

(No Model.)

D. HOADLEY.
BEVEL.

No. 480,016.

Patented Aug. 2, 1892.

Fig 1

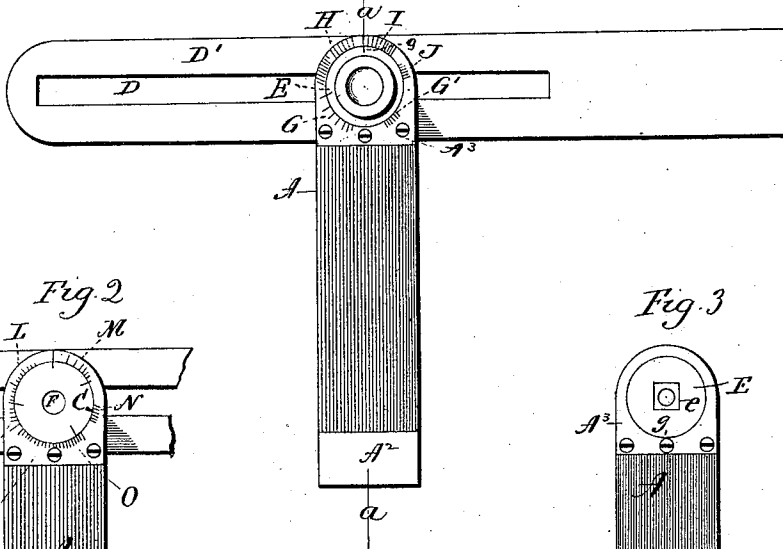


Fig 2

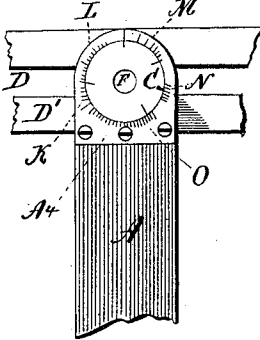


Fig 3

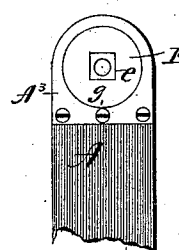


Fig 4

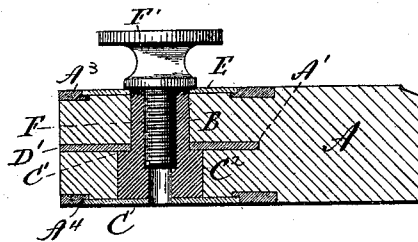


Fig 5

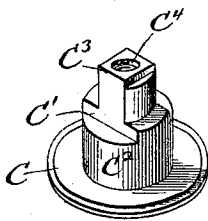


Fig 7

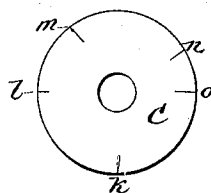
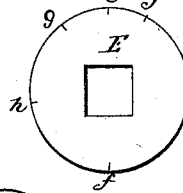


Fig 6



Witnesses
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William D. Hoadley.

David Hoadley
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UNITED STATES PATENT OFFICE.

DAVID HOADLEY, OF NAUGATUCK, CONNECTICUT.

BEVEL.

SPECIFICATION forming part of Letters Patent No. 480,016, dated August 2, 1892.

Application filed February 23, 1892. Serial No. 422,409. (No model.)

To all whom it may concern:

Be it known that I, DAVID HOADLEY, of Naugatuck, in the county of New Haven and State of Connecticut, have invented a new Improvement in Bevel-Squares; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a plan view of a bevel-square constructed in accordance with my invention; Fig. 2, a reverse plan view thereof with the ends of the blade and the outer end of the stock broken away; Fig. 3, a detached broken view of the stock with the blade and clamping-screw removed; Fig. 4, an enlarged sectional view of the device on the line *a b* of Fig. 1; Fig. 5, a detached perspective view of the rotatable coupling-head; Fig. 6, a detached plan view of the removable disk; Fig. 7, a similar reverse view of the coupling-head, showing the face of its disk.

My invention relates to an improvement in carpenters' tools, and more particularly to bevel-squares, the object being to produce a simple, convenient, and effective device for enabling carpenters to make the several cuts required in roof-framing without performing special geometrical calculations to secure them.

With these ends in view my invention consists in the combination, with a longitudinally-cleft stock having the opposite faces of its inner end provided with circularly-arranged graduations, of a slotted blade inserted into the cleft of the stock, a rotatable coupling-head having one end provided with an index-disk and constructed with a centrally-threaded bore and with a rib to fit into the slot of the blade, a disk for attachment to the said head at the opposite end thereof from the disk before mentioned, and a clamping-screw entering the said head and bearing upon the outer face of the removable disk.

My invention further consists in certain details of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

As herein shown, the stock A, which is longitudinally split in its lateral plane to form a cleft A', is made of wood and has its outer end furnished with brass binding-plates A², one of which is shown in Fig. 1 of the drawings. The inner end of the stock is provided with two plates A³ and A⁴, respectively secured to its upper and lower faces and let in flush with the same. Each of these plates, which correspond to each other, is provided with corresponding circular openings, around which groups of graduations are arranged, as will be more fully described later on. I do not, however, limit myself to making the stock of wood and furnishing its inner ends with metal plates, as it might be made entirely of metal, in which case the plates would be dispensed with. The said inner end of the stock is constructed with a transverse circular chamber B, concentric with the circular openings of the plates A³ and A⁴ and adapted to receive a rotatable coupling-head, which is provided at one end with an index-disk C, adapted in size to fit into the opening formed in the lower plate A⁴, with the graduations whereof the said disk co-operates, and with a rib or key C', which fits into the longitudinal slot D of the blade D', the same being free to move longitudinally with respect to the head, but prevented from a lateral movement thereto by the said rib or key. The said head is also constructed, as shown, with a circular bearing-face C², which engages with the walls of the chamber B, before mentioned, and assists in giving stability to the rotary movements of the head, which is further provided with a shank C³, squared at its upper end and shouldered to receive the removable index-disk E, which is thereto provided with a rectangular central opening *e*, the said disk fitting into the circular opening in the upper plate A³ and co-operating with the graduations thereon. The rotatable head is also provided with a central longitudinally-threaded bore C⁴, which receives the shank F of the clamping-screw, the knob F' whereof bears upon the outer face of the removable disk E and holds the same in place. It will be observed by reference to Fig. 4 of the drawings that the edges surrounding the openings of the plates A³

and A^4 and the edges of the disks C and E are oppositely shouldered, respectively, to form working bearings for the disks. It will be understood that by tightening the clamping-screw the two parts of the stock will be sprung together so as to pinch the blade between them and set it, while by loosening the screw the said parts of the stock spring apart and relieve the blade for free longitudinal movement irrespective of the coupling-head and for free rotary movement with the said head. Thus after the blade has been brought into any desired position with respect to the stock by means of the graduations of the plates A^3 and A^4 of the device and of the index-disks it is firmly clamped in such position by means of the clamping-screw. It has been before explained that the plates A^3 and A^4 have circularly-arranged groups of graduations. These are initially obtained by the performance of the whole series of geometrical calculations required to secure all of the cuts ordinarily employed in framing roofs varying in pitch, let us say, from one to eighteen inches rising per foot, although, of course, the range of the device may be increased or decreased, as desired, by adapting it to cover a greater or less range of variation of roof-pitch. The respective lines of the several groups are the resultant lines secured by such calculations, one line being derived from each. Thus, for instance, the lines representing the cuts for the moldings and fascies used on the hips and in the valleys of roofs are derived from eighteen several calculations for roofs varying in pitch from one to eighteen inches in a running foot, and, having been secured, are transferred to the plate A^3 and form a group of lines, which I have designated in the drawings by G. The group of lines II represents the level cuts of common rafters, the group I the plumb cuts of common rafters, the group J the side bevels for jack-rafters, and the group J' the cuts for fascies and moldings used on the hips and in the valleys of roofs, two groups being required for cutting the moldings and fascies which have to be cut at two angles. The plate A^4 , attached to the under side of the inner end of the stock, has a group K of graduations representing the degrees of a quarter of a circle, a group of graduations L, representing the plumb cuts for valley or hip rafters, a group M, representing the miter cuts for triangular, rectangular, or other figures having from three to twelve sides, a group N, representing the cuts for side bevels for valley or hip rafters, and a group O, representing the level cuts for the same. The removable disk E has an index-line g , (see Fig. 6,) which is used in connection with the groups G G', an index-line h , which is used in connection with the group H, a line i for the group I, and a line j for the group J, while the disk C, Fig. 7, forming a part of the rotatable head, is provided with an index-line k for the group K, a line l for the

group L, a line m for the group M, a line n for the group N, and a line o for the group O.

It will be readily understood from the foregoing that any carpenter may by the use of the said groups of graduations set the blade at the angle required for any of the cuts that he is required to make in any roof which he will in any ordinary line of work be called upon to assist in framing. The tool thereupon greatly facilitates carpentry work, inasmuch as without it many carpenters are obliged to depend upon their bosses for the cuts unless they cut and try, for the ordinary workman is not sufficiently skilled and intelligent to make the required calculations for securing the exact different cuts which he is called upon to make, and, moreover, if he had the intelligence to do this he could not spend the time, whereas my improved tool virtually contains the results of a series of calculations covering most of the cuts that are likely to be made.

By constructing the device with two groups of graduations and two disks I am enabled to make it compact and at the same time to make the graduations large and distinct enough to be readily read. By preference I shall indicate them by words, letters, or signs, (not herein shown,) so that one group may be readily distinguished from another and its character indicated, the said words, letters, or signs to be engraved or otherwise displayed upon the said plates A A' or on the stock when made of metal alone.

I would have it understood that I do not limit myself to the exact construction herein shown and described, but hold myself at liberty to make such changes and alterations therein as fairly fall within the spirit and scope of my invention.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a bevel-square, the combination, with a longitudinally-cleft stock having the opposite faces of its inner end provided with circularly-arranged graduations, of a slotted blade inserted into the cleft of the stock, a rotatable coupling-head having one end provided with an index-disk and constructed with a centrally-threaded bore and with a rib to fit into the slot of the blade, a disk for attachment to the said head at the opposite end thereof from the disk before mentioned, and a clamping-screw entering the said head and bearing upon the outer face of the removable disk, substantially as described.

2. In a bevel-square, the combination, with a longitudinally-cleft stock, of plates applied to the upper and lower faces of the inner end of the same, having circular openings and circularly-arranged groups of graduations adjoining such openings, a slotted blade located in the cleft of the stock, a rotatable coupling-head having one end provided with an index-disk and constructed with a centrally-

threaded bore and with a rib to fit into the slot of the blade, a disk for attachment to the said head at the opposite end thereof from the disk before mentioned, and a clamping-
5 screw entering the said head and bearing upon the outer face of the removable disk, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

DAVID HOADLEY.

Witnesses:

WELSFORD S. CLARK,
W. H. WOOD.