W. H. NAUMAN.

GRAIN-DRILLS.

No. 183,321. Patented Oct. 17, 1876.

FIG. 1.

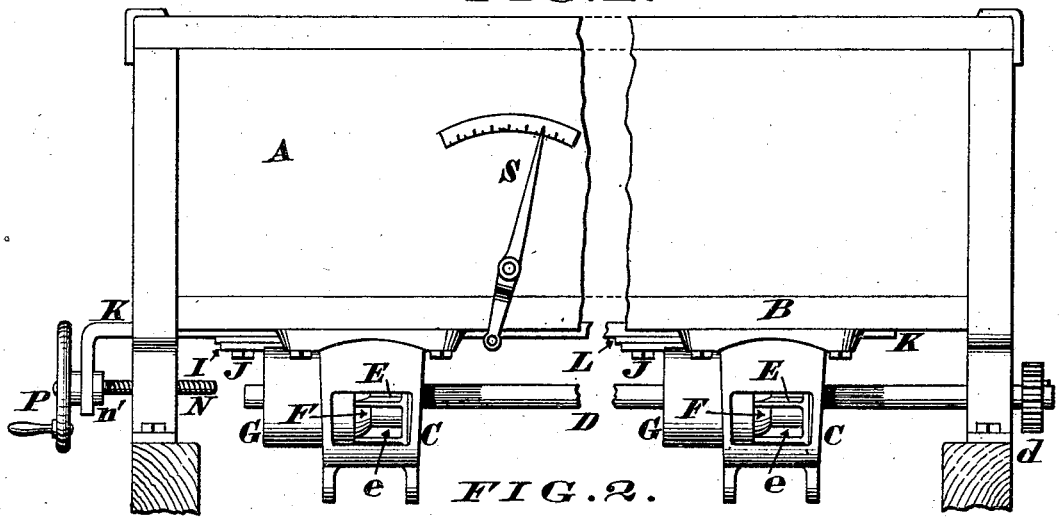


FIG. 2.

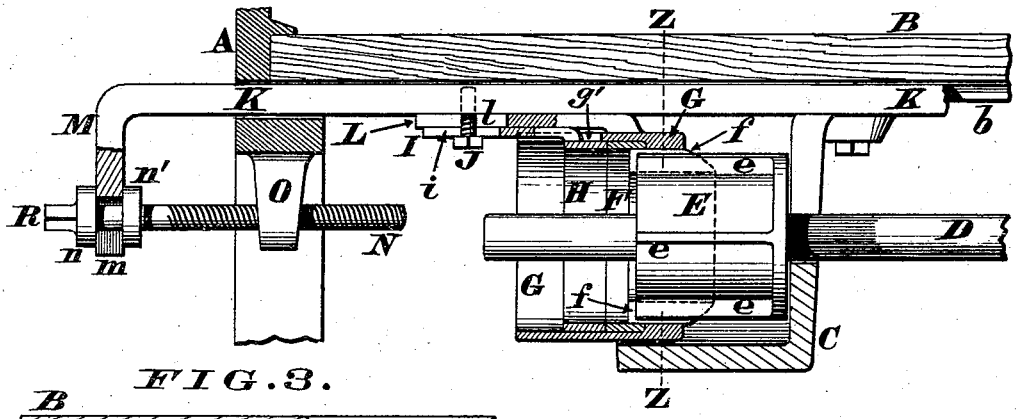


FIG. 3.

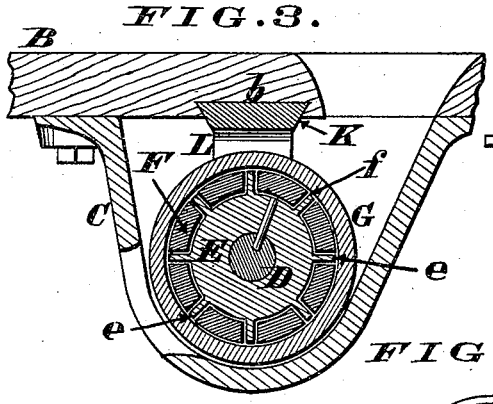


FIG. 4.

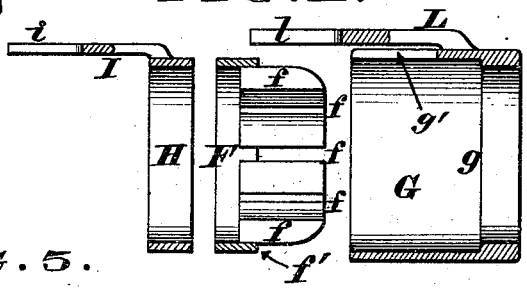
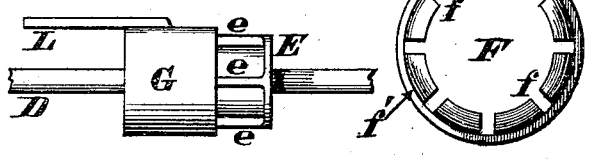


FIG. 5.

FIG. 6.



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IMPROVEMENT IN GRAIN-DRILLS.

Specification forming part of Letters Patent No. **183,321**, dated October 17, 1876; application filed May 31, 1876.

To all whom it may concern:

Be it known that I, WILLIAM H. NAUMAN, of the city of Dayton, county of Montgomery, State of Ohio, have invented an Improvement in Grain-Drills, of which the following is a specification:

Figure 1 is an elevation of a portion of a grain-drill provided with two of my improved feed-regulating devices, a portion of the hopper being broken away. Fig. 2 is a longitudinal section through one of the feed cups and its accessories. Fig. 3 is a transverse section of the cup at the line Z Z of Fig. 2. Fig. 4 is a vertical section through the regulating devices detached from the cup. Fig. 5 is an end elevation of the sleeve, and Fig. 6 represents a modification of the invention.

A represents a portion of the hopper of a grain-drill, of any approved construction, said hopper being provided with a stout bottom, B, from which latter depend as many seed-cups C as may be desirable to have mounted upon the implement. All of these seed-cups are traversed with a common shaft, D, whose pinion *d* may be geared to the implement in any suitable manner. This shaft carries a number of feed-wheels, E, one for each cup, and each wheel is provided with a series of flanges, or ribs, or flutes, *e*, that may be disposed either longitudinally of, or spirally around, the wheel. These flanges *e* are adapted to fit radial slots *f* of sleeve F, which latter is free to rotate within the barrel or cylinder G. This cylinder has an annular ledge or shoulder, *g*, against which the rim *f* of sleeve F bears, as represented in Fig. 2. This sleeve is maintained in contact with shoulder *g* by a tubular follower, H, having an arm, I, that projects longitudinally from its upper side, said arm being slotted at *i* to receive a bolt, J, wherewith said follower is adjusted upon and secured to a shiftable bar, K, which latter occupies a longitudinal groove, *b*, in the hopper-bottom. The upper side of cylinder G is slotted longitudinally at *g*, to admit said arm I of the follower. Furthermore, this cylinder has an arm, L, whose slot *l* is traversed with the bolt or screw J, by which means said bolt serves to unite the cylinder G and its contained follower H to the shiftable bar K. The outer end of this bar is bent down at M and slotted at *m*, to receive the unthreaded portion of a screw, N, which latter engages with a nut, O, that may be secured to any fixed member of the implement. The screw N has two collars, *n* and *n'*, between which the arm M is inserted. P is a hand-wheel, wherewith screw N is rotated, but if preferred may have a non-circular head, R, to receive a wrench or spanner. S is an indicator, to show the degree of adjustment of the feeding devices.

My feed-regulator is operated in the following manner: When it is desired to discharge a comparatively limited amount of grain from the cups C, the screw N is rotated so as to shift the bar K toward that end of the hopper where the pinion *d* is located, and as soon as the implement is set in motion the blades *e* of wheels E cause a continuous and regular flow of grain to escape through the delivery-openings of said cups.

It is evident that, by adjusting the bar K as just described, the sleeve F, cylinder G, and follower H will have a corresponding motion imparted to them on account of these devices being attached to said bar; and this shifting-sleeve F will cut off or render inoperative a portion of all the blades of the feed-wheels. As these wheels rotate, their respective sleeves will be carried around with them, because the latter are somewhat less in diameter than the bore of their inclosing cylinders; but said cylinders G and followers H, being rigidly united to bar K with the arms L I and bolt J, have no rotary motion imparted to them.

To secure a more copious discharge of grain, the screw N is rotated so as to shift the bar K in an opposite direction, and thereby expose a larger area of blades *e* to operate against the grain.

From the above description it will be seen that the simple act of manipulating the screw N effects a positive and simultaneous adjustment of all the cut-off devices applied to the implement, and any desired amount of feed may be obtained by advancing or retracting said screw, the degree of feed being indicated by the pointer S.

An obvious but inferior modification of the invention may be effected by omitting the bar

K, and securing I and L to the under side of the hopper with bolt J, so as to allow each sleeve F to be adjusted independently of its neighbor. This arrangement, however, is not recommended, because it does not permit the simultaneous and uniform adjustment of all the cut-off devices, which simultaneous adjustment is regarded as one of the principal features of my invention. The invention may be still further modified by entirely omitting the sleeve F and follower G, and inserting the feed-wheel E directly in the shiftable but non-rotatable cylinder G, as represented in Fig. 6. Finally, the feeding devices of the wheel E, instead of being projecting members *e*, may take the shape of flutes or channels, in which case the sleeve F must be furnished with ribs to enter said flutes.

In the drawings the shouldered portion of cylinder G has been shown somewhat thick for convenience of illustration; but, in practice, said cylinder will be made as thin as consistent with strength, so as not to unduly increase the space below the wheel E, and thereby cause grain to bunch at the bottom of cup C. The bar K may be adjusted with a rack and pinion, or any other suitable appliances. The follower H may be omitted and the sleeve F *f* retained in its proper position within the cylinder G by means of a spring or otherwise.

In the drawings the sleeve F *f* has been shown as a single casting; but it is evident that this member of the drill may be made in two or more sections, and in some cases a single section or segment may be interposed between two adjacent flanges or ribs, *e*, of the feed-wheel. This segmental construction of said sleeve will not be objectionable, as the follower H will retain the various parts in their proper position within the slidable but non-rotatable cylinder G *g*. The location of shiftable bar K athwart the upper end or mouth of the seed-cup C is another advantage peculiar to my drill, as such location of the bar causes it to act as a bridge or guard to prevent grain passing down on the wrong side of the feed-wheel E *e*, and thereby choke up the apparatus. This arrangement enables me to dispense with a special plate or casting for such purpose, and, consequently, the complexity of the feeding appliances is reduced, and the implement rendered less liable to derangement. Furthermore, the shiftable and non-rotatable member G need not be a complete cylinder, but may be cut away to reduce its weight, provided such a segmental construction does not interfere with its proper functions, and I reserve the right to modify the invention in this manner.

I claim as my invention—

1. The longitudinally-shiftable but non-rotatable cylinder G, in conjunction with a fixed seed-cup, C, and a rotating feed-wheel, substantially as herein described, and for the purpose stated.

2. The combination of cup C, feed-wheel E *e*, rotatable and adjustable sleeve F *f*, the latter being made either in one piece or in sections, and longitudinally-shiftable but non-rotatable cylinder G, as and for the purpose set forth.

3. The combination of cup C, feeding device E *e*, rotary sleeve F *f f*, non-rotatable cylinder G *g*, and adjusting appliances I *i* L *l*, substantially as herein described.

4. In combination with a series of fixed cups, C, feed-wheels E *e*, non-rotatable cylinders G L *l* J, and shaft D, the bar K, passing through the cups C, to serve as a bridge at the top of the same, and for the simultaneous and uniform adjustment of said cylinders, substantially as shown and described.

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Witnesses:
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