

(No Model.)

F. H. RICHARDS.
METHOD OF MAKING VALVE GATES.

No. 496,136.

Patented Apr. 25, 1893.

Fig. 3

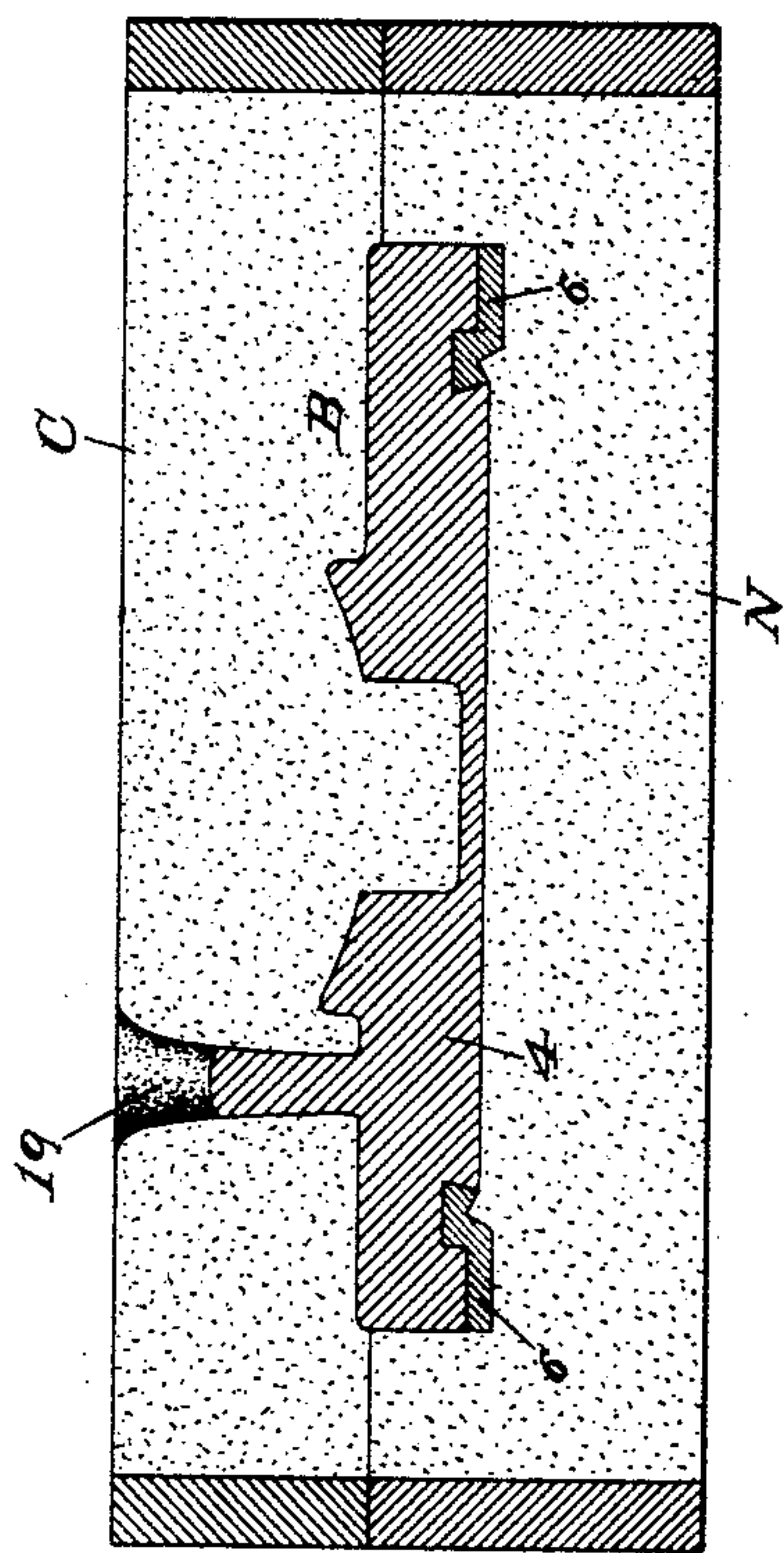


Fig. 4

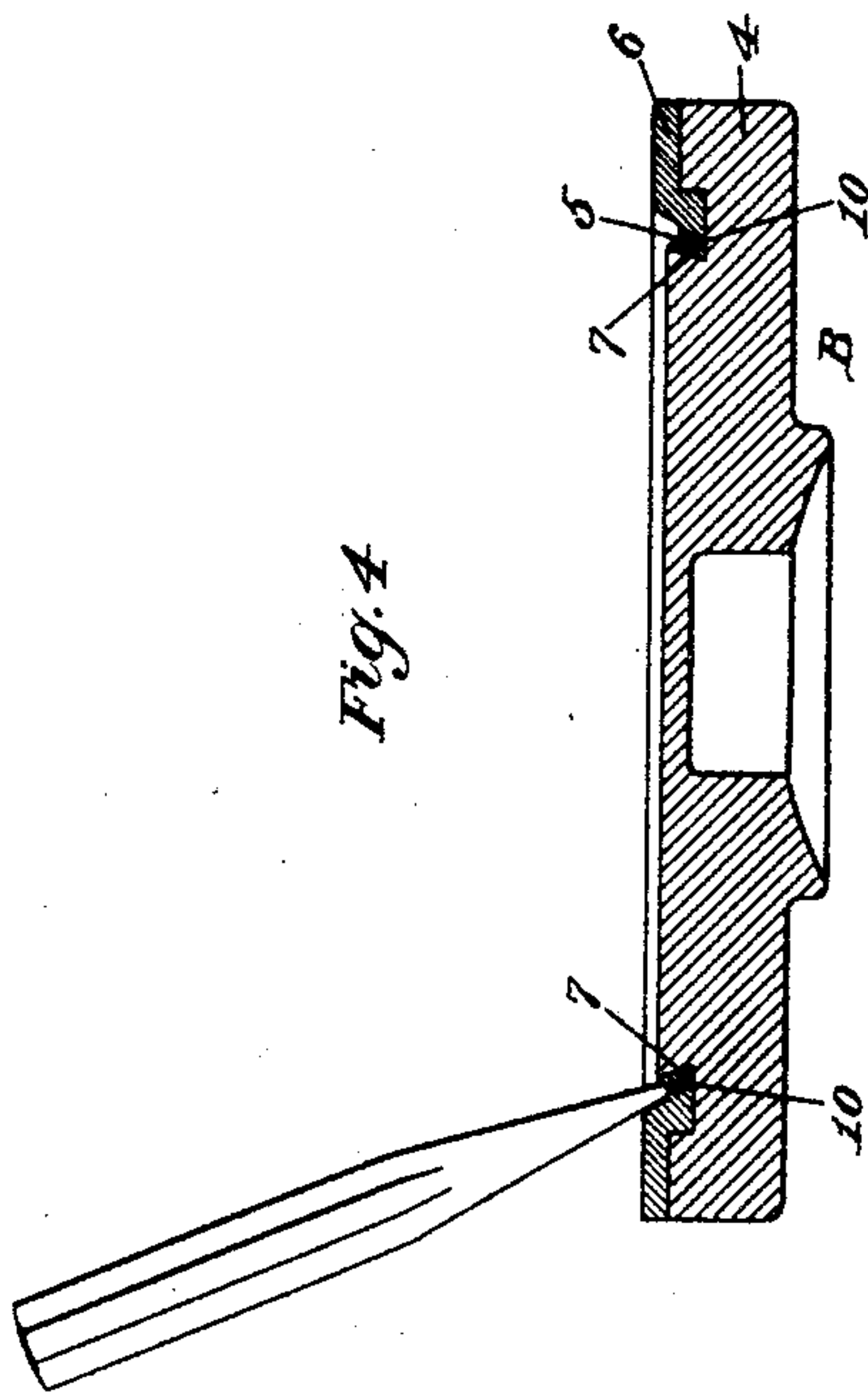


Fig. 1

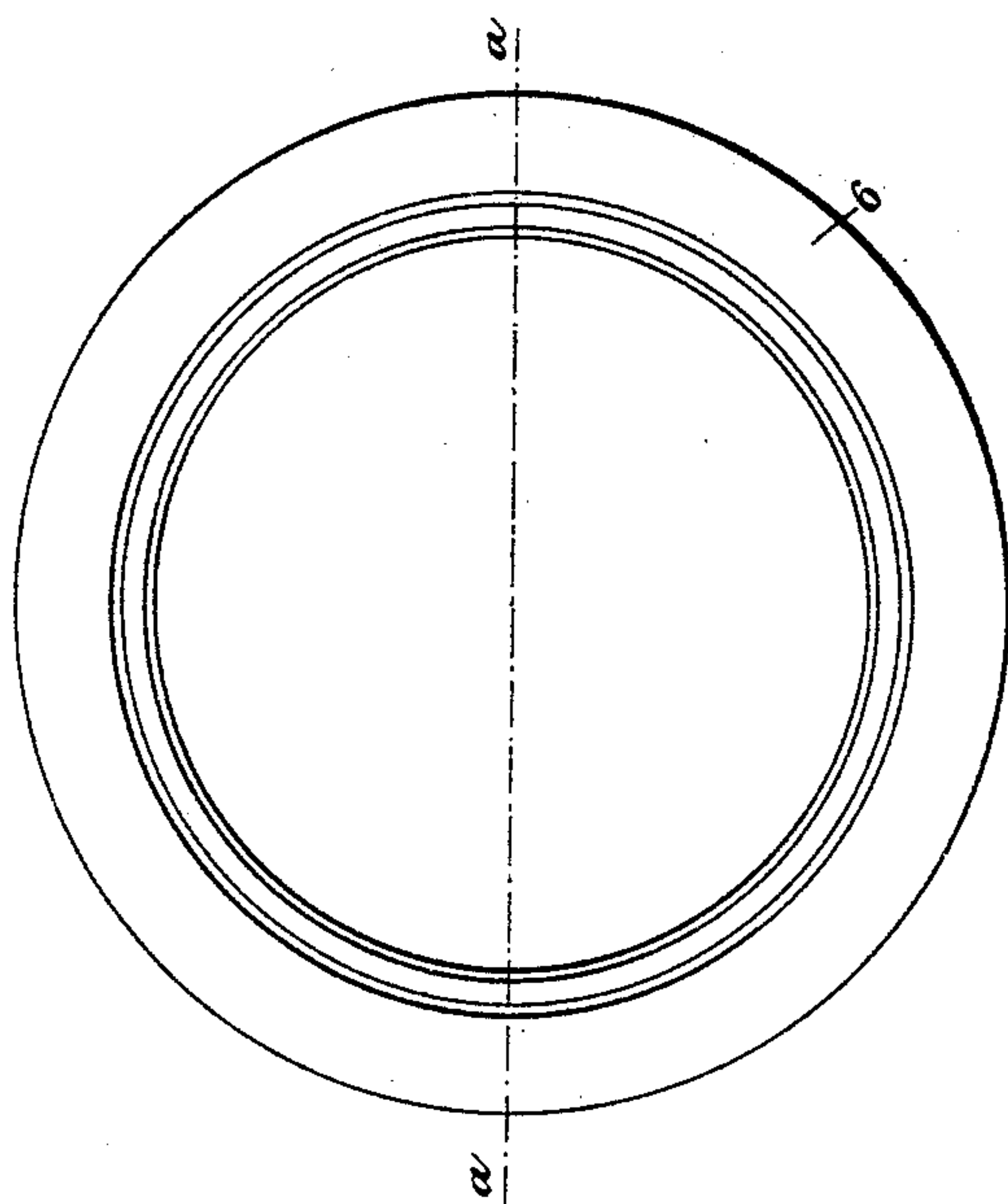
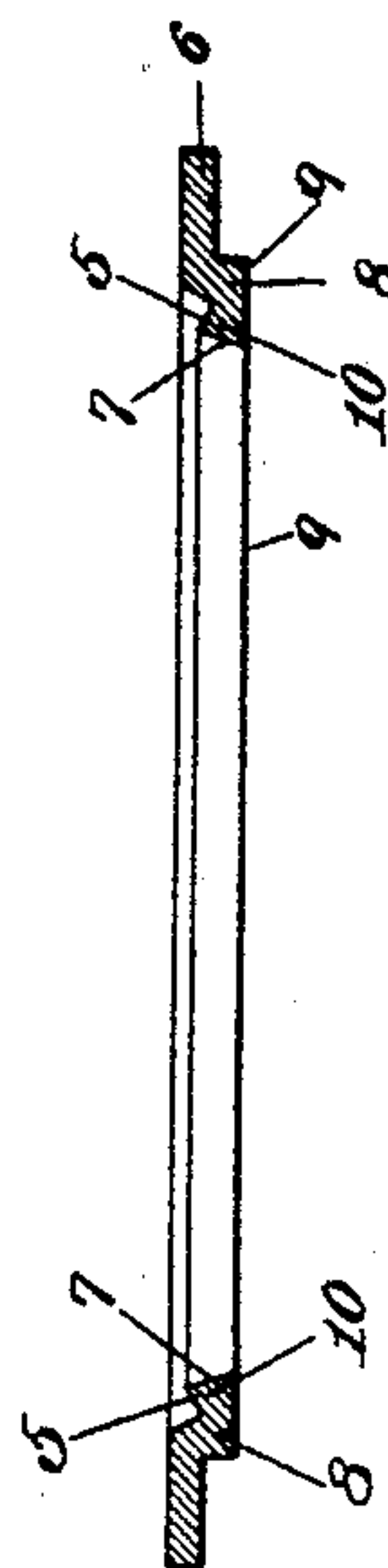


Fig. 2



Witnesses.

H. Malmer
Henry L. Reckard.

Inventor:

Francis H. Richards

UNITED STATES PATENT OFFICE.

FRANCIS H. RICHARDS, OF HARTFORD, CONNECTICUT, ASSIGNOR TO
WALTER WOOD, OF PHILADELPHIA, PENNSYLVANIA.

METHOD OF MAKING VALVE-GATES.

SPECIFICATION forming part of Letters Patent No. 496,136, dated April 25, 1893.

Application filed April 4, 1891. Serial No. 387,674. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS H. RICHARDS, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in the Method of Making Valve-Gates, of which the following is a specification.

This invention relates to the manufacture of brass-seated gates for that class of valves which are known as gate-valves; the object being to furnish a method or process whereby said valve-gates may be produced by successively casting the parts thereof.

In the drawings accompanying and forming a part of this specification, Figure 1 is a plan view of the face side of the seat ring. Fig. 2 is a vertical section of the seat-ring in line *a a*, Fig. 1. Fig. 3 is a vertical section through a suitable mold in which the plate or disk of the valve-gate may be cast onto the seat-ring. Fig. 4 is a central vertical section of a valve-gate made according to my invention, and illustrates also the operation of calking the seat-ring joint.

Similar characters designate like parts in all the figures.

The valve-gate shown in the drawings is described and claimed in Letters Patent of the United States No. 467,955, granted to me February 2, 1892.

The complete valve-gate is designated in a general way by B, and comprises the plate or disk 4 and the seat-ring 6 fixed to said plate. The plate 4 is usually made of cast-iron, while it is considered necessary to make the seat-ring of brass or like non-corrosive composition. Said ring consists, according to my improvements, of the seat proper designated by 6, and the locking-rim or flange 8, whose inner portion is shaped to form the calking-ring 10. The lock-rim 8 is widest on its lower side 9, so as to fit into the plate 4 after the manner of dovetailing, substantially as shown, the inner edge 7 of the calking-rim being beveled for that purpose.

The method of making the valve-gate is to first cast the seat-ring of suitable composition, and then lay it in the mold for casting onto

it the plate 4, after which the two parts are removed from the mold locked together as indicated in Fig. 4. The mold, which is shown in section in Fig. 3, consists of the nowel N and the cope C, set one upon the other in the usual manner. The seat-ring 6 is laid in the mold, and suitably secured by anchoring or by chaplets, whenever any fastening thereof shall be required; the lock-rim 8 of said ring projecting upwardly into the mold-space. The mold being prepared and the seat-ring properly placed therein, the molten metal for the plate 4 is poured into the mold through some suitable runner, as 19, until the mold-space is filled. The metal flows over the seat-ring and the dovetailed lock-rim thereof, and on cooling is firmly united thereto. When taken from the mold, the seat-ring, for various reasons including the well-known difference in shrinkage of the different metals, is imperfectly joined to the plate. To overcome this defect and make the joint perfectly rigid and water-tight, the upper side or calking-face 5 of the calking-ring 10 is driven down, or calked, throughout the length thereof, thereby displacing or setting the metal down and sideways, as illustrated by the darker shading at 10, Fig. 4, being thus expanded to closely fill the groove containing said rim, and thereby rigidly fix the seat-ring to the plate.

Having thus described my invention, I claim—

The herein-described process of making brass-seated iron valve-gates, which consists in casting the seat-ring with a projecting lock-rim having a calking-ring provided with an under-cut inner edge, casting the iron plate upon the seat-ring, and in locking engagement with said lock-rim and its calking-ring, and calking said calking-ring against, and in the direction of the under-cut face of the plate, to expand the seat-ring into firm locking engagement with the plate, substantially as set forth.

FRANCIS H. RICHARDS.

Witnesses:

HENRY L. RECKARD,
H. MALLNER.