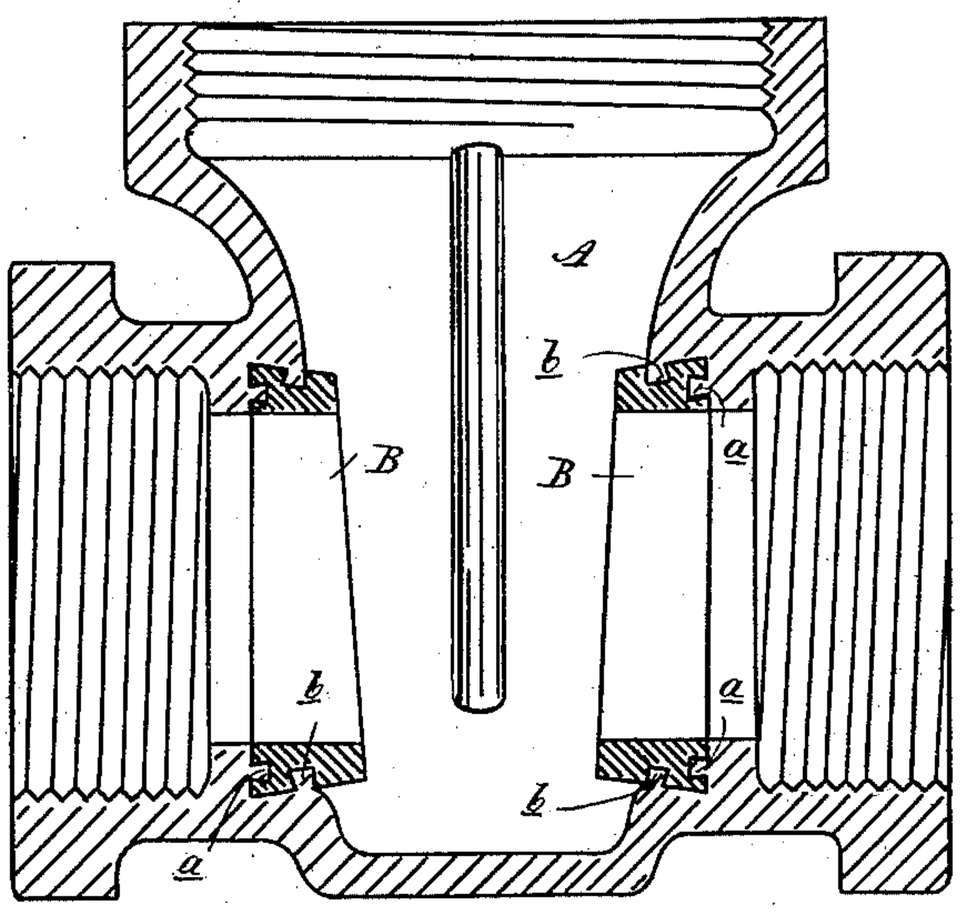
(No Model.)

A. WEBER.

CORE BOX.

No. 336,458. Patented Feb. 16, 1886.

Fig. 1



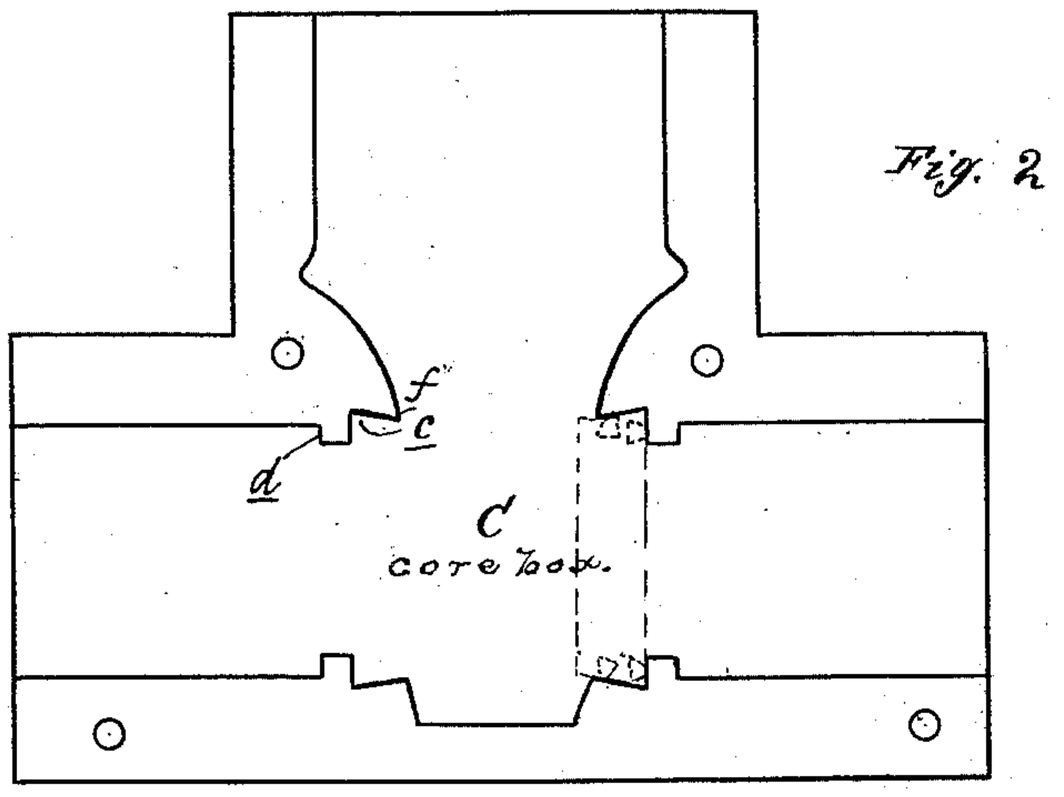
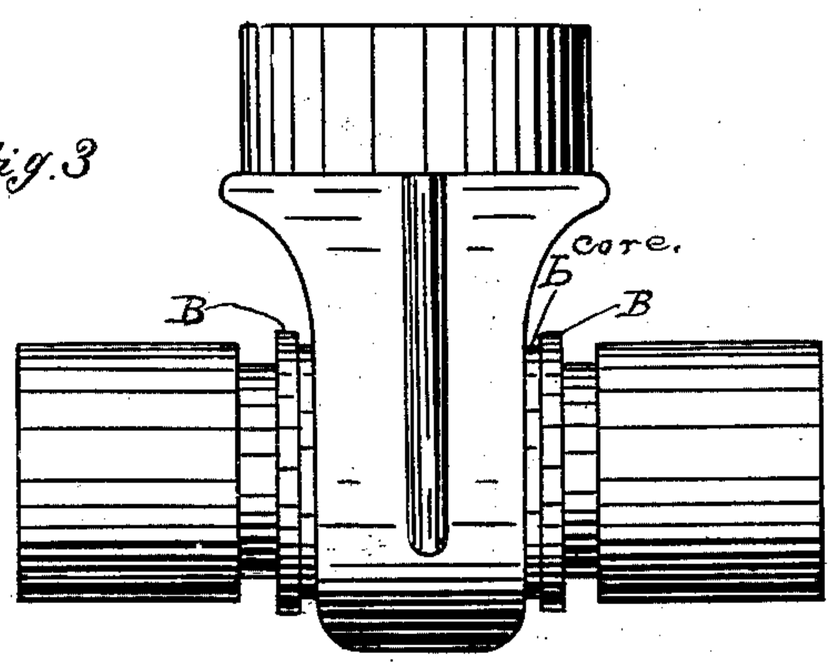


Fig. 2

Fig. 3



Attest:
John Schuman.
T. D. Sprague

Inventor:
Adolph Weber.
by his Atty
Thos. D. Sprague

UNITED STATES PATENT OFFICE.

ADOLPH WEBER, OF DETROIT, MICHIGAN, ASSIGNOR OF ONE-HALF TO H. W. ROOD, OF SAME PLACE.

CORE-BOX.

SPECIFICATION forming part of Letters Patent No. 336,458, dated February 16, 1886.

Application filed March 18, 1885. Serial No. 159,325. (No model.)

To all whom it may concern:

Be it known that I, ADOLPH WEBER, of Detroit, in the county of Wayne and State of Michigan, have invented new and useful Improvements in Core-Boxes for Manufacturing Valve-Cases; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to certain new and useful improvements in the core-boxes for manufacturing valve-cases wherein the cases proper are cast in iron and the water-ways are provided with brass valve-seats.

The novelty consists in the process of manufacturing a valve-case of iron having an annular brass valve-seat, all as more fully hereinafter described, and specifically pointed out in the claims.

Figure 1 is a vertical central section of my improved composite straight-way-valve case. Fig. 2 is a plan view of one-half of the core-box, in which the core is formed for the water-ways. Fig. 3 is an elevation showing the core carrying the annular-ring valve-seat.

In the drawings, A represents a straight-way-valve cage proper, cast in iron, provided with the usual inlet and outlet passages in line with and directly opposite each other, and which are of the usual and known patterns. The valve-seats B, at the inner end of each of these passages, are of brass. These valve-seats consist of brass rings of sufficient width, and between them the valve employed to cut off the flow of water is interposed. In order to prevent these rings from accidental displacement in the casing the outer edge face of each ring has formed therein an annular groove, *a*, and a similar groove, *b*, is formed in the outer flat face of each ring, so that in the process of casting the iron case the molten iron entering these grooves forms dovetailed joints, which rigidly holds the parts together, the grooves being of the proper shape to accomplish this end.

C is a core-box of the usual construction, except that each half thereof has the half of an annular groove, *c*, formed therein, so that when the two parts are put together there will be a perfect annular groove surrounding the recess in which the core is formed. These grooves are in the proper position to receive the ring-seats, which are inserted in one part of the core box, and when the two parts thereof are properly put together the brass rings B are held firmly in place in their proper relative positions to each other. The core is now formed in the box in the usual manner, and when the two parts of the box are removed the ring-seats will be found in their proper places on the core.

Now, it will be observed from the description of the process thus far given that it is highly important that the brass seats shall be tightly held in the core-box, and that the dovetail grooves *a b* in the brass seats B shall be protected from the possibility of being filled or partially filled with the core material when the core is being packed in the core-box.

To provide means for securely holding the seats and to protect these grooves is the object of the present invention.

The interior of the core-box is made to correspond with the form which the core is to assume at all points, except between the limits of the outer edges of the grooves *a b*. A dovetail recess, *c*, is formed in the core-box, which conforms to the form of the brass B, and it is formed by two projections, *d f*, as shown, the projection *d* covering the groove *a*. These grooves are shielded from the prepared sand or other material, which may be packed or rammed through either of the three openings shown, the projections *d f* protecting the grooves efficiently. By the use of the dovetail recess the seat is securely held in place, and yet the face side of the seat is left perfectly free and clear of the core-box, as is necessary in forming cores for casting this form of valve. When the core with its carried brasses is removed from the core-box, it reversely corresponds in contour with the core-box, except in the matter of the grooves *a b*, and in this respect my core, with its brasses, differs from ordinary cores wherein the core is an exact reverse of the core-box in which it is made. When the mold for the iron casting has been made ready in the usual manner,

this core is placed in the core-prints and the cope of the flask secured in place preparatory to pouring in the molten iron.

Brass, fusing at a less temperature than is required to melt iron, has in cooling a greater shrinkage than the iron; hence any attempt to cast brass and iron together is futile, for the difference in shrinkage between the two metals would draw them apart and break the joint. By this process, the brass ring-seats being cold, (and, as before remarked, brass fusing at a lower temperature than iron,) when the hot iron is poured into the mold and comes in contact with such brass ring-seats, such contact has a tendency to partially fuse the contact-face of such brass, thereby effecting a perfect juncture of the two metals, which is additionally secured by the dovetail locking together of the parts, as hereinbefore described. When valves are employed with straight sides, the seat-rings should sit in annular recesses in the core-box, the axis of which should be coincident with the axis of the core-box itself, and where wedge-shaped valves are employed the rings should be placed diagonal to the core.

In making this application for a patent I do so in pursuance of my announced determination so to do in my application for a composite straight-way-valve case, filed November 26, 1884.

What I claim as my invention is—

1. A core-box for making cores for casting valve-seats in composite valve-cases, having a dovetailed recess, as *c*, with its two sides arranged to firmly hold one side and the periphery of the ring, leaving the opposite side free and extending inward beyond the wall of the box, substantially as described.

2. A core-box for making cores from which to cast composite straight-way-valve cases, in which the brass seats B, having dovetail grooves *a b*, are to be held in one piece with the core, said core-box having recess *c*, whose sides are arranged to cover both grooves of the brasses, and to protect said grooves from the core material forced in the box, as set forth.

ADOLPH WEBER.

Witnesses:
H. S. SPRAGUE,
E. J. SCULLY.