No. 650,922. Patented June 5, 1900.

A. V. WILBUR.

GRAIN DRILL.

(Application filed Oct. 10, 1899.)

(No Model.) 2 Sheets—Sheet 1.

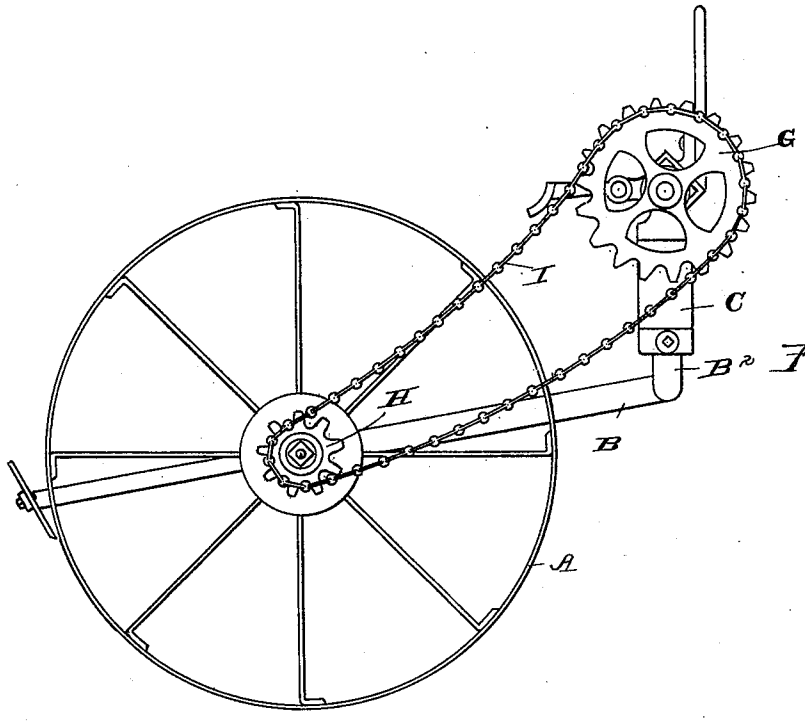


Fig. 1.

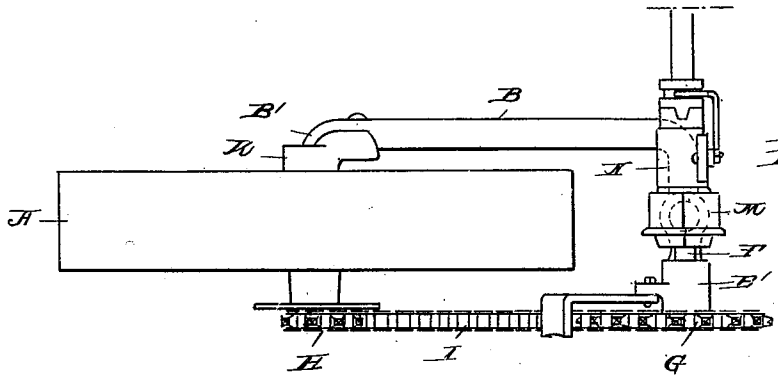


Fig. 2.

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Fig. 3.

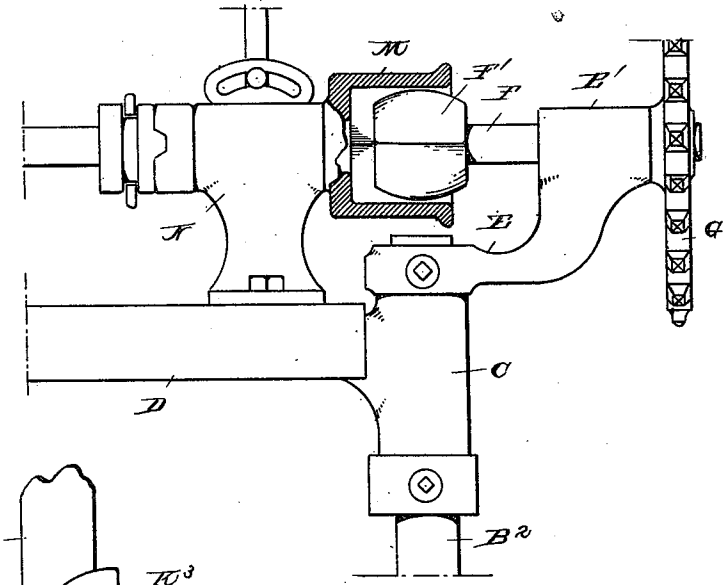


Fig. 4.

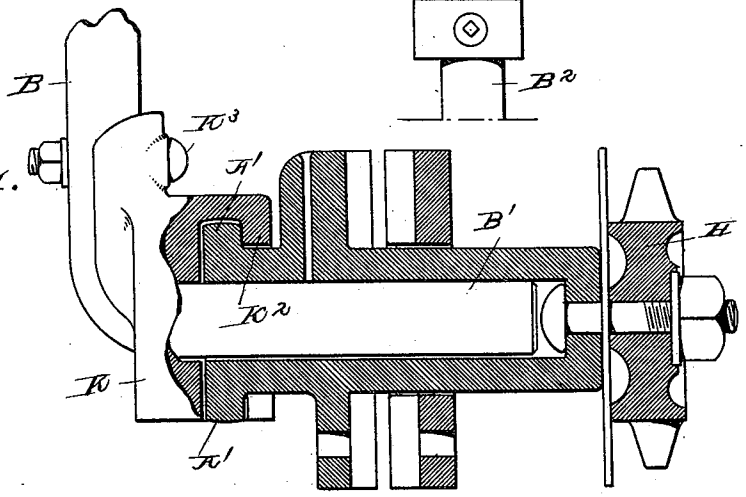
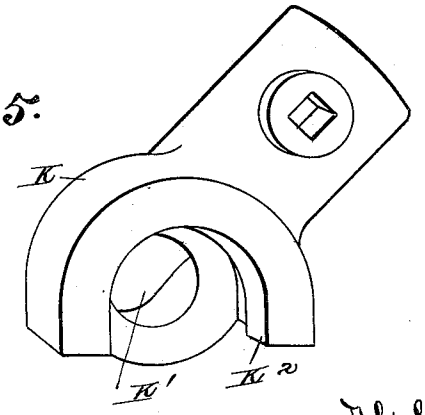


Fig. 5.



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UNITED STATES PATENT OFFICE.

ALPHONSO V. WILBUR, OF STOCKTON, CALIFORNIA.

GRAIN-DRILL.

SPECIFICATION forming part of Letters Patent No. 650,922, dated June 5, 1900.

Application filed October 10, 1899. Serial No. 733,197. (No model.)

To all whom it may concern:

Be it known that I, ALPHONSO V. WILBUR, a citizen of the United States, residing at No. 361 El Dorado street, Stockton, in the county of San Joaquin and State of California, have invented certain new and useful Improvements in Grain-Drills; and I do hereby declare the following to be a full, clear, and exact description of said invention, such as will enable others skilled in the art to which it most nearly appertains to make, use, and practice the same.

This invention relates to improvements in grain-drills, and more particularly to the driving mechanism therefor.

In the drawings, Figure 1 is a side view of a driving-wheel and driving-shaft of a grain-drill. Fig. 2 is a plan view of the same. Fig. 3 is a detail view, in rear elevation and partly in section, of the universal connection and attached parts for transmitting motion to the feed drive-shaft. Fig. 4 is a longitudinal section through the driving-wheel axle, wheel, and coupling. Fig. 5 is a detail view in perspective of the coupling for holding the driving-wheel in position on its axle.

To facilitate the description of the invention with reference to the drawings, I will use the letter A to designate the driving or traction wheel. This is mounted on the bent end B′ of an arm B. A continuous bar forms the axle B′, the back-set arm B, and the upright portion or pivot B^2. The pivot B^2 is mounted in a vertical bearing C, which is securely bolted to the cross-bar D of the drill-frame.

The present invention may be applied to the well-known forms of drill-frames. So the frame will not be described or shown in the present application.

Mounted on the end of the pivot B^2 is a bracket E, the upper and outer ends of which form a bearing E′ for the short shaft F, which is provided on the inner end with the knob or enlargement F′, said knob being square in transverse section. To the other end of the short shaft F is removably attached the sprocket-wheel G. When mounted, the center of the knob F′ rests directly over the center of the pivot B^2 or over the pivotal center about which the arm B, the wheel A, the bracket E, and the sprocket-wheel G all swing. By thus mounting the wheel A and the sprocket-wheel G on the same structure, which swings about a common center, the said sprocket-wheel is maintained in line with the sprocket-wheel H, rigidly mounted on the hub of the wheel A. The hub of the wheel A is box-like in construction, having a solid closed end, as shown in Fig. 4 of the drawings. The sprocket-wheel H is in the present instance secured to this solid end by a bolt which is passed through the end of the hub and the sprocket-wheel. The sprocket-wheels G and H are connected by a sprocket-chain I, so that the rotary movement of the wheel A and the sprocket H is transmitted to the sprocket-wheel G, shaft F, and the knob F′ in all positions of the wheel A with reference to the frame of the drill.

The wheel A is mounted on the axle B′ by the latter being inserted into the hub through the open end thereof. It is so maintained by the coupling K, which is securely bolted to the arm B. The coupling K is provided with the perforation K′, through which the axle B′ is passed. It is further provided with the half-circular flange K^2, which is intended to extend over and behind the flange A′, with which the hub of the wheel is provided. When assembled, the upper part of the coupling K, which is made concave to fit the arm B, is bolted to the said arm and holds the wheel in place on the axle by the flange K^2 engaging the flange A′. The coupling is held firmly in place by the bolt K^3 and by the portion having the perforation K′, through which the axle is passed. By this construction there is obtained a dirt-proof bearing for the wheel on the axle and at the same time a means of holding the wheel which is inexpensive and simple in construction and adjustment.

The wheel A being both a driving-wheel for operating the feed driving-shaft and a caster-wheel tracking to the rear of the drill and at different angles to the said driving-shaft, it is necessary that the rotary motion should be transmitted through a flexible or universal connection. The universal connection shown in the drawings consists in the short shaft F, which is mounted in a bearing adapted to swing around a center, the knob F′, (square in transverse section,) which extends over the said center, and a box M, (also square in transverse section,) which infolds the said knob and is suitably attached to the end of the feed

driving-shaft and is mounted in a bearing N on the frame of the drill. The knob F′ has a square dimension transversely to the shaft slightly less than the internal dimensions of the box M, while the sides are rounded in line with the shaft, whereby the knob is permitted to rock within the box M as the shaft F is thrown out of line with the feed driving-shaft, but cannot rotate without the knob F′ impinging on the sides of the box to compel it to rotate.

The knob F′ herein shown consists of a solid enlargement formed on the shaft F. This may be hollowed out, if desired. By chilling the castings of the box M and the knob F′ a very durable and simple construction is obtained.

Having thus described this invention, what is claimed is—

1. In a grain-drill the combination with a driving-wheel mounted at the end of a back-set arm pivoted vertically on the frame to permit the wheel to swing about the pivot; a bracket rigidly connected to said arm and provided with a horizontal bearing at a level with the feed driving-shaft of the drill; a short shaft mounted in said bearing and provided with a gear-wheel on the end removed from the said arm and on the other end with a knob square in transverse section and having rounded sides; a square hollow box to receive the said knob loosely and suitably attached to the feed driving-shaft of the drill and suitably mounted in bearings on the drill-frame; and suitable connection mechanism for transmitting the movement from the said driving-wheel to the said gear-wheel on the short shaft; substantially as described.

2. A universal connection for the driving-shaft of grain-drills and similar agricultural implements consisting in the combination of a hollow box mounted on the end of one shaft; and a knob square in transverse section having rounded sides mounted on the end of another shaft to extend into said hollow box; substantially as described.

3. A mounting for wheels consisting in the combination with an axle-bearing; of a wheel having a hub to fit on the axle and provided with a perpendicular flange on the inner end of the said hub; and a coupling having an extension to receive a fastening by which it is secured to the axle and provided with a flange to engage the flange on the hub to maintain the same in place; substantially as described.

4. A mounting for wheels consisting in the combination with a rod bent to form an arm extended parallel to the wheel-tread and an axle-bearing for the same; of a wheel having a hub to fit on the said axle-bearing and provided with a perpendicular flange on the inner end of the said hub; and a coupling having an extension adapted to be secured rigidly to the said arm and provided with a flange to engage the flange on the hub to maintain the same in place; substantially as described.

5. A mounting for wheels consisting in the combination with an axle-bearing; of a wheel having a hub the outer end of which is closed to form a box-like receptacle for the axle; a perpendicular flange formed on the inner end of the said hub; and a coupling having an extension adapted to be fastened to the axle and provided with a flange to engage the flange on the hub to maintain the same in place; substantially as described.

In testimony whereof I have hereunto set my hand this 21st day of August, 1899.

ALPHONSO V. WILBUR.

Witnesses:
E. F. MURDOCK,
G. W. MARSH.