

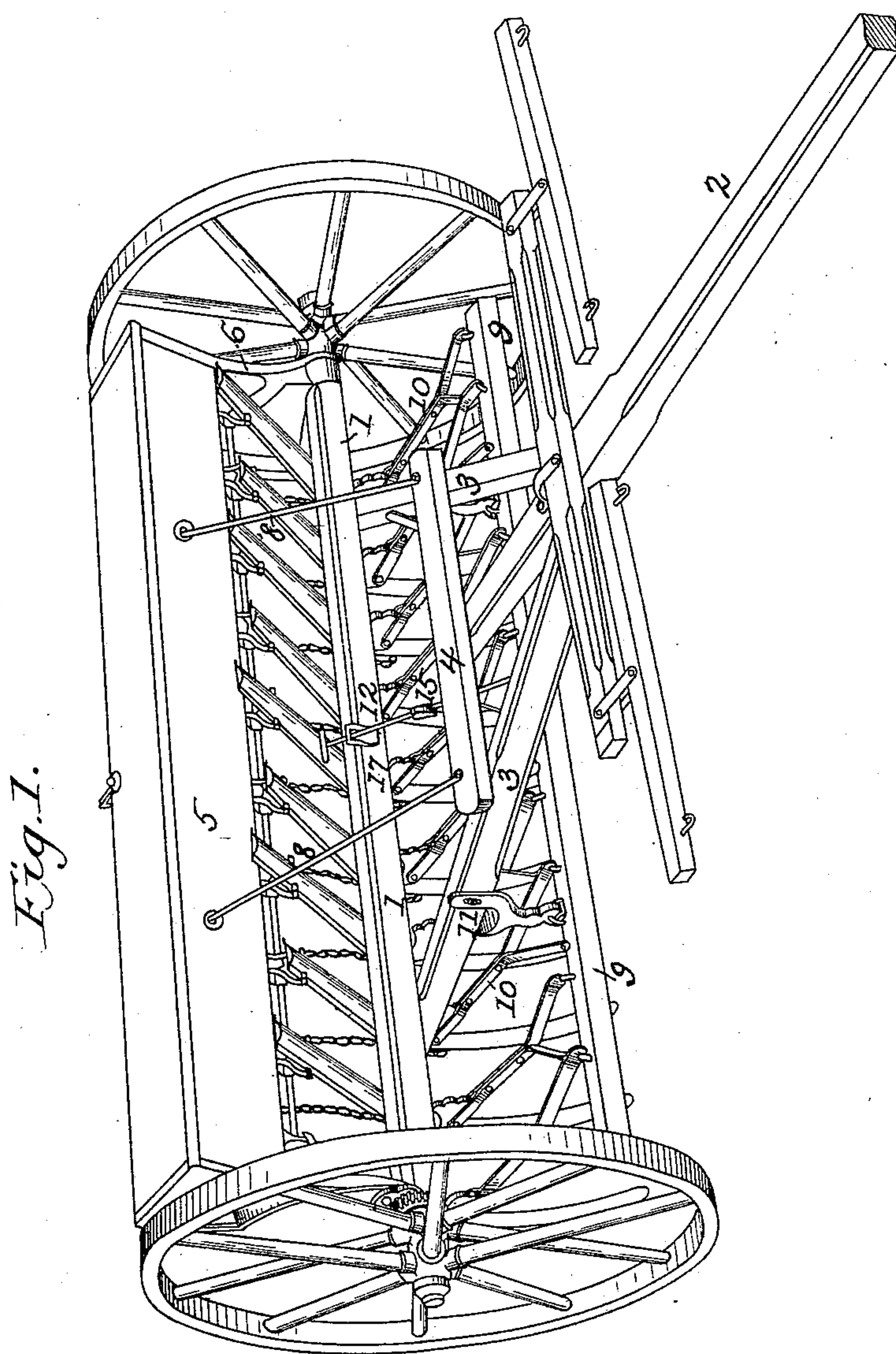
(No Model.)

2 Sheets—Sheet 1.

P. M. & J. P. GUNDLACH.
GRAIN DRILL.

No. 466,523.

Patented Jan. 5, 1892.



WITNESSES:

Geo M. Grofs.

Geo H. Arthur

INVENTORS:

Philip M. Gundlach,
John P. Gundlach

by

Robert Burns Atty.

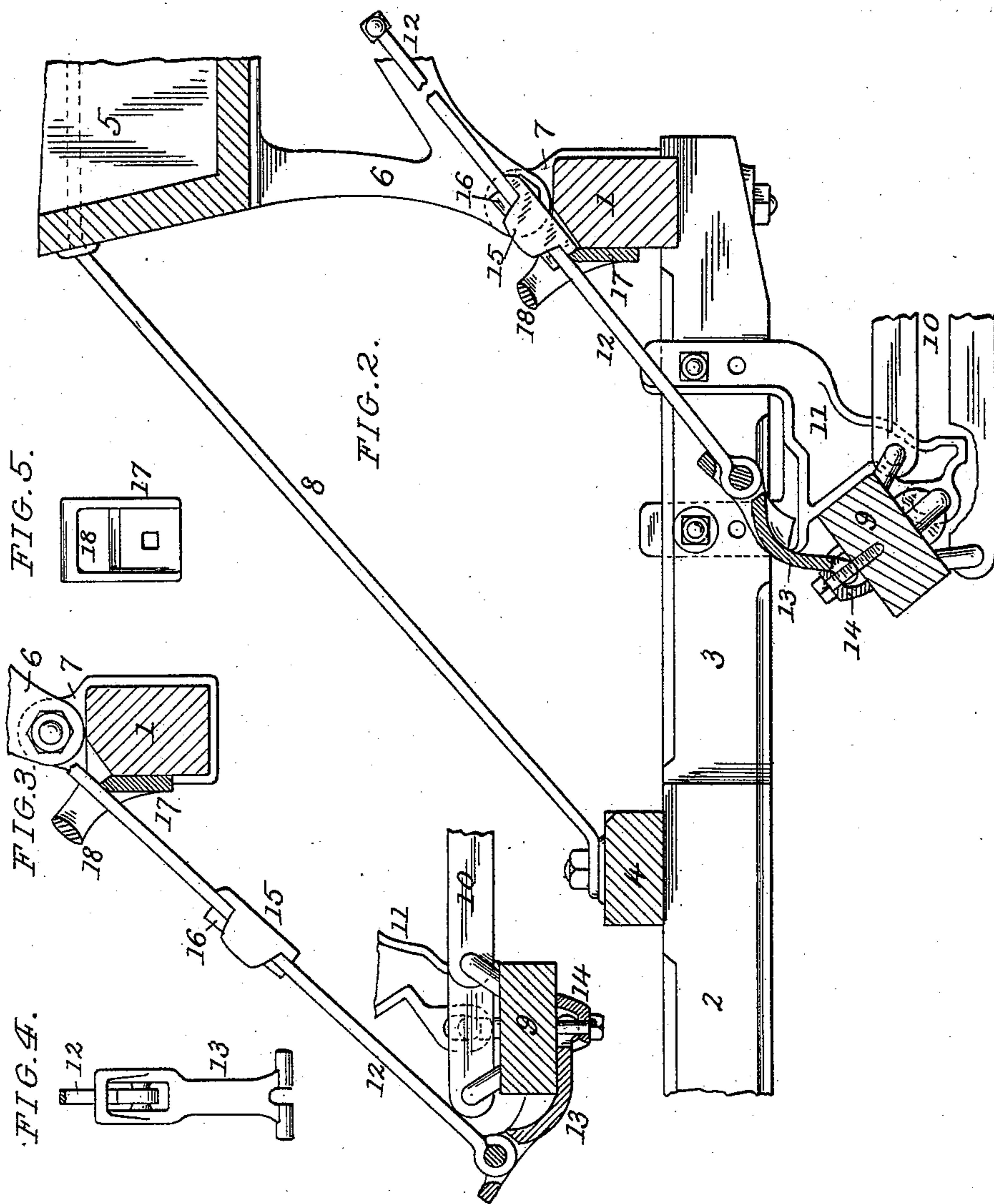
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ATTEST:

Geo H. Arthur.....

W. H. Holmes.....

INVENTORS:

*Philip M. Gundlach and
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by *Robert Burns* Att'y.

UNITED STATES PATENT OFFICE.

PHILIP M. GUNDLACH AND JOHN P. GUNDLACH, OF BELLEVILLE, ILLINOIS.

GRAIN-DRILL.

SPECIFICATION forming part of Letters Patent No. 466,523, dated January 5, 1892.

Application filed March 11, 1891. Serial No. 384,689. (No model.)

To all whom it may concern:

Be it known that we, PHILIP M. GUNDLACH and JOHN P. GUNDLACH, citizens of the United States, residing at Belleville, in the county of St. Clair and State of Illinois, have invented certain new and useful Improvements in Grain-Drills; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention has for its object to provide an improved grain-drill construction embodying the following novel and advantageous features: first, an improved arrangement and location of parts whereby the usual rectangular carrying-frame of the drill can be dispensed with and the seed-hopper attached directly to and supported by the axle, while the tongue and the diagonal hounds or braces by which it is connected to the axle afford a ready and convenient means for the attachment of the cross piece or rail to which the drag-bars of the seeding-flukes are attached at points intermediate of its transverse length, so as to equalize the strain and avoid springing or bending of the cross-rail in use and in a vertically-adjustable manner, so as to regulate the drag of the fluke-points upon the ground and enable the same to be adjusted to suit the degree of hardness of the ground met with, its lowest adjustment being for very hard ground; second, a pivotal attachment of the seed-hopper to the axle and connecting-braces extending forward from the hopper to the tongue-frame or hounds in order to admit of a slight adjustment of the seed-hopper in a pivotal manner, so as to balance the drill and cause it to run easy, and which at the same time constitutes a very rigid and substantial attachment of the seed-hopper in place; third, a simple and effective knuckle attachment for the lower end of the hand-rod by which the cross-rail of the drag-bars is manipulated, so as to afford the proper leverage to said rod in pushing down or pulling up the cross-rail from its respective "up" and "down" positions with the corresponding straight and zigzag position of the seed-flukes, the hand-rod being provided with a stop made adjustable to suit the vertical adjustment of

the cross-rail hangers above mentioned, which stop is adapted to engage against a catch attached to the axle to lock the parts in their up position.

We attain such objects by the construction and arrangement of parts illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of our improved drill complete; Fig. 2, a detail longitudinal section illustrating the cross-rail of the grain-flukes in its up position; Fig. 3, a similar view illustrating the same in down or "straight" position; Fig. 4, a front elevation of the hand-rod for operating the cross-rail and its connected parts; Fig. 5, a similar view of the catch for said rod or the body of the axle.

Similar letters of reference indicate like parts in the several views.

Referring to the drawings, 1 represents the axle of the drill, having the usual ground-wheels and connected to the tongue 2 by means of the diagonal braces or hounds 3 and an upper cross-rail 4, as clearly indicated in Fig. 1. In the present construction the rear end of the tongue 2 extends back only to the cross-rail 4, so as to leave a clear space back of said rail for the movement of the mechanism by which the fluke-rail is manipulated, as hereinafter described.

5 is the seed-hopper, the end pieces or castings of which are formed with pendent feet 6, that are pivotally connected by bolts with the bracket-pieces 7 on the axle.

8 are tie or connecting rods extending from the seed-hopper to the tongue-frame and adjustably connected to the hopper in any suitable manner, so that the hopper may have a limited pivotal movement imparted to it, so as to balance the drill and make it run easy.

9 is the cross-rail, to which the drag-bars 10 of the grain or drill flukes are connected in the usual manner, this cross-rail 9 being journaled to its supporting-brackets, so as to be capable of the usual pivotal movement from an up to a down position to draw the drill-flukes into either a straight or zigzag line, in accordance with the nature of the ground.

In the present invention the hangers 11 are connected to the cross-rail 9 at points intermediate of its length and are of a forked for-

mation to fit the diagonal braces or hounds 3, to which they are bolted in a vertically-adjustable manner, preferably by means of a cross-bolt passing through one of a series of
5 holes or slots in both the hanger and the hound, as indicated in Fig. 2. Any other well-known adjustment mechanism may, however, be used instead without departing from the spirit of this part of our invention.

10 The novel means by which the cross rail or bar 9 is moved into its different positions, as above described, consists of a hand-rod 12, extending backward between the axle and the seed-hopper to within easy reach of the oper-
15 ator, its forward end being pivotally connected to a bent lever 13, that is journaled to the back of the cross-rail 9 by a shoe 14, in which it has limited pivotal movement, as shown, its construction being such that when
20 the said rail is in its down position said lever bears against the rail, as shown in Fig. 3, to afford a fulcrum for the pull or hand rod 12 in drawing the cross-rail into its up position, and when the rail is in its up position the
25 said lever will bear against its shoe 14 to afford a fulcrum for the hand-rod in forcing or pushing the cross-rail into its down position.

15 is a stop on the shank of the pull-rod 12, made adjustable by means of a wedge 16, so
30 as to equalize or compensate for the change in position due to the vertical adjustment of the hangers 11 of the cross-rail.

17 is a catch-piece secured to the axle and provided with a projecting edge, against
35 which the stop 15 engages to lock the parts in their up position, and a loop formation 18, through which the hand or pull rod 12 passes and is confined in proper position.

By our improved construction the drill-
40 frame can be of an exceedingly light construction and still afford ample strength and stiffness of parts, the different members of the present frame construction coacting in a very perfect manner to stiffen and brace each
45 other and at the same time furnish a more convenient and better means for the connection of the other drill parts.

Having thus fully described our said invention, what we claim as new, and desire to se-
50 cure by Letters Patent, is—

1. In a grain-drill, the combination of the seed-box supported above the axle by feet 6 with a tongue-frame connected directly to the axle and consisting of the tongue 2, diagonal
55 braces or hounds 3, cross-rail 4, and axle 1, the rear end of the tongue being connected to

the cross-rail 4, so as to leave a clear space at the rear of the same for the movement of the fluke-setting mechanism, essentially as herein set forth.

2. In a grain-drill, the combination of the axle 1, tongue 2, diagonal hounds 3, and cross-rail 4 with the cross-rail 9 and the hangers 11 secured to the hounds 3 and having pivotal connection with the cross-rail at points inter-
60 mediate of its length, essentially as set forth.

3. In a grain-drill, the combination of the drill-frame, the hangers 11, secured thereto in a straight vertically-adjustable manner, and a cross or fluke rail 9, pivotally connected to
65 the hangers, so as to be capable of a pivotal up-and-down movement to draw the drill-flukes into a straight or zigzag line or rank, substantially as described.

4. In a grain-drill, the combination of the
75 axle 1, tongue 2, diagonal hounds 3, and cross-rail 4 with the cross-rail 9 and the hangers 11, secured in a vertically-adjustable manner to the hounds 3 and having pivotal connection with the cross-rail at points intermediate
80 of its length, essentially as set forth.

5. In a grain-drill, the combination of the cross-rail 9, pivotally attached to the frame of the drill, with the hand or pull rod 12 and bent lever 13, attached to the back of said
85 rail by a shoe 14, to be capable of a limited pivotal movement, essentially as set forth.

6. In a grain-drill, the combination of the cross-rail 9, pivotally attached to the frame of the drill, with the bent lever 13, attached
90 to the back of said rail by a shoe 14, to be capable of limited pivotal movement, the hand or pull rod 12, adjustable stop 15 thereon, and catch-piece 17, attached to the axle, essen-
95 tially as set forth.

7. In a grain-drill, the combination of the cross-rail 9, pivotally attached to the frame of the drill, with the bent lever 13, attached to the back of said rail by a shoe 14, to be ca-
100 pable of limited pivotal movement, the hand or pull rod 12, the stop 15 thereon, and catch-piece 17, attached to the axle and provided with a loop formation 18 for confining the hand-rod 12 in place, essentially as set forth.

In testimony whereof we affix our signatures
105 in presence of two witnesses.

PHILIP M. GUNDLACH.
JOHN P. GUNDLACH.

Witnesses:

FRED ROPIEGUS,
F. J. STAUFENBIEL.