(Model.)

H. E. REMICK.

T-SQUARE AND BEVEL.

No. 345,806. Patented July 20, 1886.

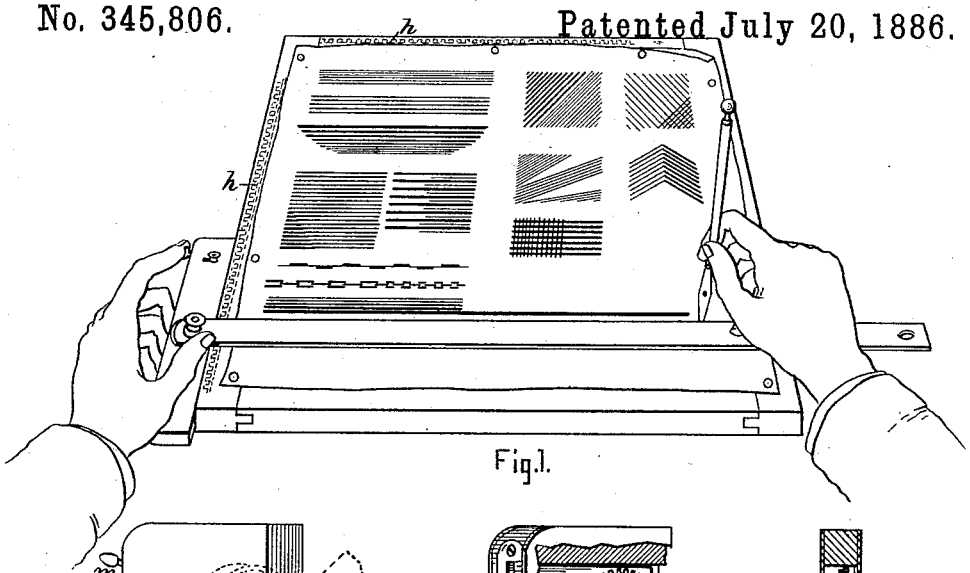

Fig. 1.

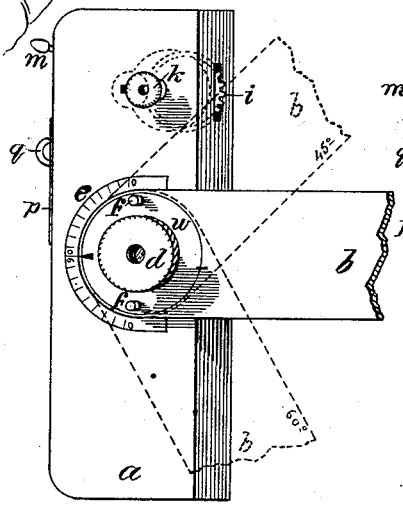

Fig. 2.

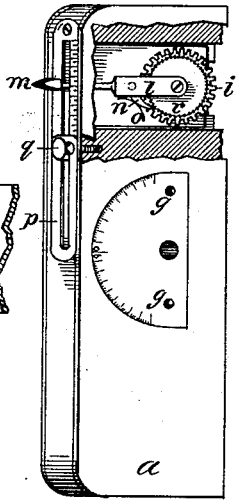

Fig. 3.

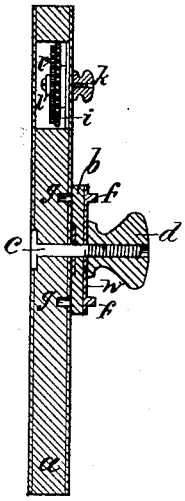

Fig. 4.

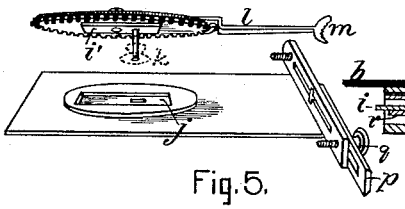

Fig. 5.

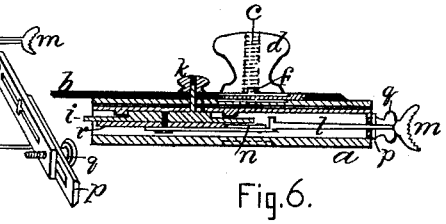

Fig. 6.

Witnesses.
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UNITED STATES PATENT OFFICE.

HARRY E. REMICK, OF BOSTON, MASSACHUSETTS.

T-SQUARE AND BEVEL.

SPECIFICATION forming part of Letters Patent No. 345,806, dated July 20, 1886.

Application filed July 26, 1880. Serial No. 14,248. (Model.)

To all whom it may concern:

Be it known that I, HARRY E. REMICK, of Boston, county of Suffolk, State of Massachusetts, have invented certain new and useful Improvements in T-Squares and Bevels; and I hereby declare the following specification is a full, clear, and exact description of the same and the accompanying drawings an illustration thereof.

The object of my improvement is to perfect squares and bevels, provide for the adjustment of the blade at any angle to the head, and for the graduated movement of the instrument over the drawing-board at any angle desired.

My invention consists in a square or bevel having a reversible blade adjustable at any angle with relation to the head by means of a protractor and set-screw, and adapted, when reversed, to be fixed rigidly at a right angle thereto.

It also consists in a square or bevel having a head provided with a lever and pawl adapted to actuate a toothed wheel which engages with a rack secured to the drawing-board, so as by the movement of the lever to cause the instrument to travel a given distance over the board.

It also consists in the devices and combinations of devices set forth in the appended claims.

In the drawings, Figure 1 illustrates the practical application and capabilities of my improved square and bevel. Fig. 2 is a perspective view of the head, indicating positions of the blade and toothed wheel; Fig. 3, also a view in perspective of the head with blade detached and portion of head in section to exhibit the mechanism; Figs. 4 and 6, longitudinal and transverse sections of the head and tongue or blade; Fig. 5, view of parts of mechanism detached.

a is the head, and *b* the blade, of the instrument, united to each other by a countersunk screw, *c*, and clamping thumb-nut *d*. The head is furnished with a graduated protractor, *e*, and the blade end or heel bears an index-point to denote the degree of the angle of the blade to the head, since they may be adjusted, as indicated in Fig. 2, in the usual manner, by slackening the nut *d* and swinging the blade on the screw *c*.

A peculiarity of my invention is that the heel of the blade is smooth on one side, so as to be readily adjusted upon the protractor embedded in the head *a*, while upon its other side it is furnished with a metal plate or washer, *w*, secured to the blade, preferably made circular, and having at the extremes of its diameter projections, two or more in number, and of cylindrical or other form at *f*, adapted when the blade is reversed to enter corresponding perforations, *g*, in the protractor or head, thus to be rigidly held to the head by the screw and nut, so as to project at a defined angle—usually a right angle—from the head. From this it will be observed that by simply reversing the blade *b* the implement is changed from an adjustable bevel to a rigid T-square with the utmost facility and accuracy.

Another feature of my invention consists in providing the drawing-board with straight racks *h*, secured in central grooves, or, as may be desired, in two or more edges of the board, indicated in dotted lines, (see Fig. 1,) and in furnishing the head *a* with a toothed wheel, *i*, placed in a recess in the head, so as to project slightly through a slot in the working-face of said head, as in Figs. 2 and 3, to engage with the racks *h*. The gear-wheel *i* is permanently secured by its axis to a broad metal plate, *i'*, from which projects a screw-stud having a milled thumb-nut, *k*, by which the gears are moved into or out of engagement, and held in either position by the nut. The plate *i'* fits accurately into a slotted depression or bed, *j*, of the exact width of the plate *i'*, but of greater length, to provide for a limited movement of the gear *i* toward and from the rack *h*.

In order to move the instrument over the board by rotation of the gear-wheel *i*, I pivot upon its axis a lever, *l*, which projects through a slot in the outer edge of the head *a*, and is furnished with a roughened finger-rest, *m*, and I pivot a pawl, *n*, to the lever in such position that its toe may engage with the teeth of the ratchet *r*, forming part of the wheel *i* under the pressure of a light spring, *o*, and thus rotate the wheel slowly when the lever is vibrated by the finger on the rest *m*. (See Figs. 1 and 3.) The length of the slot through which the lever may vibrate is adjustable by means of a sliding plate, *p*, held in position by a screw, *q*, and by a flange entering the slot. Thus the stroke may be regulated so that the pawl will pass but a single tooth at each vi-

bration of the lever, or lengthened at will to cover any number of teeth. By these devices the movement of the blade may be almost imperceptible, and exceedingly fine and uniform work produced.

It is obvious that where especial fineness of lines was not required, the rack and gear-teeth might be cut finer than is shown, and the pawl arranged to engage with the gear-teeth themselves, so as to dispense with the ratchet *r*; but I regard the plan shown as preferable.

I claim as of my invention—

1. The head *a*, the reversible blade *b*, and the screw-nut *c d*, in combination with the washer *w*, having projections adapted to enter perforations *g* in the head, for the purpose set forth.

2. A bevel and square having a hollow head and an adjustable gear-wheel placed therein with suitable operative mechanism, said gear-wheel being arranged to project through a slot in the working-face of the head to engage with a cogged rack on the drawing-board, for the purpose stated.

3. A bevel and square having a head provided with a sliding plate carrying a toothed wheel, and a lever and pawl for rotating said wheel, in combination with means of adjusting the position of said plate and of regulating the stroke of the lever, for the purposes set forth.

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

HARRY E. REMICK.

Witnesses:

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A. H. SPENCER.