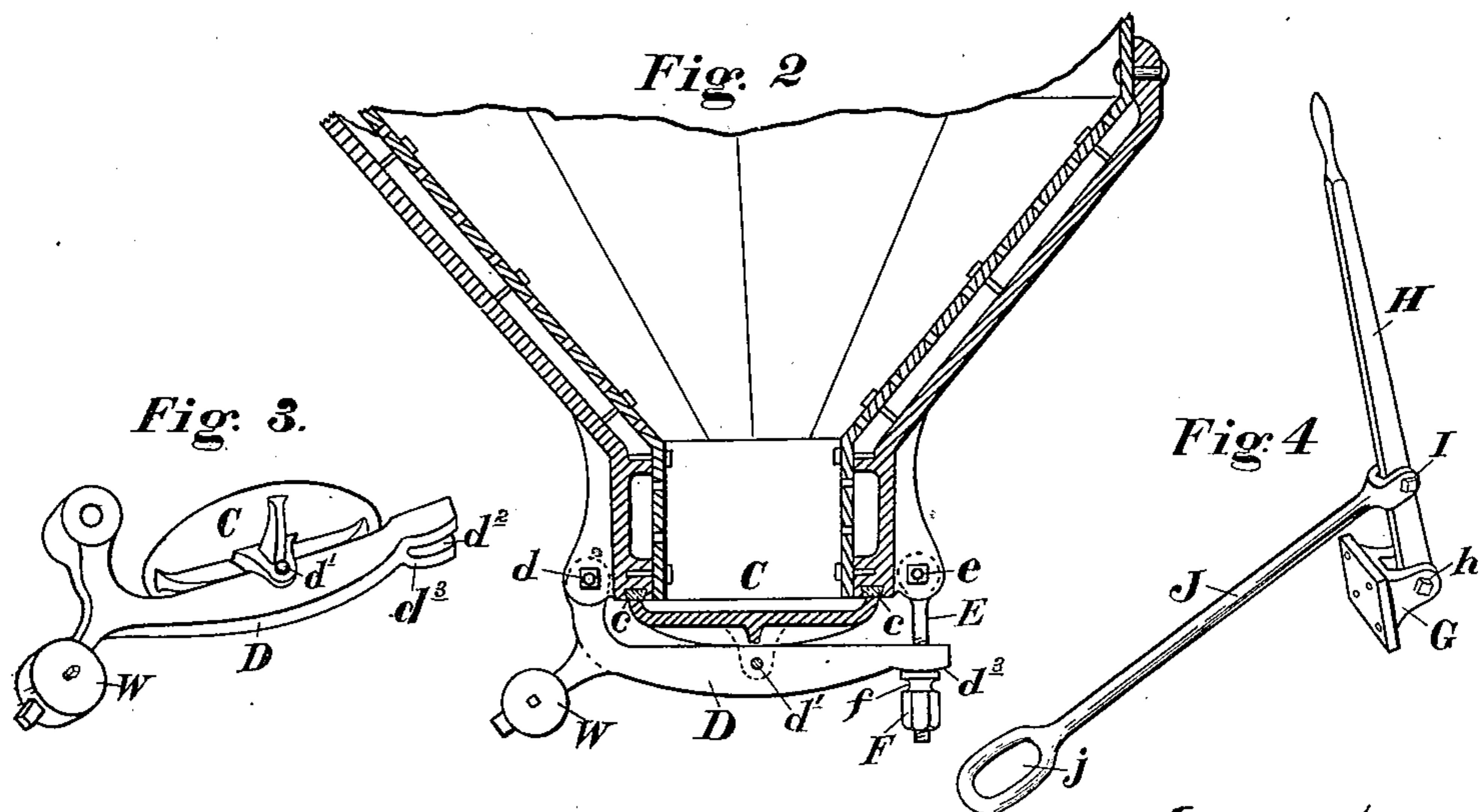
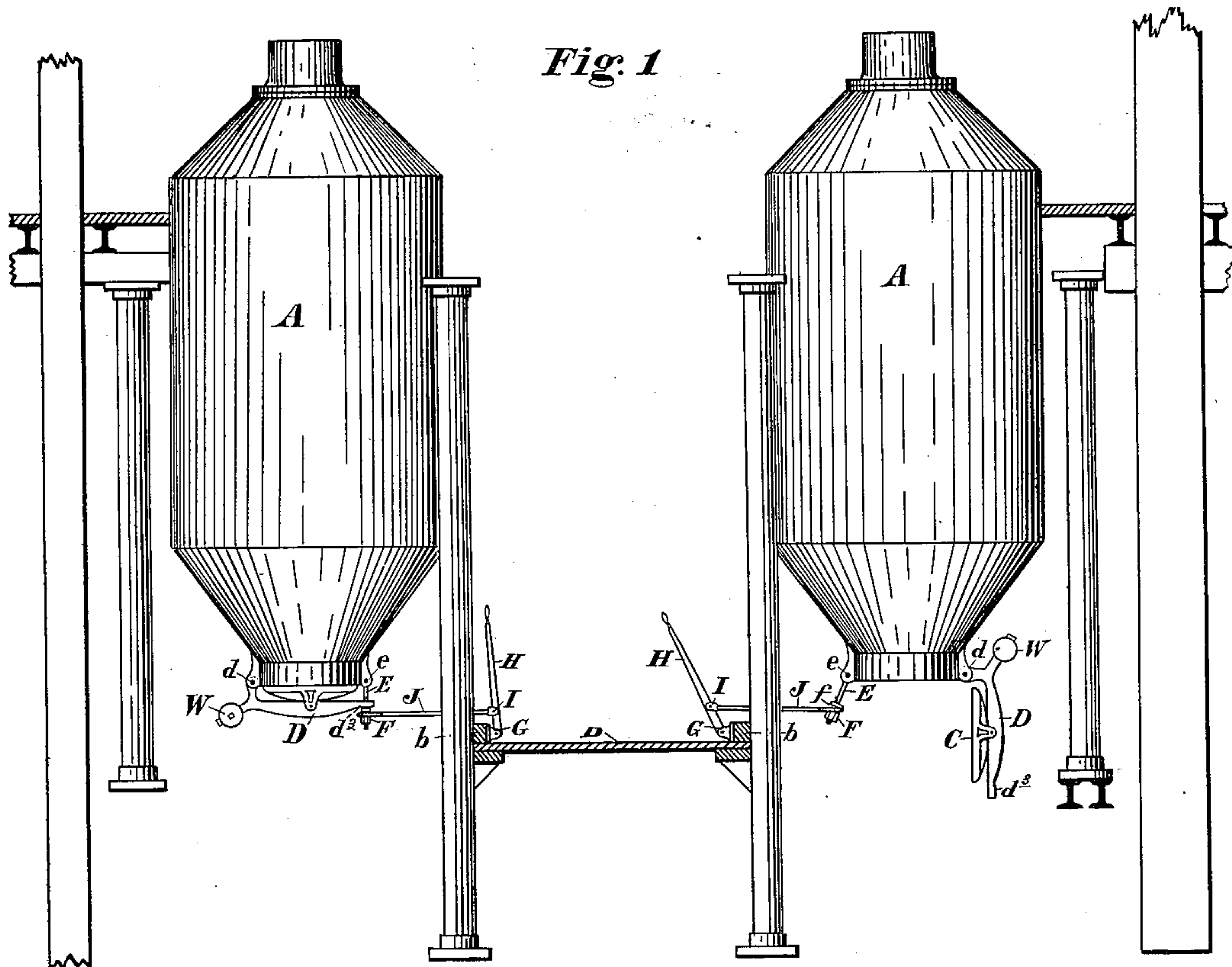


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(No Model.)



Inventors

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UNITED STATES PATENT OFFICE.

EDMUND C. BURR, OF SAN FRANCISCO, JOHN C. H. STUT, OF OAKLAND,
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RELEASING MECHANISM FOR DIFFUSION-CELL DOORS.

SPECIFICATION forming part of Letters Patent No. 659,361, dated October 9, 1900.

Application filed November 27, 1899. Serial No. 738,478. (No model.)

To all whom it may concern:

Be it known that we, EDMUND C. BURR, residing at the city and county of San Francisco, JOHN C. H. STUT, residing at Oakland, Alameda county, and JOHN W. ATKINSON, residing at Santa Maria, Santa Barbara county, State of California, citizens of the United States, have invented certain new and useful Improvements in Releasing Mechanism for Bottom-Covers of Diffusion-Cells; and we do hereby declare the following to be a full, clear, and exact description of the same.

Our invention relates to diffusion-batteries in sugar factories, and especially to the cells of said batteries.

The object of our invention is to provide means for discharging the pulp from the cells with cheapness and despatch, and with the greatest convenience and safety to the workmen.

Our invention consists in the novel fastening and releasing bolt, which we shall now describe, and in a means for operating it to the best advantage.

Referring to the accompanying drawings, Figure 1 is a view of two diffusion-cells, showing the application of our invention. Fig. 2 is a section of the lower portion of a cell, showing the same. Fig. 3 is a perspective of the yoke-bar connection D. Fig. 4 is a view of releasing lever and link.

The battery consists of a number of cells arranged in a row or circularly, as may be desired. The battery is composed of cells A.

B is a platform for the workmen.

Each cell has a bottom-cover C, which is adapted to fit up closely to its seat, a gasket or packing-ring *c* intervening and forming a tight joint. To the lower portion of the cell is pivoted at *d* a yoke bar or lever D, which forms at *d'* a pivoted connection with the bottom-cover C. The free extremity of this bar is forked, as shown at *d''*, and is adapted to receive the swinging bolt E, pivoted at *e* to the cell. A nut F is seated on the lower end of bolt E and when screwed up bears under the yoke-bar D, and thus causes the latter to press and hold the bottom-cover C to its seat. Now if when the cell is ready to be discharged the nut F be turned down only a little, so as to relieve its pressure on the

yoke-bar somewhat, the swinging bolt can be suddenly knocked or thrown out to completely free the yoke-bar, and thus to suddenly drop the bottom-cover under the weight of the mass above. The advantage is that while the loosening of the nut slightly is sufficient to enable the bolt to be knocked or drawn out it is not sufficient to let the cover drop enough to permit even the water of the cell contents to squirt out and splash. Therefore in this necessary preliminary work the operator is protected. After that the full release is so quick that the complete discharge is effected without squirting or splashing and with great facility and despatch.

In order to insure the swinging free of the bolt from under the yoke-bar, we make the under surface of said bar slightly convex or rounding, as is shown at *d''*, making its curve on a radius to the pivotal center of the bolt. The latter can therefore be released from the bar without such difficulty as would be present if the upper face of the nut in describing its arc should have to pass upon a plane surface. This construction also permits the very slightest loosening of the nut to enable the bolt to be swung out. If the under surface of the bar were a straight one, the nut would have to be turned back enough to let it clear the corner as the bolt swung out. This difference is important in that it is only by the minimum loosening of the nut that the contents of the cell can be prevented from splashing or squirting out prior to the full discharge.

Although any suitable means may be used by the workman to swing or knock the bolt out, we have provided a simple and convenient device or mechanism as follows: To a rim-beam *b* of the platform B is bolted, one opposite each cell, a bearing G. H is a lever which is adapted to be pivoted at its lower end by a removable bolt or pin *h* in any one of the bearings G. To this lever, at the point I, is pivoted a link J, the other end of which is provided or formed with a means for engaging the nut F. A hook or an eye *j*, such as here shown, is a good means for effecting this engagement, and to further this we make the upper portion *f* of the nut F a circular grooved one, so that the eye *j* of the

link J when swung up over the nut from below will readily seat itself in said grooved portion. Then by pulling back on the lever H the swinging bolt E will be drawn out, as
5 heretofore described.

By making the lever H removable the workman can readily take it, with its attached link J, from one cell to another as each is ready to be discharged and there fit
10 it to the corresponding bearing G.

When any cell is ready to be discharged, the workman with a wrench turns down the nut F slightly, and then having fitted his lever and pulling-link draws the bolt E out,
15 and the discharge of the pulp is practically instantaneous and with safety and convenience to the workman.

W is a counterweight for the bottom-cover.

Having thus described our invention, what
20 we claim as new, and desire to secure by Letters Patent, is—

1. In combination with a cell or tank, having a bottom-cover, a yoke-bar pivoted at one extremity, and having a connection between
25 its extremities with said bottom-cover, and a swinging bolt, having a nut adapted to bear up under the free extremity of said yoke-bar, the under surface of which, forming the bearing for the nut, being curved, to permit the
30 nut and bolt to swing outwardly.

2. In combination with a cell or tank, having a bottom-cover, a yoke-bar pivoted at one extremity, connected with the bottom-cover, and having, at its other extremity, a fork, the
35 under surface of which is rounded or convexed to its outer end, a swinging bolt, adapted to enter the fork extremity of the yoke-bar, and a nut on the lower end of said bolt adapted to bear under the curved under sur-
40 face of said forked extremity of the yoke-bar.

3. In combination with a cell or tank, having a bottom-cover, a yoke-bar pivoted at one extremity, and having a connection with the
45 bottom-cover, a swinging bolt, and a nut thereon adapted to engage the curved free extrem-

ity of said yoke-bar, and means for engaging said nut to pull the swinging bolt out and free the yoke-bar and bottom-cover.

4. In combination with the bottom-cover of a cell or tank, a holding mechanism therefor,
50 consisting of a pivoted yoke-bar, a swinging bolt, and a nut thereon, and a releasing mechanism, consisting of a pivoted lever, and a connected link having means for engaging the nut.
55

5. In combination with the bottom-cover of a cell or tank, a holding mechanism therefor, consisting of a pivoted yoke-bar, having a curved or convex under surface at its free extremity, a swinging bolt, and a nut on said
60 bolt adapted to bear under said curved or convex surface of the yoke-bar extremity, and a releasing mechanism, consisting of a pivoted lever, and a connected link, having means for engaging the nut.
65

6. In a diffusion-battery, having a series of cells each with a bottom-cover, a means for holding each bottom-cover, consisting of a pivoted yoke-bar, a swinging bolt, and a nut
70 thereon to engage the free end of the yoke-bar, a means for releasing said holding means, consisting of a portable lever, and a pulling-link carried by said lever, and having a means for detachably engaging the nut of the swing-
75 ing bolt, and a series of bearings, corresponding to the diffusion-cells, in any of which the portable lever may be pivoted.

In witness whereof we have hereunto set our hands.

EDMUND C. BURR.

JOHN C. H. STUT.

JOHN W. ATKINSON.

Witnesses to the signatures of E. C. Burr and J. C. H. Stut:

D. B. RICHARDS,

WALTER F. VANE.

Witnesses to the signature of J. W. Atkinson:

A. L. PARSONS,

W. F. KELLEY.