(No Model.) 2 Sheets—Sheet 1.

C. W. KIMBALL.

PLIERS FOR ATTACHING COUPLINGS TO HOSE.

No. 441,671. Patented Dec. 2, 1890.

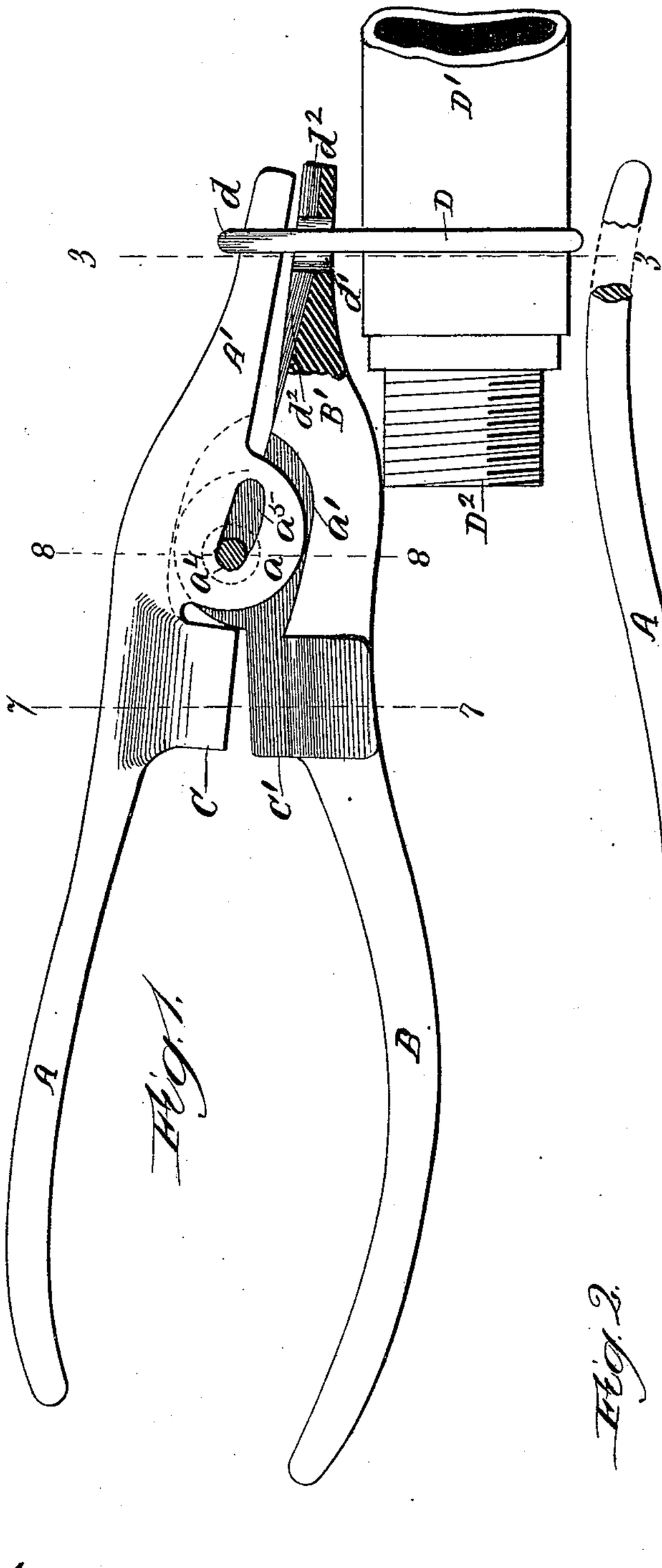

Fig. 1.

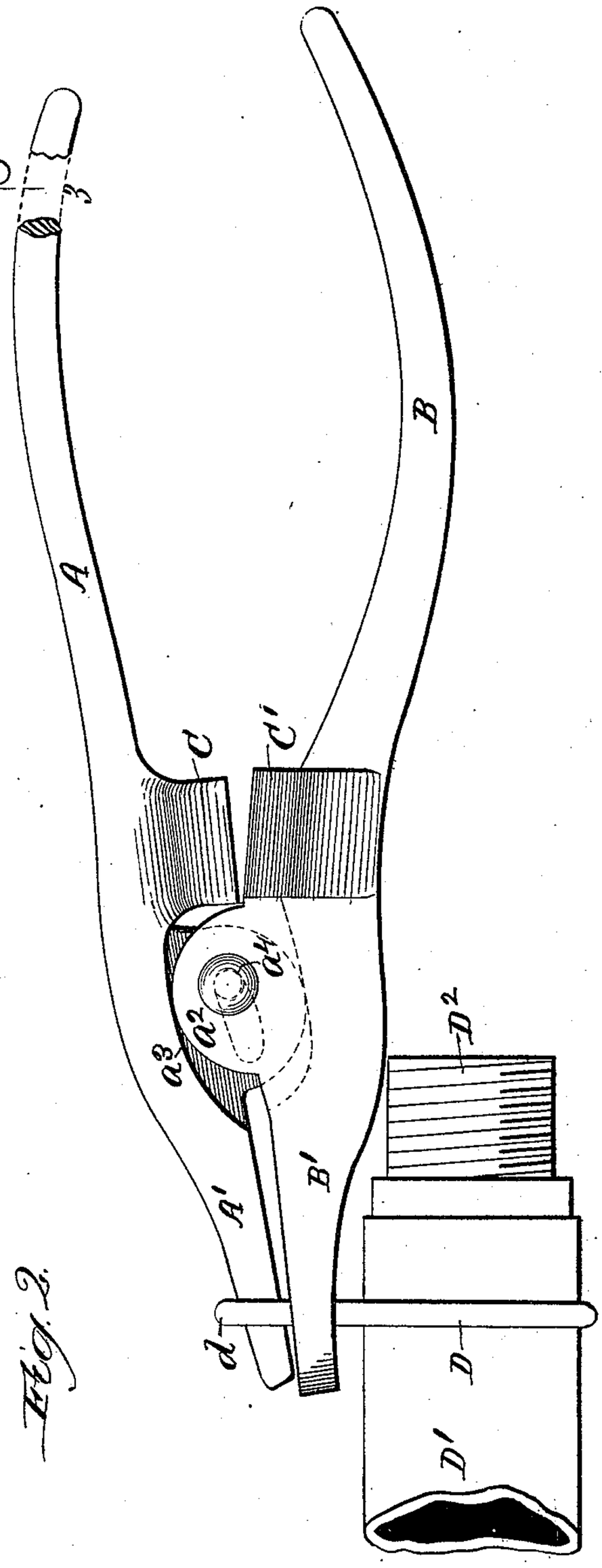

Fig. 2.

Witnesses:
Chas. E. Gaylord,
L. M. Freeman.

Inventor:
C. W. Kimball.
By L. B. Copeland & Co
Attys

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Fig. 3.

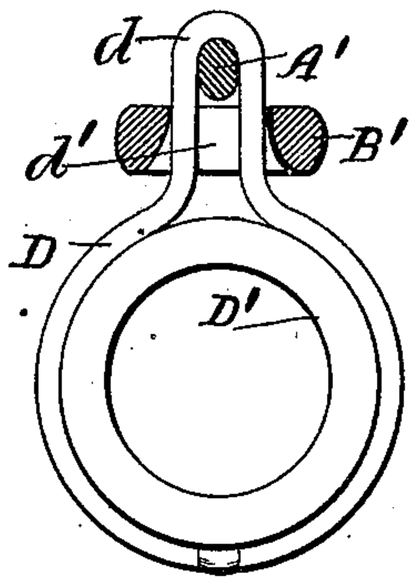


Fig. 4.

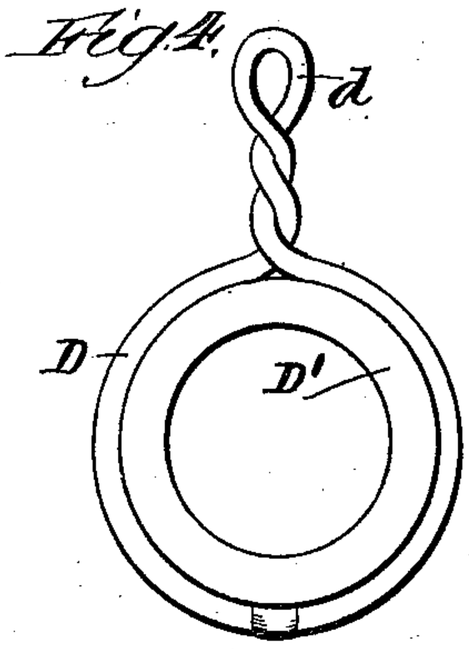


Fig. 5.

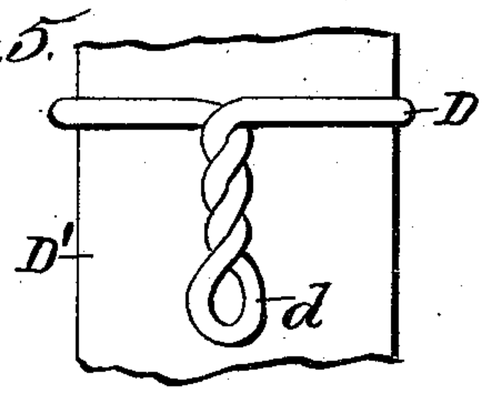


Fig. 6.

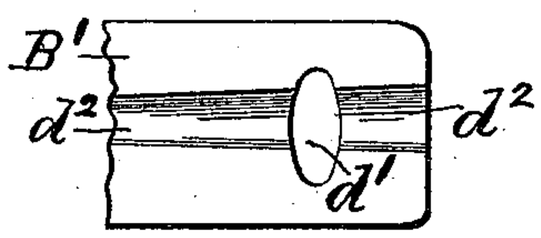


Fig. 7.

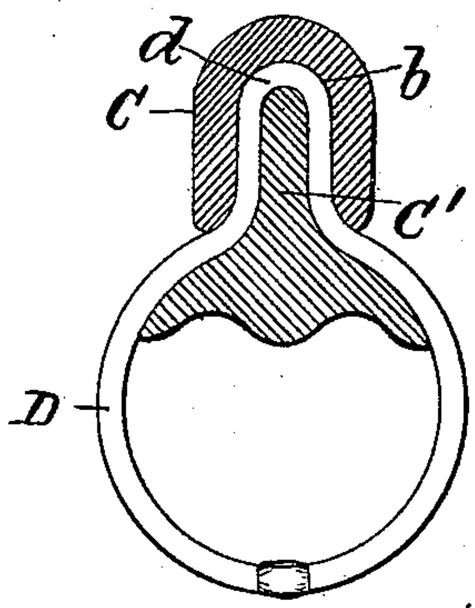
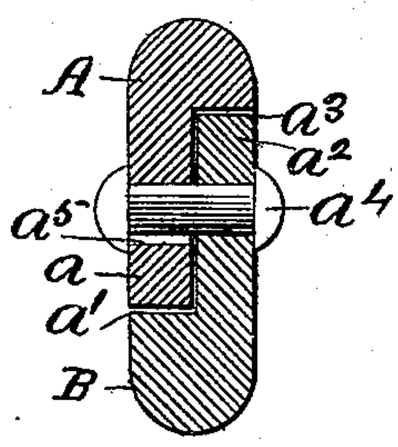


Fig. 8.



Witnesses:
Chas. E. Gaylord
L. M. Freeman.

Inventor:
C. W. Kimball
By L. B. Coupland & Co
Att'ys.

UNITED STATES PATENT OFFICE.

CHARLES W. KIMBALL, OF CHICAGO, ILLINOIS.

PLIERS FOR ATTACHING COUPLINGS TO HOSE.

SPECIFICATION forming part of Letters Patent No. 441,671, dated December 2, 1890.

Application filed March 19, 1889. Serial No. 303,880. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. KIMBALL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Pliers for Attaching Couplings to Hose, of which the following is a full, clear, and exact description, that will enable others to make and use the same, reference being had to the accompanying drawings, forming a part of this specification.

The object of this invention is to provide a device for forming and attaching the strap which secures the hose and coupling together, as will be hereinafter set forth.

Figure 1 is a side elevation of a device embodying my improved features; Fig. 2, a similar view of the opposite side; Fig. 3, a transverse section in plane 3, Fig. 1; Fig. 4, an elevation showing the relative position of the strap after the pliers have been removed; Fig. 5, a plan showing the twist of the strap or wire turned down flat on the hose; Fig. 6, a broken-away plan of the under jaw of the pliers, looking at the inner side; Fig. 7, a transverse section in plane 7, Fig. 1; and Fig. 8, a transverse section in plane 8, Fig. 1.

Referring to the drawings, the upper member of the pliers consists of the handle A, the jaw A′, the lower companion member of the handle B, and the jaw B′. The upper member is provided with the joint-plate *a*, formed integral therewith and extending downwardly therefrom, (see Fig. 1,) the lower rounded edge of which has a riding bearing on the curved-out shoulder *a′*, formed on the lower member. The lower member is provided on the opposite side with the corresponding joint-plate a^2, projecting upwardly therefrom, (see Fig. 2,) the upper rounded edge having a bearing against the under side of the curved-out shoulder a^3, formed on the upper member, thus forming the overlapping joint shown in Fig. 8. The two members are connected by the pivot-pin a^4, and the joint-plate *a* of the upper member is provided with the elongated aperture a^5, whereby the upper member is adapted to have an endwise movement with reference to the companion member. The object of this adjustment will be hereinafter set forth.

The upper member is provided back of the pivot-pin with the intaglio die C, having the U-shaped recess *b*, (see Fig. 7,) while the lower member is provided with the cameo or anvil die C′, which when brought together bear the relative position illustrated in Fig. 7 and provide an object with the elongated loop shown.

The hose-strap D is primarily a wire ring, which is first passed over the handle end of the lower member and suspended from the die part C′. The handles are then brought together, which movement causes the ring to assume the form shown in Figs. 3 and 7—that is, having the laterally-projecting elongated loop or lug *d*. The strap is next passed over the section of hose D′, in which the coupling D^2 is inserted and the loop *d* made to project up through the aperture *d′* (see Fig. 6) in the lower jaw B′ of the pliers, the upper jaw being retracted or drawn out of the way by reason of the elongated aperture a^5 in its pivot-plate to uncover the aperture in the lower jaw. After the strap-loop has been inserted up through the aperture in the lower jaw the upper member is moved forward and the nose of the jaw A′ made to project through and engage with the loop *d*, as shown in Figs. 1 and 2, the relative position of the different parts being more clearly illustrated in Fig. 3. The strap-loop is next twisted into the form shown in Fig. 4, and the process of securing the hose to the coupling finally completed by turning the twisted loop down flat on the hose, as shown in Fig. 5. After the twist in the loop is completed, and before turning the same down, the upper member of the pliers is again drawn back to disengage the nose, when the lower jaw may then also be easily disengaged. The lower jaw is also provided on the inner side with the groove or depression d^2, as shown by the broken-away part in Figs. 1 and 6, so that the jaws may be brought closer together to lessen their combined diameter, and thereby increase the twist in binding on the strap. In the process of twisting the strap-loop the handles of the pliers should be pressed together. Thus the nose of the upper jaw has an upward strain on the loop, so that the twist will be regular and uniform and the clamping-pressure of the strap on the hose will be uniformly even all the way

around, thus insuring a perfectly-tight joint and presenting a neat and finished appearance.

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

1. In a pair of pliers, the combination, with the lower member perforated in the jaw part and provided with an integral joint-plate having a rounded edge and curved-out shoulder, as described, of the upper companion member provided with an elongated aperture in its joint-plate and the connecting pivot-pin, whereby the upper member is adapted to have an endwise movement with reference to the companion member, substantially as and for the purpose set forth.

2. In a pair of pliers, the combination, with the upper member provided with a horizontal elongated aperture in the joint-plate, of the lower member provided with a vertical aperture in the jaw part near the front end, said vertical aperture being normally covered by the jaw of the upper member, and the pivot-pin passing through the aperture in the joint-plate and connecting the two members, whereby the upper member may be retracted to uncover the aperture in the jaw part of the lower member, so that an object can be thrust up through the same and the upper member then moved forward and the nose of the jaw part made to engage with said object, substantially as and for the purpose set forth.

3. A pair of pliers the respective members whereof are provided back of the pivot-joint with forming-dies, substantially as described, and for the purpose set forth.

4. In a pair of pliers the combination, with the upper member provided back of the pivot-joint with the intaglio die, as described, of the lower companion member provided with the cameo or anvil die and located in the same plane with the upper die, whereby a circular object or ring inserted between said dies and suspended from the anvil-die has an elongated closed loop formed on one side thereof when the handles of said pliers are pressed together, substantially as and for the purpose set forth.

5. In a pair of forming and twisting pliers, the combination, with the upper member provided with a horizontal elongated aperture in the joint-plate and the intaglio die formed on the under side of the handle part back of the pivot-joint, of the lower member perforated in the jaw part and provided with a cameo or anvil die in the handle part, and the pivot-pin connecting said members, substantially as and for the purpose set forth.

6. A pair of pliers the upper and lower members of which consist of a handle and jaw part, each member being provided with an integral joint-plate and a shoulder-bearing, the joint-plates projecting in opposite directions and overlapping each other, as described, the joint-plate of the upper member being provided with a horizontal elongated aperture and the lower member with a vertical aperture and horizontal groove in the jaw part, the pivot-pin connecting the two members, and the dies formed on and between the handle parts of the respective member, said dies being located just back of the pivot-joint, substantially as and for the purpose set forth.

CHARLES W. KIMBALL.

Witnesses:
L. M. FREEMAN,
L. B. COUPLAND.