

J. M. WHITE.

HARROW.

No. 172,838.

Patented Feb. 1, 1876.

Fig. 1.

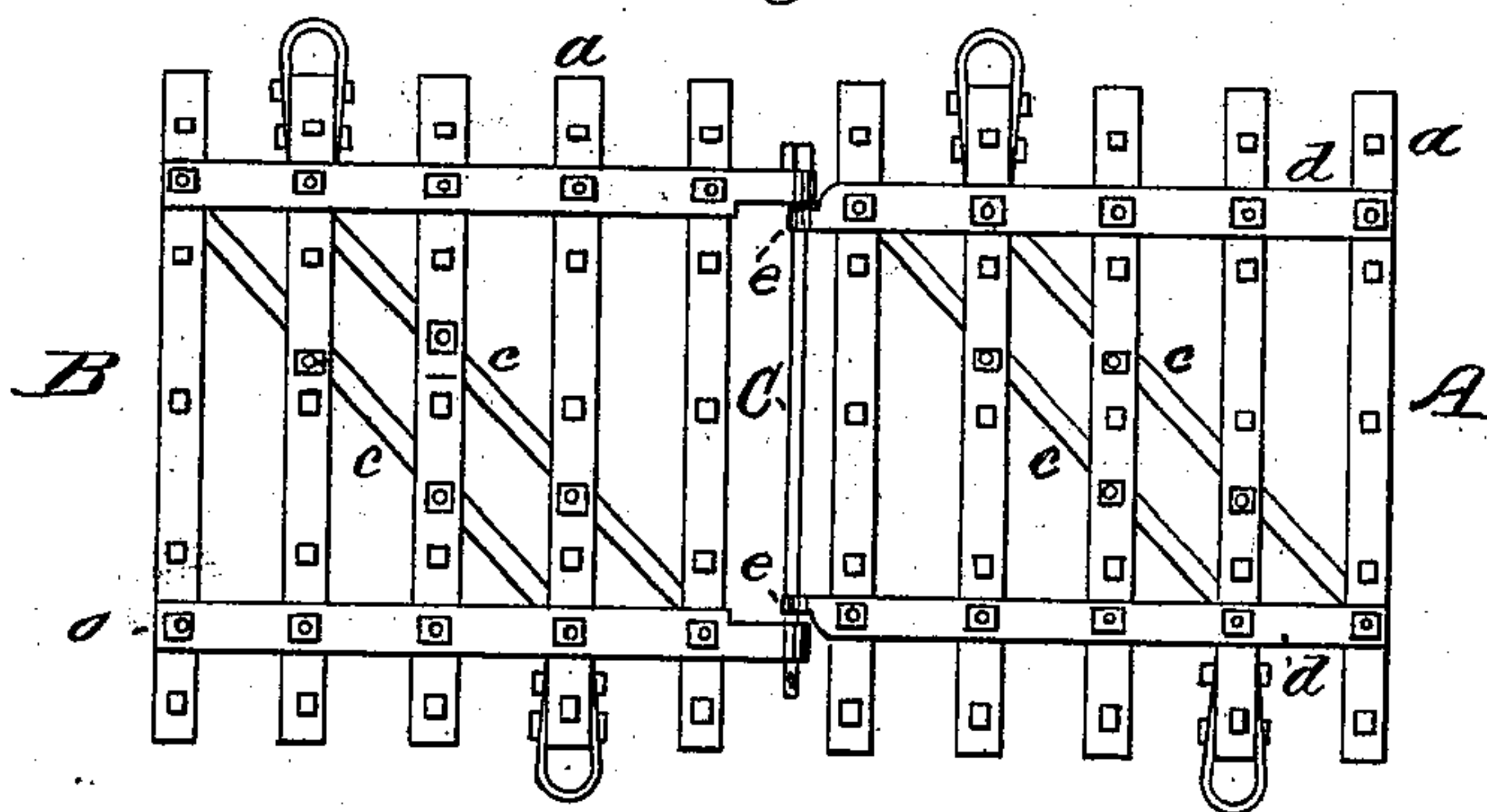


Fig. 2.

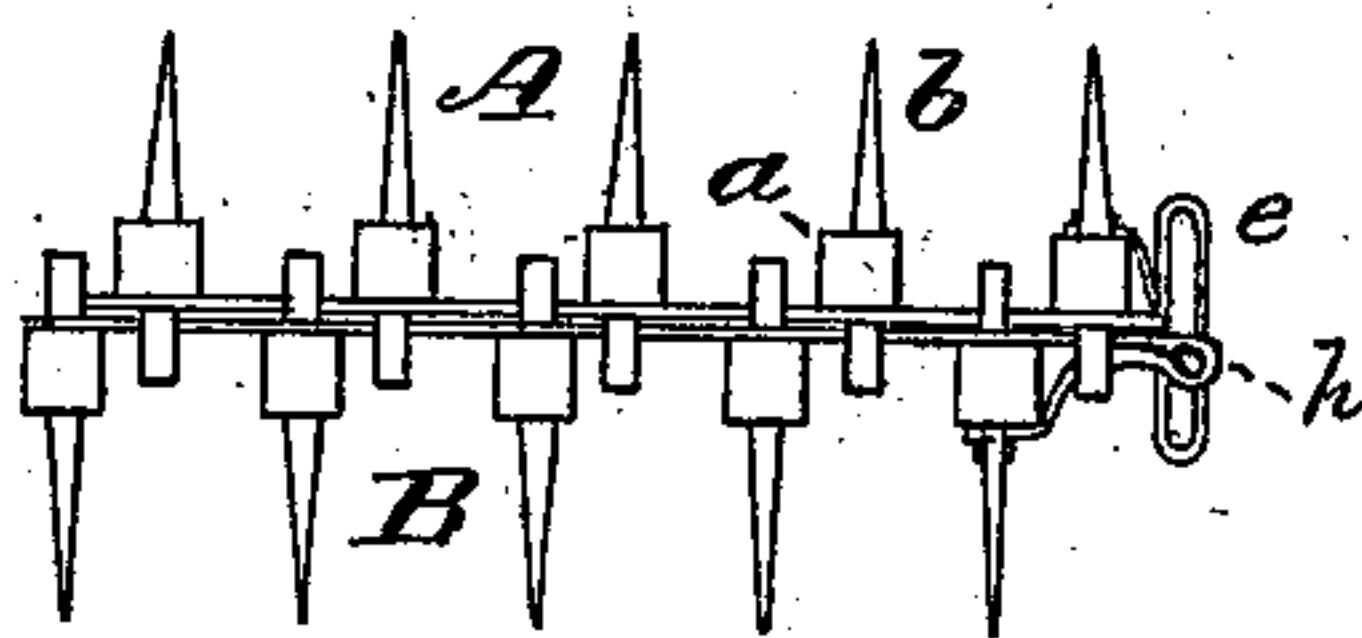


Fig. 3.

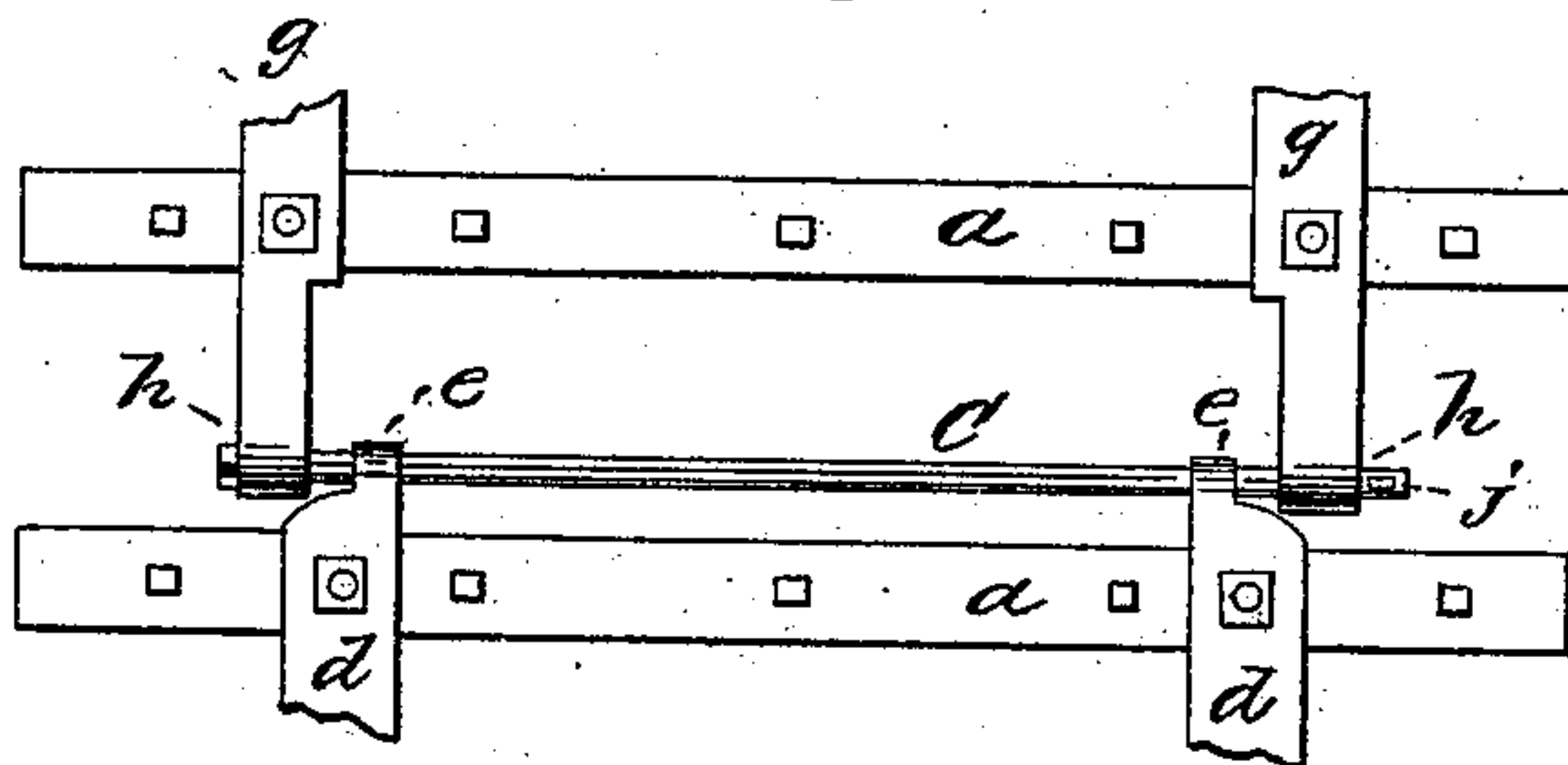
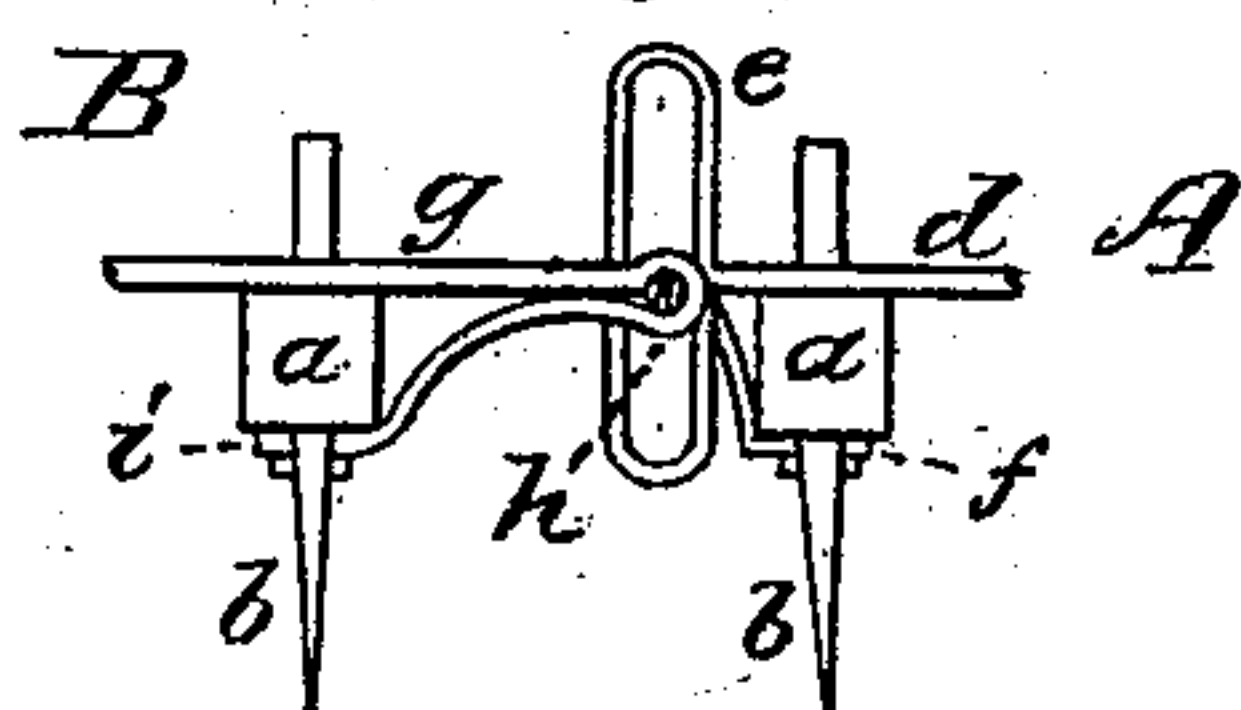


Fig. 4.



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# UNITED STATES PATENT OFFICE.

JAMES M. WHITE, OF SPRINGFIELD, OHIO.

## IMPROVEMENT IN HARROWS.

Specification forming part of Letters Patent No. **172,838**, dated February 1, 1876; application filed December 6, 1875.

*To all whom it may concern:*

Be it known that I, JAMES M. WHITE, of Springfield, in the county of Clarke and State of Ohio, have invented a new and valuable Improvement in Harrows; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a representation of a plan view of my improved harrow. Fig. 2 is an end view, showing the two sections folded upon each other. Fig. 3 is an enlarged view, showing the manner of connecting the two sections; Fig. 4, an end view of Fig. 3.

This invention has relation to that class of harrows in which the two sections are capable of being folded upon each other; and the object of the present invention is to produce a harrow perfect in its operation, simple in its construction, and at the same time durable and not easily gotten out of repair; and the invention consists in the combination and arrangement of the several parts hereinafter described, and subsequently pointed out in the claim.

In the accompanying drawings, A B represent the two sections of my improved harrow, consisting of the cross-beams *a*, to which are secured the teeth *b*. To the under side of the beams *a* are bolted or otherwise secured diagonal braces *c*, to give them additional strength and prevent any lateral displacement from the strain thereon. Braces *d* are secured, by suitable bolts, to the several beams *a* of section A, near their ends, holding them rigidly in their relative position. The inner ends of these braces *d* are bent around to form elongated loops *e*, after which the metal is turned under the beam, forming a short brace, *f*, thereby securely clamping the beam and holding it in a rigid manner, as the strain upon the inner beam is much greater

in proportion to the others. The section B has similar braces *g*, the inner ends being bent around to form eyes *h*, for the reception of a locking or connecting rod, C. The continuation of the braces *g* also passes around and under the beam, forming a brace, *i*, similar to the brace *f*. The two sections A B are coupled together by the connecting-rod C, the same passing through the eyes *h* and elongated loops *e*, the rod being prevented from pulling out by a key, *j*, fitting in a slot in the end of the rod.

A harrow constructed according to my invention will be found very effective in its purpose, as it admits of a vertical vibratory motion to accommodate itself to the irregularities in the surface of the ground, insuring all the teeth acting at the same time; also, the elongated loops with the connecting-rod allow either section A B to be folded upon each other without the necessity of stopping the team.

The several braces and their manner of connection to the beams make a very strong and durable harrow, that will stand the rough use to which such devices are subjected without the danger of becoming injured.

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

The combination, with harrow-sections A B, having diagonal braces *c* and braces *d*, the ends of the latter being bent around and turned under the inner beams of each section to form additional braces with eyes and loops *e* *h*, of the connecting-rod C and key *j*, substantially as and for the purpose set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

JAMES M. WHITE.

Witnesses:

AMOS WOLFE,  
A. H. GILLET.