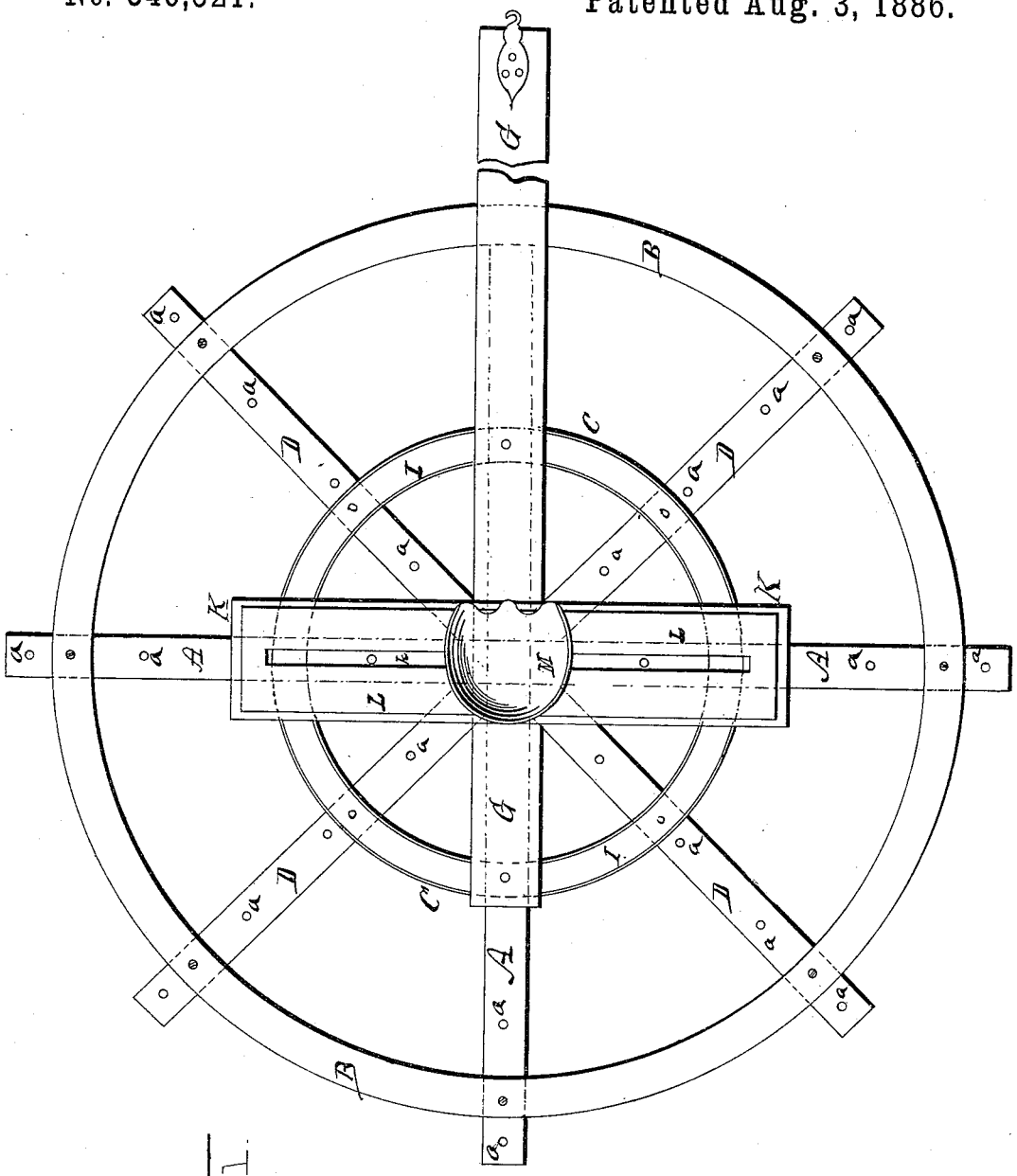
(No Model.)

2 Sheets—Sheet 1.

J. WECKMAN.

HARROW.

No. 346,521. Patented Aug. 3, 1886.



Witnesses
Norris A. Clark
Arthur C. Brown

Inventor,
John Weckman,
By his Attorney J. S. Brown

(No Model.)

2 Sheets—Sheet 2.

J. WECKMAN.

HARROW.

No. 346,521. Patented Aug. 3, 1886.

Fig. 2.

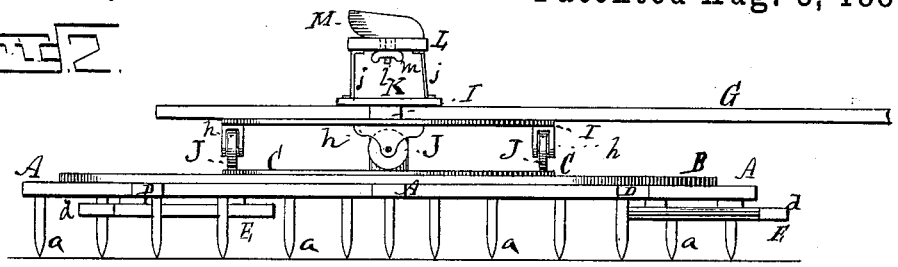


Fig. 3.

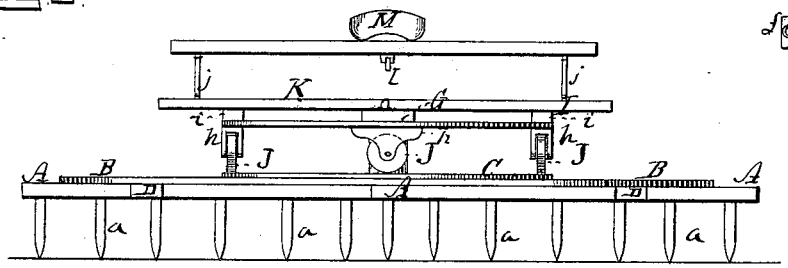


Fig. 8.

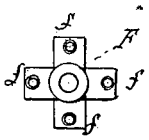


Fig. 4.

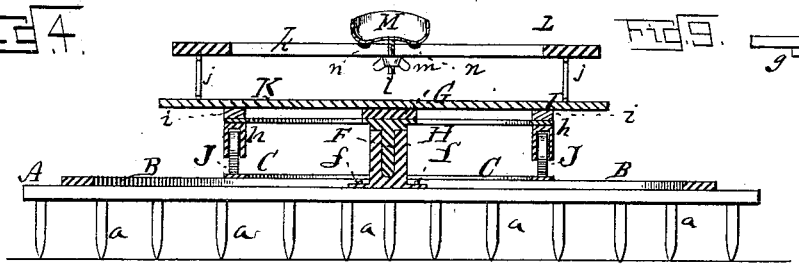


Fig. 9.

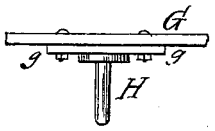


Fig. 5.

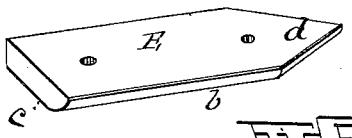


Fig. 7.

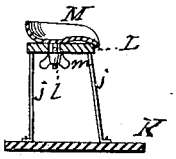
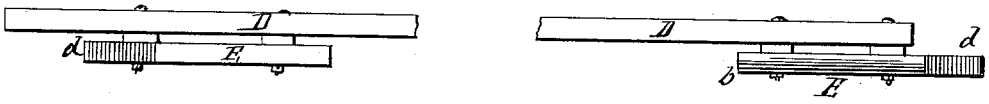


Fig. 6.



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UNITED STATES PATENT OFFICE.

JOHN WECKMAN, OF CANTON, OHIO.

HARROW.

SPECIFICATION forming part of Letters Patent No. 346,521, dated August 3, 1886.

Application filed March 8, 1886. Serial No. 194,436. (No model.)

To all whom it may concern:

Be it known that I, JOHN WECKMAN, of Canton, in the county of Stark and State of Ohio, have invented an Improved Harrow; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

My invention belongs to the class of revolving harrows, the revolving movement being effected by weighting one side more than the opposite side, and thereby causing the harrow-teeth in the weighted side to offer more resistance to the progress of the harrow than the other side.

My improvements will be specified in the following description of the invention.

Figure 1 of the accompanying drawings is a top view of my improved harrow; Fig. 2, a side view thereof; Fig. 3, a front view of the same; Fig. 4, a central vertical section of the harrow; Figs. 5, 6, 7, 8, and 9 detail views of the various parts, designated by corresponding letters of reference.

The main body of the harrow is made of two timbers or beams, A A, crossing each other at right angles, and halved together at their crossing, and of two circular rims, B C, bolted or otherwise secured to the upper sides of the cross-timbers, thereby tying and bracing them together. The two rims are concentric, the larger one being near the outer ends of the cross-timbers and the smaller one being much nearer—half-way or thereabout—to the center of the harrow. These cross-timbers are provided with harrow-teeth *a a*, arranged at regular distances apart along the length of the two. For some work I also employ intermediate timbers, D D, fitting at their inner ends into the angles of the cross-timbers, and secured to the circular brace-rims by bolts or screws or other means. These, when used, are or may be provided with harrow-teeth *a a*, like the regular cross-timbers. These intermediate timbers are removable from and attachable to the harrow at will without disturbing the harrow proper, and thus constructed and adapted they form one feature of my invention. Another use of these attachable and removable timbers is to carry pulverizers, either with or without harrow-teeth. For this purpose pulverizing-shoes E E, preferably of the form shown in Fig. 5, are bolted to the under side of each auxiliary or attachable timber. They are bolted to the under sides of the timbers, as shown in Fig. 6, the bolts being passed through harrow-teeth holes, if desired, or through separate holes for the purpose. Where the pulverizing-shoes are applied, of course harrow-teeth are to be wanting. The pulverizing-teeth may be separated more or less from the lower sides of the timbers, as indicated in Fig. 6, so as to extend downward as low as desired, and the shoes of different timbers may be at different distances from the ends of the timbers, so as to completely sweep the ground as the harrow is drawn along through the whole breadth of land worked by the harrow at each time of passing along. As shown in Fig. 5, each pulverizer is made of an oblong piece, ordinarily of wood, chamfered on the under side, *b*, of the front edge, and protected from too rapid wear on the under surface by a sheet-metal covering, *c*. The outer end, *d*, of the shoe is best made pointed, as shown, so that when moving nearly endwise forward it may properly cleave through the earth. These shoes, as above set forth, form another feature of my invention.

Upon the central part of the cross-timbers A A is secured a socket, F, which turns upon the pivot H of the draft-bar G. This socket or pivot-block has four flanges, *f f f f*, projecting at right angles to one another, and secured, respectively, to the arms of the cross-timbers. The pivot H is also secured by flanges *g g* to the under side of the draft-bar G, and the pivot itself fits in the socket F, thus allowing a free turning movement of the harrow as the draft-bar is drawn forward.

Of substantially the same diameter as the inner rim, C on the body of the harrow, and situated directly and concentrically over it, is another circular rim or ring, I, attached to the lower side of the draft-bar G. This upper rim serves to carry four (more or fewer) friction-rollers, J J J J, preferably equidistant from one another, so that the alternate ones shall be opposite to each other in the circle. The bearings *h h h h* of the rollers are secured to the under side of the rim I, and the rollers roll upon the rim C as upon a circular track. This construction allows a weight to be car-

ried by the draft-bar and its rim for weighting one side or other of the harrow, to produce the revolution of the same, without much friction of the parts, and with steadiness of revolving motion communicated to the harrow.

For weighting one side of the harrow, the weight of the driver of the team is utilized. For this purpose, as another feature of my invention, a cross-bar, K, is secured transversely to the draft-bar and also at its ends to the upper rim, I, suitable blocks, *i i*, or their equivalents, being placed between the cross-bar and the rim to fill the space between. A seat-board L is located over the cross-bar, and is supported by it, resting on suitable legs, *j j*, or other supports attached to the cross-bar. On this seat-board (sufficiently raised above the draft-bar) is placed the driver's seat M, being bolted directly thereto. The seat is made adjustable along the length of the seat-board, in order not only to locate the driver out upon the seat-board in the proper position to produce the requisite weight on one side of the harrow to properly revolve the same, but to shift his position from one side of the harrow to the other in order to make it revolve in the other direction when desired. There are various ways of providing for this adjustment; but I prefer the construction represented in the drawings, consisting of a long slot, *k*, in the seat-board L, extending lengthwise thereof, and held by a screw-bolt, *l*, passing down through the seat and slot of the seat-board, and tightened by a hand-nut, *m*, shown in Fig. 7. On simply turning the hand-nut back a little and loosening the screw-bolt, the seat is ready to be slid along on the seat-board to the required position, and the hand-nut is then turned forward to tighten the bolt. To keep the seat from turning out of position, one or more lugs or projections, *n n*, Fig. 8, may project from the lower side of the seat into the slot of the seat-board, or the guides may project down by the front or rear edge of the seat-board. The driver thus is always facing the team when turning the harrow, as well as at other times.

I disclaim, in a revolving harrow, a solid center platform on the body and another platform on the draft-bar, with a friction-roller between the two platforms.

I claim as my invention—

1. The combination of the harrow-body having two circular rims, B C, secured to the radial timbers A, the inner rim, C, serving for a circular track, the draft-bar G, pivoted to the center of the harrow-body, circular rim I, secured to the draft-bar G, and situated concentrically over the circular track C, and friction-rollers J J, mounted in bearings attached to the rim I and traveling on the said circular track, all substantially as and for the purpose herein specified.

2. The combination of the harrow-body having a circular track, C, thereon, draft-bar G, having a circular roller-carrying rim, I, attached thereto, and situated concentrically over the circular-track cross-bar K, supported by the draft-bar G, and rim I, fixed seat-board L, supported by the said cross-bar at a proper height above the same, and a seat, M, adjustable lengthwise upon the seat-board and transversely to the line of the harrow's advancing movement, substantially as and for the purpose herein specified.

3. In combination with the harrow, removable timbers or beams D D, provided with pulverizers E E, and adapted to receive harrow-teeth, substantially as and for the purpose herein specified.

JOHN WECKMAN.

Witnesses:
BENJAMIN F. FAUST,
J. H. HAMAKER.