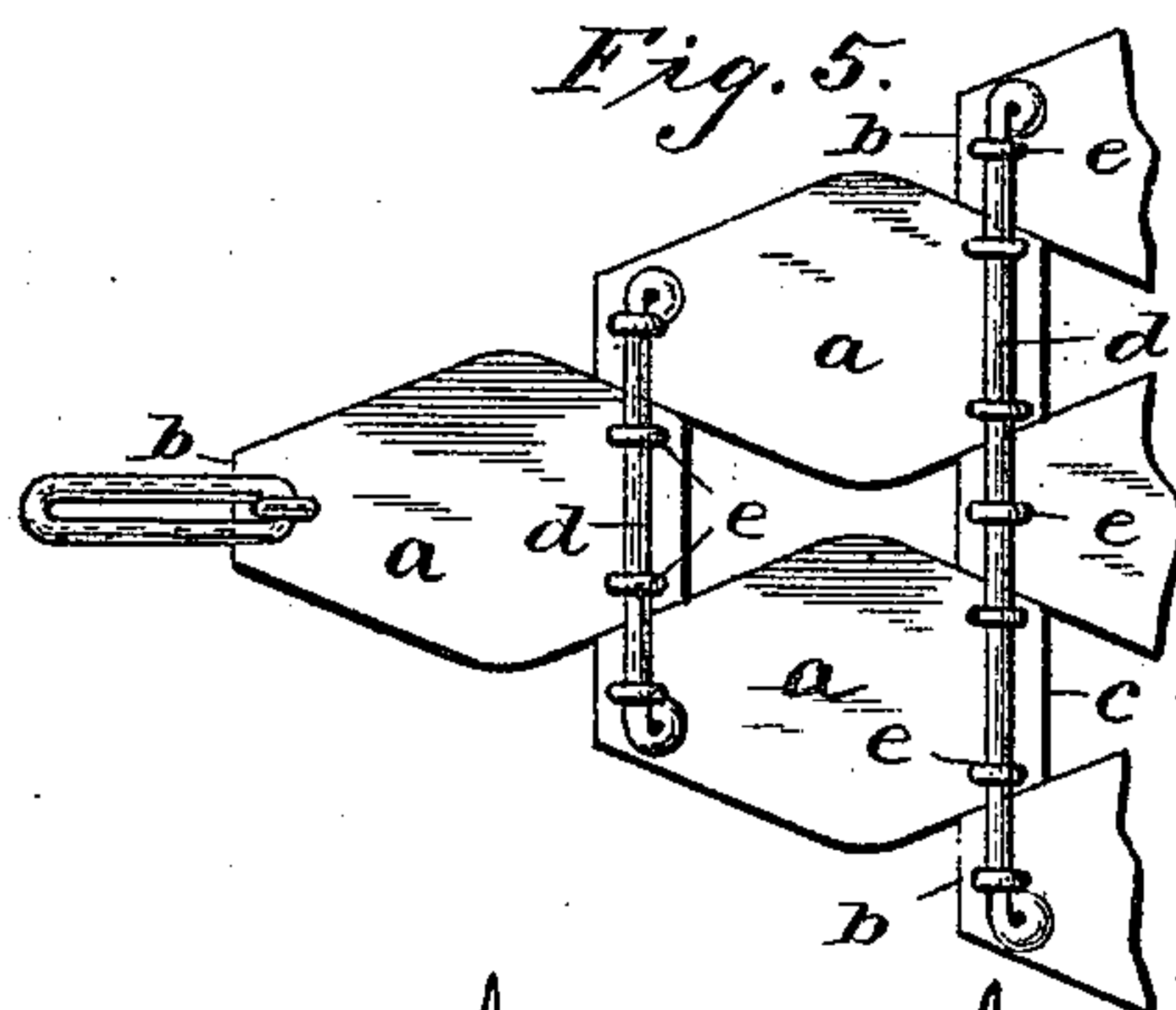
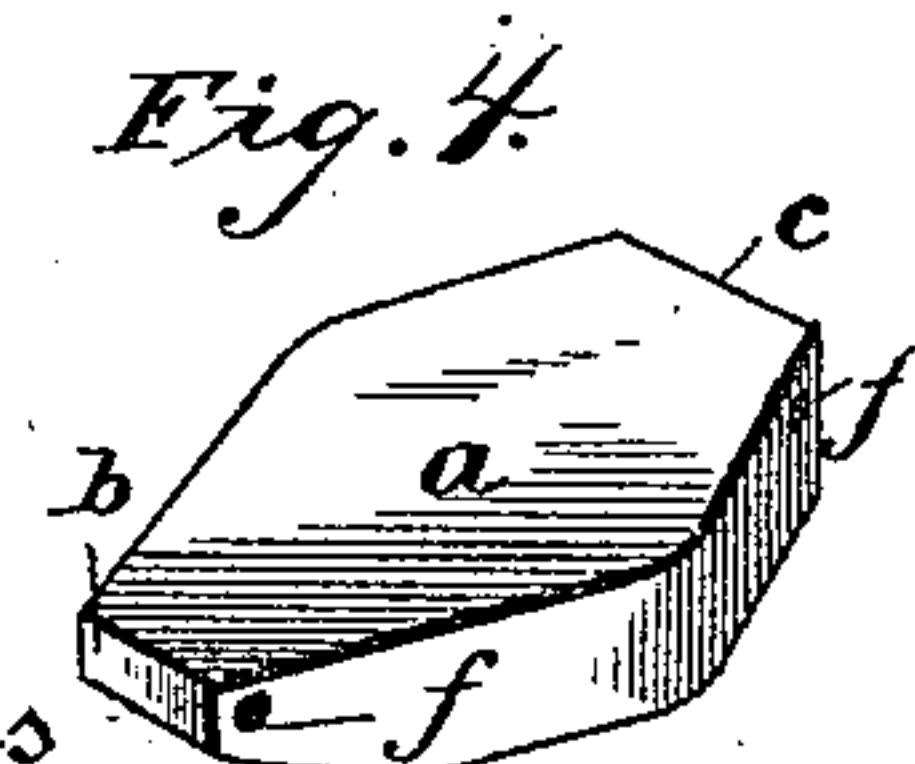
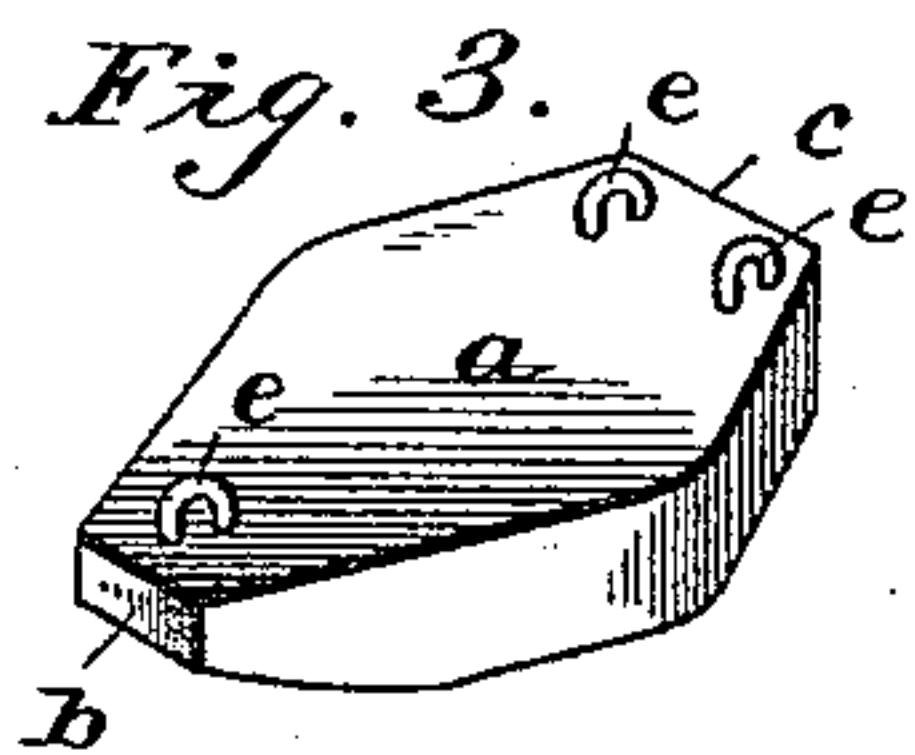
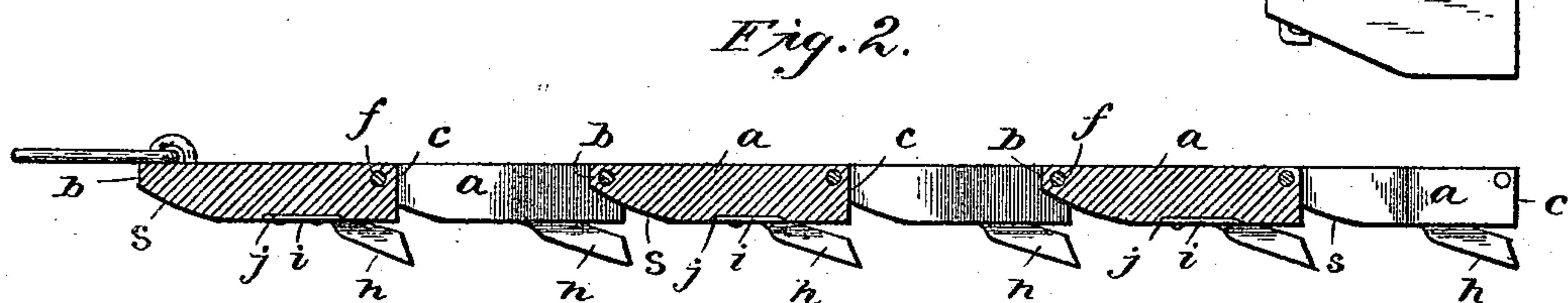
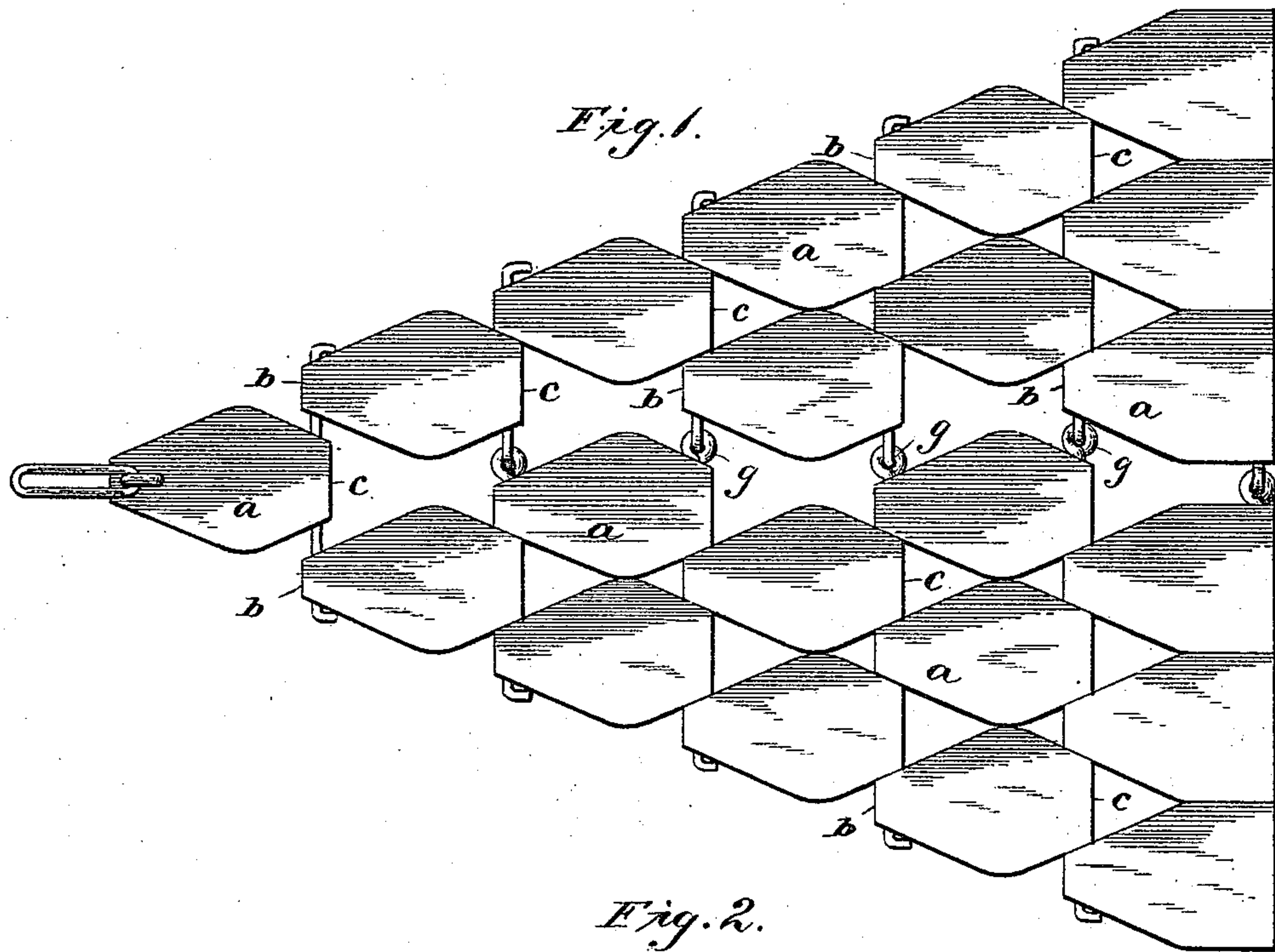


(No Model.)

E. J. TRAVIS.
HARROW.

No. 440,854.

Patented Nov. 18, 1890.



Witnesses

Edwin L. Bradford
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Inventor

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UNITED STATES PATENT OFFICE.

EDWARD J. TRAVIS, OF PARIS, TENNESSEE.

HARROW.

SPECIFICATION forming part of Letters Patent No. 440,854, dated November 18, 1890.

Application filed August 19, 1890. Serial No. 362,386. (No model.)

To all whom it may concern:

Be it known that I, EDWARD J. TRAVIS, a citizen of the United States, residing at Paris, in the county of Henry and State of Tennessee, have invented new and useful Improvements in Harrows, of which the following is a specification.

I have produced a harrow for farm use constructed of blocks provided with teeth and connected together so as to break joints and form a flexible triangular-shaped platform in which the blocks have a compact abutting relation and have a runner-like action upon the ground, and form a platform having a practically solid bottom and top surface well adapted for crushing the lumps of dirt and leaving the surface smooth, and for this purpose can be used on its untoothed side. The blocks are flat and are beveled upward at their forward under sides, and they are of diamond shape and connected by wire rods so that the nose of each block will abut against the beveled rear sides of the contiguous blocks, to keep them all close together laterally and give a solid running action to the harrow while allowing it to conform to the unevenness of the ground.

The improvement will be particularly pointed out in the claims, in connection with the accompanying drawings, in which—

Figure 1 shows my improved block-harrow in top view. Fig. 2 is a vertical longitudinal section of the same. Fig. 3 is one of the beveled blocks with surface fastening-eyes. Fig. 4 shows a beveled block bored at each end for the fastening-wires; and Fig. 5 shows the blocks connected by surface rods and eyes.

The blocks *a* are of diamond shape, preferably made sharper at the nose *b* than at the heel *c*, and are beveled upward at the nose end on the under side at *s*, so that they can be connected together in compact abutting relation at each end sidewise and have a runner-like action on the ground. I connect these blocks in rows with their beveled noses *b* standing forward between and abutting against the sides of the heels *c* of the next row of blocks, so as to bring them compactly together and form a platform of solid blocks. I connect them together at each end by stout-wire rods *d*, which I prefer to run across their

upper sides and fasten to the block by eyed-screws *e* or rivet-staples, or I may run the fastening-wires through holes *f* in each end of each block, as seen in Fig. 4. The flat blocks, when connected, form a solid-bottomed platform well adapted for crushing the lumps of dirt and leaving the surface smooth. While the fastening-wires may be rigid from end to end, yet I prefer to joint them, as at *g*, along the middle line of the harrow to allow it to flex sidewise, while the fastening-wires allow it to flex endwise and to be folded or rolled endwise for turning short curves. The blocks may be provided with any suitable form of harrow-teeth *h* and arranged as desired; but I prefer to use the bent and twisted tooth shown, having their fastening-shanks *i* secured in recesses *j* in the bottoms of the blocks, so that the latter will more easily ride over the surface of the ground.

The harrow may be turned over upon its back in going to and from the field, and it may be thus used for smoothing the surface by the flat tops of the blocks riding upon the surface as a flat board having an unbroken surface.

I claim as my improvement—

1. A flexible harrow composed of flat diamond-shaped toothed blocks arranged to break joints with each other, provided with teeth and connected together at their ends in rows, forming both a harrow and a crushing-platform, as shown and described.

2. A flexible harrow composed of flat diamond-shaped toothed blocks arranged in rows to break joints, beveled upward on their under forward ends, and connected together at their lapped ends, as set forth.

3. A flexible harrow composed of flat diamond-shaped blocks provided with teeth and arranged to break joints with each other, each block being fastened together by eyed fastenings and wire rods on their upper sides, as shown and described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

EDWARD J. TRAVIS.

Witnesses:

ALEX. B. WHITE,
W. E. WELDON.