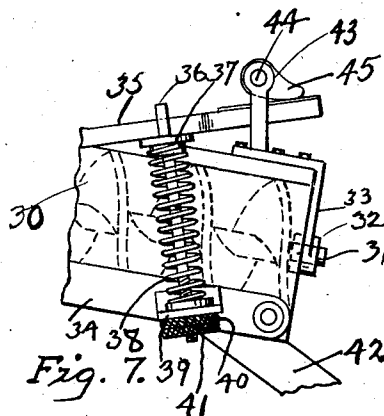
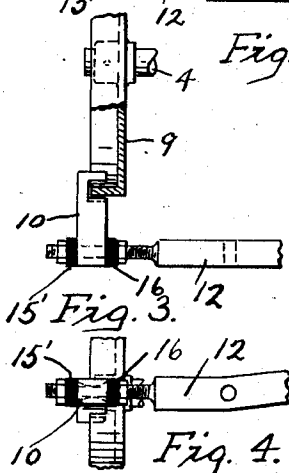
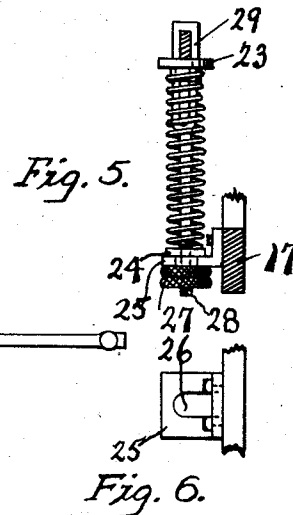
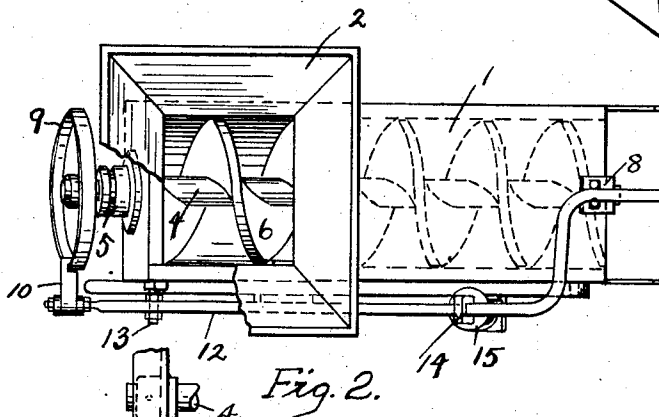
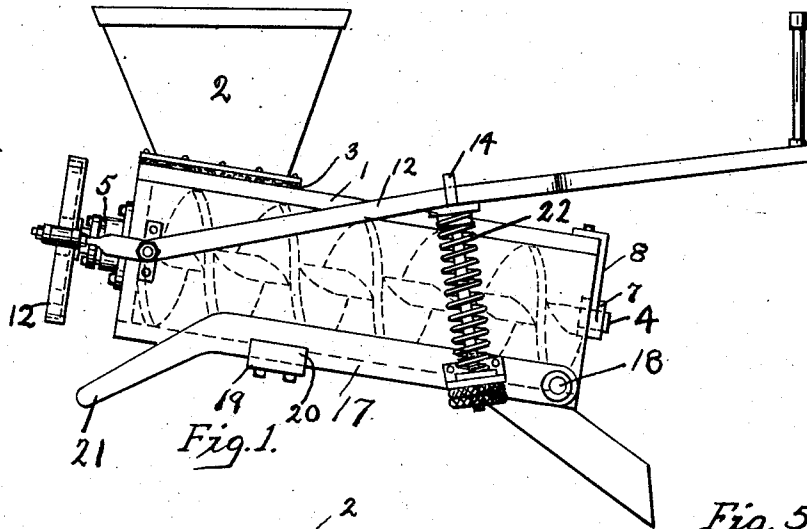


T. SUTTON.
ORE FEEDER.

APPLICATION FILED MAY 16, 1912.

1,047,589.

Patented Dec. 17, 1912.



WITNESSES:

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THOMAS SUTTON, OF SONORA, CALIFORNIA.

ORE-FEEDER.

1,047,589.

Specification of Letters Patent.

Patented Dec. 17, 1912.

Application filed May 16, 1912. Serial No. 697,658.

To all whom it may concern:

Be it known that I, THOMAS SUTTON, a citizen of the United States, residing at Sonora, in the county of Tuolumne and State of California, have invented a new and useful Ore-Feeder, of which the following is a specification in such full and clear terms as will enable those skilled in the art to construct and use the same.

This invention relates to an ore feeder especially adapted to the feeding of wet and sticky ore.

An object of the invention is to produce a feeder which will operate with as little power as possible owing to the fact that the feed chute is inclined at an angle such as to make the weight of the ore assist in the feeding operations, a screw being used to prevent the ore from feeding too rapidly.

Another object of the invention is to provide means whereby the feed may be completely discontinued whenever it is desired to cut off the feed without in any way disturbing the proper regulation of the feed when it is desired to again begin feeding material to the mill.

A further object of the invention is to provide a feeder which will be substantially water tight thus enabling water to be fed with the ore.

Other objects of the invention will appear as the description proceeds.

In the drawings in which the same numeral of reference is applied to the same portion throughout the several views, Figure 1 is a side elevation of the feeder, Fig. 2 is a plan view of the feeder, Fig. 3 is a view partly in section of the feed wheel and wrench for turning the same, Fig. 4 is a view of a portion of the feed wheel looking at the end of the wrench for turning the same and showing also a portion of the lever for operating said wrench, Fig. 5 is a view of the spring and adjusting device for varying the feed, Fig. 6 is a plan view of the bracket used for supporting the adjusting mechanism and also showing a portion of the lever for discontinuing the feed, and Fig. 7 is a side elevation of a portion of the outlet end of a feeder illustrating a method of operating the feeder where a rotating shaft is used in the place of the ore stamp.

The numeral 1 represents a substantially rectangular, inclined feed chute, at the upper end of which is placed a feed hopper 2. This feed hopper is connected with the

feed chute by means of suitable bolts and has a gasket 3 to make a substantially water tight joint with the feed chute.

Extending through the feed chute is a shaft 4, this shaft passing through a packing gland and bearing 5 at the upper end of the feed chute. Within the feed chute the shaft supports a feed screw 6 substantially as large as the inside of the chute. The lower end of the shaft is journaled in a box 7 supported by a depending arm 8 secured on the top of the feed chute at the lower end thereof. This shaft carries a flanged wheel 9 which is used for the rotation thereof. The flanged wheel is rotated by means of a gripper 10 which has a slot therein which fits over the flange of the wheel. This gripper will move freely in one direction, but when an attempt is made to move it in the opposite direction it will rotate the flanged wheel. This gripper is supported on the end of a lever 12, and the lever is pivoted on a bracket 13 secured on the side of the feed chute by means of bolts. The arm extends along the side of the feed chute through a slotted head of the adjusting bolt 14, a washer 15 surrounding said bolt and bearing upon the underside of said lever. At the forward end the lever is curved over so that it will lie substantially in the center of the chute, the object being to have the feeder operated from the central stamp of a five stamp mill when so used. The gripper for turning the flanged wheel is supported on the short end of the lever between two soft rubber bumpers 15' and 16, so that notwithstanding the fact that said lever moves in a curved path instead of in the plane of the flanged wheel that a certain amount of freedom of movement of said gripper is permitted. It is to be noted also at this point that a heavy feed may be accomplished when the feed screw is rotated one full turn with 200 movements of the lever which operates it. Therefore, a single movement of said lever moves the feed gripper such a small amount that the fact that it moves in a curved path while the flanged wheel is moving in a different path, makes no difference.

The adjusting mechanism comprises a lever 17 pivotally supported on the side of the feed chute 18. Near the upper end of the feed chute there is a bracket 19 upon which the lever 17 rests, said bracket having an upwardly extending flange 20, which pre-

vents the lever 17 from moving laterally off the same, unless it is first raised by lifting the handle 21. When so lifted the lever can be moved laterally a sufficient amount to miss the bracket 19 and which will then drop down until the curved portion of the feed lever will touch the top of the chute and the latter will then be low enough so that the operating devices cannot cause the feed of material to occur.

The feed lever is supported in a given position by means of a spring 22, said spring having a washer 23 bearing upon the top of the same and bearing upon the top of an adjusting nut 24, which rests upon a bracket 25 secured to the lever 17. The bracket 25 is slotted as indicated at 26 to receive and support the adjusting nut 24. A lock nut 27 secures the given adjustment which is accomplished by drawing down upon a bolt 28 having a slotted head 29, through which slot the movable feed lever passes.

In operation the stamp tappet strikes the feed lever, depressing it against the spring 22, thus lifting the gripper a small amount to rotate the flanged wheel. Similarly repeated blows move the flanged wheel entirely around and cause the ore to travel through the feed chute to the grinding mill.

With roller mills there is seldom a reciprocating bar which can be operated as with a stamp mill, in which event it is necessary to provide the feeder with a device of the character shown in Fig. 7. In this figure the feed chute is shown at 30, the feed screw shaft at 31, the lower bearing for supporting said shaft at 32 and the support for said bearing at 33. On the side of the chute is shown a portion of the lever 34 which is substantially the same as the lever 17 in the other form of the invention.

At 35 is indicated the feed lever which passes through a slot in the adjusting bolt 36 and which rests upon the washer 37. The washer 37 is supported by the spring 38 which latter is supported on the bracket 39 and fixed in a given adjustment by means of lock nuts 40 and 41, substantially the same as in the other form of the invention.

The chute running to the mill is shown at 42. In this instance the lever 35 is shorter than that used with the form of the invention shown in Fig. 1, and a bearing 43 on the top of the feed chute supports a shaft 44, said shaft having a cam 45 thereon

which strikes the feed lever 35 whenever the shaft 44 turns around.

It will be observed that one of the especial advantages gained by this form of feed regulator is that it will feed a very wet ore, and since the chute may be inclined to any amount deemed necessary that inclination thereof assists in the feeding of the ore, thus requiring a smaller amount of power than is commonly the case. It will also be seen that another advantage of this invention lies in the fact that it is possible to completely cease feeding without altering the adjustment of the lock nuts which determine the feed so that when it is desired to again begin feeding all that is necessary is to lift the lever 21 up on the supporting bracket 19, whereupon the original adjustment will occur.

Having thus described my invention what I claim as new and desire to secure by Letters Patent of the United States, is as follows:

1. In an ore feeder, an inclined chute, a feed screw therein, means to intermittently operate said feed screw, an adjusting device for determining the amount said feed screw is to be rotated at each movement, and a lever pivoted on the side of the casing and supporting the adjusting mechanism, said lever being capable of a downward movement to discontinue the movement of the feed operating mechanism, substantially as described.

2. In an ore feeder, an inclined chute, feed mechanism therein, a flanged wheel for operating said feed mechanism, a lever pivoted upon the side of the casing and having a gripper to intermittently rotate said flanged wheel, a spring upon which said lever rests, means to adjust the position of said lever to determine its throw, a lever pivoted upon the side of the chute for placing the first lever in an operative or inoperative position, and a fixed support for the movable end of said lever when the first lever is to be placed in an operating position, substantially as described.

In testimony whereof I have hereunto set my hand this 9th day of May A. D. 1912, in the presence of the two subscribed witnesses.

THOMAS SUTTON.

Witnesses:

C. P. GRIFFIN,
L. H. ANDERSON.