(No Model.)

F. DYER.

FLOOD VALVE FOR DRAINS.

No. 265,310. Patented Oct. 3, 1882.

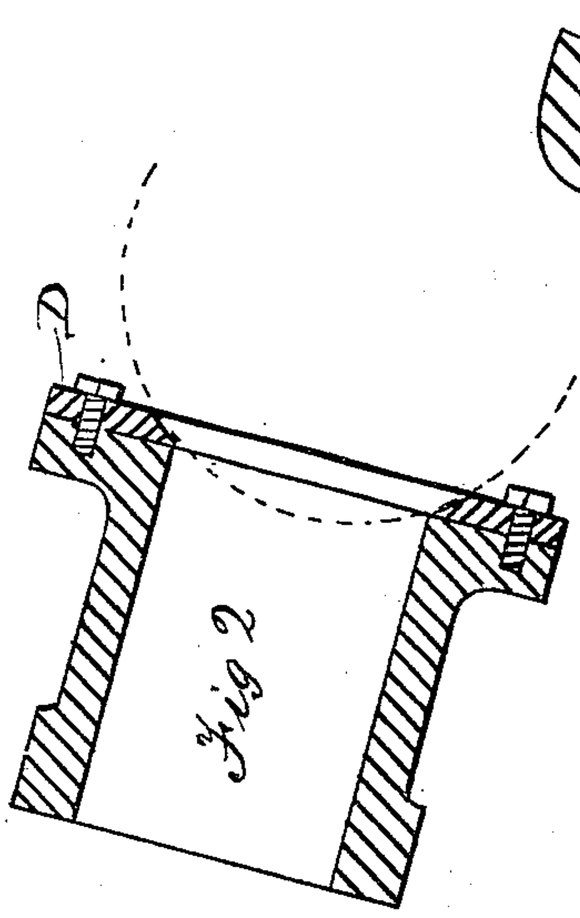


Fig 2

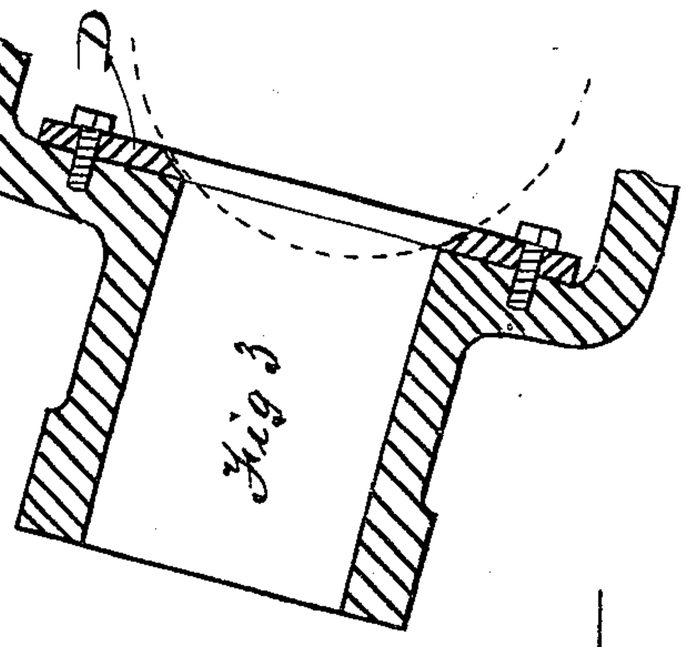
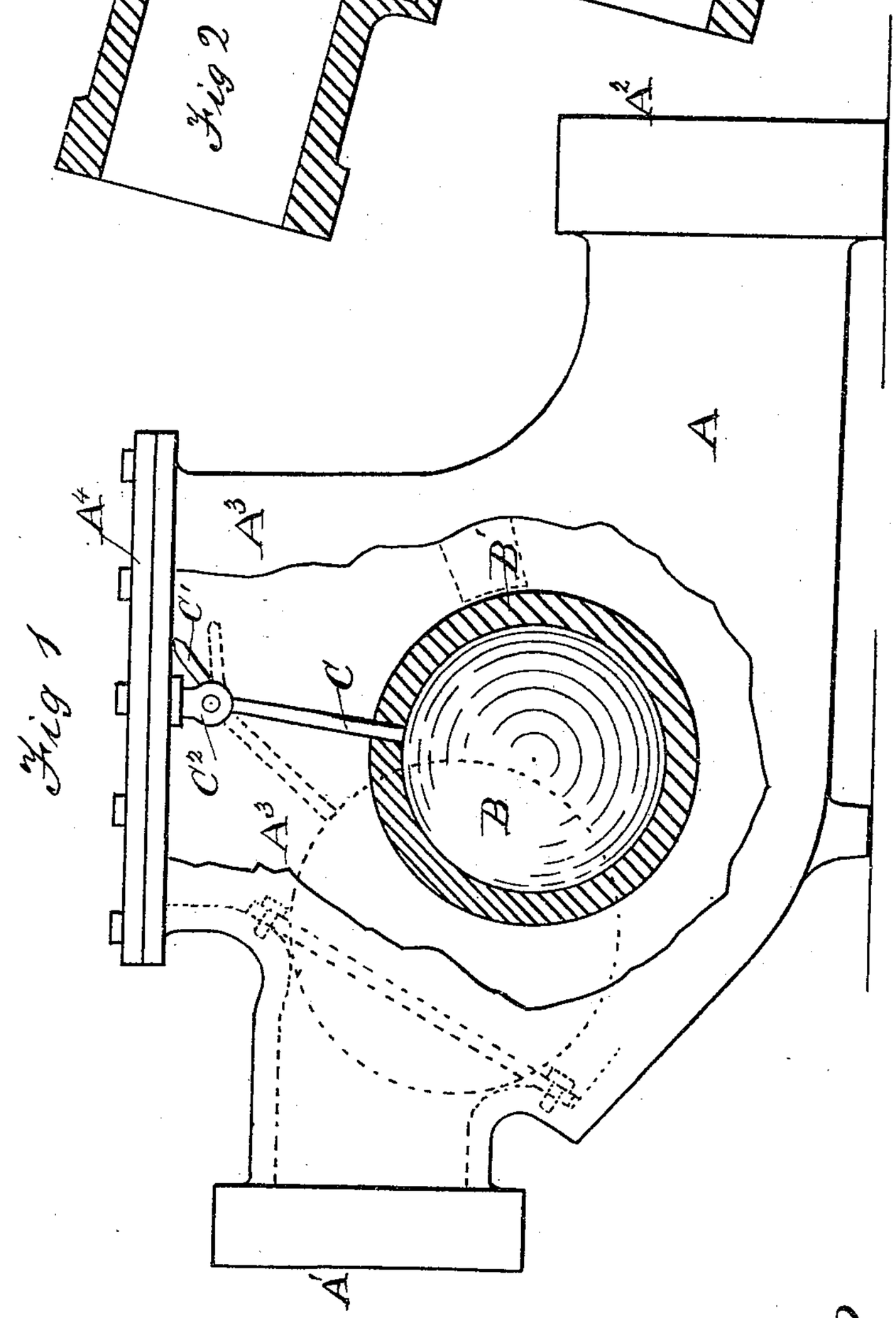


Fig 3



Witnesses
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UNITED STATES PATENT OFFICE.

FREDERICK DYER, OF CAMDEN TOWN, COUNTY OF MIDDLESEX, ENGLAND.

FLOOD-VALVE FOR DRAINS.

SPECIFICATION forming part of Letters Patent No. 265,310, dated October 3, 1882.

Application filed February 7, 1882. (No model.) Patented in England September 23, 1881, No. 4,115.

To all whom it may concern:

Be it known that I, FREDERICK DYER, of Camden Town, in the county of Middlesex and Kingdom of Great Britain, have invented a new and useful Flood-Valve for Drains, (for which I have obtained Letters Patent in Great Britain, No. 4,115, bearing date the 23d day of September, 1881,) of which the following is a specification.

The object of this valve is to prevent the inroad of high tides and floods into buildings through the drain-pipes, and it should be fixed to the drain in some convenient place between the building and the outfall.

The valve and its operation will be best understood by reference to the drawings, which accompany and form part of this specification.

Figure 1 is an elevation, with part of the side broken away, of a usual form of my improved valve. Fig. 2 is a section of the intake branch and seating-ring with the ball-valve in place. Fig. 3 is also a section of the intake branch, showing the seating-ring when applied from the inside of the chamber.

A is the valve chamber, made of cast-iron, earthenware, or the like, and having an intake branch, A′, at a higher level than the outfall branch A^2. The outfall branch may with advantage be made larger than the intake branch, and is shown thus in the drawings. A hollow ball, B, preferably of copper, covered with an india-rubber coating, B′, hangs by an arm, C, freely from a joint, C^2, at the upper portion, A^3, of the chamber A; or the joint may be attached to the movable cover A^4. The sail C′ of the arm C projects at an inclination upward, so as to come in contact with the cover A^4 or part of the joint before the arm C has dropped to a perfectly vertical position. The same result may be attained by providing a lug or projection within the chamber A, as shown in dotted lines in the drawings, for the ball to rest against.

The joint C^2 may either be screwed into the cover or the arm C may be attached to a horizontal rod extending across the orifice under the cover A^4, and taking bearings in lugs upon each side of the upper portion, A^3, of the chamber A. A seating-ring, D, of brass, vulcanite, or other incorrodible material, or such as is not easily corrodible, is placed upon the inner end of the intake branch A′. This is turned true and forms a seating for the ball to fit into when raised.

The branch A′ may be formed separate from the main body and bolted on; or the whole may be made in one piece. In the former case the seating-ring would be placed between the flanges, as shown in Fig. 2. In the latter it would be bolted on inside, as shown in Fig. 3.

As difficulty is sometimes experienced in applying the rubber coating B′, an ordinary ball of copper or the like may be substituted and the seating-ring D be formed of soft rubber for it to bed against.

The action is as follows: The tide or flood backing up the drain enters the outfall branch A^2, rises in the chamber, and floats the ball B, which, as the water rises, approaches the intake branch A′, and finally beds firmly upon the seating-ring D, thus effectually closing the orifice and preventing the water entering the building. By reason of the arm C being always slightly inclined toward the intake branch A′ there is no danger of the ball sticking with the arm vertical or of its moving the wrong way, the tail C′ preventing that. When the water subsides again the ball falls with it, unsealing the branch A′ and leaving a clear passage. The chamber should be considerably larger than the ball, so as to leave plenty of room for the passage of soil, &c. The ball is larger than the seating-ring, so as to obviate any danger of its jamming in the seating.

If the chamber A be made of earthenware or other incorrodible material, the seating-ring may be dispensed with and the seating be merely turned true.

The ball could be made of metal only, but would require careful fitting to the seat, and would be liable to be prevented from coming to a proper bearing by dirt, or it could be made of rubber only; but in this case I find that it is liable to get pressed out of shape and so not make a secure seal; therefore I consider the metal ball covered with rubber to be the best.

The arrangement, as described above, is suitable for most drains of ordinary construction; but it is manifest that the shape of the chamber A admits of considerable modifications to suit different circumstances. Thus, in the case of a very deep fall, it might be advantageous

to place the intake and outfall branches nearly or quite vertical, and the ball-arm C approximately horizontal and provided with an extra support, if necessary. The action in both cases would be similar.

Having now described my invention and the method of performing the same, I wish it to be understood that what I claim, and desire to protect by Letters Patent, is—

In a flood-valve for drains, the combination, with the drain A, provided with a valve-seat, D, of the spherical float-valve B, rigidly connected with a lever, C, bent to form a stop, C′, whereby said valve is pivotally suspended in the drain-pipe and prevented from assuming a vertical position, substantially as and for the purpose specified.

FREDERICK DYER.

Witnesses:
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