H. C. COLBURN.

FEEDING APPARATUS.

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**1,149,427.**

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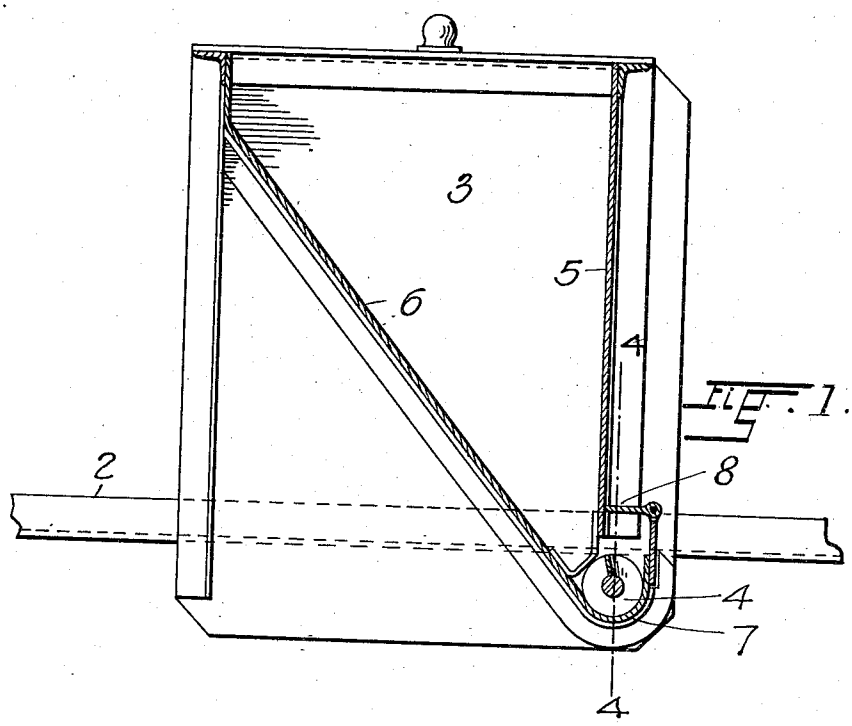



Fig. 1.

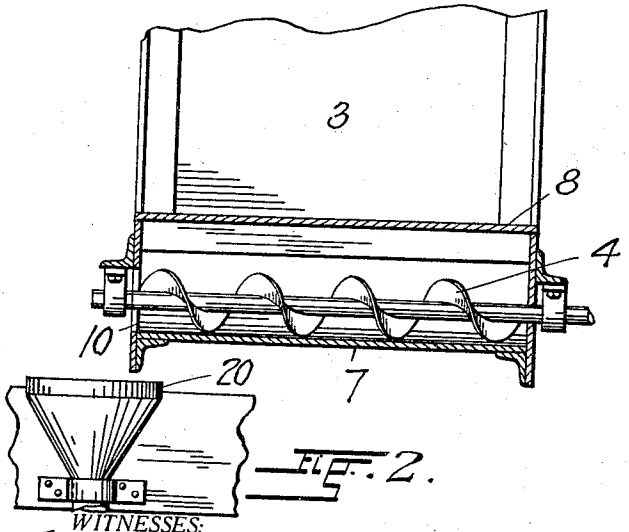



Fig. 2.

WITNESSES:

F. H. Cuno

S. C. Christian

INVENTOR.

H. C. Colburn

BY

G. J. Adelmann

ATTORNEY.

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

# UNITED STATES PATENT OFFICE.

HERBERT C. COLBURN, OF VICTOR, COLORADO.

## FEEDING APPARATUS.

1,149,427. Specification of Letters Patent. Patented Aug. 10, 1915.

Application filed March 3, 1914. Serial No. 822,176.

*To all whom it may concern:*

Be it known that I, HERBERT C. COLBURN, a citizen of the United States, residing at Victor, in the county of Teller and State of Colorado, have invented certain new and useful Improvements in Feeding Apparatus, of which the following is a specification.

My invention relates to improvements in feeding apparatus designed principally for use in the treatment of metalliferous ores and its primary object resides in the provision of a mechanism of simple construction which operates to automatically deliver pulverous or granular matter in even predetermined quantities and at regular intervals.

While my improved feeding apparatus may obviously be used for other purposes, it is particularly adapted to be employed for feeding zinc dust to the filter presses used in the process of precipitating gold from gold bearing cyanid solutions by means of zinc dust, in which the introduction of the zinc into the precipitate at regular intervals in small quantities, is of paramount importance, by virtue of the fact that an excess as well as a scarcity of zinc dust in the precipitate are detrimental to its effectively performing its function in the process above referred to.

In a feeding apparatus of the character above mentioned which is required to dispense matter automatically in predetermined quantities, it is of the utmost importance that packing of the material and consequent clogging of the devices by which it is conveyed from the point of supply to the point of discharge be prevented, and furthermore that the quantities in which the material is discharged can be varied in accordance with different conditions in the process in which the same is used.

In the accompanying drawings in the various views of which like parts are similarly designated, Figure 1, is a sectional view of a supply-bin and a therewith associated conveyer, comprised in my invention, and Fig. 2, a fragmentary section taken along the line 4—4, Fig. 1.

In the drawings, the reference numeral 2 designates a supporting structure which is erected in suitable proximity to the filter press or other appliance into which the material is to be fed. Mounted at the upper portion of this structure is the supply-bin 3 which in the operation of the apparatus is filled with the material which is discharged therefrom at regular intervals by the intermittent rotation of a helical screw conveyer 4.

The bin 3 has a vertical side 5 and opposite thereto a slanting wall 6 set approximately at an angle of 60 degrees and continued curvilinearly beyond the lower end of the said side to provide an open trough 7 in which the feed screw has its rotary movement. The screw is mounted in the trough with relation to the side 5 of the bin, so that the vertical plane of its axis of rotation extends outwardly out of alinement with the inner surface thereof, a feature which is of great value in the operation of the apparatus, as it assures a constant uniform feed of the material from the bin into the conveyer trough, and positively prevents packing of the pulverous matter. With the same purpose in view, the lower edge of the vertical side of the bin is spaced from the peripheral edge of the screw, and the trough is closed by means of a hinged cover 8 applied exteriorly of the wall 5, to prevent the escape of dust and to facilitate the cleaning of the screw whenever this is required.

The screw-conveyer is intermittently rotated by means of a friction ratchet or other suitable device applied at the end of its shaft which projects through an opening in the closed end of the trough opposite to that which is open as shown at 10 in Fig. 2, for the discharge of the material conveyed by the screw.

The material conveyed by the intermittently rotating screw is discharged at regular intervals through the opening 10 in the end of the trough and falls into a funnel-shaped bowl 20 or other suitable receiver.

It will be understood that while I have shown and described my invention in the best form at present known to me, the apparatus is susceptible of variations without any material deviation from the true principle and nature of the same.

Having thus described my invention what I claim and desire to secure by Letters-Patent is:

1. In apparatus of the character described, an open trough, a feed screw mounted for rotation therein, and a bin including a longitudinal wall the lower edge of which is positioned above the conveyer at one side of the vertical plane of the axis of rotation of

the same, and at the same side of the said plane, a second longitudinal wall which is continuous with the bottom of the trough.

2. In apparatus of the character described, an open trough, a feed screw mounted for rotation therein, and a bin including a longitudinal wall the lower edge of which is positioned above the conveyer at one side of the vertical plane of the axis of rotation of the same, and at the same side of the said plane, an outwardly slanting longitudinal wall which is continuous with the bottom of the trough.

3. In apparatus of the character described, an open trough, a feed screw mounted for rotation therein, and a bin including a longitudinal wall the lower edge of which is positioned above and in spaced relation to the conveyer at one side of the vertical plane of the axis of rotation of the same, and at the same side of the said plane, a second longitudinal wall which is continuous with the bottom of the trough.

4. In apparatus of the character described, an open trough, a feed screw mounted for rotation therein, and a bin including a wall the inner vertical surface of which is positioned to one side of the vertical plane of the axis of rotation of the conveyer and the lower edge of which is spaced from the circumferential edge of the conveyer, and a longitudinal wall disposed at the same side of the said plane continuous with the bottom of the trough.

5. In apparatus of the character described, an open trough, a feed screw mounted for rotation therein, and a bin including a wall the inner vertical surface of which is positioned to one side of the vertical plane of the axis of rotation of the conveyer and the lower edge of which is spaced from the circumferential edge of the conveyer, and a longitudinal wall outwardly slantingly disposed at the same side of the said plane continuous with the bottom of the trough.

6. In apparatus of the character described, an open trough, a feed screw mounted for rotation therein, and a bin including a wall the inner vertical surface of which is positioned to one side of the vertical plane of the axis of rotation of the conveyer, and a longitudinal wall disposed at the same side of the said plane continuous with the bottom of the trough.

7. In apparatus of the character described, an open trough, a feed screw mounted for rotation therein, and a bin including a longitudinal wall the inner vertical surface of which is positioned to one side of the vertical plane of the axis of rotation of the conveyer, and a longitudinal wall outwardly slantinglv disposed at the same side of the said plane continuous with the bottom of the trough.

8. In apparatus of the character described, an open trough, a feed screw mounted for rotation therein, and a bin including a longitudinal wall the lower edge of which is positioned above and in spaced relation to the conveyer at one side of the vertical plane of the axis of rotation of the same, and at the same side of the said plane, an outwardly slanting longitudinal wall which is continuous with the bottom of the trough.

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

HERBERT C. COLBURN.

Witnesses:
G. J. ROLLANDET,
L. RHOADES.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."