B. KUHNS.

Grain-Drill.

No. 160,829 Patented March 16, 1875.

Fig. 1.

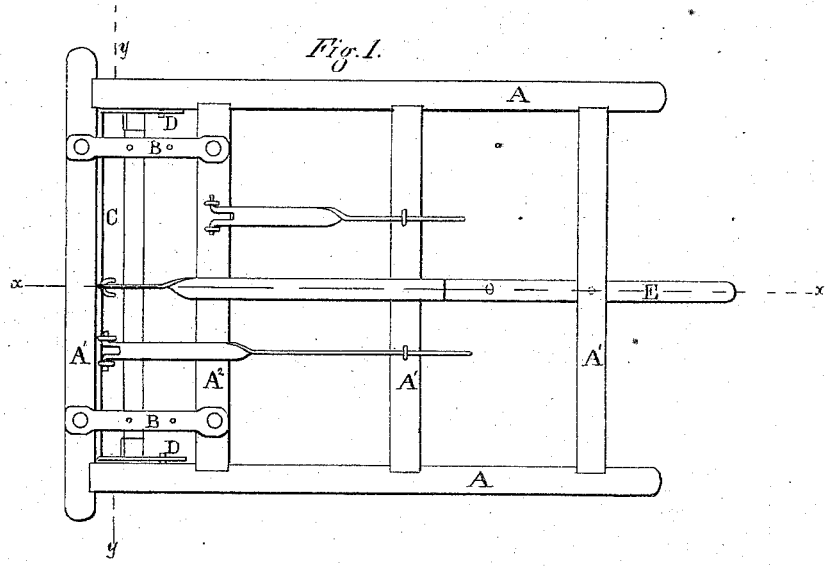


Fig. 2.

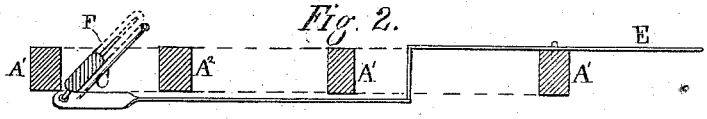


Fig. 3.

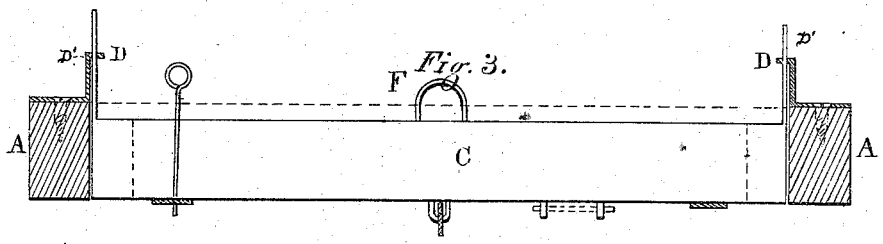
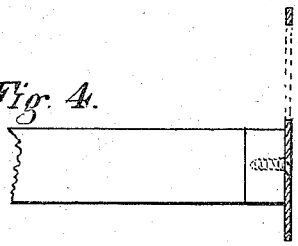


Fig. 4.



Attest

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UNITED STATES PATENT OFFICE.

BENJAMIN KUHNS, OF DAYTON, OHIO.

IMPROVEMENT IN GRAIN-DRILLS.

Specification forming part of Letters Patent No. **160,829**, dated March 16, 1875; application filed February 4, 1875

To all whom it may concern:

Be it known that I, BENJAMIN KUHNS, of Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Grain-Drills; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings and to the letters of reference marked thereon, which form a part of this specification—

Figure 1 being a plan view of the under side of the frame-work, and showing the drag-bars to which the hoes are attached, the oscillating bar for shifting a portion of the hoes, the stationary bars upon which the oscillating bar rests, and the mechanism for moving said bar, and for locking it in position; Fig. 2, a sectional elevation on line *x x* of Fig. 1, showing the oscillating bar and its keepers, one method of moving the oscillating bar, and a portion of the frame-work; Fig. 3, a transverse section on line *y y* of Fig. 1, showing the side bars of the frame, and the plates of metal, which have projecting pins upon them for guiding the keepers upon the oscillating bar; Fig. 4, an elevation of a portion of the oscillating bar and its keeper, and a cross-section of the same.

Corresponding letters of reference denote corresponding parts in all of the figures.

This invention relates to that portion of grain-drills which serves to move a portion of the hoes, so that they may be changed from a single to a double rank, and vice versa; and it consists in certain combinations and arrangements of the parts, as will be more fully described hereinafter.

In constructing grain-drills with my improvements attached, I use any suitable frame-work, A A, having cross-bars A^1, A^1, A^1, and A^2, to the latter of which each alternate drag-bar is attached, as shown in Fig. 1. Extending from the front cross-bar A^1 to the bar A^2 are two or more bars, B B, of metal, they being securely fastened to the under sides of said bars, so that as the oscillating bar, soon to be described, is moved, it may rest and slide thereon. In order that provision may be made for shifting a portion of the hoes, so that they may be placed in rank with those attached to the fixed bar, or in a rank in the front or rear thereof, an oscillating bar, C, is arranged between two cross-bars of the frame, in such a manner that as it is oscillated for the purpose of changing the positions of a portion of the hoes, as above described, it shall slide upon the bars B B. To this oscillating bar each alternate drag-bar or hoe is attached by a large joint, as shown in Fig. 1, said bar being kept in position by means of plates or sockets of metal attached to the ends thereof, which have an upwardly-extending arm, in which there is formed a slot, as shown in Figs. 1 and 4, for the reception of a pin, D, which is formed upon or is inserted in a plate or bracket, D′, which is attached to the side bars A A of the frame. These sockets, with their arms and the pins D D, act as keepers for the oscillating bar, and prevent it from being lifted out of its proper position. Various devices may be used for shifting the position longitudinally of the oscillating bar—such, for instance, as by a bar of metal, E, attached thereto, and made to extend rearward to some convenient point to be reached by the operator. When such a bar is used, it may have holes formed in it for the purpose of engaging with a pin secured to the cross-bar of the frame, as shown in Fig 2, and thus made to serve as a locking device, for keeping the oscillating bar in its adjusted positions. Another method of moving the bar C consists in the use of a staple or handle, F, attached to or inserted in the upper edge thereof, so that the operator may apply his hand thereto and shift it from one of its extreme points to the other, where it may be held by pins inserted through the bars B B, as shown in Figs. 1 and 3.

It will be observed that one of the peculiarities of this device consists in the fact that in shifting the hoes from a single to a double rank, it can be accomplished much more readily, and with a less expenditure of power, than by the methods now in use, owing to the fact that the point of resistance of the longitudinal movement of the bar is placed considerably above said bar, instead of at or near its axis, as is the usual method, as a consequence of which a leverage is given to the hoes when

they act to shift the bar, as they do in the movement above referred to. When the hoes are shifted by the operator, the advantage due to the leverage upon the bar, and by its arrangement with reference to the point of resistance, is obtained. Another peculiarity of this device consists in the fact that the bar which moves the shifting hoes moves in a horizontal plane, and not through the arc of a circle, as in those cases where a rotating bar is used; the advantage of this movement being that the power necessary to be applied to the movement of said bar and the hoes attached thereto, is the same throughout its entire range of motion, and not, as in other cases, greater at one point than at another.

I am aware that sliding bars, to which a portion of the drag-bars of grain-drills is attached, have been used in connection with a stationary bar, to which others have been secured. I am also aware that bars rotating, or partially rotating, upon their own axis have been used in the same connection, and hence I do not claim, broadly, a movable bar to which the alternate hoes of a drill are attached, when used in connection with a stationary bar to which others are attached. Neither do I claim changing the hoes of a grain-drill from a single to a double rank, or vice versa, by the employment of a rotating or sliding bar, as those have previously been used for that purpose; but

Having described my improvement, and the method of putting it in practice, what I do claim, and desire to secure by Letters Patent, is—

1. In a grain-drill, an oscillating bar, to which a portion of the drag-bars is attached, the point of resistance to the longitudinal movement of which is placed above the frame of the machine, the bar being provided with slotted arms or plates, whereby it is allowed to move in a horizontal plane, instead of through the arc of a circle, when changing the hoes from a single to a double rank, or the reverse, substantially as described.

2. The combination of the oscillating bar C, having upon its ends slotted arms D D, the brackets D′, the frame A A, the fixed bar, to which a portion of the drag-bars are attached, and the bars B B, upon which the oscillating bar is supported, the parts being constructed and arranged substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own invention I affix my signature in presence of two witnesses.

BENJAMIN KUHNS.

Witnesses:
C. M. CONNELL,
E. A. BULLEY.