C. ALLEN.

OVERFLOW SEPARATING DEVICE.

APPLICATION FILED JULY 3, 1917.

1,355,070. **Patented Oct. 5, 1920.**

FIG. 1.

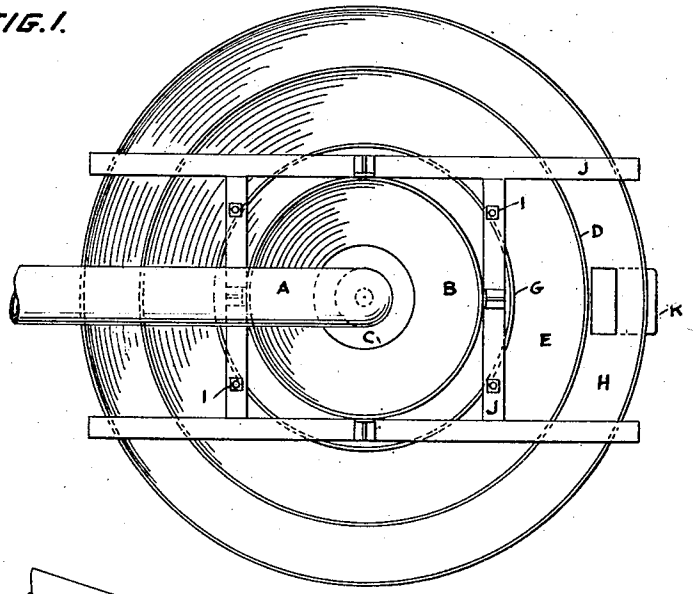
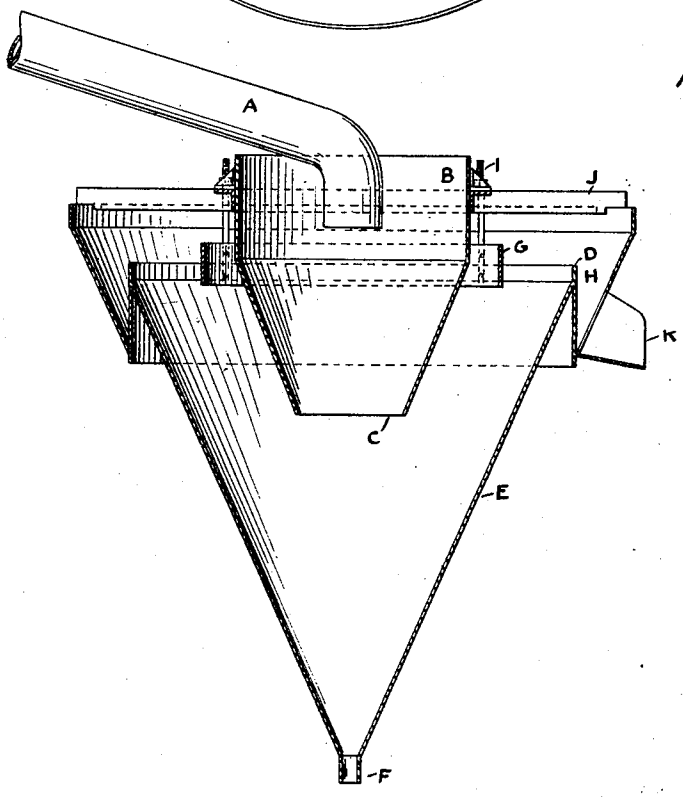


FIG. 2



WITNESSES:

Thos. Eastberg.

Julius C. Benesch.

INVENTOR

CHAS. ALLEN.

BY Strong & Townsend

ATTORNEYS

UNITED STATES PATENT OFFICE.

CHARLES ALLEN, OF EL PASO, TEXAS.

OVERFLOW SEPARATING DEVICE.

1,355,070. Specification of Letters Patent. Patented Oct. 5, 1920.

Application filed July 3, 1917. Serial No. 178,347.

To all whom it may concern:

Be it known that I, CHARLES ALLEN, a citizen of the United States, residing at El Paso, in the county of El Paso and State of Texas, have invented new and useful Improvements in Overflow Separating Devices, of which the following is a specification.

This invention relates to separating, classifying or dewatering devices having a container wherein the finer particles overflow the rim thereof and the feed is introduced into the container at a point below the normal level of the material to be separated; and has for its object to prevent agitation in the container in which the separation is to be made and to confine what agitation cannot be avoided as far away from the rim of the container as is possible, whereby to make the velocity of approach of the finer particles to the overflow lip uniform and quiet and free of eddies.

When the material to be separated enters the container through a spout that extends into the fluid contents, the line of least resistance for it to reach the surface of the material is close around the outside of the inlet spout, and in taking this path it causes a strong agitation of the surface of the contents of the container, which extends over considerable area of the surface unless means be provided to confine it to a more restricted portion. To obtain the best results in classifying, settling or thickening there should be no agitation of the surface, particularly in the vicinity of the overflow rim or lip of the container.

In the present invention I provide means to confine the agitation caused by the inflowing stream to a small section of the surface near the center of the container.

One form which my invention may assume is exemplified in the following description and illustrated in the accompanying drawings, in which—

Figure 1 shows a plan view of a convenient form of slime or pulp thickener embodying my invention.

Fig. 2 shows a vertical, central, sectional view of the same.

In the accompanying drawings I show a separator or classifier which, for illustration, may comprise a cone-shaped tank E having a discharge for the solids at the apex F and carrying at its top, upon supports J, an open-ended, cone-shaped spout B stationarily mounted and adapted to have its mouth C extended below the top of the tank. Pulp is fed to the spout B through a pipe A, and that portion which is not discharged through the apex F overflows the lip D of the tank and enters a launder H and is carried away by a conduit K.

In practice, it is found that the material fed into the spout B after passing out through its mouth C seeks the shortest route to the surface of the contents of the tank E which is around and close to the outside of the spout B. This upward flow keeps the surface of the liquid near to and around the spout in comparatively strong agitation which, unless prevented or confined, extends to the overflow lip D of the tank and interferes with the proper action of the separator.

I, therefore, provide a ring G surrounding the spout B and extending partly above and partly below the surface of the material, being supported in any suitable manner, as by means of bolts I. This ring serves to divide the surface of the tank into two zones, isolating the inner zone from the outer zone. It has been found by actual use that the ring G surrounding the spout at the water level of the material in the tank results in confining the undesirable agitation around the outside of the spout and the space between the spout and said ring and insures a quiet and uniform surface flow of the material to the overflow lip D, thereby giving a much better separation and a larger tonnage capacity than when the ring G is not used. It will be observed that the ring G combines in its action with the frusto-conical spout B and insures that the surface agitation within the tank will be confined to a zone directly surrounding the spout.

Various changes in the construction and arrangement of the several parts herein shown and described may be employed without departing from the spirit of my invention as disclosed in the appended claim.

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

In a separating and settling device, a container having a discharge aperture in its bottom for carrying off the settled particles and wherein the finer particles overflow the rim of the container, a spout having a frusto conical lower end arranged centrally

within the container and extending below the normal level of the contents of the container whereby the material is introduced, and a ring concentric to the spout extending both above and below the level of the contents of the container and arranged relatively close to the spout, whereby the incoming material in rising will follow a path close to the sides of the spout and upon reaching the surface agitation caused thereby will be confined to a relatively small area by the ring.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

CHARLES ALLEN.

Witnesses:
ELDRED V. ANSPACH,
W. O. MOORE.