of considerable area, an upright post secured at the lower end on the base, ears on the upper portion of the post projected oppositely therefrom, limbs pivoted nearer their upper ends on said ears, said limbs curving toward each other at their upper ends, opposed jaws formed on the upper ends of the limbs, a contractile spring connecting the lower portions of the limbs and normally opening the jaws, a treadle-lever projecting into the post at one end and pivoted thereon, toggle-levers pivoted on the lower portions of the limbs and inclining downward and toward each other, a connecting-bar jointed at one end upon the toggle-arms, a rock-arm pivoted on the post and extended at one end thereinto, said end being pivoted upon the upper end of the connecting-bar, means for loosely connecting the outer end of the rock-arm with the lever, and means for detachably holding the rock-arm depressed at the outer end when the lever is rocked downward for closure of the jaws.

2. A vise, comprising a hollow rectangular post, a flat base, vise-limbs pivoted near their upper ends on opposite sides of the post and curved toward each other above said post, similar jaws on the upper ends of the limbs that may have contact when closed, a contractile spring extended between the lower portions of the limbs and passing loosely through the post, a treadle-lever held to rock near one end thereof on the post between the limbs and projected outward, a rock-arm pivoted near its center on said post above the treadle-lever, means for loosely connecting the outer end of the rock-arm with the treadle-lever, and means for connecting the other end of the rock-arm with the limbs, whereby the depression of the outer end of the treadle-lever closes the jaws of the vise.

3. A vise, comprising a flat base, an upright four-sided post on the base, two similar limbs pivoted on ears projected from opposite sides of the post, said limbs curving toward each other above the post, similar jaws on the upper ends of the limbs, a contractile spring connecting lower portions of the limbs and passing loosely through the post, a slotted guide-plate on the post near the base, and through which lower portions of the limbs pass, a treadle-lever held to rock on the post near one end thereof, a rock-arm pivoted near its center on the post above the lever, a link-bar pivoted by one end on the outer end of the rock-arm, and by the other end on the treadle-lever, the inner end of the rock-arm working in a slot in the post, a connecting-bar pivoted at its upper end on the inner end of the rock-arm, two similar toggle-arms pivoted together by one end of each arm upon the lower end of the connecting-bar, said toggle-arms trending diagonally upward through slots in opposite sides of the post, and lugs on the vise-limbs whereon the upper ends of the toggle-arms are respectively pivoted.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES HENRY RITTS.

Witnesses:
JOHN BERG,
CALVIN KELLER.