

(No Model.)

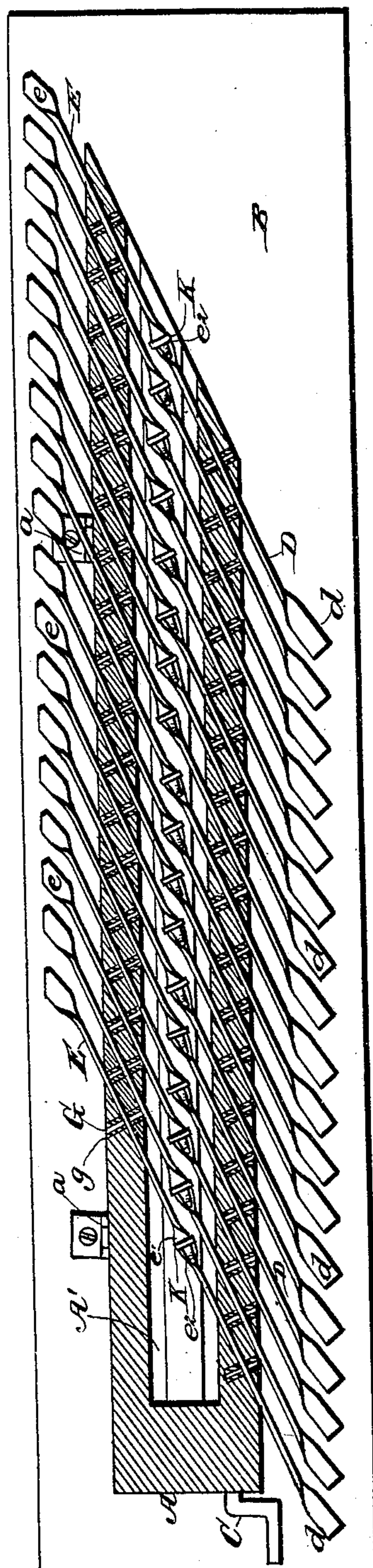
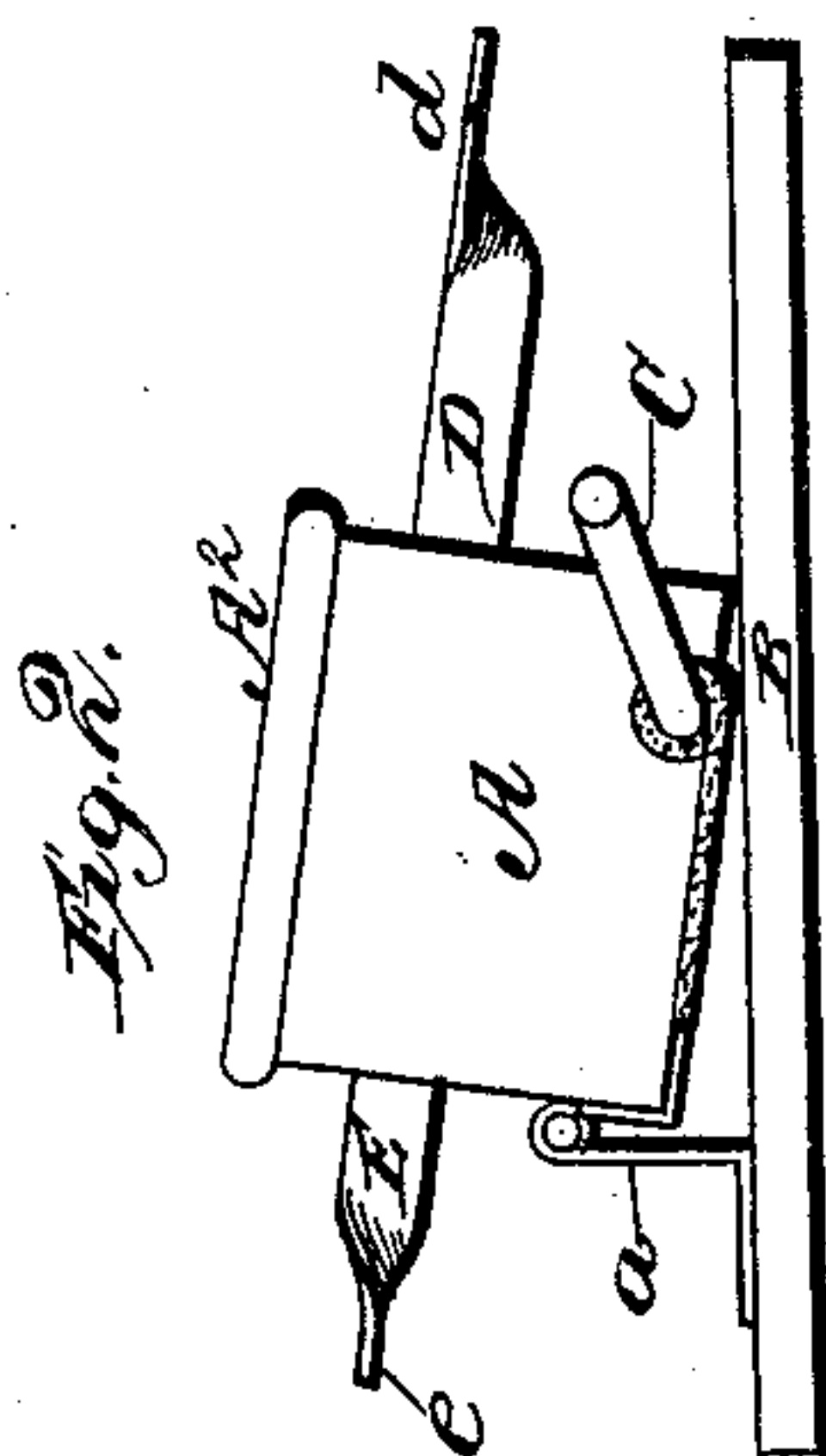
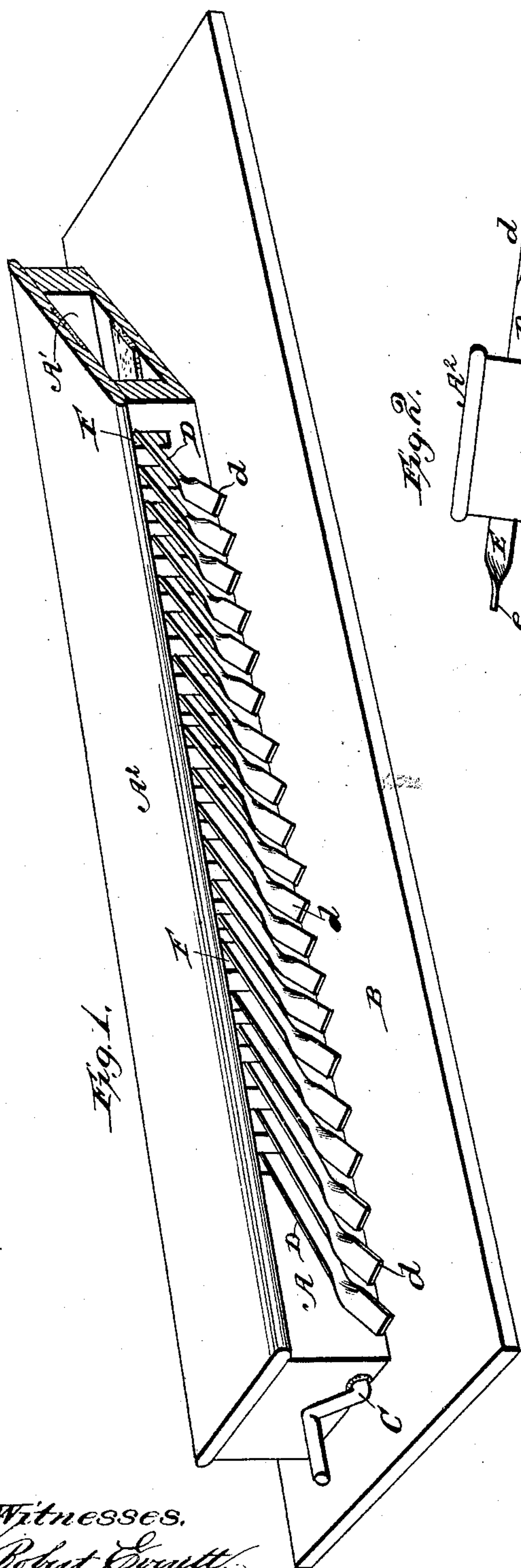
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G. W. INGALLS.

## OCTAVE COUPLER.

No. 246,886.

Patented Sept. 13, 1881.



Witnesses,  
Robert Emmett,  
Edward G. Siggers.

*Inventor.*  
Gustavus W. Ingalls  
By Wm H Babcock Atty

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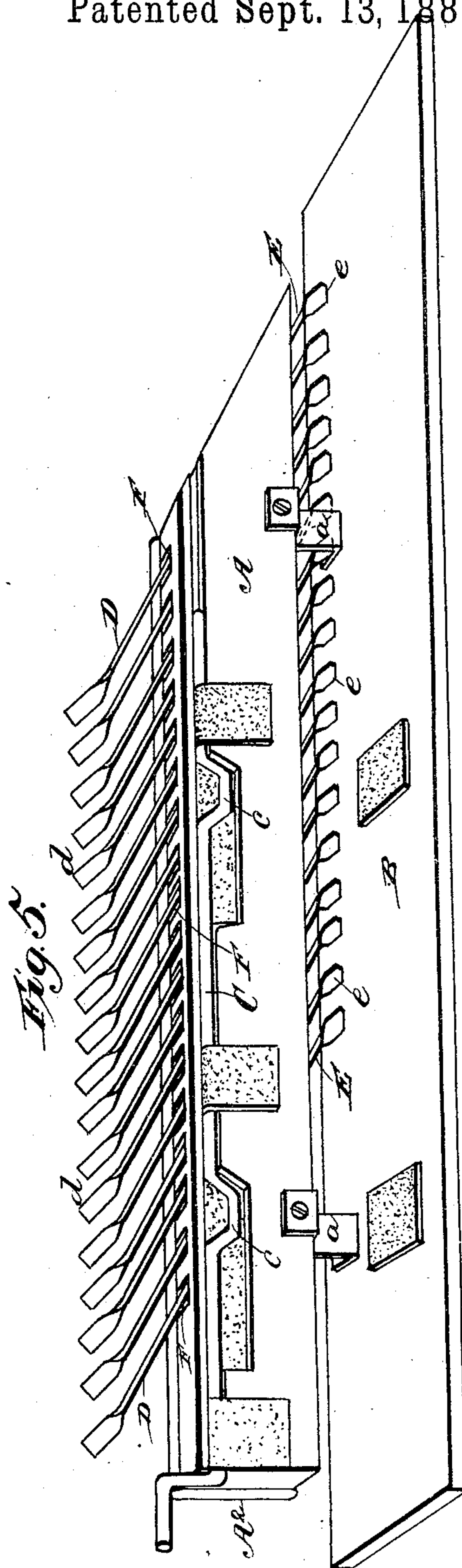
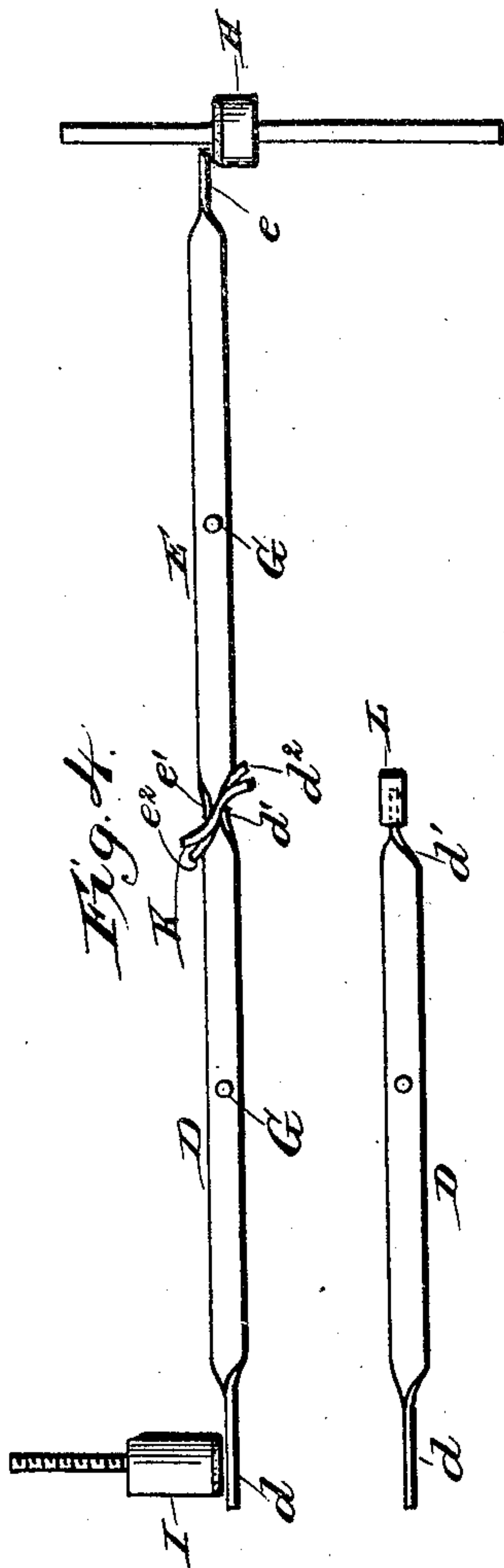
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### OCTAVE COUPLER.

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Robert Everett.

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Atty.



# UNITED STATES PATENT OFFICE.

GUSTAVUS W. INGALLS, OF WORCESTER, MASSACHUSETTS.

## OCTAVE-COUPLER.

SPECIFICATION forming part of Letters Patent No. 246,886, dated September 13, 1881.

Application filed June 4, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, GUSTAVUS W. INGALLS, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Octave-Couplers for Keyed Musical Instruments; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to devices for causing two notes an octave apart to be struck simultaneously on the pressure of a single key.

The said invention consists partly in the peculiar construction of the frame which holds the coupling-levers, partly in the peculiar construction of the levers themselves, and partly in the combination, with said frame, of coupling-levers pivoted therein and arranged in pairs, the levers of each pair being normally in the same longitudinal line.

These improvements will be hereinafter more fully and particularly set forth and claimed. The invention is designed more especially for use in organs, but may be applied, with slight changes, to pianos and other string instruments.

In the accompanying drawings, Figure 1 represents a perspective view of the coupling-levers and frame in position for working. Fig. 2 represents an end view of the same when turned down out of such position. Fig. 3 represents a horizontal longitudinal section through said levers and frame. Fig. 4 represents, in detail, a side view of a pair of coupling-levers, with the button which presses on the one and the pitman actuated by the other; and Fig. 5 represents a perspective view of the levers and frame when said frame is turned back upon its hinges to expose its bottom.

The same letters indicate the same parts in the different figures.

A designates the frame or hollow bar which holds the coupling-levers, and which is connected by hinges *a a* to a horizontal front part, B, of an organ-casing, below the key-board. These hinges allow said frame to be held in

horizontal position, as shown in Fig. 1, or lowered into an inclined position, as shown in Fig. 2, or turned over backward, (for inspection, cleaning, or repairs,) as shown in Fig. 5. It is moved into this last position by hand; but to raise it into the position first named I employ a longitudinal shaft, C, which turns in a suitable recess in the bottom of said frame, at or near the front thereof, and is provided with double cranks *c c*, which, when turned into vertical position, press against said horizontal part B of the organ, and thereby lift the front of the frame to a level with the rear hinged portion. When these cranks are turned out of a vertical position the weight of the front of the frame causes it to descend into the position shown in Fig. 2. Of course, to permit this inclination of the frame, it is necessary that the under straps of the hinges *a* should be raised above part B of the organ, as shown in Fig. 5. When cranks *c c* are turned out of the vertical position they occupy recesses in the bottom of said frame, so as to be flush therewith. The said frame or hollow bar A is constructed with a large passage, A', running from end to end, to leave room for the play of the inner ends of the front levers, D, and the rear levers, E, which are coupled in pairs D and E by flexible straps or packing K in the middle of said passage or space A'. The levers D E of each pair are normally in the same longitudinal line. Broad oblique saw-kerfs F run through said frame from side to side, their width being sufficient to allow the necessary vertical play of the levers, which are pivoted therein on horizontal pins G. Each pin has a bushing, *g*, of cloth or other soft material. The top and bottom of the frame are similarly lined on the inside to deaden the sound made by the inner ends of the levers in striking against the same. The body of said frame is preferably cut from a single block of wood provided with a cap or cover, A<sup>2</sup>, which is fastened thereto in any firm and convenient way. The frame may, however, be made in several pieces, and metal or other suitable material may be substituted for wood therein.

Each lever consists of a metal bar having its outer turned so as to be horizontal, and its inner end curved and pointed. The horizontal outer end, *d*, of each lever D receives, as shown



in Fig. 4, the pressure of a screw-button, I, on the under side of its appropriate key. The inner end,  $d'$ , of said lever is curved downward, so that such pressure causes its convex side to rise against the similar side of the corresponding upwardly-curved inner end,  $e'$ , of the lever E, paired therewith. The rising of this end  $e'$  depresses the flat outer end,  $e$ , of said lever E, and this end  $e$  bears down upon a button, H, on the pitman, which opens the valve that is an octave below or above the valve which is opened by the direct action of the key. Thus a single pressure on said key opens both valves.

When the performer desires to open only one valve at a time, he turns the shaft C so as to let the frame A fall into the position shown in Fig. 2, thereby lowering the outer ends,  $d$ , of levers D out of reach of the buttons I. The inner end,  $d'$ , of lever D has a downwardly-turned hook,  $d^2$ , and the corresponding end  $e'$  of lever E has a similar upwardly-turned hook,  $e^2$ . These hooks pass through holes in a flexible strap or packing, K, already referred to, which serves as a means of attachment of said levers to one another, and also as a pad to deaden their sound when the ends  $d'$  and  $e'$  strike together. It is preferably made of alum-tanned or bark-tanned leather. I also sometimes use, either with or without this packing-strap K, a rubber packing-ring, L, which surrounds the inner end of one of the levers, preferably the end  $d'$  of lever D.

The outer ends of the coupling-levers need not be bent exactly into a horizontal position, or one at right angles to the body of the lever, since a lesser angle forming an inclined face will often suffice. The body of the bar or lever may also be arranged in the same plane with the flat ends, so that no bending or appearance of bending will be required. I prefer, however, the construction shown.

My crank-shaft or shipper being attached solely to the coupler-frame makes the coupler complete in itself. The frame, with attached

crank-shaft and coupling-rods, is manufactured and sold as an entire article, and applied to an organ without any change in the latter.

I am aware that it is not broadly new in octave-couplers to employ two levers having their inner ends connected by a flexible thong, and therefore I do not claim this feature, broadly; but

What I do claim as new, and desire to secure by Letters Patent, is—

1. In combination with a hollow frame or bar, A, a pair of coupling-levers, D E, extending obliquely through said frame and having their contiguous inner ends within the central open space or passage, A', substantially as set forth.

2. In combination with a frame, a pair of coupling-levers pivoted within the same, said levers being normally in the same longitudinal line.

3. In an octave-coupler, the levers D and E, having terminal inner hooks,  $d^2$   $e^2$ , in combination with packing-strap K, which serves as a pad therefor.

4. In an octave-coupler, the levers D E, each having its outer end bent into a plane at right angles to the body of the lever and its inner end curved, substantially as and for the purpose set forth.

5. In an octave-coupler, the levers D E, each consisting of a bar having its outer end bent into a plane at right angles to the body of the lever, their inner ends being arranged to strike together, and guarded by packing, substantially as set forth.

6. A coupler-frame provided with hinges at its rear part, and having a crank-shaft or shipper attached to its bottom, at the front thereof, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

GUSTAVUS W. INGALLS.

Witnesses:

FRANK A. BEANE,  
ELISHA A. SPAULDING.