(No Model.)

2 Sheets—Sheet 1.

W. VANDERMAN.

VISE ATTACHMENT.

No. 303,345. Patented Aug. 12, 1884.

Fig. 1

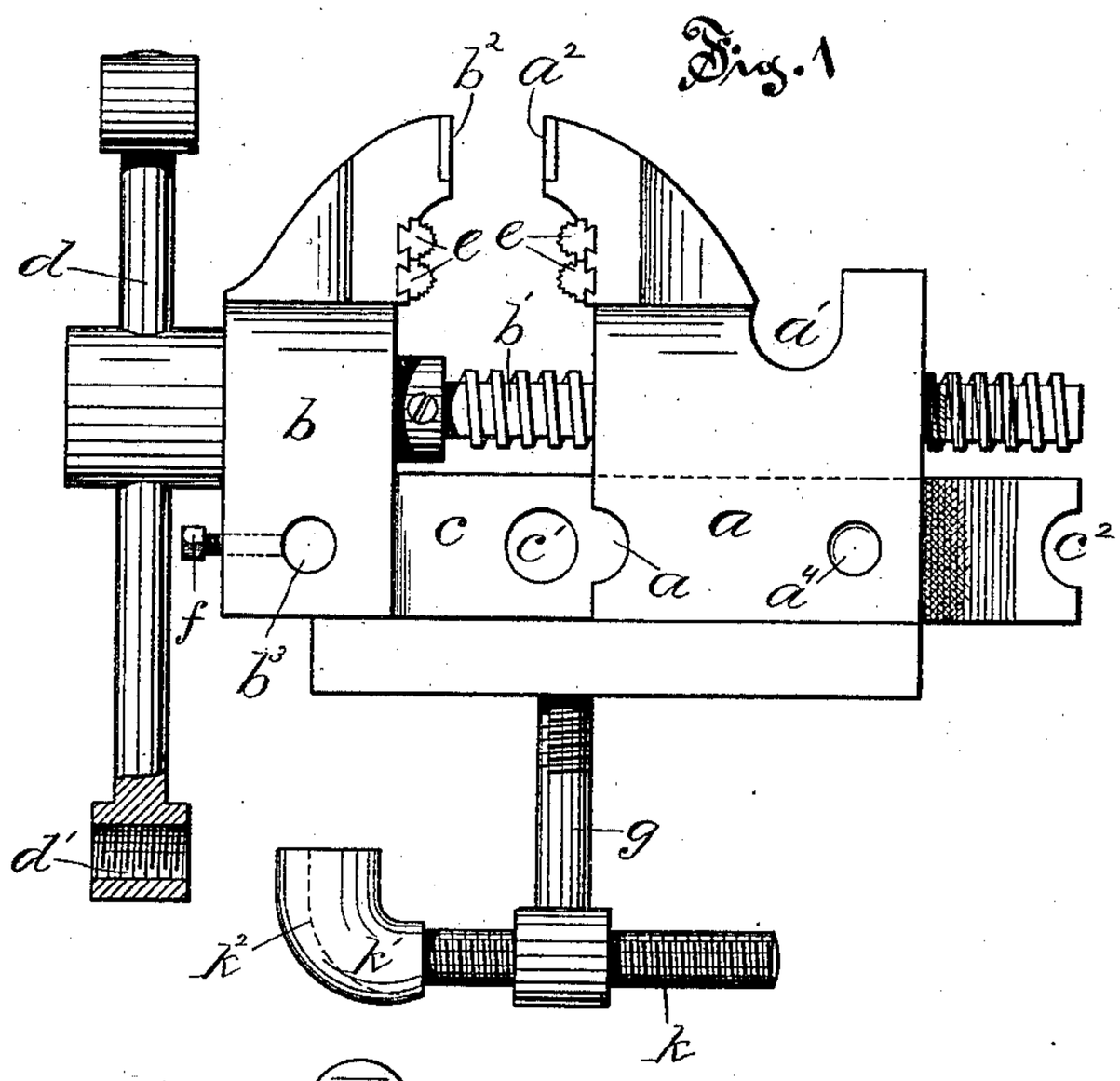


Fig. 2

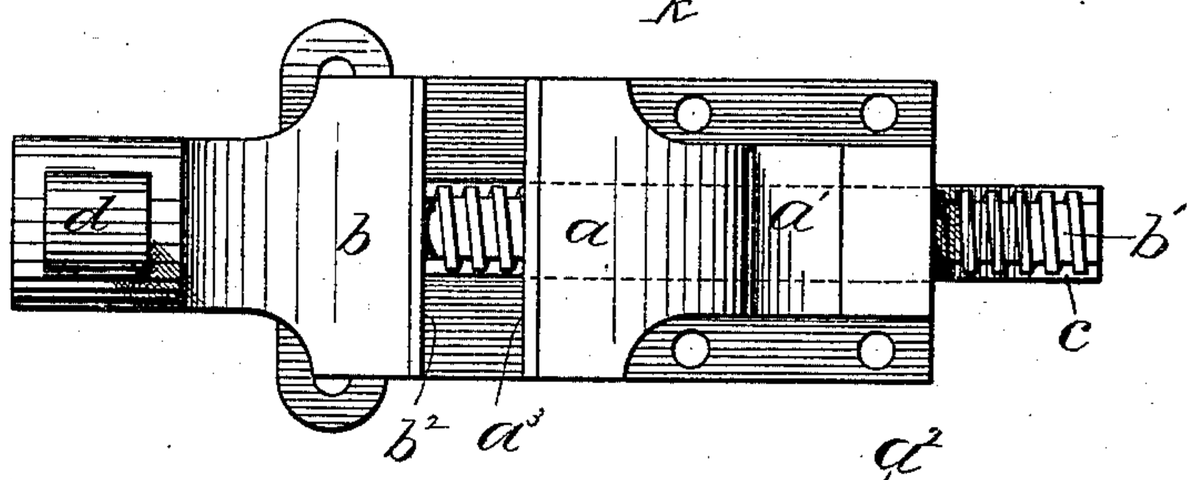
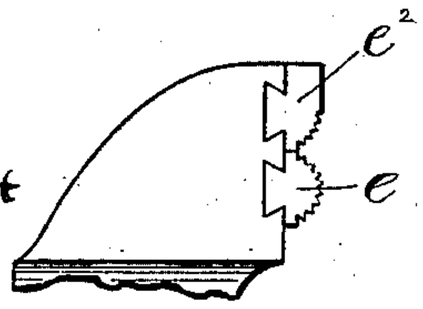


Fig. 4



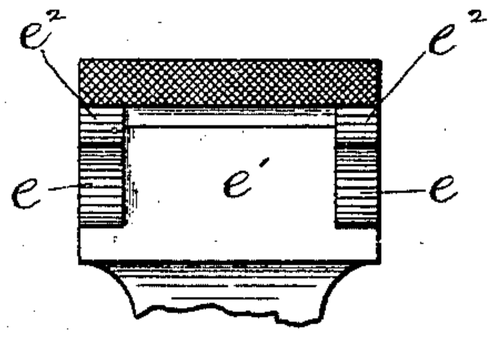
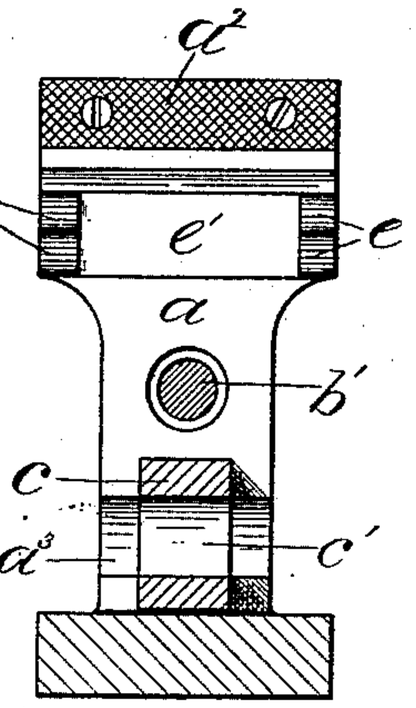


Fig. 3



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(No Model.) 2 Sheets—Sheet 2.

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VISE ATTACHMENT.

No. 303,345. Patented Aug. 12, 1884.

Fig. 5

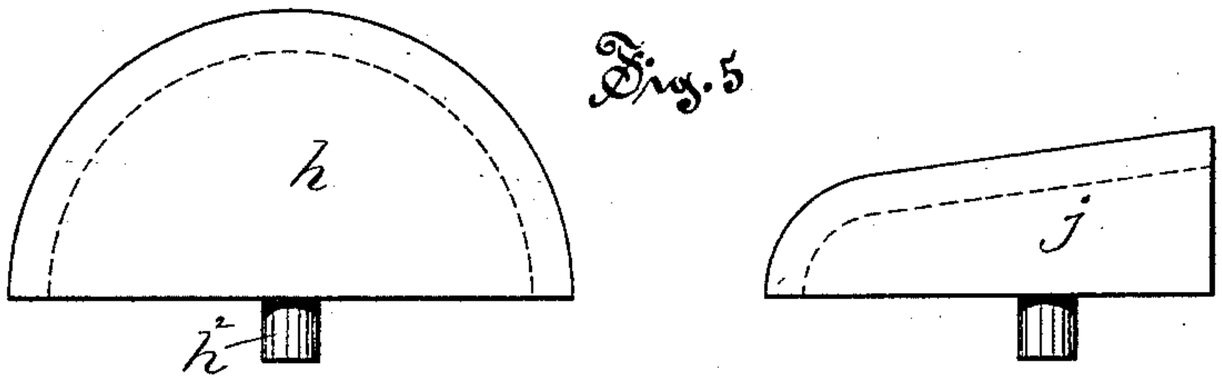


Fig. 6

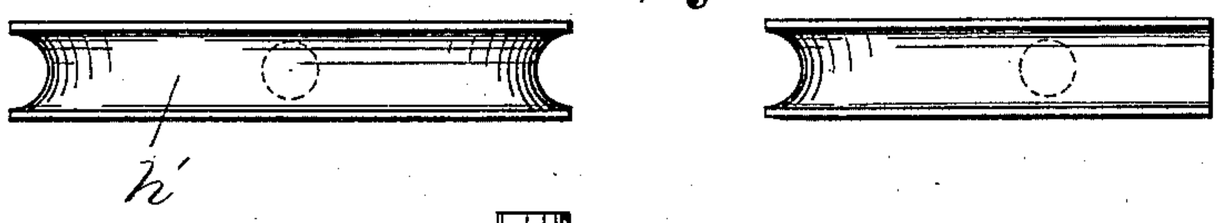
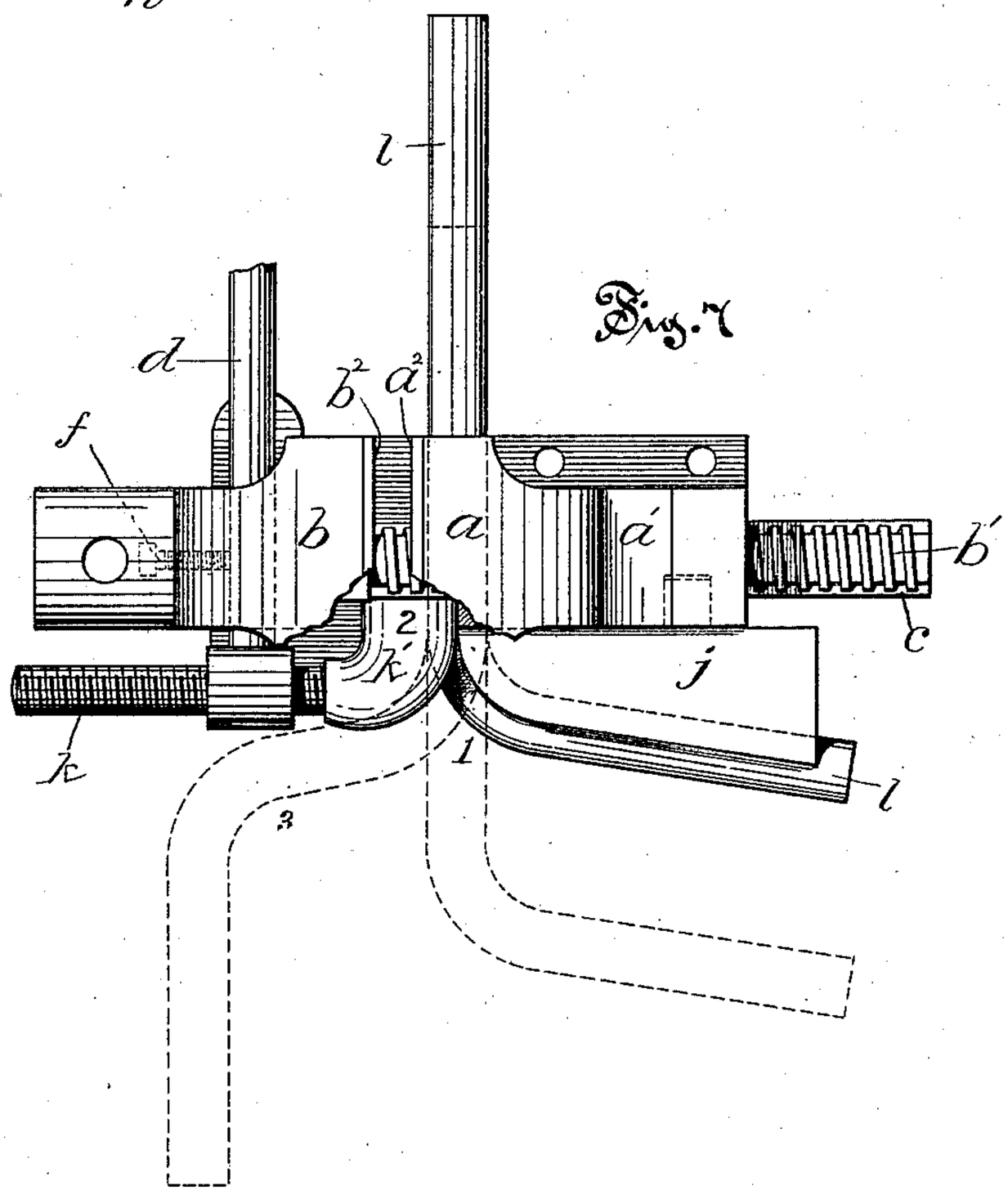


Fig. 7



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UNITED STATES PATENT OFFICE.

WILLIAM VANDERMAN, OF WILLIMANTIC, CONNECTICUT.

VISE ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 303,345, dated August 12, 1884.

Application filed February 18, 1884. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM VANDERMAN, of Willimantic, in the county of Windham and State of Connecticut, have invented certain new and useful Improvements in Pipe-Vises; and I do hereby declare that the following is a full, clear, and exact description thereof, whereby a person skilled in the art can make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Like letters in the figures indicate the same parts.

Figure 1 is a side view of a vise embodying my improvements. Fig. 2 is a top view of the same. Fig. 3 is a face view of one of the jaw-frames, with parts in section. Fig. 4 is a view of an alternate form of jaw. Fig. 5 is a plan view of bending-forms for attachment to the vise. Fig. 6 is an edge view of the same. Fig. 7 is a plan view of my improved vise with parts of the jaws broken away, and showing the steps in the method of bending an offset in a pipe.

The object of my invention is to provide for the use of plumbers, gas-fitters, and the like workmen a compact device that shall embody in the main part of the vise and the attachments thereto necessary tools for bending, offsetting, and otherwise working pipes of various diameters.

In the accompanying drawings, the letter *a* denotes a metallic jaw-frame, preferably cast to shape, and having means for attaching it to a bench; *b*, the movable jaw-frame, having the extension *c*, that reciprocates in the socket in the fixed frame *a* in the usual manner the frame *b* being operated by means of the screw-spindle *b'*, having a head in which is fitted the usual sliding lever, *d*, for rotating the spindle. The jaws, as shown in Fig. 1, are provided with flat grasping-faces *b''* *a''*, and just below the jaws are the dovetailed sockets adapted to receive and hold the removable toothed pipe-jaws, which are circular in general vertical outline of the grasping-faces, and are placed in groups of two or more fixed on each jaw, as shown. These toothed jaws may extend completely across the frame from side to side, or are preferably shorter than the main jaw, and so arranged as to leave a space, *e'*, which enables these jaws to grasp a pipe on each side of a coupling when the vise is used to hold pipes joined by such a device. These jaws *e* are reversible and interchangeable, so that when one part of the circular grasping-face is worn they may be reversed in their sockets, and so present sharp instead of worn teeth, and are also readily replaced by new ones. In the upper surface of the fixed jaw-frame *a* a circular groove, *a'*, is formed, that is especially adapted for use in the straightening of bent pipes. The extension *c* has between the jaws *a* and *b* a transverse hole, *c'*, through which a pipe may be thrust, and on the same horizontal plane with this opening is a groove, *c''*, in the rear end of the extension, a groove, *a'''*, in the front of the fixed frame *a*, and the socket *a''''* in the side of the frame.

The letter *h* denotes a semicircular frame, having a peripheral groove, *h'*, and on the flat edge the projection *h''* of such size as to fit closely within the socket *a''''* on the frame *a*. To use this form it is attached to the frame *a* by means of the socket and projection, as shown in Fig. 7, the end of a pipe is inserted in the opening *c'*, the movable jaw closed until the pipe bears against the groove *a'''*, and while the end is held tightly in position the pipe may be swept around and bent in the groove *h'* and a half-bend made. The form *j* has a projection, also formed to fit the socket in the frame *a*, and a grooved face adapted to form a quarter-turn in the pipe by a similar method to that employed in the form *h*.

In the frame *b*, and opening laterally, is the hole *b'''*, on the same level with the hole *c'*, and a clamp-screw, *f*, projects into this hole from the front of the vise, and is used to clamp within it a pipe or rod. The clamp-screw *g*, that is used to secure the vise to the bench, has a head with a threaded socket, in which is used the lever *k*, that has a corresponding thread, and one end, *k*, bent to a quarter-turn, and having a groove, *k''*.

The form *h* is attached to the vise by the means described, and a pipe, *l*, thrust through the opening *c'*, has a quarter-bend formed in it, (see 1, Fig. 7,) as shown. The lever *d* is then removed from the spindle and inserted in the hole *b*³. The lever *k* is then unscrewed from the clamp-screw, and its threaded end turned into the socket *d'* in lever *d* until the curved end of lever *k* is so adjusted as to rest

against the front edge of the pipe at any desired distance from the side of the vise, (see 2, Fig. 7,) and the lever *d* is then clamped firmly by means of screw *f*. The pipe is then grasped and bent forward into the groove *k''* in the curved part of the lever *k*, and the offset finished (see 3, Fig. 7,) when the pipe may be released and removed from the vise. The alternate form of removable pipe-jaw shows the upper one of the pair (denoted by e^2 in Fig. 4) as having both a flat grasping-face, e^3, which forms its upper portion for general use, and the lower part rounded with serrated or toothed grasping-surface that co-operates with the jaw *e*, and an opposite and similar set in holding pipes and the like objects. This form is especially useful in small sizes of vises, as it brings the pipe-grasping portion nearer the upper edge of the jaw-frames, which is desirable where but little space can be got between the top of the screw-spindle and the top of the jaw-frames.

The pipe-grasping part of the jaw e^2 may be limited to the sides, (see plan view in Fig. 4,) as in the other form of these jaws.

I claim as my invention—

1. In a vise, the jaw-frames *a b*, bearing-jaws with transverse dovetailed sockets, in combination with the removable pipe-jaws *e*, having the outward-curving toothed or serrated grasping-faces, and dovetailed tenons fitting the respective mortises, and affording means whereby the jaws are secured to the frame, all substantially as described.

2. In combination, the jaw-frame *a*, having the lateral socket a'''' and groove a''', movable jaw *b*, with extension *c*, having the transverse hole c' between the jaws, and also groove c'', the interchangeable forms *h* and *j*, each with a peripheral groove, and the jaw-operating mechanism of screw-spindle and lever, all substantially as described.

3. In a vise, in combination, a jaw-frame, *a*, with a lateral socket, a'''', and groove a''', and a movable jaw, *b*, with extension *c*, having hole c', co-operating with the groove a''' in holding a pipe or rod, all substantially as described.

4. In a vise, the combination of a fixed jaw, a movable jaw, with the extension, as described, and jaw-operating mechanism of screw-spindle and lever, the fixed jaw, and the extension-bearing, the opening and groove co-operating to grasp a pipe or rod, all substantially as described.

5. In a vise, in combination, the frame *a*, with groove a' on its upper surface, a lateral socket, a'''', and clamping-groove a''', a movable jaw, *b*, having the extension *c*, with opening c', and the interchangeable forms *h* and *j*, all substantially as described.

6. In combination with a vise having a socket, a'''', the interchangeable forms *h* and *j*, with peripheral grooves, substantially as described, and projections whereby each form is attached to the vise, all substantially as described.

7. In combination, the vise-frames *a* and *b*, with openings c' and b^3, and the levers *d* and *k*, with respective sockets and grooved bends, all substantially as described.

WILLIAM VANDERMAN.

Witnesses:

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M. L. TRYON.