W. D. FINK.

Adjustable Harrow.

No. 211,981. Patented Feb. 4, 1879.

Fig. 1.

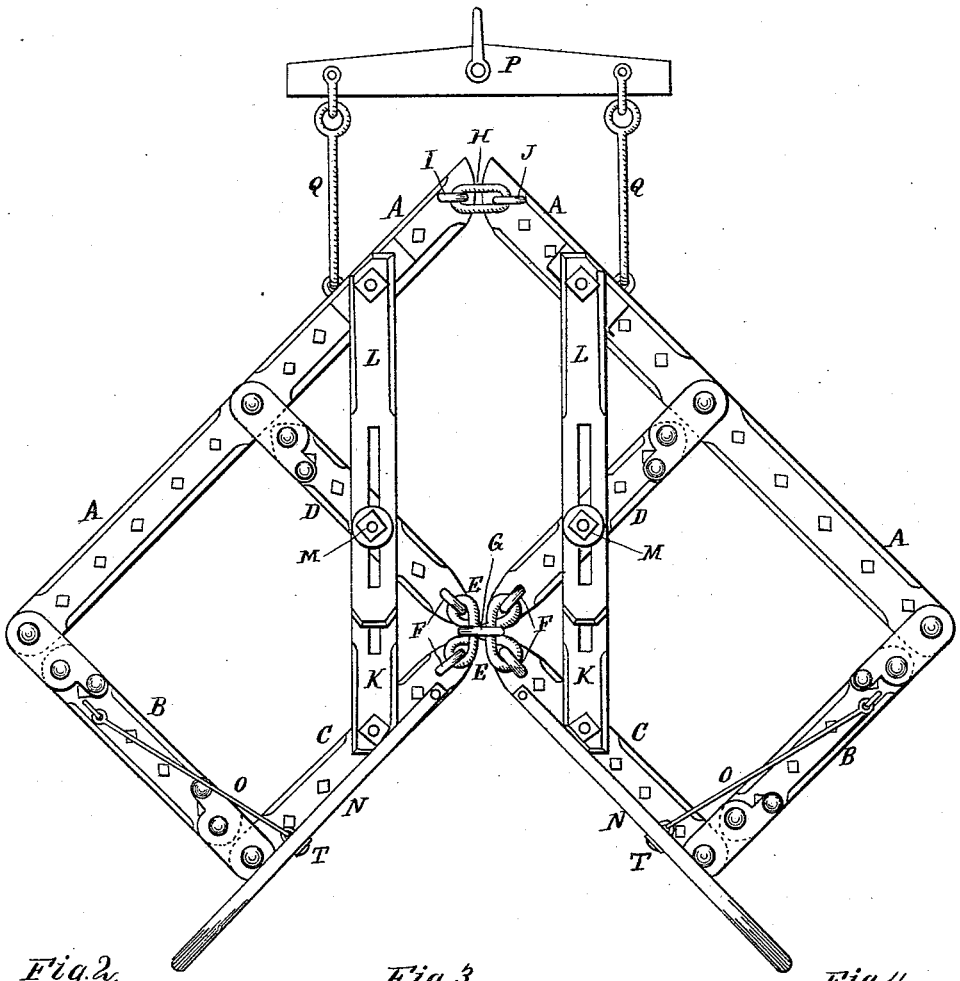


Fig. 2.

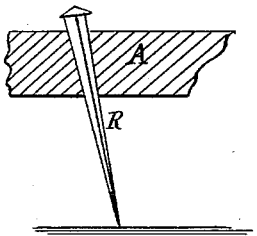


Fig. 3.

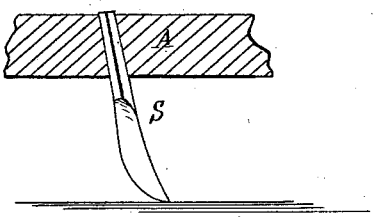
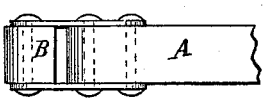


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM D. FINK, OF STRASBURG, ILLINOIS.

IMPROVEMENT IN ADJUSTABLE HARROWS.

Specification forming part of Letters Patent No. **211,981**, dated February 4, 1879; application filed November 18, 1878.

To all whom it may concern:

Be it known that I, WILLIAM D. FINK, of Strasburg, in the county of Shelby and State of Illinois, have invented a new and useful Improvement in Adjustable Harrows, of which the following is a specification:

Figure 1 is a plan view of my improved harrow. Fig. 2 is a detail section, showing one of the square teeth. Fig. 3 is a detail section, showing one of the sword-teeth. Fig. 4 is a detail view of one of the joints.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish an improved harrow, which shall be so constructed that it may be readily adjusted wider or narrower, as the work to be done may require, which will adjust itself to uneven ground, which will allow either half to be raised to free it from rubbish, or to avoid stumps or stones, without interfering with the other half, and which may be readily separated into two parts, for convenience in loading it into and unloading it from a vehicle for transporting it to or from the field, or from one field to another.

The invention will first be described in connection with the drawings, and then pointed out in the claim.

The harrow-frame is made in two parts, each part consisting of a long side beam, A, and three short beams, B C D. The beam B is hinged or jointed at its outer end to the rear end of the long side beam, A, and at its inner end to the rear end of the beam C.

The outer end of the beam D is hinged or jointed to the middle part of the long side beam, A. The inner ends of the two beams C D nearly meet, and are connected by an eye rod or link, E, and two staples or eye-bolts, F.

To one of the rods or links E is hinged a hook, G, which is hooked upon the other rod or link E, connecting the middle parts of the harrow-frame together with a flexible and detachable connection.

The forward ends of the side beams A are connected by a link, H, hinged at one end to one of the beams A by an eyebolt or staple, I, and its other end to the other beam, A, by a hook-bolt, J, thus connecting the said beams by a flexible and detachable connection.

The joints between the beams are formed by bolting iron plates to their upper and lower sides, as shown in Fig. 4.

For ordinary use the harrow-frame is designed to be adjusted into the form of three squares, as shown in Fig. 1; but it may be made narrower by moving the beams upon their hinges or joints to bring the squares into diamond shape longitudinally, or made wider by bringing the said squares into diamond shape transversely.

To the middle parts of the two beams C are bolted the outer ends of two bars, K, and to the middle part of the forward half of the side beams, A, are bolted the outer ends of two bars, L. The inner parts of the bars K L overlap each other, and are slotted longitudinally to receive the bolts M, attached to the beams D, and by which they are fastened together when the frame has been adjusted in the desired position. With this construction the harrow-frame can be adjusted by loosening the bolts M, and when adjusted can be fastened securely in place by again tightening the said bolts M.

N are the handles, the inner ends of which are bolted to the inner parts of the beams C, and the outer parts are supported and strengthened in position by the brace-rods O, attached to the said handles and to the outer parts of the beams C, and by the standards T.

P is the draw-bar, with the end parts of which are connected the forward ends of two rods, Q, by clevises or other suitable means. The rear ends of the rods Q are connected with the beams A by means of eye or hook bolts.

For all kinds of work square, round, or flat harrow teeth R may be used; but I prefer to use the knife or sword shaped teeth S, as producing better effects. The harrow-teeth may be set in the frame straight or inclined, or some may be set straight and some inclined.

When the sword-teeth S are used they should be set in such positions that their edges will be directly forward when the harrow-frame is adjusted in squares, which will incline their edges to one or the other side when the har-

row-frame is adjusted in diamonds, and will cause them to act upon the ground in the manner of cultivator-teeth.

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

An improved harrow-frame made in two parts, each part being formed of the long side beam, A, and the three short beams B C D, hinged or jointed to each other, and locked in place when adjusted by the longitudinally-slotted bars K L and the bolt M, and the two parts being connected to each other at the inner ends of the inner beams, C D, and the forward ends of the side beams, A, by the flexible and detachable connections E F G and H I J, substantially as herein shown and described.

WILLIAM D. FINK.

Witnesses:
AMOS YORK,
SAM. WILSON.