W. DONLON.

Feed-Governor for Middlings-Purifiers, &c.

No. 228,180. Patented June 1, 1880.

FIG. I

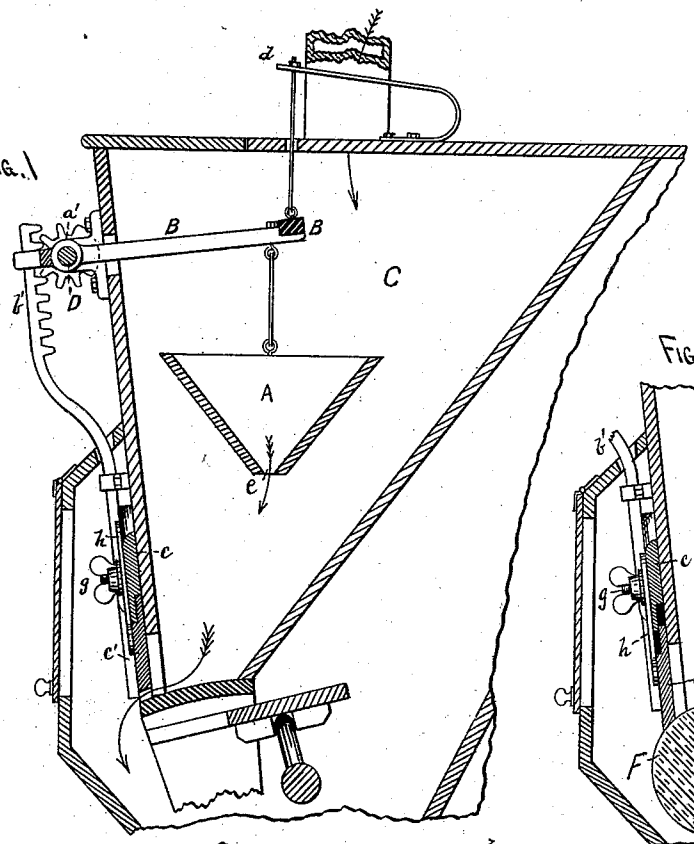


FIG. III

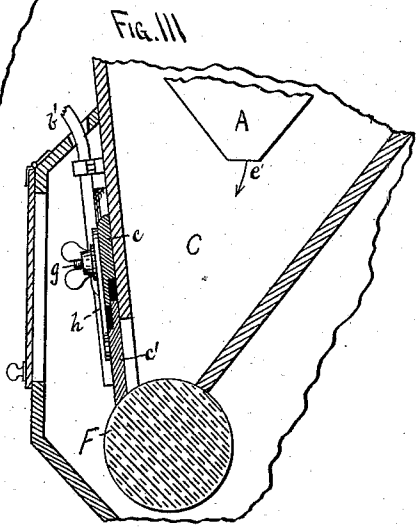
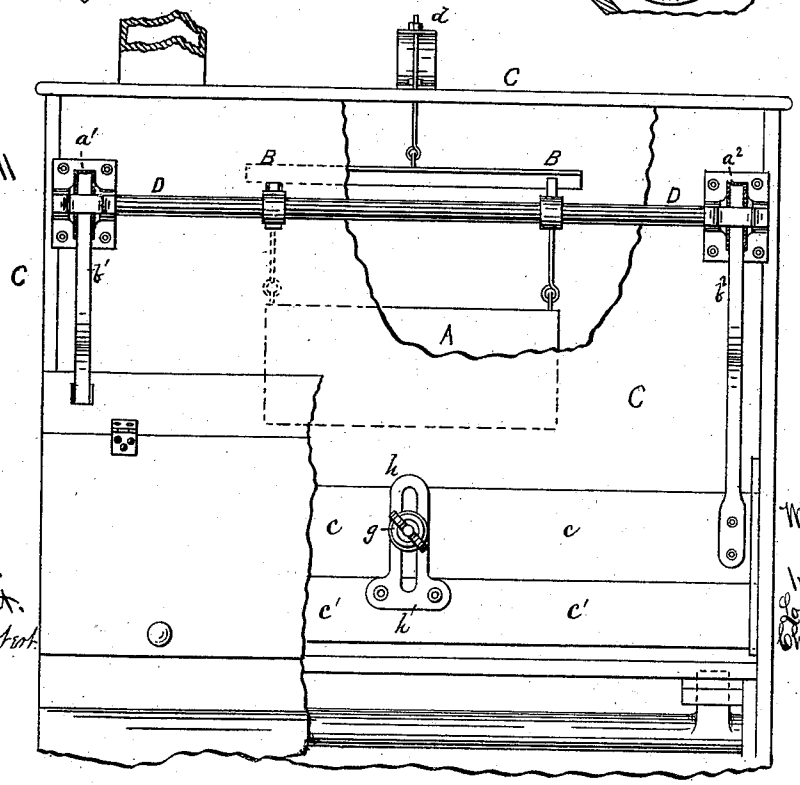


FIG. II



WITNESSES.

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WILLIAM DONLON, OF MINNEAPOLIS, MINNESOTA.

FEED-GOVERNOR FOR MIDDLINGS-PURIFIERS, &c.

SPECIFICATION forming part of Letters Patent No. 228,180, dated June 1, 1880.

Application filed November 1, 1879.

To all whom it may concern:

Be it known that I, WILLIAM DONLON, of Minneapolis, in the county of Hennepin and State of Minnesota, have made certain new and useful Improvements in Feed-Governors for Middlings-Purifiers, &c., which improvements are fully set forth in the following specification and accompanying drawings, in which—

Figure I is a sectional side elevation, and Fig. II is a front elevation, of the governor applied to an oscillating-feed machine. Fig. III is a sectional view, showing the governor applied to a roller-feed machine.

This invention relates to middlings-purifiers, &c.; and it consists in an arrangement of mechanism adapted to be acted upon by the inflowing chop or middlings to raise and lower the feed-slide according as the quantity of the middlings increases or decreases in the hopper, to govern the feed, and furnish relief in the event of its becoming clogged or choked, as hereinafter set forth.

Great difficulty is experienced with middlings-purifiers on account of the irregularity of the supply of middlings, sometimes running almost dry and at other times flowing so fast as to clog and choke the hopper and spouts. To automatically relieve the feed-slide when this latter event occurs is the object of my invention, which consists in a float or trough, A, suspended to arms B in the hopper C of a purifier. These arms B are attached rigidly to a shaft, D, running across the front of the machine, and provided upon either end with segmental gears $a' a^2$, arranged to mesh into racks $b' b^2$, connected to the feed-slide *c*.

By this arrangement, if the float A be depressed, the arms B, acting through the shaft D and the segments and racks, will raise the slide *c*.

A spring, *d*, is connected to the arms B, to raise the float A and keep it elevated when not forcibly depressed.

The float will occupy such a position in the hopper that when the machine is running regularly and no more middlings being supplied than can pass through the feed-slide the float will not act; but when more middlings run in than can pass the feed-slide they will rise up in the hopper until they overflow into the float A, which is made hollow to receive them. This will so increase the weight of the float that it will move downwardly, the middlings surrounding it being light and porous with interstices between the particles, yield to the weight of the float and allow it to sink some distance into the middlings, and thus through the arms B and the segments and racks raise the feed-slide *c* and allow a greater quantity of the middlings to escape, thereby soon relieving the overcrowded hopper.

The float will be made V-shaped, and with a narrow open slot, *e*, in its lower edge, so that the middlings will slowly run out when the middlings in the hopper have fallen below the lower line of the float, to reduce its weight and allow the spring *d* to raise it again to its former position, this motion, of course, again lowering the slide *c* to its former place. The slot *e* will be made small enough, however, to prevent all the middlings from running out, retaining just enough to balance the slide *c* and keep it in one position when the machine is running regularly.

As long as the quantity of middlings flowing into the hopper C is great enough to keep above the lower line of the float the middlings in the latter will not run out, thereby insuring the continued depression of the float, and consequently maintaining the increased exit capacity so long as the extra flow of middlings continues.

The slide *c* will be provided on its lower edge with an auxiliary piece, *c'*, arranged to be raised and lowered by a set-screw and slide, *g h*, to regulate the feed. When the governor is applied to roller-feed machines this auxiliary piece *c'* will have its lower edge made to conform to the shape of the roller F, (see Fig. 3,) so that when the purifier is stopped the slide *c'* may be lowered down upon the roller to prevent the escape of any middlings that might remain in the hopper.

I do not wish to confine myself to the form of the float A shown, or to any particular method of connecting it with the feed-slide, as different styles of machines will require different arrangements of mechanism.

The float may be arranged with straps or cords and pulleys, or in any other manner.

It may be applied to any style of machine through which fine flour-like substances are passed, such as crushers, aspirators, or dusters, middlings-purifiers, &c.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of a hopper provided with a discharging mechanism and a float connected with said discharging mechanism and suspended within said hopper, and adapted to vary its position with the varying quantity of material in the hopper, for the purpose of regulating the feed in accordance with the supply to the hopper.

2. The combination, with middlings-purifiers and similar machines, of a V-shaped float, A, having an exit-slot, *e*, in its lower edge, and so connected to the feeding apparatus that an increased flow of chop or middlings into the machine will depress the float and raise the exit-slide, substantially as set forth.

3. The combination and arrangement of the float A, spring *d*, arms B B, shaft D, segments a' a^2, racks b' b^2, and slide *c*, substantially as set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WILLIAM DONLON.

Witnesses:
C. N. WOODWARD,
J. F. ORCUTT.