

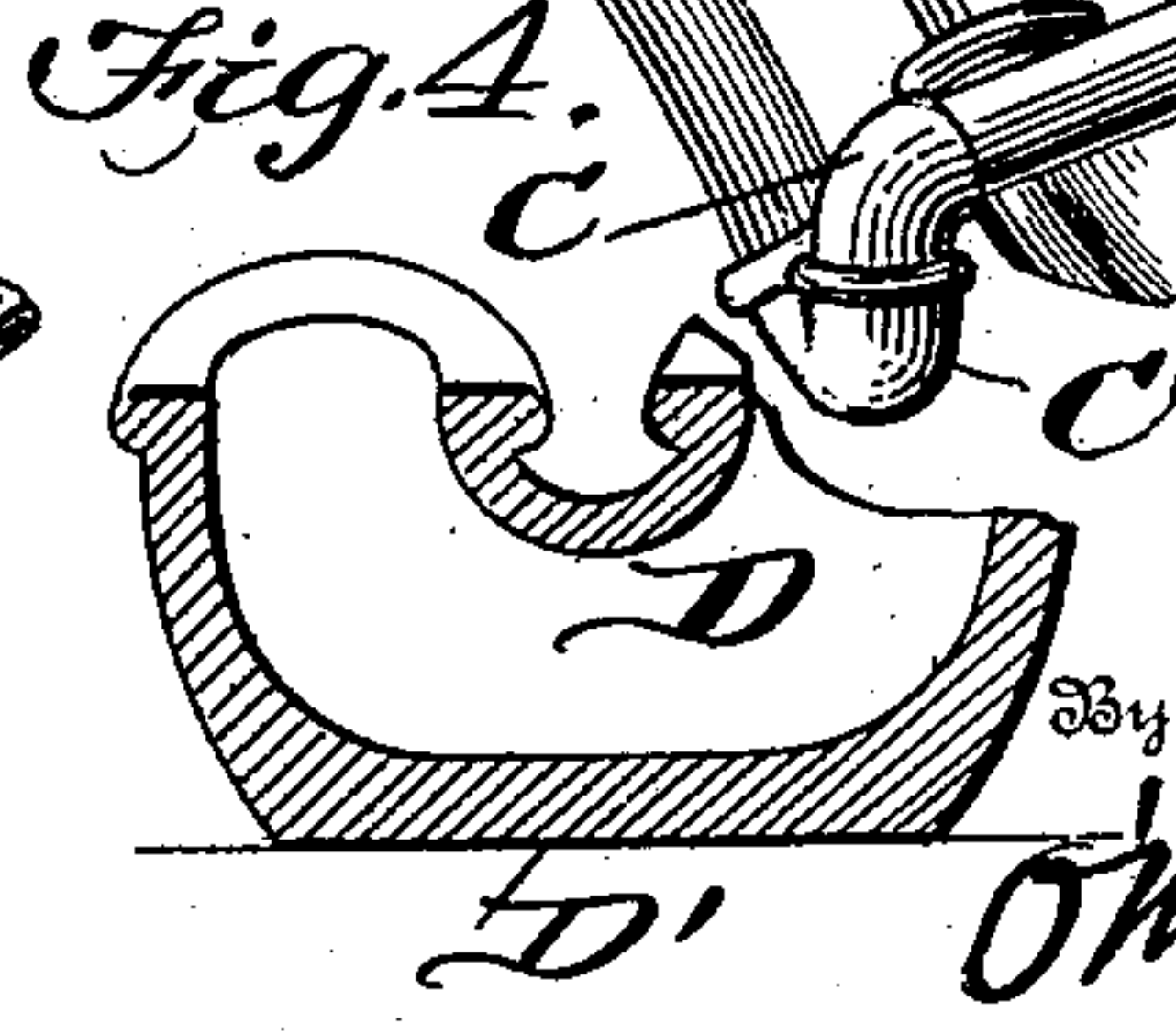
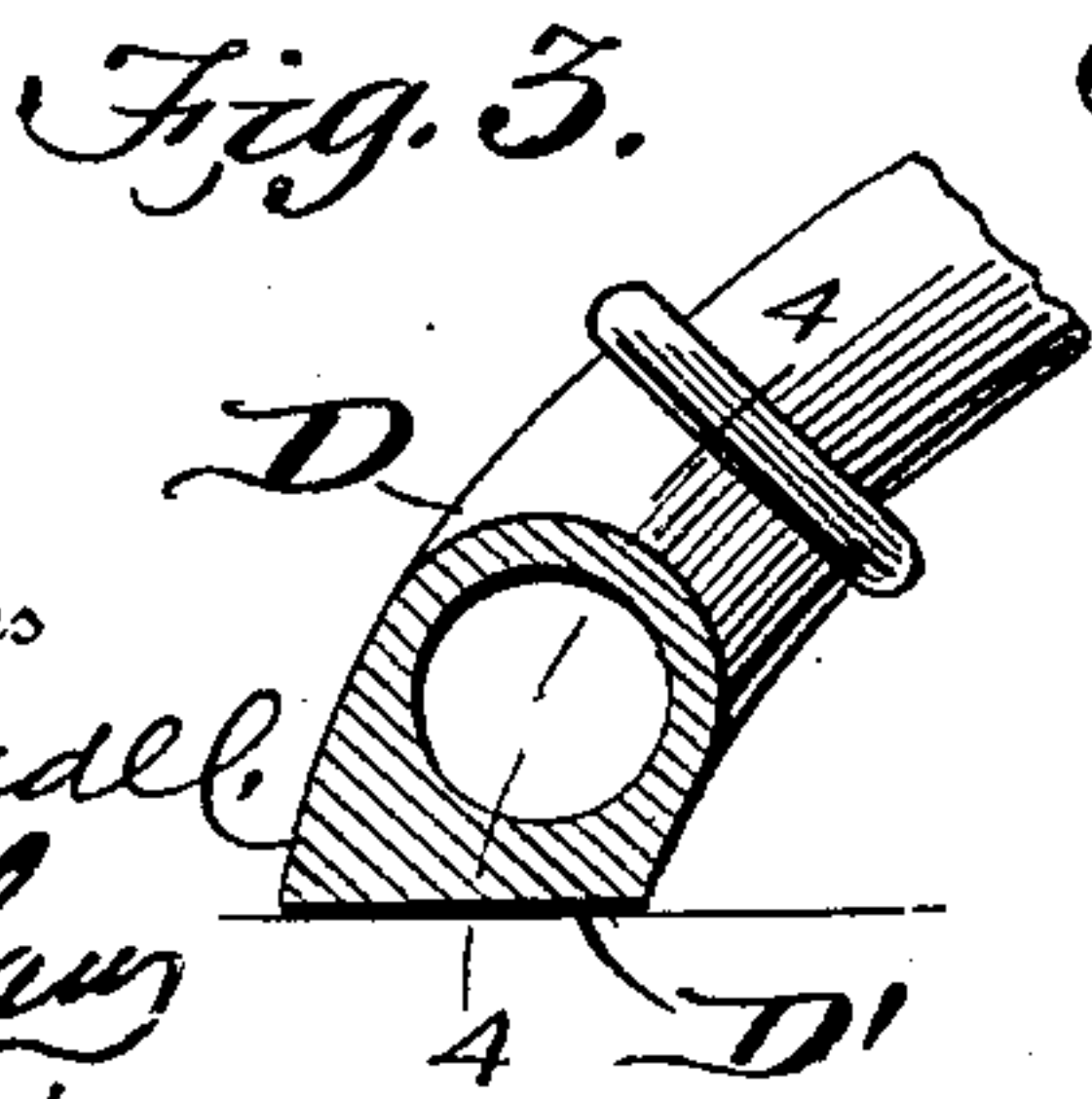
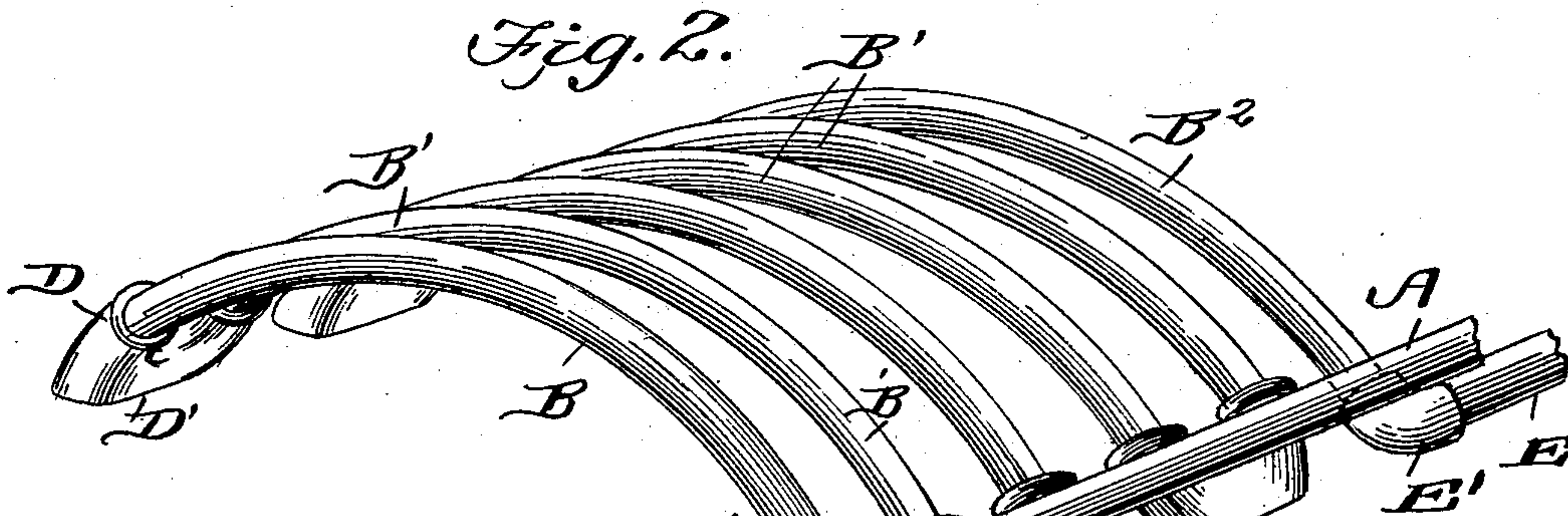
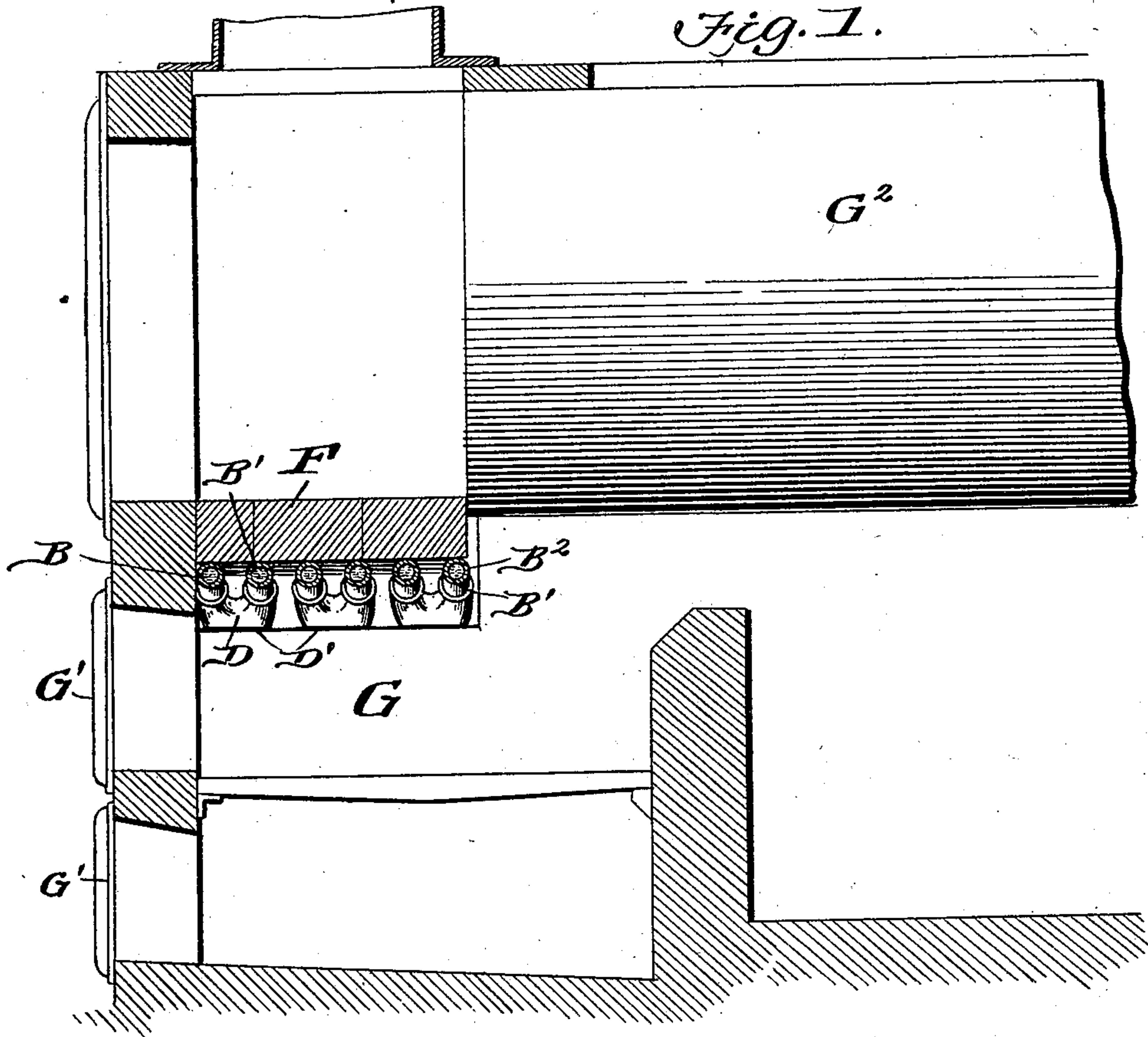
No. 728,762.

PATENTED MAY 19, 1903.

I. M. RILES.
WATER ARCH.

APPLICATION FILED OCT. 27, 1902.

NO MODEL.



Inventor

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UNITED STATES PATENT OFFICE.

IRA M. RILES, OF MONTBROOK, FLORIDA.

WATER-ARCH.

SPECIFICATION forming part of Letters Patent No. 728,762, dated May 19, 1903.

Application filed October 27, 1902. Serial No. 128,989. (No model.)

To all whom it may concern:

Be it known that I, IRA M. RILES, a citizen of the United States, residing at Montbrook, in the county of Levy and State of Florida, have invented a new and useful Water-Arch, of which the following is a specification.

My invention is an improvement in arches for furnaces, and is especially designed to support the brickwork common in steam-boiler furnaces of the stationary type. It is common in such furnaces to support the brickwork by means of solid cast-steel arches, which burn out in a short time, requiring a shut-down of the plant until a new arch is put in and the brickwork is rebuilt.

The object of my invention is to overcome this disadvantage in the present construction of furnace-arches by means of a steel-tube arch through which cold water is circulated, thereby preventing the burning out of the arch and the overheating of the brickwork above it, it being understood that this arch is used in supporting the brickwork in front of the boiler and over the furnace-door.

In the drawings forming part of this specification, Figure 1 is a view, partly in section, showing the application of my device. Fig. 2 is a perspective view showing the construction of my arch. Fig. 3 is a section taken centrally through one of the shoes. Fig. 4 is a section on the line 4 4 of Fig. 3.

In carrying out my invention I employ a pipe A, leading from a reservoir of cold water, (not shown,) and just above and in the rear of the door of the furnace or under the front of the brickwork to be supported is an arch-pipe B, connected to the pipe A by the elbows C C'. At its opposite end the pipe B is fitted into a return-elbow D, having a flat shoe D', and a second pipe B' arches over, parallel with the pipe B, to a point adjacent to the pipe A, stopping short of that pipe, where it is fitted into an elbow D², having a flat shoe D³, and this construction is repeated until the arch is of the desired width. The rearmost pipe in the arch, which is designated B², passes below the pipe A and is secured by an elbow E' to a pipe E, which extends rearwardly beneath the pipe A and is connected to the injector. (Not shown.) It will be seen that both pipe A and E are adapted to be sup-

ported by the masonry work—the pipe A by resting on the elbow C' and the pipe bearing on the supports at the elbow E'. The flat shoe D' D³ form a substantial support for the arch, by means of which it is firmly borne by the side walls of the furnace. When the arch has been placed in position, the brick or stone work F is placed over it.

In Fig. 1, G designates the furnace, G' the doors, and G² the boiler. These, however, can be of any construction, and any means may be employed for forcing water through the arch.

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

1. The combination with a furnace, of an arch formed of a plurality of pairs of metal tubes, elbows having flat shoes connecting each pair of tubes on each side of the arch, said shoes being adapted to support the arch, and means for conveying water to and from the tubes.

2. The combination with a furnace, of an arch formed of a plurality of pipes, elbows on each side of the arch coupling the pipes in pairs, said arch resting on the elbows, an arch of masonry supported by the pipes, and means for circulating water through said arch.

3. A water-arch of the kind described comprising a plurality of pipes, elbows on each side of the arch coupling said pipes in pairs, the elbows on one side coupling pipes connected to two elbows on the opposite side, a supply-pipe extending longitudinally along one side of said arch and having a supporting-elbow at its forward end, said elbow connecting said pipe to the forward pipe of the arch, and a discharge-pipe having a supporting-elbow connecting it to the rearmost pipe of the arch, and masonry work laid over said arch.

4. The combination with a furnace, of an arch formed with pipes arranged in pairs, elbows having flat shoes connecting said pairs, and means for conveying water to and from the pipes forming the arch.

IRA M. RILES.

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