Aug. 20, 1929. P. S. KNITTEL 1,725,283

FEEDER FOR CRUSHERS, PULVERIZERS, AND BELT CONVEYERS

Filed May 18, 1927

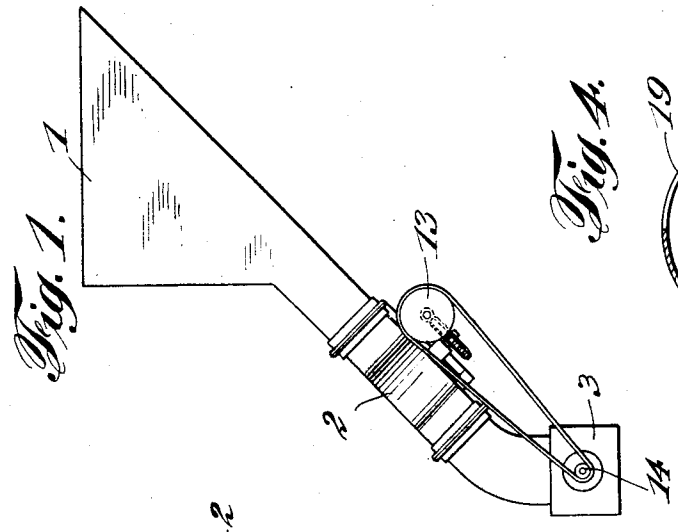



Fig. 1.

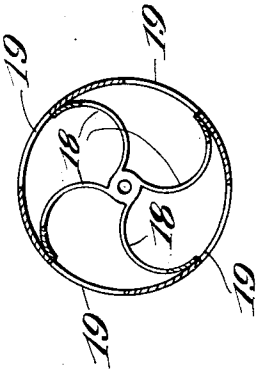



Fig. 4.

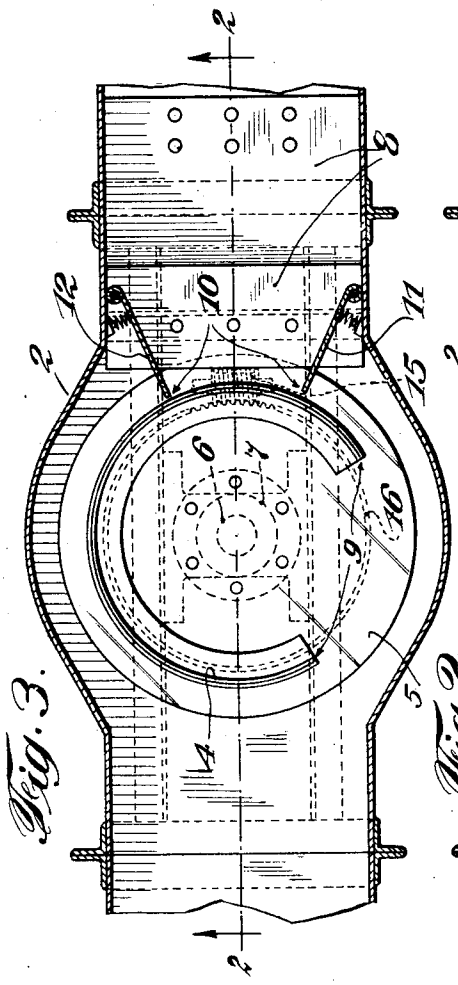



Fig. 3.

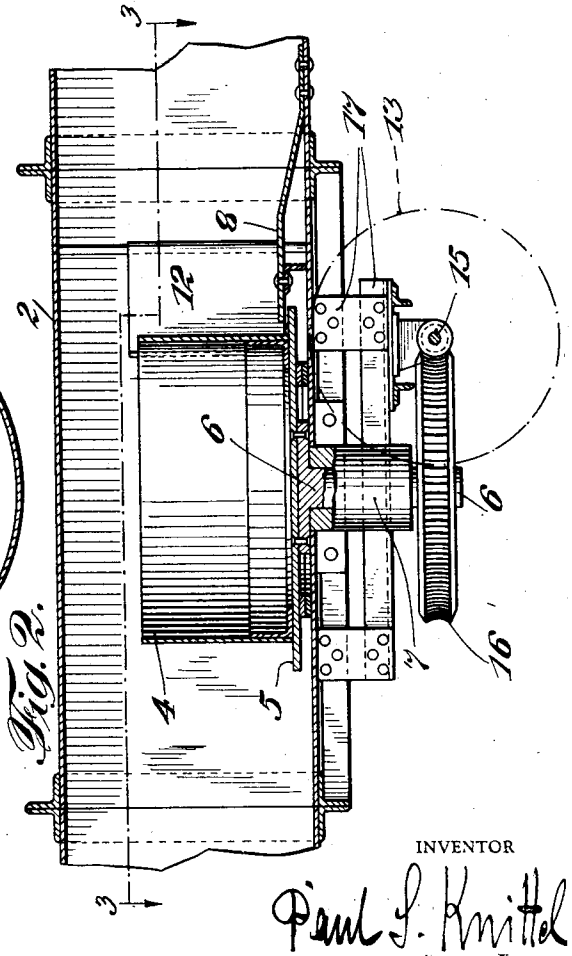



Fig. 2.

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# UNITED STATES PATENT OFFICE.

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## FEEDER FOR CRUSHERS, PULVERIZERS, AND BELT CONVEYERS.

Application filed May 18, 1927. Serial No. 192,308.

The invention relates to improvements in crushers and pulverizers or machines for handling the materials to and from these machines, and it has more particularly to do with a device for feeding the material to be reduced in the machine.

The invention has for its objects to produce a simple and efficient, feeding device or mechanism, which is positive in its action and yet possesses a certain degree of flexibility to avoid jamming and consequent damage which might possibly otherwise occur; and to attain certain other advantages which will hereinafter more fully appear.

The invention consists in the parts and in the combinations and arrangements of parts hereinafter described and claimed.

Figure 1 is a side elevation of a crushing plant with hopper and crusher both connected by the chute containing the feeding device;

Figure 2 is a vertical section taken on line 2—2 Fig. 3;

Figure 3 is a horizontal section on line 3—3 of Fig. 2, upper part of the chute removed;

Figure 4 shows a special basket appliable for the feeding device.

Referring now to the drawings, the numeral 1 designates the hopper into which material is delivered. 2 is the section of the chute which contains the feeding device to regulate the flow of the material which should be crushed by the crusher 3 or transported by a belt conveyer, requiring a regular and gradual feeding. In the chute 2, the basket 4 is placed in the center fastened on a plate 5 which is carried by the shaft and disc 6. The shaft 6 is resting in a bearing 7. The material sliding down from the hopper is lifted sufficiently by the deflection plate 8 to pass over the revolving plate 5. The shaft 6 is kept in motion by a driving mechanism consisting of pulley 13 which can be driven from a pulley 14 on the crusher or by extra motor. From the pulley 13, the power is transferred to worm 15 and gear 16 to the shaft 6. The whole driving mechanism being supported by iron construction 17 connected with the chute 2.

The particular construction and arrangement of the machine, however, forms no part of or does not enter into the present invention except in the combination in which it is set forth in the appended claim.

As hereinbefore pointed out, the present invention concerns more particularly, a novel feeding device to be used in conjunction with machines of the character above described. As shown, the feeding device comprises parts of the chute connecting the hopper with the other machinery as may be crusher, et cetera. The width of the chute is limited in proportion to the basket 4 and in accordance with it, deflection plates 11 and 12 may be placed in the chute.

To allow any large pieces to pass through, the walls of the chute at the basket are expanded accordingly. The basket 4 is provided with an opening 9 which corresponds to the size of the material handled and the opening 10 left in the upper part of the chute.

In the operation of the device, the material to be fed to the crusher or other machinery, is placed in the hopper 1. The basket 4 prevents this material from sliding down into the machine 3 so that it is possible to charge the hopper independent of the running of the machine. Starting the revolving motion of the basket 4, the opening 9 of the basket will pass over the opening 10 and the material will slide into the basket 4. The walls of the basket will cut off the stream of the material in the further motion and the material contained in the basket will drop out on the lower end and into the machine. This produces a constant and regulated feed, depending on the motion and speed of the driving arrangement which can be of any device suitable, preferably a worm and gear drive.

By the use of the device, a predetermined amount of material may be fed steadily to the machine. It is even the contemplation of the invention to vary the movement of the basket by changing the size of pulley or worm gear. Also the size of the basket which may be, in case large material must be handled, limited in this capacity by special cut off walls in the inside of the basket. When smaller material has to be fed, the device can be arranged as a multiple pocket basket by placing corresponding cross walls 18 inside the basket, curving these walls so that the material is not discharged before the opening has reached the lower part of the chute. Each compartment naturally, to be equipped with its own opening 19.

Obviously, the structure admits of considerable modification without departing from the spirit of the invention as defined

by the appended claims, and it is, therefore, not limited to that shown in the drawings.

What is claimed is:

1. In a device of the class described, the combination of a hopper for material to be used in crushers, pulverizers and the like, an inclined chute leading from said hopper, a basket having a cylindrical member enclosed within said chute, the periphery of said cylindrical member being interrupted for reception of material, said cylindrical member resting upon a disc which closes the lower end thereof, an annular angular member, one side of which fits in said cylindrical member to hold it in proper form, the other side of which is secured to the disc to hold said cylindrical member in proper position, and means for rotating said disc and said basket to deliver material at a predetermined rate.

2. In a device of the class described, the combination of a hopper having an inclined chute leading therefrom, a driving shaft with a disc integral with the end thereof, said disc being mounted above the bottom of the chute with the shaft extending in a direction perpendicular to the plane of said chute, a cylindrical basket smaller than said disc mounted on said disc having recesses in its circumference adapted to receive material and divided into compartments by partitions extending perpendicularly from said disc, deflection plates extending upwardly from the bottom of the chute over the edge of said disc, and means for rotating said basket and said disc.

3. In a device of the class described, the combination of a hopper for lump material to be delivered to crushers, pulverizers and the like, an inclined chute leading from said hopper, a rotatable disc mounted in said chute substantially parallel to the inclined bottom of said chute, a cylindrical basket smaller than said disc rigidly attached thereto leaving the periphery of the disc protruding laterally therefrom, the periphery of said basket being interrupted for reception of lump material, deflection plates extending upwardly from the bottom of the chute over the laterally projecting part of the disc, the vertically extending resiliently mounted guide member extending toward and substantially abutting said basket to guide material thereinto, and means for rotating said disc and said basket.

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