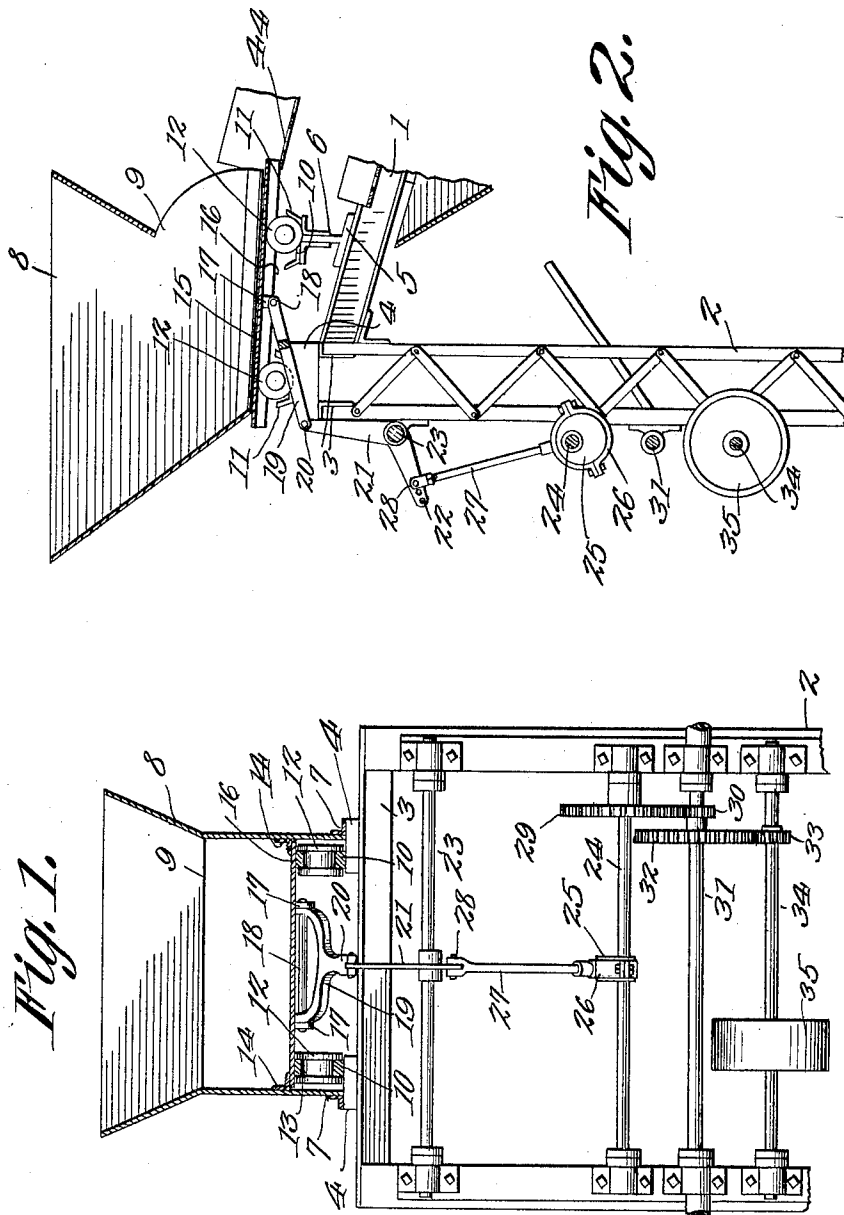


F. C. MORROW.
FEED REGULATOR.
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1,088,441.

Patented Feb. 24, 1914.



Witnesses
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UNITED STATES PATENT OFFICE.

FRANK C. MORROW, OF WELLSTON, OHIO.

FEED-REGULATOR.

1,088,441.

Specification of Letters Patent.

Patented Feb. 24, 1914.

Original application filed April 14, 1913, Serial No. 761,110. Divided and this application filed June 18, 1913. Serial No. 774,495.

To all whom it may concern:

Be it known that I, FRANK C. MORROW, a citizen of the United States, residing at Wellston, in the county of Jackson and State of Ohio, have invented a new and useful Feed-Regulator, of which the following is a specification.

This invention relates to feed regulators particularly designed for use in connection with separators of that type used for screening coal, the same constituting a division of an application filed by me on April 14, 1913, Serial No. 761,110.

One of the objects of the invention is to provide a novel form of regulator whereby the coal or other material to be separated is fed evenly from the distributing hopper of the machine onto the separating device which may be provided therefor.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, can be made within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings:—Figure 1 is a vertical transverse section through the feed regulating plate and the hopper in which it is mounted, the actuating mechanism being shown in elevation. Fig. 2 is a central longitudinal section through the feed regulating plate, the operating mechanism being shown partly in elevation and partly in section.

Referring to the figures by characters of reference 1 designates inclined I-beams supported at suitable points in any preferred manner, as by means of columns 2 formed of structural steel or the like. The columns to which the upper ends of the I-beams 1 are attached may be connected by angle beams 3 on which are secured blocks 4. Additional T-shaped blocks 5 may be secured upon the I-beams 1 near their upper ends, these blocks being connected by transversely extending angle beams 6. These angle beams 6 and the blocks 4 have angle strips 7 secured thereon and also secured along the lower edges of the sides of a hopper 8. The front of this hop-

per is open, as indicated at 9 and the bottom is likewise open, there being rails 10 mounted on the blocks 4 and on the angle beams 6 at points under the hopper and close to the sides thereof, the ends of these rails being preferably upturned, as shown at 11, so as to constitute retaining means. Mounted on each rail is a supporting roller 12 having a peripheral groove into which the rail extends.

Angular guide strips 14 are secured to the inner faces of the sides of hopper 8 and lap the side edges of a flat feed plate 15 which extends throughout the length and width of hopper 8 and projects under the back wall of the hopper, as shown particularly in Fig. 2. This feed plate also extends through the open front 9 of the hopper. Said feed plate has reinforcing strips 16 secured to the bottom thereof adjacent the sides of the plate and these reinforcing strips bear within the peripheral grooves 13. The feed plate 15 is inclined downwardly toward that end thereof projecting through the opening 9.

Extending downwardly from the feed plate 15 are ears 17 connected by a pivot rod 18. This rod is engaged by a yoke 19 the stem 20 of which has one arm of a bell crank lever 21 pivoted to it. The other arm of this bell crank lever is preferably formed with a series of apertures 22. This bell crank lever is fulcrumed on a shaft 23 supported by the columns 2 at the back or feed end of the machine.

A shaft 24 is journaled upon the columns located adjacent the hopper 8 and an eccentric 25 rotates with this shaft and is engaged by a strap 26. A rod 27 extends from this strap and is pivotally connected to lever 21, the pivot pin 28 being shiftable so as to extend into any one of the openings 22 so that the movement of lever 21 can thus be controlled. A gear 29 is secured to shaft 24 and meshes with a smaller gear 30 secured to another transverse shaft 31 which is journaled on the columns 2 and directly under shaft 24. This shaft 31 receives motion, through a gear 32 secured thereto from a smaller gear 33 secured to another shaft 34 which constitutes the drive shaft and is located preferably under shaft 31. Shaft 34 may receive motion through a belt, not shown, engaging a pulley 35 although it is to be understood that this shaft can be driven in any other manner desired.

From the foregoing it will be apparent that when shaft 34 is actuated, motion will be transmitted therefrom to shaft 24 and the eccentric 25 will thus be caused to rotate at a greatly reduced speed so as to cause the bell crank lever 21 to rock and slowly reciprocate the feed plate 15. The supporting rollers 12 will of course reduce friction to the minimum so that said plate can be operated easily. The upturned ends of the rails 10 serve to prevent the rollers from becoming displaced during this movement of the feed plate.

A screen or other suitable separating element shown at 44 may be extended under the discharge end of the plate 15 so as to receive material discharged from the plate.

It has been found that, by utilizing the particular slidable feed plate 15 shown and described, the coal is more accurately and evenly fed, than would otherwise be the case, there being no danger of the slack being carried over the screen to which the material is fed.

What is claimed is:—

The combination with a feed hopper having an outlet opening extending across the front thereof and inwardly extending guide

strips secured to the sides of the hopper, of parallel pairs of inclined rails between the sides of the hopper and below the guide strips, both terminals of each rail being upturned, an inclined feed plate interposed between and held against lateral movement by the sides of the hopper and bearing upwardly against the side strips, reinforcing strips upon the bottom of the feed plate, a roller mounted upon each rail and having an annular groove for the reception of the rail and of the reinforcing strip thereabove, each roller being mounted to move freely upon and to be held upright by its rail and the reinforcing strip thereabove, and means for reciprocating the feed plate and holding it against displacement relative to the rollers, the plate being detachable from said means and removable longitudinally from the rollers.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

FRANK C. MORROW.

Witnesses:

W. F. SCHADEL,
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