W. H. PENNAL.

SEED-DROPPER.

No. 187,412. Patented Feb. 13, 1877.

Fig 1

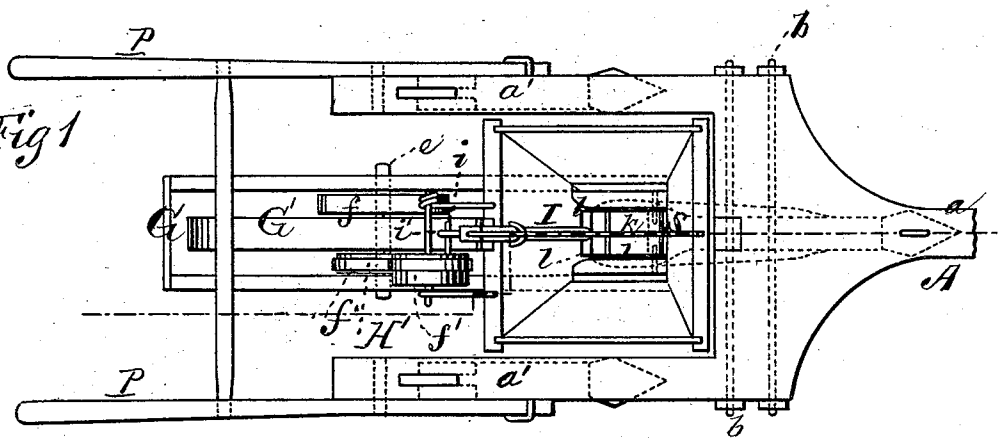

Fig 2.

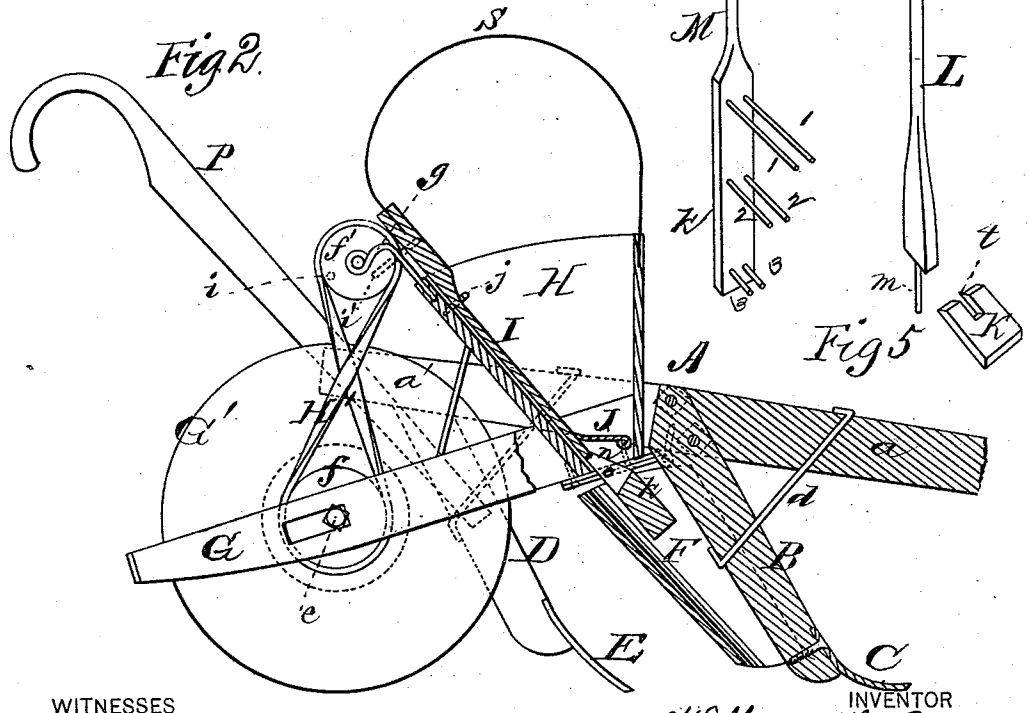

Fig 3

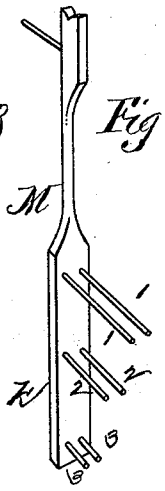

Fig 4

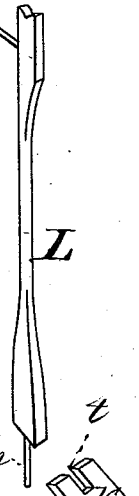

Fig 5

WITNESSES

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UNITED STATES PATENT OFFICE.

WILLIAM H. PENNAL, OF BOLD BRANCH, SOUTH CAROLINA.

IMPROVEMENT IN SEED-DROPPERS.

Specification forming part of Letters Patent No. **187,412**, dated February 13, 1877; application filed October 21, 1876.

To all whom it may concern:

Be it known that I, WILLIAM H. PENNAL, of Bold Branch, in the county of Abbeville and State of South Carolina, have invented a new and valuable Improvement in Seed-Droppers; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the-same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a plan view of my improved corn-planter. Fig. 2 is a longitudinal vertical central section of the same; and Figs. 3, 4, and 5 are detail views of attachments.

This invention has relation to improvements in seed planters or droppers; and the nature of the invention consists in combining with the bifurcated plow-beam a vertically-vibrating frame, hinged to the beam at its front end, and affording bearings at the other for the driving-wheel of a seed-dropping mechanism, which is mounted on the said frame, whereby the entire operative mechanism is capable of adapting itself to the inequalities of the soil. It also consists in combining, with a vertically-reciprocating dropper-rod having a seed-pocket in its lower end, a metallic striker, hinged at the bottom of the hopper to its front wall, which striker will vibrate upward, to allow the passage of the dropper-rod, but will assume an opposite movement when the said rod descends, and thereby remove any excess of seed from the pocket. It also consists in certain other novel details of construction and arrangement, whereby very useful results are attained, as will be hereinafter more fully explained.

In the annexed drawings, the letter A designates the beam or stock of my improved corn-planter, consisting of a main draft-beam, *a*, and two spaced side beams, *a'*, the whole being, preferably, in one piece, and made of iron or wood, as may be most expedient. Bars *a'* will be secured to beam *a*, and transversely braced by metallic tie-rods *b*, when the frame is made of wood. The standard B of the furrow-opener C will be secured to the main beam *a*, near its heel, in any suitable manner, and will be held rigidly against yielding rearwardly by means of a brace, *d*, secured at one end to the beam in front of the standard, and at the other to the said standard. The side beams *a'* will carry, at their rear ends, the standards D D of the covering-shovels E, which will be similarly braced, as above described. Standard B will carry upon its rear edge a preferably metallic spout, F, through which the seed will be delivered to the furrow from the hopper. G represents a rectangular frame, arranged between the side beams *a'*, and hinged at its front end to the rear part of the draft-beam *a*. This frame will afford bearings at its rear end for the driving-wheel G', and will also carry the hopper H and the dropping mechanism. Being hinged to the beam *a* at its front end, the frame will rise and fall, thus adapting the mechanism for use on rough soil, as the driving-wheel passes over the same. The shaft *e* of the driving-wheel G may be drawn out of its bearings, and will have a pulley, *f*, removably secured thereon at each side of the said wheel. These pulleys will be of different diameters. H' represents a crossed endless belt, passing around the pulley *f*, and around a pulley, *f'*, having its bearings in arms *g*, projecting upward from the upper part of the hopper, through which motion is transferred from the driver-wheel to the pulley *f'*. This latter pulley is provided with a pin, *i*, projecting out from the side of the same near its periphery, and at each rotation of the pulley this pin will engage with a pin, *i'*, projecting to the rear from an endwise-movable dropper-rod, I, causing it to be raised. At the moment of the disengagement of pins *i i'*, consequent upon the rotation of the pulley *f'*, the rod I will be thrust back into the hopper by means of an arched spring, S, secured at one end to the front wall of the hopper, and at the other to the rod I. The spring is thus made to span the hopper from front to rear, and is thus out of the way and can offer no obstacle to the filling of the hopper.

Rod I is guided by a removable staple, *j*, in its reciprocations, and its shovel-like head *k* extends down into the throat of the hopper, between the two removable cheek-pieces *l*. These latter sustain a metallic rod, upon which a metallic striker, J, is hinged at their front lower edges. The head *k* of the dropper-rod

is perforated through and through, as shown at *o*, and its lower end being enlarged, the upper and lower ends of this head will be connected by a beveled surface, *n*, which will prevent the striker from jamming the rod against the rear wall of the hopper. When rod I is raised, the pocket *o* is above the striker, and will be filled with grain from the hopper. This rod, in its descent, will enter spout F, and the contents of the pocket will be discharged into the same, any excess being struck off by the striker. It is evident that by increasing the number of pins *i* on pulley *f'*, the number of reciprocations of rod I will be proportionately increased, thus dropping a greater number of seed-plantings in a given length of furrow. The same result may be attained by increasing the size of pulleys *f*. The shaft *e* of the driving-wheel may be drawn out and the wheel reversed, thus bringing the larger pulley into the position of the smaller one, when pulley *f'*, being given a greater number of rotations in a given distance, will necessarily increase the number of plantings. To transform the planter into a guano-distributer, I need only remove the staples, draw out the rod I, detach the check-blocks from the hopper, and, having removed the striker, replace the said blocks. A small notched block, K, will then be introduced into the place of the striker, between the end walls and the cheek-blocks, with its notched end *t* next the wheel G', and a rod, L, provided with a pin, *i*, substituted for the rod I. The heel of rod L will completely close the notch *t*, and will be provided with a punch-rod, *m*, on its extreme edge. This punch works freely in the notch, and will keep it clear for the passage of the guano into the spout.

The same operative mechanism may, in turn, be converted into a cotton-planter by removing block K and detaching rod L, then substituting in lieu of the latter a rod, M, having upon its head *k* spikes 1 2 3, arranged in pairs, as shown in Fig. 3. These spikes increase in length from below upward, and the distance between them increases in like manner—that is, the spikes 1 at the top of the head are longest and farthest apart, spikes 2 somewhat shorter and less spaced, and spikes 3 nearest together and the shortest. The upper spikes serve as agitators for shaking up the cotton-seed, and the lowest, when raised, will allow the seed to escape into the spout. The handles P are socketed into standards D, and bolted to beams *a'*.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a corn-planter, the laterally-spread beam *a*, having the branches *a'* extending in the plane of the beam to the rear, on each side of the hopper, in combination with the vertically-vibrating hopper-supporting frame G, hinged by its front end to the beam *a*, and supported in rear by the driving-wheel G', as specified.

2. The hopper H, having removable cheek-pieces *l* in its throat, and the striker J, journaled in the said pieces, combined with a reciprocating dropper-rod, as set forth.

3. A corn-planter having the detachable dropper-rod I, the removable cheek-pieces *l* in the throat of the hopper, and a vibrating striker arranged between the said cheek-pieces, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

WILLIAM HENRY PENNAL.

Witnesses:

J. TAGGART, Sr.,

J. L. MCLEAN.