2 Sheets—Sheet 1.

T. E. GIFFORD & C. H. ALDEN.

Carpenter's Combination Tool.

No. 216,267. **Patented June 10, 1879.**

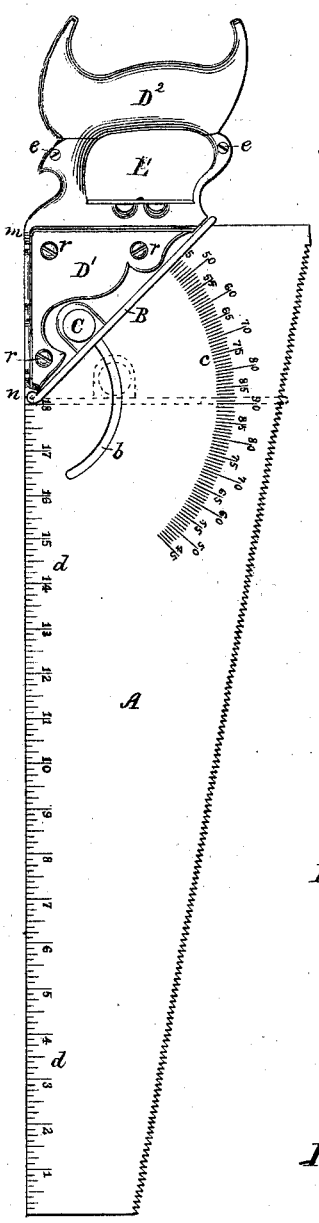

Fig. 1.

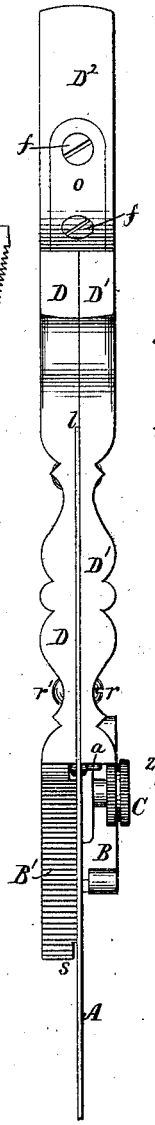

Fig. 3.

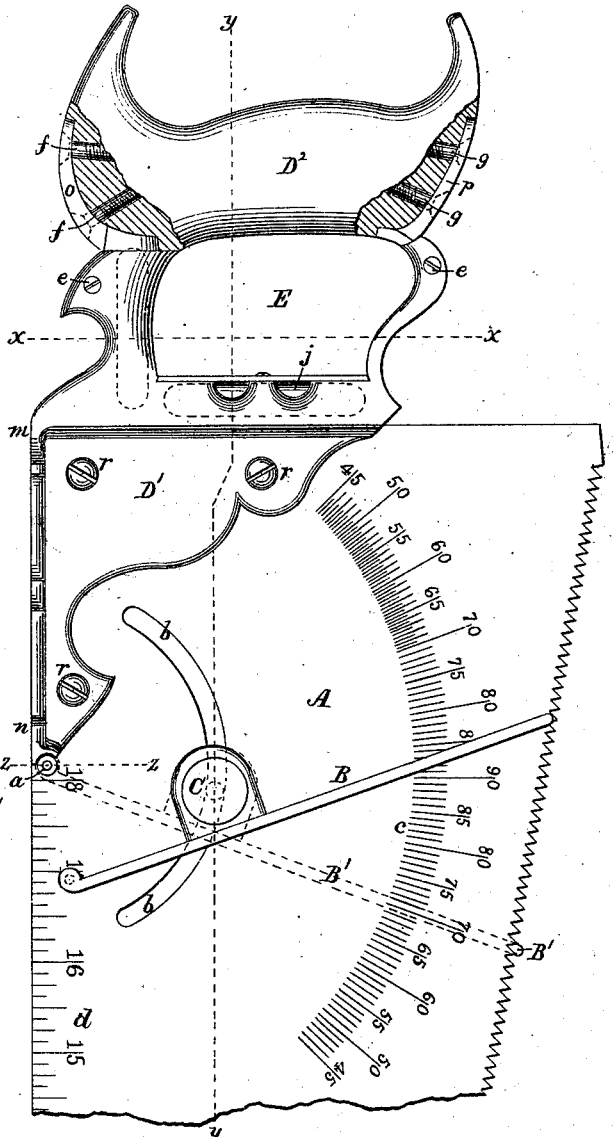

Fig. 2.

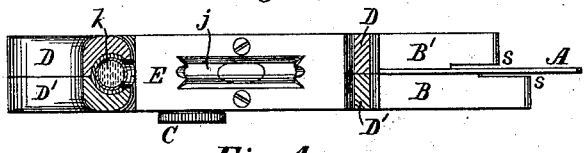

Fig. 4.

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T. E. GIFFORD & C. H. ALDEN.

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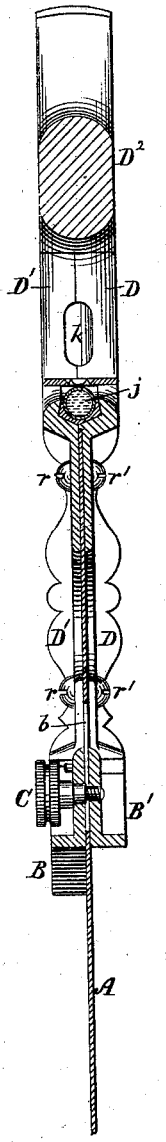

Fig.5.

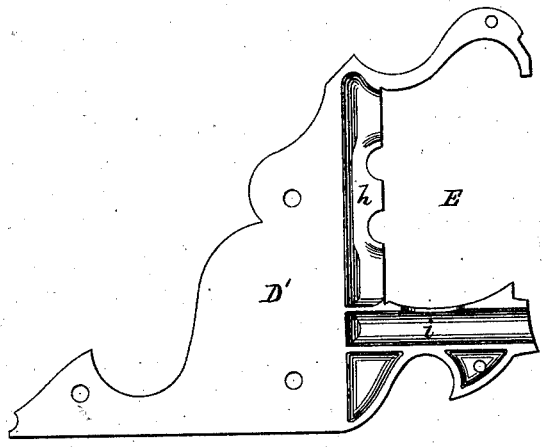

Fig.7.

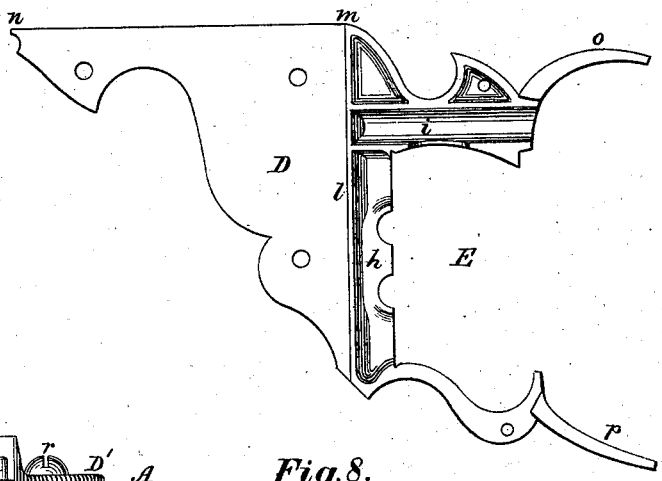

Fig.8.

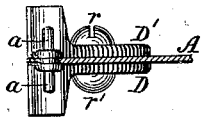

Fig.6.

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UNITED STATES PATENT OFFICE.

THADDEUS E. GIFFORD AND CHARLES H. ALDEN, OF BROCKTON, MASS.

IMPROVEMENT IN CARPENTERS' COMBINATION-TOOLS.

Specification forming part of Letters Patent No. **216,267**, dated June 10, 1879; application filed January 18, 1879.

To all whom it may concern:

Be it known that we, THADDEUS E. GIFFORD and CHARLES H. ALDEN, both of Brockton, in the county of Plymouth and State of Massachusetts, have jointly invented certain new and useful Improvements in Combination-Tools, of which the following, taken in connection with the accompanying drawings, is a specification.

Our invention relates to a combination-tool adapted especially to the use of carpenters and joiners when working upon narrow stagings and in elevated positions, and is designed to obviate the necessity of carrying to such elevated positions a large number of separate tools, which require the constant attention of the workman to prevent their falling from the staging; and it consists in the combination in one implement of a saw having a straight back edge and provided with a handle having a broad flat back coinciding with said straight back edge of the saw-blade, and plumb and level glasses set in said handle at right angles to each other with their faces in position to be seen by looking into the opening provided for the operator's fingers in either direction.

It further consists in the combination of a saw, plumb, level, straight-edge, and two bevel-beams adapted to be set at the same angle, or at different angles, by causing them to pivot about separate and independent axes.

It further consists in a peculiar construction of the saw-handle, whereby it is entirely feasible to apply thereto a spirit-level and plumb-vial, as will be hereinafter described.

It further consists in a novel method of attaching the bevel beams or bars, whereby said beams may be simultaneously operated and moved in unison with each other, and set at the same angle, or they may be set at distinctly different angles at the same time, as will be further described.

It further consists in making the saw-handle in three pieces, one of wood and two of metal, united together and to the saw-blade, as will be hereinafter described.

Figure 1 of the drawings is a side elevation of our improved tool. Fig. 2 is a partial elevation of the same side, with the bevel-beams set to two different angles. Fig. 3 is an edge view looking at the back. Fig. 4 is a transverse section through the handle on line *x x* on Fig. 2, looking toward the saw-blade. Fig. 5 is a longitudinal section on line *y y* on Fig. 2, looking toward the back. Fig. 6 is a partial section on line *z z* on Fig. 2; and Figs. 7 and 8 are elevations of the inner surfaces of the two metal portions of the handle.

A is the saw-blade, having its back edge made straight and its two ends square with, or at right angles to, said straight back edge, as shown. The blade A has set therein near its back edge the pivot-pin *a*, formed as shown in Fig. 6, and also has cut through it the slot *b*, concentric with the pin *a*, the purpose of which will appear hereinafter. An arc, *c*, also concentric with the pin *a*, is graduated or divided into degrees and fractions thereof, by means of which the two bevel-beams B and B′, pivoted upon opposite ends of the pin *a*, may be set at any desired angle to the straight back edge of the saw-blade from an angle of ninety degrees thereto to forty-five degrees in either direction from said right-angled position, said bevel-beams being clamped to the saw-blade, and thus held in any desired position by means of the thumb-screw C, passing through and moving in the slot *b*, as shown.

The back edge of the blade A is graduated into inches and fractions thereof, as shown at *d*, so that it may serve the purpose of a rule or scale for measuring feet, inches, or fractions of inches.

The saw-handle is made of two metal portions, D and D^1 and the wooden piece D^2, secured together by the screws *e*, *e*, *f*, and *g*, as shown.

The metal portions D and D^1 are each provided upon their inner faces with the recesses or packets *h* and *i*, which, when said parts D and D^1 are secured together, hold, respectively, the spirit-glasses *j* and *k* set therein in a bedding of plaster-of-paris in a well-known manner, said glasses being so arranged that the air-bubbles therein may be viewed from the inner wall of the opening E formed in the handle for the operator's fingers, as shown in Figs. 4 and 5.

This arrangement of the plumb and level

glasses within the opening formed in the saw-handle for the operator's fingers, with their open or uncovered sides toward said opening, is a great improvement upon setting such glasses in the side or sides of the saw-handle, as in this arrangement the glasses may be readily seen from either side of the saw, and as a consequence the operator saves time in the use of the plumb or level by not being obliged to turn the instrument after picking it up to get into a position where he can view the glasses; and a further advantage is that the glasses are much less liable to become broken than when the glasses are placed upon the side of the handle.

The metal portion D of the handle has formed upon its inner face the shoulder or abutment *l*, exactly at right angles to the straight portion *m n* of its top edge, against which shoulder the squared end of the saw-blade A abuts when the handle is secured thereto, and said part D is also provided with the rearwardly-projecting ears *o* and *p*, (not found on the part D^1,) by which the wooden piece D^2 is firmly secured to the metal portions, as shown. The handle is secured to the saw-blade by means of the screws *r r* and nuts *r' r'* in a well-known manner, care being taken to insure a firm bearing of the squared broad end of the saw-blade against the shoulder *l*, and that the straight back edge of said blade shall coincide with the straight portion *m n* of the handle.

The inner edges of the bevel-beams B and B' are cut away for a short distance at their movable ends, as shown at *s s* in Fig. 4, so that they shall not come in contact with the saw-teeth as they are moved about their centers of motion to adjust them to different angles.

The operation of our improved combination-tool is as follows: When the parts are in the position shown in Fig. 1, the saw is adapted to all the ordinary uses of a hand-saw, while its straight back edge, combined with the straight broad back of the handle D D^1, and the spirit-glasses *j* and *k*, enables it to be used as a plumb or level without in the least interfering with or detracting from its practical use as a hand-saw. Its tip or forward end, with the graduations along its straight back edge, renders the saw-blade capable of being used as a scale for measuring lengths. The bevel-beams B and B', pivoted on the pins *a a*, and connected together by the thumb-screw C passing through the slot *b*, and adapted to be moved therein, may be moved together, and secured in position at any desired angle to the straight back edge of the saw-blade, so that the tool may be used to lay off any given angle upon opposite sides of a perpendicular line, or, in other words, if it is desired to lay off the same angle in opposite directions, it can be accomplished by simply turning the saw over or the other side up.

In clapboarding the gable-end of a building, and in many other places, it becomes necessary for the workman to cut one end of the clapboard or other piece of finish to a bevel line and square at the other end, for which ordinarily he would have to carry with him on the staging a saw, a bevel, and a square, each one of which is necessary to the proper execution of the work; and if he drops one of them from the staging he has to descend to the ground and recover the missing tool before the work can go on.

If, however, he is provided with our combination-saw he has only to slacken the thumb-screw C till he can remove the beam B from the pin *a*, move the screw C along the slot *b* till the beam B' is at right angles to the back edge of the saw-blade, swing the beam B about the screw C till it assumes the desired angle for striking the bevel for the rake of the gable-finish, and then tighten up the screw C to clamp the beams B and B' firmly to the saw-blade A, and he has the saw, square, and bevel all combined in one implement, not so liable to get displaced or dropped from the staging as the smaller bevel and square when made separately.

We are aware that a graduated scale has been marked upon a saw-blade and that bevel-beams have been pivoted thereto before our invention, and therefore we do not claim the combination of either or both of the devices with a saw or saw-blade; but we think we have applied our bevel-beams in an improved manner, whereby we are enabled to accomplish with our improved tool what could not be done with the combined saws and bevels heretofore in use—to wit, the ability to set the two bevel-beams at different angles—that is, for instance, to set one of said beams at right angles to the straight back edge of the saw-blade, and the other at any desired angle thereto other than a right angle—whereby the tool may be used both as a square and bevel at the same time without change. This we consider a very important advantage, as is also the ability to set both beams at precisely the same angle when it is desired to be able to set off the same angle in opposite directions or on opposite sides of a perpendicular line, which is due to the peculiar construction and manner of mounting and clamping our bevel-beams to the saw-blade, as heretofore fully set forth.

What we claim as new, and desire to secure by Letters Patent of the United States, is—

1. In combination with a saw-blade having a straight back edge and a handle having a broad flat top edge coinciding with the said straight back edge of the saw-blade, plumb and level glasses set in said handle at right angles to each other with their faces in position to be seen by looking into the opening provided for the fingers of the operator from either side, substantially as shown and described.

2. The combination, in one implement, of a saw, a plumb and level, a straight-edge, and two pivoted beams adapted to be set at the same or different angles to said straight-edge

by moving them around different axes of motion, substantially as and for the purposes described.

3. In combination with a saw, two bars arranged upon opposite sides of the saw-blade, pivoted at a common center thereto, and secured in position thereon by a movable clamping-bolt, when constructed and arranged as herein set forth, so that either or both of said bars may be disconnected from said common pivot, and be made to pivot about said movable clamping-bolt without removing either the said pin or bolt, substantially as described.

4. A saw-handle made wholly or in part of metal, divided longitudinally parallel with the side of the saw-blade into two parts, D D^1, said parts being each chambered upon their inner faces, as shown at *h* and *i*, to form pockets adapted to receive and hold the plumb and level glasses *j* and *k*, substantially as described.

5. A saw-handle composed of the two metal portions D and D^1 and the wooden portion D^2, all constructed and arranged relative to each other and secured together substantially as described.

6. The combination of the saw-blade A, having a straight back edge, the double pivot-pin *a*, set in permanently in a fixed position in said blade near its back edge and projecting in opposite directions therefrom, the curved slot *b* cut through said saw-blade concentric to the pin *a*, and the two bevel-beams B and B′, mounted upon opposite ends of the pin *a*, and bearing against opposite sides of the saw-blade, and connected together and clamped to said saw-blade by the thumb-screw C passing through the slot *b*, and adapted to be detached from the pin *a* by slackening the binding-screw C, substantially as and for the purposes described.

Executed at Boston, Massachusetts, this 13th day of January, A. D. 1879.

THADDEUS E. GIFFORD.
CHAS. H. ALDEN.

Witnesses:
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