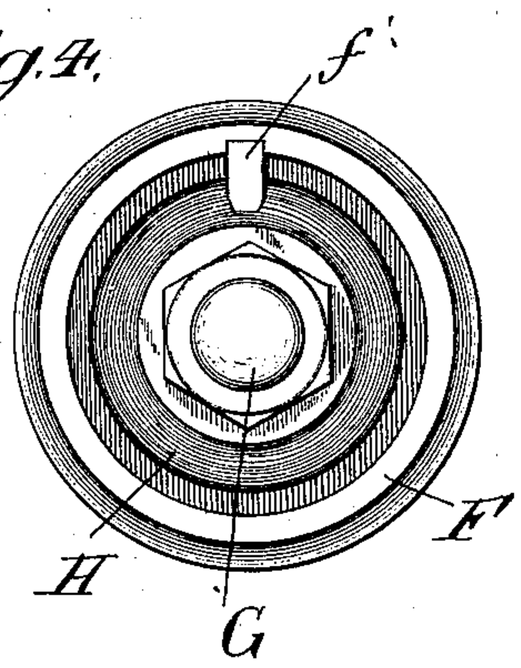
(No Model.)

O. COLBORNE.

VISE.

No. 605,855. Patented June 21, 1898.

Fig. 4.



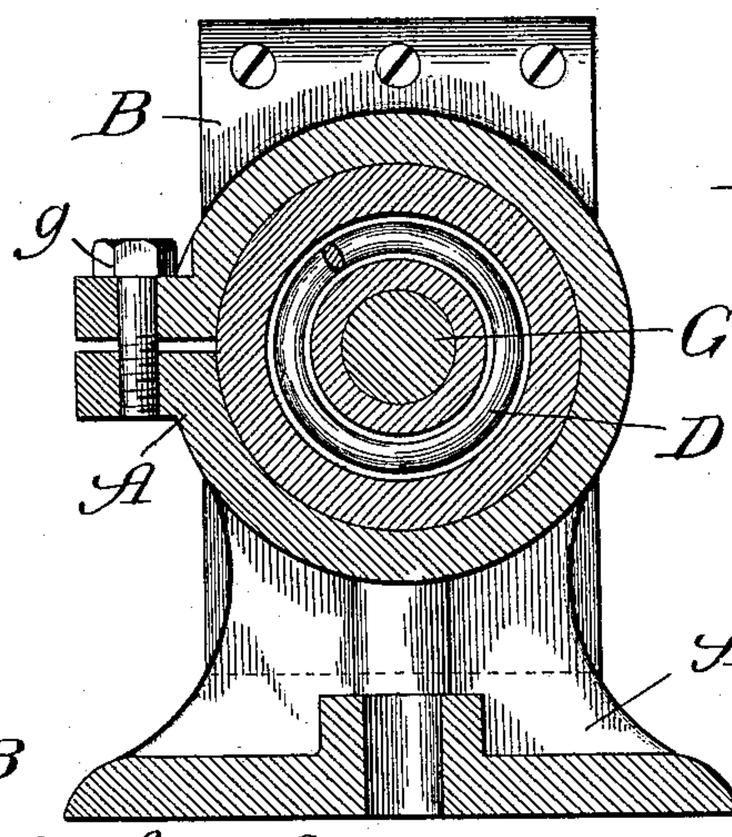


Fig. 3.

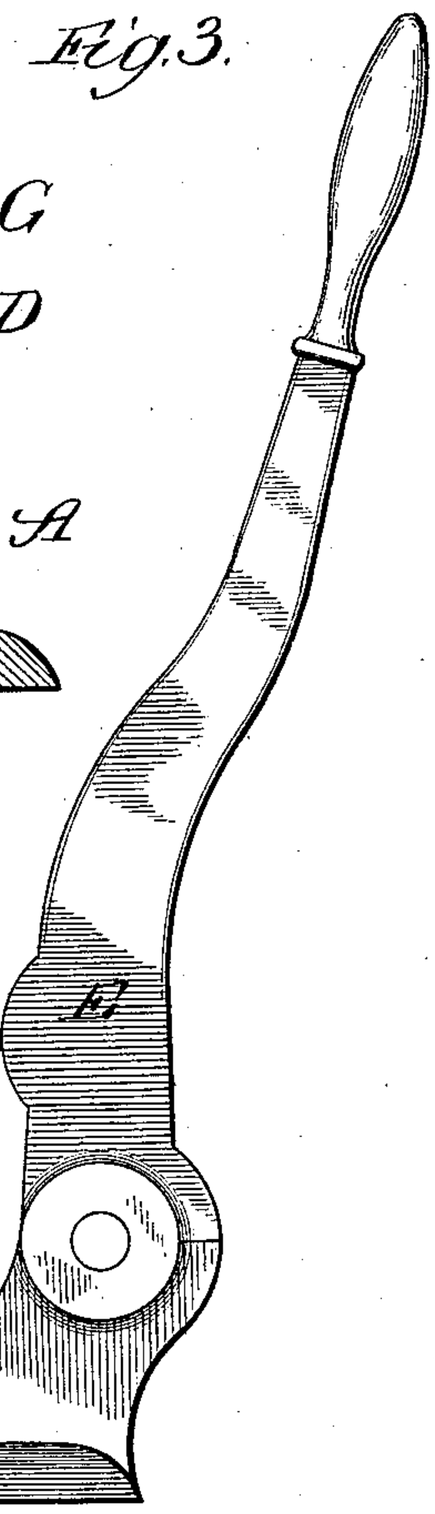


Fig. 1.

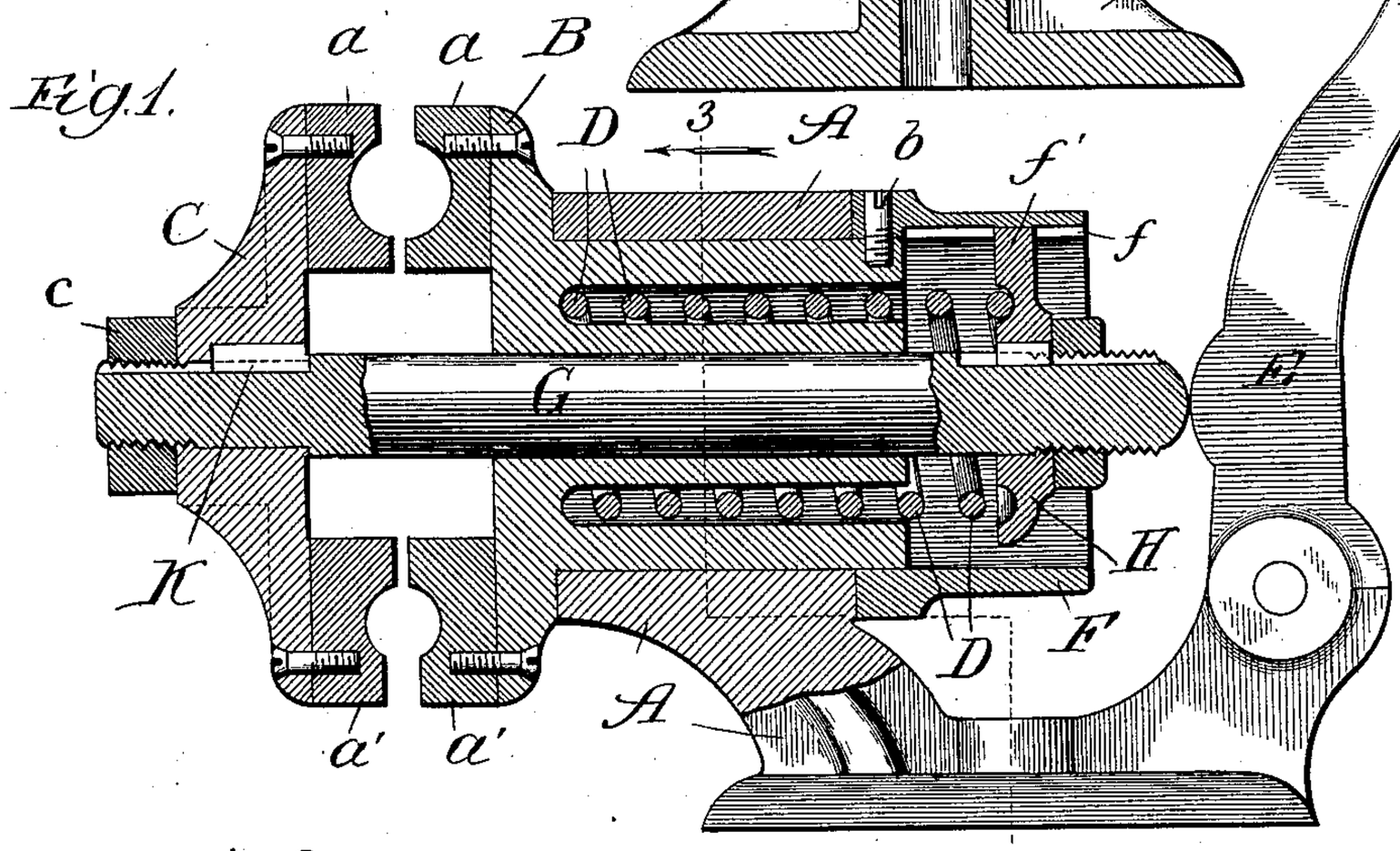
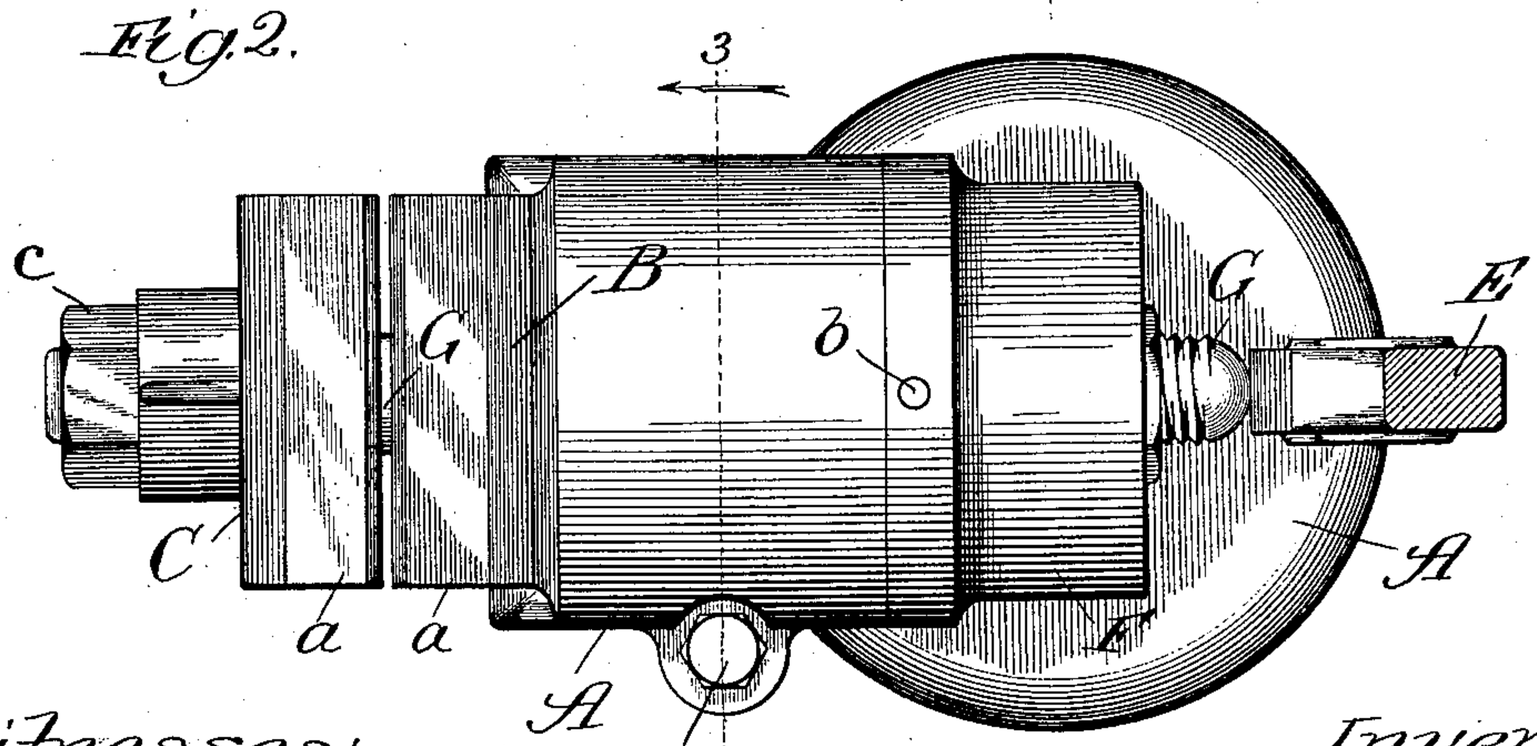


Fig. 2.



Witnesses:
Chas. E. Gaylord,
Lutw. S. Miller

Inventor:
Oliver Colborne,
By Fore & Baier
Atty's

UNITED STATES PATENT OFFICE.

OLIVER COLBORNE, OF CHICAGO, ILLINOIS.

VISE.

SPECIFICATION forming part of Letters Patent No. 605,855, dated June 21, 1898.

Application filed December 20, 1897. Serial No. 662,576. (No model.)

To all whom it may concern:

Be it known that I, OLIVER COLBORNE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Vises, of which the following is a specification.

My invention relates to improvements in vises which are designed to clamp and hold work during the operation of filing, fitting, polishing, and the like. This is a class of work which must necessarily be done by hand, the vise being an important adjunct in the operation. In order that the time required for placing and holding the work in its various positions and the expense of the work may be reduced to a minimum, it is very desirable to have the vise constructed so that it may be quickly and conveniently manipulated.

The old-fashioned screw-vise requires the use of both hands of the workman while placing work in position between its jaws—one hand to hold the work and the other hand to screw the jaws together. The pressure that may be thus applied to the work is only limited by the strength of the material of which the vise is composed or to the capacity of the work to resist such pressure. With such a vise in the hands of careless workmen, who can not or will not always gage the pressure to the character of work they are handling, fragile articles—such as tubing, sheet-metal forms, and the like—are liable to be crushed or collapsed by the unnecessary force hastily applied to the vise-screw.

In order to overcome the difficulties which I have enumerated, I have designed a vise which will exert a certain predetermined pressure for articles of approximate uniform diameter. I have further simplified the manipulation thereof, so that the jaws may be opened to receive the work by simply compressing a spring by the application of the necessary levers, the resilience of the spring alone holding the jaws of the vise together with the necessary force to retain the work in operative condition. I accomplish these results by means of the device illustrated in the accompanying drawings, in which—

Figure 1 is a vertical elevation, partly in section. Fig. 2 is a perspective view looking from above, with the handle E removed. Fig. 3 is a section taken on the line 3 of Figs. 1 and 2. Fig. 4 is the rear view of cap F and washer H.

Similar letters refer to like parts throughout the several views.

A is a split housing-ring and base-plate cast in one piece.

B is a permanent jaw, with reference to any lateral motion; but it may be rotated within the split ring A and clamped firmly in any position by means of set-screw *g*.

C is the movable jaw, carried by a rod G and attached thereto by means of the nut *c*.

D is a strong coiled open spring having a bearing within a slot in B and against a washer H.

E is a lever used for opening the vise.

F is a cap covering the rear portion of the spring D, attached to the portion B by means of a screw *b*. It is grooved at *f*, in which the extension *f'* on cap or washer H is guided to prevent rotation of rod G. (Shown in Fig. 4.)

G is a rod extending through and having loose guide-bearing in portion B. The pin *f''* and slot *f* permit free lateral motion, but prevent the rod G from rotating within B. The rod G extends beyond the housing at the rear end and forms an anvil to receive the pressure from the lever E. At the other end the piece C is firmly attached by means of nut *c* and feather *k*.

H is a washer for supporting the rear end of the spring D and attached to the rod G by means of adjustable nut *d* or by any suitable means.

a a a' a' are removable steel jaws made in any desired shape to conform to the work to be done in the vise. The illustration shows the jaws designed for holding tubes of two different sizes. They may be removed and other jaws for a different class of work may be substituted when it becomes desirable.

The operation of my device is as follows: To open the vise to insert work—as, for instance, to place a tube between the jaws *a a*—it is only necessary to pull the lever E with some force against the rod G. This compresses the spring D and allows the portion C, with the jaws *a a'*, to move out, so that the tube may be easily inserted. Releasing the lever E the resilience of the spring D will

exert sufficient force to hold the rod firmly in position between the jaws B C, so that any kind of work may be done in this vise that is usual in the practice of visework, with the possible exception of chipping. In the practical use of my vise, however, I have not found this to be necessary. The jaws may be turned to any position desired by loosening set-screw *g*, which will permit the entire clamping portion to be freely revolved in ring A, so that jaws *a' a'* may be brought to the position now occupied by *a a*.

Having described my invention, what I desire to secure by Letters Patent is—

1. In a vise, a stationary jaw rotatably held by a supporting-base, a guide passing through and having a loose guided bearing within the said stationary jaw-piece, a movable jaw mounted on or made integral with the said guide, in combination with a spring associated with the said jaws and adapted to hold them together, and a means for adjusting the tension of the said spring, substantially as and for the purpose described.

2. In a vise, a stationary jaw, rotatably held by a supporting-base, a guide-rod passing through and having a loose guided bearing within the said stationary jaw-piece, a spring adapted to hold the jaws together, and a means for adjusting the tension of the said spring; in combination with a movable jaw mounted on and moving horizontally with the said guide-rod, substantially as shown and described.

3. In a vise, a stationary jaw rotatably held by a supporting-base, a guide-rod passing through and having a loose guided bearing within the said stationary jaw-piece, a spring surrounding the said rod and adapted to hold the jaws together, and a means for adjusting the tension of the said spring; in combination with a movable jaw, mounted on and moving horizontally with the said guide-rod, substantially as shown and described.

4. In a vise, the combination of a stationary jaw, rotatably held in a base-piece, a movable jaw mounted on and moving with a guide-rod, the said guide-rod passing through the stationary jaw, a spiral spring surrounding the said guide-rod and adapted to exert a pressure between the said jaws for holding them together, a means for adjusting the tension of the said spring, and a lever for separating the said jaws, substantially as shown and described.

5. In a vise, the combination of a base-piece A, provided with an adjustable supporting-ring, the jaw-piece B, rotatably supported therein, a guide-rod G, having a reciprocating bearing within the said jaw-piece B, a jaw C carried by the said guide-rod and a spring D adapted to hold the jaws together, substantially as shown and described.

6. In a vise, the combination of a base containing a ring, a stationary jaw-piece supported therein, a guide-rod passing through the said stationary jaw, a horizontally-movable jaw mounted on the said guide-rod, a spring adapted to hold the said jaws together, and a lever for separating the said jaws, substantially as shown and described.

OLIVER COLBORNE.

Witnesses:
FOREÉ BAIN,
F. J. GUILD.