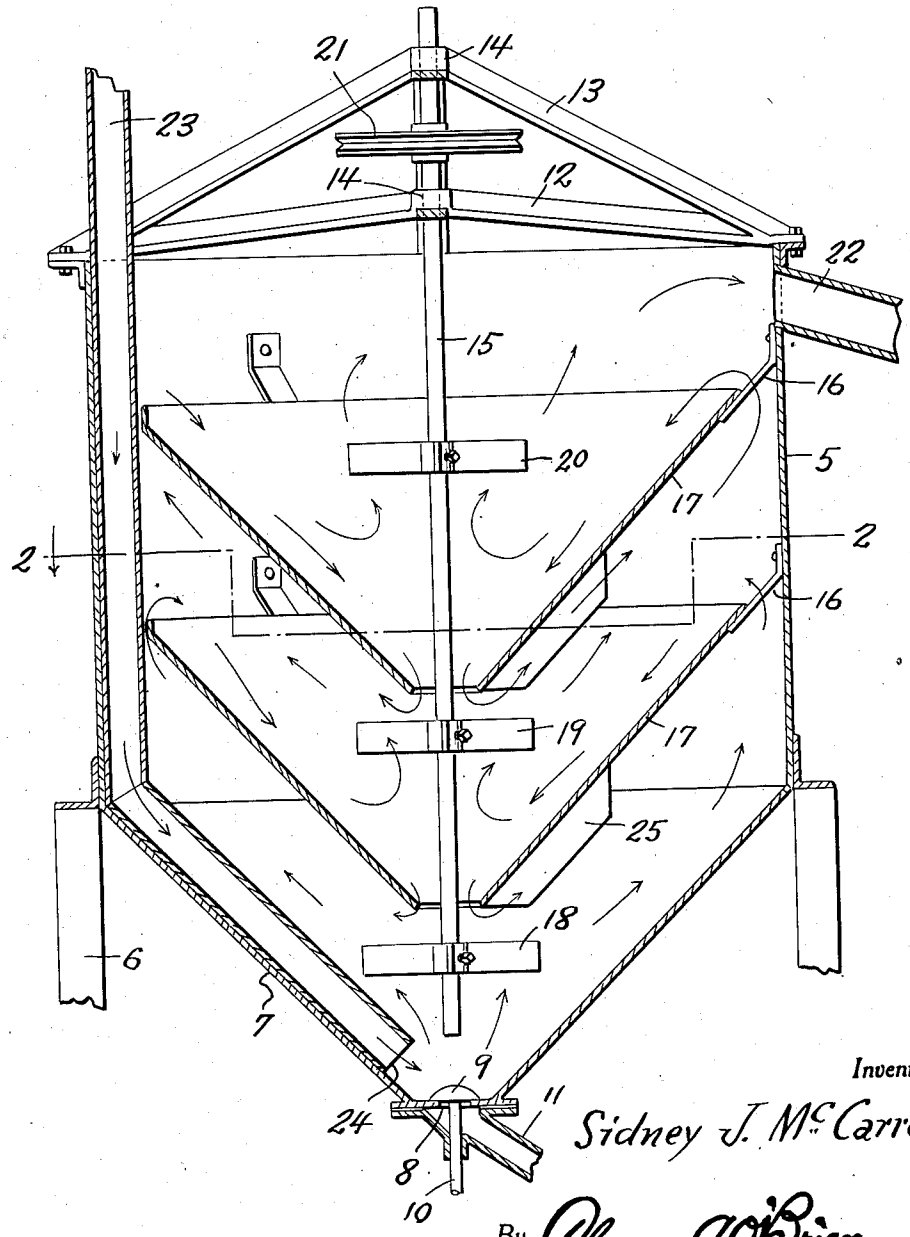
Dec. 25, 1934. S. J. McCARROLL 1,985,791

AGITATOR

Filed April 3, 1934 2 Sheets-Sheet 1

Fig. 1.



Inventor

Sidney J. McCarroll

By Clarence A. O'Brien

Attorney

Dec. 25, 1934. S. J. McCARROLL 1,985,791

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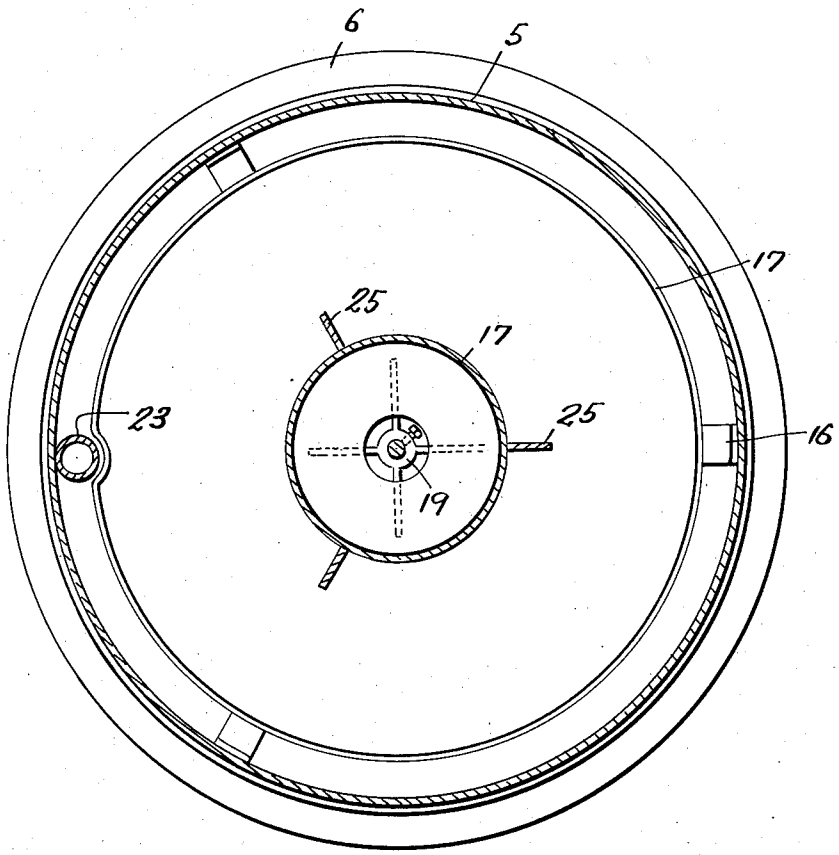


Fig. 2.

Inventor

Sidney J. McCarroll

By Clarence A. O'Brien

Attorney

Patented Dec. 25, 1934

1,985,791

UNITED STATES PATENT OFFICE

1,985,791

AGITATOR

Sidney James McCarroll, Rapid City, S. Dak., assignor of one-half to Edward Birdsall, Deadwood, S. Dak.

Application April 3, 1934, Serial No. 718,861

1 Claim. (Cl. 259—9)

This invention appertains to new and useful improvements in agitators particularly adapted in the separation of metallurgical substances.

The principal object of the present invention is to provide an agitator wherein wet pulps or suspensions of ground ore or minerals can be treated in a manner which will eliminate the possibility of short circuiting of the material. By short circuiting is meant the tendency for a material which is suspended in a liquid to pass directly through the machine without remaining in the machine long enough for thorough mixing or dissolution of its component parts.

Another important object of the present invention is to provide a machine wherein the material will be thoroughly agitated and treated without materially increasing the cost of the machine over types now in use.

Other important objects and advantages of the invention will become apparent to the reader of the following specification.

In the drawings:

Figure 1 represents a vertical sectional view through the apparatus.

Figure 2 represents a horizontal sectional view taken substantially on line 2—2 of Figure 1.

Referring to the drawings wherein like numerals designate like parts, it can be seen in Figure 1 that numeral 5 represents the tank mounted upon suitable supports 6. The tank 5 is provided with a conical shaped bottom 7 having a valve seat 8 in the bottom thereof against which the valve element 9 is engageable. This valve element 9 is provided with a stem 10 extending below the machine and capable of being operated in any manner desired. A chute 11 extends from the bottom of the tank.

Frame structures 12—13 are mounted upon the tank 5 and provided with vertically spaced and aligned bearings 14—14 through which the elongated vertical shaft 15 extends, this shaft extending downwardly into the tank to terminate adjacent the valve element 9.

Bracket members 16 support vertically spaced conical shaped baffles 17 in the tank 5, these baffles being open at their apices and spaced from the side walls of the tank 5 at their peripheries.

Below the lowermost baffle 17 an impeller 18 is provided on the shaft 15, while in the confines of the baffles 17 and immediately below the open apex of the baffle above the same is a second impeller 19 for the shaft 15, while a third impeller 20 is located on the shaft 15 within the confines of the uppermost baffle 17. A pulley 21 is provided on the shaft 15 below the uppermost bearing 14 and, of course, the shaft, with the use of this pulley, can be driven by a belt.

Adjacent the top of the tank 5 is a discharge spout 22, while numeral 23 represents the inlet conduit which extends downwardly on the inside of the tank along the side wall thereof to terminate at its discharge end 24 adjacent the valve 9.

The lower sides of the baffles 17 are provided with radially disposed fins 25 which serve to prevent a whirling action of the material when it is thrown outwardly by the impellers 18, 19 and 20.

It can now be seen that the pulp is fed into the machine through the conduit 23. As the pulp comes in contact with the bottom impeller 18, it is given a rotary and outward motion which forces the pulp against the side wall of the tank. The constant inflow of fresh pulp forces the pulp which first enters upwardly and into the first cone along a path designated by the arrows in Figure 1. The pulp divides here and part is drawn down through the bottom of the cone by the impeller 18. The rest of the divided pulp is given a rotary and outward motion and rises to flow into the uppermost cone. Here it divides again and part of the pulp is drawn down through the bottom of the cone last mentioned by the impeller 19. The remaining pulp which does not return through the bottom of the cone is agitated in this last mentioned cone by the impeller 20 and subsequently discharged through the spout 22.

While the foregoing specification sets forth the invention in specific terms, it is to be understood that numerous changes in the shape, size and materials may be resorted to without departing from the spirit and scope of the invention as claimed hereinafter.

Having described the invention, what is claimed as new is:—

An agitator of the character described comprising a tank having an inlet pipe terminating adjacent the lower outlet end thereof, a plurality of inverted conical shaped baffles in the tank, each baffle being provided with an opening at its apex portion, a vertically disposed shaft in the tank extending through the openings in the baffles, said baffles having their edge portions in vertical spaced relation to each other and spaced from the inside of the tank to provide a by-pass for material being treated in the tank, and an impeller on the shaft below each of the baffles at the apex portion thereof.

SIDNEY JAMES McCARROLL.