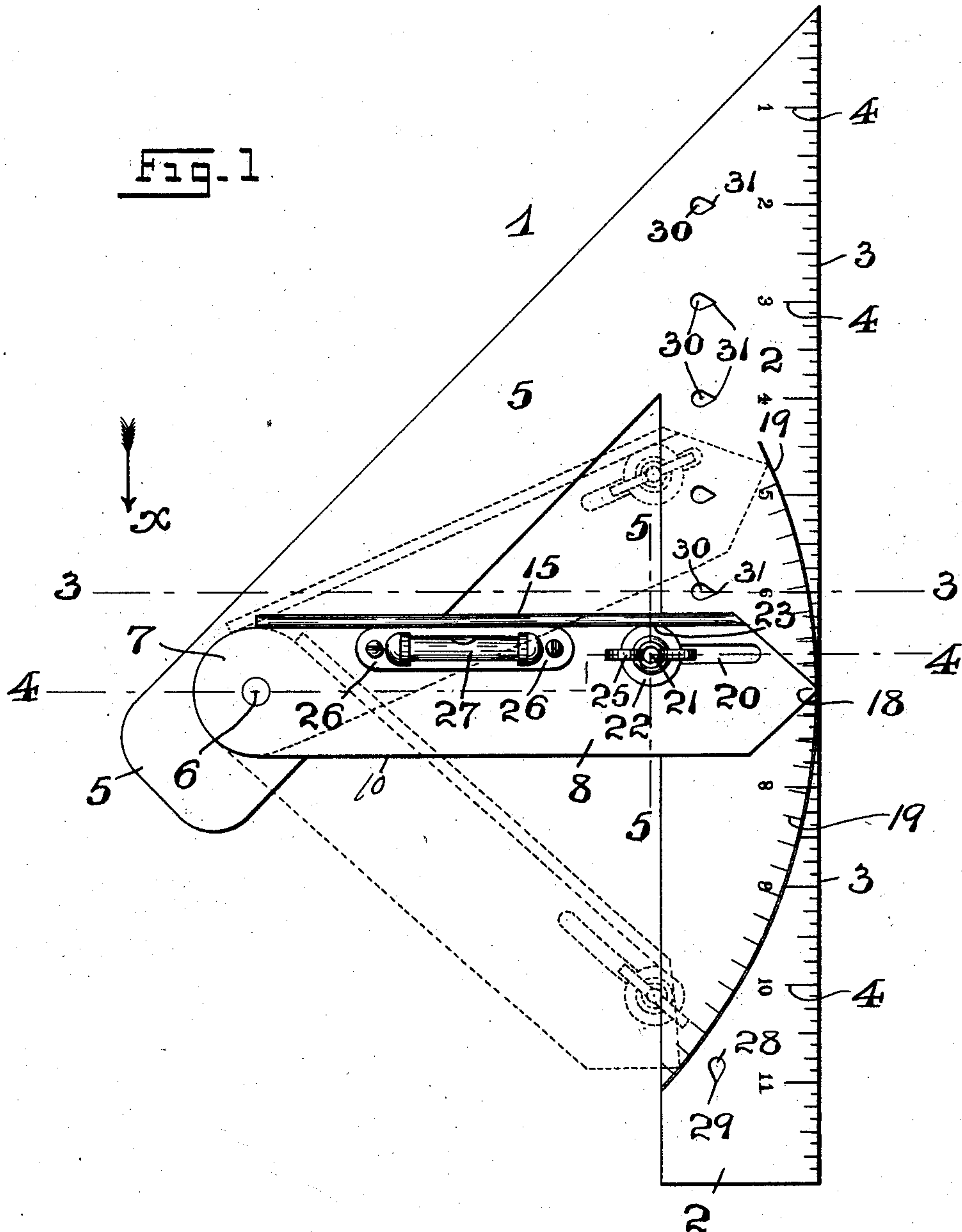


G. F. HALL.
COMPOUND INSTRUMENT.
APPLICATION FILED DEC. 18, 1909.

997,551.

Patented July 11, 1911.

2 SHEETS—SHEET 1.



WITNESSES:
Fredk H. W. Fraentzel
Anna H. Alter

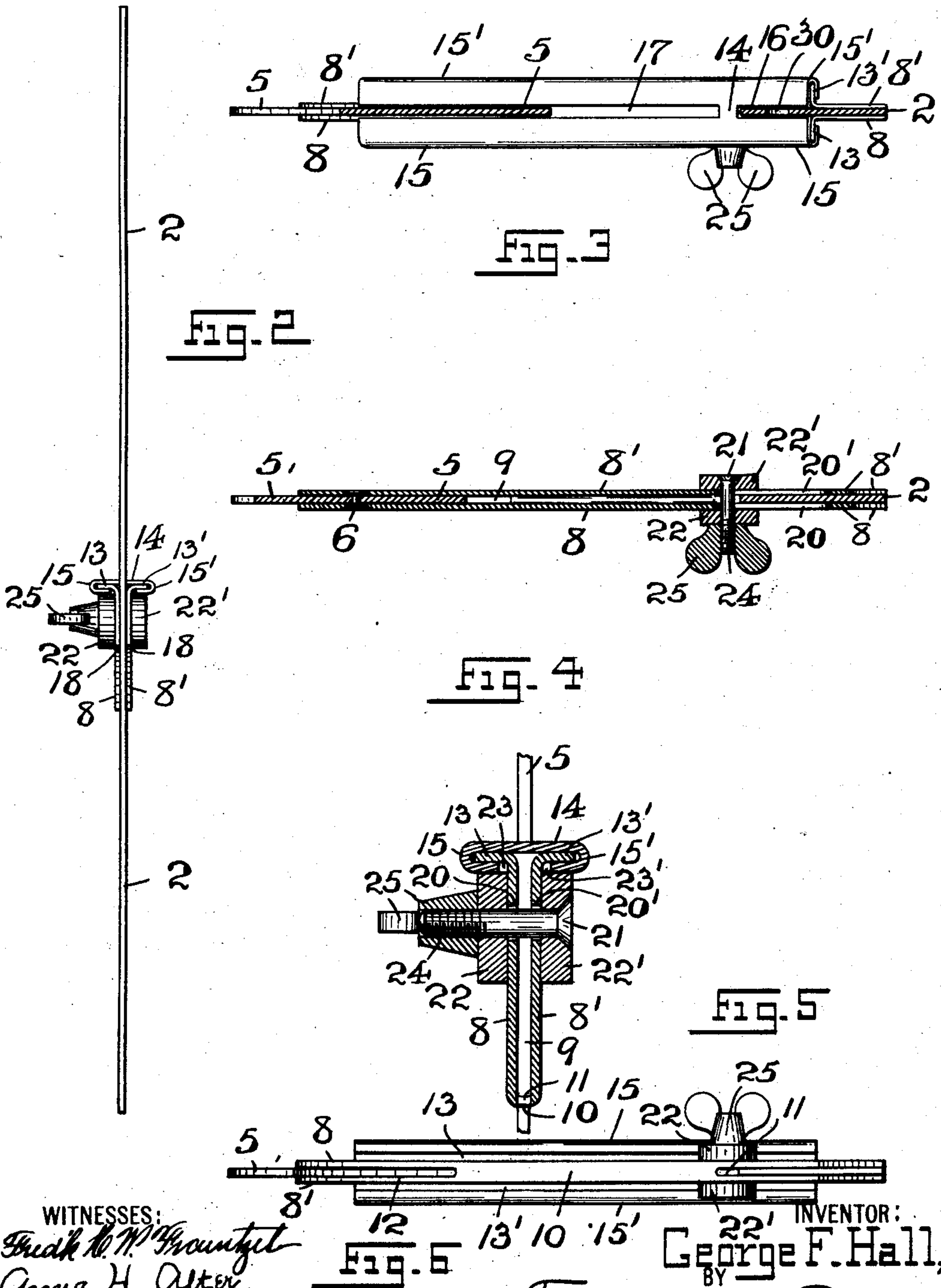
INVENTOR:
George F. Hall,
BY
Fraentzel and Richards,
ATTORNEYS

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WITNESSES:
Frank M. M. M. M.
Anna H. Alter.

INVENTOR:
George F. Hall,
BY *Fraentzel and Richards,*
ATTORNEYS

UNITED STATES PATENT OFFICE.

GEORGE F. HALL, OF NEWARK, NEW JERSEY, ASSIGNOR OF ONE-HALF TO DELANCEY P. HARRIS, OF NEW YORK, N. Y.

COMPOUND INSTRUMENT.

997,551.

Specification of Letters Patent.

Patented July 11, 1911.

Application filed December 18, 1909. Serial No. 533,767.

To all whom it may concern:

Be it known that I, GEORGE F. HALL, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Compound 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 characters of reference marked thereon, which form a part of this specification.

The present invention relates, generally, to improvements in compound instruments; and, the invention refers, more especially, to a combined tee-square, bevel and triangle, the same being capable of adjustment to provide a wide range of angles of varying degree.

The invention has for its principal object to provide a neat, compact, and simply constructed device of the character herein set forth, the same being adapted to be used for many purposes, but being more especially adapted for use as a combined square and bevel, as well as a draftsman's appliance adapted to perform the functions of a tee-square and triangle in such a manner, so as to render very easy of accomplishment such drafting operations as the laying out of irregular angles, sectionizing, and other similar operations.

Other advantages of the present invention, and other uses to which it may be put, will be readily understood from an inspection of the accompanying drawings, as well as from the following detailed description of the invention.

This invention consists, primarily, in the novel construction of compound instrument hereinafter set forth; and the invention consists, furthermore, in the novel arrangements and combinations of the various parts, as well as in the details of the construction thereof, all of which will be hereinafter more fully described in the following specification and then finally embodied in the clauses of the claims which are appended to and which form an essential part of this specification.

The invention is clearly illustrated in the accompanying drawings, in which:—

Figure 1 is a plan view of the novel

compound instrument, embodying the principles of my present invention, the dotted lines of said figure indicating two extremes of the various adjusted positions of the adjustable head of said instrument; Fig. 2 is an edge view of the same looking from right to left of said Fig. 1; Fig. 3 is a horizontal section of the same, taken on line 3—3 in said Fig. 1; and Fig. 4 is a similar section, taken on line 4—4 in said Fig. 1, both of these sections being viewed in the direction of the arrow *x*. Fig. 5 is a detail cross-section, taken on line 5—5 in said Fig. 1, this view being drawn upon an enlarged scale; and Fig. 6 is a bottom edge-view of the instrument.

Similar characters of reference are employed in all of the said above described views, to indicate corresponding parts.

Referring now to the several figures of the said drawings, the reference-character 1 indicates the complete compound instrument embodying the principles of the present invention, the same comprising a main body-portion 2 provided with a straight edge 3, and a suitable or convenient scale 4 located along the said straight edge 3, said scale comprising any suitable space-division or graduations. Extending from one end of said main body-portion 2, and preferably at an angle of forty-five degrees therefrom, is an angle-arm 5. Pivotaly connected to said angle-arm 5 and adjacent to the free end thereof, by means of the pivot-member 6, is an adjustable head 7. The said adjustable head 7 comprises a plate or sheet of metal which is bent or doubled upon itself so as to form a pair of forwardly extending members 8 and 8¹, registered one above the other in such a manner so as to leave an intervening space 9 adapted to receive therein the said body-portion 2 and the angle-arm 5, so that said forwardly extending members 8 and 8¹, are respectively arranged one upon each side of said body-portion 2 and said angle-arm 5. The doubled-over edge 10 of the said adjustable head 7 is provided at its free end with a short inwardly extending slot 11, sufficiently deep to allow the free ends of the respective forwardly extending members 8 and 8¹ to extend over and upon the respective sides of said main body-portion 2. The said doubled-over edge 10 is further provided with another slot 12 which extends from the pivoted end of said adjust-

able head 7 outwardly to within a short distance of the inner end of said inwardly extending slot 11, this said slot 12 permitting the respective forwardly extending members 5 8 and 8¹ to extend over and upon the respective sides of the said angle-arm 5. The said forwardly extending members 8 and 8¹ are each provided upon one of their longitudinal edges with a flange 13 and 13¹ respectively. The said flanged edges of said forwardly extending members 8 and 8¹ are joined to a flange-plate 14, the longitudinal edges of which are turned over and around said flanges 13 and 13¹ so as to form outwardly extending ribs 15 and 15¹, the same extending at right angles to the respective members 8 and 8¹. The said flange-plate 14 is also provided with slots 16 and 17, the same being respectively opposite the above-mentioned slots 11 and 12. The said free ends of said forwardly extending members 8 and 8¹ are preferably chamfered or cut so as to form a finder or indicating point 18, which serves in connection with a proper scale 19, indicating degrees of angles with which the said main body-portion 2 is provided. The said forwardly extending members 8 and 8¹ are provided with slotted portions 20 and 20¹, the same being located at 30 or near the free ends of said forwardly extending members 8 and 8¹ and extending parallel to and within a short distance from the respective ribs 15 and 15¹. These said slotted portions 20 and 20¹ are further 35 adapted to register one above the other. Movably arranged within said slotted portions 20 and 20¹, and adapted to project therethrough is a bolt 21. Arranged upon the shank of said bolt 21 are washer-like 40 members 22 and 22¹ adapted to engage the respective outer surfaces of said forwardly extending members 8 and 8¹. The said members 22 and 22¹ are respectively provided with the straight-edges or portions 23 45 and 23¹ which are adapted to engage the inner sides of the respective ribs 15 and 15¹ in such a manner, so as to prevent said members from turning. Said bolt 21 is further provided at its free end with a screw-threaded portion 24 adapted to receive a 50 thumb-nut 25. When said adjustable head 7 has been arranged, so as to produce in connection with said main body-portion 2 and its angle-arm 5, any desired angle or bevel, 55 the said bolt 21 is moved in said slotted portions 20 and 20¹ until it is brought against the inner edge of said main body-portion 2, the said thumb-nut 25 is then screwed down tightly so as to cause the respective washer-like members 22 and 22¹ to bind upon and 60 force the free ends of the forwardly extending members 8 and 8¹ in tight binding engagement with said main body-portion 2, thus causing the said adjustable head 7 to 65 be firmly and securely held in its adjusted

relation to produce the desired angle or bevel. Secured by means of screws, or in any other suitable manner, to the upper surface of said adjustable head 7 is the base-plate 26 of a spirit-level 27, thus providing 70 in connection with the other novel features of my present device, the additional function of a spirit-level. The said main body-portion 2 is further provided with a perforation 28, the same being formed with a 75 wedge-shaped cut-away portion 29 the bottom of which is opposite one of the main graduations of said scale 4. In like manner, said main body-portion 2 is provided with a plurality of perforations 30 each having a 80 wedge-shaped cut-away portion 31 the bottom of which is opposite one of the main graduations of said scale 4. These perforations serve as a means for striking a wide arc, or the like. The manner of their use is 85 as follows:—A sharp instrument, such as a brad-awl, or the like, is inserted in the perforation 28 so as to be engaged by the bottom of said cut-away portion 29; in like manner a pencil, or other marking device, is inserted 90 in any one of said plurality of perforations 30, so that the point thereof is engaged by the cutaway portion 31, and by swinging the main body-portion 2 upon said brad-awl, 95 as a center, the pencil, or other marking device may be caused to strike a circle, arc, or the like, as will be clearly understood.

It will be clearly apparent, that the novel device constructed and combined in the manner above described, will readily lend itself 100 to the accomplishment of many purposes; and, its use will be found serviceable not only in drafting and such kindred operations, but in building and construction work 105 of various kinds.

I am aware that changes may be made in the various arrangements and combinations of the several parts without departing from the scope of my present invention. Hence, I do not limit my invention to the 110 exact arrangements and combinations of the parts as herein described and as illustrated in the accompanying drawings, nor do I confine myself to the exact details of the construction of the said parts. 115

I claim:—

1. A compound instrument comprising a main body-portion, having an angularly extending arm formed integral with the said main body-portion at the one end thereof, and a head pivotally connected at its one end with the said arm, the said head comprising a sheet-metal plate which is doubled upon itself so as to form a pair of forwardly extending members, said members 120 being separated to provide a pair of intervening spaces, one of said spaces being of greater length than the other space, and all arranged so that the said forwardly extending members will respectively straddle the 125 130

said main body-portion and the said angularly extending arm, and that the said forwardly extending members are slidably arranged with relation to the said main body-portion and the said angularly extending arm, substantially as and for the purposes set forth.

2. A compound instrument comprising a main body-portion, having an angularly extending arm formed integral with the said main body-portion at the one end thereof, and a head pivotally connected at its one end with the said arm, the said head comprising a sheet-metal plate which is doubled upon itself so as to form a pair of forwardly extending members, said members being separated to provide a pair of intervening spaces, one of said spaces being of greater length than the other space, and all arranged so that the said forwardly extending members will respectively straddle the said main body-portion and the said angularly extending arm, and that the said forwardly extending members are slidably arranged with relation to the said main body-portion and the said angularly extending arm, and an outwardly extending rib connected with each member, substantially as and for the purposes set forth.

3. A compound instrument comprising a main body-portion, having an angularly extending arm formed integral with the said main body-portion at the one end thereof, and a head pivotally connected at its one end with the said arm, the said head comprising a sheet-metal plate which is doubled upon itself so as to form a pair of forwardly extending members, said members being separated to provide a pair of intervening spaces, one of said spaces being of greater length than the other space, and all arranged so that the said forwardly extending members will respectively straddle the said main body-portion and the said angularly extending arm, and that the said

forwardly extending members are slidably arranged with relation to the said main body-portion and the said angularly extending arm, and means connected with the end-portions of said members which are slidably arranged with relation to the main body-portion for locking the head in an angularly disposed position with relation to the said main body-portion, substantially as and for the purposes set forth.

4. A compound instrument comprising a main body-portion, having an angularly extending arm formed integral with the said main body-portion at the one end thereof, and a head pivotally connected at its one end with the said arm, the said head comprising a sheet-metal plate which is doubled upon itself so as to form a pair of forwardly extending members, said members being separated to provide a pair of intervening spaces, one of said spaces being of greater length than the other space, and all arranged so that the said forwardly extending members will respectively straddle the said main body-portion and the said angularly extending arm, and that the said forwardly extending members are slidably arranged with relation to the said main body-portion and the said angularly extending arm, and an outwardly extending rib connected with each member, and means connected with the end-portions of said members which are slidably arranged with relation to the main body-portion for locking the head in an angularly disposed position with relation to the said main body-portion, substantially as and for the purposes set forth.

In testimony, that I claim the invention set forth above I have hereunto set my hand this 15th day of December, 1909.

GEORGE F. HALL.

Witnesses:

FREDK. C. FRAENTZEL,
FRED'K H. W. FRAENTZEL.