G. W. SMITH.

VISE.

APPLICATION FILED MAR. 19, 1913.

1,075,506.

Patented Oct. 14, 1913.

2 SHEETS—SHEET 1.

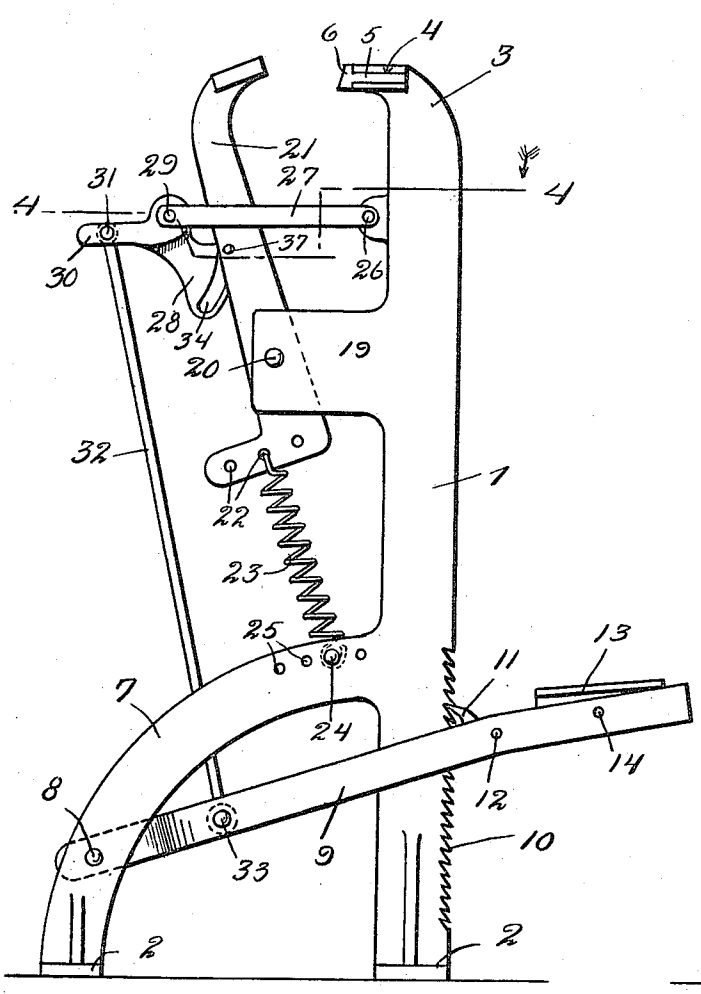


Fig. 1.

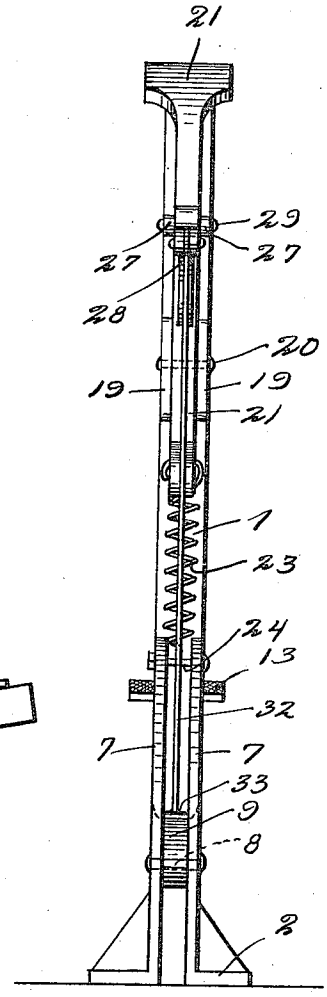


Fig. 2.

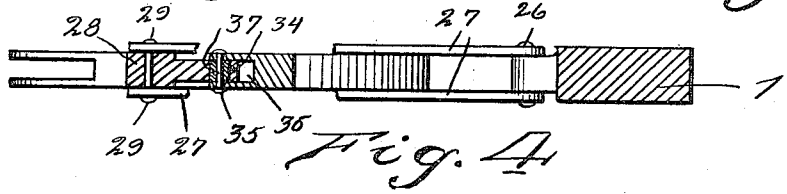


Fig. 4.

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2 SHEETS—SHEET 2.

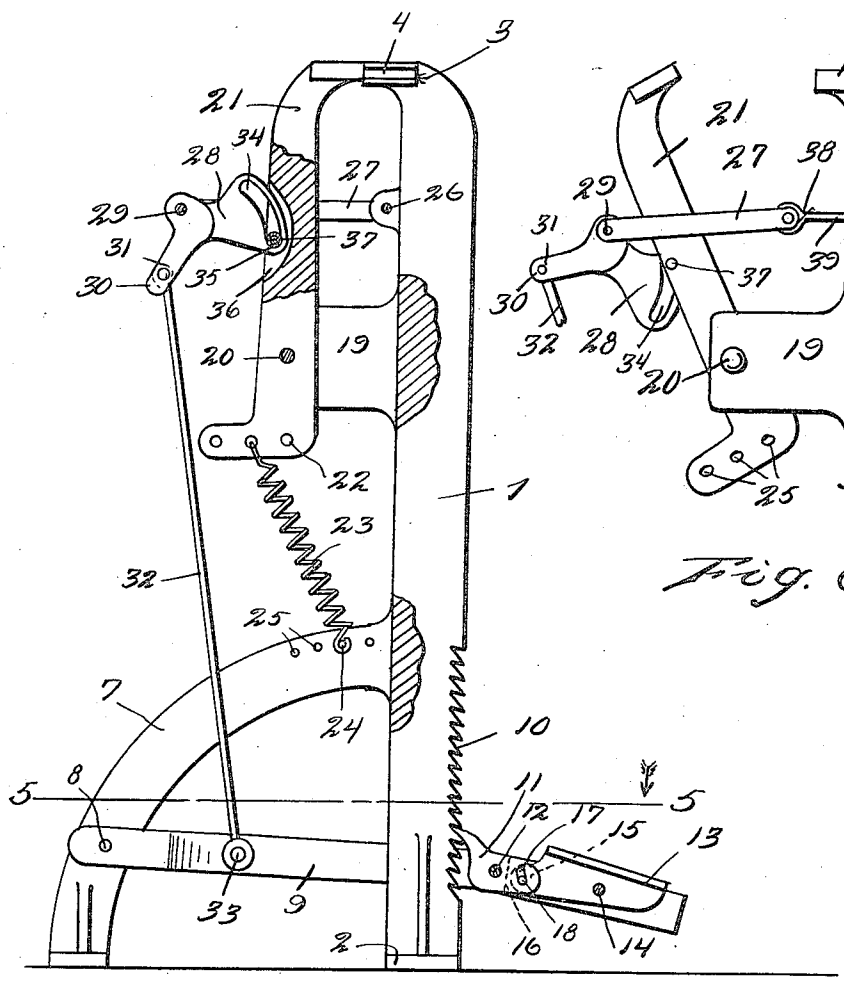


Fig. 3.

Fig. 6.

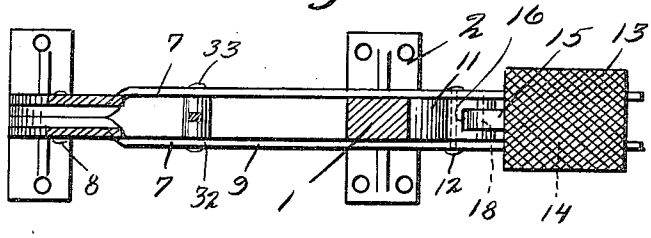


Fig. 5.

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UNITED STATES PATENT OFFICE.

GEORGE W. SMITH, OF CLOVERDALE, INDIANA.

VISE.

1,075,506. Specification of Letters Patent. Patented Oct. 14, 1913.

Application filed March 19, 1913. Serial No. 755,437.

To all whom it may concern:

Be it known that I, GEORGE W. SMITH, a citizen of the United States, residing at Cloverdale, in the county of Putnam and State of Indiana, have invented certain new and useful Improvements in Vises, of which the following is a specification.

This invention relates to vises, particularly foot operated vises, and has for its object the provision of a vise which is adapted to clamp material or objects covering a wide range in size, without the necessity of any adjustment.

Another object is to provide a device of this character, which is cam actuated, and which is provided with a catch quickly and easily engaged and released.

Other objects such as efficiency, simplicity, and general improvement of the art, will be made apparent during the course of the following specification.

Referring to the drawings in which like numerals are employed to designate corresponding parts throughout the several views: Figure 1 is a side elevation of the vise in its open position, Fig. 2 is a rear elevation, Fig. 3 is a longitudinal section, showing the vise in its closed position, Fig. 4 is a horizontal sectional view on the line 4—4 of Fig. 1, Fig. 5 is a horizontal section on the line 5—5 of Fig. 3, and Fig. 6 is a view of a modified form, showing means for adjusting the width of the opening between the jaws.

Referring more particularly to the drawings, the numeral 1 designates the main frame of the vise which may be provided with feet 2 for attachment with the floor or the like, for supporting the structure. The upper part of the frame 1 terminates in a jaw 3 which may be provided with grooves 4 adapted to receive lugs 5 formed on a detachable member 6 having a beveled or curved face, as desired. This detachable member is adapted to be used for certain special work. Intermediate of the ends of the frame 1, is provided a forked curved arm 7 within which is pivoted, as at 8, a forked foot lever 9. The outer edge of the frame 1 is provided with notches 10, which are adapted to be engaged by a pawl 11 pivoted, as at 12, within the lever 9. A rocker member 13 is pivoted within the lever 9, as at 14, and is provided with a tongue 15, which extends within a recess 16, formed in the pawl 11. The pawl is provided with slots 17 through which extends a bolt 18, which also passes through the rocker member 13. Near the upper end of the frame 1 is a laterally extending forked arm 19 within which is pivoted, as at 20, a movable jaw 21. The lower end of the jaw 21 is provided with a plurality of apertures 22, within any desired one of which is adapted to be disposed one end of a coil spring 23 which extends downward and is engaged by a bolt 24 which passes through any chosen one of a plurality of apertures 25 formed in the curved arm 7. Pivotally connected with the frame 1 adjacent its upper end, as at 26, is a pair of links 27 which are disposed on either side of the jaw 21. A member 28 is pivotally connected, as at 29, between the links 27, and has extending therefrom, a projecting arm 30 with which is connected, as at 31, a link 32, which extends downwardly through the forked arm 7 for connection at 33, with the foot lever 9. The member 28 is provided with a cam slot 34 which engages a roller 35, pivoted within a recess 36 in the jaw 21 by a bolt 37.

The operation of the vise is as follows: The jaws 3 and 21 being in their open position, as shown in Fig. 1, an article to be gripped is held between the jaws and the lever 9 is depressed by the operator's foot. In pressing down upon the lever 9, pressure should be applied to the outer end of the rocker member 13. The bolt and slot connection between the pawl and rocker member will allow the pawl to be in contact with the notches by means of gravity, as the inner end of the pawl is the heavier. When the lever has been depressed as far as possible, the foot may be removed and the pawl 11 will be engaged within one of the notches 10. Downward movement of the lever 9 throws the vise into the position illustrated in Fig. 2, that is, the link 32 pulls down upon the projection 30, turning the member 28 which causes the upper edge of the cam slot 34 to bear upon the roller 35, thus forcing the jaw 21 toward the jaw 3.

In order to release an article from the vise, it is merely necessary to press down upon the inner end of the rocker member 13 whereupon the outer end of the pawl 11 will be forced down by the engagement of the bolt 18 within the slot 17, and the inner end of the pawl 11 will be released from engagement with the notches 10. The coil spring

23 will then force the upper end of the jaw 21 outwardly revolving the member 28 about its pivot 29, thus raising the link 32 and lever 9.

It will be seen that by this construction a vise is provided which will grip an article requiring the maximum distance between the jaws, or a thin sheet of metal with equal ease, and without any adjustment whatever, as the foot lever 9 and pawl 11 never extend above the notched portion of the frame even when the jaws are at their maximum distance apart.

In Fig. 6 I have illustrated means for varying the degree of opening between the jaws 3 and 21. In this form the links 27 are pivotally connected with the head 38 of a bolt 39 which passes through an opening in the frame 1 and is engaged by a hand nut 40. It will thus be seen that by turning the nut 40 the bolt 39 may be allowed to extend to any desired distance through the frame 1, thus allowing the jaw 21 to move farther away from the jaw 3.

Having thus described my invention what I claim is:

1. A vise comprising a frame, a jaw formed on said frame, a movable jaw pivoted upon said frame, links pivoted at one end upon said frame, an arm pivoted between the other ends of said links and provided with a cam slot, a transverse pin extending across a recess formed in said movable jaw and adapted to be engaged by said cam slot, a foot lever pivoted upon the frame, a link connecting said foot lever with said arm; and means for maintaining the movable jaw in desired positions.

2. A vise comprising a stationary frame provided with a jaw, a movable jaw, a foot lever for actuating said movable jaw, and means for locking said foot lever in desired positions, said means comprising a pawl pivoted on said lever and adapted to engage teeth formed on said frame, and a rocker member pivoted upon said foot lever and connected with said pawl, said pawl being adapted to be gravity operated for engaging said teeth, and movable out of engagement therewith by said rocker arm.

3. A vise comprising a frame provided with a stationary jaw, a movable jaw, a foot lever for operating said movable jaw, means for maintaining said foot lever in desired positions, said means comprising a pawl pivoted upon said foot lever and adapted to engage teeth formed on said frame, and means for releasing said pawl, said means comprising a rocker arm pivoted upon said foot lever and connected with said pawl by a pin movable in a slot in said pawl, said pawl being gravity operated to engage said teeth, and said rocker arm being adapted to be swung toward said frame for moving said pawl out of engagement with said teeth.

In testimony whereof I hereto affix my signature in the presence of two witnesses.

GEORGE W. SMITH.

Witnesses:
O. O. McDONALD,
J. W. O'DANIEL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."