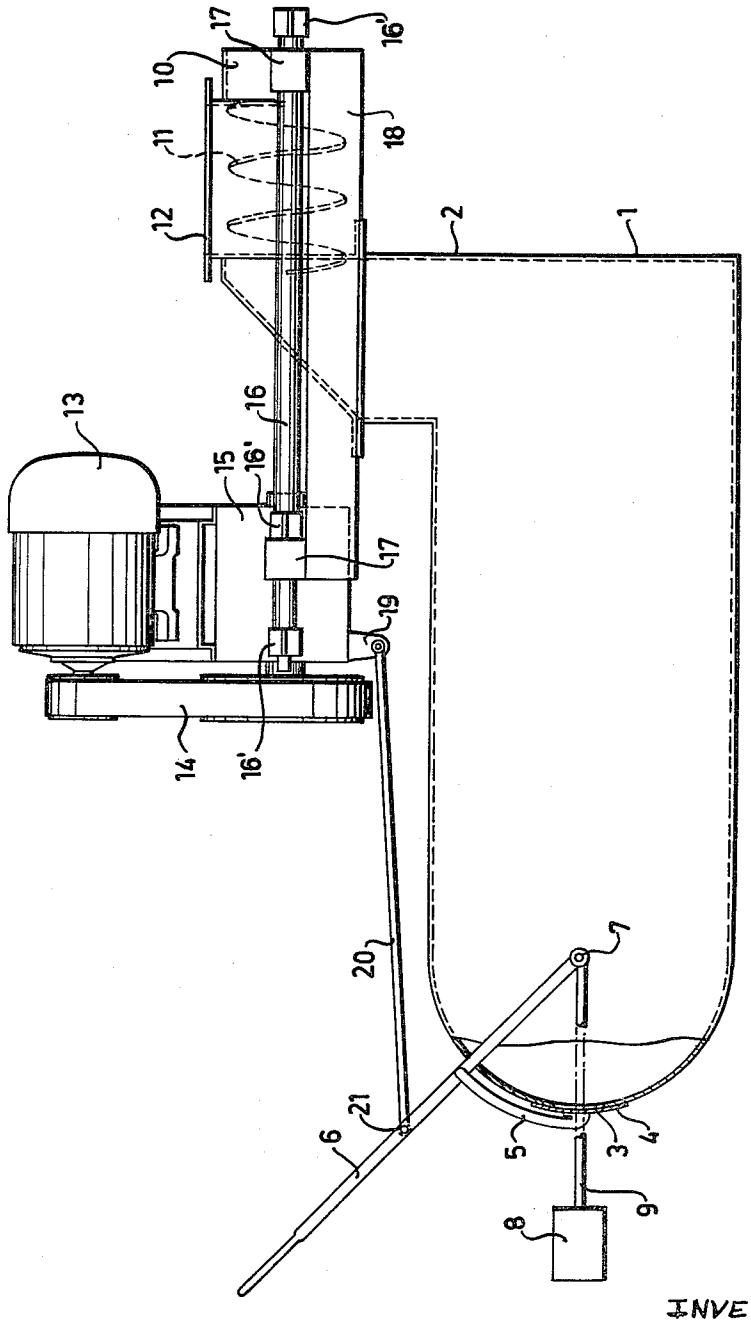
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DEVICES FOR AUTOMATIC CONTROL OF THE DISCHARGE FROM AN APPARATUS FOR CONTINUOUS TREATMENT OF MATERIAL

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DEVICES FOR AUTOMATIC CONTROL OF THE DISCHARGE FROM AN APPARATUS FOR CONTINUOUS TREATMENT OF MATERIAL

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2 Claims. (Cl. 222—56)

The invention refers to a means for automatic control of the discharge from a processing apparatus in which material to be treated is introduced continuously through an inlet by means of a feed screw, and after treatment in the apparatus is discharged through an outlet fitted with a controllable shut-off element. The primary purpose of the invention is to control the discharge dependent on the infeed, so that the apparatus is kept substantially filled with material, and it is designed to produce a reliable, and at the same time simple, arrangement for this purpose. The invention is, for example, suitable for beating plant for wood pulp, when it is of importance for the operation of the apparatus that it is kept well filled with material, although naturally the invention is also applicable to other apparatus where similar problems occur.

The invention is characterized in that the feed screw is axially slidable, so that, on increased back pressure from the material in the apparatus, it tends to be displaced in a direction opposite to the direction of feed, and is actuated by elements adapted, on reduced back pressure from the material, to displace the screw in the direction of feed, and is connected with the shut-off element for the outlet in such a manner that the size of the outlet aperture increases with displacement in the first-mentioned way, and decreases with displacement in the last-mentioned way.

The invention is explained more fully in conjunction with an enclosed drawing, which shows somewhat schematically an embodiment of the invention.

In the drawing, 1 designates the processing apparatus which can be, for example, a beating apparatus for wood pulp with a suitable beating element, not shown, in the interior of the apparatus. Pulp is fed in through an inlet 2 at one end of the apparatus and the beaten, or in other ways treated, pulp is discharged through aperture 3 at the other end of the apparatus for collection in a suitable receiving vessel or similar (not shown). Aperture 3 can be completely or partially closed by means of a sluice 4, which by means of an arm 5 is connected to a lever 6, which can be turned about a pivot 7. A weight 8 is secured to lever 6 by means of an arm 9 to keep sluice 4 in the closed position.

For feeding in pulp, inlet 2 is provided with a housing 10 for one or two feed screws 11 and fitted with an opening 12, through which pulp is introduced. Housing 10 is constructed so that screw 11 can be axially displaced a short distance in housing 10. The shaft of the screw (which is not visible in the drawing) is driven by a motor 13 via a belt transmission 14 or similar. The motor and associated parts are supported on a stand 15, which is secured by means of two side bars 16, one of which can be seen in the drawing. These bars extend through, and slide in, brackets 17 secured to a frame 18 attached to housing 10.

It will be realized that, with the above-mentioned arrangement, the entire assembly formed by screw 11 and its shaft, stand 15 with motor 13 and associated parts can be axially displaced. Travel is limited by stops 16' on bars 16.

A lug 19 attached to stand 15 forms the pivot for arm 20, which is hinged at 21 to lever 6.

If apparatus 1 is empty and is to be started, aperture 3 is closed by sluice 4. Pulp is supplied to feed screw 11 through opening 12 and is fed in by the screw to apparatus 2 until this is filled. The back pressure of the material on screw 11 will then be so high that the screw will be displaced to the right, as seen on the drawing, and arm 20 will then actuate lever 6, opening sluice 4, so that pulp can be discharged as long as the outfeed becomes equal to the infeed by means of the screw. If outfeed tends to exceed infeed or if infeed is reduced so that the filling of apparatus 1 diminishes, the pressure of the pulp on the screw will be reduced and weight 8 will then return sluice 4 towards the closed position. In this way the apparatus is always kept filled.

I claim:

1. An apparatus for continuous processing of material, comprising a casing having an inlet and an outlet, means in said casing for processing said material introduced through said inlet, feeding means associated with said inlet comprising a feed screw, means supporting said feed screw for axial displacement in both directions to enable the screw to be displaced axially in a direction opposite to the feed direction when the back pressure of the material on said screw increases, means connected to said feed screw tending to displace it in the direction of feed on decreasing back pressure of the material, a controllable shut-off element associated with said outlet to vary its size, and mechanical means connecting said feed screw to said shut-off element to cause said shut-off element to increase the size of the outlet when said feed screw is displaced in the direction opposite to the feed direction and to reduce the size of the outlet when said feed screw is displaced in the feed direction.

2. Apparatus according to claim 1, wherein said means tending to displace the screw in the feed direction comprises a weight connected to said mechanical means connecting the feed screw to the shut-off element.

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