E. H. CHAMBERLAIN.

SEEDING-ATTACHMENT FOR HARROWS.

No. 195,796. Patented Oct. 2, 1877.

Fig. 1.

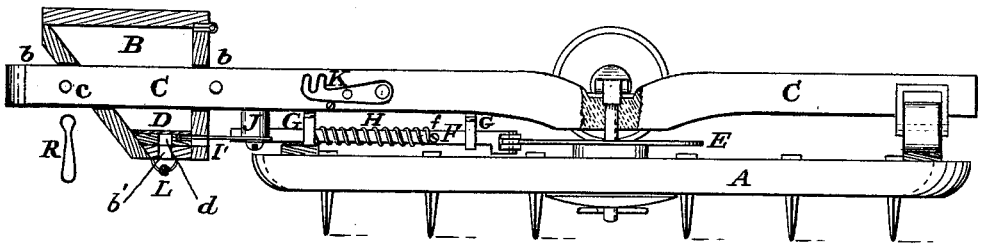


Fig. 4.

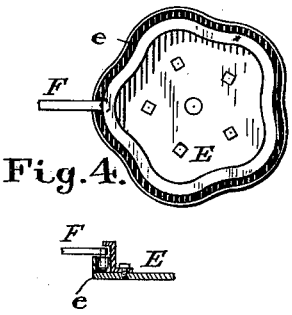
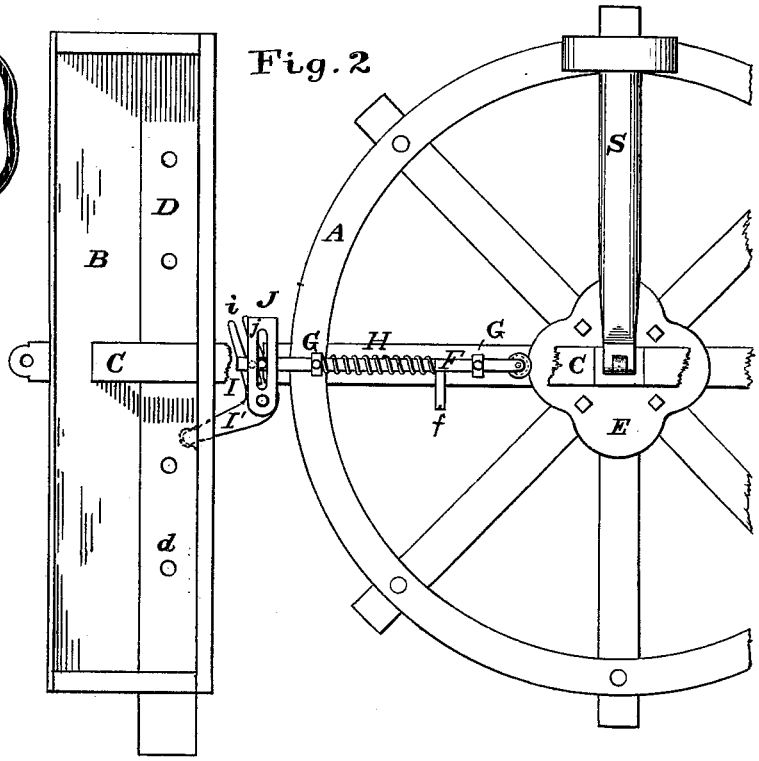


Fig. 2



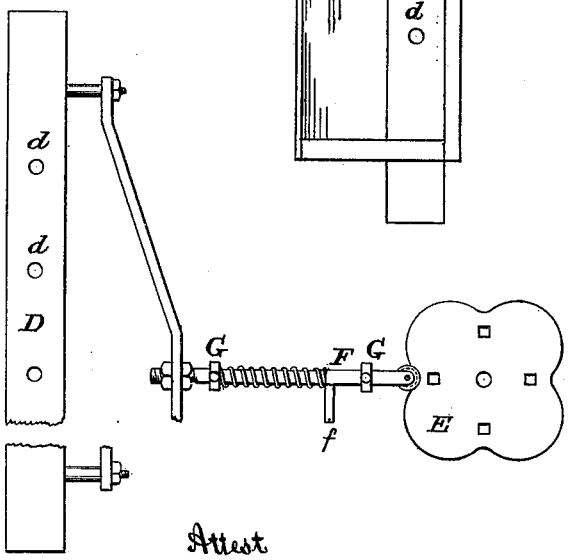


Fig. 3.

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IMPROVEMENT IN SEEDING ATTACHMENTS FOR HARROWS.

Specification forming part of Letters Patent No. **195,796**, dated October 2, 1877; application filed September 7, 1877.

To all whom it may concern:

Be it known that I, EDWARD H. CHAMBERLAIN, of Little Rock, Pulaski county, Arkansas, have invented a new and useful Seeding Attachment for Harrows, of which the following is a specification:

My invention relates to certain mechanical devices whereby a seeding apparatus is adapted for attachment to the draft-beam of a horizontally-rotating harrow, in conjunction with other devices whereby the seed-dropping mechanism is operated by motion derived from such harrow.

In the accompanying drawings, Figure 1 is a side elevation of a seeding apparatus and rotary harrow, coupled and operatively connected by devices embodying my invention, the seed-box and a portion of the harrow-beam being in section. Fig. 2 is a top view of the same, the seed-box being open and a portion of the harrow-beam broken away. Fig. 3 shows a modification of the transmitting mechanism. Fig. 4 shows, by plan and section, a modification of the scalloped cam.

A may represent a horizontally-rotating harrow of any approved pattern. B may represent the seed-box or hopper of a seeding apparatus attached to the forward part of the draft-beam C of the harrow.

This coupling or connection of the seed-box with the harrow-beam is effected by inserting the beam through orifices *b* in the front and rear sides of the box, the retention of the parts being secured by insertion of a pin, R, in an orifice, *c*, in the beam.

D may represent a suitable slide or dropper, having the usual orifices *d*, which, at certain positions of the slide, coincide with similar orifices *b'* in the box-floor, so as to operate in the well-known manner of such devices.

Motion is communicated from the harrow to the slide by the following means: E is a scalloped collar or cam, attached to and revolving with the harrow. F is a reciprocating rod, occupying guide-eyes G that project from the harrow-beam, and having a spring, H, which, bearing against a pin, *f*, and one of the said guides, compels the constant backward pressure of the said rod F against the said scalloped periphery of the revolving cam E. The number and size of the cam-scallops are, of course, adapted to the work to be performed. The rod F is, at its forward end, pivoted to one arm, I, of a bell-crank, I I', which bell-crank is fulcrumed to a bracket, J, projecting from the harrow-beam. Slots *i* and *j* in the said arm I and bracket J, respectively, enable the bell-crank to be adjusted to the right or left, so as to produce a greater or less throw of the seed-slide. The arm I of said bell-crank is pivoted to the said seed-slide D. A catch, K, engaging over the pin *f* upon the rod F enables the operator to move and hold the said rod temporarily out of contact with the cam E, for discontinuance of the seeding action when so desired. A rod, L, may be stretched underneath the grain-orifices to assist in scattering the seed.

The operation is as follows: The cam E, sharing in the rotary movement of the harrow, reciprocates the rod F, which, in turn, operates through the bell-crank I I' to reciprocate the slide D, and thus drop the seed.

Having reached a point where it may be desired to suspend the seed-dropping operation, the object is effected by simply engaging the catch K over the pin *f*.

In my mode of coupling, the seed-delivering mechanism, being located underneath the harrow-beam and near the ground, is of more certain operation than those in which, such mechanism being placed wholly above the beam, the descent of the seed is liable to be interfered with by the beam or by winds or other interfering agencies.

The above-described illustration of my invention is manifestly susceptible of various modifications. For example, for use with a seed-slide, shifting fore and aft, the reciprocating rod F may be coupled directly to the slide, as in Fig. 3; or, where the seed-dropping is effected by a rotary bar or wallower, the motion of the dropper may be effected by geared connection with a crown-wheel on the harrow-rim, or by gear or belt connection with the weighted roller-shaft S. The seed-dropper may be secured to the under side, or otherwise so attached to the harrow-beam as to secure the advantages of unrestricted delivery. A meandering groove, *e*, Fig. 4, may be substituted

for the scalloped cam, and thus dispense with the spring H by making the motion of the rod F positive.

I claim as new and of my invention—

1. A horizontally-revolving harrow, having attached to front portion of its draft-beam C, by devices *b* R *c*, a seed-dropping apparatus, driven by bell-crank I I′, reciprocating rod F, and revolving cam E, upon the harrow-head, substantially as set forth.

2. The seeding attachment for horizontally-revolving harrows, consisting of seed holder and dropper B D, bell-crank I I′, reciprocating rod F, spring H, and cam E, and the described (or equivalent) attaching devices *b* R *c*, substantially as set forth.

In testimony of which invention I hereunto set my hand.

E. H. CHAMBERLAIN.

Attest:

GEO. H. KNIGHT,

GEORGE H. KOLKER.