

UNITED STATES PATENT OFFICE.

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GRAIN-DRILL.

SPECIFICATION forming part of Letters Patent No. 756,095, dated March 29, 1904.

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To all whom it may concern:

Be it known that I, ROBERT D. BROWNING, a citizen of the United States, and a resident of Orange, in the county of Orange and State of Virginia, have made certain new and useful Improvements in Grain-Drills, of which the following is a specification.

The object of my invention is to provide simple and effective means for regulating the depth that the disks of disk-drills shall run in the ground, and is specially adapted to hilly or rolling land, the disks being divided into sets, preferably a set on each side of the center of the drill and having means for regulating each set independently of the other and for locking the sets in any desired adjustment with reference to each other.

The special construction and operation of my improvement will now be set forth in detail in the appended specification and its novel features pointed out and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a rear elevation of the skeleton of a disk-drill provided with my improvement, parts of the same being shown in section. Fig. 2 is a central vertical section through Fig. 1 on about line 2 2, looking to the left and showing the left portion of my regulating device. Fig. 3 is a perspective view of one of the shaft-heads and its bearings. Fig. 4 is a rear elevation of the inner ends of the shaft-sections and their heads and supporting-stands.

Referring to the drawings, A is a disk-drill having the two sets of disks B and B'. In the construction shown the grain-drill, which may in general respects be of ordinary construction, is shown with its drill-tubes C having the flexible hose C' carried at the lower rear ends of the drag-bars C. Bars C⁵ and C⁶ are connected at their lower ends with the drag-bars and at their upper ends with the crank-arms D³ and D⁴, carried by the two sections of the divided bar D at the rear of the drill. This bar D has its outer ends journaled in suitable bearings A⁴ on the frame of the drill and corresponds to the bar usually employed in drills for raising and lowering the plows. It is preferably made square to permit the crank-arms D³ and D⁴ and the heads at the inner

ends of the two sections of the bar to be more easily secured thereto against rotation.

Special attention is now called to the parts at the inner ends of the sections D' and D² of the bar D. Two similar heads E and F are provided with central apertures or bores E' and F', respectively, into which are received and rigidly secured by bolts or otherwise the inner ends of the sections D' and D² of the divided bar. At their inner ends these heads are in abutting engagement with each other, and the central aperture E' of the head E has a reduced portion E² at its inner end, which extends outwardly from the inner end of the bar D', while the bar D² extends inwardly from the head F and has its inner end projecting beyond the face of said head and formed into a journal adapted to be received into said reduced bore E² of the head E. These heads form rotatable supports for the inner ends of the sections D' and D² of the divided bar, said heads being mounted to turn in the angular supporting-stands E³ and F³, respectively. These stands have angular flanges or feet at their lower ends by which they are secured to the rear transverse bar A⁵ of the drill-frame. The heads E and F are each provided near their inner ends with similar upwardly-extending lever-arms E⁴ and F⁴, having at their upper ends outwardly-turned handles. The inner faces of said supporting-stands are preferably brought into engagement with the outer faces of said arms, which arrangement prevents the heads E and F from pulling apart from each other.

The standard E³ is provided with a rack-segment E⁵. The lever-arm E⁴ carries on its outer face a pawl E⁶, adapted to engage the rack E⁵ and connected with a handle-lever E⁷, by which it may be released at will. The lever-arm E⁴ also carries on its inner side the rack E⁸, rigidly secured thereto by bolts or otherwise. The lever-arm F⁴ carries on its inner side a pawl F⁵, similar to the pawl E⁶ carried on the arm E⁴, and the pawl F⁵ is adapted to engage the rack E⁸. This pawl F⁵ has a releasing handle-lever F⁶. The head handle-levers on the two operating-arms E⁴ and F⁴ are connected with their respective pawls by suitable connecting-rods.

It will be seen that the pawl F^5 when in engagement with the rack E^8 locks the two heads E and F together. In this condition the two heads and the two sections of the divided bar controlling the whole series of plows or disks may be rotated in unison by the lever E^4 and may be held in any desired position by engaging the pawl E^6 with the rack E^5 . If, however, it is desired to raise or lower the group of disks controlled by the section D^2 of the divided bar with reference to the other group, this may be readily effected by the lever F^4 when its pawl F^5 has been disengaged from the rack E^8 . When the two sets of disks are brought into the desired relative elevation to each other, they are locked in this position by the pawl F^5 and the rack E^8 . Hence I have a divided bar or shaft with its shaft-sections having supporting-heads in pivotal engagement at their meeting ends, and an operating-lever for each section by which each may be rotated independently of the other, combined with mechanism for locking the two bars in any desired position relative to each other, and, further, means for then rotating the bars in unison with each other as if they constituted but a single bar, the mechanism employed to control the two sections of the bar independently of each other being utilized to perform all the operations mentioned.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with separate shaft-sections, of heads secured on the adjacent ends of said sections, stands having bearings for said heads, a rack-segment on one of said stands, a handle-lever on the head journaled in the stand provided with the rack-segment, a pawl on said lever for engaging such rack-segment, a rack-segment in connection with said handle-lever, and a handle-lever on the other head and provided with a pawl for engagement with the said latter rack-segment.

2. The combination of two shaft-sections in alinement, an independent support for the inner end of each shaft-section, independent rocking means at the adjacent ends of said shaft-sections, devices for locking the rocking means of the first section in any desired position, devices for locking the rocking means of the second shaft-section to those for rocking the first shaft-section, and means at the adjacent ends of the shaft-sections to prevent said sections from pulling in a direction from each other.

3. The combination of the shaft-sections means for rocking one of said sections, devices for locking said means in any desired adjustment, means for rocking the other shaft-section, devices for locking said rocking means to the rocking means of the first shaft-section, and means at the adjacent ends of the shaft-sections to hold said sections against movement in a direction from each other.

4. In a drill, a controlling-bar rotatably mounted on the frame of the drill, said bar being divided into sections each capable of independent movement and provided at their meeting ends each with a rigidly-secured head one of said heads having a recess in its end and the other having a journal projection taking into said recess, an angle bearing-plate for each of said heads, said angle-plates having upright extensions with bores into which said heads are received; an operating-lever for each head, said levers being adjacent each other between said upright extensions, one of said extensions having its upper edge provided with a rack, the lever adjacent said extension having a pawl on its outer side adapted to engage said rack the same lever carrying on its inner side a rack, a pawl on the inner side of the other lever adjacent said latter rack and adapted to engage the same, said levers being provided at their upper ends with handles, and adjacent each handle, a handle-lever for the convenient operation of each of said pawls.

5. In a drill, a controlling-bar rotatably mounted in the frame of the drill, said bar being divided into sections, each capable of independent movement and provided with means for journaled engagement with each other at their meeting ends, bearings on the drill for said sections at their meeting ends, an operating-lever for each section, adjacent its bearing, a latch on each lever, a rack on the bearing adjacent one of the levers for engagement by the latch of the lever, a rack on said lever, for engagement by the latch of the other lever, as specified and for the purpose set forth.

6. In a drill, a controlling-bar rotatably mounted on the frame of the drill, said bar being divided into sections, each capable of independent movement, rigidly-secured heads at the meeting ends of said sections, a bearing-plate for each of said heads, said plates having upright extensions with bores into which said heads are received, an operating-lever for each head, means for locking one of said levers in adjustable engagement with the drill, and means for locking the adjacent lever into adjustable engagement with said first-named lever, said levers being located between said upright extensions and thereby held, together with their respective heads, against movement in a direction from each other.

7. The combination with a drill having disks, or groups of disks, of a controlling-bar for said disks, said bar being divided into a number of sections one for each disk or group of disks to be controlled, independent support for said sections at their meeting ends said sections being each adapted for independent movement, means for locking one section of said divided bar in adjustable engagement with the drill, and means for locking the adjacent section of said divided bar into adjustable engagement with said first-named bar as set forth.

8. In a drill a controlling-bar rotatably mounted on the frame of the drill said bar being divided into sections capable of independent movement, adjacent operating-levers at the meeting ends of the shaft-sections means on the inner face of one of said levers to be engaged by means on the inner face of the other lever to lock the two levers into engagement with each other, and means for holding said levers against lateral movement in a direction from each other.

9. The combination in a drill, of controlling shaft-sections in alinement, independent supports for the inner adjacent ends of said sections, means for rocking one of said sec-

tions, means for rocking the other shaft-section, and detent means for securing said shaft-sections in different adjustments.

10. The combination in a drill, of the drill-frame, controlling shaft-sections in alinement, heads at the inner adjacent ends of said shaft-sections, independent bearings on the frame for the said heads, levers connected with the heads and detent devices substantially as set forth.

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Witnesses:

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