

No. 616,445.

Patented Dec. 27, 1898.

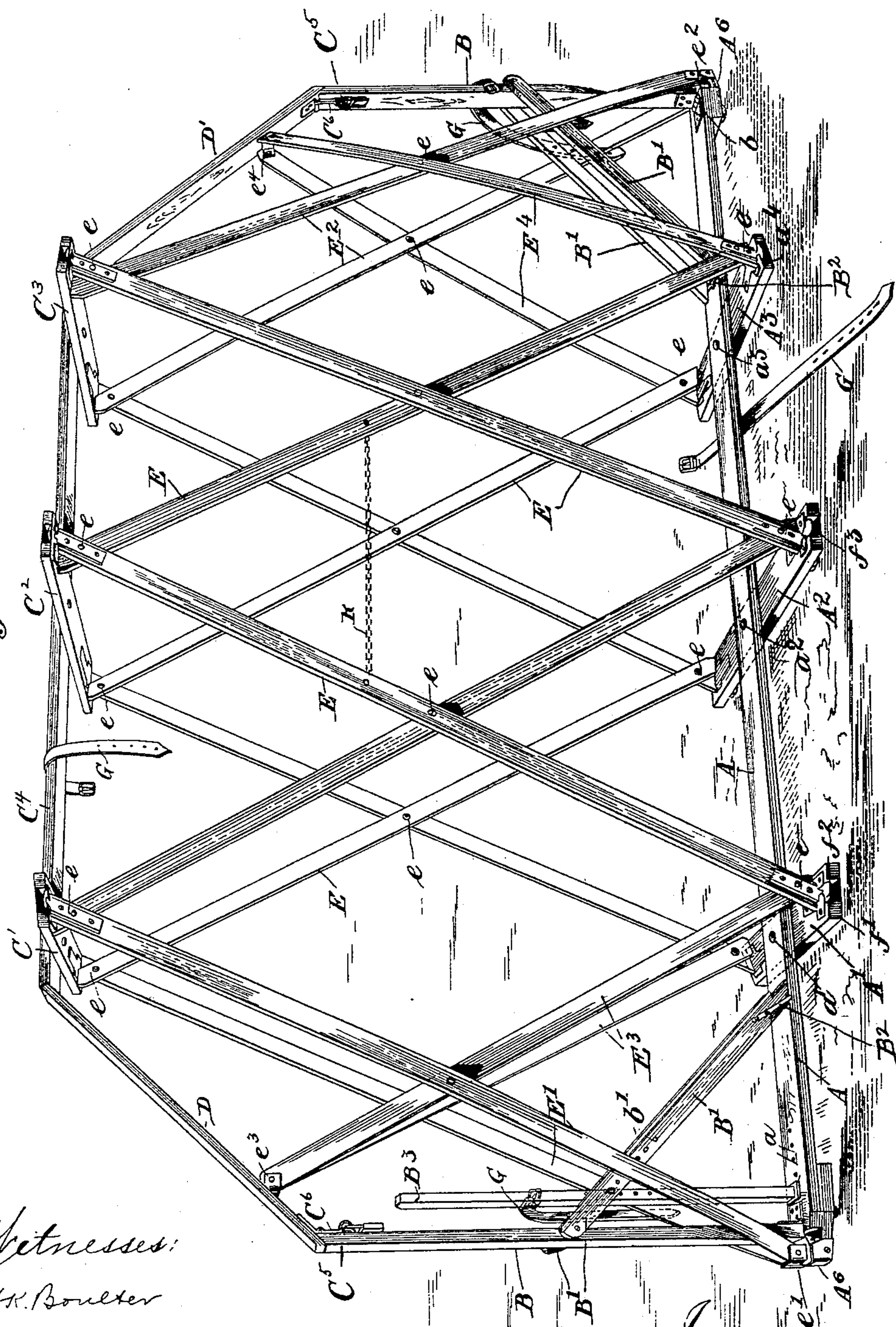
A. E. ANDERSON.
COLLAPSIBLE FOLDING CRATE.

(Application filed Dec. 24, 1897.)

(No Model.)

5 Sheets—Sheet 1.

Fig. 1.



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No. 616,445.

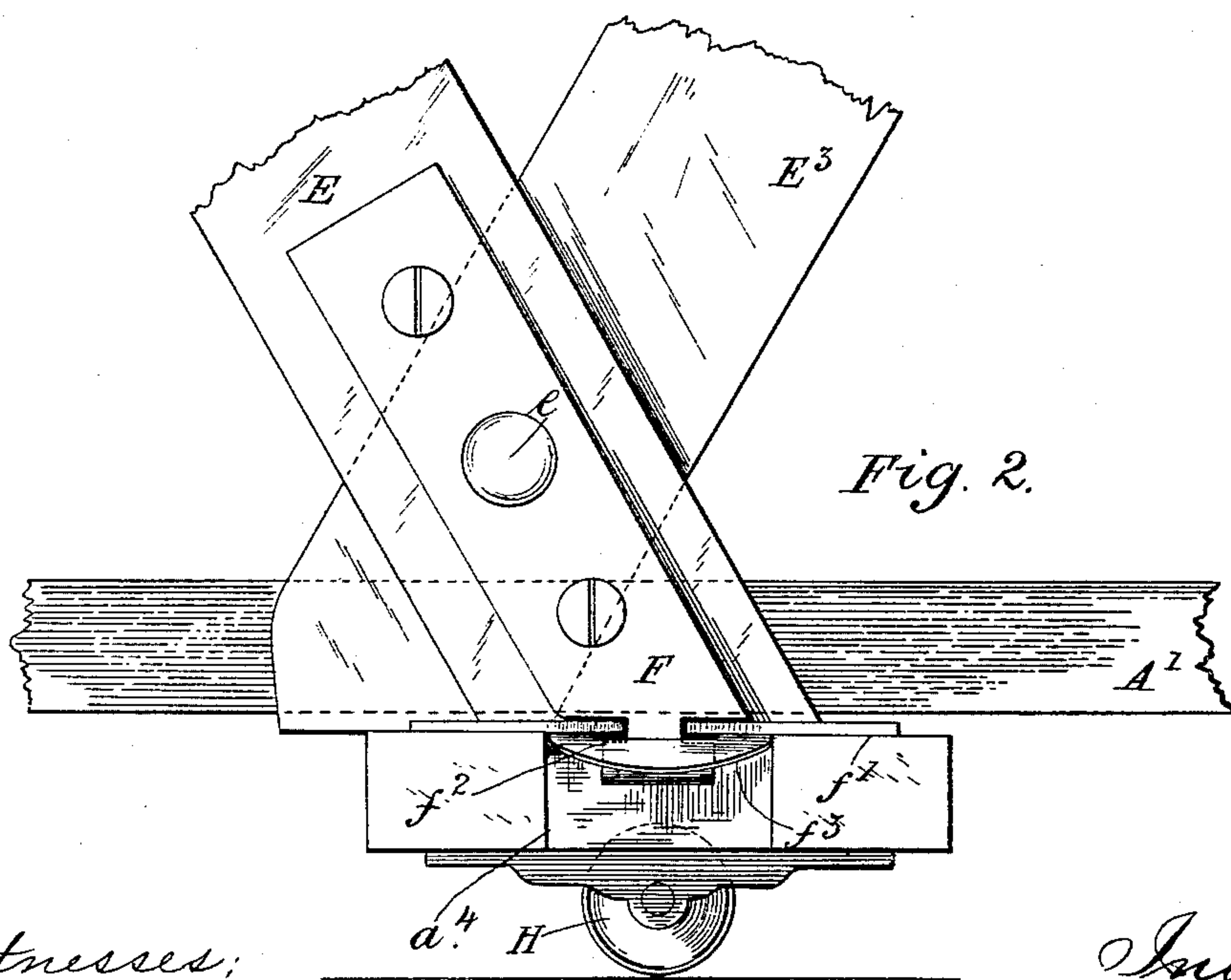
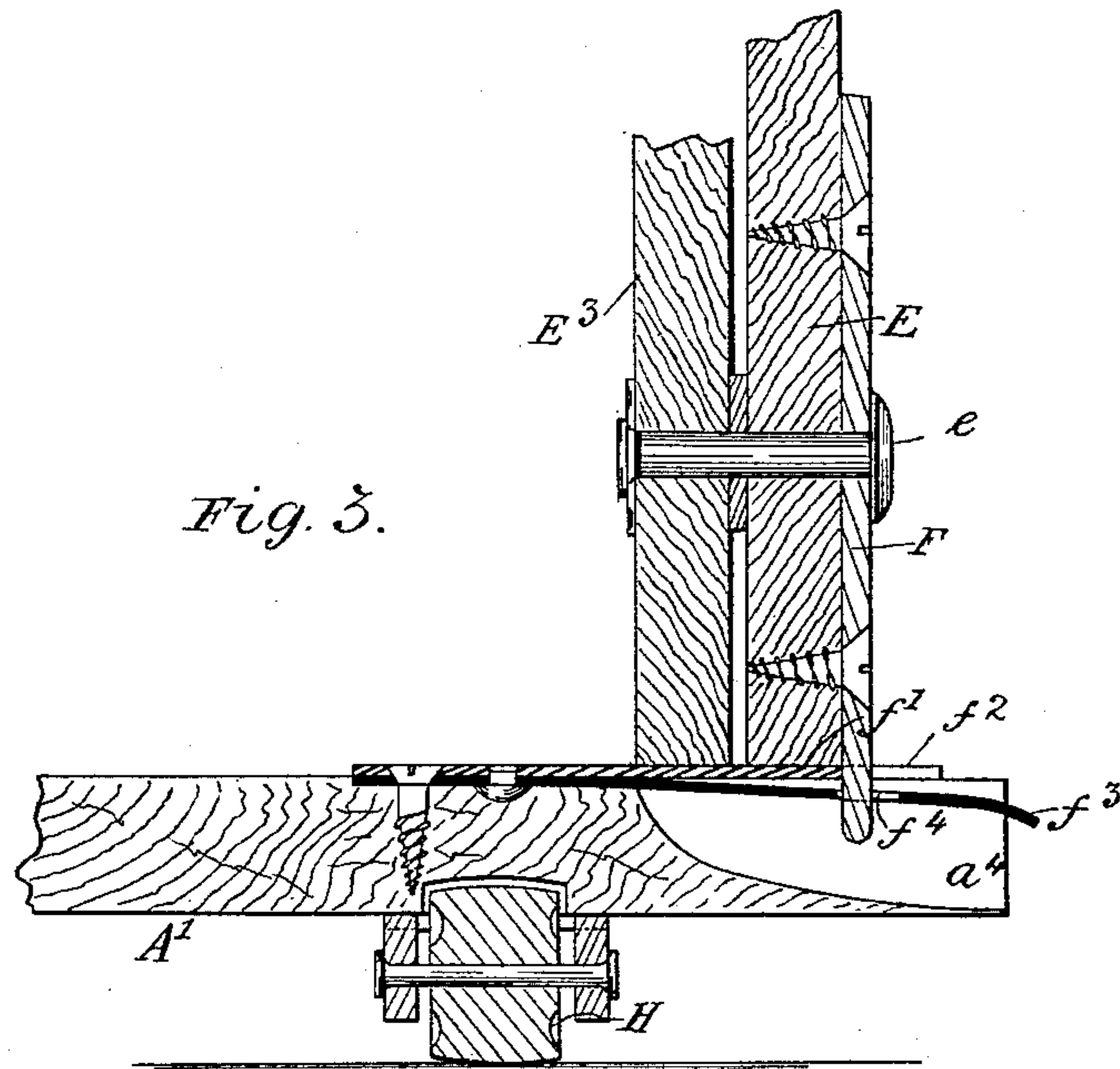
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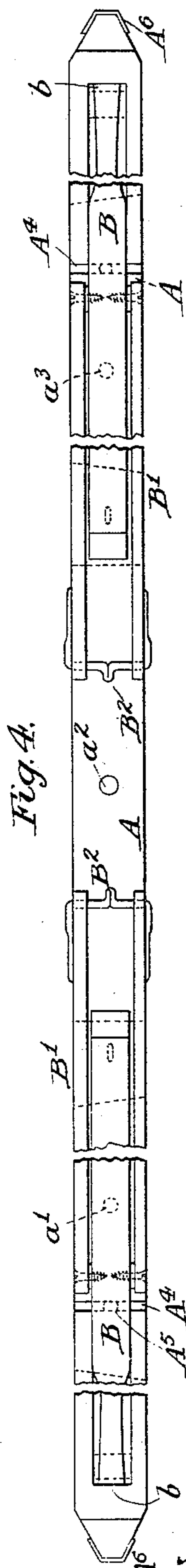
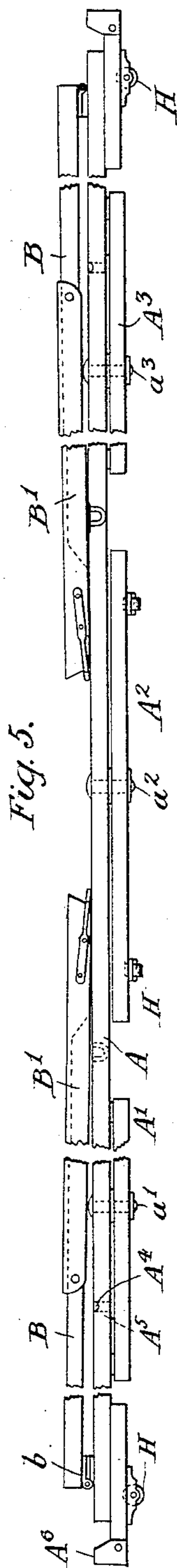
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5 Sheets—Sheet 3.



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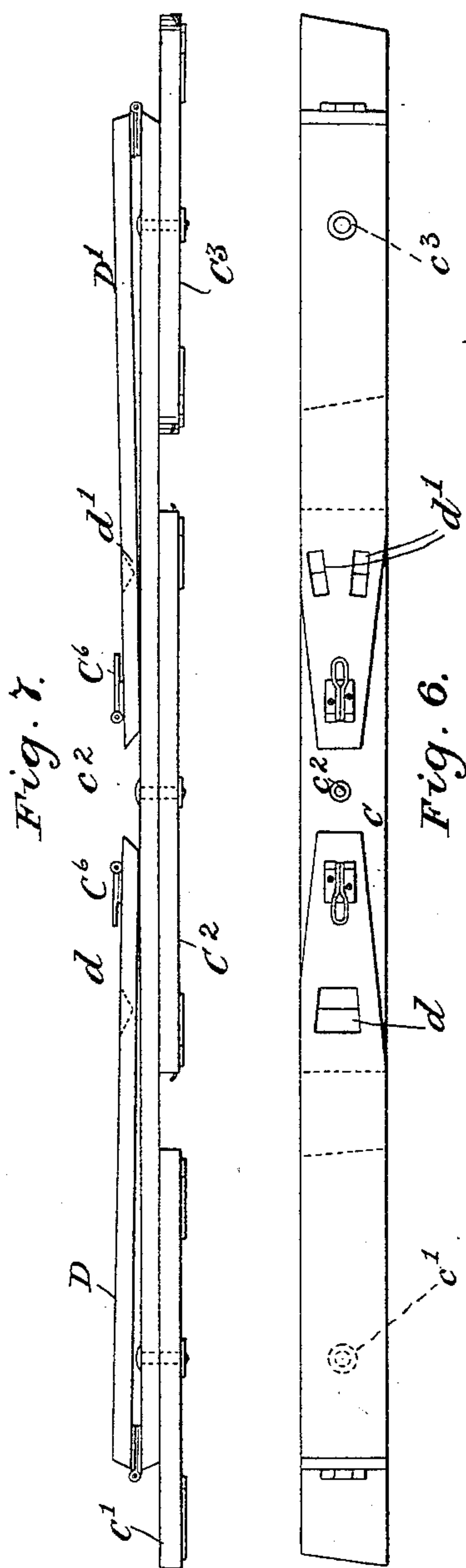
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(No Model.)

5 Sheets—Sheet 4.



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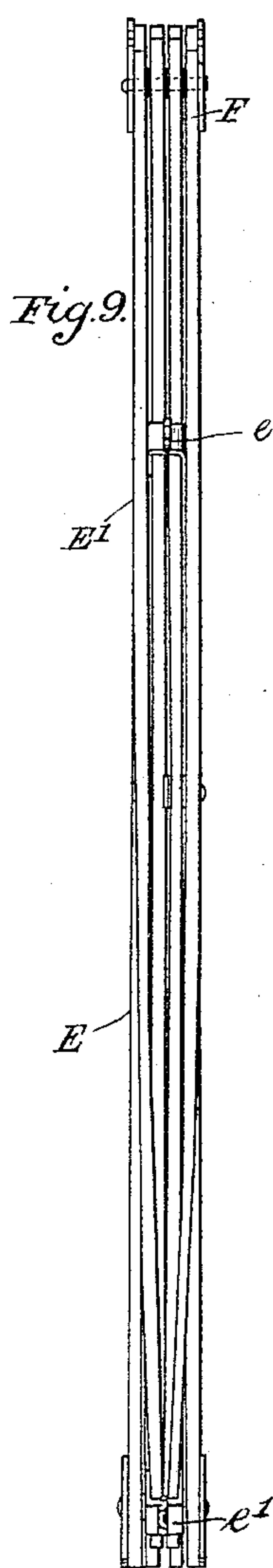
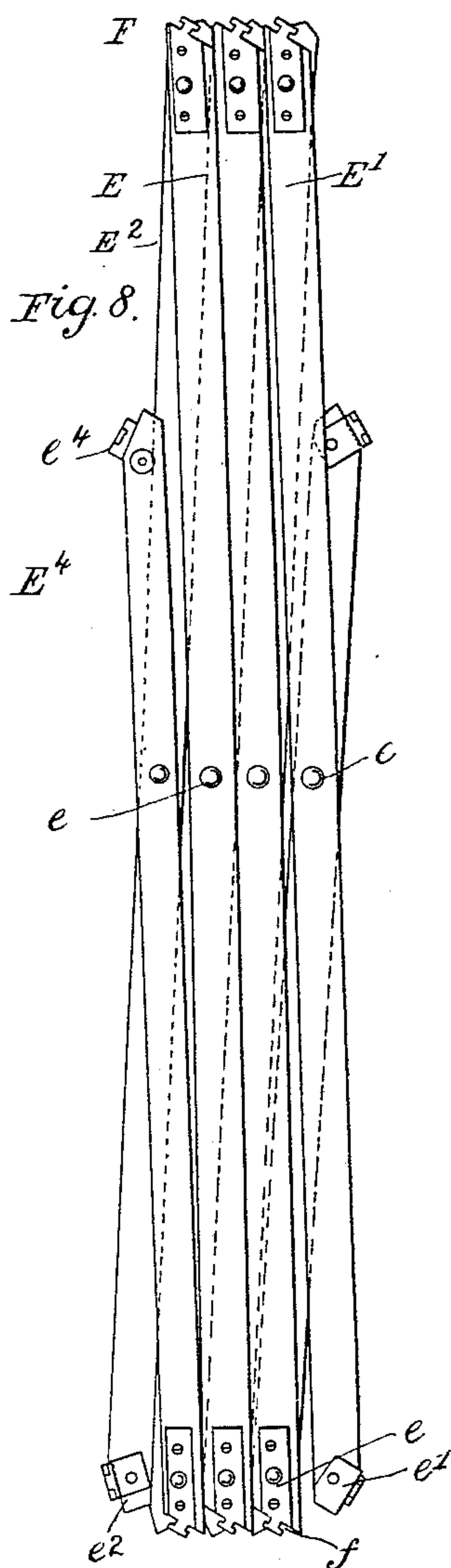
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(No Model.)

5 Sheets—Sheet 5.



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UNITED STATES PATENT OFFICE.

ANTON EDWIN ANDERSON, OF LONDON, ENGLAND, ASSIGNOR TO THE
X CHAIR PATENTS COMPANY, LIMITED, OF SAME PLACE.

COLLAPSIBLE FOLDING CRATE.

SPECIFICATION forming part of Letters Patent No. 616,445, dated December 27, 1898.

Application filed December 24, 1897. Serial No. 663,351. (No model.)

To all whom it may concern:

Be it known that I, ANTON EDWIN ANDERSON, a subject of the King of Sweden and Norway, residing at London, England, have
5 invented a certain new and useful Collapsible Folding Crate, of which the following is a specification.

The object of this invention is to provide a
10 folding or collapsible crate which can be used over and over again and which is sufficiently rigid for all purposes to which it will be applied.

The crate constructed according to this invention may be employed for a variety of
15 purposes and may be varied in general conformation to suit the object or objects it is intended to protect.

In order, however, to make this invention clearly understood, the construction suited
20 to inclose a bicycle will now be described in detail with reference to the accompanying drawings, from which description any construction for other purposes will readily be understood without further description or
25 drawings.

Figure 1 is a perspective view of the complete crate as constructed for a bicycle. Fig. 2 is an enlarged view of the junction between
30 two side members and one bottom member of the crate. Fig. 3 is a sectional end view of the parts shown in Fig. 2. Figs. 4 and 5 show a plan and elevation, respectively, of the foundation or bottom bar and its attached parts when folded; Figs. 6 and 7, a plan and elevation, respectively, of the top bar and its
35 appurtenances when folded; Fig. 8, a side view, and Fig. 9 an end view, of the folded side walls of the crate.

Like letters refer to like parts throughout
40 the drawings.

With reference first to Fig. 1, A is a base or foundation board to which are attached cross-pieces A' A² A³ by pivots at a' a² a³, so that they may be swiveled about these pivots
45 and lie preferably parallel to and under the board A, the distance between the cross-pieces and the length of the cross-pieces being, preferably, such as will permit of this. At each end of the base-board A is an upright member B, hinged at b to the base A, and to each
50 of the members B are hinged two struts B',

whose free ends are united by a metallic piece B² of the shape clearly seen in Figs. 4 and 5. When the crate is put together, as shown in Fig. 1, each of these pieces B² engages with
55 a groove and hole lettered A⁴ A⁵, respectively, in the base-board A, thus preventing the collapse of the two uprights B upon the base.

At each end of the base A is a socket A⁶,
60 which receives the lower extremities of the two end members of the side framing, as will be hereinafter explained.

At each end of each of the transverse members A' A² A³ is a socket of special construction, (shown more clearly in Figs. 2 and 3,) to which further reference will be made hereinafter.
65

The top board C is not unlike the base-board A, having transverse pivoted members
70 C' C² C³ corresponding in number and position with the transverse pieces of the base and having at each end a hinged arm D or D'. The hinges by which these arms are attached are on the upper face of the top board
75 C, as is clearly shown in Figs. 6 and 7. In the arm D is a recess d and in the arm D' two recesses d', into which the upper extremities of the end members at the respective ends of the side framing enter. The side framing is
80 composed of bars E, preferably of wood, pivotally secured together at their middle points after the manner of lazy-tongs or lattice-work at e. The two terminal bars E' are supported at their lower ends by the base A, into the
85 socket A⁶ of which their lower ends, united by a hinge e', Figs. 1 and 8, enter. The bars E² are similarly hinged at e² and supported by the other socket A⁶. The other terminal bars E³ and E⁴ are supported by the cross-
90 pieces A' A³, respectively, their upper ends entering the recesses d d', respectively. The bars E³ are hinged together at e³ and the bars E⁴ at e⁴, the hinges being pivotally secured to the bars, as are also the hinges e' e² to the
95 bars E' E². The hinge e⁴ has longer leaves than the hinge e³, said leaves being also bent so as to allow the bars E to fold close against and partly embrace the adjacent bars, to the outer faces of which they are attached.
100

Beyond the above-described exceptions the ends of all the bars forming the side framings

are provided with T-shaped feet F, adapted to enter and be retained by sockets in the transverse pieces on the base and top boards. The construction of these sockets is as follows: The end of the bar which is to receive foot F is hollowed out, as at a^4 , (see Figs. 2 and 3,) and the hollow is covered by a metallic plate f' , having an open slot f^2 sufficiently wide to allow the entry of the neck of the foot F only. The head of the foot F is therefore held against vertical motion by the plate f' . A spring f^3 is provided, which has a slot f^4 in it, and the end of the head of the foot F depresses the spring f^3 as it enters the hollow a^4 until the head is above the slot f^4 , into which it enters, allowing the spring f^3 to rise, and so retain the foot F against lateral movement.

To erect the crate, the base-board A is placed, say, on the ground, the uprights B raised into position and supported by the bars B' , which are swung down, and the pieces B^2 inserted in the groove and hole $A^4 A^5$. The side framing is then expanded from its shape shown in Fig. 8 and placed in position on the base-board, the sockets A^6 receiving the lower ends of the terminal bars, as hereinbefore explained, and the lower ends of the remaining bars snapped into the sockets on the transverse pieces $A' A^2 A^3$, which are swiveled into their position shown in Fig. 1 from that shown in Figs. 4 and 5. The top bar C^4 is placed in position in a similar manner after the bicycle has been placed in the crate, the transverse pieces C' , C^2 , and C^3 being provided with sockets having spring-catches similar to those on the bars $A' A^2 A^3$. The top may be secured in position by padlocking, as at C^5 , or otherwise securing the bars $D D'$ to the uprights B, said bars $D D'$ being provided with hasps, as C^6 , which fit over staples in the uprights B, and the hasps of the padlocks being passed through said staples. Straps G and rollers H may also be provided, the former to retain the bicycle in position and the latter to facilitate removal from place to place. A chain K may be attached to two of the members E, so as to be stretched between them when the crate is erected. This prevents the side framing from opening too much during the operation of erecting.

In order that the crate may accommodate bicycles of various lengths, a movable upright B^3 may be added, having a pin at its lower end, which may be inserted into one or another of a series of holes a in the base A. Holes b' are in this case made in the struts B' , with which holes in the bar B^3 correspond and through which a split pin or the like may be passed to retain the bar B^3 in position.

Although the above description and the accompanying drawings have reference only to a crate intended to receive a bicycle, the general contour of the crate may obviously be varied in any desired manner to suit various objects to be inclosed without depart-

ing from the spirit of this invention, and it is to be clearly understood that the construction of crates according to this invention is not limited to those intended for bicycles only, but may be applied to crates intended for a variety of purposes.

In a crate constructed according to this invention the top and bottom members or either may be formed of a rigid non-collapsible or non-folding bar, to which the collapsible lattice-frames may be attached in any desired manner. The invention is therefore not limited to the construction of crate illustrated in the accompanying drawings, although that construction is preferred.

I claim—

1. In a collapsible crate, the combination with base and top boards, and transverse pieces pivotally connected therewith as described, of side pieces pivotally connected together, and having a detachable connection at opposite ends with the said transverse pieces, for the purpose specified.

2. In a collapsible crate, the combination with base and top boards, of side pieces pivotally connected together to form two lattice-work frames detachably connected with the base and top boards, and said frames being hinged together at their ends, as described.

3. In a collapsible crate, the combination with base and top boards, of uprights hinged at one end to the base-board and detachably connected at the opposite end with the top board, and side pieces pivotally connected together to form two lattice-work frames detachably connected with the base and top boards.

4. In a collapsible crate, the combination with base and top boards, and bars D, D' hinged at one end to the top board, of uprights hinged at one end to the base-board, and detachably connected at the opposite end with the other end of the said bars D, D' , and side pieces pivotally connected together to form two lattice-work frames detachably connected with the base and top boards.

5. In a collapsible crate, the combination with base and top boards, of uprights hinged at the lower end to the base-board, struts B' pivoted at one end to the uprights and adapted to bear at the opposite end against the base-board, a connection between the upper ends of the uprights and the top board, and side pieces pivotally connected together to form two lattice-work frames detachably connected with the base and top boards.

6. In a collapsible crate, the combination with base and top boards, of uprights hinged at the lower ends to the base-board, struts B' pivoted at one end to the uprights, pieces as B^2 secured to the opposite end of the struts and adapted to detachably engage within recesses in the base-board, a connection between the upper ends of the uprights and the top board, and side pieces detachably connected with the base and top boards.

7. In a collapsible crate, the combination with base and top boards, of side pieces de-

tachably connected with said boards, and an upright carried by and adapted for horizontal adjustment along the base-board, as and for the purpose specified.

5 8. In a collapsible crate, the combination with base and top boards, of uprights B, a connection between the latter and the base and top boards, struts B' secured at one end to the uprights, and an upright B³ carried by and
10 adapted for horizontal adjustment along the base-board, and means for detachably securing said adjustable upright to the struts and base-board at various adjustments of said upright, and side pieces detachably connected
15 with the base and top boards.

9. In a collapsible crate, the combination with base and top boards, of side pieces pivotally connected together and detachably connected with the base and top boards, and a

flexible connection K between said side pieces 20 as and for the purpose specified.

10. In a collapsible crate, the combination with base and top boards, of cross-pieces connected with said boards and provided in their ends with recesses, plates secured to the cross- 25 pieces and having open slots, and leaf-springs having slots registering with the open slots of the plates, and side pieces having T-shaped ends adapted to detachably engage within the slots of the springs and plates, as described 30 and for the purpose specified.

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

ANTON EDWIN ANDERSON.

Witnesses:

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JOSEPH LAKE.