May 20, 1924. 1,494,529

R. S. CLARKE

SCREEN FOR PAPER STOCK

Filed Jan. 21, 1921

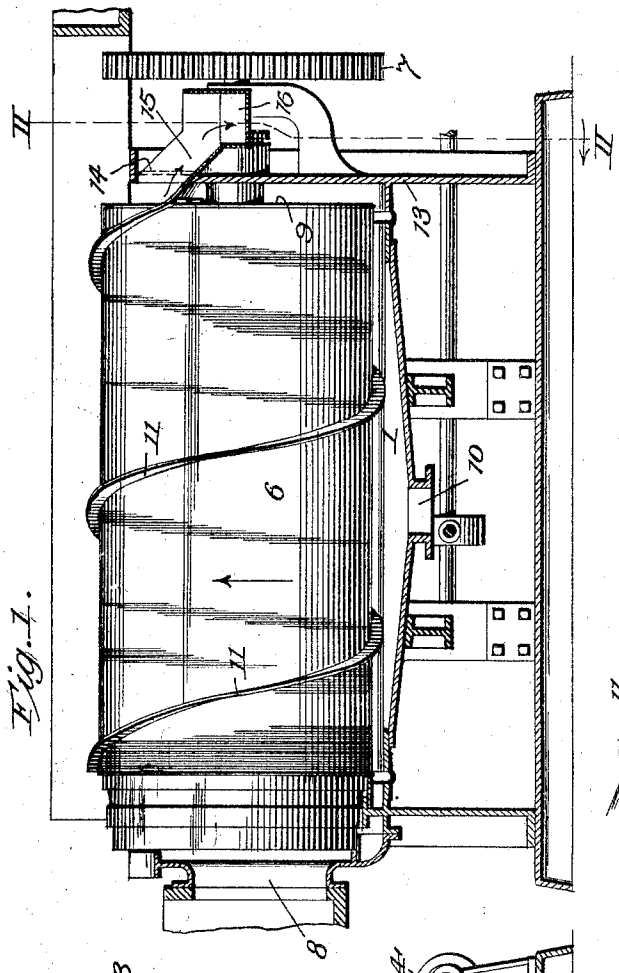


Fig. 1.

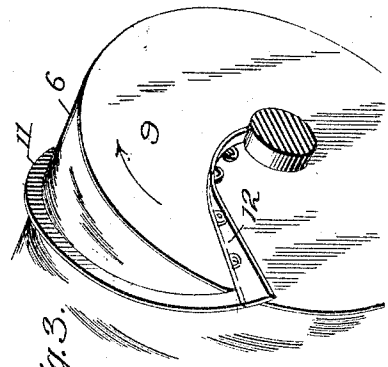


Fig. 3.

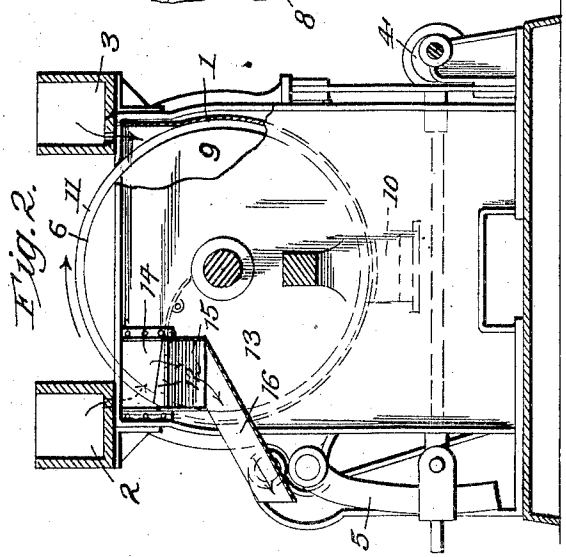


Fig. 2.

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UNITED STATES PATENT OFFICE.

RALPH S. CLARKE, OF WALPOLE, MASSACHUSETTS, ASSIGNOR TO BIRD MACHINE COMPANY, A CORPORATION OF MASSACHUSETTS.

SCREEN FOR PAPER STOCK.

Application filed January 21, 1921. Serial No. 438,965.

To all whom it may concern:

Be it known that I, RALPH S. CLARKE, a citizen of the United States, residing at Walpole, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Screens for Paper Stock, of which the following is a specification.

This invention pertains to screens for paper stock, and more particularly to rotary screens which operate partially submerged in the stock run into a tank surrounding the screen, the graded material passing inwardly of the screen and being discharged endwise thereof.

The present invention has for its main object the provision of means whereby the coarser particles or "rejections" which are present in the stock in the tank, will be gathered up, to a greater or less extent, by the rotative action of the screen and automatically discharged from the tank.

An embodiment of the invention is illustrated in the annexed drawings, wherein,—

Fig. 1 is a longitudinal sectional elevation of the screen;

Fig. 2 a transverse vertical sectional view thereof taken on the line II—II of Fig. 1; and

Fig. 3 a perspective view of one end of the screen showing more particularly the discharge lip or flange and one end of the lifting and propelling spiral, employed to gather and move the coarser material toward the discharge lip.

Referring to the drawings, 1 denotes the vat or tank to which the material is fed through the flow boxes 2 and 3, or any other suitable manner. The tank may be of any approved type and the main body thereof is designed to have an oscillating movement imparted thereto through an eccentric 4 connected up with vibratory mechanism denoted generally by 5 and which is of standard type and therefore need not be described in detail. Mounted within the vat or tank is a screen 6, the screen being partially submerged and rotated through a gear, as 7.

The construction thus far described has heretofore been employed, the action being to cause the finer material to pass in through the openings of the screens and outwardly at one end 8 thereof, the other end 9 of the screen being closed. Impurities held back by the screen settle toward the drain 10, which is provided with a suitable valve or offtake pipe, not shown, the downcoming unscreened stock assisting gravity in this action. Mounted upon the exterior surface of the screen, and extending from the discharge end toward the head 9 is a spirally arranged flight or blade like member 11, and secured to the head 9 and extending from the shaft which supports the screen is a skimmer blade 12, said blade curving rearwardly and inclined outwardly toward its outer end as it approaches the adjacent end of the flight or spiral blade 11. As will be seen upon reference to Fig. 3 the outer end of said skimmer blade passes the end of the spiral 11, forming, in effect, a continuation thereof. The main frame or casting member 13 adjacent the head 9 is provided with an opening 14 and a downwardly inclined chute 15 is secured around said opening. An offtake trough 16 extends from the chute and delivers the material to a conveyor or the like which delivers it to any point where the material passing therefrom can be reground.

In operation, and with the screen rotating in the direction of the arrow, the coarser material or "rejections" are collected or gathered up by the spiral and advanced toward the head 9 where they finally pass on to the skimmer blade 12, which lifting them throws them out through the opening 14 into the chute 15. The skimmer blade moreover tends to lift any of the heavier particles or "rejections" which may be floating in the mass under treatment and which are advanced toward the same by the spiral 11, and thus materially assists in keeping the tank free of larger particles. This removal of the screen rejections in addition to assisting the action of the screen, does away with the necessity of draining the tank or vat so frequently, and materially enhances the operation of the apparatus.

What is claimed is:—

1. In combination with a submerged screen of the inflow type; means associated and movable therewith for gathering the coarser particles of the stock fed to the screen propelling the same longitudinally of the screen and discharging the same.

2. In combination with a tank; a screen of the inflow type located therein; and means located exteriorly of the screen for gathering the coarser particles from the

stock introduced into the tank, moving the same longitudinally of the screen and tank and discharging the same from the tank.

3. In combination with a tank; a rotary screen of the inflow type located therein; and means mounted exteriorly of and on the screen and movable therewith for gathering the coarser particles from the stock introduced into the tank, moving the same longitudinally of the screen and tank and discharging the same from the tank.

4. In combination with a tank; a rotary screen of the inflow type located therein; a spirally arranged flight running lengthwise of the screen; and means coacting therewith to receive the coarser particles gathered by the flight and to discharge the same without the tank.

5. In combination with a tank; a rotary screen of the inflow type located therein; a spirally arranged flight carried by the screen and running lengthwise thereof upon its outer face; a blade like member mounted on one end of the screen, said member extending outwardly from the axis of the screen to the adjacent end of the flight, and serving to discharge the coarser particles of the stock gathered by the flight to a point without the tank.

6. In combination with a tank having a discharge opening at one end at the upper portion thereof; a rotary screen of the inflow type mounted therein; a flight arranged spirally of the screen and movable therewith; and a blade like member secured to that head of the screen which stands next to the discharge opening, said member curving rearwardly as it extends outwardly from the center of the head and overlapping the adjacent end of the flight.

7. In combination with a tank having a discharge opening at one end at the upper portion thereof; a rotary screen of the inflow type mounted therein; a flight arranged spirally of the screen and movable therewith; and a blade like member secured to that head of the screen which stands next to the discharge opening, said member curving rearwardly and inclined downwardly as it extends outwardly from a point adjacent the center of the head, the outer end of the member overlapping the adjacent end of the flight.

8. In combination with a tank having a discharge opening at one end at the upper portion thereof; a rotary screen of the inflow type mounted therein; a flight arranged spirally of the screen and movable therewith; a blade like member secured to that head of the screen which stands next to the discharge opening, said member curving rearwardly and inclined downwardly as it extends outwardly from a point adjacent the center of the head, the outer end of the member overlapping the adjacent end of the flight; and a chute, the upper end whereof terminates in line with the discharge opening in the tank.

In testimony whereof I have signed my name to this specification.

RALPH S. CLARKE.