

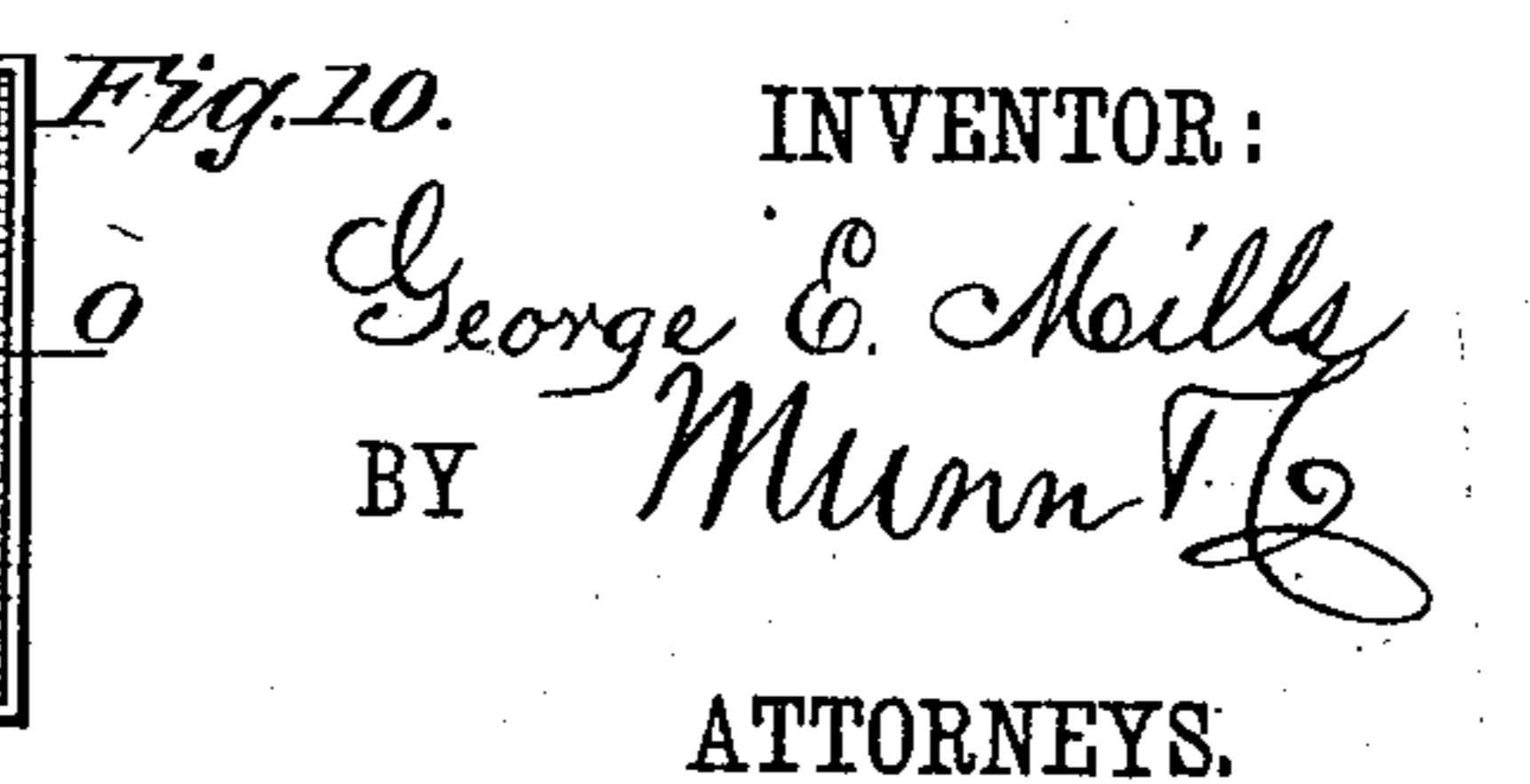
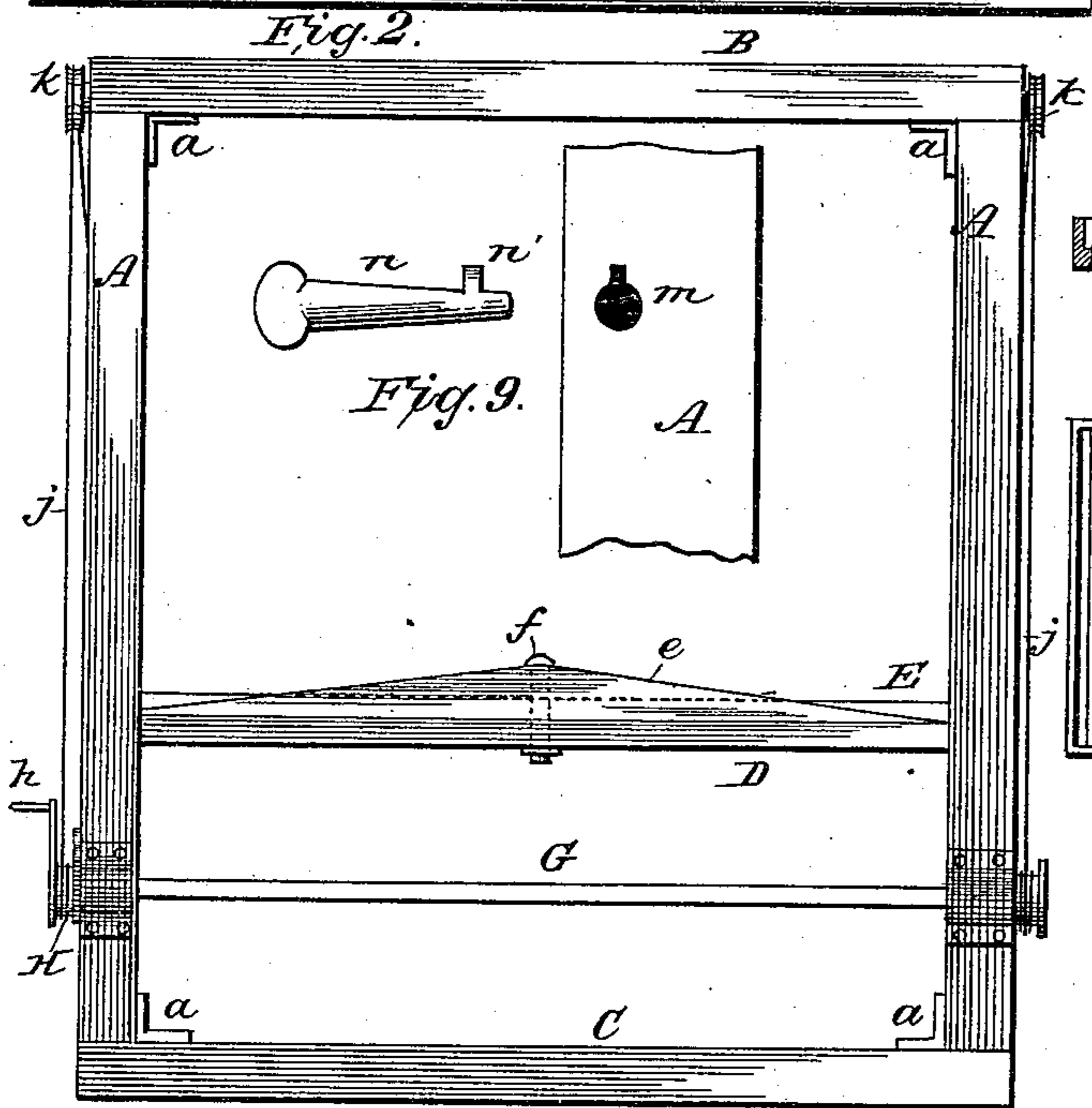
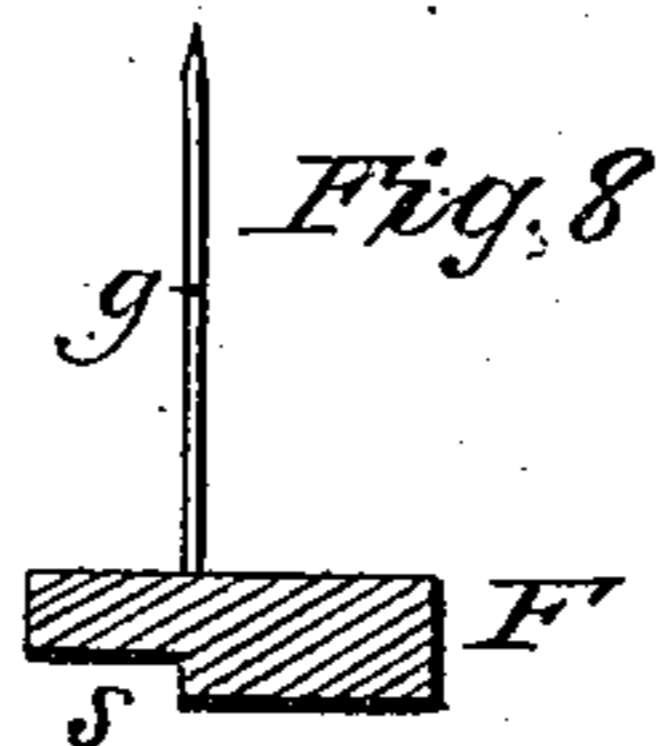
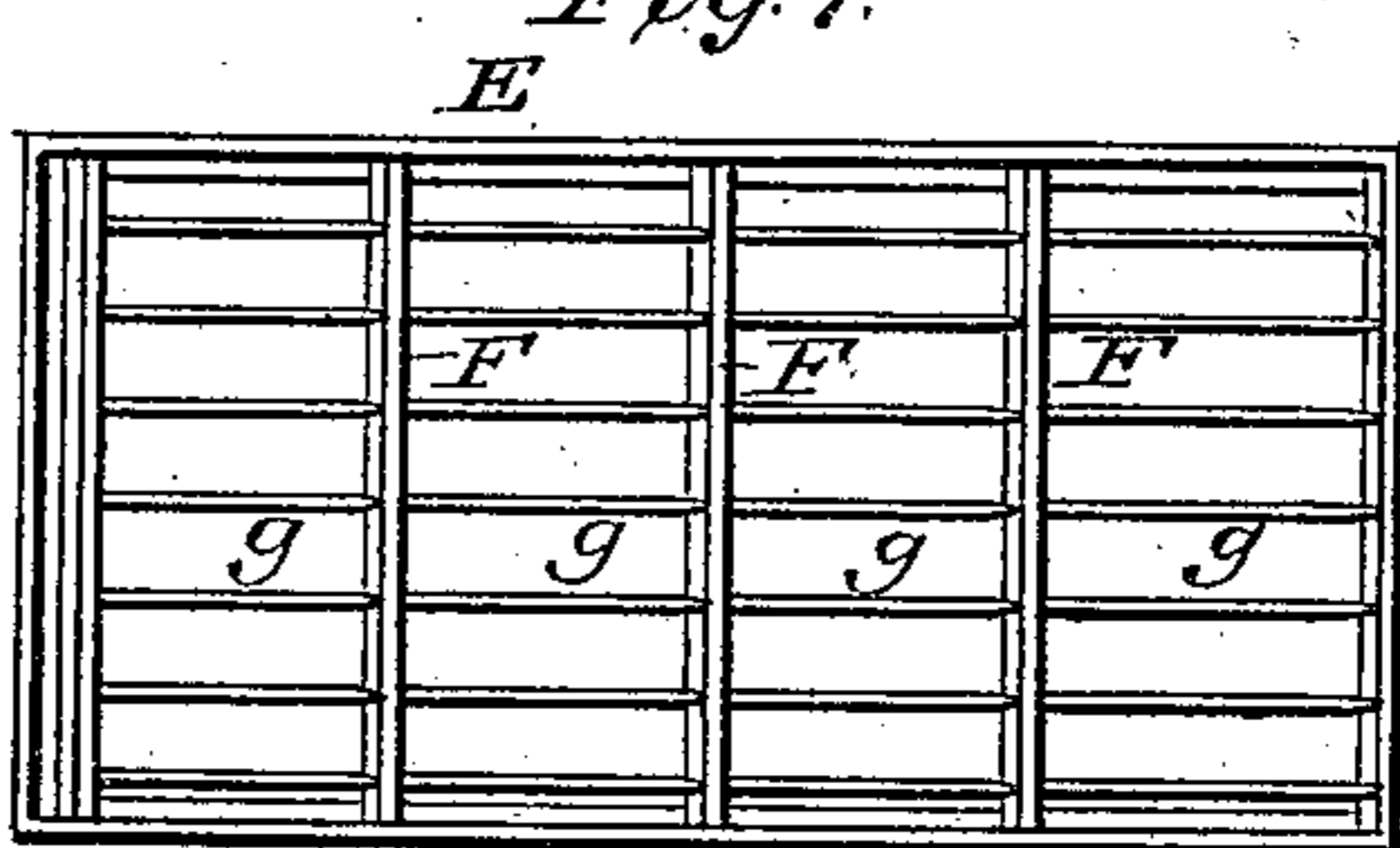
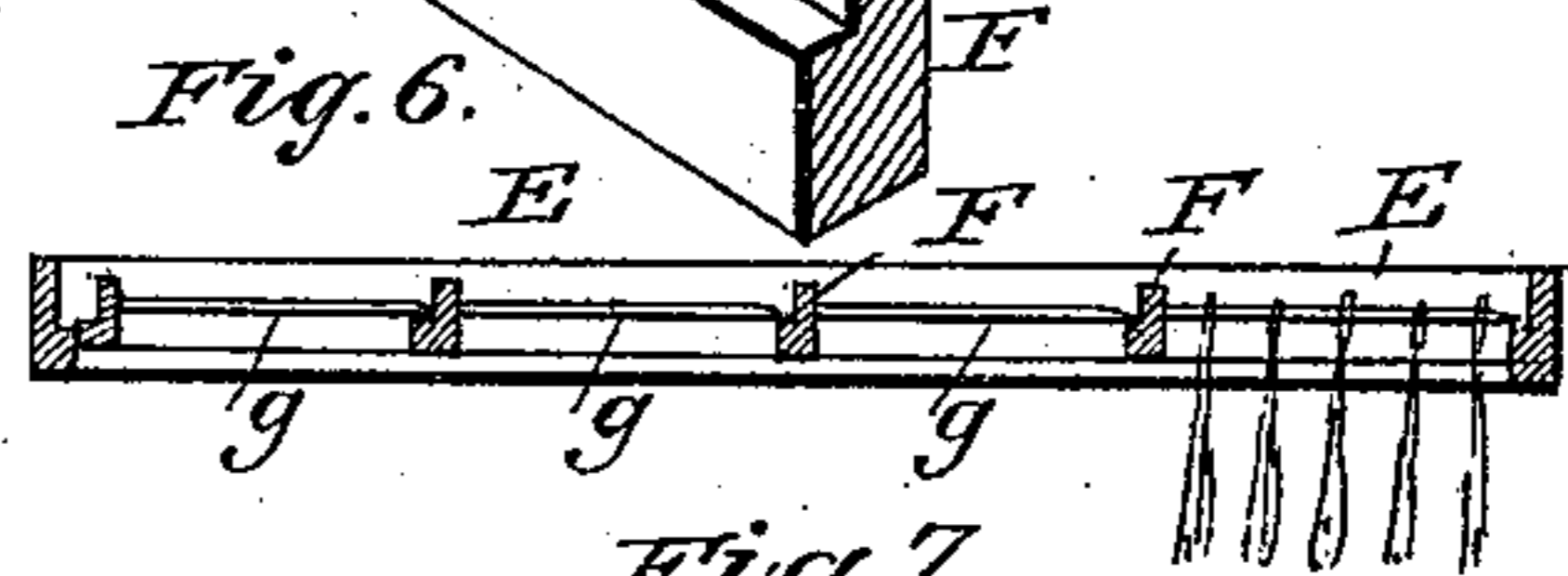
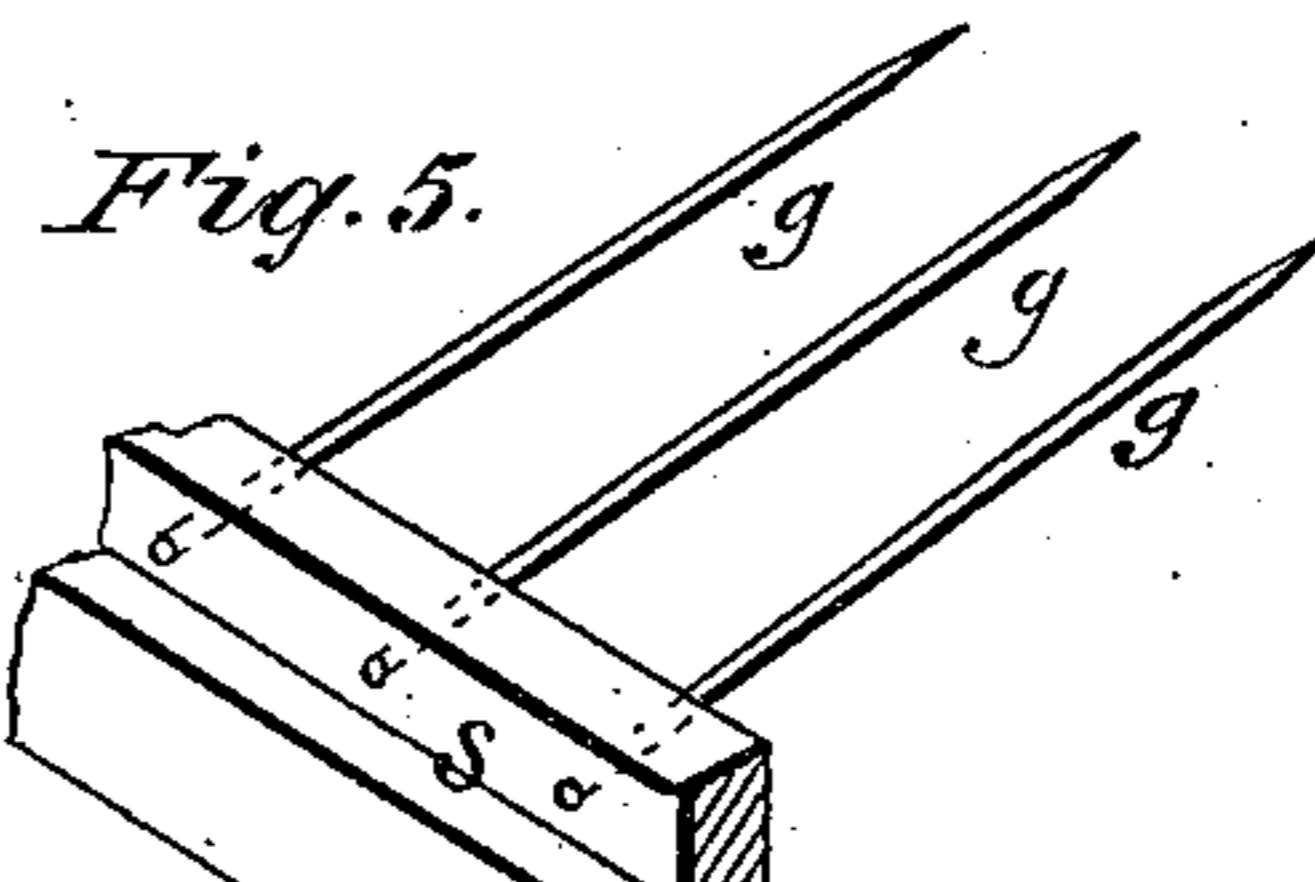
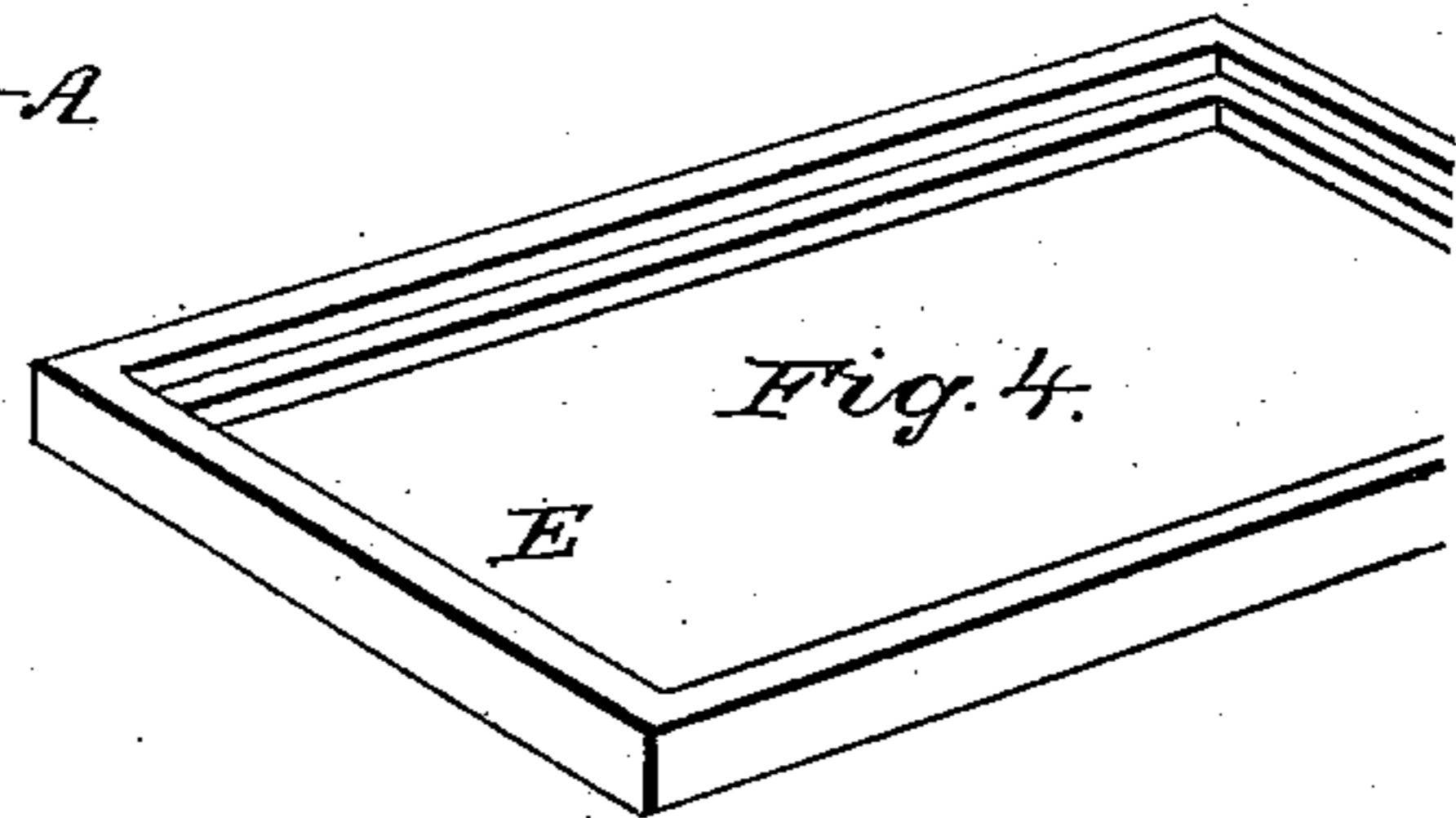
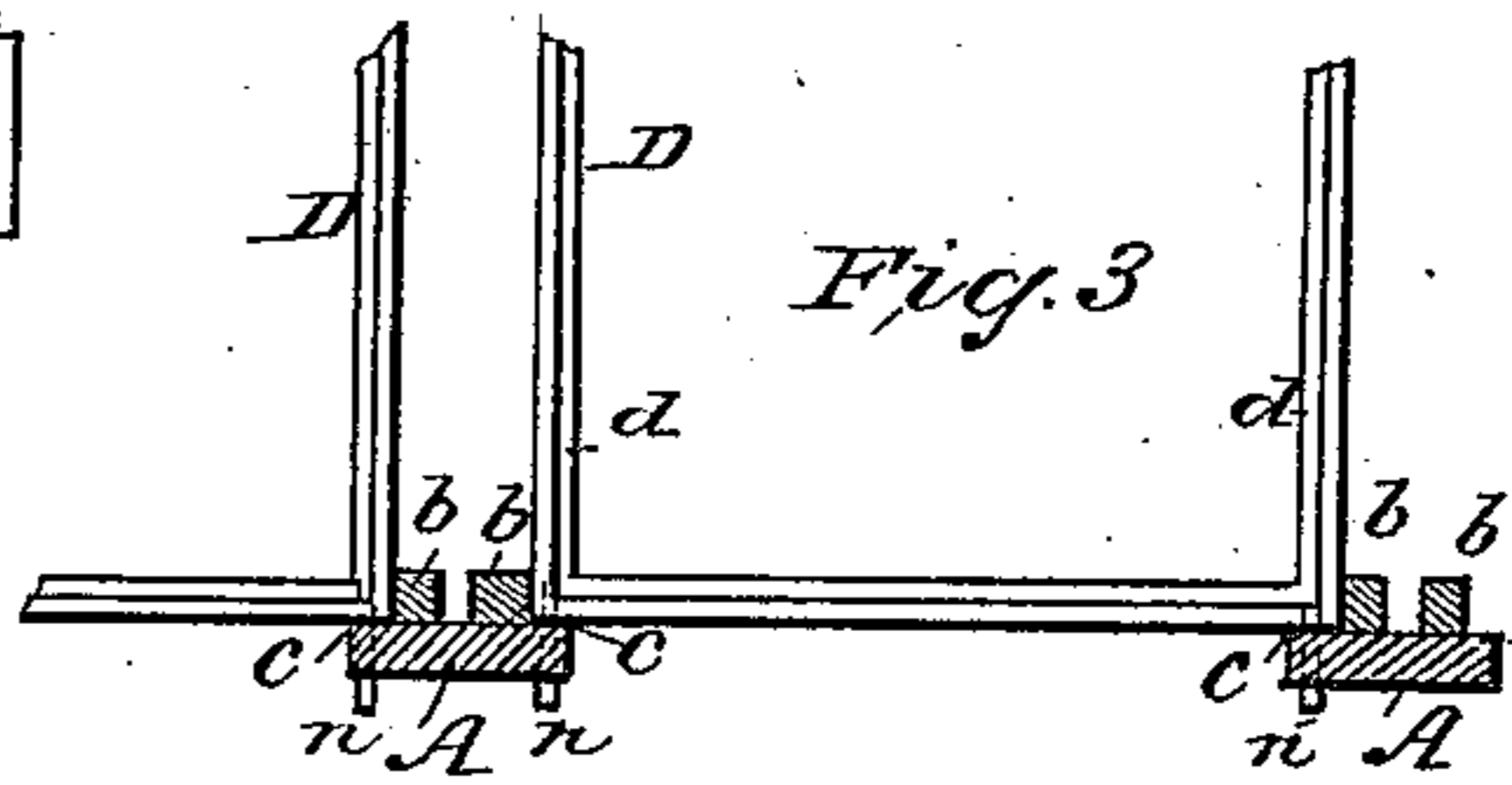
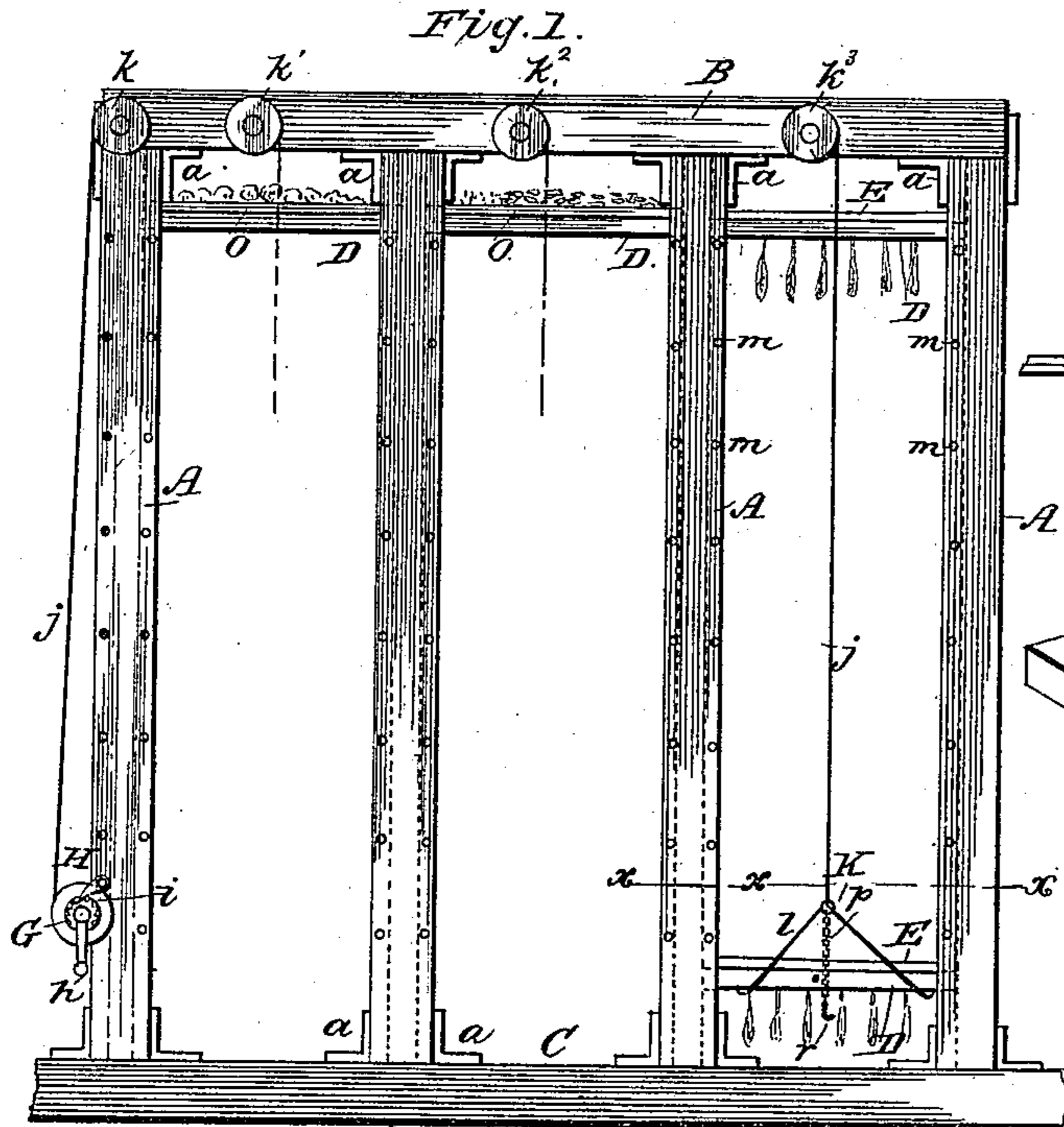
(No Model.)

G. E. MILLS.

FRAME FOR DRYING HOUSES.

No. 354,727.

Patented Dec. 21, 1886.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

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## FRAME FOR DRYING-HOUSES.

SPECIFICATION forming part of Letters Patent No. 354,727, dated December 21, 1886.

Application filed April 8, 1886. Serial No. 193,233. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE E. MILLS, of New York, in the county of New York and State of New York, have invented a new and useful Improvement in Frames for Drying-Houses, of which the following is a specification.

My invention is in the nature of drying-frames for drying-houses; and it consists of certain new and useful improvements for drying all kinds of food-stuffs and other substances which are capable of being preserved by desiccation, such as fruits, vegetables, cereals, meats, oysters, game, fish, eggs, tobacco, milk, meal, hops, and all other substances from which it is desirable to expel the moisture.

My invention relates to that form of drying-frame in which horizontal trays are arranged to support the materials to be dried, and are guided between vertical posts and held in parallel position in series, one above the other.

The improvement consists in the peculiar construction of the trays, the means for guiding and supporting the same, and the means for raising and lowering and dumping the trays, which I will now proceed to more fully describe, with reference to the drawings, in which—

Figure 1 is an end elevation of the drying-frame; Fig. 2, a side elevation of the same; Fig. 3, a horizontal section through the line *x x* of Fig. 1, showing the means for guiding and supporting the skeleton frames which hold the trays. Fig. 4 is a perspective view of the independent frame which fits on the skeleton frame and forms a part of the sectional tray. Fig. 5 is a perspective view, and Fig. 8 a cross-section, of one of the sections of the tray. Fig. 6 is a longitudinal section of the sectional tray. Fig. 7 is a plan view of the same. Fig. 9 shows details of the retaining key and key-hole which support the skeleton frames and trays in the drying-frame, and Fig. 10 is a plan view of a modified form of tray.

In the figures similar letters refer to the same parts in all the views.

A A A A are vertical or upright guide and supporting columns, which at the top are connected to the top plates or beams, B, and at the bottoms are connected to the sills C, and for which connection angle-irons *a* are used, so as to permit the parts of the main frame to be

quickly attachable or detachable, so that they may be easily packed in a small space, for compact storage or transportation, and be easily set up again. This main frame is designed to be erected in any suitable dry-house or inclosure which may be heated by steam or by stoves, supplied with such fuel as may abound in that locality, such as coal, wood, petroleum, or other combustible material.

The guide and supporting columns A are made alike of a broad beam, or two parallel beams, with strips *b b*, Fig. 3, nailed to the same, so as to form angled grooves *c c*, in which the corners of the skeleton frames D are guided, and which strips also serve to strengthen the columns. These skeleton frames have a rabbet or recess, *d*, on their inner edges, to form a seat to sustain the detachable tray-frame E, Fig. 4, and, as there is considerable weight at times on these skeleton frames I brace the sides of these frames by double inclined truss-bars, *e*, Fig. 2, having a central tie rod or bolt, *f*, passing through from top to bottom, which truss-brace permits these skeleton frames to be made comparatively light, and yet prevents them from sagging in the middle, which would have a tendency to let them slip off the supporting-keys.

The detachable tray-frames E are also rabbeted or recessed on the inside, and upon this rabbet is supported the ends of the cross-bars F of the tray-sections. These cross-bars F are also rabbeted on one side, at *s*, and have posted tines or stiff wire rods *g* extending through them after the manner of a rake. In arranging these tray-sections F the ends of the cross-bars rest upon the rabbet in the side bars of the detachable frames E, and the points of the tines of one section rest upon the rabbet of the cross-bar of the next preceding section, as shown in Figs. 6 and 7. The cross-bars of these tray-sections are made wide enough to form a base upon which the section will stand with the tines projecting upwardly, upon which the tobacco-leaves or other material to be dried are conveniently spitted or hung after the manner of letters on a letter-file, and the loaded tray-section is then turned into a horizontal position, and so placed in the tray-frame. This affords a very convenient mode of loading the tray-sections, and the detachability or independent character of the

tray-frame from the skeleton frame permits the tray to be loaded outside of the dry-house and then be carried to and put in the skeleton frame of the dry-house, thus avoiding the inconvenience and heat which would be met with in loading the trays in the dry-house.

When the trays have been loaded and placed in their skeleton frames, the latter are hoisted in the main frame and fixed in parallel position one above the other until the frame is filled. To accomplish this, a shaft, G, is journaled in bearings at one side of the frame, and is provided with winding-drums H H, one at each end, and one or more cranks, h, with ratchet and pawl i. From each of these drums there passes a rope, j, over sheaves or pulleys k k' k<sup>2</sup> k<sup>3</sup> at the top of the frame, which rope is at its other end connected to a sling, K, composed of two hooks, l l, which engage with the ends of the skeleton frame, so that when the drums are wound up the skeleton frame is raised in the grooves of the guide and support columns, in which elevated position the tray and skeleton frame are maintained by supporting-keys, after which the sling is lowered for another skeleton frame and tray. For sustaining these trays in parallel position one above the other, there are taper key-holes m formed through the supporting-columns, and taper keys n, which have a bit, n', at the end, (see Fig. 9,) and when this key is inserted through the key-hole and is turned axially, so that its bit prevents it from coming out, said inner end of the key, projecting under the skeleton frame of the tray, as in Fig. 3, supports the same at each of its four corners.

The object of the pulleys or sheaves k' and k<sup>2</sup> is to permit the ropes (after the first space between the columns is filled with trays) to be shifted successively to these other pulleys, as in dotted lines, in order to raise and fix the trays in the spaces between the succeeding columns.

For drying grain, fruit, or other substances which cannot be hung up, a tray, O, of wire-gauze or wire-netting is used, as in Figs. 10 and 1, which has a raised marginal flange around its edge to prevent the materials from falling off.

For quickly unloading the trays of grain,

dried fruit, or other material that will pour or fall off, I construct the sling with a chain, p, with a hook or pin, r, at its lower end, and in the middle line of the end section of the skeleton frame is formed a hole, hook, or other point of attachment for the hook of the chain, and when the tray is to be emptied the hook r on the end of the chain is connected to the tray-frame at its middle point, and the other hooks of the sling being removed at each end the tray is practically suspended upon pivots or trunnions, and may be readily tilted to discharge its contents into a receiver below. This saves labor, and also avoids the necessity of remaining long in the heat of the dry-house.

The drying-house frames as thus described are designed to be built of large or small size to suit the requirements of the farm or ranch, and are adapted to dry the different products raised thereon at the same time.

Having thus described my invention, what I claim as new is—

1. The combination of the guide and supporting-columns A A and the upper and lower horizontal timbers, B C, connected thereto by angle-irons, the grooved rollers k' k<sup>2</sup> k<sup>3</sup>, arranged upon the horizontal beam or plate B in position between the supporting-columns, the rope j, with sling K, the windlass or winding shaft with ratchet and pawl, the trays, and means for sustaining the same in the supporting-columns, substantially as described.

2. The sectional tray consisting of the marginal frame E, with rabbeted sides, and the cross-bars F, having rabbets s and tines g, substantially as shown and described.

3. The combination, with the guide and supporting columns A, having key-holes m, the tray-frames, and the taper keys n, having bits n', substantially as and for the purpose described.

4. The sling K, having chain p, with hook or pin r, in combination with the tray-frame having a middle pivotal point of connection for the chain in its end sections, substantially as and for the purpose described.

GEORGE E. MILLS.

Witnesses:

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 SOLON C. KEMON.