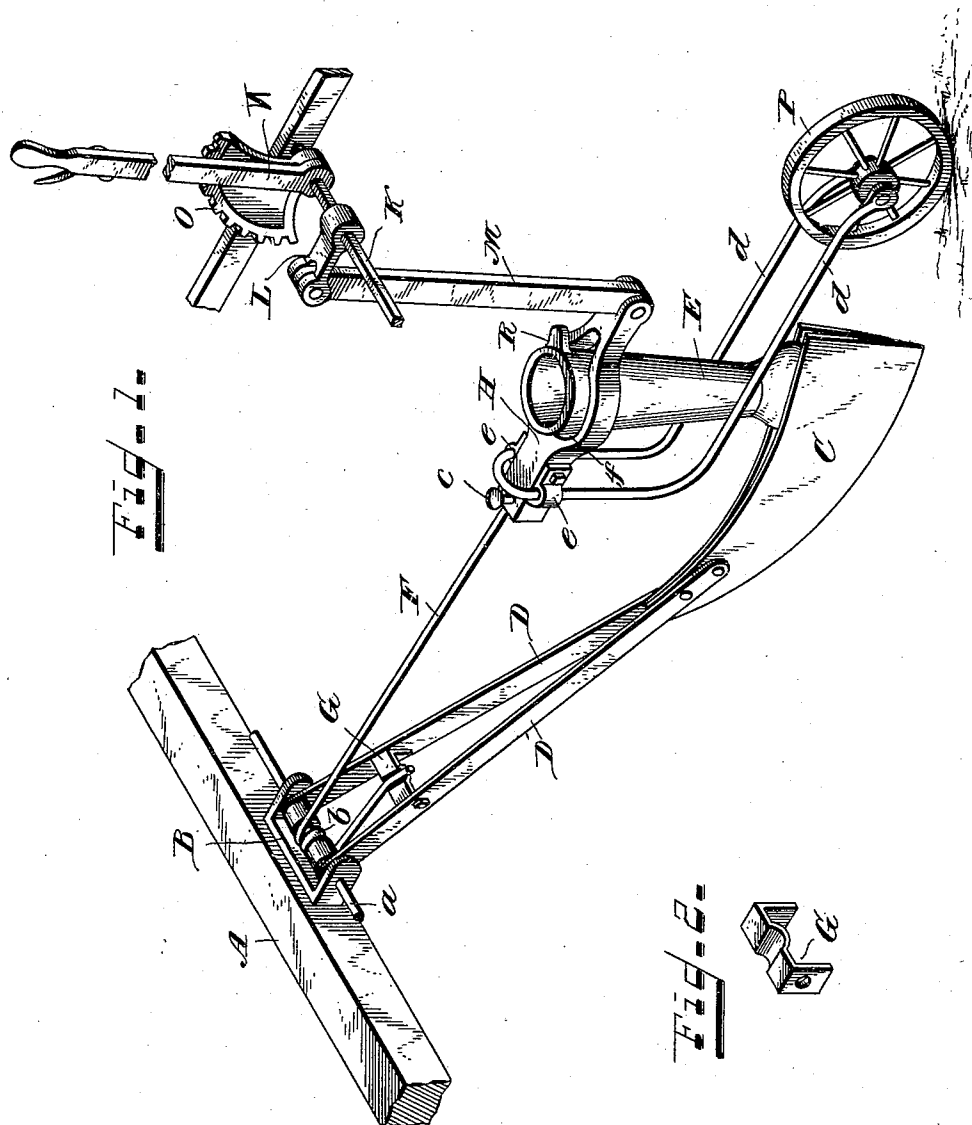


(No Model.)

W. G. MUNN & E. CHRISTMAN.
GRAIN DRILL.

No. 473,234.

Patented Apr. 19, 1892.



Witnesses
Thomson Cross
George Friedman

Inventors:
William G. Munn
Edward Christman
by *Stem Allen* Attorneys.

UNITED STATES PATENT OFFICE.

WILLIAM G. MUNN AND EDWARD CHRISTMAN, OF LOUISVILLE, KENTUCKY,
ASSIGNORS TO THE BRENNAN & COMPANY SOUTHWESTERN AGRICUL-
TURAL WORKS, OF SAME PLACE.

GRAIN-DRILL.

SPECIFICATION forming part of Letters Patent No. 473,234, dated April 19, 1892.

Application filed January 28, 1892. Serial No. 419,497. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM G. MUNN and EDWARD CHRISTMAN, citizens of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Grain-Drills, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming
10 part of this specification.

Our invention relates to improvements in grain-drills, more particularly to those known as "shoe" or "runner" drills; and it consists in a novel construction and arrangement of parts
15 to be hereinafter more particularly pointed out and claimed.

The object of our improvements is to furnish a simple, cheap, and effective means for applying spring-pressure to the runners and
20 covering wheels of the drill, so that the pressure may be varied at will in accordance with the nature of the ground and whenever else desired.

In the drawings, Figure 1 is a perspective
25 view of one of the runners of the drill, with our improved spring-pressure device in connection therewith, all other parts of the drill being removed. Fig. 2 is a perspective view of the casting between the forks of the drag-
30 bar, which supports the end of the spring-rod.

A is a portion of the main frame of the drill, and B one of the hangers or brackets to which the drag-bars of one of the runners are piv-
35 oted.

C is one of the shoes or runners, to the forward end of which is rigidly secured the drag-bar D, bifurcated as shown in Fig. 1, the bifurcated end of the drag-bar being pivoted to the
40 bracket B, as shown on the horizontal rod *a*, which passes through eyes in the bracket. The rod *a* preferably extends through each hanger or bracket for the entire series of runners, so that a single rod forms the pivotal connection for all the drag-bars of the series.

45 E is the feed-tube secured at its lower end to the heel of the runner C, and through which the grain is conveyed to the ground into the furrow formed by the runner.

F is a steel spring-rod coiled loosely with
50 one or more coils around the rod *a* at *b*. The

end of this spring-rod F bears down upon the metal casting G, which is rigidly secured between the forks of the drag-bar D D. The other end of the rod F is secured to the casting H by the screw *c*. This casting H is formed
55 with a central opening *f*, so as to fit loosely around the feed-tube E and allow free vertical play for the tube.

K is a square rock-shaft extending horizontally across the machine from one side of
60 the frame to the other, and secured to this rock-shaft at suitable intervals, one for each spring-rod F, are the arms L, while a connecting rod or link M connects each of these arms L to its corresponding casting H.
65

N is a hand-lever by which the rock-shaft K is operated, and O a rack by which the lever is locked in any desired position in the usual way.

P is a covering-wheel adjusted to follow in
70 the track of the runner C and to cover the furrow after the seed has been deposited therein. This wheel is journaled in the ends of the rods *d d*. These rods are formed in one piece, looped at the front end and are secured
75 to the casting H by the clamps *e e*.

The operation of the device will be readily understood. A lip R is formed on the feed-tube E, and when it is desired to elevate the runners and wheels from the ground in trans-
80 porting the machine from one field to another the hand-lever N is operated so as to rock the shaft K and raise up the casting H, thus bringing the casting in contact with the lip R on the feed-tube and lifting it and its runner
85 from the ground and at the same time also elevating the covering-wheel P.

When the device is in use, the operator shifts the hand-lever, so as to depress the casting H, which causes the end of the spring-rod
90 F to bear on the casting G on the drag-bars, and thus to depress them and drive the runner into the ground, and at the same time the covering-wheel is likewise pressed upon the ground. The covering-wheels may be ad-
95 justed in relation to the runners by loosening the clamps *e e* and securing the rods *d d* higher up, as will be readily understood.

In the drawings we have illustrated but a single pressure device; but it will of course
100

be understood that as many devices are arranged in series side by side, as there are feed-tubes and hoppers in the grain-drill.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In a grain-drill, the combination, with the frame, runners, feed-tubes, and drag-bars pivoted to the frame, of spring-pressure rods coiled at the inner end, and pivotal connection therefor to the frame, with rigid support between the bifurcated arms of the drag-bars and free inner ends of said spring-rods pressing thereon, and connecting mechanism at the outer end of said spring-rods connecting same to a rock-shaft, whereby the rocking of said shaft will cause said spring-rods to exert their pressure on the runners, substantially as shown and described.

2. In a grain-drill, the combination, with the frame, runners, feed-tubes, and drag-bars pivoted to the frame, of spring-pressure rods coiled at the inner end, and pivotal connection therefor to the frame, with rigid support between the bifurcated arms of the drag-bars, and free inner ends of said spring-rods press-

ing thereon, hollow castings surrounding the feed-tubes and rigidly attached to the outer ends of said spring-rods, with lip on the feed-tubes, and means for raising and depressing said hollow castings, whereby the runners may be raised entirely from the ground or driven therein, substantially as shown and described.

3. In a grain-drill, the combination, with the frame and drag-bars pivoted thereto, of a spring-rod, coil formed thereon at its forward end, with pivot-rod for the drag-bars to receive said coil, rigid support between the drag-bars, and free end of said spring-rod extending back and pressing upon said support, hollow casting secured to the other end of said spring-rod and surrounding the feed-tube, means for raising and depressing the said casting, and a covering-wheel, with spring-connecting rods connecting said wheel to the hollow casting, all substantially as shown and described.

WILLIAM G. MUNN.
EDWARD CHRISTMAN.

Witnesses:

LYMAN L. PARKS,
J. C. DOWNING.