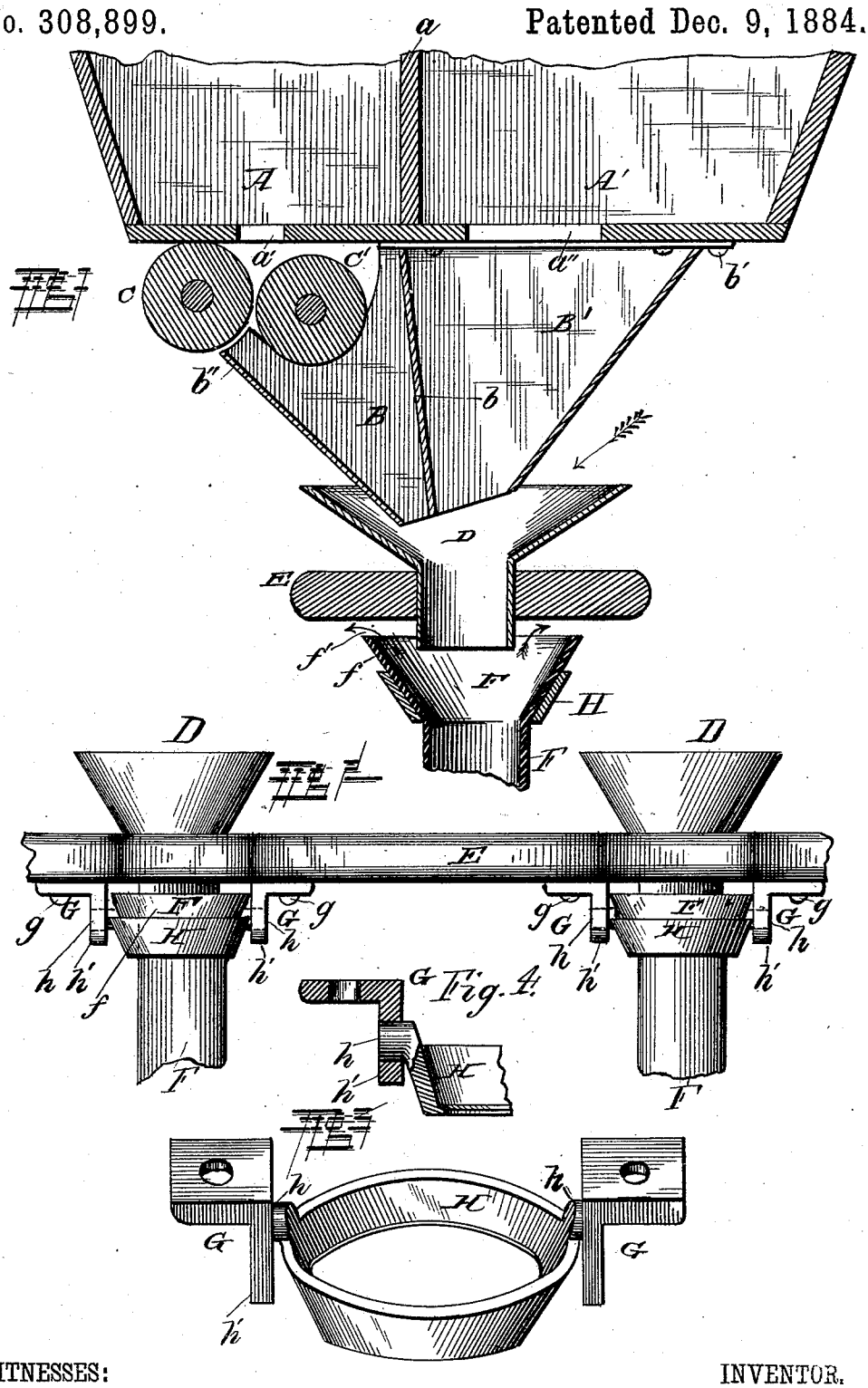
(No Model.)

J. F. KELLER.

GRAIN DRILL.

No. 308,899. Patented Dec. 9, 1884.



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JOHN F. KELLER, OF SHEPHERDSTOWN, WEST VIRGINIA.

GRAIN-DRILL.

SPECIFICATION forming part of Letters Patent No. 308,899, dated December 9, 1884.

Application filed June 10, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. KELLER, a citizen of the United States, residing at Shepherdstown, in the county of Jefferson and State of West Virginia, have invented certain new and useful Improvements in Grain-Drills; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and the letters of reference thereon.

My invention relates more particularly to that class of grain-drills which are designed to simultaneously distribute grain and fertilizing materials, the two being discharged in a mingled current as the machine advances across the field; and it consists in certain improvements in the construction of the receiving and discharging apparatus, as will be hereinafter explained.

In the drawings, Figure 1 is a vertical transverse section through the grain and fertilizer receptacles and the discharging-passages which are connected therewith. Fig. 2 is a rear elevation showing a fragment of the supporting-bar and two of the receptacles mounted thereon. Fig. 3 is a perspective plan view showing the manner in which the discharging-tubes are supported. Fig. 4 is a detail showing the same parts in vertical section.

A is the grain-receptacle, and A′ is the fertilizer-receptacle, the two being separated by the diaphragm or partition *a*.

B is the chute leading from the grain-receptacle, and B′ is the chute leading from the fertilizer-receptacle, *b* being a partition which separates one from the other. The rear chute, B′, is provided at its top with an outwardly-projecting flange, *b′*, to receive screws or bolts, by which it is secured to the bottom of the receptacle A′.

C and C′ are respectively the front and rear feed-rollers of the drill. The upper front portion, *b″*, of the grain-chute B terminates at a point in close proximity to the front roller, C, as seen in Fig. 1. At their lower extremity the chutes B and B′ extend a suitable distance into the upper flaring portion of a hopper, D, which terminates downwardly in a short discharge-pipe, which is fitted into an orifice in the supporting-bar E, through which it projects for a short distance into the upper flaring extremity of the discharging-tube F, the upper hopper-shaped portion, *f*, of which is loosely received within a correspondingly-flaring ring or collar, H. The ring H is provided upon its exterior face with two short oppositely-placed trunnion-like ears or journals, *h h*, which are received within bearings *h′ h′*, formed in the depending portions of angular supports G G, the horizontal portions of which are secured by screws or bolts *g* to the under surface of the supporting-bar E. Grain being supplied to the receptacle A passes through the discharge-orifice *a′* in the bottom thereof and falls into the space between the rollers C and C′, by which it is suitably distributed and carried downwardly. The upper front extremity or scraper, *b″*, of the chute B being, as already stated, almost in contact with the roller C, serves as the roller revolves to detach from the face of the roller any kernels of grain or any other substance which by any chance may adhere thereto, and the roller is thus kept in suitable condition to do its most effective work in distributing and discharging the grain. The fertilizing material falls through the discharge-orifice *a″* of the receptacle A′, and as will be seen is kept separate from the grain until both have passed from their respective chutes into the hopper D. The inclination of the front portion of the chute B is such that the grain as it descends is given a direction and an impulse which carry it well toward the rear inner portion of the tubular part of the hopper D, while the fertilizing material is given a direction which causes it to strike the grain-current substantially at a right angle thereto, and the two currents, each falling athwart the other, are thus thoroughly commingled. As will be seen, the lower portion of the two chutes B and B′ is cut away or made shorter toward the rear thereof, and, besides, the two are placed slightly eccentrically to and toward the front of the hopper D. This construction permits observation, as indicated by the arrow in Fig. 1, of the operation of commingling the two distinct materials as they unite in passing from their respective chutes.

In the practical use of this class of devices it is found that a current of air which constantly rises through the discharge-tube tends to retard somewhat the downward flow of the grain and the fertilizer. To avoid so far as

practicable the effect of this upward flow of air, I place the top of the flaring portion *f* of the tube F a short distance below the supporting-bar E, so that through the annular opening *f'* thus provided the retarding-current may find lateral escape.

The discharge-tube F being composed of rubber or other flexible material, the flaring portion *f* of the same is readily fitted into or removed from its seat in the ring H by being first compressed by the hands and then passed through the ring. The facility with which this may be done encourages the detachment of these parts for separate storage at the close of the season for seeding.

By the provision of the journals and bearings for the ring or seat H motion imparted to the discharge-tube by contact of the boot with obstructions is transferred to the ring and its journals, and thus abrasion of the tube at its point of suspension is avoided. It will be seen that this construction combines in a single seed-discharge tube the advantages of a pivotal support and horizontal adjustability, the hopper-shaped portion *f* of the discharge-tube being readily lifted from its bearing, and thus made horizontally adjustable at will, to avoid excessive wear upon any particular portion thereof.

Having thus described my invention, what I claim is—

1. The combination, with the roller C, of the scraper *b''* at the upper front portion of the grain-chute B.

2. The combination, with the fertilizer-chute B', of the grain-chute B, provided with the scraper *b''*.

3. The combination, with the roller C, of the roller C' and the scraper *b''*.

4. The combination, with the hopper D, of the chutes B and B', projecting into such hopper, each of the chutes being at its lower extremity inclined upwardly from the front toward the rear, as described.

5. The combination, with the hopper D, of the chutes B and B', projecting into such hopper, each of the chutes being, at its lower extremity, inclined upwardly from the front toward the rear, as described, and the two chutes together being arranged eccentrically to the hopper D, as set forth.

6. The combination, with the supporting-bar E, of the hopper D, extending through and projecting below such supporting-bar, and the discharge-tube F, supported by its flaring top *f* in the pivoted collar or seat H, such flaring top being placed a short distance below the supporting-bar, as and for the purposes set forth.

7. The combination, with the supporting-bar E, of the angular supports G G, secured to such bar and having bearings *h' h'*, and the supporting-ring H, having journals *h h*, whereby it is supported in such bearings.

8. The combination, with the supporting-bar E, of the angular supports G G, the pivoted or journaled seat H, and the discharge-tube F, having flaring portion *f*.

9. The combination, with the supporting-bar E, of the hopper D, the journaled ring or seat H, the compressible discharge-tube F, and the annular discharge-opening *f'*, which encircles the lower portion of the hopper D.

10. The combination, with the grain-chute B, having at its upper extremity the roller C and the scraper *b''*, of the hopper D and the flexible pivotally-supported tube F.

11. A flexible discharge-tube for grain-drills, which is pivotally-supported and which is axially adjustable in its seat.

In testimony that I am the inventor of the above-described improvements in wheat-drills I hereto subscribe my name.

JOHN F. KELLER.

Witnesses:
DANIEL BREED,
BOYD H. KELLER.