Charles F. Davis,

Improvement in Grain-Drills.

PATENTED

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Fig. 1.

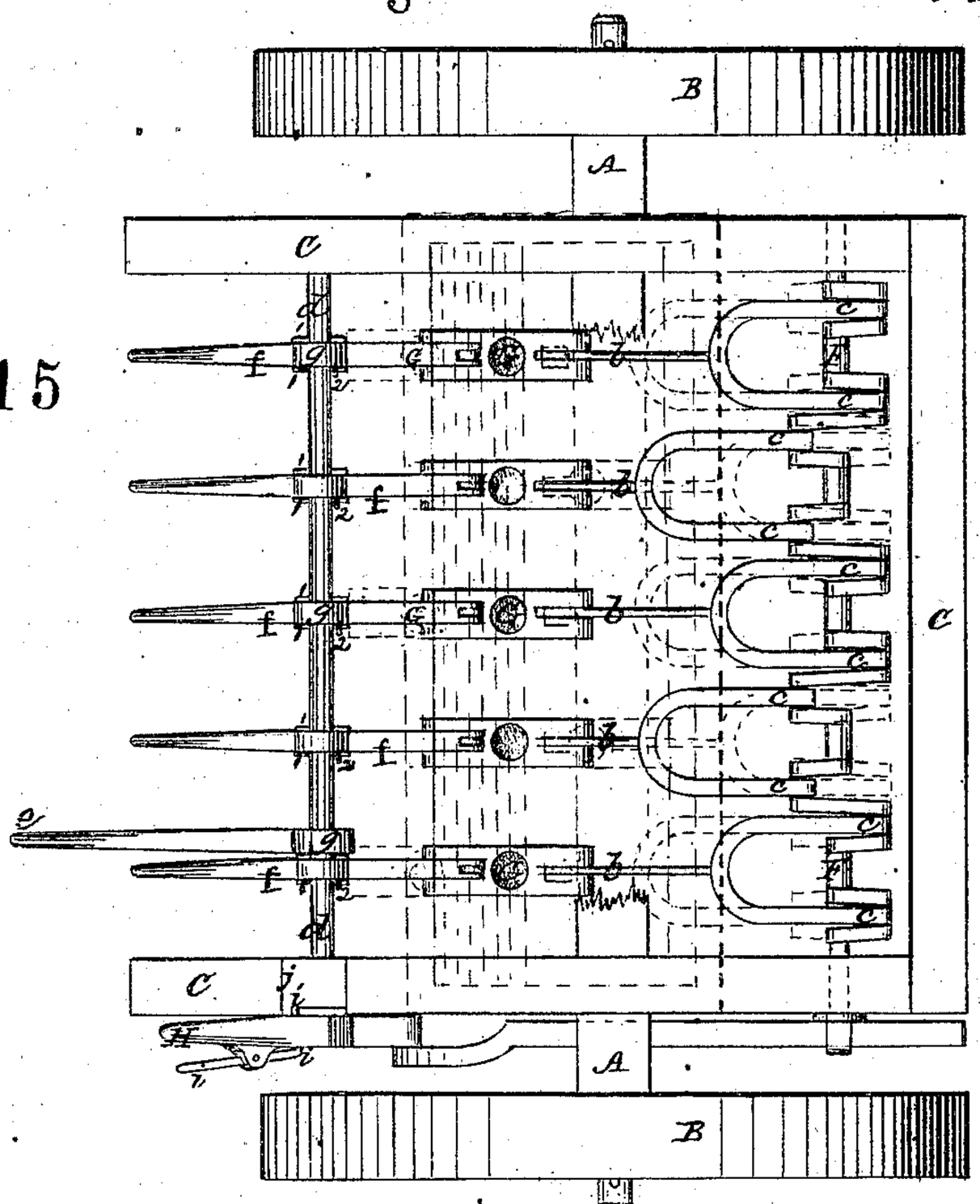


Fig. 2.

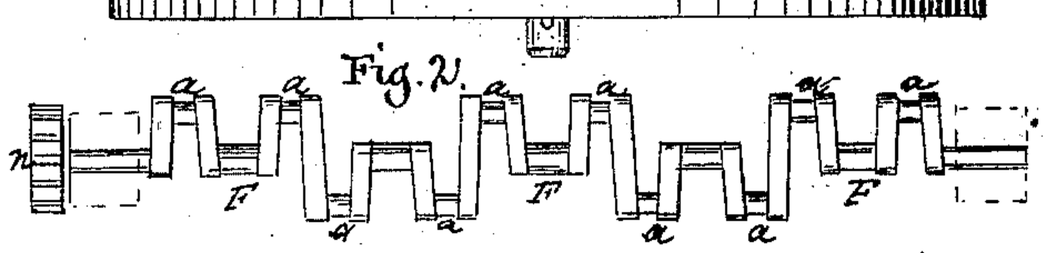
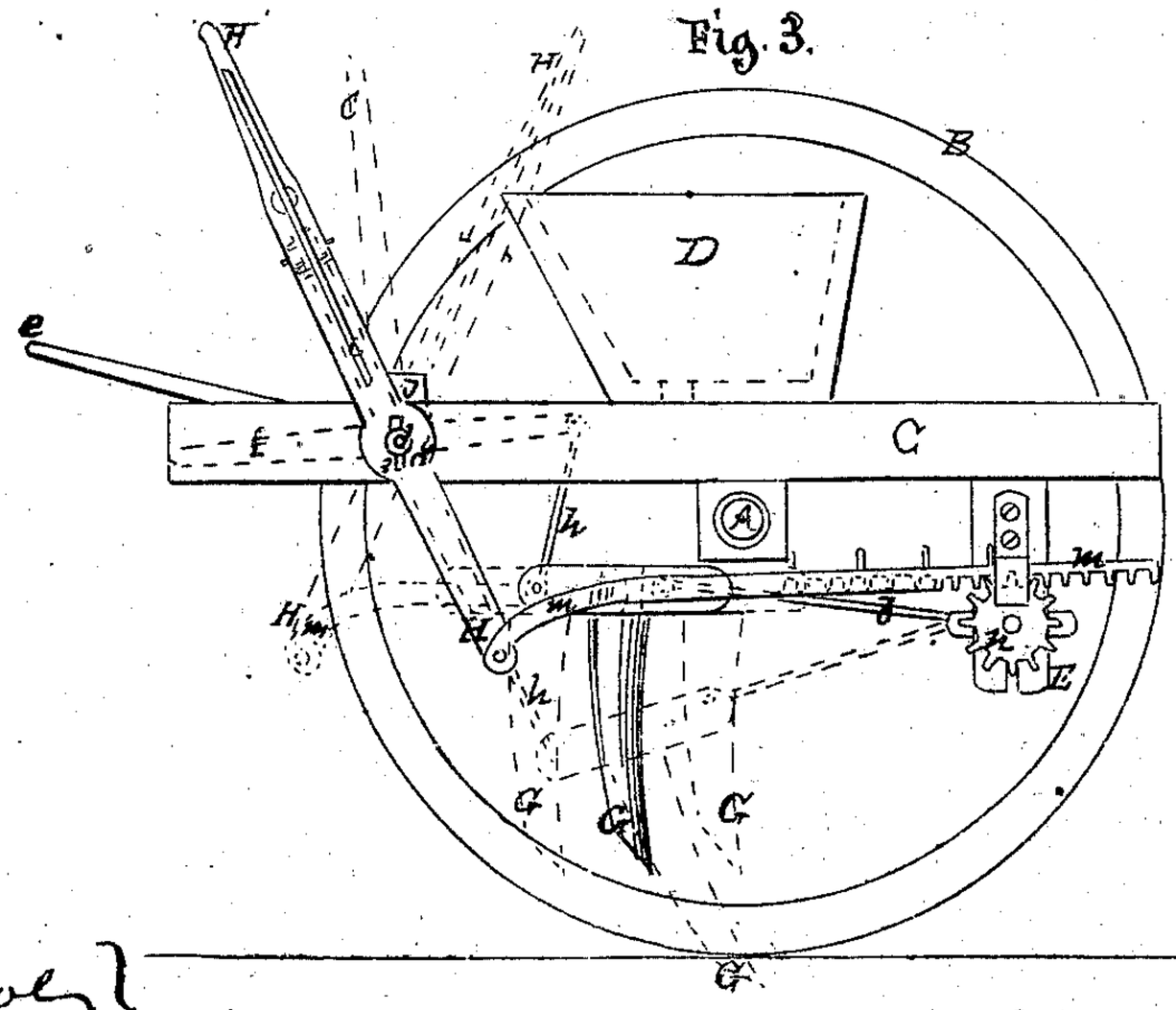


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

CHARLES F. DAVIS, OF AUBURN, NEW YORK.

IMPROVEMENT IN GRAIN-DRILLS.

Specification forming part of Letters Patent No. 74,515, *dated February* 18, 1868.

To all whom it may concern:

Be it known that I, CHARLES F. DAVIS, of Auburn, in the county of Cayuga and State of New York, 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 the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a top plan of the drill, with the seed-box removed, (but its position shown by lines,) to show the parts underneath it. Fig. 2 represents the crank rod or shaft, to which the front ends of the drag-bars are attached when detached from the machine. Fig. 3 represents an end view of the drill, with the wheel removed to show the parts behind it, and representing, by dotted lines, the several operative parts, and their positions under the changes of the machine or of its parts.

Similar letters of reference, where they occur in the separate figures, denote like parts in all of the drawings.

The object and purpose of my invention is to shift or change the seeding shoes or hoes from a straight to a zigzag line, and vice versa; and, further, to so hang the shoes or hoes as, in addition to this shifting process, to admit of being raised separately, or the whole series together, as may be found necessary.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

Upon an axle, A, supported in the usual carrying-wheels B B, is mounted a main frame, C, and on the main frame a seed-box, D, the slides of which may be operated in any of the well-known ways.

In bearings E in the front portion of the main frame is hung, so as to rock or turn therein, a zigzag or crank shaft, F, (shown detached in Fig. 2,) and to the cranks or wrists *a a a* of this shaft are connected, *seriatim*, the drag-bars *b b b*, by means of bows or yokes *c*, each bow or yoke taking two of said wrists, as shown in Fig. 1. To the rear ends of these drag-bars *b* are attached the shoes or hoes G, in any of the usual well-known ways.

In the projecting rear portion of the main frame C there is hung a shaft, *d*, upon which there is a lever, *e*, by which it can be rocked or rolled in its bearings. At suitable distances upon this shaft *d* there are placed a series of levers, *f f*, (one for each shoe or hoe,) which are kept in their proper positions on the shaft by pins 1 1 or other suitable devices, but which can be moved independent of the shaft or of each other, or all together, as will be explained. The levers *f* have a hub or swell, *g*, at their central portions, where they are slipped onto the shaft *d*, and into each one of these hubs is set a pin, 2, which is above the pins 1 1 in the shaft, so that each lever can be turned upon the shaft; but when the shaft is rocked or turned, then all the levers are worked simultaneously. To the forward ends of these levers *f* the shoes or hoes are respectively connected by a link or hinged rod, *h*, the rearward-projecting ends of said levers serving as handles for the operator to seize and work separately when necessary to do so; or he can raise the whole series by seizing and working the lever *e*.

One end of the shaft *d* projects through the timber of the main frame, (for convenience of placing the parts,) and upon it is a lever, H, and a spring locking-lever, *i*, connected with it, both of which levers the operator may grasp at once, and by pressure first unlock the catch, and then move the main lever H and the shaft *d*, as well as the parts connected with it. The catch or locking-lever *i* takes into or against a stop-plate, *j*, on the main frame, when not otherwise controlled. The upper portion of the lever H serves as a handle to work it by, and to the lower end of it is pivoted a rack-bar, *m*, which takes into a pinion, *n*, fastened on the end of the crank or zigzag shaft F, and when the pinion *n* is turned the crank-shaft is also turned, and as it is turned it shifts the shoes or hoes into a zigzag or a straight line, as the case may be. When the lever H and the zigzag shaft F, and their several connected and operative parts, are in the positions shown in Figs. 1 and 3, the shoes or hoes G are then in a straight line across the machine; but when the lever H is shifted into the position shown in Fig. 3, it turns the shaft and moves the parts connected with them, and the shoes or hoes will then stand in a zigzag line across the machine, as shown, or in what

may be termed two lines, one in advance of the other. And that the shoes or hoes may be thus moved into one or two lines, and still be susceptible of being raised up separately or in their series capacity, their connections and attachments must all be hinged or yielding. When there is an odd number of shoes or hoes on the machine, the odd one should be in the rear series, in which case there would be no necessity of locking the lever H when the shoes were so arranged, as the greater resistance on the greater number would always keep them so; but if an even number of shoes be used and an equal number in each row, then the lever would have to be locked or fastened in both of its positions.

It is obvious that other mechanical devices may be used for shifting the shoes or hoes from a straight into a zigzag line, or vice versa. I have devised several ways of accomplishing this movement—as, for instance, a sheave, pulley, or chain-wheel may be keyed to the end of the crank-shaft, and to this sheave or wheel a chain may be attached, and, passing around it, extend thence to the lever, so that by working the lever the same effect would be attained as by the rack and pinion.

Another plan may be as follows: A crank or cross-arms may be placed on the turning-shaft, and by means of connecting-rods, which connect the cranks or arms with the levers, the shaft may be turned, and the shoes thus thrown into a straight or zigzag line, as may be desired; or, instead of crank-shafts to shift the shoes, the shoes may be united in sets to different bars, which may be straight, both bars being united to cross-bars or heads at their ends. Now, by shifting these two bars, they will shift the shoes attached to them, and change them into the positions herein above described.

When the hoes are set in a zigzag line, as above mentioned, and are in that position raised up, a pin, 3, in the extreme end of the shaft *d* will take against a pin, 4, in the lever H, and thereby shifting the hoes into more nearly a straight line as they rise, or into quite a straight line, depending upon the extent to which they are raised.

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

1. So attaching the shoes or hoes of a seed-planter to the main frame as that, by means of a lever or its equivalent, said shoes may be shifted from a straight to a zigzag line, or vice versa, at pleasure, substantially as described.

2. In combination with a series of shoes or hoes that are capable of being changed from a straight to a zigzag line, or vice versa, the so connecting of said shoes by independent levers to the lifting-bar as that they may be raised by the operator individually or as a whole, substantially as described.

3. Hinging the shoe to both its drag-bar and to its individual lever, so that the shoe may be raised and lowered in either of its changed positions by a lever that is permanently located, substantially as described.

C. F. DAVIS.

Witnesses:
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