

(No Model.)

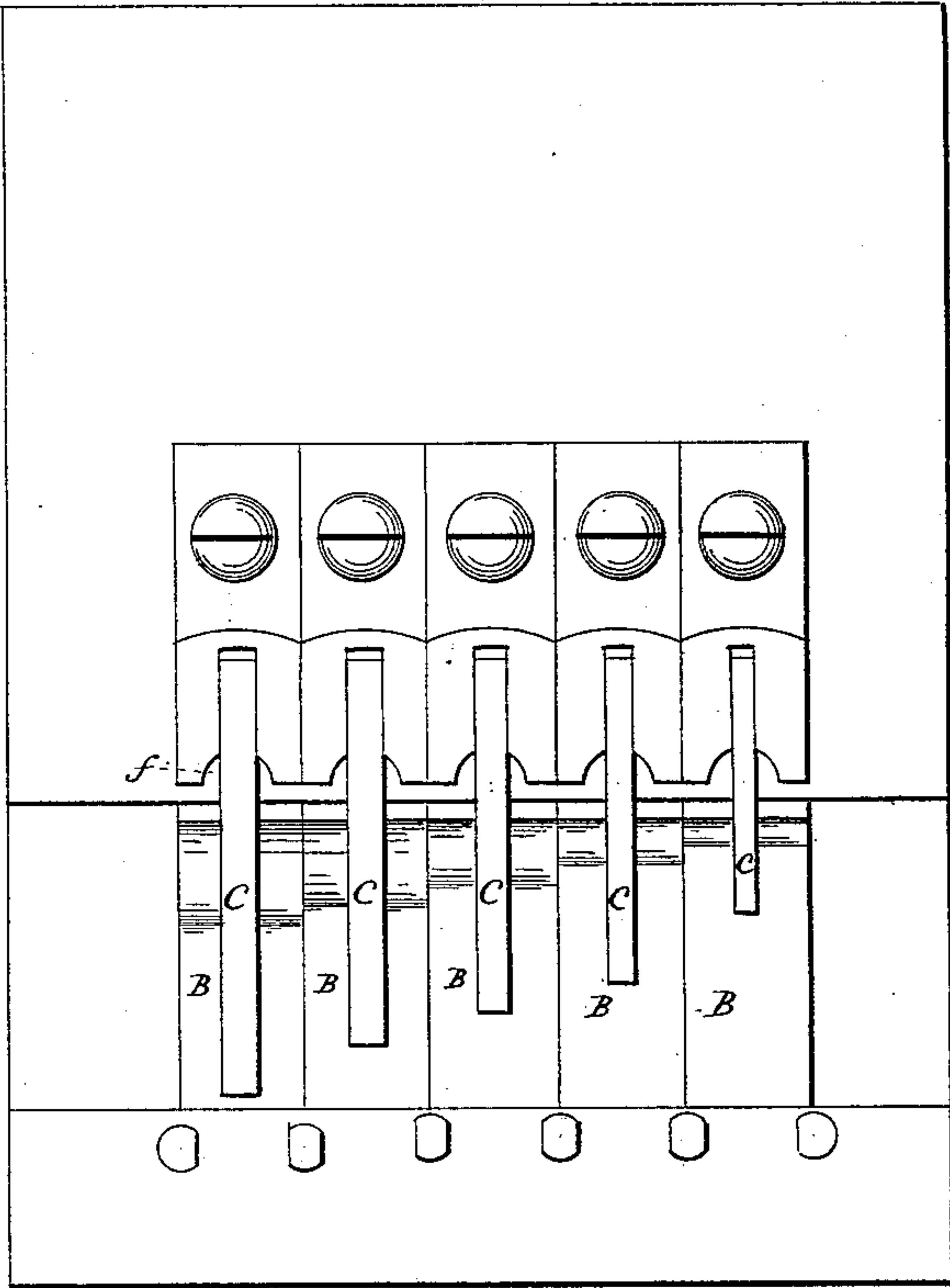
E. H. WHITE.

APPARATUS FOR BENDING AND VOICING MUSICAL REEDS.

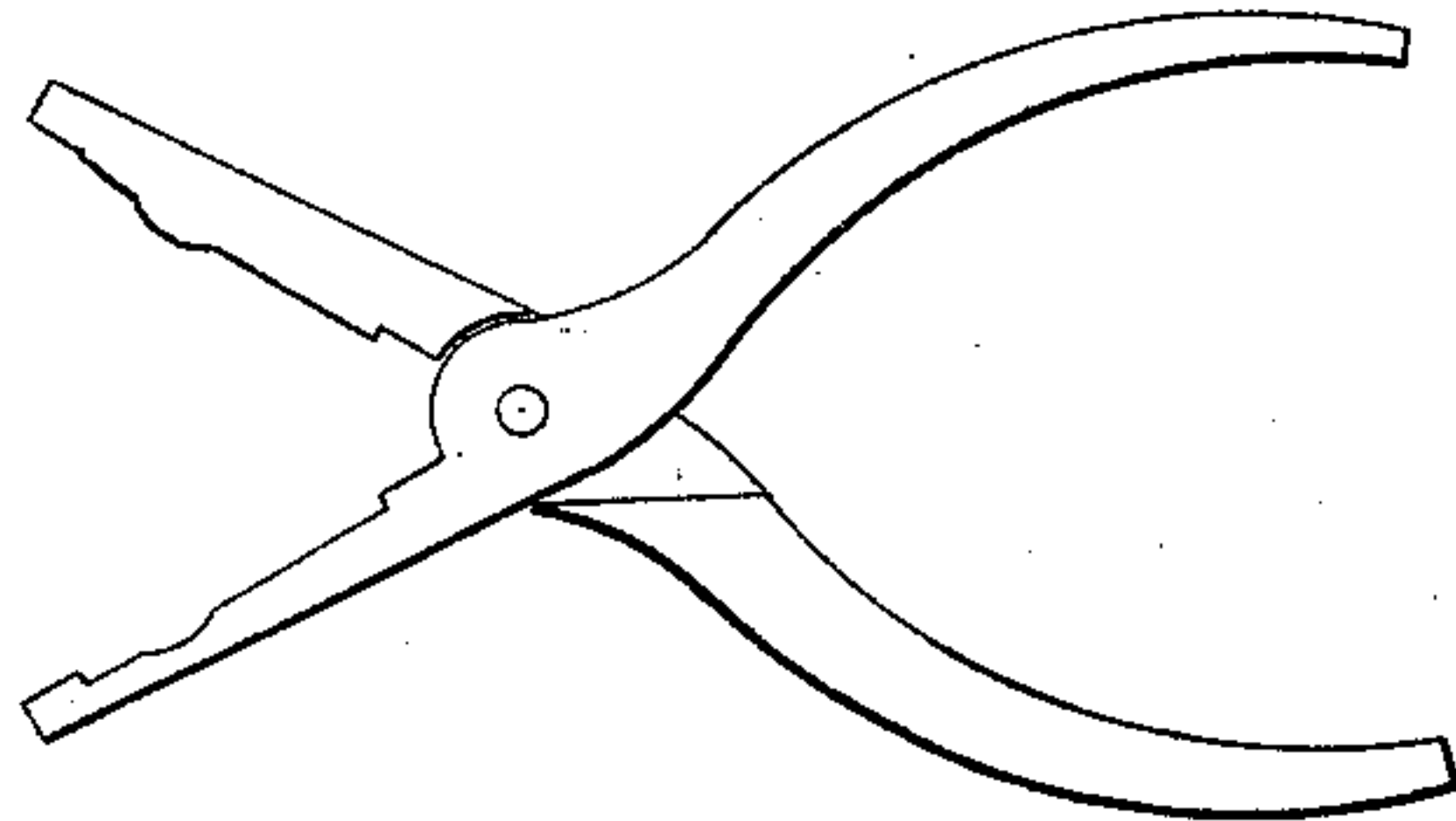
No. 336,368.

Patented Feb. 16, 1886.

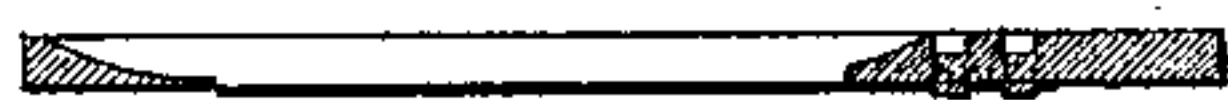
*Fig. 1.*



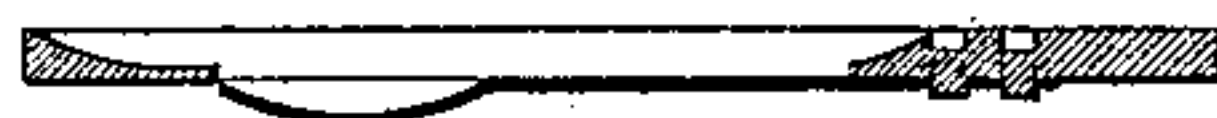
*Fig. 7.*



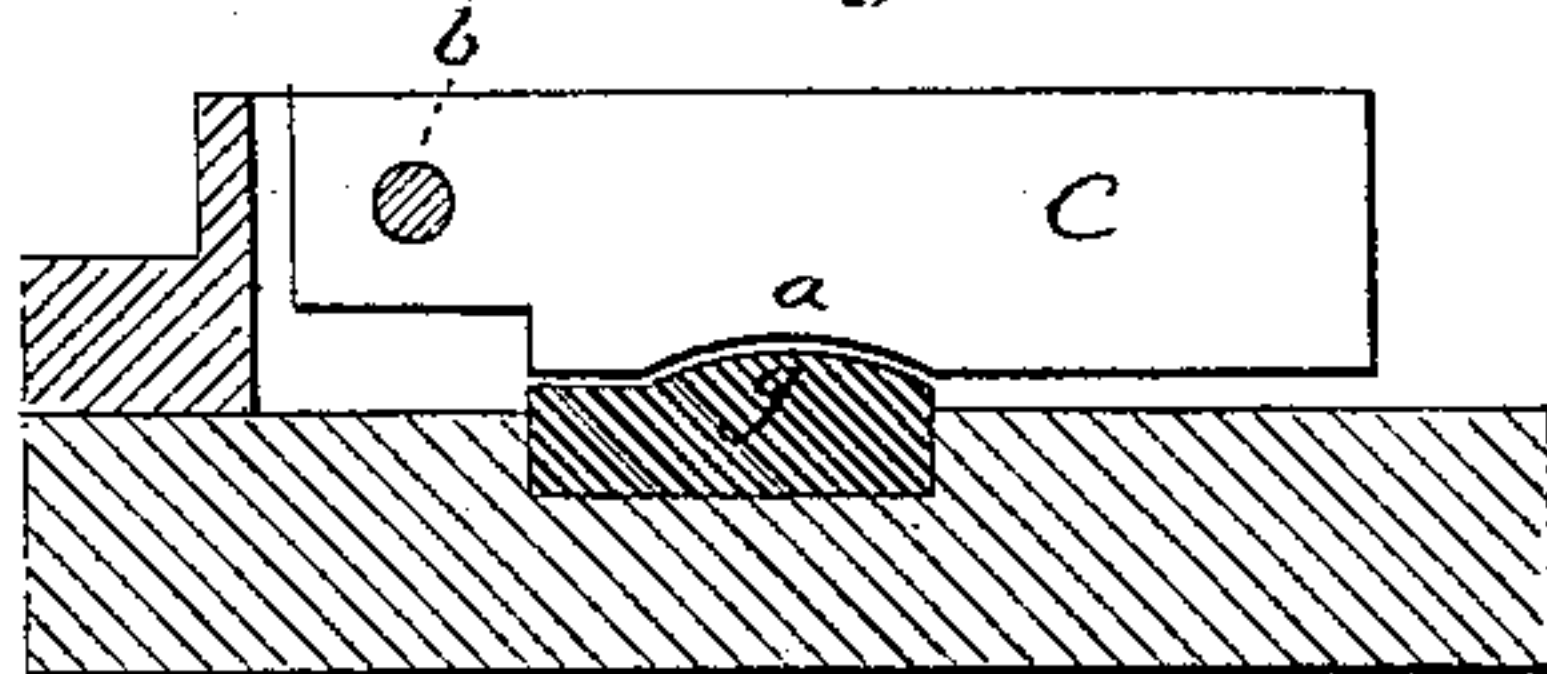
*Fig. 4.*



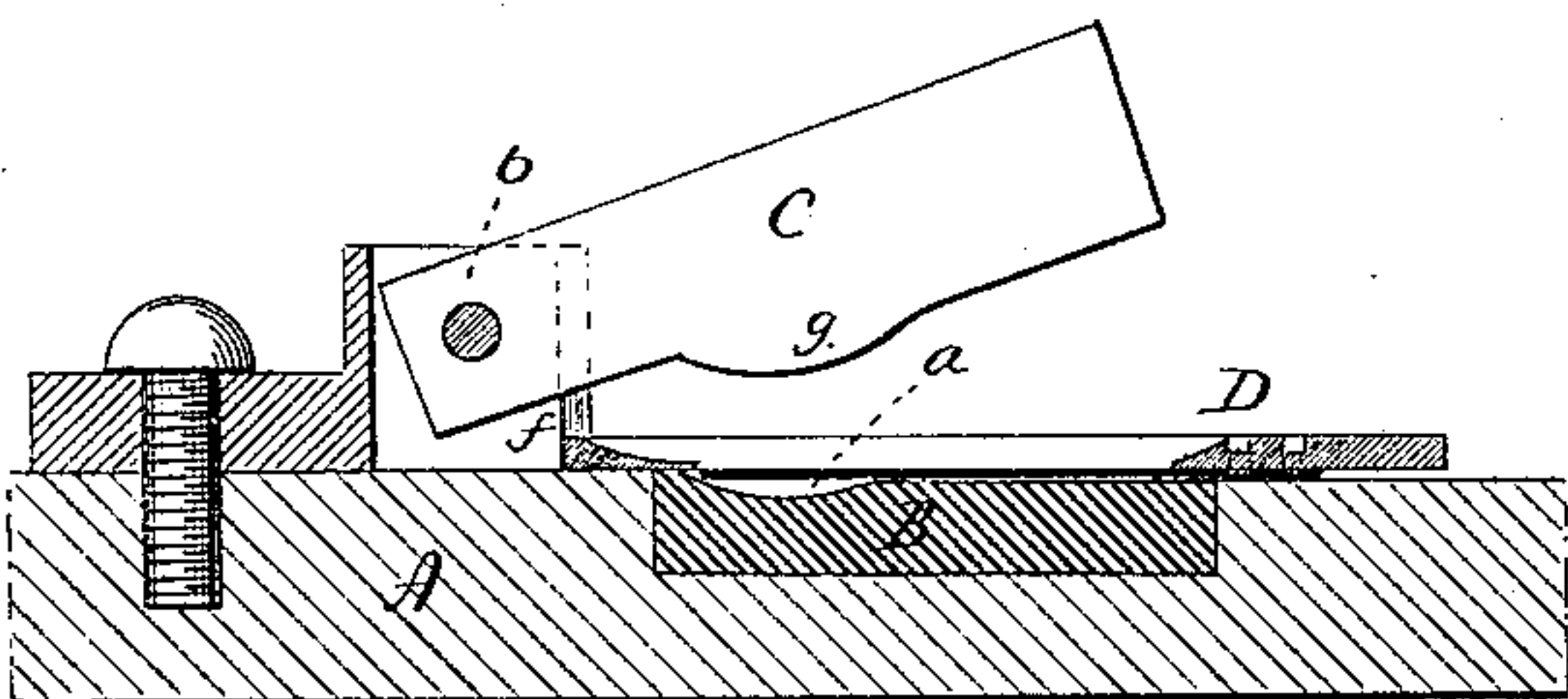
*Fig. 5.*



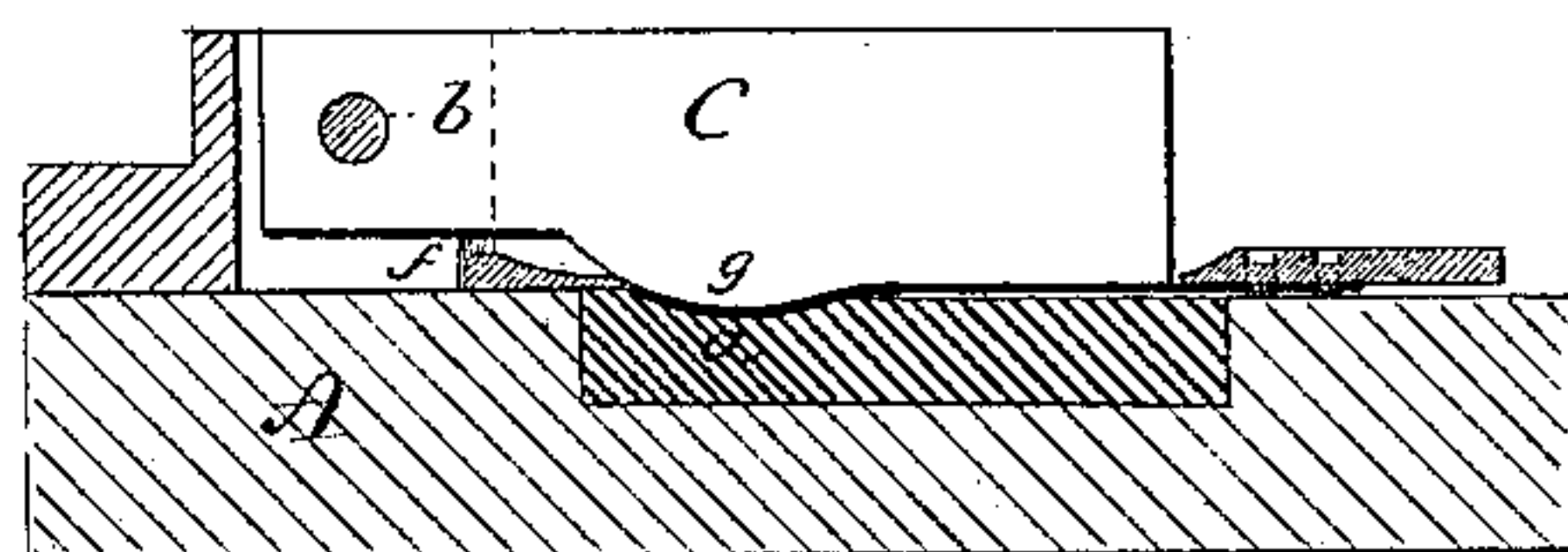
*Fig. 6.*



*Fig. 2.*



*Fig. 3.*



Witnesses.

*J. H. Shumway*  
*Fred C. Earle*

Edward H. White.

Inventor.

By Atty.

*Wm C Earle*



# UNITED STATES PATENT OFFICE.

EDWARD H. WHITE, OF MERIDEN, CONNECTICUT.

## APPARATUS FOR BENDING AND VOICING MUSICAL REEDS.

SPECIFICATION forming part of Letters Patent No. 336,368, dated February 16, 1886.

Application filed October 5, 1885. Serial No. 178,966. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD H. WHITE, of Meriden, in the county of New Haven and State of Connecticut, have invented a new Improvement in Apparatus for Bending and Voicing Reeds of Musical Instruments; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a top view showing five of a series of benders; Fig. 2, a transverse section showing a side view of one of the benders with the reed thereon preparatory to the bending operation; Fig. 3, the same, showing the bender in its down position as having bent the tongue of the reed; Fig. 4, a longitudinal section through a reed, showing the tongue previous to bending; Fig. 5, the same, showing the tongue after bending; Figs. 6 and 7, modifications of the bending device.

This invention relates to a mechanical device to give to reeds of musical instruments the desired quality of tone. Such quality is imparted to the reed by bending the tongue at the end, as seen in Fig. 5, a different bend producing a different quality of tone. This bending has hitherto been done by means of an instrument like a pair of round-nosed pliers, the voicer introducing the tongue between the nose of the pliers, then turning the pliers to some extent draws them longitudinally along the end portion of the tongue to give the requisite bend, drawing each reed as the work progresses until the desired quality of tone is attained.

The object of my invention is the construction of an apparatus whereby this work may be done mechanically, and with a very great degree of precision; and it consists in a fixed die and a hinged bender, the one adapted to receive and support the reed in its proper position, and the other to be turned into the opening in the reed, with a cavity in the one and a projection on the other corresponding to the bend required in the tongue, and so that the reed introduced between the two and the two brought together, the required bend will be given, successive instruments of graduated

size being employed for successive reeds in a set, as more fully hereinafter described.

In illustrating my invention I show a series of five setting or voicing instruments; but it will be understood that a set of instruments may include as many as there are reeds, each instrument being adapted to one reed of a set.

A represents the base or bed; B, a fixed die in the bed, and substantially flush with the surface of the bed, may be a rigid and permanent part of the bed, the said die being adapted to receive the reed face downward, and in its surface is a cavity, *a*, corresponding to the bend required to be made in the tongue. Over this die the bender C is hung upon a pivot, *b*, and so as to swing in a vertical plane parallel with the die B, and it in thickness corresponds substantially to the width of the tongue on the reed. The bed is provided with guides, say *d d*, between which the reed may be set, and also with a stop, *f*, adapted to receive the inner end of the reed, as seen in Fig. 2. On the under face of the bender is a projection, *g*, corresponding to the recess *a* below.

The reed D is introduced over the die B face downward, as seen in Fig. 2, properly located by the guides *d d* and the stop *f*, and so that the free end of the tongue stands over the recess *a* and beneath the corresponding projection *g*, as seen in Fig. 2. Then the bender C is forced down upon the tongue, as seen in Fig. 3, imparting to the tongue a bend corresponding to the projection *g* on the bender and the recess *a* below. Each succeeding die B and its bender C correspond to one of the reeds of the set, and so that one reed being bent by one bender, the next in the series will be bent by the next bender, and so on throughout the whole series or set of reeds.

The recesses and projections throughout the series are graduated to correspond to the respective tongues, and so that, being mathematically correct, the bends in the several reeds in the series will be correspondingly mathematically correct, and the quality of tone necessarily perfect throughout. This bending operation may be performed by a person without musical ear, and the work is done very much more rapidly than can be by the usual hand-bending operation.

While I prefer to make the cavity in the

bed and the projection on the bender, this order may be reversed, as seen in Fig. 6, making the projection *g* below and the recess *a* in the bender.

5 The die and bender may be made as two jaws of a pair of levers, like pinchers, as seen in Fig. 7 on a reduced scale; but I prefer to hang the benders to the bed in which the die is fixed.

10 I claim—

1. In an apparatus for bending and voicing reeds of musical instruments, the combination of a series of dies adapted to receive and support a corresponding series of reeds, with  
15 a corresponding series of benders arranged over said dies, said benders corresponding to the tongues of the reeds to be bent or voiced, and said benders adapted to be forced toward

their respective dies, each of said benders and dies constructed, the one with a recess, *a*, and 20 the other with a corresponding projection, *g*, substantially as described.

2. A device for voicing reeds, consisting of a die adapted to receive a reed and expose the tongue thereon, combined with a bender hung 25 to swing in a plane toward and from the die, the one constructed with a projection, *g*, and the other with a corresponding recess, *a*, the said bender adapted to enter the openings in the reed and give to the tongue a bend, sub- 30 stantially as described.

E. H. WHITE.

Witnesses:

JOHN E. EARLE,  
FRED C. EARLE.