

(No Model.)

2 Sheets—Sheet 1.

C. CLARKE.
SPIRAL STAIRWAY.

No. 432,599.

Patented July 22, 1890.

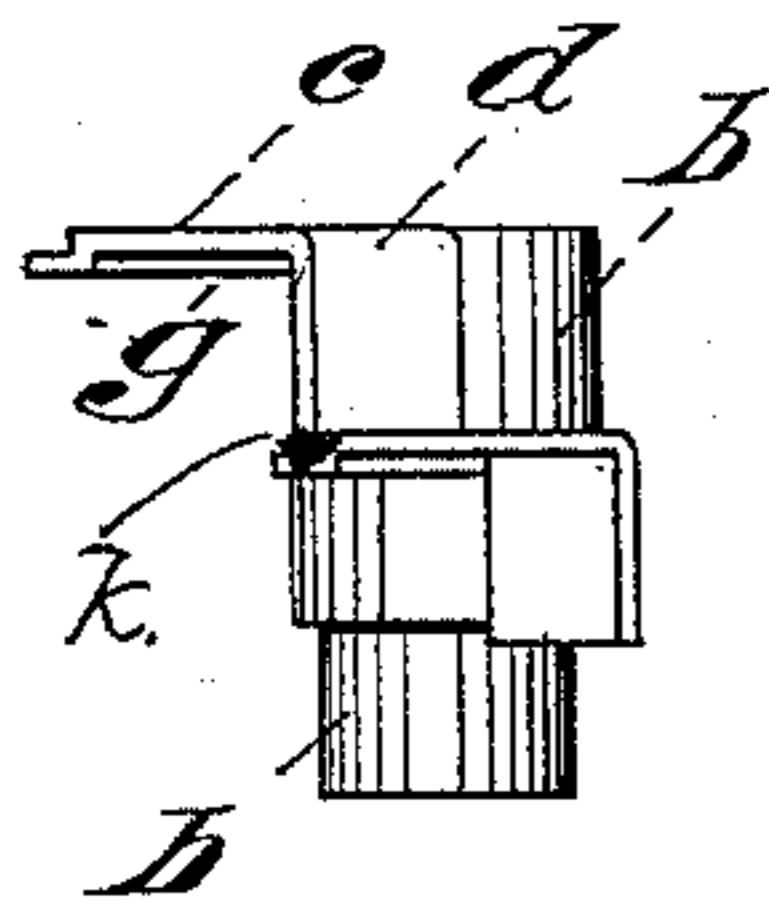
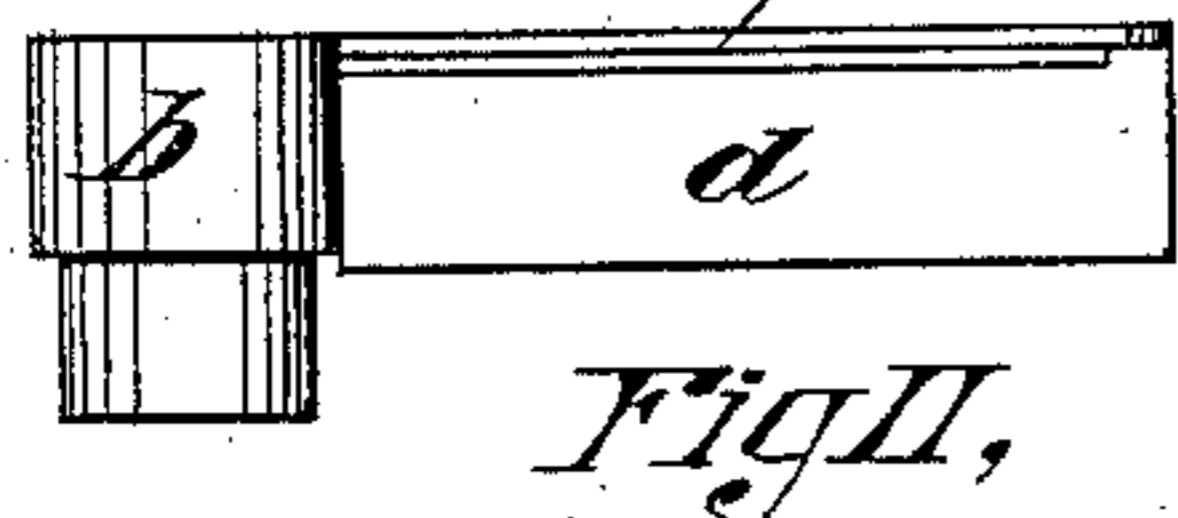
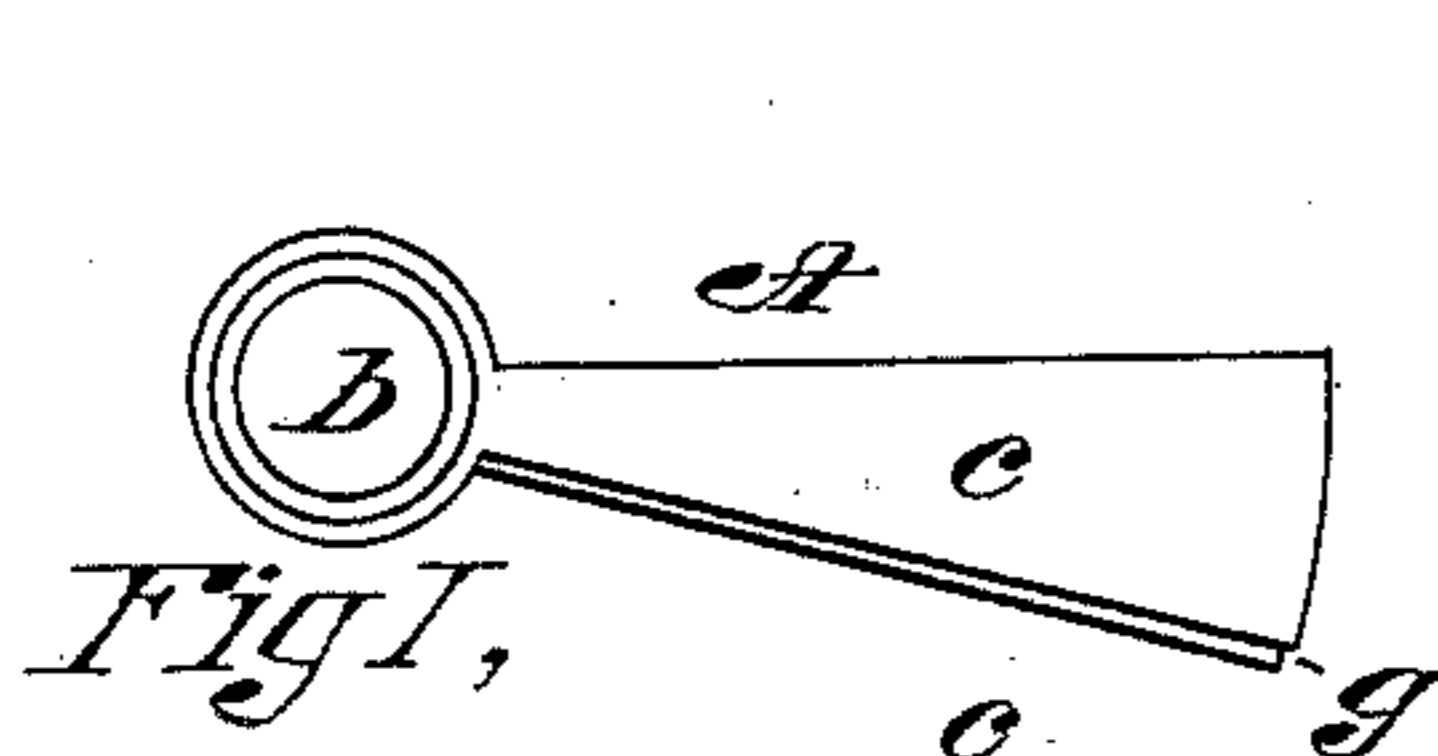


Fig IV,

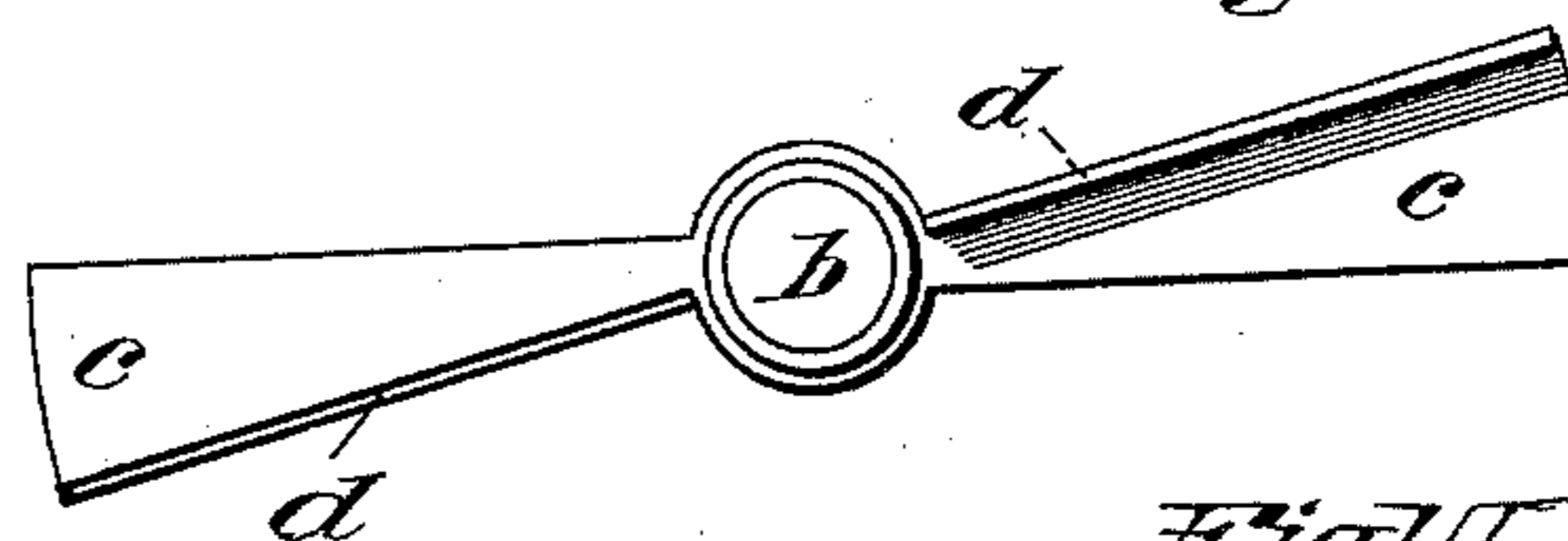
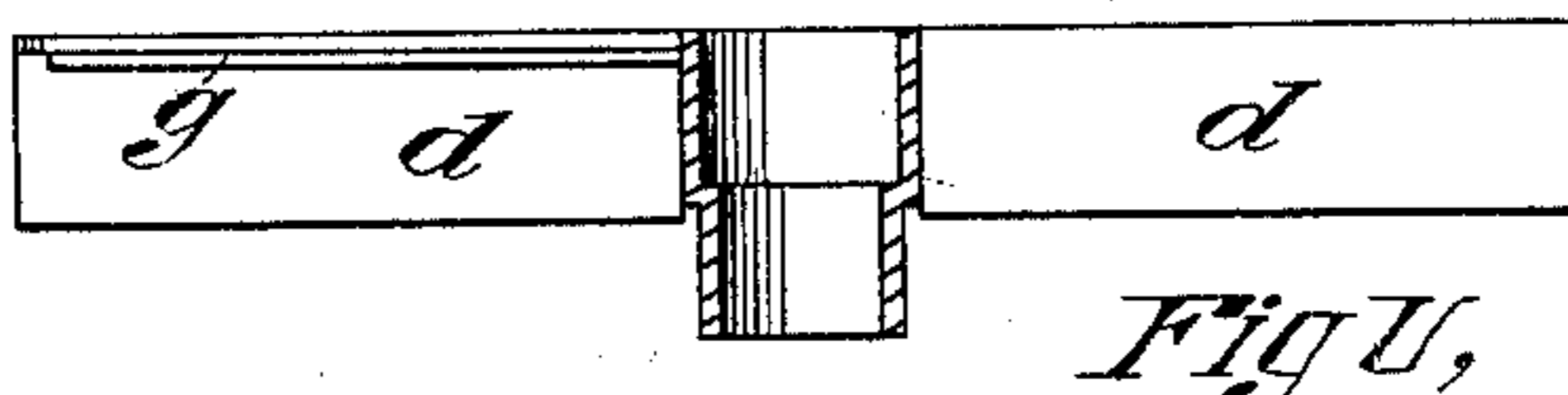
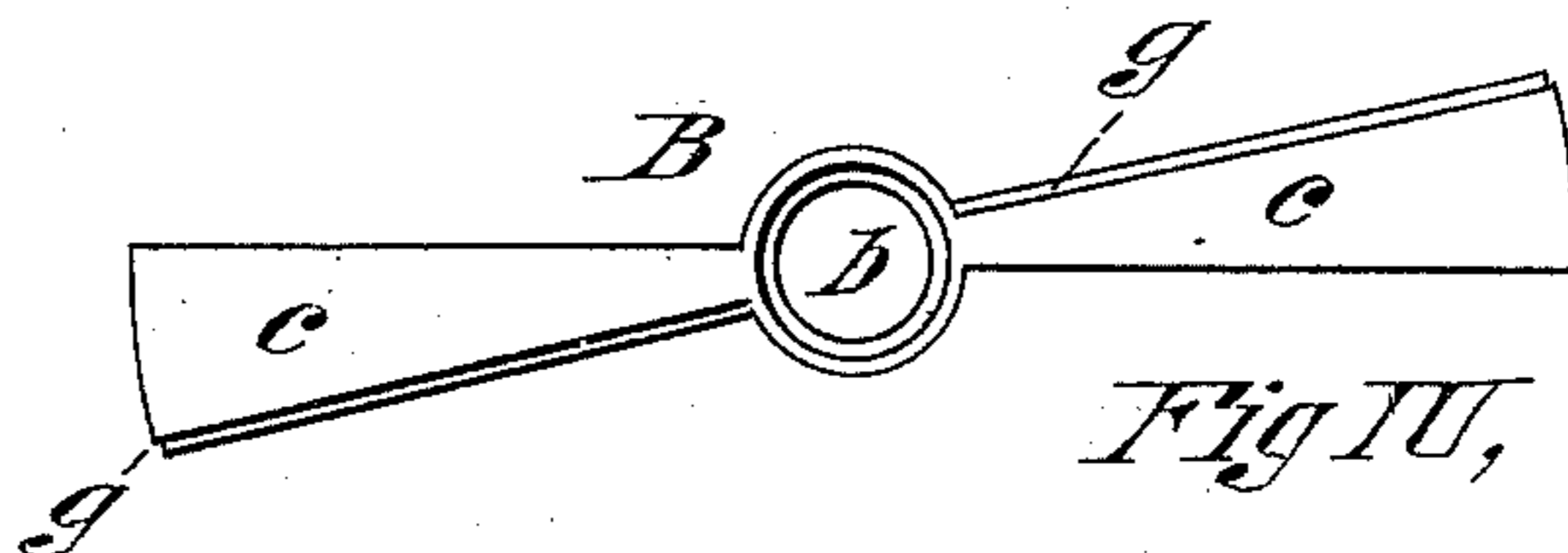


Fig VII,

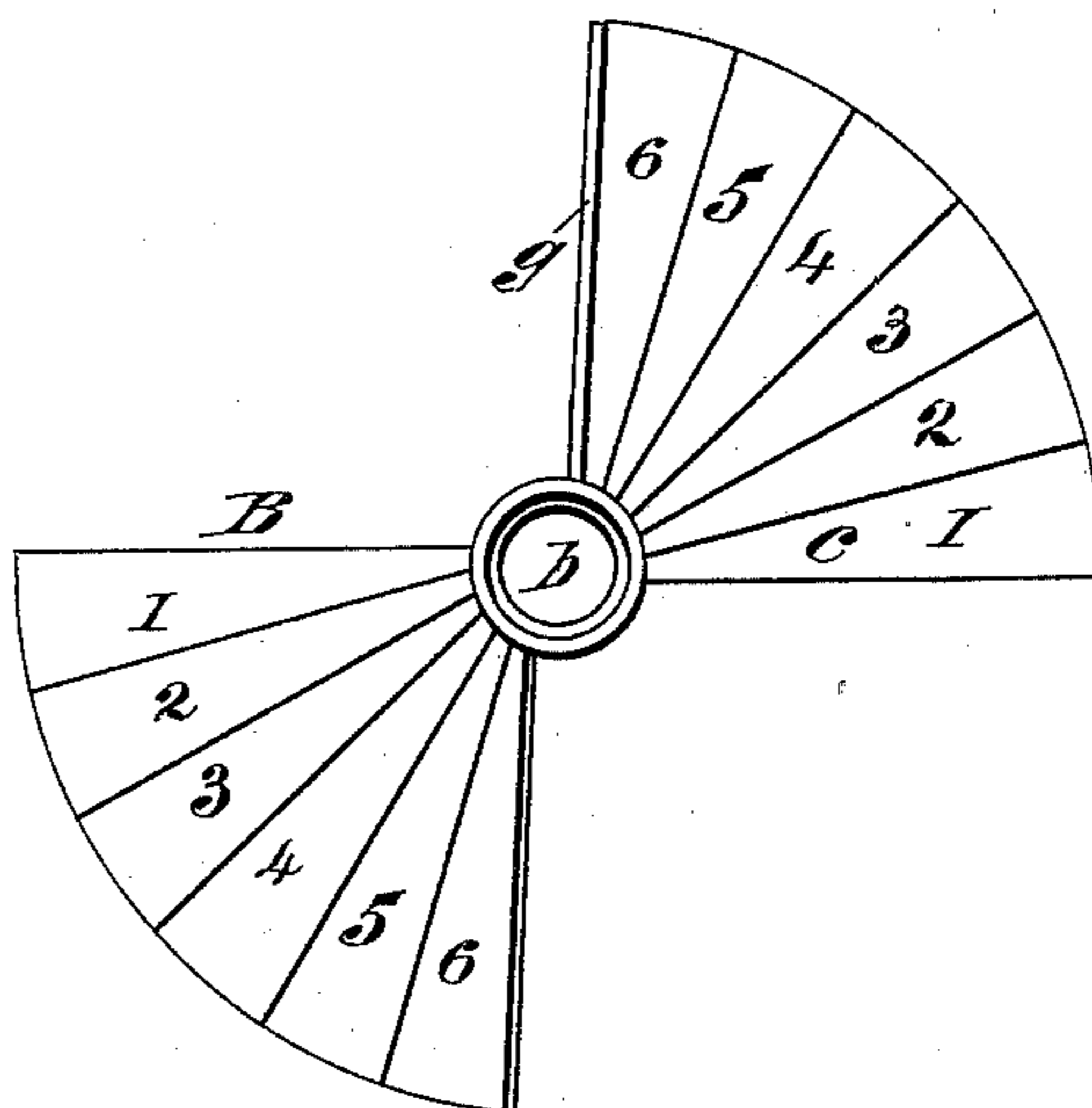


Fig VIII,

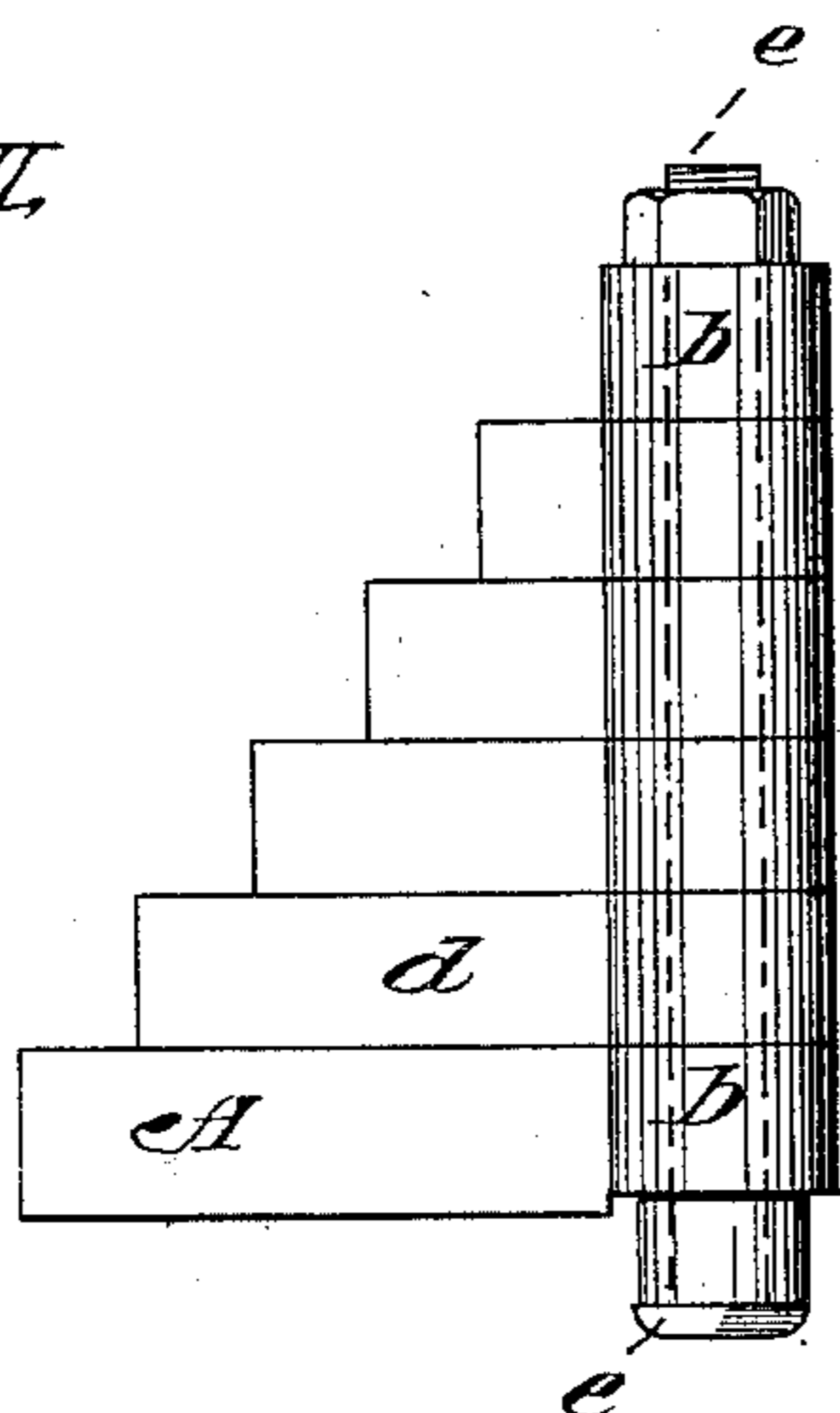


Fig IX,

Witnesses,
E. E. Case.
J. M. Brown

Inventor
C. Clarke,
by R. F. Hyde
Att'y.

(No Model.)

2 Sheets—Sheet 2.

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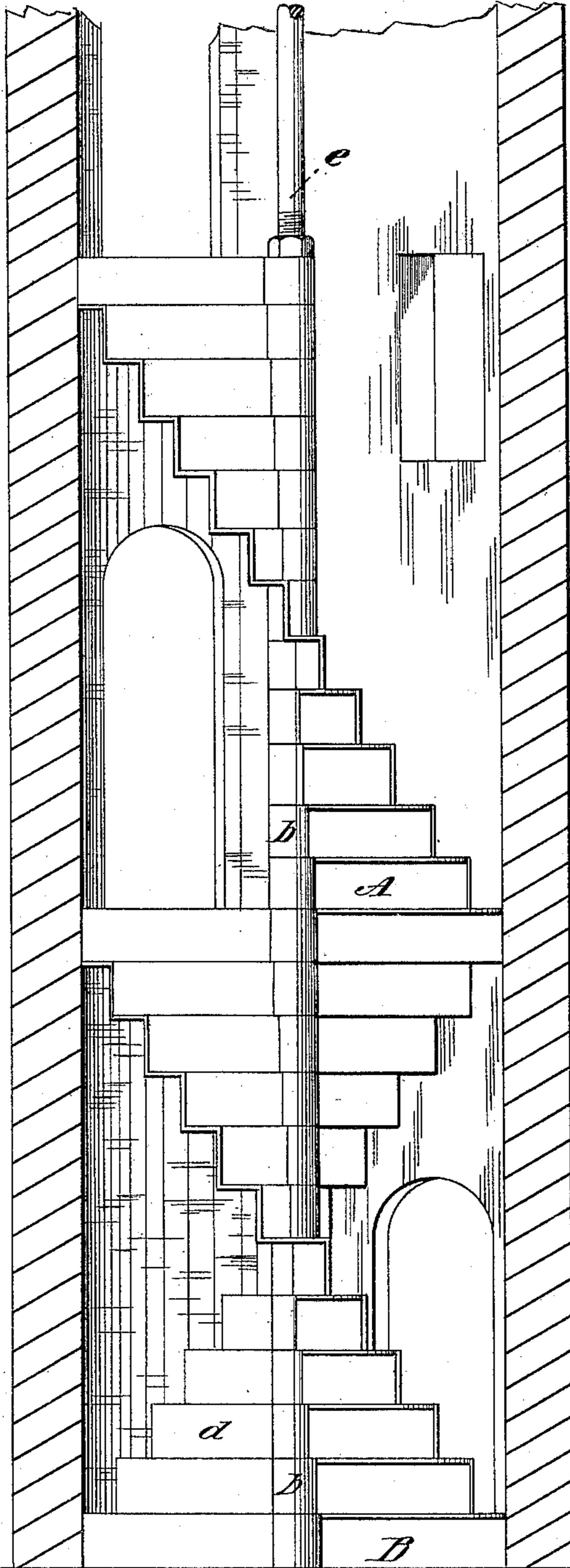


Fig. 1,

Witnesses,
E. E. Case.
J. M. Brown

Inventor,
C. Clarke,
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UNITED STATES PATENT OFFICE.

CHRISTOPHER CLARKE, OF NORTHAMPTON, MASSACHUSETTS.

SPIRAL STAIRWAY.

SPECIFICATION forming part of Letters Patent No. 432,599, dated July 22, 1890.

Application filed June 22, 1889. Serial No. 315,146. (No model.)

To all whom it may concern:

Be it known that I, CHRISTOPHER CLARKE, a citizen of the United States, residing at Northampton, Hampshire county, State of Massachusetts, have invented a new and useful Spiral Stairway, of which the following is a specification.

My improvements relate to the construction of metallic sections adapted to be combined to build up a complete spiral stairway, also to said sections adapted to form when united a double spiral stairway from a common center, the object of my improvements being to provide means for building such stairways to any desired height by the simple process of fitting together the sections, themselves supplying the central core as well as the risers and treads, and having also for their object the construction of a double stairway at the same time, providing passages isolated one from the other and capable of being made smoke-proof and leading to separate floors of a building; and the invention consists in the combination and construction, as hereinafter described, and more particularly pointed out in the claims.

My invention is fully illustrated in the accompanying drawings, in which—

Figure I is a top plan view of a section for a single stairway. Fig. II is a side view of the same. Fig. III is a bottom plan view of the same. Fig. IV is a top plan view of a section for a double stairway. Fig. V is a side view of the same in partial section. Fig. VI is the reverse of Fig. IV. Fig. VII is a perspective view of two single sections united. Fig. VIII is a plan view of six double sections combined. Fig. IX is an elevation of six single sections combined; and Fig. X is a half-section of a tower, showing in elevation a double stairway as far as the second floor of a building, continued as a single stairway to the third floor.

A is a cast-metal section in one piece, comprising a sleeve *b*, with a larger and smaller interior and exterior, and an inner and outer shoulder, as more particularly shown in Figs. II and V, a tread *c* and riser *d* both radiating from the sleeve *b*. The sleeves *b* nest when the sections A are combined, to rest one upon the other and bring the edge of the tread against the edge of the riser of the succeed-

ing section, no special skill being required to lay out and build a spiral stairway when all measurement is thus dispensed with. The core is preferably formed of sleeves *b*, as a tube is left, centrally through which a bolt *e*, as shown in Fig. IX, may be extended to draw and bolt the sections rigidly together; also, room is left for a stand-pipe which may serve the purpose at the same time of a bolt for locking the sections together.

In practice I form a groove *g* in one edge of the tread to receive the edge of the adjacent riser in place of causing the riser to rest merely upon the surface of the tread, as by causing the treads and risers to interlock a much firmer structure is insured, and a supporting-wall at the outer ends of the steps is not essential; also, the groove *g* facilitates the filling of the joint with lead packing *h*, Fig. VII, when it is required to make the passage-way smoke-proof. The treads and risers of each section are integral and imperforate to make the stairway as nearly smoke-proof as may be.

In Fig. VII the riser of one section is shown received in the groove *g* of another.

B is a cast-metal section in one piece, having a central sleeve *b*, similar to that of section A, with combined risers and treads *c d* radiating from opposite sides of said sleeve. The risers, as more particularly shown in Fig. VI, are joined to the treads, so that the successive combination of the sections will form two spirals of steps around the same center in the same direction and starting from the same plane.

In Fig. VIII six sections B are shown combined to extend the one-fourth part of a circle in plan. With risers eight inches in height, by the time one-half of a circle was completed, or until the bottom of the twelfth step was over the top of the one marked I, a clear space of eight feet would be left as a passage-way, which space would of course remain constant as long as the two spirals were produced. By means of these sections B so constructed a double stairway can be built up within a tower to afford passages entirely isolated from each other and easily rendered smoke-proof.

In practice the sections are set in lead or soft putty, and may be then drawn closely together, either as shown in Fig. IX or com-

pressed, as shown in Fig. X, by a nut upon the end of a rod extending from the roof of the tower (not shown) within the sleeve of the top section of the stairway.

5 Now, having described my invention, what I claim is—

1. The double-flight spiral stairway composed, essentially, of a series of metallic sections, each section consisting of a hollow cylindrical metallic sleeve having radially-extending treads extending from opposite sides thereof, and risers connected to the treads, the sleeve, treads, and risers being in a single piece for each section, and the sleeves nesting with each other to form a central hollow cylindrical pipe with interlocking joints, all combined substantially as described.

2. The within-described improved double-flight spiral stairway, consisting of a series of metallic sections, each comprising a central sleeve provided with a stud and socket to form a hollow central column when combined, and having integral with said sleeve radially-

extending treads and risers from opposite sides thereof, and a threaded bolt within the combined sleeves, and a nut thereon bearing upon the upper sleeve of the series, whereby two steps are simultaneously erected by the arrangement of a single section, and whereby the whole series is made fast by the compressive action of a single nut, substantially as shown and described.

3. The herein-described spiral stairway, consisting of sections, each section having a hollow cylindrical metallic sleeve, with a radially-extending arm forming the tread, and a riser integral with said tread, the tread and riser being imperforate, adjoining treads and risers being connected by a groove, and a packing in said groove, all the parts combined and co-operating substantially as described.

CHRISTOPHER CLARKE.

Witnesses:

R. F. HYDE,
E. E. CASE.