June 24, 1930. E. DE DORLODOT 1,767,353

SEPARATING, DISINTEGRATING, AND MIXING APPARATUS

Filed Nov. 13, 1928

Fig. 1

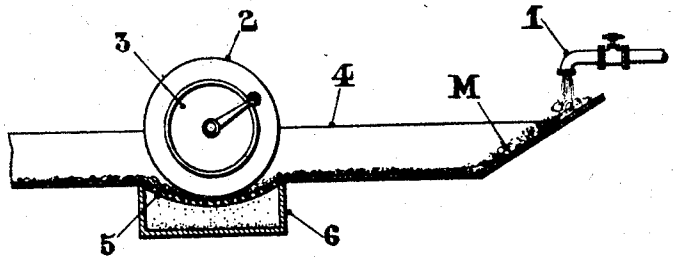


Fig. 2

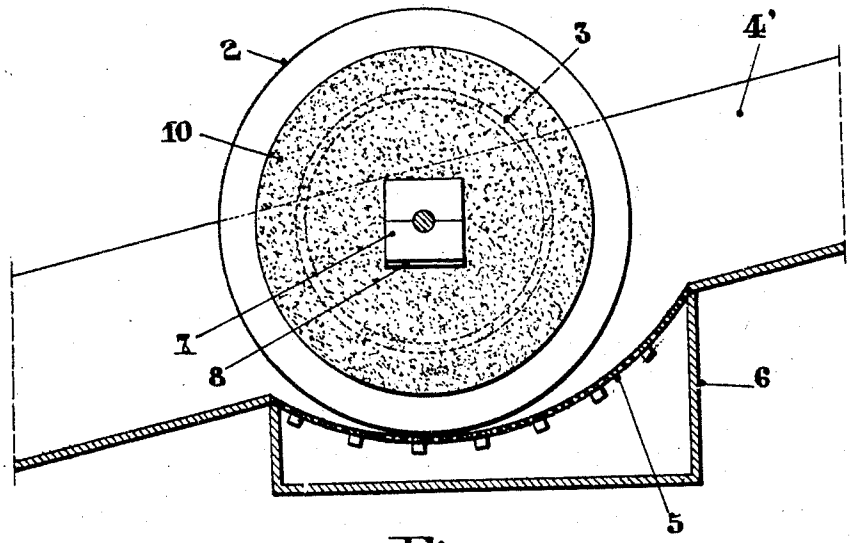
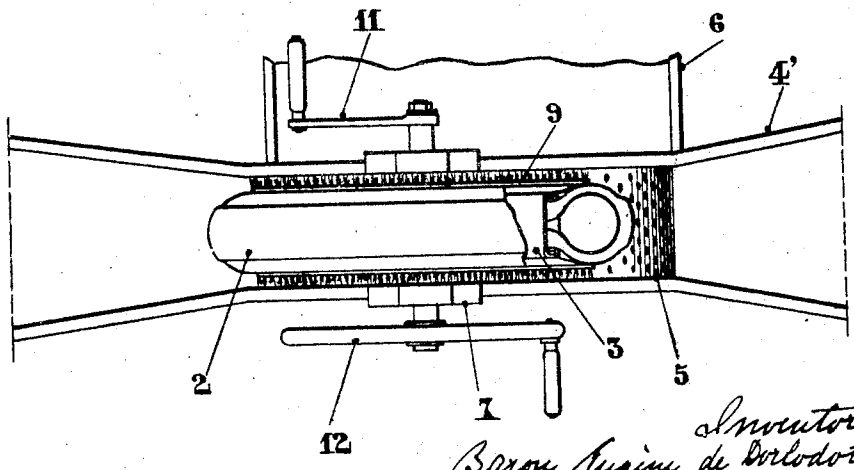


Fig. 3



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UNITED STATES PATENT OFFICE

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SEPARATING, DISINTEGRATING, AND MIXING APPARATUS

Application filed November 13, 1928, Serial No. 319,087, and in France November 18, 1927.

The present invention has for its subject a separating-disintegrating-mixing apparatus for all kinds of applications but more particularly applicable to the treatment of ores and similar materials.

This apparatus is essentially characterized by the application, for obtaining the results aimed at, of a pneumatic elastic band inflated to a suitable pressure and mounted on a wheel to which a rotary movement is imparted by any suitable means.

The wheel provided with the band in question is combined with a trough to which the material to be treated is supplied and which may also be supplied with a stream of water.

In the accompanying drawing there are illustrated diagrammatically and solely by way of example, two forms of construction in accordance with the invention.

Figure 1 shows a longitudinal section of the most simple case of construction of the apparatus.

Figure 2 shows to a larger scale a modified form of apparatus in which the front wall of the trough has been removed, and

Figure 3 is a plan view, partly in section, of the apparatus shown in Figure 2.

In the form of construction shown in Figure 1 the material to be treated is conveyed by a steam of water which is supplied from a pipe 1, under a pneumatic tyre 2 mounted on the wheel 3. The wheel rotates in a trough 4 of which the bottom may be provided, for a suitable portion of its length, with a screen or grating 5.

The material M to be treated is drawn under the tyre and is mixed by the latter in such a manner that the fine particles are forced through the screen whilst the larger particles pass under the tyre which, by reason of its elasticity, yields so as to enable the said larger particles to pass irrespective of their size. The fine particles are collected in a tank 6 and are suitably removed to the exterior.

In the form of construction shown in Figures 2 and 3 the general arrangement of the device is the same as shown in Figure 1, but the trough 4′ is provided with a suitable inclination and the wheel 3 is mounted slightly eccentrically in relation to the cylindrical surface of the screen 5. In Figures 2 and 3 the reference figures indicate the same parts as in Figure 1. The bearing 7 of the shaft of the wheel 3 is preferably arranged in such a manner as to enable the tyre 2 to be approached or withdrawn from the inner surface of the screen 5, according to the degree of size of the materials treated, by introducing wedges 8, of any suitably selected thickness.

The walls of the trough in which the elastic tyre rotates may be provided with brush mats as indicated at 9 in Figure 3. The elastic tyre may also be provided with a belt 10 of brush matting or of any other suitable material.

The wheel 1 may be driven by hand, cranks 11 and 12 being suitably mounted on the shaft thereof for this purpose as is indicated in the drawing, or the wheel may be driven by a motor, not shown.

I claim:—

1. A separating, disintegrating and mixing device for general application, but more particularly for the treatment of ores and similar materials comprising a rotary wheel, a pneumatic tyre mounted on said wheel and adapted to be inflated at any suitable pressure, a trough in which said wheel is mounted, and a screen mounted in said trough, said tyre being adapted to force the fine particles of material through said screen and to yield to the larger particles whereby these are removed from the screen.

2. A separating, disintegrating and mixing device for general application, but more particularly for the treatment of ores and similar materials comprising a rotary wheel, a pneumatic tyre mounted on said wheel and adapted to be inflated at any suitable pressure, a trough in which said wheel is mounted, and a screen mounted in said trough, said tyre being adapted to force the fine particles of material through said screen and to yield to the larger particles whereby these are removed from the screen, said screen being of concave shape whilst the wheel is mounted eccentrically in relation thereto.

3. A separating, disintegrating and mixing device for general application, but more par-

ticularly for the treatment of ores and similar materials comprising a rotary wheel, a pneumatic tyre mounted on said wheel and adapted to be inflated at any suitable pressure, a trough in which said wheel is mounted, and a screen mounted in said trough, said tyre being adapted to force the fine particles of material through said screen and to yield to the larger particles whereby these are removed from the screen, a shaft on which said wheel is mounted, bearings in said trough for supporting said shaft, and wedge members co-operating with said bearings so as to adjust said wheel relatively to said screen.

4. A separating, disintegrating and mixing device for general application, but more particularly for the treatment of ores and similar materials comprising a rotary wheel, a pneumatic tyre mounted on said wheel and adapted to be inflated at any suitable pressure, a trough in which said wheel is mounted, and a screen mounted in said trough, said tyre being adapted to force the fine particles of material through said screen and to yield to the larger particles whereby these are removed from the screen, said trough having an inclined portion whereby the materials to be treated are conducted on to the screen and under said wheel.

5. A separating, disintegrating and mixing device adapted for use with a stream of water, and designed for general application, but more particularly for the treatment of ores and similar materials comprising a rotary wheel, a pneumatic tyre mounted on said wheel and adapted to be inflated at any suitable pressure, a trough in which said wheel is mounted, and a screen mounted in said trough, and means for hydraulically conveying materials to the screen, the said tyre being adapted to force the fine particles of material through said screen and to yield to the larger particles whereby these are removed from the screen.

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