

(No Model.)

2 Sheets—Sheet 1.

C. TILLER.

BEVEL.

No. 368,434.

Patented Aug. 16, 1887.

Fig. 1

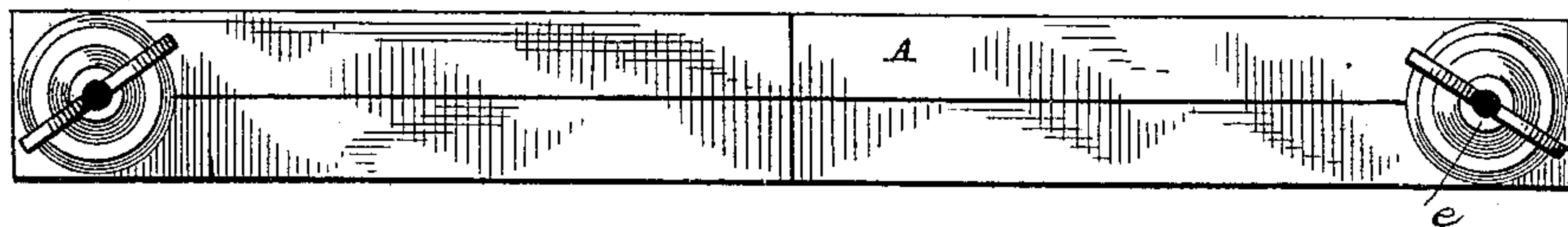


Fig. 2

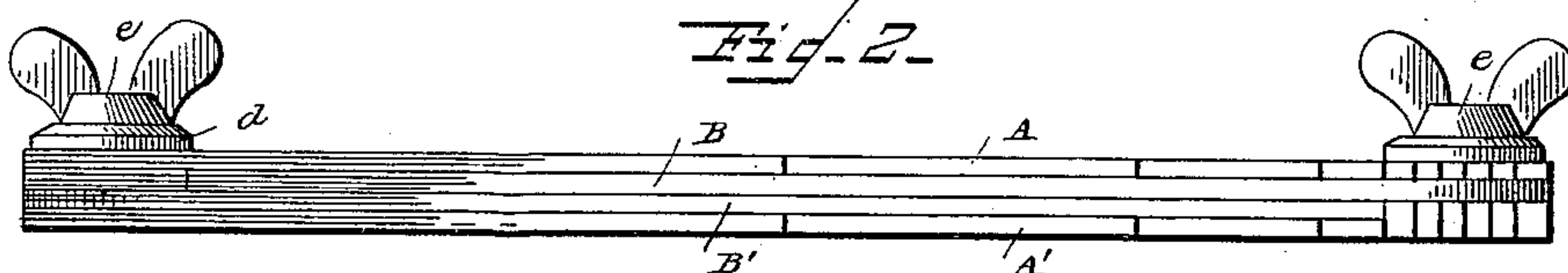


Fig. 3

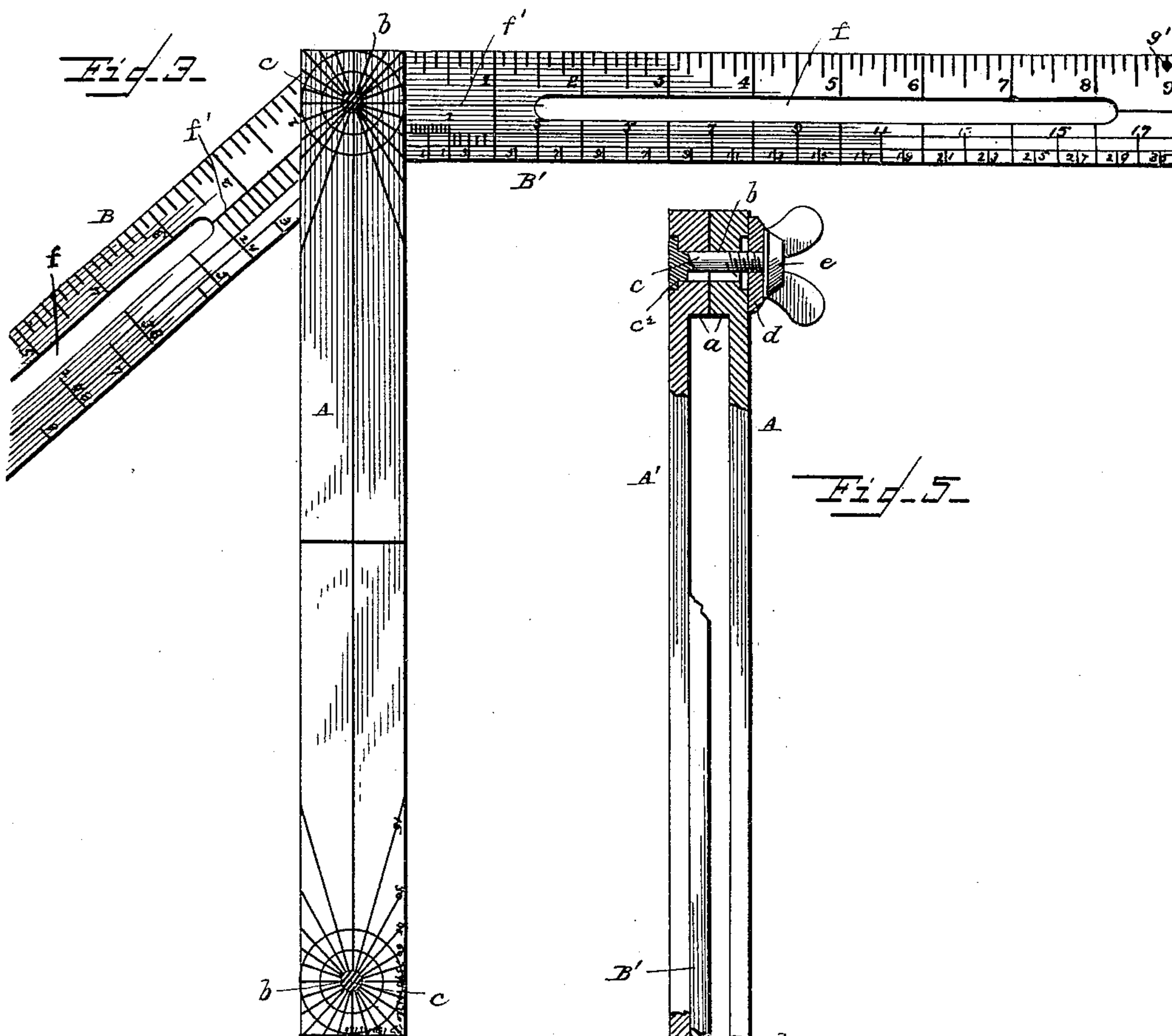
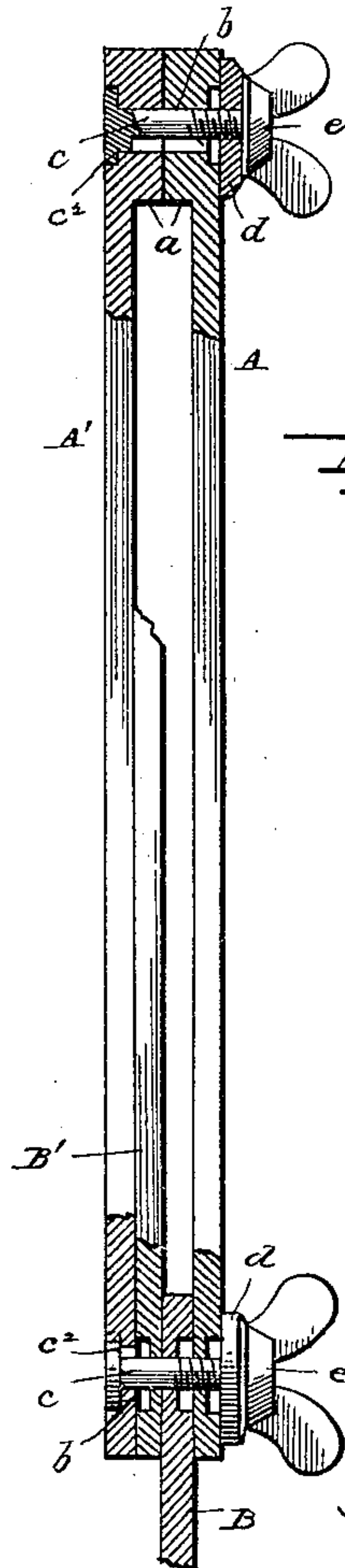


Fig. 5



WITNESSES

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(No Model.)

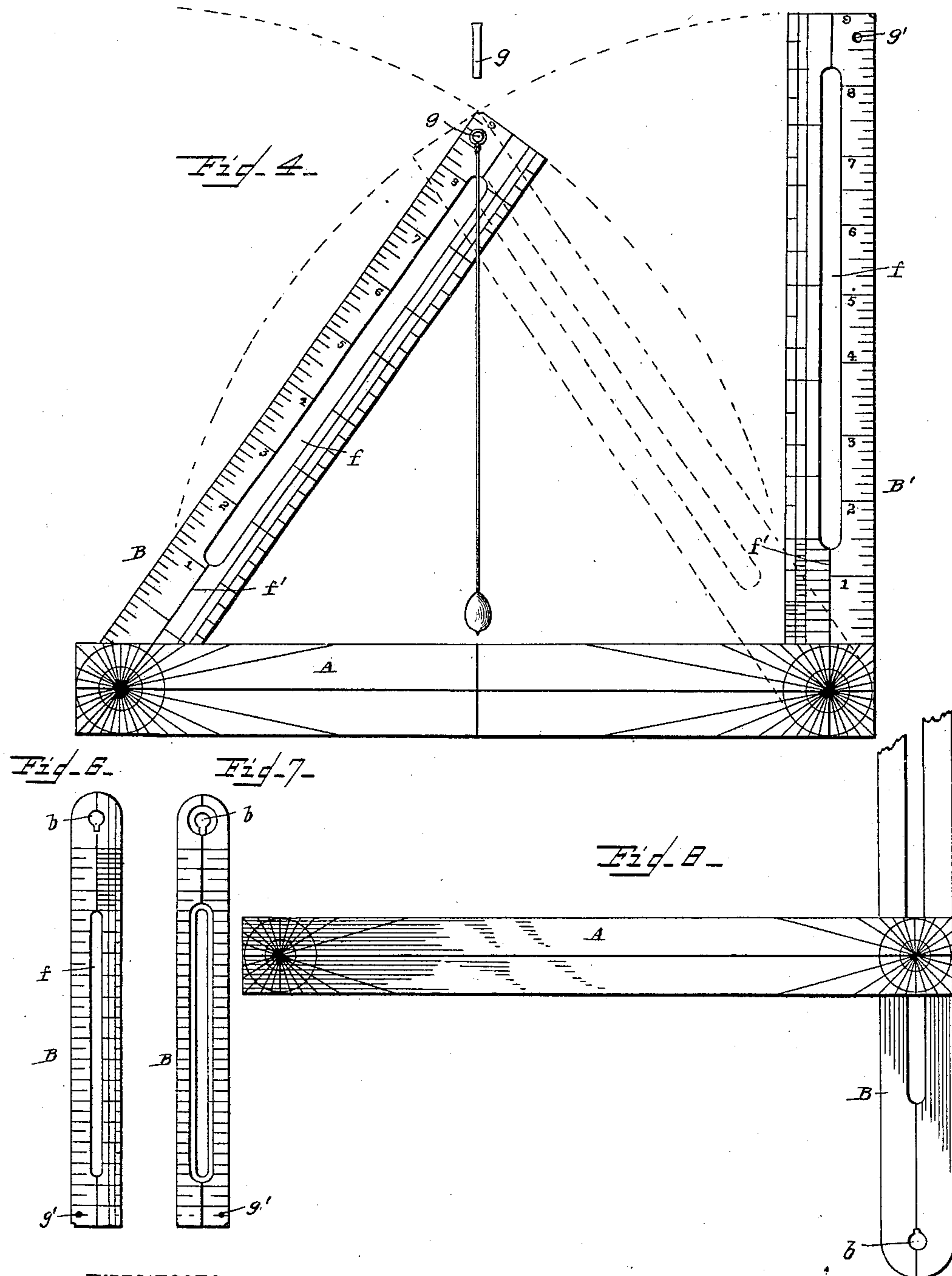
2 Sheets—Sheet 2.

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CHARLES TILLER, OF MILFORD, MASSACHUSETTS.

BEVEL.

SPECIFICATION forming part of Letters Patent No. 368,434, dated August 16, 1887.

Application filed March 28, 1887. Serial No. 232,712. (No model.)

To all whom it may concern:

Be it known that I, CHARLES TILLER, a subject of the Queen of Great Britain, residing at Milford, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Combination-Tools, of which the following is a specification.

My invention relates to drafting-instruments, and my object is to furnish in a compact and convenient form a combined instrument for the use of architects, draftsmen, and builders, which may be used as a square, bevel, protractor, plotter, plumb, and rule.

The invention consists in various details of construction which adapt the instrument for these different uses, and is fully represented in the accompanying drawings, in which—

Figure 1 is a plan view of my combination-tool when closed. Fig. 2 represents an edge view of the same when closed. Fig. 3 is a plan view showing its use as a bevel and square combined. Fig. 4 shows a triangle with leveling device. Fig. 5 is a detail section to illustrate the method of fastening the sections together at one end. Fig. 6 shows a plan view of one of the pivoted blades. Fig. 7 is a view of the opposite side of the same. Fig. 8 is a view of the instrument arranged as a T-square and plotter.

My combination-tool is composed of four sections, two of which on the outside form a stock, and the remaining two, which are inclosed by and pivoted in the stock, are movable blades, each having one free end and so pivoted that they can be put into different positions and angles relatively to the stock and secured in any of such positions.

The mechanical construction of the instrument may be best understood by reference to Figs. 2 and 5.

A and A' represent the outside strips or plates which form the stock or frame, and by which the movable blades B B' are inclosed, and between which they are pivoted. Each strip A A' has a head or end, *a*, of just twice the thickness of the main part of the strip, the thickness of the enlarged portion being equal to that of each of the blades B B', so that when the parts are in place the free ends of the inner blades bear against the shoulders

thus formed in the outer strips, Fig. 5. A perforation, *b*, is made near each end of each of the strips A A' and in one end of each blade B B', and a screw, *c*, passed through at each end. The screw has a feather which engages with a slot, *c'*, in each strip A A', to prevent it from turning after it is in its proper position. The flat heads of the screws are countersunk in the face of the strips A A', so as to be flush with the surface, Fig. 5, and when in place are secured by a washer, *d*, and a nut, *e*, at each end of the instrument. The screws can be inserted from either side. When the parts are thus secured in place and the nuts loosened, the blades B B' can move freely on the screws as pivots and be clamped by the nuts at any point.

The outer face of each strip A A' is first divided by longitudinal and transverse central lines extending, respectively, from end to end and from side to side, Fig. 1, and continuing over the edge. Then a circle is struck at each end from the pivot-screw as a center, by which are marked the degree-lines from fifteen degrees on each side to one hundred and eighty degrees at the end, and the degree-lines are continued on the edge of each blade. This marking is precisely similar on both strips A A'. The central longitudinal lines, as well as the degree-lines, are also carried across the flat circular heads of the screws *c*, Fig. 8.

Figs. 6 and 7 show front and rear views of one of the pivoted blades B B' of this instrument, and a description of one of these blades applies to both. It is provided with a longitudinal slot, *f*, for a purpose hereinafter specified. On its face is a central longitudinal line, *f'*, extending from end to end, and on each side of the slot is a scale of inches, while upon one side is marked separate half-inch and quarter-inch scales for architects' use.

The various parts of the instrument can be so combined as to form a square, a bevel, a protractor, a plotter, a level, and a plumb, as well as a rule with scales. Thus Fig. 4 shows a combined carpenter's square and bevel, in which the square is formed by causing the central line of one of the blades B or B' to register with the ninety-degree mark on one

of the strips A or A', and then clamping the parts together at that end, while the angle for the bevel is ascertained and fixed in the same manner with the other blade. The two movable blades may be brought together to form a triangle, as shown by dotted lines in Fig. 4, and a small pin, g, passed through the registering holes g' in the blades, Figs. 6 and 7, which pin will support a plumb-bob, as shown. The combined square and bevel may also be formed at the same end of the stock, Fig. 3, by reversing one of the strips A or A', so as to bring their thickened ends together, then pivoting both blades B B' at the opposite end, and then securing both ends by the screws, when the thickness of the combined parts will be equal throughout.

The instrument may be arranged for use as a T-square and plotter, as shown in Fig. 8. This may be done in either of two ways—first, taking the parts combined, as in Fig. 3, but passing the fastening-screw through the slot in one of the blades, so that such blade can be secured at right angles to form a T-square, or allowed to slide for use in plotting; secondly, by removing one of the blades entirely and forming the T-square by securing the other to the outside of the stock by means of the screw and slot.

One side of the slot f, Fig. 7, has an offset to receive the head of the screw and allow it to lie flush with the surface of the blade B or B', as the case may be.

The mechanical construction of the parts having been fully described, it is believed that

specific and exact description of every use to which the instrument may be put in various kinds of drafting and measuring is unnecessary, as such uses will be readily understood by those skilled in the art.

I claim as my invention—

1. The combination, with the outer strips each having one end or head, a, of double thickness, forming shoulders at one end of the stock, of a pair of blades pivoted at the opposite end between the said strips and adapted to bear at their free ends against said shoulders, and clamping devices at each end, substantially as described.

2. The combination, with a pair of strips forming the stock, of the pivoted and slotted blades having the perforations g' at their free ends, said perforations being adapted to register when the blades are adjusted to form an isosceles triangle and receive a pin for supporting a plumb-bob, substantially as described.

3. The combination, with the reversible strips A A', each having a thickened end, of a pair of blades, B B', which together are of the same thickness as either of the enlarged ends of the strips A A', and means for pivoting and clamping the said blades B B' between the strips A A', substantially as described.

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

CHARLES TILLER.

Witnesses:

J. E. WALKER,
LEMUEL MEELLET.