(No Model.)

B. F. STEPHENS.

Vise Jaw.

No. 235,177. **Patented Dec. 7, 1880.**

Fig. 1.

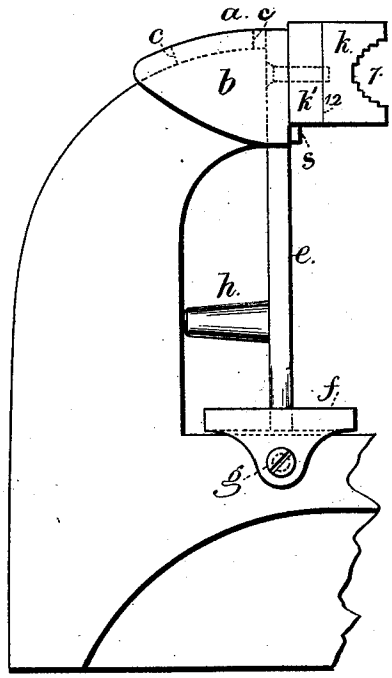


Fig. 3.

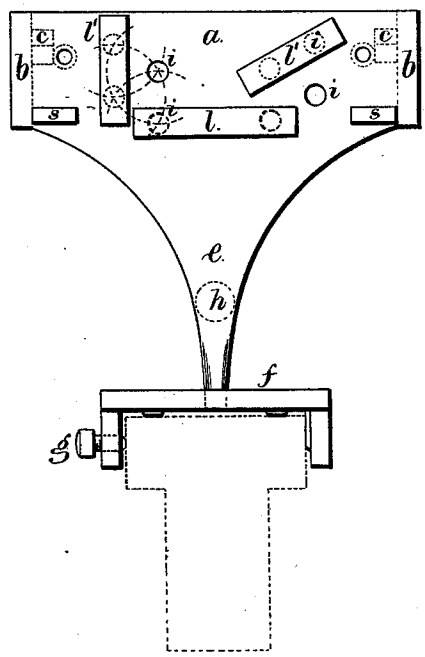


Fig. 4.

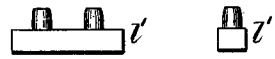
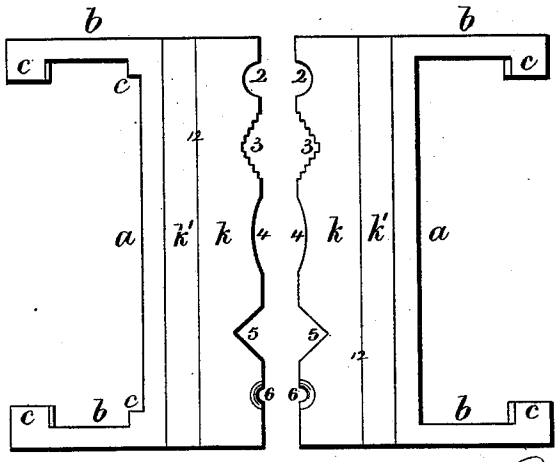


Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

BENJAMIN F. STEPHENS, OF BROOKLYN, NEW YORK.

VISE-JAWS.

SPECIFICATION forming part of Letters Patent No. 235,177, dated December 7, 1880.

Application filed April 6, 1880. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN F. STEPHENS, of Brooklyn, in the county of Kings and State of New York, have invented an Improvement in Vise-Jaws, of which the following is a specification.

Vise-jaws are usually made with a roughened surface. These are adapted to the average grades of work, where the article held is not injured by the indentations made by the jaws; but such jaws are not adapted to heavy work, such as screw-cutting, bolt-making, and tube-cutting; neither are they adapted to fine work, in which the surface is polished or smooth and has to be held without injury thereto.

My present invention is an improvement in the movable vise caps and jaws, whereby the vise can be easily adapted to the various conditions of use.

Movable caps for vise-jaws have been used, and also movable pipe-holding jaws, and in Letters Patent No. 156,105 a pipe-holding jaw is represented, and in my Patent No. 156,386 a smooth jaw is represented.

In the drawings, Figure 1 is a side view of the movable jaw. Fig. 2 is a plan of the vise-jaws. Fig. 3 is a face view of the jaw-holder; and Fig. 4 is a plan and side view of the movable jaw-blocks, that can be inserted into the holes in the jaw.

The jaw-cap *a* is made with the two end pieces, *b b*, that are at the ends of the vise-jaw, and have lugs *c c* to rest upon the curved or inclined surfaces at some distance back of the holding-faces of the vise-jaw. There is a leg, *e*, extending below the jaw-holder *a*, and terminating as a stud or pin to enter a hole in the plate *f*, that rests upon the bar of the vise, and, by preference, this plate is clamped to such vise-bar by the screw *g*, and there is a stud, *h*, projecting from the leg *e* and resting against the vertical part of the vise-jaw, to retain the said leg in an upright position. This entire jaw-cap can be lifted off the vise when not needed, and the plate *f* may remain in place on the bar of the vise.

The steel jaws *k* are made upon the wrought-iron bars or backs *k'*, the parts being welded together at 12. At 2 the jaws are grooved vertically to receive a bolt or other round or irregular article to be acted upon. At 3 the corrugations or channeling form angular edges adapted to hold pipes or bolts very firmly. At 4 the surfaces are arcs of circles to hold cylindrical articles. At 5 the grooves are V-shaped, and at 6 the jaws are grooved vertically and the surface countersunk, and the jaws are also grooved longitudinally, as at 7, Fig. 1. These jaws are screwed to the jaw-caps *a* by countersunk screws and horizontal pins at the backs of the jaws *k k'* to enter holes in *a*. In either instance the jaws *k k'* are removable from the jaw-caps *a*. I also provide ribs or bearing-blocks *s*, projecting from the faces of the jaw-holders *a*, upon which the lower edges of the movable jaw *k k'* rest, so that downward strain upon the jaws will not tend to injure the attaching screws or pins, but the strain will be taken directly upon the jaw-caps *a* by the said ribs *s*.

The jaw-caps *a* may be used for holding some articles without any jaws or faces; but it is best to provide some movable surface for said jaw-caps. With this object in view I make holes at *i i* in the jaw-cap and provide jaw-blocks *l l'* with horizontal pins at their backs to enter said holes *i*. These movable jaw-blocks may be of brass or other metal, hard wood, or other suitable material, and of various lengths or shapes.

In Fig. 3 I have shown a horizontal jaw-block, *l*, and a vertical block, *l'*; but said blocks *l'* may be placed at an inclination or at a greater or less height, as the holes *i i* are in groups at equal distances apart, as shown. These jaw-blocks may also be used for supporting articles held between the jaw-holders, so that they will not slip down while being filed or otherwise operated upon.

This improvement enables the workman to hold the most delicate article, or, when necessary, to clamp and hold a rod, tube, or bar with sufficient power to permit the cutting of screw-threads or the riveting up of heads or kindred operations.

I am aware that movable vise-caps are old, and that movable jaws have also been used, and that removable faces resting in recesses in the caps have also been employed, and that the movable caps and jaws have in some in-

stances been provided with screws and connecting-pins.

I claim as my invention—

1. The removable jaw-cap *a*, made with the downwardly-projecting leg *e*, end pieces, *b*, and with holes in the face for the reception of pins upon movable jaws or jaw-blocks, and with the supporting-lugs, substantially as set forth.

2. The removable jaw-cap *a*, having end pieces, *b*, and leg *e*, terminating as a stud to pass into a hole, in combination with plate *f* and clamping-screw *g*, substantially as set forth.

3. The combination, with the movable jaw-caps having holes in their faces, of movable jaw-blocks, with horizontal pins to enter such holes, substantially as set forth.

4. The removable jaw-caps *a*, perforated with holes, and having upon the face the ribs or bearing-blocks *s*, in combination with the jaws *k k'*, having pins that project horizontally and enter the holes of the jaw-cap, substantially as set forth.

5. The removable jaw-cap having the end pieces, *b*, and leg *e*, terminating as a stud to enter a hole, substantially as set forth.

Signed by me this 2d day of April, A. D. 1880.

BENJ. F. STEPHENS.

Witnesses:

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WILLIAM G. MOTT.