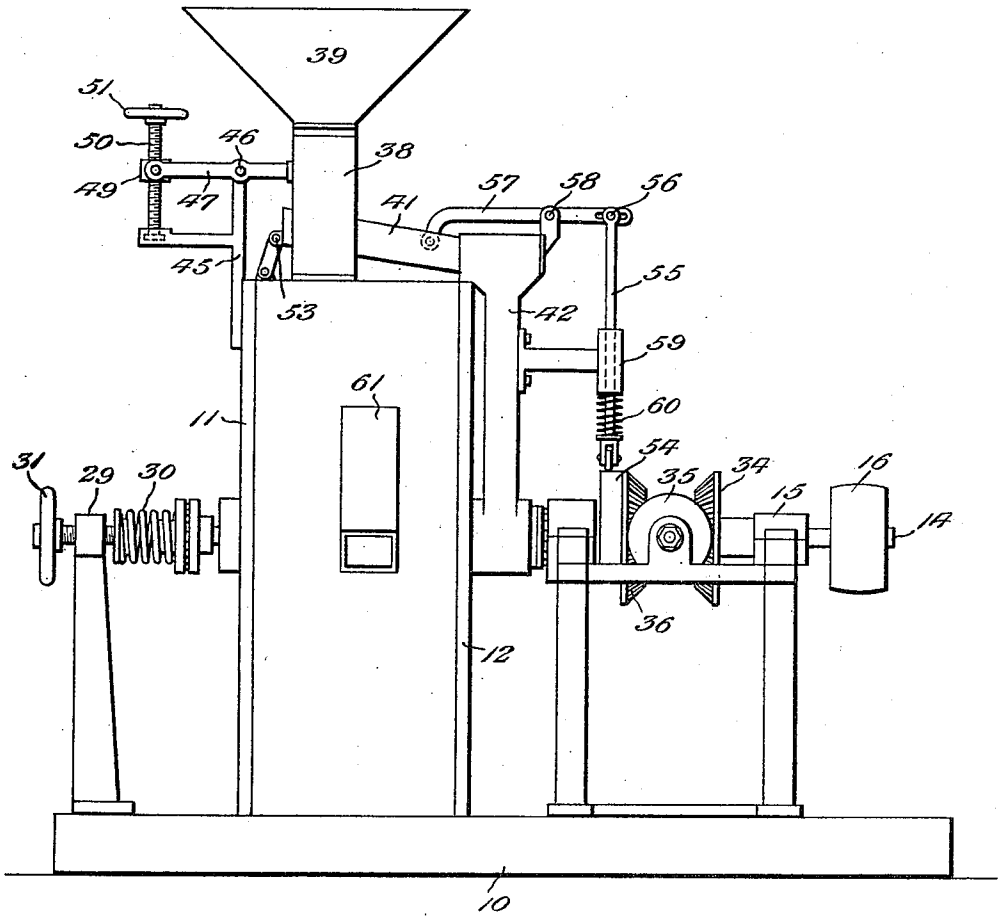
May 22, 1923. 1,456,353

D. D. BARE

MILL

Filed May 17, 1920 3 Sheets-Sheet 1

Fig. 1.



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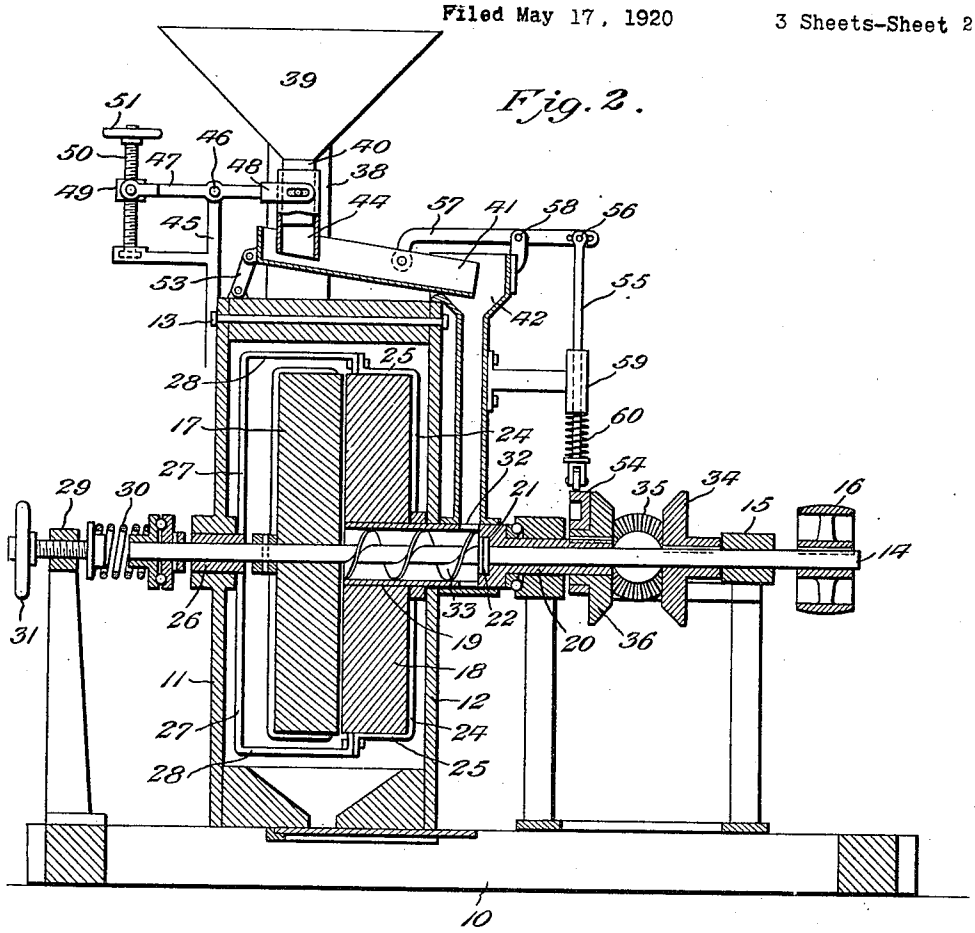
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Fig. 2.



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1,456,353

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3 Sheets-Sheet 3

Fig. 3.

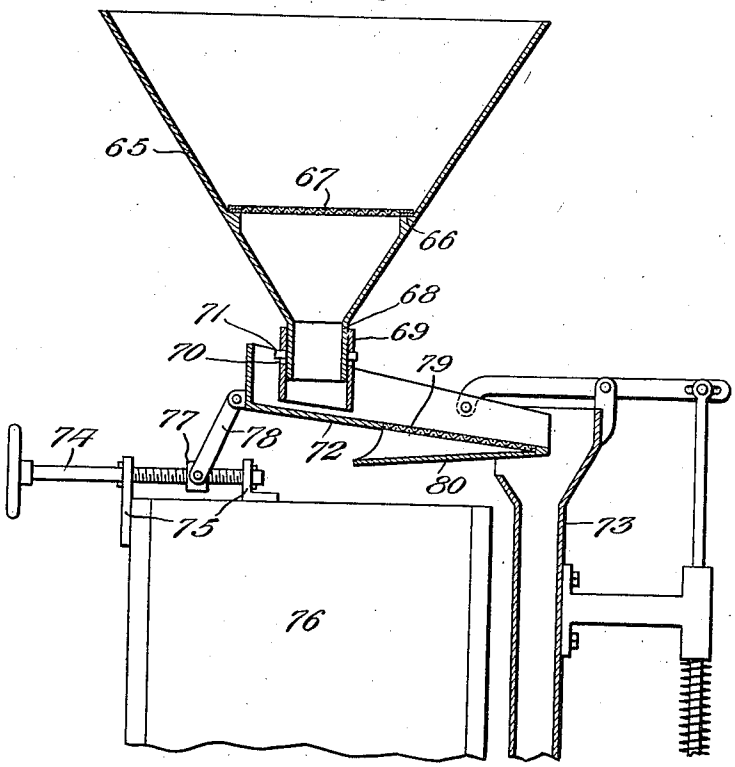
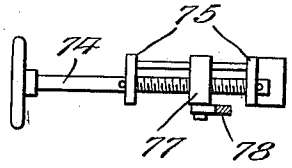


Fig. 4.



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Patented May 22, 1923. 1,456,353

UNITED STATES PATENT OFFICE.

DARIUS D. BARE, OF WEST JEFFERSON, NORTH CAROLINA.

MILL.

Application filed May 17, 1920. Serial No. 382,024.

To all whom it may concern:

Be it known that DARIUS D. BARE, a citizen of the United States, residing at West Jefferson, in the county of Ashe and State of North Carolina, have invented new and useful Improvements in Mills, of which the following is a specification.

The invention relates to mills and resides in the provision of a pivotally mounted trough, for receiving the grain from the hopper, and conveying the latter to a feed chute, with means for vibrating the trough, causing the latter to positively discharge said contents into the feed chute.

A further object of the invention, resides in the novel construction and arrangement of parts, by means of which the burr stones are rotated in opposite directions; and the construction of the means for conveying the grain from the trough to the working faces of the burr stone.

The nature and advantages of the invention will be better understood when the following detail description is read in connection with the accompanying drawings, the invention residing in the construction, combination and arrangement of parts as claimed.

In the drawings forming part of this specification like numerals of reference indicate similar parts in the several views, and wherein:—

Figure 1 is a side elevation.

Figure 2 is a vertical sectional view through the mill.

Figure 3 is a sectional view of a modified form of the invention.

Figure 4 is a plan view of the adjusting screw and its associated parts.

Referring to the drawings in detail, 10 indicates a supporting base, upon which is mounted a receptacle for housing the burr stones, and their associated parts, the receptacle comprising the separable sections 11 and 12 respectively, which permits access being had to the interior of the receptacle when the occasion requires. These sections are detachably held together in any suitable manner, preferably by means of the fastening element 13. A shaft 14 passes through the opposed sides of the receptacle, the shaft being journalled in bearings 15 arranged at one side of the receptacle and mounted upon the supporting base 10. A belt pulley 16 is carried by one end of the shaft 14 so that the latter may be driven from a suitable motor as will be readily understood. Fixed upon the shaft 14 is the burr stone 17, which rotates with the shaft, the cooperating burr stone 18 being mounted upon the shaft 14 for rotation in an opposite direction to the direction of rotation of the burr stone 17. The burr stone 18 is carried by a sleeve 19 having a diameter greater than the diameter of the shaft 14, although the sleeve is journalled upon the shaft 14 as at 20. The sleeve is also shaped to provide a shoulder 21, against which suitable packings 22 are arranged to bear, this packing being arranged in the sleeve and surrounding the shaft 14. Radiating from the sleeve 19 and secured thereto in any suitable manner, are arms 24, engaging against one side of the burr stone 18, the arms being further designed to engage the periphery of this element at spaced points as at 25. Mounted upon the axle 14 is a hub 26, from which radiates arms 27 similar in construction to the arms 24, the arms 27 not engaging or bearing against the burr stone 17. The offset portions 28 of the arms 27 are however, detachably connected with the similar portions 25 of the arms 24, the arms 24 and 27 unitedly defininig a frame-like structure to strengthen and reinforce the mechanism. Manifestly, the frame thus defined by the arms 24 and 27 is susceptible of adjustment upon the shaft 14, in order to vary the space between the working faces of the burr stones 17 and 18 the latter mentioned burr stone being connected with the frame as described. This adjustment is made by means of an adjustable bearing 29 including a spring 30, and an adjusting element 31. The sleeve 19 is provided with a plurality of intake openings or slots 32 for the grain or the like, which is fed to these slots in a manner to be hereinafter described. The grain enters the sleeve 19 thru the slots 32 and is forced into the space between the working faces of the burr stones 17 and 18 respectively, by means of a feed screw 33 carried by the shaft 14 and arranged within the sleeve 19.

Attached to the shaft 14 for rotation therewith is a bevel gear 34, which meshes with idler gears 35, the latter in turn meshing with a bevel gear 36 carried by the sleeve 19. By reason of this construction, and arrangement of parts it is apparent that when the shaft 14 is rotated to rotate the burr stone 17, therewith, the gears 34, 35

and 36 cooperate to impart rotary movement to the burr stone 18, in a direction opposite to the direction of rotation of the burr stone 17, thereby increasing the working capacity of the mill.

Supported upon the receptacle by means of the standards 38 is a hopper 39, the neck 40 of the hopper is disposed above the trough 41 which receives the grain or other material from the hopper 39. The trough is of such length as to terminate at one side of the receptacle, the trough however communicates with a feed chute 42 arranged at one side of the receptacle and through which the sleeve 19 projects as shown. The grain or other material is received from the hopper 39 by the trough 41, and deposited into the feed chute 42, which conveys the grain or the like through the intake openings or slots 32 of the sleeve 19. The grain is conveyed to the space between the working faces of the burr stone in the manner above stated. For the purpose of controlling the discharge of grain from the hopper 39 to the trough, I provide a tubular member 44 which is slidably mounted upon the neck 40 of the hopper and normally rests upon the bottom of the trough 41. Rising from the receptacle is a standard 45 upon which is pivoted as at 46, a horizontally disposed arm 47, which controls the adjustment of the tubular member 44. The arm 47 is bifurcated as at 48 to receive the tubular member 44 with which it is pivotally associated. The arm 47 has a threaded opening 49 which receives a threaded element 50, the latter being provided with a handwheel 51 at one end. Consequently, by turning the hand wheel 51 in one direction, the arm 47 is moved upon its pivot 46 to elevate a tubular member 44 away from the bottom of the trough 41, thus allowing the continuous flow of grain to feed from the hopper 39 upon the trough 41. The particular amount of grain allowed to feed from the hopper 39 upon the trough is regulated by the degree of elevation of the tubular valve 44, or in other words the amount of space between the tubular valve 44 and the bottom of the trough 41. This is controlled by means of the threaded element 50 as will be readily understood.

The trough 41 is pivotally mounted as at 53 for vertical movement, means being provided to vibrate the trough to insure the discharge of its contents into the feed chute 42. For this purpose I provide a cam 54 for intermittently actuating or elevating a rod 55 which is connected at its upper end, as at 56, with a rocker arm 57 pivoted upon the receptacle as at 58 and connected with the trough 41. The rod 55 operates thru a guide 59 which is secured to the feed chute. A spring 60 encircles the rod 55 and has one end secured to the guide 59 and its opposite end secured to the rod 55 so that when the rod is elevated, the spring 60 is placed under tension to lower the rod 55 after the highest point or cam moves from beyond the adjacent end of the rod 55. In consequence, the trough 41 is continuously vibrated to shake and move the grain contained therein in the direction of the discharge end of the trough into the feed chute 42. It is manifest, that I have devised a mill wherein the grain or the like is positively fed in proportionate amounts to the space between the working faces of the burr stones, the latter rotating in opposite directions so that a maximum amount of work in a given time can be accomplished by the mill.

The grain or the like passes between the working faces of the burr stones, into the chute 61 which conveys the grain to its proper destination.

In Figures 3 and 4 I have shown a modified form of the invention wherein the hopper is indicated at 65 and provided with an internal shoulder 66 upon which is removably supported a screen 67 for the purpose of separating pieces of cob or the like from the grain. Embracing the neck 68 of the hopper, is a sleeve like member 69 having slots 70 for the reception of the lugs or pins 71 projecting from the neck of the hopper as shown. This construction allows for the vibration of the trough 72 in the manner above described when the parts are in normal position. The trough 72 of course receives the material from the hopper 65, and conveys the same to the feed chute 73. In this form of the invention, I regulate the discharge of the grain from the hopper 39 to the feed chute by means of an adjusting screw 74 adjustable through the brackets 75 secured to the receptacle 76. Threaded on the screw 74 is a collar 77 which moves longitudinally of the screw when the latter is rotated, and pivotally associated with this collar and with one end of the trough 72, is a link 78 manifestly, when the collar is moved forwardly on the screw, the trough 72 is elevated, and when the collar 77 moves rearwardly of the screw the trough 72 is lowered. Consequently, the space between the bottom of the trough 72 and the sleeve like member 69 can be varied to regulate the discharge of grain from the hopper 65 to the feed chute 73. A portion of the bottom of the trough 72 is formed by a foraminated material 79 constituting a seive for separating fine thrash from foreign material from the grain, this foreign material passing through the seive and being conveyed rearwardly away from the feed chute 73 by means of a chute 80 forming a part of the trough arranged beneath the foraminated material 79. The trough is vibrated

in this form of the invention the same as above described in connection with the preferred form.

While it is believed that from the foregoing description, the nature and advantages of the invention will be readily apparent, I desire to have it understood that I do not limit myself in this connection and that such changes may be resorted to when desired as fall within the scope of what is claimed.

Having thus described my invention what I claim as new is:—

In a mill, the combination with a vertically disposed hopper and chute, of a feed trough disposed horizontally therebetween with one end underlying the said hopper and its other end extending into the said chute, suspension means associated with the said chute for supporting one end of the said trough and being operable to impart vibratory movement through the said trough, a horizontally disposed adjusting screw rotatably supported below the hopper end of the said trough, and a link having one end pivotally supporting the hopper end of the trough and having its other end constrained to move along said screw for adjusting the inclination of the said trough.

In testimony whereof I affix my signature.

DARIUS D. BARE.