

No. 652,292.

Patented June 26, 1900.

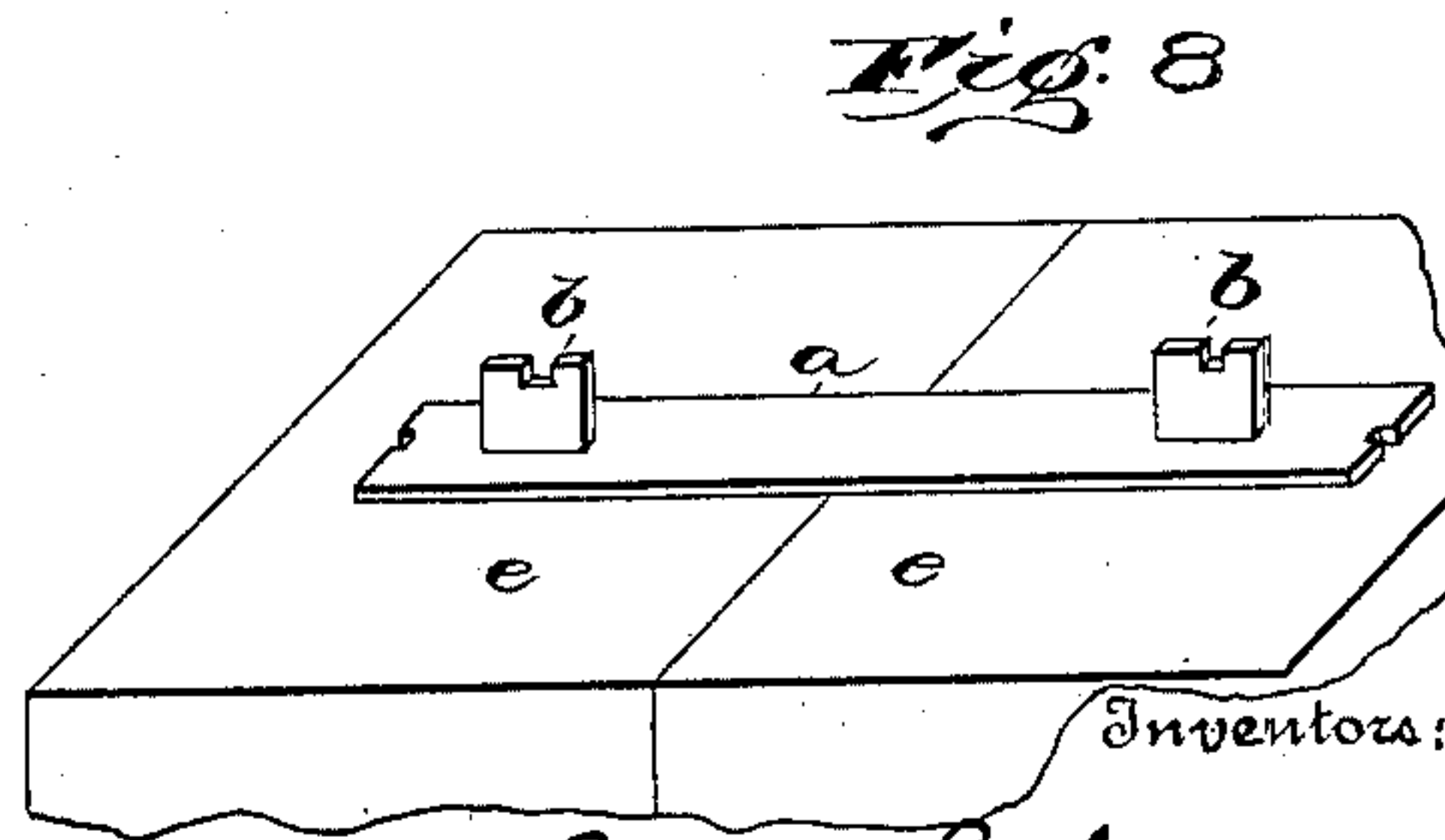
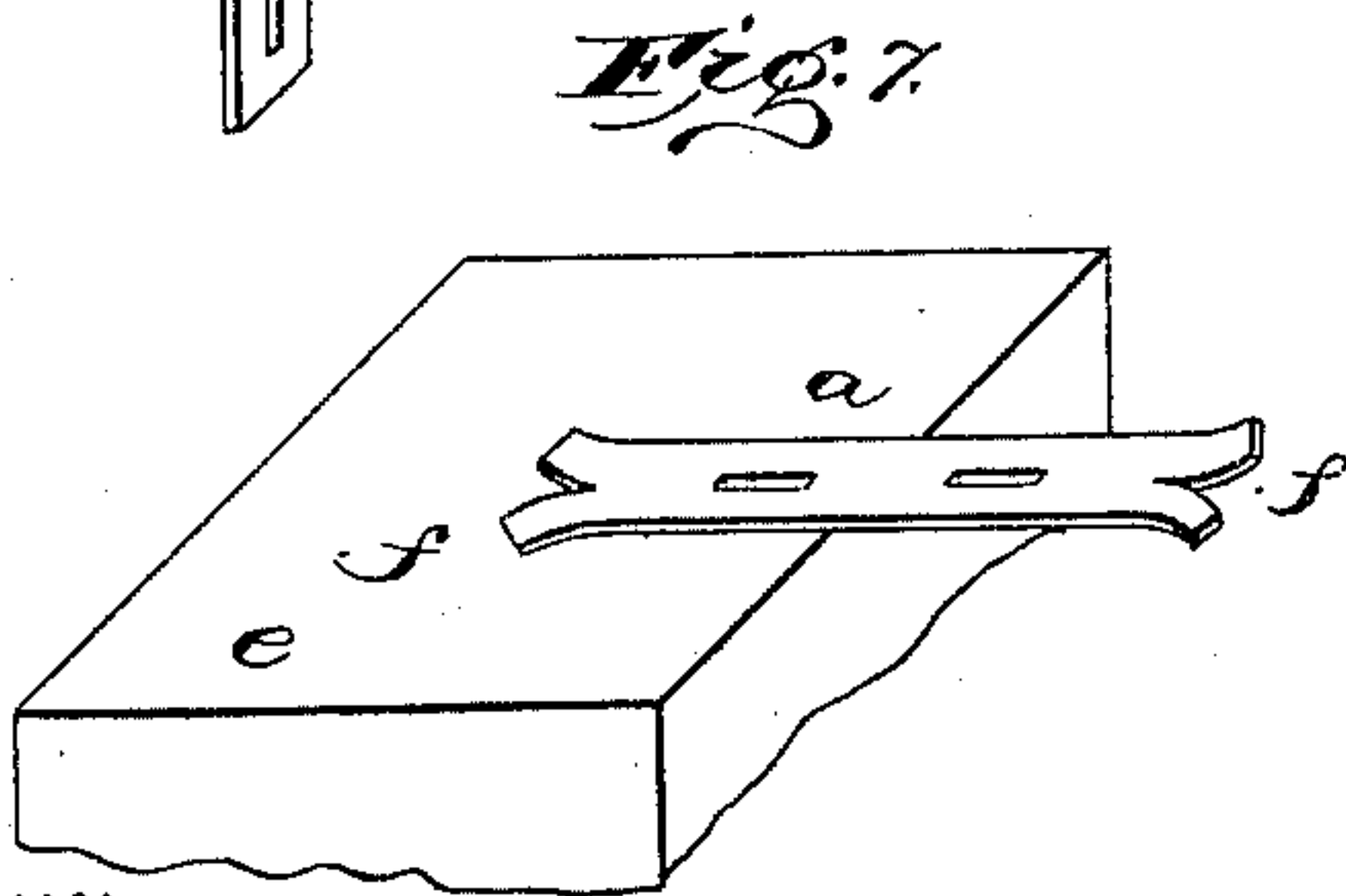
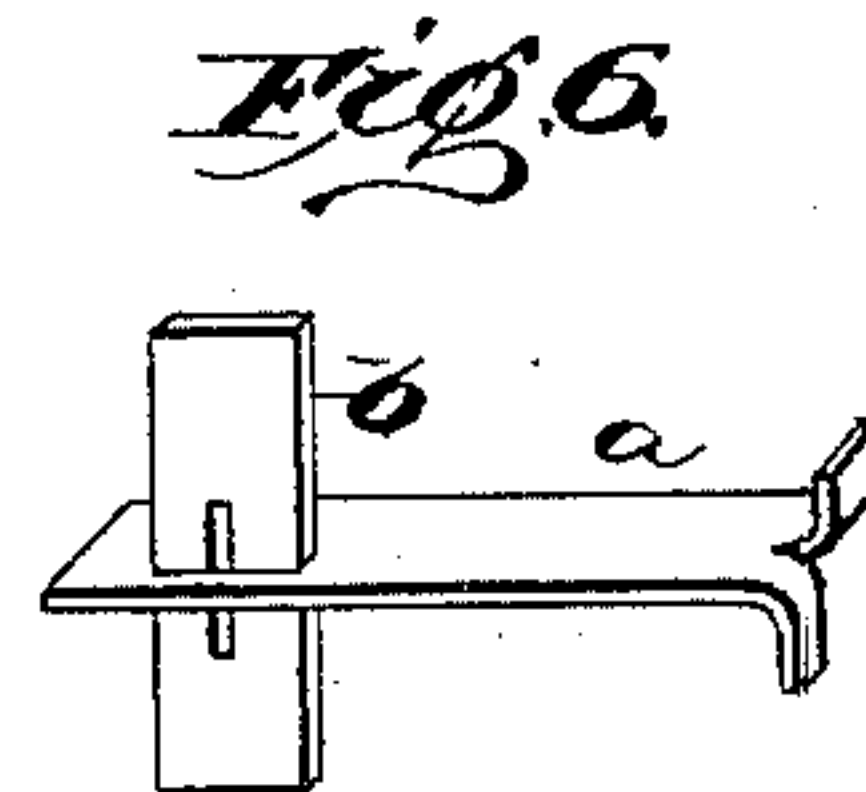
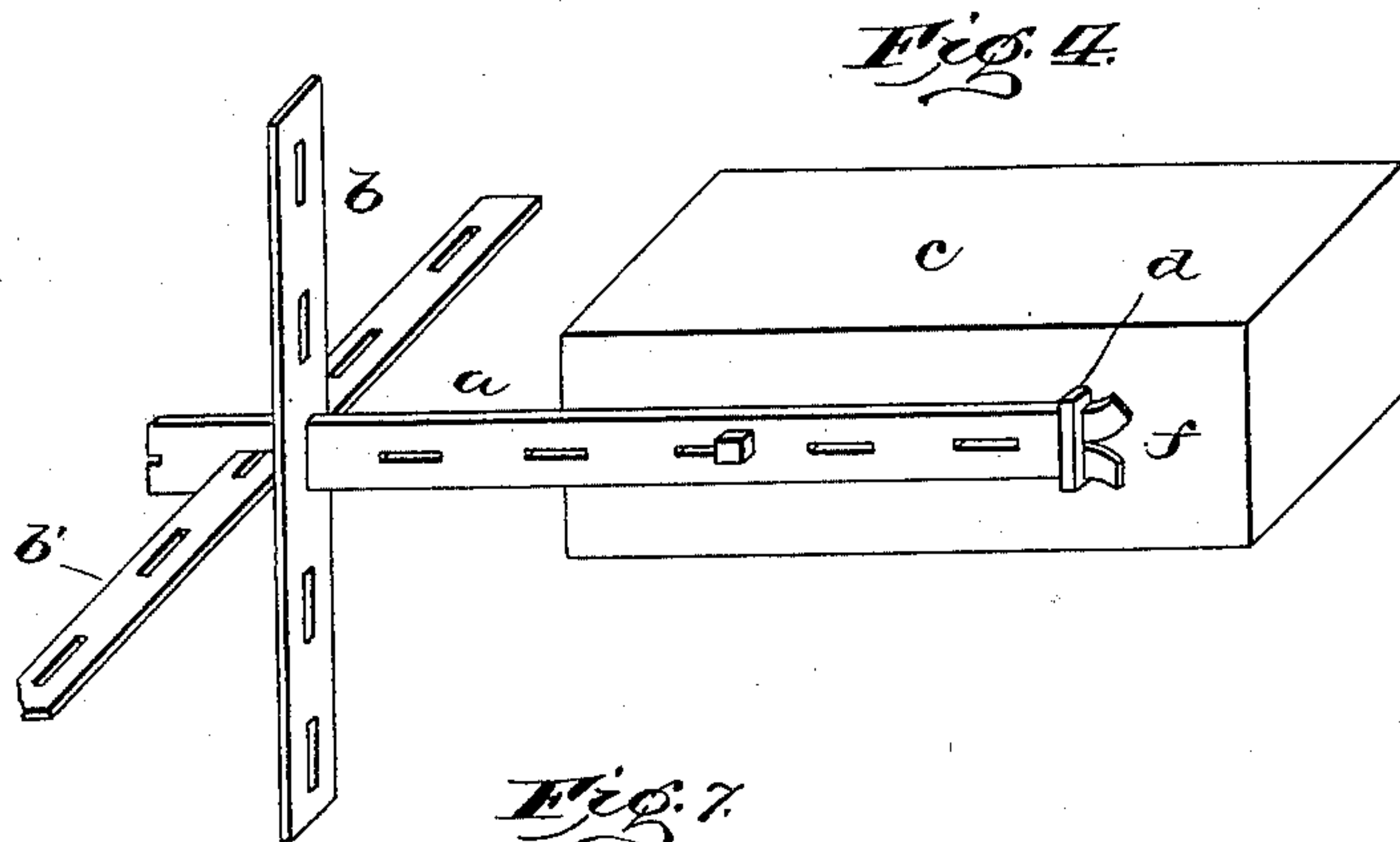
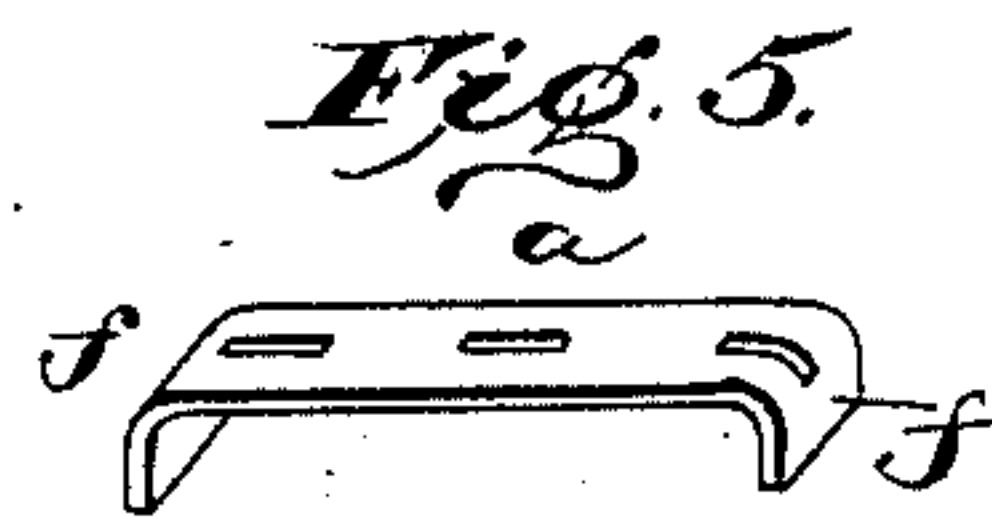
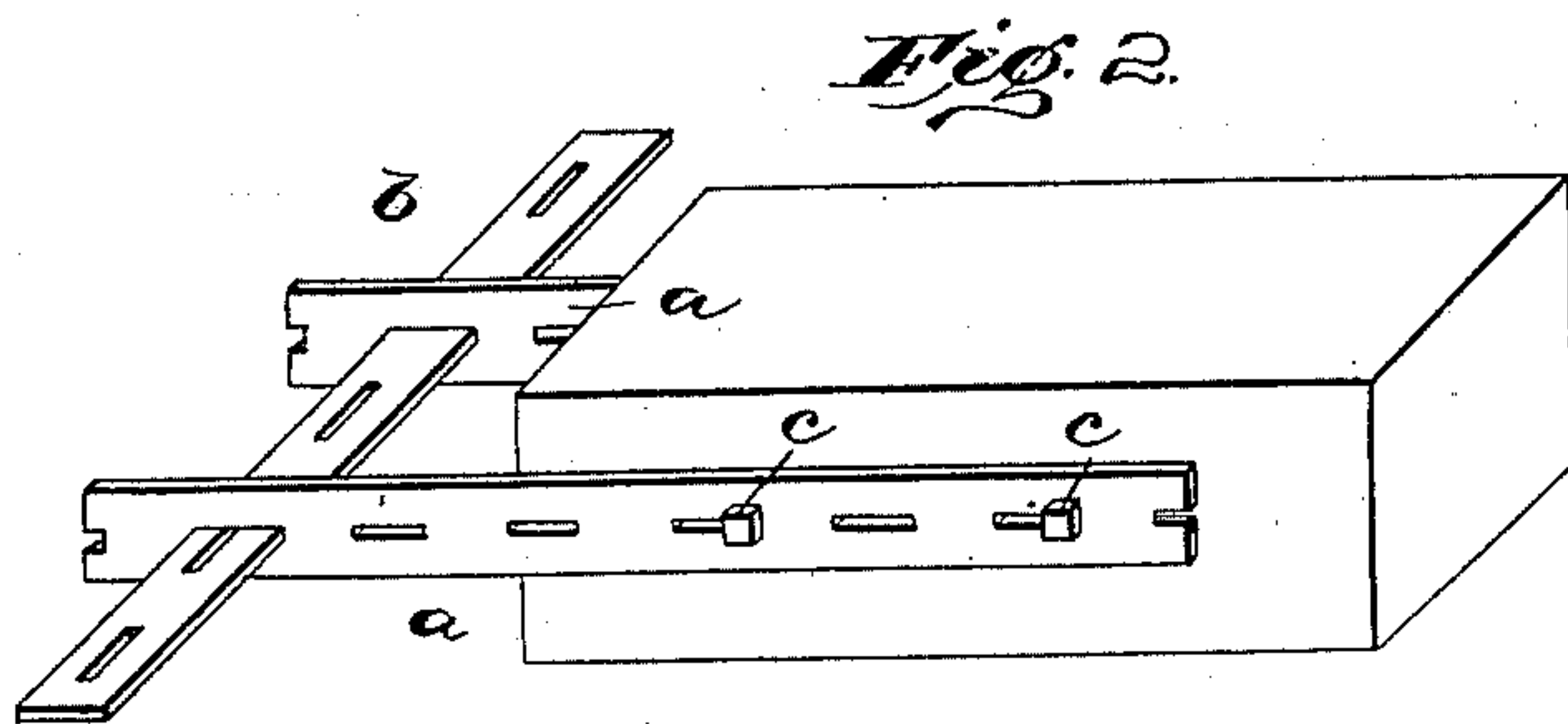
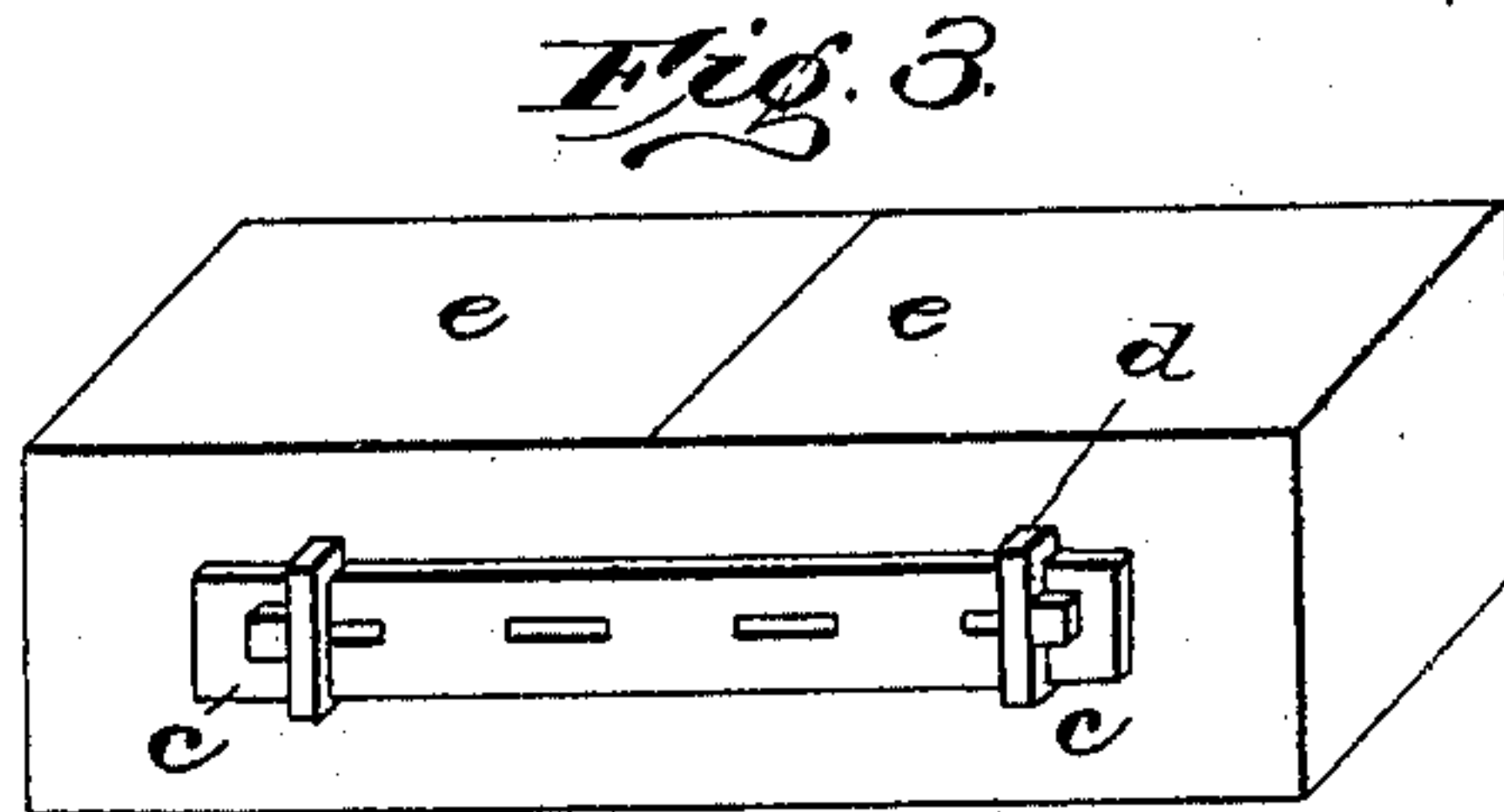
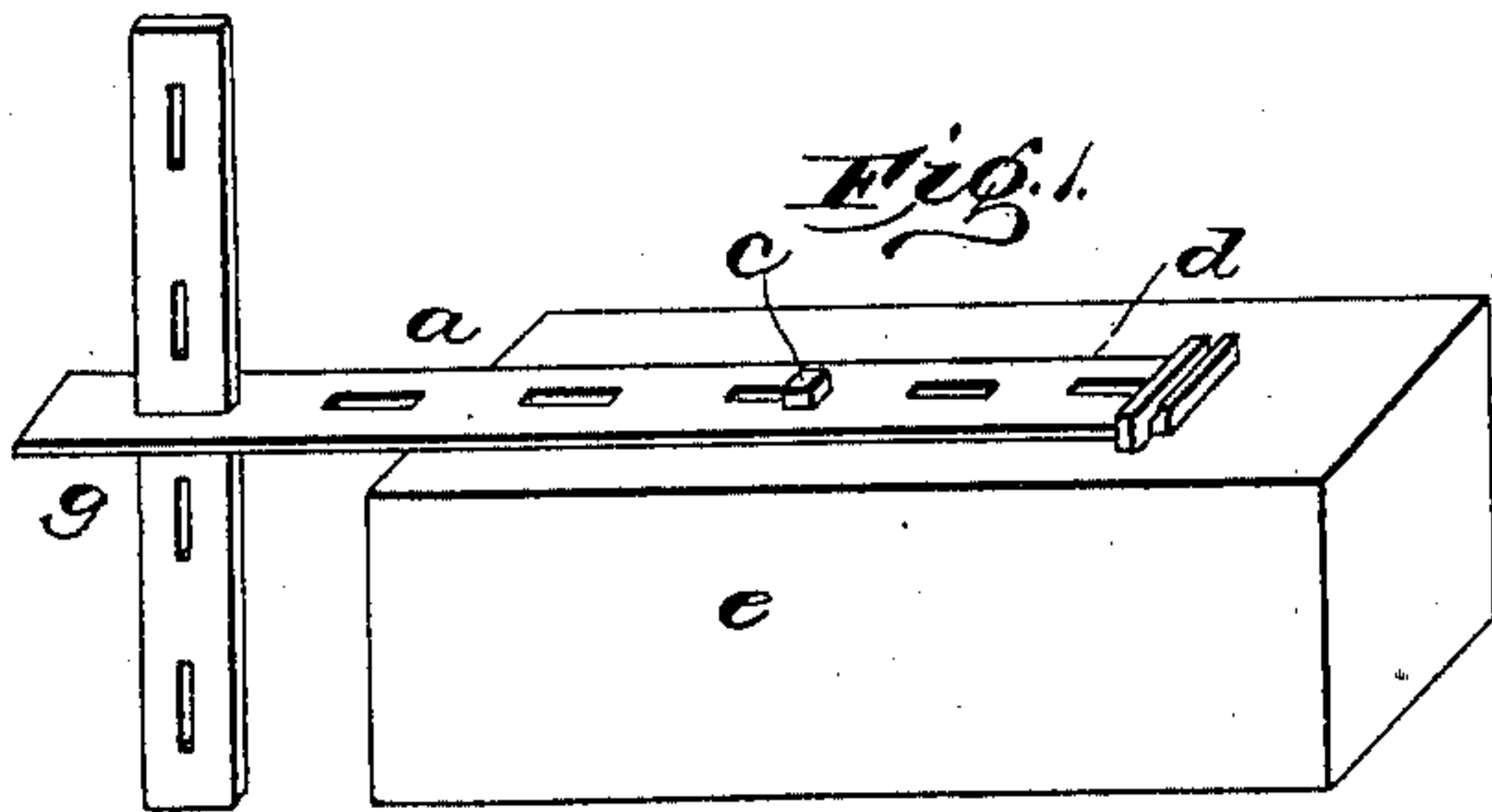
E. SCHILD & F. LOREY.

TIE BAR.

(Application filed Mar. 29, 1900.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

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TIE BAR.

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2 Sheets—Sheet 2.

(No Model.)

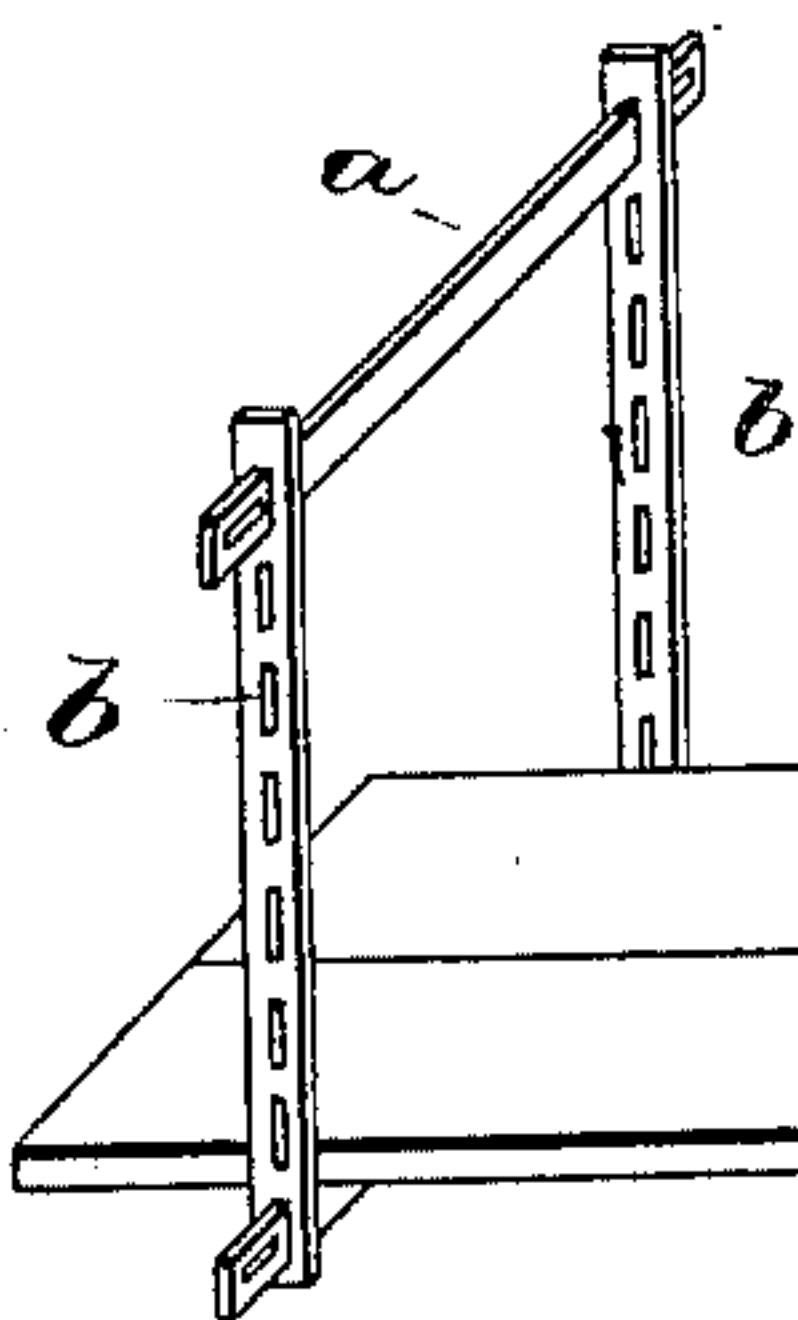
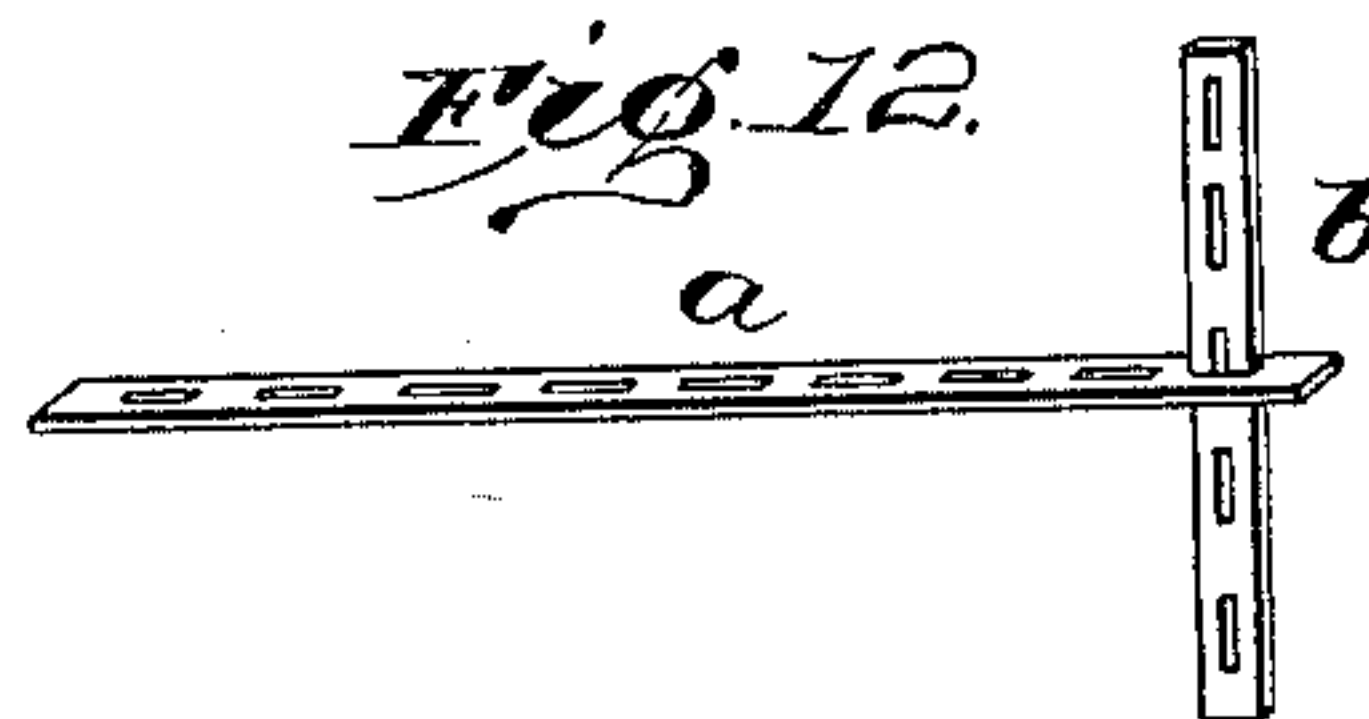
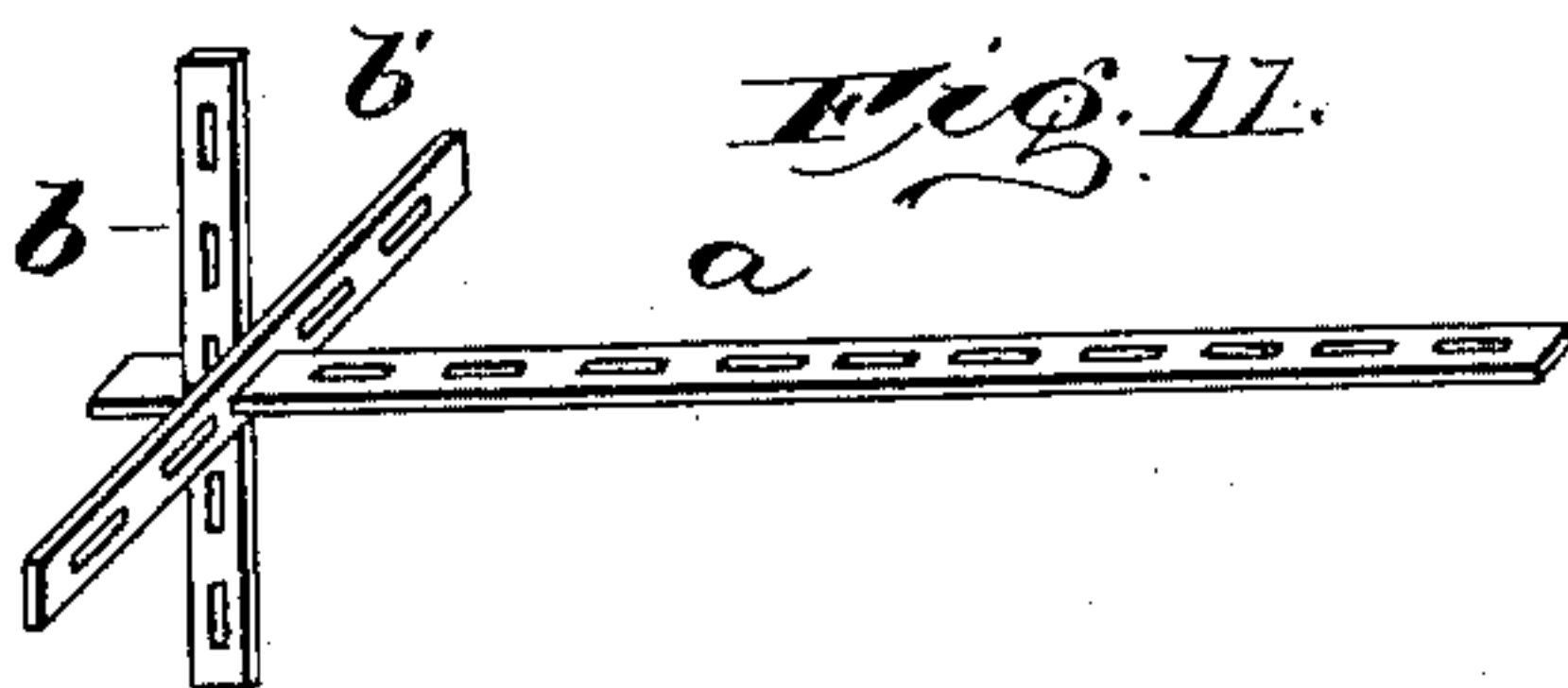
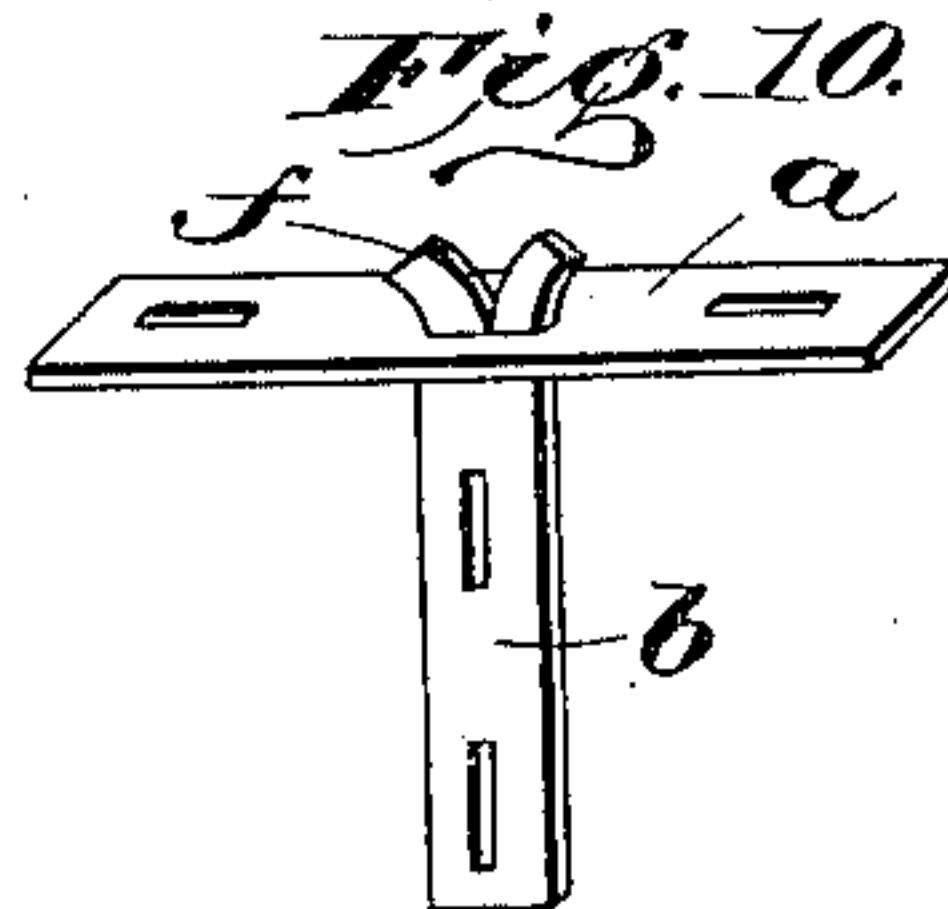
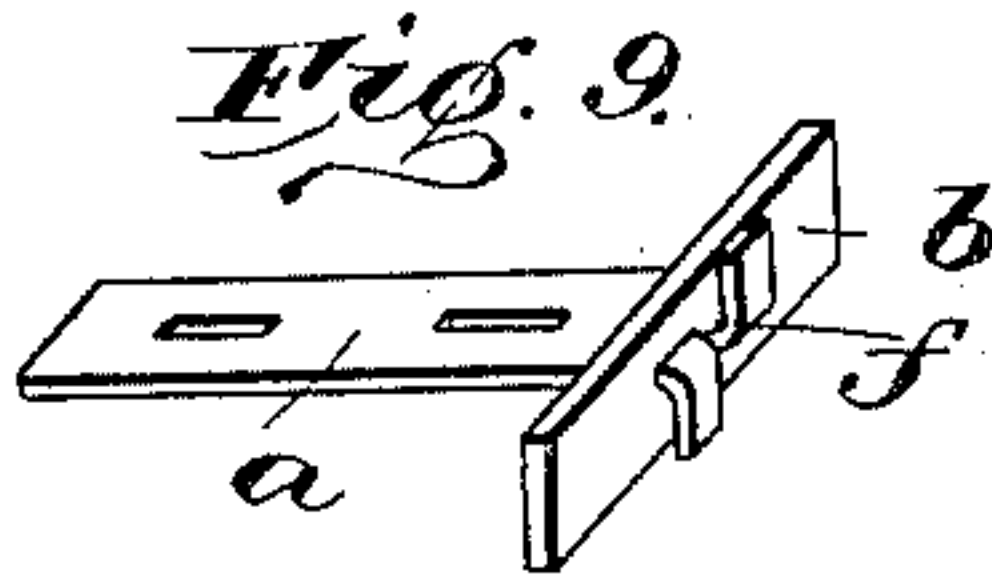
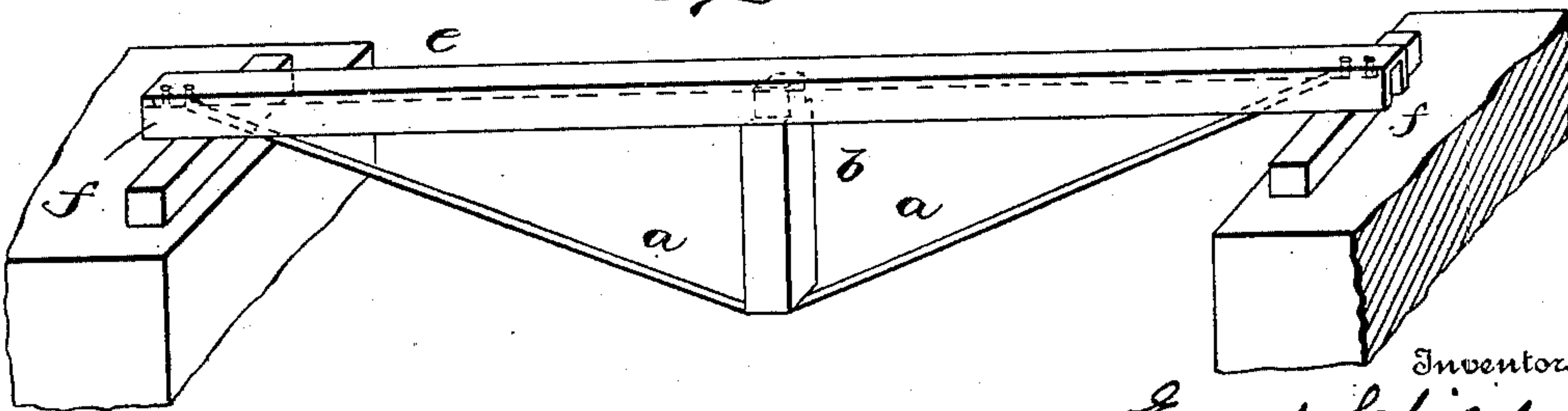


Fig. 13.

Fig. 14.



Witnesses

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# UNITED STATES PATENT OFFICE.

ERNST SCHILD AND FRITZ LOREY, OF DARMSTADT, GERMANY.

## TIE-BAR.

SPECIFICATION forming part of Letters Patent No. 652,292, dated June 26, 1900.

Application filed March 29, 1900. Serial No. 10,703. (No model.)

*To all whom it may concern:*

Be it known that we, ERNST SCHILD and FRITZ LOREY, subjects of the Emperor of Germany, and residents of Darmstadt, Germany, have invented certain new and useful Improvements in Tie-Bars, of which the following is a specification.

The object of this invention is to provide tie bars or bands which are always available for immediate use by operatives in the building trade and which can without the aid of a skilled metal-worker be rendered available for any special or temporary use in building.

The tie bars or bands according to this invention consist of a flat piece or plate of iron of any convenient length provided with longitudinal slots of preferably uniform distances apart, the width and length of these longitudinal slots being equal to the thickness and width, respectively, of the iron plate or flat piece itself.

The said tie bars or bands in accordance with this invention are adapted for all tying or bracing purposes in the building trade, various methods of their applications or employment being illustrated in the accompanying drawings, in which—

Figures 1 to 4 show the manner in which the improved tie bars or bands can be used as a beam-tie. The head or top tie, Fig. 1, consists of two bars or bands of iron. Bar or band *a* is secured to the beam *e* by means of a nail or screw *c* and a cramp-iron *d*. The bar or band is bent at its end *f*, and thereby secured in its relative position on the beam and firmly fastened thereto. Through the last slot of the bar or band *a*, its free end *g*, there is passed a second bar or band *b*, which, together with the beam, is embedded in the wall. In the case of the head tie, Fig. 2, two bars or bands *a* are secured to the beam in the manner described with regard to Fig. 1, or by two nails, as shown, the bar or band *b* being passed through the two tie bars or bands *a* and embedded in the wall, as in the arrangement Fig. 1. Fig. 3 illustrates the employment of the tie bar or band for the purpose of joining two beams end to end. The tie-band is applied to or embedded in the two beam ends and secured by means of cramp-irons *d* and nails *c*. In Fig. 4 the head tie is

shown as being arranged in the shape of a cross, a second bar or band *b'* being inserted crosswise into a slot of the bar or band *a* and serving to strengthen the bar or band *b*. In place of the turned-up end shown in Fig. 1 the bar or band *a* is shown as being cut across one of its slots, the two lugs thus formed being bent outward.

Figs. 5, 6, 7, and 8 illustrate the employment of the tie bar or band in forming stone-clamps, the clamp in Fig. 5 being formed by bending both ends of the bar or band at right angles, while in Fig. 6 the clamp is shown as being hooked at one end only, a second bar or band being inserted at or toward the other end and serving as a dowel. At *f* the bar or band is cut across at a slotted portion, as in the arrangement shown in Fig. 4, one portion of the fork so formed being bent upward and the other portion being bent downward. In the case of the stone-clamp, Fig. 7, the two ends are bent outward laterally in the manner represented in Fig. 4 and secured in the stone *e* by cement. Fig. 8 shows a stone-clamp with two dowels *b*, which are also cemented in the stone.

Figs. 9 and 10 illustrate the connection of two of the said tie bars or bands at right angles to each other.

Figs. 11 and 12 illustrate the use of the tie bars or bands for arches, Fig. 11 representing them arranged as a cross, as in Fig. 4, while Fig. 12 shows an arrangement similar to that shown in Fig. 1.

The serviceability of these tie bars or bands in the erection of temporary structures, as exemplified by Fig. 13, will be readily understood. The bars or bands *a* and *b* may be severally secured against displacement by either of the methods illustrated in Figs. 9 and 10.

Fig. 14 illustrates the employment of the tie bars or bands in trussed-beam structures. The iron bar or band *a*, bent as shown, is secured by its ends *f* to the beam *e* and supports it by means of the vertical strut *h*, thereby imparting increased bearing capacity or tensile strength to the said beam.

The tie bars or beams in accordance with the invention will answer for every tying, bracing, or binding purpose. They consti-

tute universal ties, the constructions shown in the drawings being only examples of the purposes for which they can be used.

We claim—

- 5 A tie-bar consisting of a flat piece of iron provided with longitudinal slots, the width and length of which are equal to the thickness and width respectively of the flat piece itself.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

ERNST SCHILD.  
FRITZ LOREY.

Witnesses:

FRANZ HASSLASHER,  
MICHAEL VOLK.