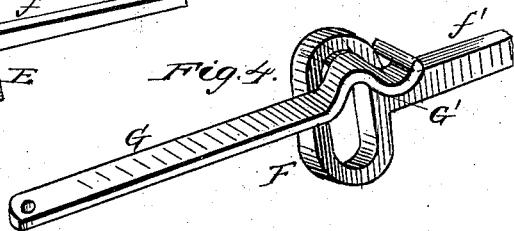
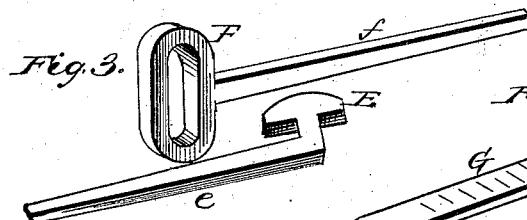
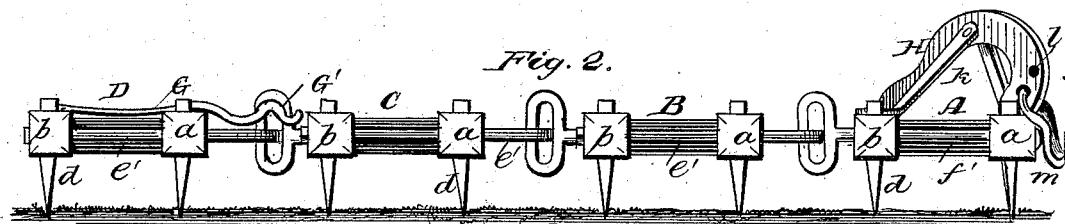
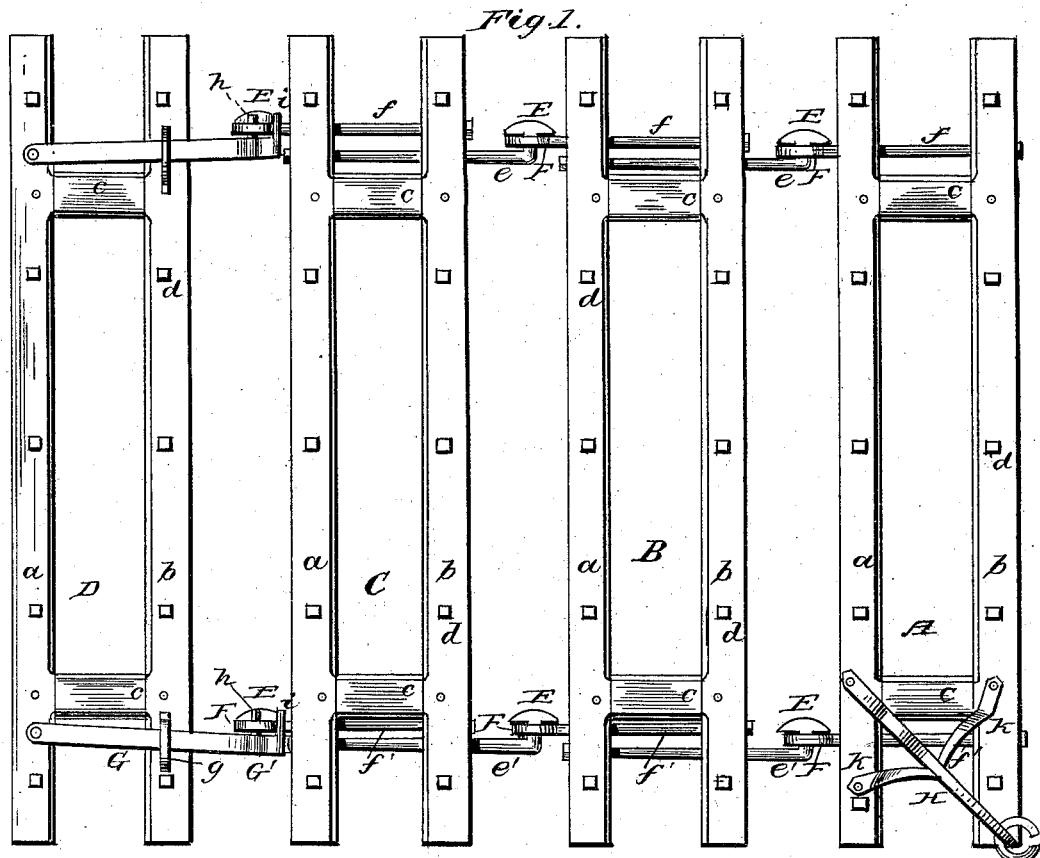


H. L. FALCK & D. NEFF.
Harrow.

No. 217,084.

Patented July 1, 1879.



Witnesses
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UNITED STATES PATENT OFFICE.

HENRY L. FALCK AND DANIEL NEFF, OF MILLVILLE, INDIANA.

IMPROVEMENT IN HARROWS.

Specification forming part of Letters Patent No. **217,084**, dated July 1, 1879; application filed May 5, 1879.

To all whom it may concern.

Be it known that we, HENRY L. FALCK and DANIEL NEFF, of Millville, in the county of Henry and State of Indiana, have invented certain new and useful Improvements in Harrows; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a top plan. Fig. 2 is a side elevation. Fig. 3 is a detail view, in perspective, of the connecting links and heads; and Fig. 4 is a similar view of the locking device or catch which forms a part of our invention in connection with our improved harrow.

Similar letters of reference indicate corresponding parts in all the figures.

This invention relates to "sectional harrows," or that class of harrows which consist of several detachable sections hinged together; and it consists in the combination, with the loops and headed connecting-links, of the construction, hereinafter described, by which the several sections of the harrow are united, and of pivoted locks or catches, substantially as hereinafter more fully described.

In the drawings, A B C D are the several (in this case four) sections which compose the harrow, and each of which consists of two parallel beams, *a b*, united at each end by cross-pieces *c c*. The harrow-teeth *d*, which may be of any suitable construction, are inserted into the parallel beams *a b*. *e e'* and *f f'* are iron rods or long bolts inserted through beams *a b*, parallel to each other and projecting laterally on opposite sides of the frames, the bolts *e e'* terminating in T-shaped heads *E*, and the ends of bolts *f f'* forming vertical links or loops *F*, as shown more clearly in Fig. 3. The first and last sections of the harrow are provided, respectively, with only one set of these link and head bolts, and the last section, *D*, has hinged at each end of its rearmost beam, *b*, a catch, *G*, the forward end of which is inserted through a keeper, *g*, and bent or doubled into the shape represented in Fig. 4 to form a head, *G'*, provided with two laterally-projecting pins, *h i*.

To couple or connect the several sections, commencing with *A*, which is left flat on the ground, section *B* is first raised and set at a right angle, longitudinally, to *A*, in which position the T-shaped heads *E E'* of *B* may readily be inserted through the vertically-slotted heads or links *F F* of *A*, when section *B* may be let down and the two sections *A B* are coupled. Section *C* is connected to *B*, and *D* to *C*, in like manner, after which *D* and *C* are firmly locked together by pushing the heads *G'* of the catches *G* against the heads or links *F F* of section *C* in such a manner that the upper pin, *h*, will pass through the link above the cross-head *E*, while the other pin, *i*, will bear against its outside, impinging upon the projecting shank of the link.

The draft beam or bar *H* consists of a flat iron bar bent into the configuration shown in the drawings, its front end being secured obliquely in the corner of the front bar, *a*, of section *A*, and its rear end in the bar *b*. It is braced between bars *a* and *b* by braces *k k*, and has a series of perforations, *l l*, in its curved front side, into any one of which the draft-link *m* may be inserted.

From the foregoing description, taken in connection with the drawings, the operation and many advantages of our improved harrow will be readily understood. In the first place the several sections may be readily connected and again taken apart; and when disconnected the sections may be piled one upon the other so as to take up but very little storage-room, or they may be readily packed in a cart or wagon for transportation to the place where the harrow is desired for use.

The connecting-heads *E* have sufficient vertical play in the links *F* to enable each section to rise over the unevenness or undulations of the ground without affecting its neighbors, so that the harrow, as a whole, will "give" or yield to the character of the surface of the soil. Again, if any one section should become entangled in roots or any similar obstruction, the sections to each side of it may readily be folded up, one upon the other, until that section is reached which has got stuck, and which may then readily be disentangled. If the section farthest from the draft (*D* in the drawings) should be inclined to jump, it may be con-

nected rigidly to the section in advance of it, C, by locking the links, by means of the catches G G', in the manner described, which will prevent vertical play. The arrangement of the draft-beam, as herein shown, will permit the hitching of the team close up against the corner of the harrow without lifting this from the ground, which greatly reduces the draft.

Having thus described our invention, we claim and desire to secure by Letters Patent of the United States—

1. In combination with the coupling-heads E and links F, constructed as described, the pivoted locking-catches G G', having pins *h i*, substantially as and for the purpose herein shown and specified.

2. The combination, with a series of flexibly-

connected harrow-sections, A B C, provided with the attachment-loops F and heads E, constructed as described, of the section D, having the connecting-heads E E, and provided with pivoted locking devices G G', whereby the said last section of the series may be rigidly connected to the section next in front of it, substantially as and for the purpose set forth.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in presence of two witnesses.

HENRY L. FALCK.
DANIEL NEFF.

Witnesses:

JOSEPH F. KINDLEY,
DAVID V. B. WELKE.