

J. L. GISH.
 REGULATED AUTOMATIC CLOSING VALVE.
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946,217.

Patented Jan. 11, 1910.

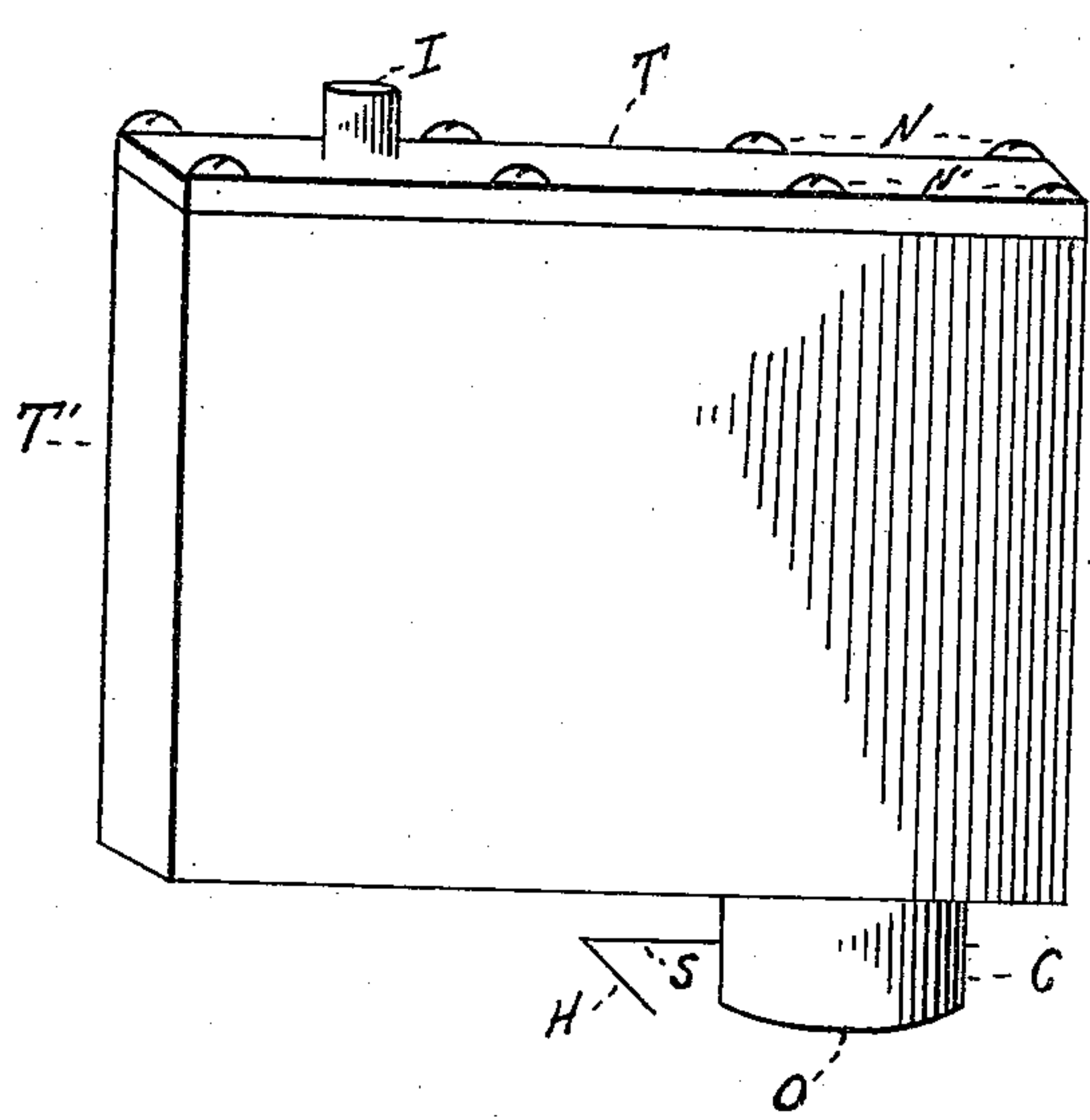


Fig. 1.

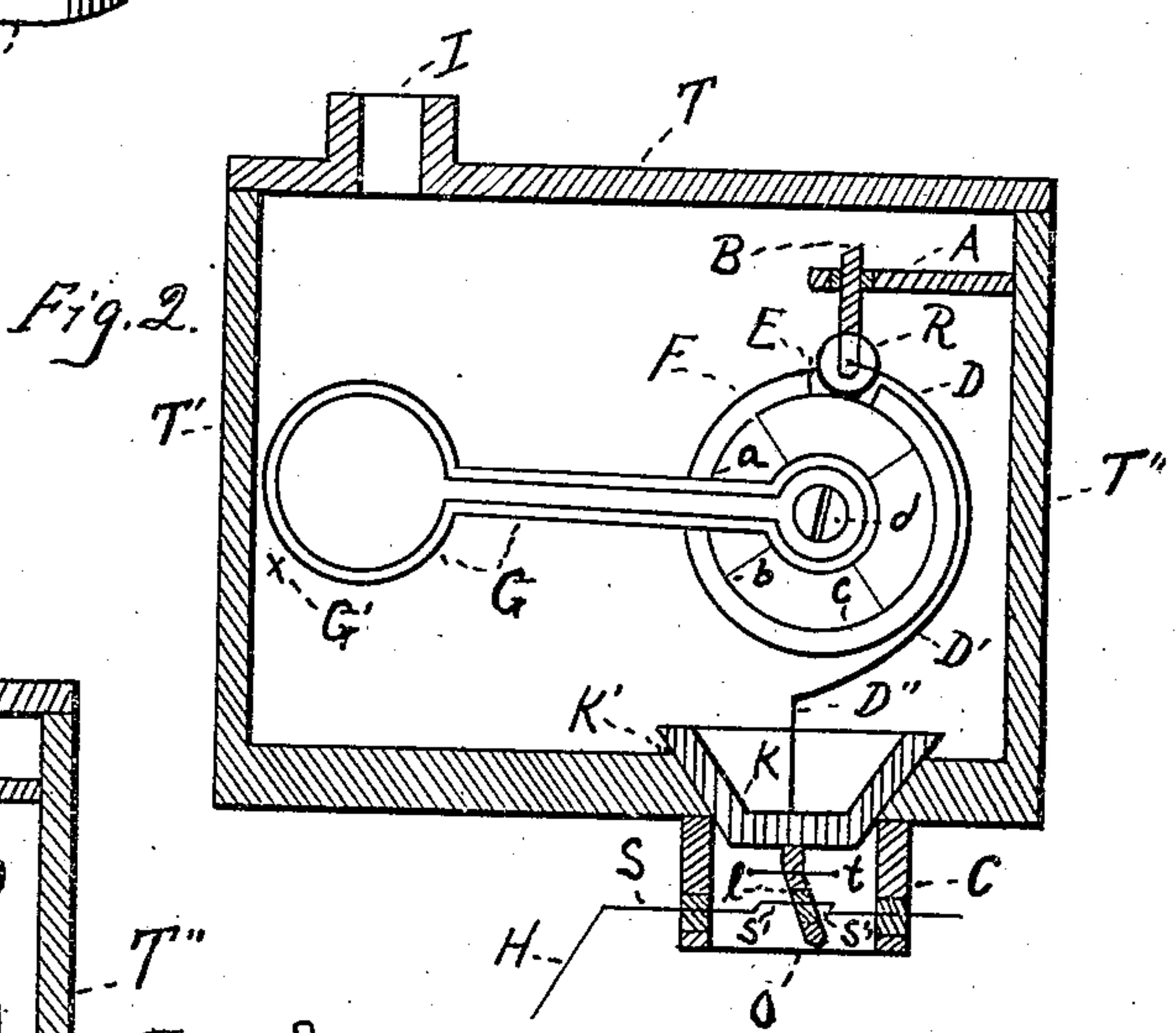


Fig. 2.

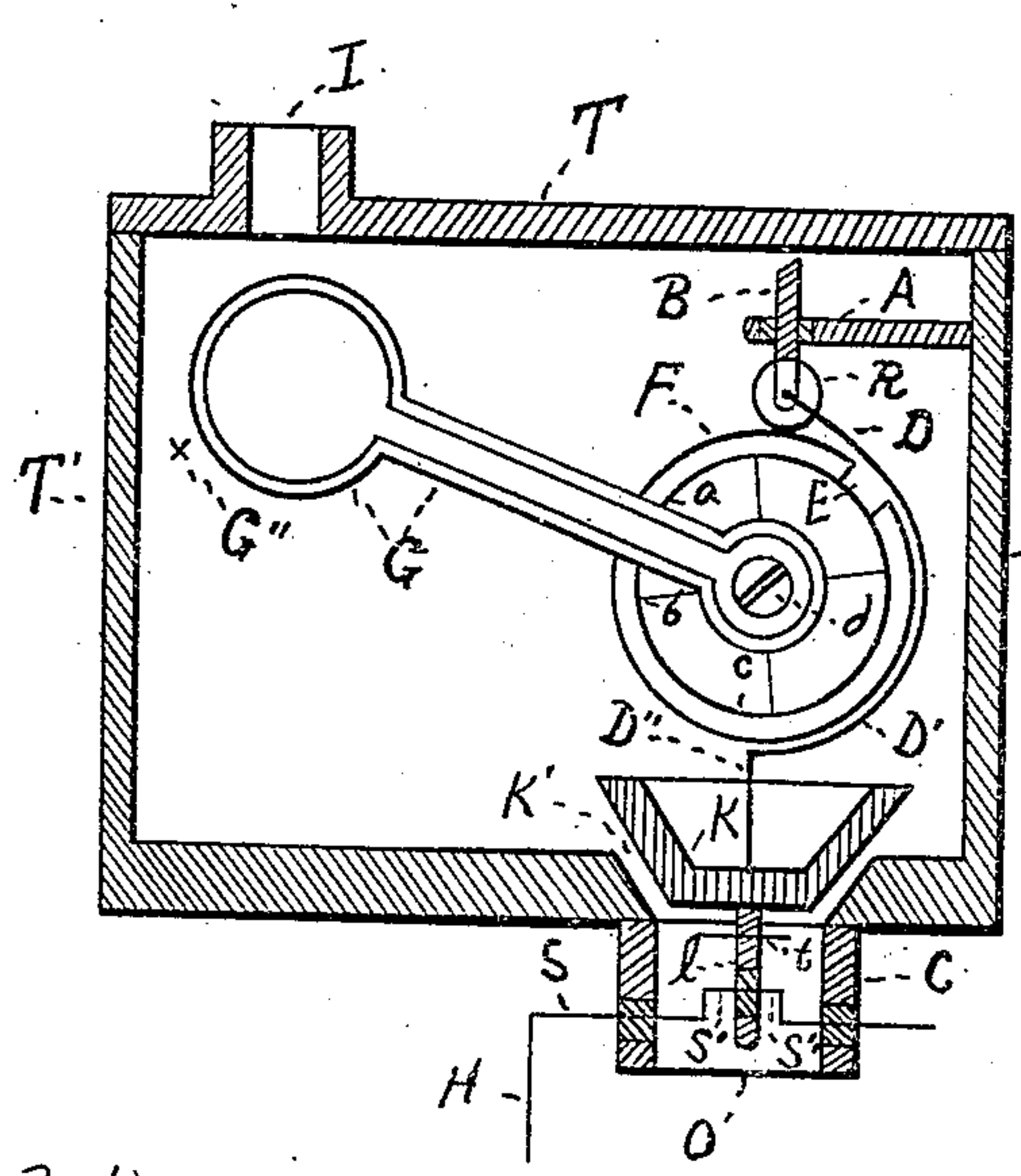


Fig. 3.

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REGULATED AUTOMATIC-CLOSING VALVE.

946,217.

Specification of Letters Patent.

Patented Jan. 11, 1910.

Application filed December 16, 1908. Serial No. 467,901.

To all whom it may concern:

Be it known that I, JOHN LINCOLN GISH, a citizen of the United States, residing at South Bend, in the county of St. Joseph and State of Indiana, have invented a new and useful Regulated Automatic-Closing Valve, of which the following is a specification.

The object of my present invention is to construct a "regulated automatic closing valve" in such a manner, firstly, that the fluid in the valve-casing be retained under direct pressure, until said fluid is required for flushing; secondly, that the fluid in the valve-casing be discharged in a large volume, under direct pressure, into a discharge pipe; thirdly, that the flushing stream after passing the outlet in the valve-casing, perform no other work or function, but that of flushing; and fourthly, after the flushing has been completed, for the "regulated automatic closing valve" to be closed automatically, the apparatus be ready to repeat its work, as hereinafter described.

Figure 1, is a perspective of my improved apparatus. Fig. 2, is a vertical section thereof, with the valve K., closed. Fig. 3, is a vertical section thereof, with the valve K., open.

In the drawings a self closing valve, of the reciprocating type is shown.

Like letters of reference, refer to like parts in the several figures.

In Fig. 1,—T. T'. T'', is the valve-casing.

N. N'. are screws, to fasten fluid-tight, the removable top T., of the valve-casing to the body or T'. T'', part of the valve-casing.

I., is the inlet to the valve-casing T. T'. T''.

C., is a discharge pipe.

S., is a spindle passing into and through the discharge pipe C.

H., is a handle fastened to, and operating the spindle S.

O., is an outlet from the discharge pipe C. The usual connections with the service pipe and discharge pipe are made at I., and O., respectively.

F., is a wheel mounted upon suitable bearings, within the valve-casing T. T'. T''. G., a hollow float, attached to the wheel F., by the set-nut d. E., a slot in the rim or periphery of wheel F. R., an antifriction roller. B., a projecting arm from roller R. A., a supporting arm fastened to the inside of the valve-casing T. T'. T'', and engag-

ing the arm B., thereby assisting in the proper alinement of the valve K.

D. D'. D'', is a connecting arm between the roller R., and the inside surface of the valve K.

K', is the valve seat, in the valve-casing T. T'. T''.

K., is the reciprocating valve, in the valve-casing T. T'. T''.

l., is the valve stem, connecting the valve K., with the angle arm S'. S'', by means of of a movable bearing at S'. S''.

a. b. c., on the wheel F., indicate different positions, to which the float G., may be adjusted, in order to regulate a long or short flushing stream.

t., is a movable joint in the valve stem l.

The arm D. D'. D'', has cleared the roller R., from the slot E., and at the same time raised the arm B., through its bearing in the arm A. The float G., is in the position shown in Fig. 3. The wheel F., has been partly rotated upon its axis. The roller R., is in contact with periphery of wheel F.

In my invention the wheel F., is operated by the float G., and the device performs its work as follows: In Fig. 2. the valve K., is in the closed position. Fluid is allowed to pass into the valve-casing T. T'. T'', at the inlet I. The valve K. (Fig. 2.) being closed, the valve-casing T. T'. T'', is filled and the fluid is retained under direct pressure, equal to the pressure in the service pipe. As the valve-casing T. T'. T'', is filled with fluid the float G., is held submerged. This submerged position of the float G., is accomplished by means of the roller R., engaging the slot E., forming a lock to the wheel F., and preventing the wheel F., from being rotated upon its axis. The wheel F., being held in a fixed position, and the float G., being immovably attached to the wheel F., by the set-nut d., the float G., is therefore held in a fixed or submerged position, as the valve-casing T. T'. T'' is filled with fluid. This submerged position (G. Fig. 2.), of the float G., remains so, until the handle H., is pulled down, thereby rotating the spindle S., upon its axis, and bringing the angle arm S'. S'' (Fig. 3.), into the upright position. As the angle arm S'. S'' (Fig. 3.) changes its position, a corresponding force is made to act, upon the valve stem l., which pushes upward against the valve K., causing the valve K., to be moved away from the valve seat K', thus opening the valve K.

and allowing the fluid to pass forward into the discharge pipe C., to be discharged in a large volume under direct pressure. Co-operating with the opening of the valve K. Fig. 3., the arm D. D' D'', removes the roller R., from the slot E.. in the wheel F., thus releasing the lock to the wheel F. The valve K., being opened and the lock to the wheel F., being released simultaneously,—
 10 the lifting powers of the submerged float G., are instantly brought into action, and the float G., is changed from position, (G' Fig. 2.), to position (G'' Fig. 3.), and during this change of position, the float G.,
 15 rotates the wheel F., upon its axis, and carries the slot E., away from the roller R., and brings the rim or periphery of the wheel F., in contact with the roller R., thereby giving a movable contact support to the roller
 20 R., and at the same time by means of the arm D. D' D'', holds the valve K., in the open position, and presents the relation of parts as shown in Fig. 3.

The parts will remain as in Fig. 3., until
 25 the contents of the valve-casing T. T' T'', have been discharged, when the float G., by its own weight, will return to position (G'), and at the same time rotate the wheel F., back to position as shown in Fig. 2., and also
 30 allow the other parts to be returned to their respective positions as shown in Fig. 2., and leave the apparatus ready to repeat its work.

From the above description it will be noticed, that the fluid is retained under direct pressure, in the valve-casing T. T' T'',
 35 thus accomplishing the first object of my invention. By the opening of valve K., Fig. 3 the contents of the valve-casing T. T' T'', are discharged under direct pressure in a
 40 large volume into the discharge pipe C., thus covering the second object of my invention. Since the regulating and working parts of my device are contained within the valve-casing T. T' T'', the flushing stream after
 45 passing the valve seat K., which is also the outlet to the valve-casing T. T' T'', performs no other work or function, but that of flushing, thus covering the third object of my invention. After the flushing has been
 50 completed, the regulated automatic closing valve, is closed automatically, and all other parts are returned to their respective starting positions, thus covering the fourth object of my invention.

55 What I do claim as my invention and desire to secure by Letters Patent is,—

1. In a regulated automatic closing valve, the combination of a valve casing provided with the inlet and outlet passages and
 60 adapted to retain fluid under direct pressure in the valve casing until said fluid is required for flushing, a power float in the casing adapted to be operated by fluid passing through the casing, a wheel F moved by
 65 said power float, a reciprocating valve, and

means extending from the valve, provided with an antifriction roller, contacting with the periphery of the wheel F., means co-operating with the roller to open the valve, whereby the latter may be kept open for a
 70 predetermined time.

2. In a regulated automatic closing valve, provided with the inlet and outlet passages in the valve casing and adapted to retain fluid under direct pressure in the valve casing until said fluid is required for flushing,—
 75 of mechanism adapted to hold a power float in a submerged position.

3. In a regulated automatic closing valve, provided with the inlet and outlet passages
 80 in the valve casing and adapted to retain fluid under direct pressure in the valve casing until said fluid is required for flushing,— of a power float and means coöperating therewith, adapted to hold said float in the sub-
 85 merged position.

4. In a regulated automatic closing valve, provided with the inlet and outlet passages in the valve casing and adapted to retain fluid under direct pressure in the valve casing until said fluid is required for flushing,—
 90 of a self closing valve of means adapted to hold the self closing valve open, for a predetermined time, and a power float joined to said means, whereby the latter is operated
 95 by said float.

5. In a regulated automatic closing valve, provided with the inlet and outlet passages in the valve casing and adapted to retain fluid under direct pressure in the valve casing until said fluid is required for flushing,—
 100 of a self closing valve of means adapted to release the self closing valve at a predetermined time, and a power float joined to said means, whereby the latter is operated
 105 by said float.

6. In a regulated automatic closing valve, provided with the inlet and outlet passages in the valve casing and adapted to retain fluid under direct pressure in the valve casing until said fluid is required for flushing,—
 110 of a wheel F having a slot E and mechanism coöperating therewith, to allow closure of the valve, in combination with a power float joined to said wheel F, whereby the
 115 latter is operated by said float.

7. In a regulated automatic closing valve, provided with the inlet and outlet passages in the valve casing and adapted to retain fluid under direct pressure in the valve casing until said fluid is required for flushing,—
 120 of a regulating mechanism by which the power float is attached to the wheel F, said mechanism arranged to allow the power float to be adjusted to different positions on the
 125 wheel F, thereby regulating a longer or shorter flushing stream.

8. In a regulated automatic closing valve, provided with the inlet and outlet passages in the valve casing and adapted to retain
 130

fluid under direct pressure in the valve casing until said fluid is required for flusing,—
of a power float and means coöperating therewith, adapted to hold said float in the submerged position, in combination with a self
5 closing valve.

In testimony whereof I have signed my

name to this specification in the presence of two subscribing witnesses.

JOHN LINCOLN GISH.

Witnesses:

ANNA GISH,
MARGERY GISH.