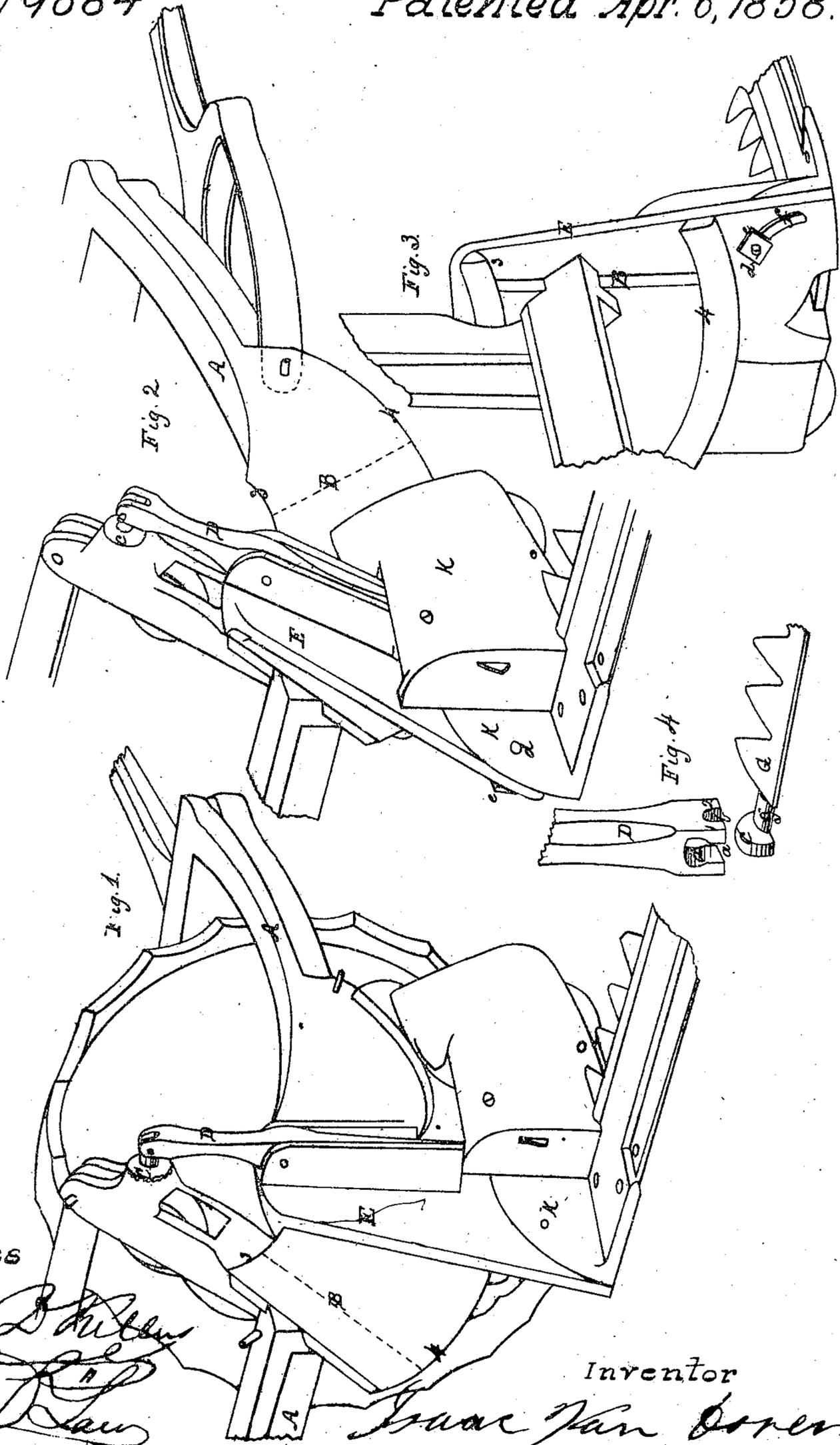


I. Van Doren.  
Mower.

N<sup>o</sup> 19884

Patented Apr. 6, 1858.



Witnesses

*[Handwritten signatures of witnesses]*

Inventor

*Ivan Van Doren*

# UNITED STATES PATENT OFFICE.

ISAAC VAN DOREN, OF SOMERVILLE, NEW JERSEY.

## IMPROVEMENT IN HARVESTERS.

Specification forming part of Letters Patent No. 19,884, dated April 6, 1858.

*To all whom it may concern:*

Be it known that I, ISAAC VAN DOREN, of Somerville, Somerset county, State of New Jersey, have invented a new and useful and Improved Method of Constructing Harvesters, whereby the sickle and sickle-beam can be easier and better elevated and changed in position; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, and making a part of this specification.

Figure 1 is a view of the several parts in the position they have when the sickle and beam are at the lowest point. Fig. 2 is a view of the same parts when the sickle is raised or elevated. Fig. 3 is a back view, showing more plainly the operation of the parts on and with each other. Fig. 4 shows the manner of connection between the sickle-lever and sickle-bar.

The general nature of my invention consists in so constructing and arranging the several parts that the elevation of the sickle can be varied by simply moving or sliding backward or forward the part with which it is connected, and its inclination regulated by turning up or down the part sustaining it. As will be seen from the drawings, the general frame A of the machine is not rectangular, as is usually its form, but has curved sides. This form I consider the best; but it need not necessarily be so constructed, nor need any portions of the frame be curved except such as are required for the movement of the parts upon each other, as hereinafter described.

Attached to one side of the frame A is a curved part, B, the upper and lower edges of which are parts of concentric circles struck or described from the point C as a center, such point being the place of connecting the upper end of the sickle-lever D to the part working it. The upper edge is beveled backward and downward and the lower edge backward and upward, as seen in Fig. 1, so that the part fitting it and moving on it will, as seen in Fig. 3, lie close upon it. These concentric edges or surfaces 3 and 4 need not necessarily, however, be beveled, as described, but may be flat or have continuous recesses or slots in them, it being only important that there should be two such concentric curved lips or surfaces, and

that the part E, hereinafter mentioned, moving upon them, should be fitted to them.

Fitted to and moving upon this part B is a part or frame, E, which extends below it, and to which is attached the lever D, the sickle-beam and bar, and other portions of the machine. The frame E is fitted to the part B, as shown in Fig. 3, and has of course no motion except a circular one upon the edges of B, and this motion, by the use and arrangement of the two concentric curves 3 and 4 is entirely upon and confined to such curves irrespective of any connection with or support from the center C, it being the same whether the lever D, which joins the only connection with the center C, is attached or not. As will be readily perceived, when the part or frame E is in the position shown in Fig. 1 the sickle will be the lowest and the nearest to the ground, whereas when this frame is moved backward on the curved seat B, as seen in Fig. 2, the sickle will be elevated and be higher from the ground. Such motion could not, however, be obtained in ordinarily-constructed harvesters, because the manner of connecting the lever D to the part working it would not permit lateral motion. By placing, however, a universal joint at C, and so connecting the lever D to the part operating it, the frame E and lever D, and the parts connected therewith, can have the circular motion necessary, the joint C freely allowing the same, and that, too, without any strain or twist of any part of the machine. From this method of elevating the sickle it necessarily follows, however, that the sickle will, when in different positions, have a different inclination or pitch in respect to the ground. This I remedy by so constructing the part K, to which the sickle-beam is attached, movable on a center, and having a bolt, *d*, with a nut, *e*, working in a slot, *f*, as seen in Fig. 3, so that it can be fastened in any position, and by connecting the lever D to the sickle-bar G, as shown in Fig. 4.

In the lower end of the lever D is a slot or recess, *a*, the upper part of which is concave, and which fits the broad flat end or head *c* of the sickle-bar. Through one of the shoulders or parts forming one of the sides of the recess *a* is another but shallower similarly-constructed recess or opening, *b*, of a size sufficient to admit the sickle-bar proper, *g*. The recess

*a* and heads *c* are sufficiently large to secure strength enough of parts to act as an equivalent of a hinge in giving vibrations to the sickle, and the parts 1 2, sitting down over the sickle-bar, give it steadiness. The sickle-bar is prevented from dropping by the part K, through which it passes and by which it is sustained. This method of connection allows the lever D and bar G to turn at pleasure upon each other. When the sickle requires a low cut the part K will be dropped entirely down, as seen in Fig. 1, and the fastening-nut being then as seen in Fig. 3; but when the sickle is elevated, as shown in Fig. 2, the part K will be turned or moved upward, and the sickle be placed parallel with the ground.

The part K may be simply a sustaining part for the sickle-beam and bar, or may be so made, as seen in the drawings, so as to act as a dividing-shoe or a support for a carrying-wheel for the machine.

The parts E and K are prevented from moving too far in either direction by stops or fastenings of any kind, and may be held in any position desired. The particular construction of the parts B and E, so as to allow movement upon each other, may also be varied without interfering with the principle of the improvement.

I do not claim elevating the sickle by means of a plate or part swinging on a center and moving in a circle and carrying the sickle with it, this having been done by W. A. Kirby in his invention patented 1856; but

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The arrangement and connection of the movable part E with the fixed part B by means of the two concentric curves 3 and 4, or their equivalent, to secure proper motion to the part E without any necessary support or connection from the center C.

2. In combination with the parts B and E, the secondary movable part K, substantially as described, to bring the sickle, whatever its position on the curve B, level with the cutting-surface.

3. In combination with the parts B, E, and K, the use and application of the universal joint C in connecting the sickle-lever to the machine, substantially as described, to allow of the change in position of the sickle in the manner above described.

ISAAC VAN DOREN.

In presence of—

J. V. D. KELLEY,  
S. D. LAW.