Oct. 4, 1927. 1,643,938

D. C. ADDICKS

DISINTEGRATING MACHINE

Filed April 3, 1926

Fig. 1.

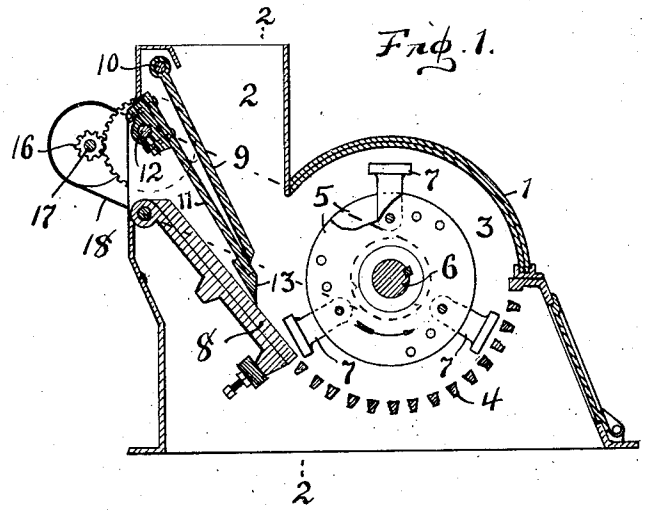
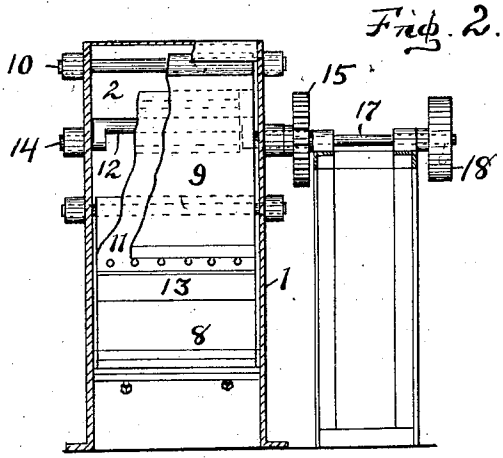


Fig. 2.



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UNITED STATES PATENT OFFICE.

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DISINTEGRATING MACHINE.

Application filed April 3, 1926. Serial No. 99,499.

This invention relates to improvements in disintegrating machines in which various materials are reduced from one grade of particles to a finer grade, and is especially applicable in the treatment of materials while in a wet state. The object of the invention is to provide in conjunction with a grinding or crushing means a feeding device for progressing the material to be reduced by said means, especially when said material is in a sticky condition, and to prevent massing of the material upon the breaker plate and the consequent hindrance to the grinding or crushing operation.

The object of the invention is accomplished by the construction illustrated in the accompanying drawings in which:

Fig. 1 is an elevation of a construction embodying the invention shown in section; and

Fig. 2 is a transverse section of Fig. 1 on the line 2—2 thereof.

The characters appearing in the description refer to parts shown in the drawings and designated thereon by corresponding characters.

The invention comprises a grinding or crushing means including a housing 1 having a hopper 2 and crushing chamber 3, there being an arcuate series of spaced bars 4 forming the lower part of the crushing chamber and between which the crushed material when reduced to a sufficient fineness is expelled from said chamber; a rotor in the chamber consisting of a series of discs 5 mounted upon a drive-shaft 6 and a series of hammers 7 having hinged connection with said discs; and a breaker plate 8 mounted in the housing, under said hopper 2, and upon which the material to be reduced is crushed by the action of said hammers in the manner established in the art. The invention contemplates also in connection with said grinding and crushing means a plate 9 that is hinged at its upper end upon a rod 10 disposed transversely in the upper part of the hopper, said plate forming a movable bottom for said hopper; and a gyrating plate 11 positioned between the breaker plate 8 and the movable bottom 9 of the hopper. The upper end of the gyrating plate 11 is mounted upon a crank 12, and the lower end of said plate is provided with a shoe 13 fixed thereon, the outer portion of which is tapered to a sharp edge and bears upon the breaker plate 8 while the lower end of the movable bottom 9 bears upon the gyrating plate 11 adjacent the lower end thereof.

The crank-shaft 14 has fixed thereon a gear 15 that is actuated by a pinion 16 upon a countershaft 17, and said countershaft has actuated relation with the drive-shaft 6 by a suitable transmitting mechanism 18, so that as the rotor in the crushing chamber revolves, the plate 11 will accordingly be gyrated.

In the operation of the invention the rotor is rapidly revolved by applying power to the drive-shaft in the customary manner, and the material to be treated is introduced into the hopper from which it passes over the movable bottom 9 and lower end of the gyrating plate onto the breaker plate where it is subjected to the action of the hammers on the rotor and thereby reduced to a state that will admit of its passage through the spaced bars. The downward thrust of the lower end of the gyrating bar tends to shove the material on the breaker plate into the path of the hammers and scrapes the material loose from the breaker plate, and during the upward thrust of the gyrating plate the lower end of the movable bottom 9 scrapes the material loose from the adjacent upper surface of the gyrating plate, and in this manner the material, even though of a sticky nature is kept loose and in motion toward the rotor, and clogging of the material in the machine averted.

The particular construction of the grinding or crushing means here shown as an example is immaterial, as other common means of reducing the material as it passes over the breaker plate may be substituted for the structure shown without departure from the spirit of the invention, and therefore I do not confine myself to the particular grinding or crushing means shown.

What I claim is:—

1. In combination with a crushing or grinding means including a housing having a hopper, a crushing chamber with a grating in the bottom thereof, and a rotor in said chamber, a breaker plate in co-operative relation with said rotor; a pendant hinged plate forming a movable bottom for said hopper; a feeding means comprising a gyrating plate positioned between said movable bottom and said breaker plate, the lower end of said gyrating plate having reciprocating movement on said breaker plate and sliding

contact with said movable bottom; and transmitting means in connection with said rotor imparting movement to said feeding means.

2. In combination with a crushing or grinding means including a rotor and a breaker plate, a hinged plate spaced above said breaker plate; a gyrating feed plate positioned between said hinged plate and breaker plate and having sliding contact at its lower end with said breaker plate, said swinging plate having sliding contact at its lower end on said feed plate adjacent the lower end thereof; and means for actuating said rotor and feed plate.

3. In combination with a crushing or grinding means including a breaker plate and a rotor, two movable plates one of which is superimposed upon said breaker plate and extends beneath the other movable plate, and has sliding contact at one end portion thereof upon said breaker plate and with the corresponding end of said other movable plate; and means for actuating said intermediate plate and rotor simultaneously.

4. In combination with a crushing or grinding means including a breaker plate and a hopper, a swinging bottom member in said hopper spaced above said breaker plate, and a reciprocating feed member disposed between said bottom member and breaker plate, one end of said feed member having scraping action on said breaker plate, and the lower end of said bottom member having scraping action on said feed member as said feed member is actuated whereby plastic material passing from said hopper into said hopper onto said breaker plate is prevented from massing on said feed member and breaker plate.

In testimony whereof I affix my signature.

DIEDRICH C. ADDICKS.