(No Model.) 2 Sheets—Sheet 2.

J. P. WARNER.

GRAIN FORCE FEEDING MACHINE.

No. 315,193. Patented Apr. 7, 1885.

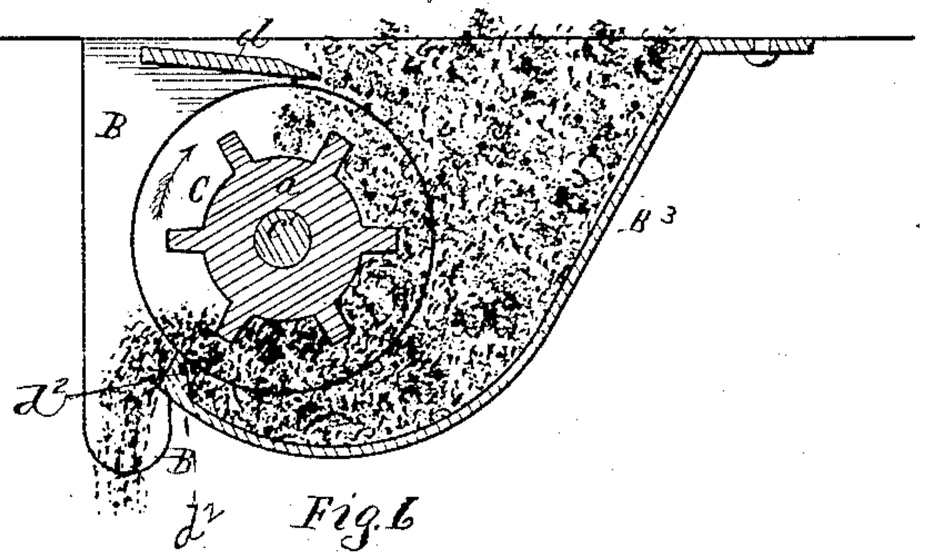


Fig. 1

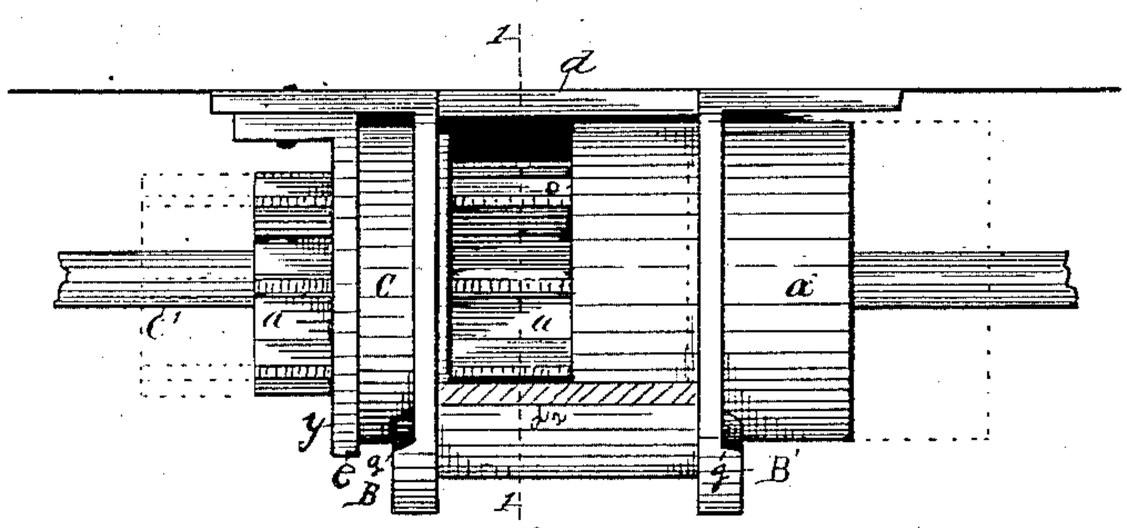


Fig. 7

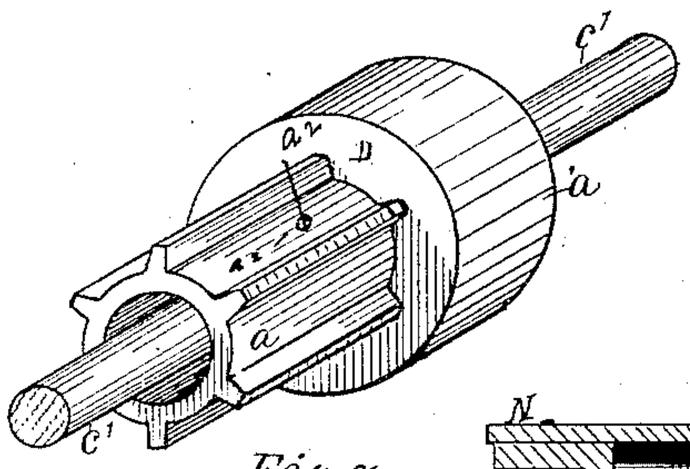


Fig. 8

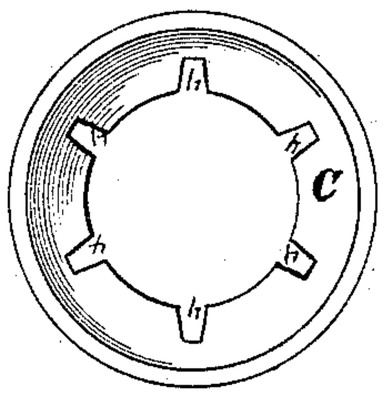


Fig. 9

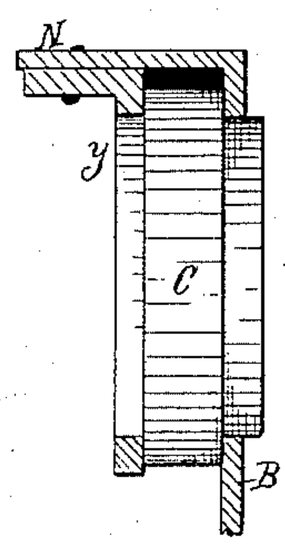


Fig 10

Attest.
John C Perkins
C. L. Poole

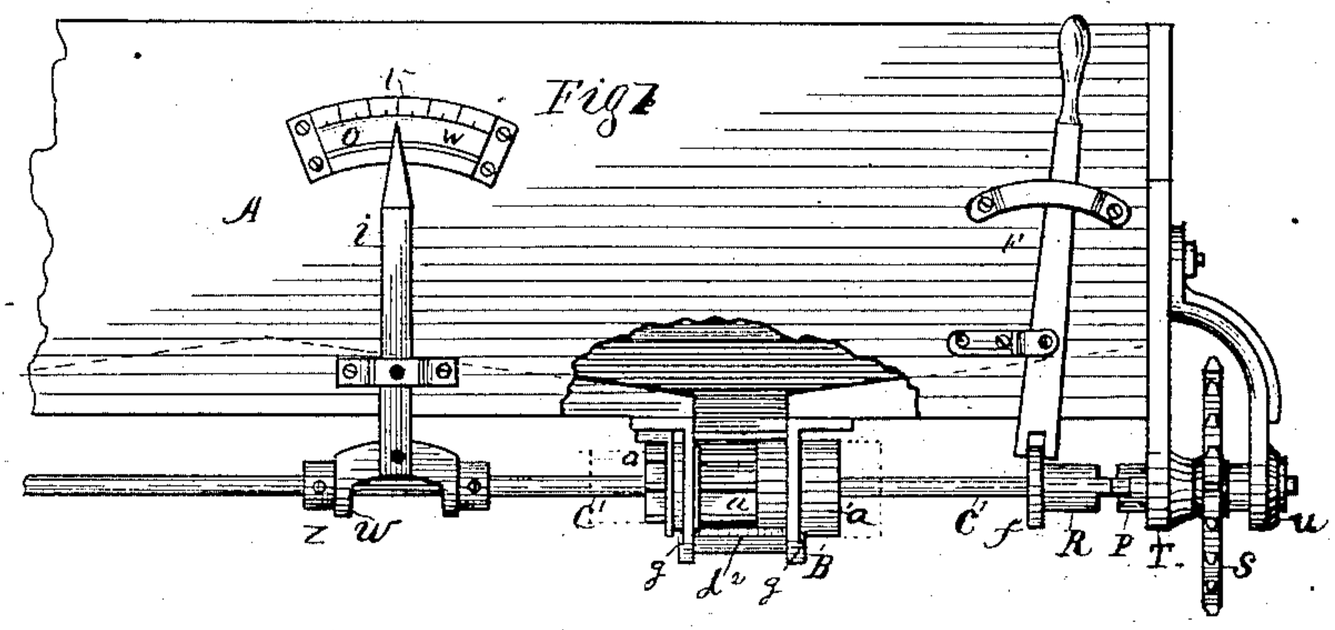
Inventor.
Casper P Warner
By Roscoe B Woodson
Atty

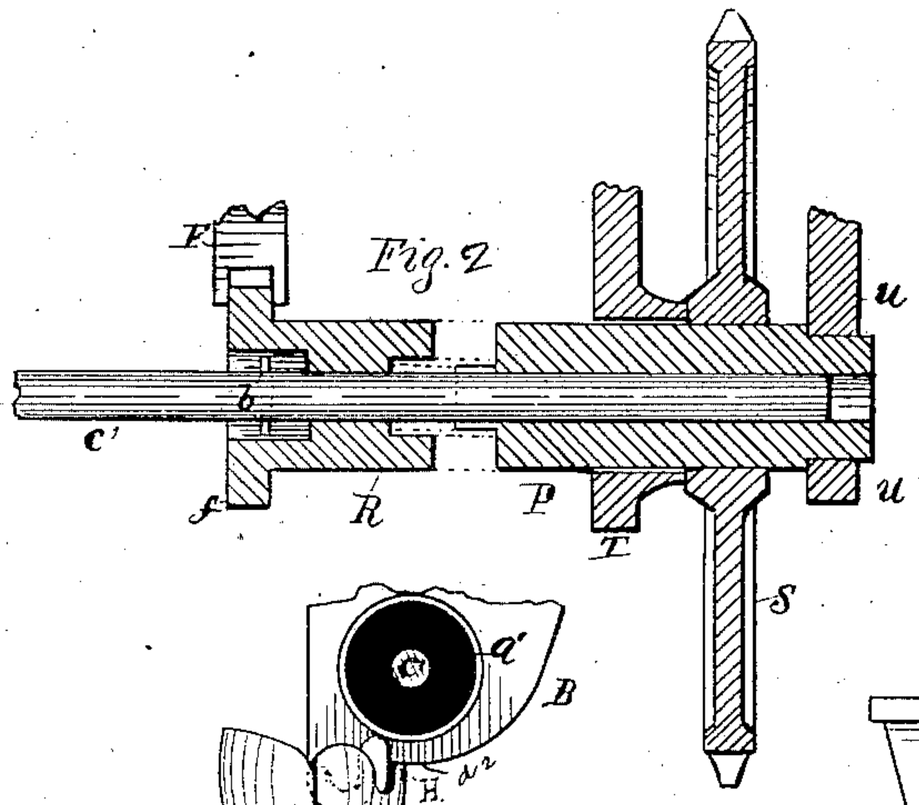
(No Model.) 2 Sheets—Sheet 1.

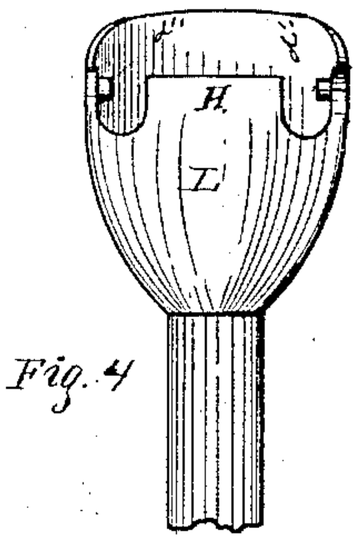
J. P. WARNER.

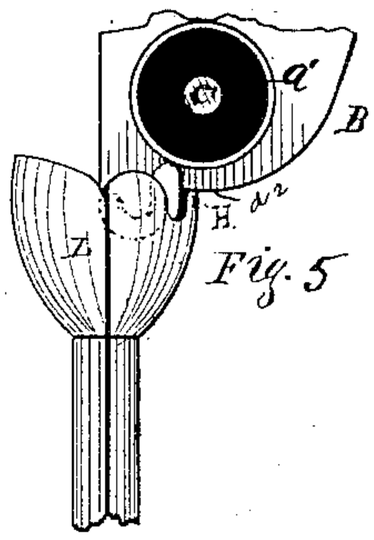
GRAIN FORCE FEEDING MACHINE.

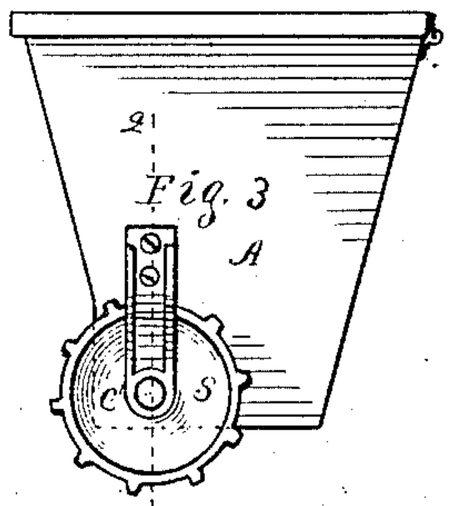
No. 315,193. Patented Apr. 7, 1885.











Witnesses:
John C. Perkins
C. L. Poole

Inventor:
Jasper P. Warner
By Rogers Brothers
Atty

UNITED STATES PATENT OFFICE.

JASPER P. WARNER, OF DOWAGIAC, MICHIGAN.

GRAIN FORCE-FEEDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 315,193, dated April 7, 1885.

Application filed November 16, 1882. (No model.)

To all whom it may concern:

Be it known that I, JASPER P. WARNER, of the city of Dowagiac, county of Cass, and State of Michigan, have invented a certain Improvement in Grain Force-Feeding Machines, of which the following is a specification.

My invention belongs to that class of machines known as "grain-distributers or seeding-machines," and is so constructed that it may be readily adjusted to sow the desired quantity of grain of any desired size or kind; and my invention consists in the general construction of parts, all of which will be hereinafter described.

In order to aid others skilled in the art to construct and use my invention, I will proceed to describe it with reference to the several drawings, forming a part of this specification, in which—

Figure 1 is a side elevation of the seed-box having portions cut away, showing the general construction of the seeding-works attached thereto. Fig. 2 is a longitudinal sectional view of the sprocket-wheel, shaft, and coupling under the seed-box on line 2 of Fig. 3, a side view of which is shown in Fig. 1. Fig. 3 is an end view of Fig. 1. Fig. 4 is an enlarged view of one of the seeding-pipes detached from the machine having the lower portion cut away. Fig. 5 is a side view of the same attached to the part B of the cup or gatherer. Fig. 6 is a cross-sectional view of Fig. 7 on line 1, showing an end view of shaft C′, discharging-cylinder *a*, and apron *d*. Fig. 7 is an enlarged detached view of the cup or distributer, in which dotted lines indicate change of position, which will be hereinafter described. Fig. 8 is an end and side view of the feed-wheel or discharge-cylinder attached rigidly to the shaft C′. Fig. 9 is a side view of the revolving ring C, through which the ribbed portion of the discharging-cylinder is made to slide, for the purposes hereinafter described. Fig. 10 is an edge view of the same with the shouldered portion resting against the perpendicular part B of the gatherer, and is a cross-sectional view through the ring Y and perpendicular part B of the gatherer. The ring Y is riveted to the horizontal portion of the part B at N, which secures the ring C laterally between the parts Y and B, but allowing it to turn with the discharging-cylinder *a* as it is revolved in the direction indicated by the arrow in Fig. 6.

Fig. 1 represents an ordinary seed-box containing my improvements. The box may be attached to any suitable machine mounted upon wheels, so that from one of the wheels the seed mechanism may be operated by a chain passing over a small wheel and around the sprocket-wheel S, attached to the end of the seed-box, as shown in Figs. 1 and 3. Through the ends of the box below the bottom I introduce a shaft, C′, which is somewhat longer than the box. To this shaft I secure any suitable number of distributers, *a*, that will discharge a sufficient amount of grain. These distributers are secured to the shaft C′ rigidly by means of a set-screw, a^2. (See Fig. 8.) The distributing-cylinders turn with the shaft, and are also moved endwise with it, for the purpose hereinafter set forth. The cylinder is cast hollow from each end about one-third of its length, (see Figs. 5 and 8,) the balance turned out to fit the shaft. The portion *a′* is perfectly round and hollow, being in length equal to the smaller or ribbed portion *a*, as clearly shown in Fig. 8, but having a greater diametrical proportion, thus forming a head having a right-angle shoulder A to the part *a*. I employ a ring, C, having recesses *h* within the projecting flange. This ring is attached to the part B of the gatherer (see Figs. 6 and 7) by inserting through the hole in the perpendicular part B the smaller portion of the ring C, and the opposite edge of the ring is secured by a ring, Y, being riveted to the horizontal part N of the gatherer B. (See Figs. 6 and 10.) By this arrangement the ring C is prevented from moving laterally, and is allowed to turn freely between the parts Y and B as the feed-cylinder *a* is driven by the shaft C′.

The parts of the gatherer attached to the seed-box over openings in the bottom of the same are lettered B B′, are curved on their back portion forming an incline, causing the

seed to work down and under the distributing-cylinder, as clearly shown by shading in Fig. 6. The part B of the gatherer has an apron, *d*, cast on at right angles fitting over the bottom of the box, projecting over the cylinder, joining the port B′. (See Fig. 7.) The apron extends backward, being slightly inclined, so that the grain in the box in dropping off the lower edge will fall upon the cylinder *a* and not discharge forward over the same, but be carried down and up over the discharging-apron d^2. The back portion of the gatherer B^3 (see Fig. 6) is cast on the part B′, the length being equal to the aprons *d* and d^2, and joins the part B, forming a box, through which the cylinder is operated. The front portion of the apron d^2 is slightly raised to meet the part *a′* of the cylinder, (see Fig. 6,) leaving ample room back of it for the grain to lie and not be crushed by the turning in the grain of the part *a′*, as clearly shown in Figs. 6 and 7. The sprocket-wheel S has a long hub cast on it, which extends through and turns in the supporting-arm *w*. The inner end extends through the box-head T, and is made to couple or clutch with the sliding collar R, for the purposes hereinafter specified; and through the hub P the feed-shaft C′ turns and slides endwise, as shown in Figs. 1 and 2.

Fitting over the shaft C′ is a sliding or coupling collar, R. (See Fig. 2.) When this collar is forced over the projecting portions of the hub P, the collar is caused to turn with the hub. The opposite end of the collar is provided with a rim, *f*, around its periphery. Fitting over the rim is a forked lever, F, which is pivoted to the box A. (See Fig. 1.) The upper end of the lever forms a handle, and by moving the lever to the right the collar R is detached from the hub P, and by turning to the left the collar and hub become coupled. The back portion of the collar has a recess across the center, being sufficiently large to receive the pin *b*, (see Fig. 2,) which projects through the shaft C′ on opposite sides. The slot receiving the pin *b* is sufficiently long to allow the collar R to couple and uncouple or slide over the shaft without sliding off or against the pin *b*. The objects of this construction are: When the machine is in motion, the sprocket-wheel S is turning on the shaft C′, the parts P and R not in gear or coupled. When it is necessary to sow the seed through the gatherers, the parts P and R are coupled. The part R being locked to the part P, it must turn with it. The pin *b* extending through the shaft C′, fitting the recess in the collar R, the shaft C′ is caused to turn, carrying with it the discharge-cylinder, sowing the seed. The shaft C′ passes through and turns in the forked yoke W. Fitting against each end of the yoke is a collar, *z*, secured to the shaft, holding the yoke in place. Pivoted to the center of the yoke is an indicating-arm, *i*, which is also pivoted to the seed-box. (See Fig. 1.) The upper end of the indicator is pointed, and back of the indicator I place an index-plate, *v*, having indicating-marks for the location of the indicator to sow a certain amount of grain per acre, which will be hereinafter described.

Fig. 4 represents the general form of a distributing-pipe having the lower portion broken away. The pipe is provided at the top with two pintles, *d″ d″*, projecting inward toward and opposite each other. These pintles are hooked over and into the convexities *g g* of the gatherer B B′. (See Figs. 5 and 7.) The projection H on the back portion of the pipe, when the pipe is in position, as in Fig. 5, stops against the discharge-apron d^2, which limits its forward movement, but allows it to swing backward should it come in contact with a substance while going forward.

To operate the machine: The lever F being thrown to the left, the machine is in gear, the sprocket-wheel revolving to the right. (See Figs. 1 and 6.) The seed, falling into the longitudinal channels of the discharging-cylinder, is carried down and up over the discharge-apron d^2, (see Figs. 6 and 7,) when it falls into the pipe L and is conveyed to the ground. (See Fig. 5.) Throwing the lever F to the right, the posts R P become disengaged, when only the sprocket-wheel, with hub P, remains turning upon the shaft C′.

How to regulate the quantity of seed sown: The indicator *i* being attached to the shaft C′ and pivoted to the box A, moving the upper end of the indicator to the right or left causes the shaft and discharge-cylinder *a* to move endwise. Moving the indicator toward W on the index-plate *v* extends the channeled portion of the discharging-cylinder through the ring C, as shown by dotted lines of Figs. 1 and 7, thus closing or narrowing the discharging-space between the ring C and the right-angled shoulder D, when a less quantity will be sown. Moving the indicator toward O on the index-plate forces the round portion *a′* outward, as shown by dotted lines in Figs. 1 and 7, thus increasing the discharge, when a greater quantity will be sown. The bottom of the box is provided with the usual inclines for the purpose of more readily conveying the seed to the openings over the gatherers. (See where box is broken away in Fig. 1.)

I am aware that force-feeding machines have been patented containing discharge-wheels having corrugations or receptacles for carrying and discharging the seed; and of such subject-matter I do not claim.

Having described my invention, what I claim as new, and desire Letters Patent therefor, is—

1. In a seeding-machine, the combination of the box A, supporting-arms *w*, wheel S, having clutch-hub P, sliding collar R, having rim *f*, engaging with the forked lever F, shaft C′, and locking-pin *b*, fitting within the recess of the collar, as and for the purposes specified.

2. In a grain-feeding device, the combina-

tion of the two-part feed-cup B B′, the part B having an upper feed-apron, *d*, and a raised discharge-apron, d^2, cast onto the bottom and located below the feed-wheel, said parts being integral, and a feed-wheel having a corrugated feeding portion with a cylinder portion of greater diameter cast in one piece, said feed-wheel adapted to turn and to slide laterally within the feed-cup, said cylinder portion acting when forced into the cup as cut-off by meeting the raised portion *d′*, the whole when arranged and combined as set forth.

JASPER P. WARNER.

Witnesses:
WM. TUTTLE,
R. B. WHEELER.