Jan. 29, 1952 A. FRANCE 2,583,768

ADJUSTABLE DISCHARGE APPARATUS
FOR SLURRY AND MUDDY MATERIALS
Filed June 26, 1946

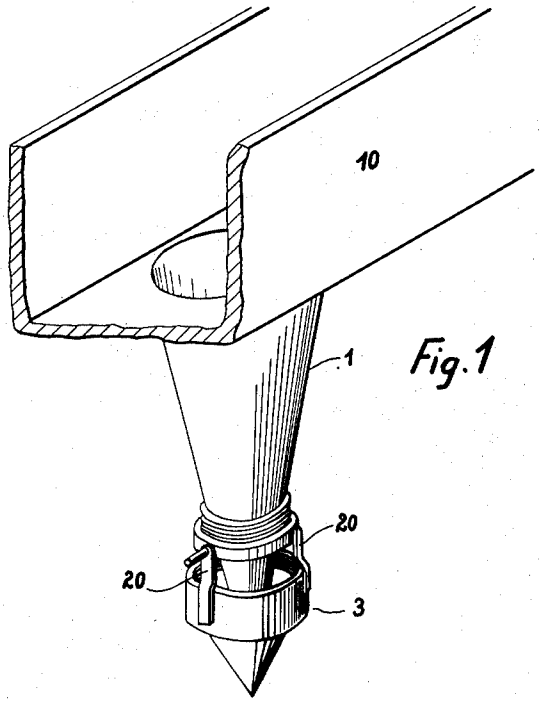


Fig. 1

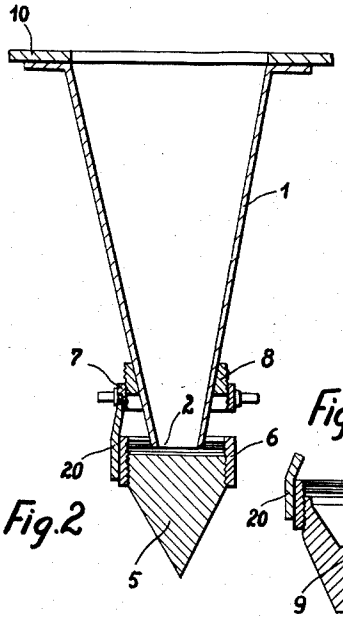


Fig. 2

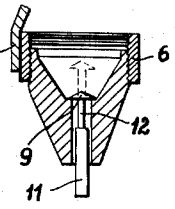


Fig. 4

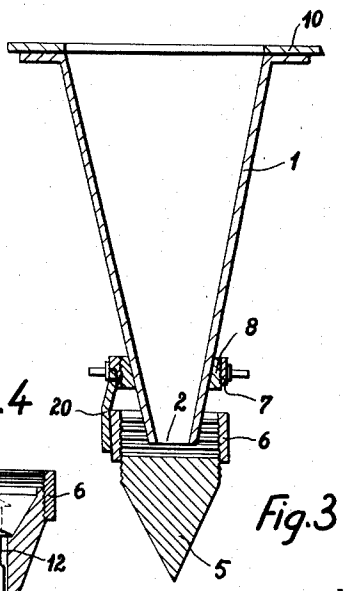


Fig. 3

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2,583,768

ADJUSTABLE DISCHARGE APPARATUS FOR SLURRY AND MUDDY MATERIALS

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3 Claims. (Cl. 209—494)

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The present invention relates to an adjustable discharging apparatus for slurry and muddy materials, comprising a discharge tube and an obturating element disposed in the axis and beneath the lower aperture of said tube to regulate the flow of the discharge.

This apparatus may be used in particular in coal and ore washing plants incorporating the so-called alluvium process and comprising launders to which discharging apparatuses of the type referred to are joined. The delivery of such apparatuses must be relatively small and be adjustable. In the apparatuses hitherto proposed, the delivery is regulated by reducing more or less openings formed between the obturating elements and the lower ends of the discharge tubes for the passage of the products. The object of the invention is to provide a discharging apparatus the delivery of which is regulated not only by acting on such an opening, but also on the flow velocity.

To this end, in the discharging apparatus according to the invention, the upper part of the obturating element is dished and of a section broadly larger than the lower one of the discharge tube in such a way as to form thereby a passage for the products, said obturating element being movable along the axis of said tube and the useful height of the side surface of its upper part being adjustable in such a way as to regulate said passage.

In this way a baffle effect is obtained which, by producing changes of direction in the current of the products to be discharged, produces load losses and reduces the velocity of these products. Small discharges can thus be produced without reducing too greatly the opening formed between the obturating element and the lower end of the discharge tube which reduces the dangers of clogging by the largest particles.

In a preferred embodiment of the invention, the bottom of said dished upper part is concave and provided with a normally obturated hole, means being provided for opening said hole by an operator in order to remove accumulated products in said bottom.

Further features and constructional details of the invention will become apparent from the following description and the accompanying drawings which illustrate, by way of non-limiting example, embodiments according to the invention.

Figure 1 is a view of the apparatus described.

Figure 2 represents a vertical section of said apparatus.

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Figure 3 represents a similar view with the parts in another position.

Figure 4 represents a vertical section of a preferred embodiment of the obturating element.

In the different figures, the same reference numerals denote analogous parts.

The apparatus comprises a conical discharge tube 1, jointed to a launder 10 and normally filled with a dense mud. The lower aperture 2 of this tube 1 is circular. Beneath said aperture 2, an obturating element 3 is disposed in the axis of the discharge tube 1 and is movable along said axis. The upper part of the obturating element 3 is dished and of a section broadly larger than the lower one of the tube 1 in such a way as to form thereby a passage for the products to be discharged.

The obturating element 3 has a body 5 around which is arranged a projecting part 6. The latter is a ring screwed on the body 5. The useful height of the side surface of the upper part of the obturating element 3 is so adjustable. Said element 3 is supported by three lateral arms 20 fixed, on the one hand, to the ring 6 and, on the other hand, to a tapped ring 7 screwed to another ring 8 fixed to the tube 1.

A double regulation is thus provided since the relative position of the aperture 2 and of the body 5, and the position of this latter and of the ring 6 can be modified. This is illustrated in Fig. 3 in which the body 5 is shown in a lowered, and the ring 6 in a raised position. The obturating element 3 permits thus to act on the opening formed between the body 5 and the lower end of the tube 1 and also on the flow velocity by modifying the position of the ring 6.

The lower part of the body 5 is preferably of a conical form. In a preferred embodiment according to the invention (see Figure 4), the bottom of the dished upper part of the obturating element 3, say the upper part of the body 5, is concave so as to facilitate the downward sliding of particles which are too big to pass in the opening formed between the body 5 and the lower end of the tube 1. Moreover, said body 5 is provided with a normally obturated central hole. Means are provided for opening said hole by an operator in order to remove from time to time the deposit accumulated in said bottom. For instance the said central hole is normally obturated by a plug 12 mounted on a rod 9 solid with a sleeve 11 sliding with a smooth frictional fit in the same hole. The obturating element 3 can be emptied by the operative by moving the sleeve 11 upwards.

It is to be understood that the invention is in no way limited to the constructional forms above described and that many modifications may be made, in particular as to the shape, the construction, the number and the arrangement of the elements employed in the construction without departing from the scope of the invention, providing such modifications are within the scope of the appended claims.

Thus the different elements such as the discharge tube, the aperture and the obturating element may have a non-circular cross-section. The regulation of the relative positions of the different elements might be effected otherwise than by screwing, for example by sliding in suitable grooves.

Finally, the upper part of the body of the obturating element might be convex. In this case, there is not provided for an emptying device for eliminating the large particles.

What is claimed is:

1. An adjustable discharging apparatus for slurry and muddy products comprising a discharge tube, an obturating element disposed in the axis and beneath the lower aperture of said tube to regulate the flow of the discharge, the upper part of said obturating element being dished and of a section broadly larger than the lower one of said tube in such a way as to form thereby a passage for said products, said obturating element being movable along said axis and the useful height of the side surface of its upper part being adjustable in such a way as to regulate said passage.

2. An adjustable discharging apparatus as claimed in claim 1, wherein said obturating element is supported by lateral arms fixed, on the one hand, to the side of its upper part and, on the other hand, to a tapped ring screwed to another ring fixed to said tube, said side being screwed on the body of said obturating element.

3. An adjustable discharging apparatus as claimed in claim 1, wherein the bottom of said dished upper part is concave and provided with a normally obturated hole, means being provided for opening said hole by an operator in order to remove accumulated products in said bottom.

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