No. 804,186. PATENTED NOV. 7, 1905.

L. J. DRABEK.

PROCESS OF TREATING ORE SLIMES, &c., CONTAINING GOLD, SILVER, OR OTHER VALUES.

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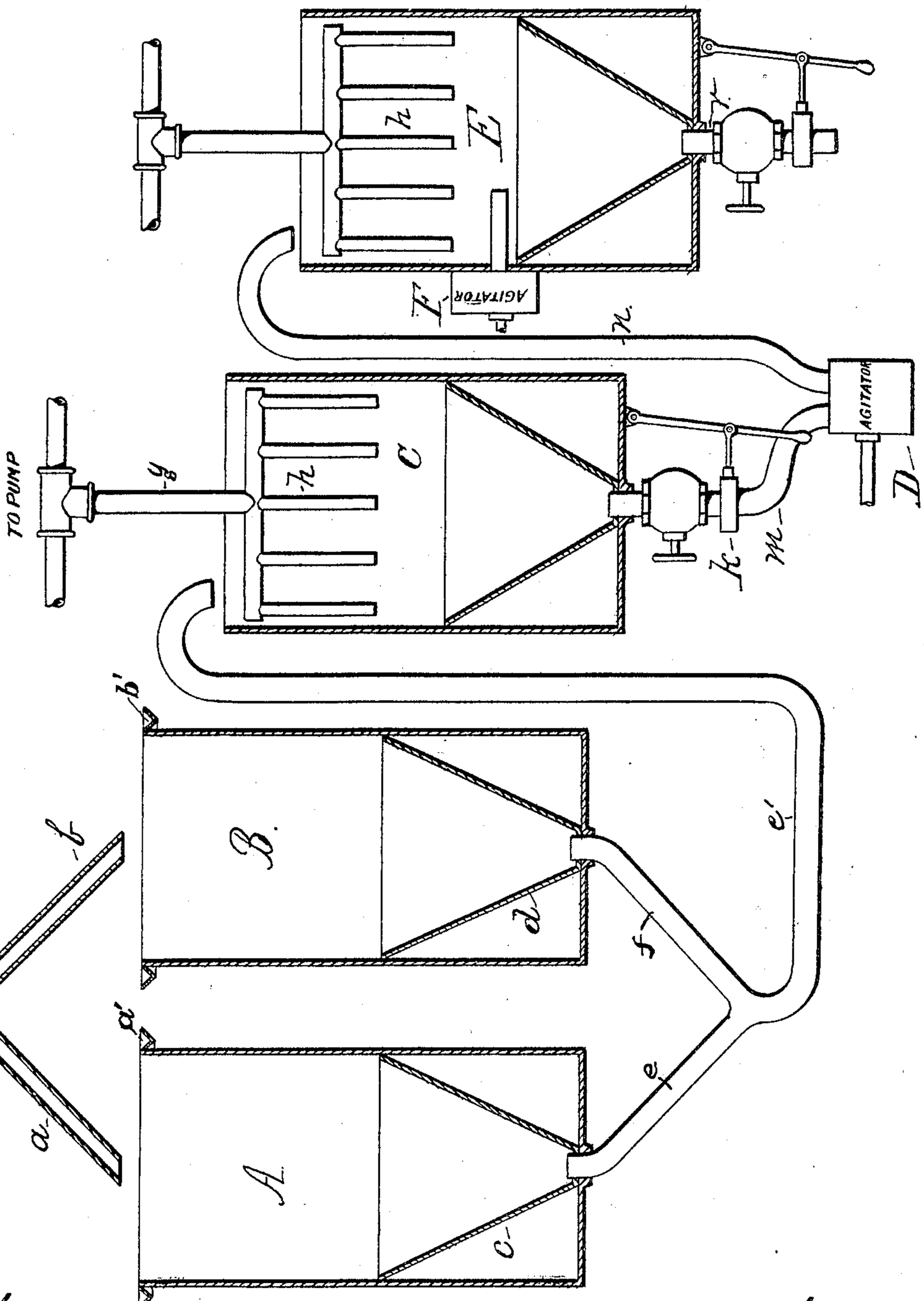

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UNITED STATES PATENT OFFICE.

LOUIS J. DRABEK, OF TURNER, SOUTH DAKOTA.

PROCESS OF TREATING ORE-SLIMES, &c., CONTAINING GOLD, SILVER, OR OTHER VALUES.

No. 804,186. Specification of Letters Patent. Patented Nov. 7, 1905.

Application filed April 3, 1905. Serial No. 253,692.

To all whom it may concern:

Be it known that I, LOUIS J. DRABEK, a citizen of the United States, residing at Turner, in the county of Lawrence and State of South Dakota, have invented new and useful Improvements in new and Improved Processes of Treating Ore-Slimes, Pulp, and Sedimentary Matter Containing Gold, Silver, or other Values, of which the following is a specification.

My invention relates to a new and improved process of treating ore-slimes, pulp, and sedimentary matter containing gold, silver, or other values.

In the drawings is shown a diagrammatic view of an apparatus for carrying out the process hereinafter set forth; but it is to be understood that each of the devices shown as part of said apparatus is severally old and well known and no claim is made by me for the same, though in carrying out the described process their arrangement and relative location may be novel. Other and well-known devices of like character to those shown may be employed in the several steps of the process.

In the process employed by me one or more slime-settling vats or sumps may be used. In the drawings two (A and B) are shown, each of cylindrical form having, preferably, a false bottom *c* and *d*, respectively. These vats are of a considerable depth (about twenty-one feet) and are partially filled with a cyanid solution and receive a continuous supply of the ore-slimes or pulp by means of the launders *a* and *b* from a mill (not shown) or other source of supply. Surrounding the upper edge and connected therewith of each of the vats A and B is a channel or trough *a'* and *b'*, respectively, for conveying the overflow of the solution back to the mill. The thick slimes in the bottom of the vats or tanks are forced by the pressure of the solution in said tanks and their own gravity down into the pipes *e* and *f*, respectively, and then upward through pipe *e'* and into the vat or tank C, containing a "barren solution," the said vat C being on a lower level than the vats A and B, so that the slimes may pass thereto from said vats A and B without the necessity of any pump action. The slimes are caused to enter at the upper end of the vat C, which latter contains a barren solution—*i. e.*, an ordinary cyanid solution from which the values have been precipitated—and are separated from the solution by filter-frames *h*, of any well-known construction, suitable for the purpose. The filter-frames when loaded with slimes are discharged by water or barren solution, according to which tank is being worked, the thick slime falling to the bottom of vat, the filtrate passing either to zinc barrels or to sump, according to which vat is being worked. The slime while undergoing treatment in tank E may be agitated by any means—compressed air, water jets, or pumps. Similar means may be employed for agitation in the tank C, if necessary. The thickened slimes as they drop to the bottom of the vat displace the thinner slimes and the solution on account of their higher specific gravity. The said vat C is of considerable depth or similar to vats A and B, so that the slimes or pulp at the bottom thereof is subjected to considerable pressure, thereby reducing the percentage of moisture in the mass of slime at the bottom, which is allowed to accumulate until a considerable depth is formed, depending on the nature of the slime.

Any desired depth or a substantially uniform depth of slime, if desired, may be obtained by drawing off the lower portion of the mass through a gate K in a pipe *m*, leading from an outlet in the bottom of the vat. The thick pulp is then passed to a disintegrator or mixer D, of any well-known type, where it is washed or mixed with water, it then passing up to the vat E by means of the pipe *n*. The said vat E is on a lower level than vat C, so that the pulp from vat C may be deposited into the top of the same by gravity; but, if necessary, an elevator or pump may be employed.

The pulp after being discharged into vat E is subjected to the action of a filter *h*, the filtrate passing from the filter in vat E passing to the weak-solution sump or the zinc barrels, if of sufficient value. Instead of a barren-solution treatment, as in vat C, the pulp while in vat E is subjected to a water wash by means of a pump or agitator F. The mass of slime in the bottom of vat E, which has dropped from the filter *h*, may be allowed to accumulate, so as to be of great depth, producing a comparatively dry product free of values, and when desired it may be run off to the dump by means of the pipe *r*, with valve S therein.

While a cone bottom in each of the several vats is preferable, yet it is not absolutely indispensable in carrying out the process. The filter may also be dispensed with in vat C, if so desired, in treating the pulp.

It will be noticed that by the process described a large percentage of the moisture in the pulp at the bottom of the vats is expelled

therefrom by the pressure of the accumulating or superposed mass of slime and that the lighter slimes or moisture with values in solution rise in the vats, so as to be subjected to the action of the filters.

Having described the invention, what I desire to claim by Letters Patent is—

1. The herein-described continuous process of treating ore-slimes to obtain the values therefrom, consisting in charging the slimes mixed with cyanid solution into a tank, causing the slimes to settle and accumulate in thickness in the bottom of said tank, discharging the thickened portion by its own weight and that of the overlying solution into the top of a second tank containing barren solvent solution, filtering off the value-containing solution and allowing the heavy slimes to settle and accumulate in the bottom of the tank, withdrawing the thickened slimes, agitating and mixing them with water, discharging them into a third tank containing water, filtering off the liquid, causing the thickened slimes resulting from the filtering to accumulate in the lower part of the tank thereby forcing the liquid therefrom and discharging the thickened slimes from time to time as necessary.

2. In the process of treating ore-slimes to obtain the values therefrom, the continuously discharging them by their own gravity and that of an overlying cyanid solution from one tank into a second tank where they are treated to a barren solvent solution and then filtering the values from the mass of the slimes so treated.

3. In the process of treating ore-slimes to obtain values therefrom, charging the slimes with a cyanid solution into a tank causing the slimes to settle and accumulate in thickness in the bottom of said tank discharging the thickened portion by its own weight and that of the overlying solution into the top of a second tank having a barren solvent solution therein, filtering off the value-containing solution, allowing the heavy slimes to settle and accumulate in the bottom of said tank, discharging them into a third tank where they are washed with water, and then filtering the values from the slimes so treated.

In testimony whereof I have affixed my signature in presence of two subscribing witnesses.

LOUIS J. DRABEK.

Witnesses:

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J. R. HICKOX.