

No. 680,154.

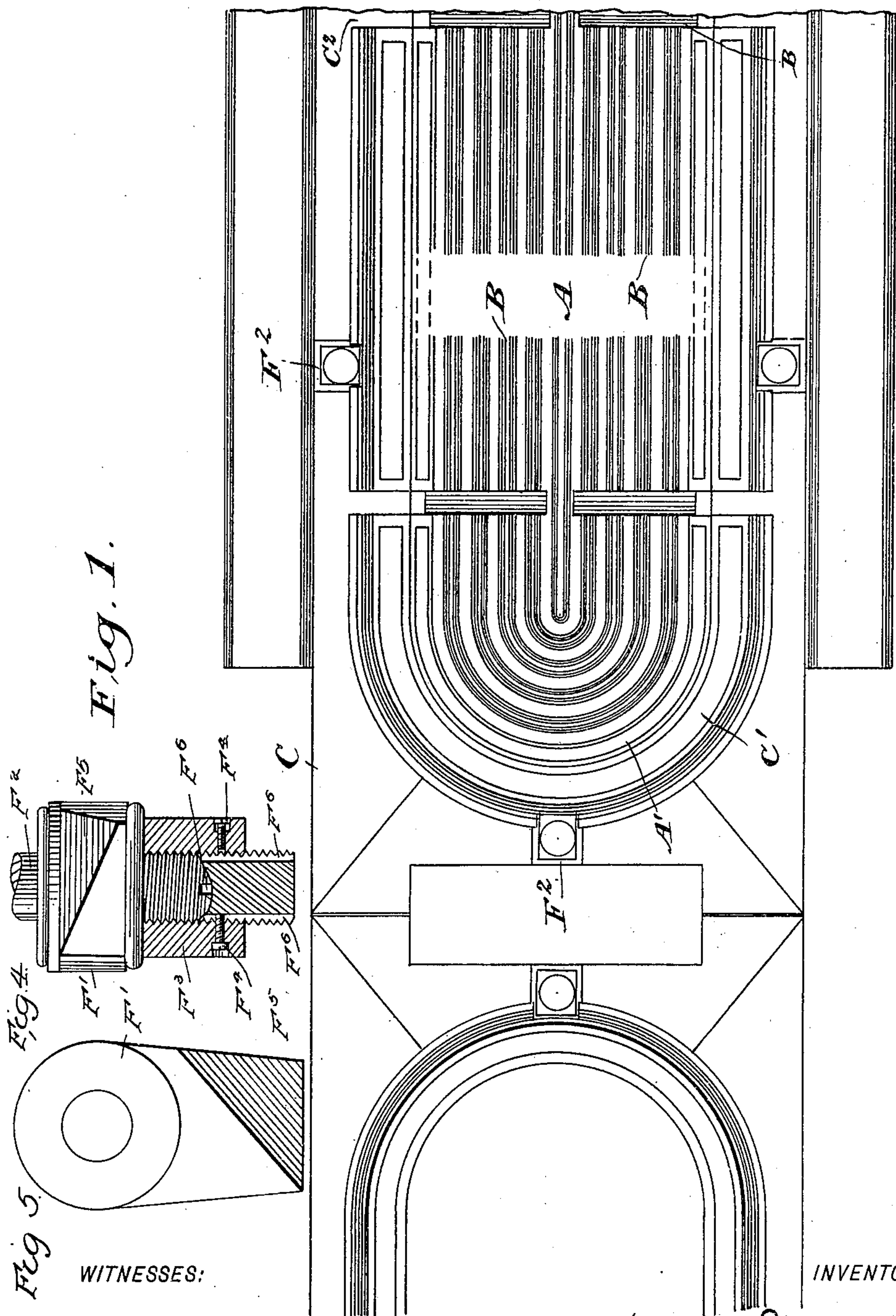
Patented Aug. 6, 1901.

A. D. JANSEN.  
DISCHARGE DOOR FOR CYANID TANKS.

(Application filed July 5, 1899.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

E. B. Cotton  
Cotton

INVENTOR

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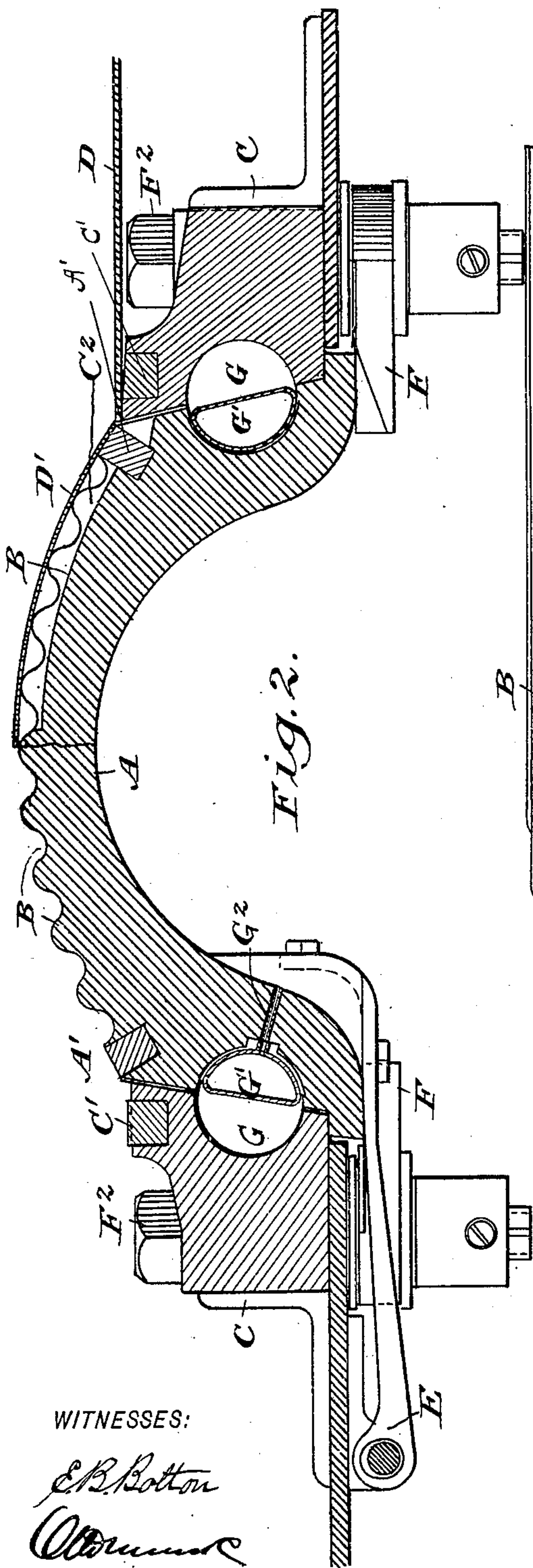
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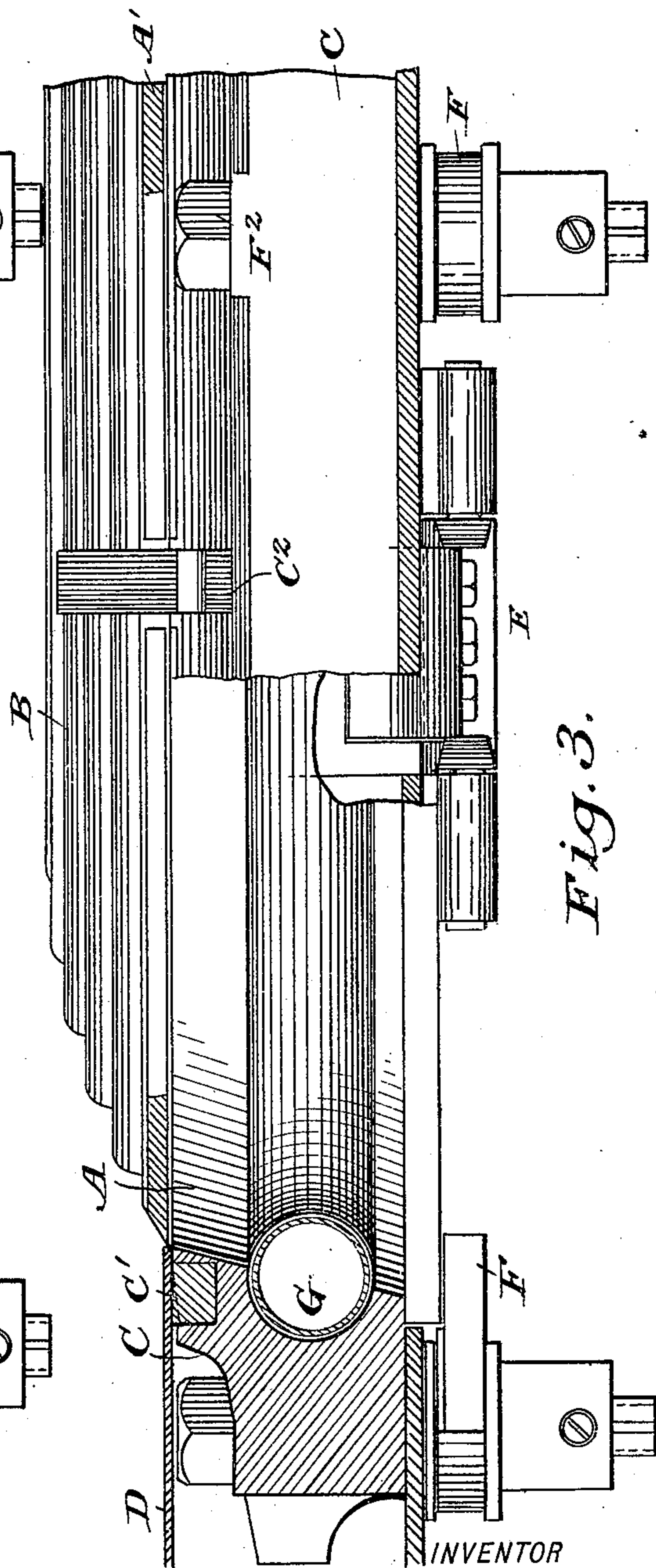
(No Model.)

2 Sheets—Sheet 2.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

ALEXANDER DUNCAN JANSEN, OF JOHANNESBURG, SOUTH AFRICAN  
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## DISCHARGE-DOOR FOR CYANID-TANKS.

SPECIFICATION forming part of Letters Patent No. 680,154, dated August 6, 1901.

Application filed July 5, 1899. Serial No. 722,872. (No model.)

*To all whom it may concern:*

Be it known that I, ALEXANDER DUNCAN JANSEN, a subject of the Queen of Great Britain and Ireland, and a resident at Royal Chambers, Simmonds street, Johannesburg, in the South African Republic, have invented certain new and useful Improvements in and Relating to Discharge-Doors for Cyanid-Tanks, of which the following is a specification.

10 This invention relates to improvements connected with discharge-doors of cyanid-tanks and the like, and is particularly designed to overcome certain serious defects which exist in the forms at present in gen-  
15 eral use.

In cyanid treatment the sands are subjected to the action of cyanid solution, which solution after the proper length of time has elapsed is drawn off through a filter composed  
20 of matting or some similar material situated at the bottom of the tank. This matting or filtering material does not rest directly on the bottom of the tank, but is supported by a grating or perforated false bottom in order to  
25 allow a free passage for the solution which has filtered through. That portion of the tank therefore which is situated over the discharge-door has no grating or filtering material, and consequently a more or less vertical  
30 column of sands is left in the tank, which still contains cyanid solution with gold in solution, the result being that this portion is imperfectly treated.

The object of this invention is to provide  
35 a door so constructed that a piece of matting or filtering material may be placed upon it in order that the filtration of the solution shall be just as complete over the discharge-door as in the rest of the tank.

40 This invention furthermore relates to an improved construction whereby the door is rendered much more easily closed and also to a system of packing the same by which the joint between the door and the bottom of the  
45 tank is rendered tight.

The invention will be fully described with the aid of the accompanying drawings, in which—

50 Figure 1 shows a general plan view of a discharge-door constructed in accordance with

the principles of my invention; Fig. 2, a cross-sectional view; Fig. 3, a longitudinal elevation, partly in section; Fig. 4, an enlarged view showing in end sectional elevation the construction of retaining-catch and bolt; 55  
Fig. 5, enlarged plan view of retaining-catch.

The shape of the door shown in the drawings referred to is approximately oval or oblong; but my improvements are equally applicable to any shape of discharge-doors. 60

A is a discharge-door provided on its inside—i. e., that side which is toward the inside of the tank when the door is closed—with a series of longitudinal and cross channels or corrugations B, the level of which 65  
when the door is closed corresponds approximately with the level of the grating at the bottom of the tank.

The door A fits into a seating C, formed in the bottom of the tank, said seating being 70  
furnished with an internal wooden rim C', to which the matting or filtering material D, situated at the bottom of the tank, is tacked or otherwise secured.

C<sup>2</sup> C<sup>2</sup> are grooves or channels to drain off 75  
the solution from the channels B into the bottom of the tank.

The door A is similarly provided with a wooden rim A' or its equivalent, to which is secured the piece of matting or filtering material D', which is cut to conform to the shape 80  
of the discharge-door. By this construction filtration takes place in just as complete a manner over the discharge-door as in other parts of the tank, the solution filtering 85  
through the medium D' into the channels or corrugations B, whence it drains through the channels C<sup>2</sup> across the seating C into the bottom of the tank.

The door A is hinged, as at E, so as to be 90  
readily opened or shut. The hinges are preferably constructed so as to allow a certain amount of vertical play to the door, the tightening of the door being accomplished by the catches F F, the object of this construction 95  
being to prevent the hinge offering any resistance to the tightening up of the door.

The door A when shut is retained in position by the series of catches F F, enlarged views of which are shown in Figs. 4 and 5. 100



Each retaining-catch consists of a plate  $F'$ , which swings upon the bolt  $F^2$ , which is secured to the seating  $C$ , said bolt being adapted to receive the nut  $F^3$ , which screws upon it.

5  $F^4$   $F^4$  are locking-screws to prevent any shaking or loosening of the nut  $F^3$ , the lower portion of the shank of the bolt being cut with four vertical slots  $F^6$  equidistant from one another around the circumference of the  
10 bolt, so as to engage the projecting locking-screw without damaging the screw-thread of the bolt  $F^2$ . By providing four slots, as aforementioned, the nut can be locked at every quarter-turn of the nut  $F^3$ . The face of the  
15 retaining-catch  $F'$  is wedge-shaped or constructed as an incline plane, which is shown by the shaded portion  $F^5$  in Figs 4 and 5, so that as the catches  $F$  are turned they tend to raise the door in its seating until it is per-  
20 fectly tight.

In order to insure a perfectly tight joint between the door  $A$  and its seating  $C$ , a groove or recess  $G$  is formed around the line of the joint—i. e., half in the face of the door and  
25 half in the face of the seating. Within the groove or recess  $G$  thus formed a flexible air-tube  $G'$  is placed, and when the door  $A$  is closed and properly secured said flexible tube  $G'$  is inflated through the valve  $G^2$  by means  
30 of a force-pump. This forms a pneumatic packing which effectively prevents leakage.

The valve  $G^2$  may be any suitable air-valve, as found most convenient, the construction of said valve forming no part of this inven-  
35 tion.

The air-tube  $G'$  is preferably constructed of such a size that when empty of air it contracts into the portion of the recess formed in the door  $A$ , so that when the door is opened

the tube is not liable to be torn by chafing 40 against the seating  $C$ .

The inner surface of the discharge-door  $A$  has been described as formed with a series of channels or corrugations  $B$ , and this is the mode of construction which I am inclined to 45 consider best. It is evident, however, that the door may in lieu thereof be provided with a separate grating or perforated false bottom over which the matting or filtering material is placed. 50

In order to open the door, the air in the tube  $G$  is allowed to escape and the catches  $F$  turned back, when the door at once opens.

Having now described my invention, what I claim as new, and desire to secure by Letters 55 Patent, is—

An improved discharge-door for cyanid-tanks and the like provided on its upper side with a series of channels and cross-channels 60  $B$  over which is placed a piece of filtering medium  $D'$ , a wooden rim  $A'$ , to which the filtering medium is fastened, the seating  $C$  into which the door  $A$  fits said seating  $C$  being provided with a wooden rim  $C'$  to which the filtering medium at the bottom of the tank 65 is secured and cross-channels  $C^2$  to drain the solution into the bottom of the tank, the hinge  $E$ , the fastening devices  $F$   $F$ , the air-tube  $G'$  interposed between the door  $A$  and the seating  $C$  contained within the recess  $G$  and 70 means for inflating same the whole arranged substantially as hereinbefore described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

ALEXANDER DUNCAN JANSEN.

Witnesses:

ADDIE C. GLEASON,  
LOUISE J. BOAZ.