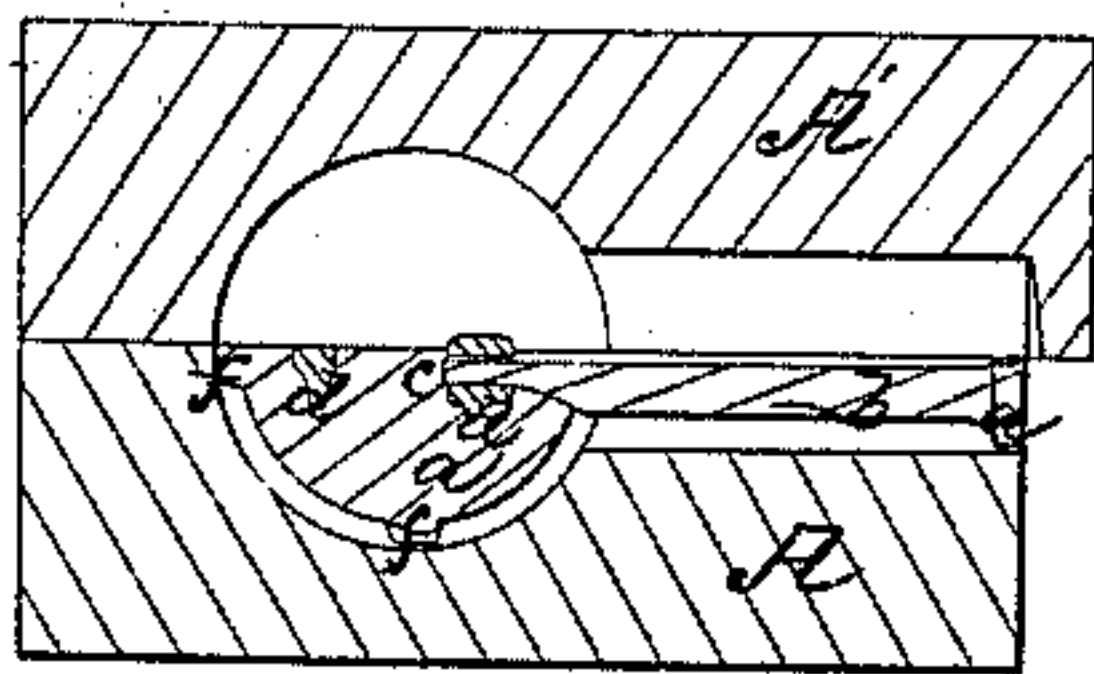


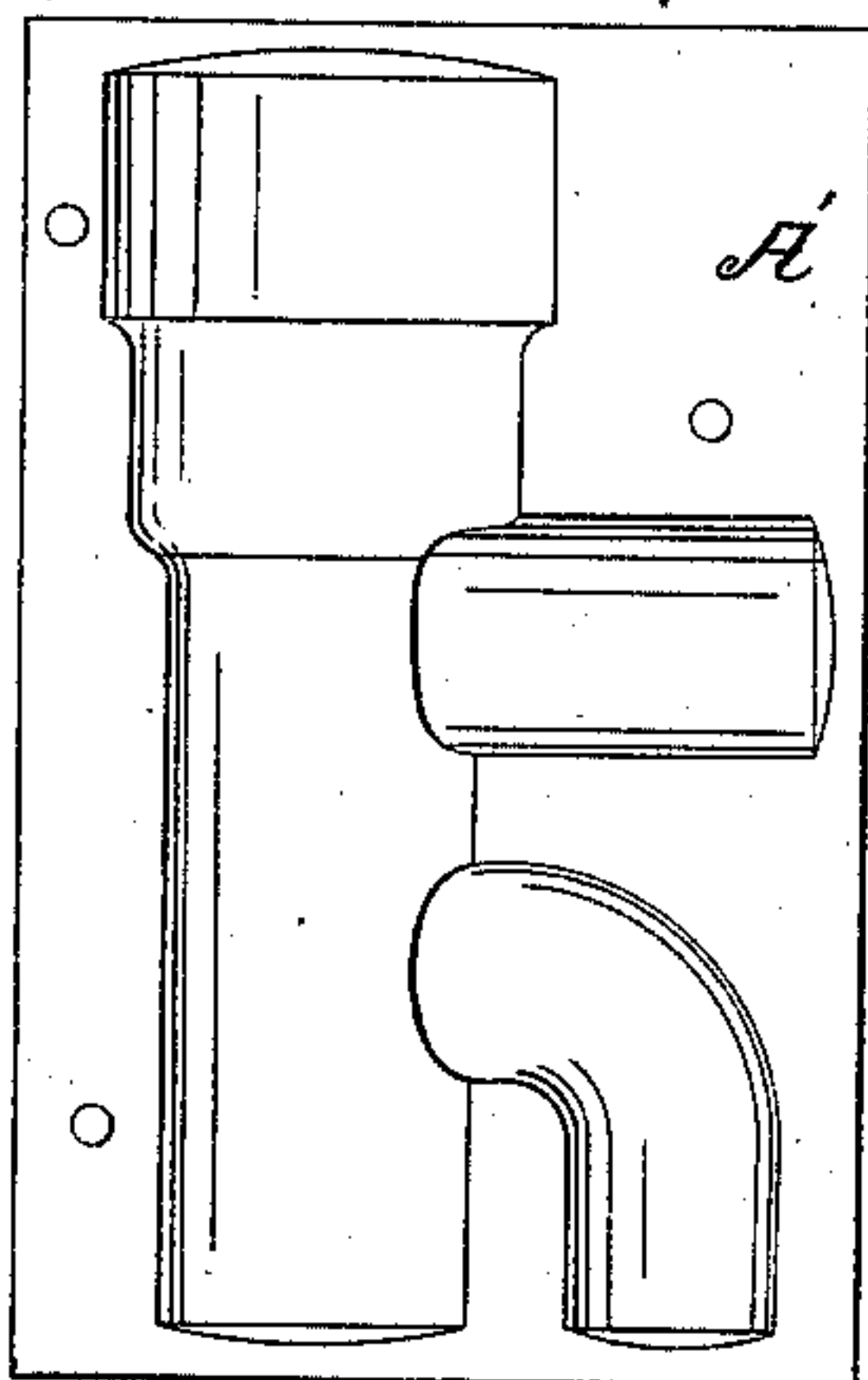
*J. P. Davis,*  
*Casting Curved Pipe.*

*N<sup>o</sup> 47,937.*

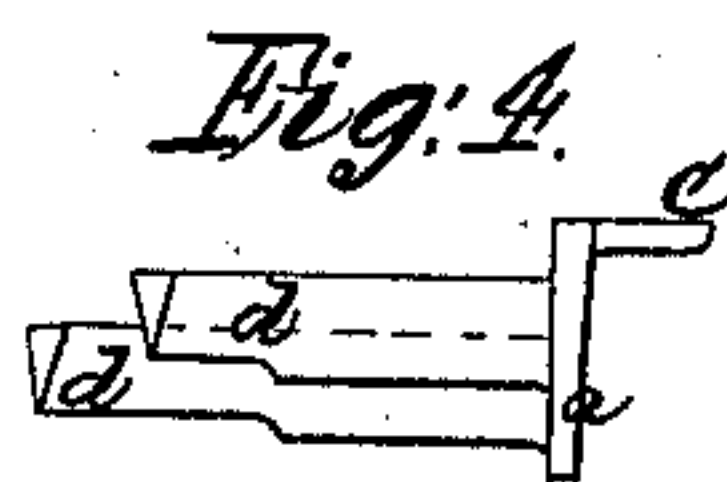
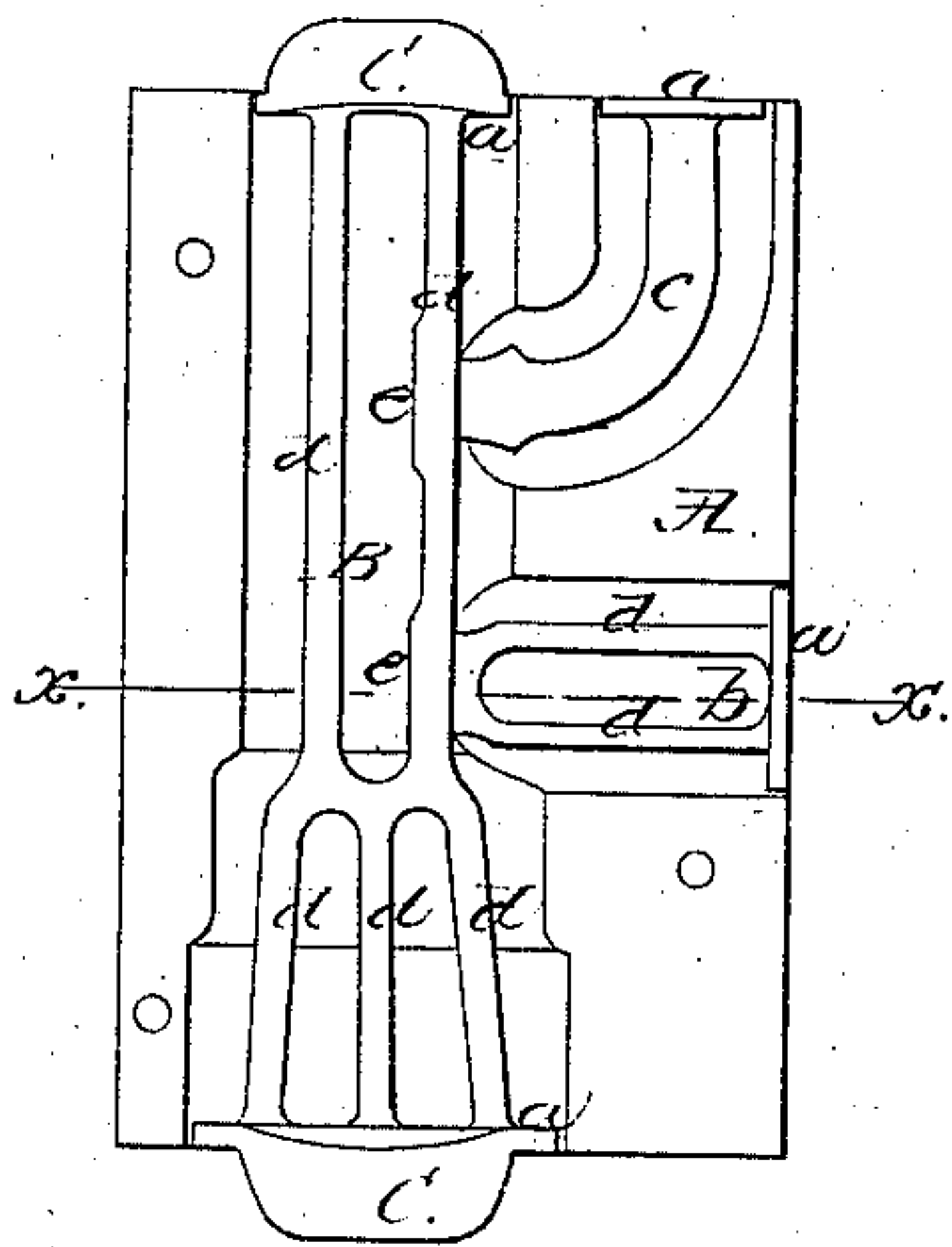
*Patented May 30, 1865.*  
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



*Fig. 4.*

*Witnesses.*  
*W. S. Brown*  
*C. L. Schliff*

*Inventor.*  
*J. P. Davis*  
*per Wm. H. Co.*  
*attorneys*

# UNITED STATES PATENT OFFICE.

J. P. DAVIS, OF MIDDLETOWN, CONNECTICUT.

## IMPROVEMENT IN MOLDING CORES.

Specification forming part of Letters Patent No. 47,937, dated May 30, 1865.

*To all whom it may concern:*

Be it known that I, J. P. DAVIS, of Middletown, in the county of Middlesex and State of Connecticut, have invented a new and useful Improvement in Molding Cores; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a transverse section of a core-box for molding cores of cylindrical or other form containing the core-arbor hereinafter described. Fig. 2 is a plan of the upper half of the core-box. Fig. 3 is a plan of the lower half of the box with the core-arbor in place therein. Fig. 2 is a side view of a portion of the arbor, showing one end thereof in side view.

Similar letters of reference indicate like parts.

This invention consists in a novel construction of core-arbors for molding cores for articles of cylindrical or other form, by the use of which one can make green-sand cores with branches of any shape.

A A' represent the two halves of a core-box.

B is the core-arbor, which in this example is made for molding a pump-cylinder, with branches *b* and *c*. It is a skeleton made of metal, consisting of bar or bars *d*, of a length equal or nearly equal to the length of the half A of the box, each of the ends of the bars terminating in plates *a*, set at right angles therewith, and extending radially beyond the bars, so that when the plates *a* rest on the bottom of the box they will raise the arbor above the surface of the core. These plates may have smooth peripheries or broken peripheries. In Fig. 1 the plate *a*, which supports the end of the core there seen, is shown with a broken periphery, the points of contact with the bottom of the box being points *f* on the bottom and sides of the plate. The bed or depression in the part A of the core-box is open at each end of the box; or, in other words, it extends through the same from one end to the other; and the plates *a* are of such a size as to fit therein with sufficient accuracy to hold the arbor in its proper place. They may also come out flush with the box.

C C are horizontal plates extending outward

from the upper edges of the vertical plates *a*, and they are intended for handles by which to set the core. Fig. 4 shows the relative positions of the handle C, the vertical plate *a*, and the bars *d* at one end of the arbor. If branches are to be made in the work, the core-box is prepared accordingly, and mortises *e* are made in the arbor at suitable points to receive the tongues of branches *b c*, or of branches of any other shape desired. The branches *b c* here shown are meant to illustrate this part of my invention. The branches are formed of several ribs, *d*, like the main core-arbor, or of one, like the example shown in the branch *c*. Their ends also terminate in plates *a*, set vertically across the ends of those depressions in the core-box which are made to receive the branches. These vertical end plates, *a*, are flush with the sides of the box, and their height, as well as the height of the plates at the end of the main arbor B, is such as to bring them nearly level with the surface of the box A. The branches *b* and *c* are connected with the main arbor by means of tongues on their inner ends, which fit into mortises *e*, made for them in the sides of one of the bars *d*. The core-arbor being properly placed in the part A of the box, sand is packed around the arbor, filling the depressions of the box, when it is struck off level. The other half of the box, A', is then filled with sand, without an arbor or skeleton of any kind, and the sand struck off level with the surface of the box. The part A of the core-box is then laid upon the other part, A', and the whole is then turned over, so as to bring the part A beneath when the part A' of the core-box is removed, leaving its core upon the top of the core and the arbor in the half-box A. The whole core is next lifted out of the half-box A by means of the handles C C, and is set in the proper mold for the operation of pouring or casting.

This invention enables me to make cores of greensand, without branches or with branches of any shape.

The vertical end plates, *a*, at the ends of the main arbor and at the ends of its branches, when branches are used, correspond in shape with the cavity or depression made in the half-box for the core, and so support the arbor and its branches, and keep all in their proper places, and at the same time form walls at the ends of the core, which prevent the sand from



giving away or falling or crumbling off when the core is lifted out.

Arbors have been heretofore used for both parts of the core separately, when the core is afterward baked, called the "dry-sand" process.

In perpendicular core-making the core-box is clamped together and set upright, and the arbor is placed within it centrally, or nearly so. In making cores by the latter process it is difficult to make them with branches; but by my method I am able to make the cores not only of any form, but also with branches,

curved or in straight lines, with green sand, and without the necessity of baking them, as has heretofore been necessary in making cores in divided core-boxes.

I claim as new and desire to secure by Letters Patent—

A skeleton arbor for green-sand cores, constructed with supporting-plates *a a* and handles *C C*, arranged as herein specified.

J. PHELPS DAVIS.

Witnesses:

JAS. P. HALL,

WM. I. MCNAMARA.