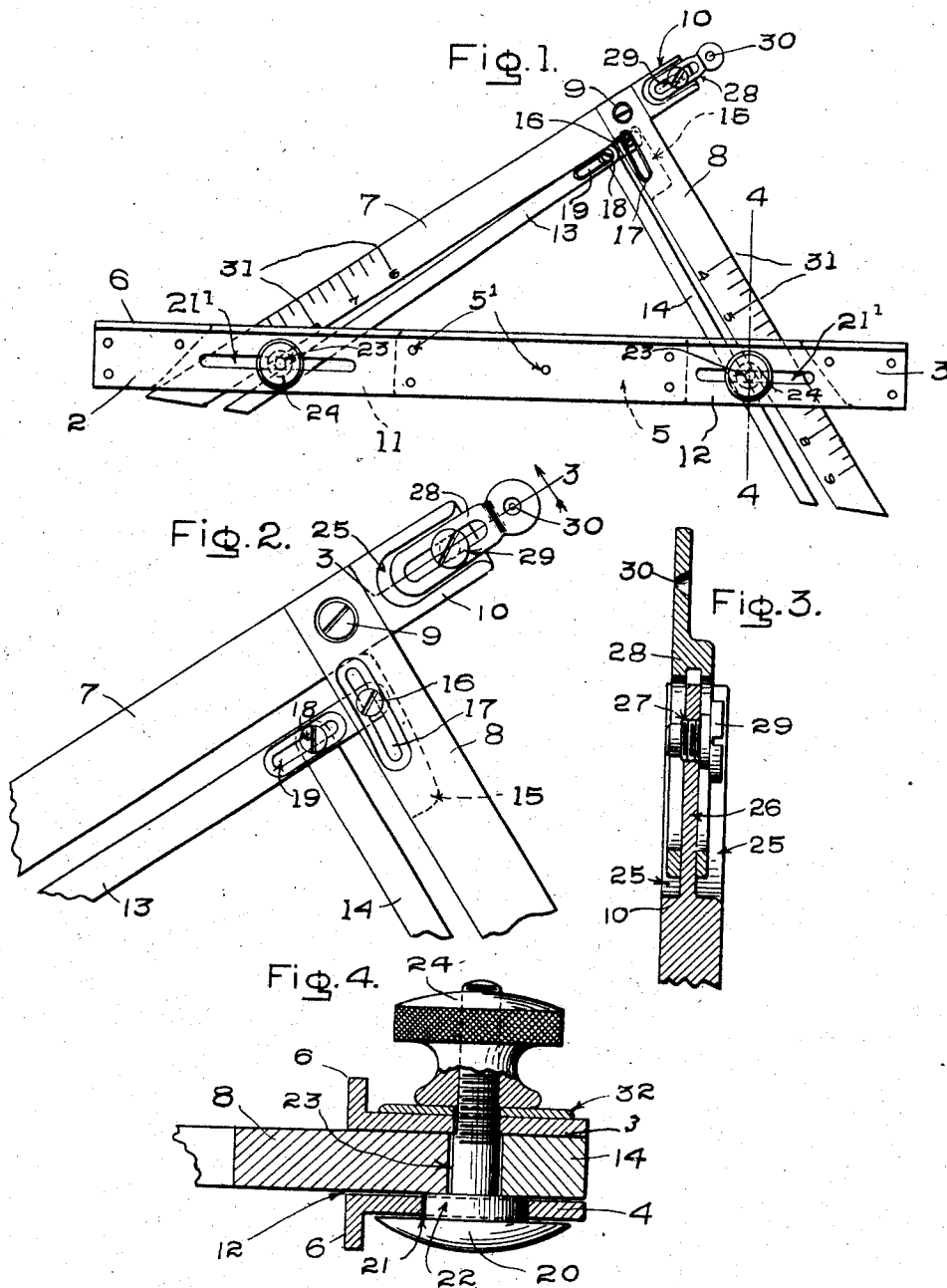


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G. E. CORY.
STAIR TEMPLET.
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UNITED STATES PATENT OFFICE.

CHARLES E. CORY, OF WATERTOWN, NEW YORK.

STAIR-TEMPLET.

No. 866,111.

Specification of Letters Patent.

Patented Sept. 17, 1907.

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To all whom it may concern:

Be it known that I, CHARLES E. CORY, a citizen of the United States, residing at Watertown, in the county of Jefferson and State of New York, have invented certain new and useful Improvements in Stair-Templates, of which the following is a specification.

This invention relates to improvements in stair templates or gages, designed for use by stair-builders for laying out their work, and the invention relates particularly to an adjustable templet or gage for use in marking or locating the position and arrangement of the risers, treads and wedges of stair steps of varying sizes and forms.

The object of the invention is to provide a stair templet of the class, which is capable of being adjusted and set in a quick and ready manner, and then employed for laying-out or marking the stringers of stairways of that class in which the ends of the risers and treads of the steps are set in mortises or gains formed in the face of the stringers, and by the use of which the several steps of a stairway may be laid-out uniformly and true; a further object of the invention is to provide a templet which is capable of being adjusted and set for marking stairways having steps of the same, or different height and breadth; a further object is to provide a templet which may be adjusted so that the stringers may be marked to receive risers and treads of varying thickness and also wedges for keying or tightening the said parts, and a further object is to provide a device of the class which is simple, accurate and inexpensive, and which will stand considerable use and abuse and not get out of order.

The invention consists principally in providing a stock or handle, so constructed and arranged that its inner side forms a straight-edge adapted to bear against and conform to one edge of a stair stringer.

The invention further consists of a pair of blades or parts secured at their inner ends to form a rigid and true right-angle, the outer or free ends thereof being adjustably mounted in slots formed in the opposite ends of the stock, and the said blades when so mounted forming with its straight-edge of the stock substantially a right-angled-triangle.

The invention further consists in providing a second pair of blades or markers and disposing them within the angular space formed by the first named blades, and the invention further consists in providing means for adjusting and setting the blades in different positions in relation to the handle or stock, and for adjusting and setting the inner blades to different positions in relation to the outer blades, and also to each other.

Other features and parts of the invention will be fully understood from the detail description which follows, and by reference to the accompanying drawing which forms a part of this specification, and in which—

Figure 1 is a plan view of my complete device, show-

ing the same set ready for marking stair steps. Fig. 2 is a partial plan view of the templet blades, on a large scale, showing manner of constructing and adjusting these parts. Fig. 3 is an enlarged sectional view, substantially on the line 3—3 of Fig. 2, showing the construction of the adjustable nosing marker. Fig. 4 is an enlarged sectional view, substantially on the line 4—4 of Fig. 1, showing construction and arrangement of the adjusting clamp carried by the stock.

Similar characters of reference are assigned to corresponding parts throughout the several views.

2 represents a stock or handle, preferably made in the form shown in the drawing, and comprising two oppositely-facing angular metallic parts 3 and 4 of equal length and width, between which a metallic or wooden filling-piece 5 is fitted.

5' represents a series of rivets or screws employed to bind the parts of the stock together.

The inner edge or face of the stock comprising the oppositely-disposed flanges or leaves 6 of parts 3 and 4, are intended to serve as a straight-edge, the use of which will be explained hereinafter.

7 and 8 represent a pair of blades or parts, preferably made of steel, although wood, or any other suitable material may be employed in place of steel. The said blades may be made to any suitable length, width and thickness, but preferably in the form shown, with their inner ends secured together by means of a screw 9, to form a rigid joint. The inner edges of these blades when so joined forming a member or part describing substantially a true right-angle. In laying-out a stair, the blade or arm 7 will represent the tread or horizontal part of a step, and its inner end preferably extends a slight distance beyond the outer edge of blade 8, as at 10, to provide for marking the nosing or projecting edge of the tread-board. The blade 8 represents the riser or the vertical part of a step, which is invariably disposed in a stair at right-angles to the tread.

To facilitate attaching blades 7 and 8 to the stock or handle, in a manner to permit of their adjustment to suit the varied conditions which arise in the building of stairs, slots 11 and 12 are formed transversely through stock 2, near its ends, into which the free ends of the blades are inserted, and in which they are allowed enough freedom and range of movement to allow them to be shifted or adjusted in different directions, as may be required for the marking or laying-out of steps of different size. Fig. 1 of the drawing shows the templet set ready for marking a step having a six inch riser and a nine inch tread. It will be understood from this view, that steps varying within a wide range, both as to the height of the risers and breadth of the treads, may be marked or laid-out, simply by shifting the blades 7 and 8 and setting them to different positions in slots 11 and 12 of the handle.

It is rarely that two stairways are constructed exactly alike. Some vary in the height of the risers and also in the breadth of the treads; some are made of heavy lumber or material for the treads and light or thin material for the risers, while others are made with both the risers and treads substantially of the same dimensions. In order to provide a templet which may be adapted to these and other varying conditions, it has been necessary to construct and arrange the parts of the device in a peculiar and novel manner. To that end, the blades 7 and 8 are preferably made about one-half an inch in width, and are therefore too narrow to serve alone as a gage for marking the thickness of either the risers or treads of even the lightest stairways, and in order to carry out the purposes of my device, I provide a pair of secondary blades or markers 13 and 14, which should be made of the same material and substantially of the same thickness, but preferably narrower than the other blades. These latter blades are disposed inside the angle formed by the joining of blades 7 and 8, and preferably in the same plane. The blade 13 is joined at its inner end to blade 8, which is provided with a deep mortise groove 15, cut in its inner edge to receive the tenoned end (not shown) of blade 13, which is held in place by a set-screw 16, and is adjustable by means of a slot 17 cut through blade 8. The object of this adjustable feature is to permit blade 13 to be moved and set at a greater or less distance from the tread-blade 7, for the purpose of laying-out treads of varying thickness. Blade 14 is pivotally connected to blade 13 near the inner end of the latter by a set-screw 18, and a slot 19 is cut through blade 13 to permit blade 14 to be shifted toward or away from the riser-blade 8. The free ends of blades 13 and 14 are also inserted in slots 11 and 12 alongside of blades 7 and 8, and are adjustable with the latter. At this point, it may be well to explain, that in laying-out or marking a series of steps with my templet, the outer edges of blades 7 and 8 will always represent an unchanging line, *i. e.*, the face of finish sides of both the risers and treads, while any variation—*increase or decrease* in the thickness of these parts of the steps, will be provided for by shifting the wedge-blades 13 and 14, either toward or away from the blades 7 and 8.

Many modern stairs are constructed by laying-out and cutting gains or mortises in the sides of the wall and other stringers used to support the stairs, of a sufficient depth to receive and safely hold the ends of the risers and treads. These gains or depressions must be laid out with great care and then cut truly in order to erect a stair in a neat and workmanlike manner. Heretofore stair-builders have laid out their work by the use of the common carpenter's square, or with paper or sheet metal templates, which had to be prepared for each stair specially, and these rarely could be used a second time, because of the many variations in stair construction. These old methods have always been slow and often inaccurate, and have therefore caused much delay, trouble and expense in the building of stairs. But by the use of my adjustable templet or gage, the builder is able to adjust and set the device in a few minute's time, and to lay-out and mark the stair stringers in a ready and accurate manner.

The stairways of the class described are built in such manner that when the ends of the risers and tread-

boards are inserted in the gains in the stringers, as explained, they are then keyed up with wedges, which are driven into the gains underneath the tread and also behind the riser. One wedge is employed for forcing the lower edge of the riser tight against the rear edge of the tread of the step below, and at the same time forcing it outwardly against the finish side of the mortise. Then another wedge is driven under the rear edge of the tread to force it upwardly against the finish side of the other mortise. In this way all of the joints of a series of stair steps are closed up tight. In order to provide gains having a sufficient space to receive the wedges in addition to the risers and treads, the lower portion of the riser gain is made half an inch or more wider than the thickness of the riser, and the rear portion of the tread gain is also widened in the same manner. To provide for properly marking the gains so as to allow space for both the step pieces and their wedges, blades 13 and 14 are joined at their inner ends in the pivotal and adjustable manner as described and shown. Under this construction and arrangement of these secondary blades, the outer or free ends when inserted in the slots 11 and 12, may be adjusted and set either parallel to the blades 7 and 8, or they may be spread and held to any desired angle, to provide for the insertion of wedges of any suitable size behind and beneath the risers and treads.

In order to hold the free ends of the several blades rigidly in place during the interval of marking or laying-out a stair, I provide adjustable clamps or parts 20, which are arranged to slide in slots 21 formed through the angular part 4, at or near the ends of the handle 2, and then in part 3 of the handle are formed slots 21', which are disposed so as to register with the slots 21. Each clamp 20 is provided with a raised portion 22, which loosely fits slots 21, and is raised to an extent greater than the thickness of the metallic part 4, so that when it is drawn into slot 21 by means of the threaded stud 23 and hand-nut or knob 24, it will engage the under sides of the blades and bind and hold them in the position to which they are set. The studs 23 are rigidly set in the clamps 20, and are so disposed that they will pass between blades 7 and 13 at one end of the stock, and between blades 8 and 14 at the other end, and the clamping-part 22 is made broad enough to engage and bind the two blades, whether they are set close together, or some distance apart. The studs 23 are movable in slots 21' for shifting and setting clamps 20.

The inner end of blade 7, where it projects to represent the nosing of the tread, is provided with shallow recesses 25, which are formed on each side of the blade in a manner to leave a thin central web 26, provided with a threaded hole 27.

28 represents a forked gage or marker which is pivoted to web 26 by a set-screw 29, which passes through the slotted arms of the fork and is threaded into hole 27, and 30 represents a small circular hole near the outer end of the marker 28. The object of the marker 28 is to provide means for marking the center of a circle which will represent the thickness of the tread and at the same time provide a circular fitting for the nosing or projecting edge of the tread. When the builder has adjusted the gage 28 to the proper position to indicate a circle of suitable diameter, he will mark the center of the circle by inserting a lead pencil or awl through the

hole 30. He will then use an auger or other boring bit to cut out that portion of the tread-gain. He will mark the other portions of the gains by drawing a pencil or other marking instrument along the outer edges of blades 7 and 8 and also on the inner edges of blades 13 and 14.

31 represents graduations indicating inches and fractions thereof, marked on the sides of blades 7 and 8, for use in setting the templet parts to exact measurements.

10 To set the templet for marking the steps of a stairway, the builder will first make a diagram or plan of the style and size of one of the steps. He will then lay the templet upon the drawing, after having loosened the several set-screws, and adjust the several blades and
15 the stock and also the nosing marker to conform to the outline. He will next tighten up the set-screws and clamps, and the device will be ready for use. But one setting or adjusting of my templet is required for marking the oppositely facing or right and left handed
20 stringers: one stringer being marked with the face side up, and the other being marked with the face side down.

All of the blades of my templet are preferably arranged in the same plane, so that either side will lie flat
25 upon the stringers while the marking is being done, and the set-screws are all counter-sunk to make their heads flush with the sides of the blades.

By the use of my adjustable templet, a builder may save a great deal of time in arranging for and laying-out
30 his work, as it requires but a few minutes to adjust and set the device for steps of any particular size, and the marking when done will be reliable and accurate.

Obviously some changes or modifications may be made in the parts of the device without departing from
35 the spirit of my invention, and I therefore do not restrict myself to the precise construction and arrangement of the same as herein shown and described.

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

40 1. In a marker for stairs, the combination with a slotted stock having a straight-edge on one side, of a pair of graduated blades joined at their inner ends to form a right-angle, the free ends of said blades adapted to adjustably fit in the slots in said stock, a second pair of
45 blades disposed within the angle formed by the first named blades, the inner ends of said blades being pivotally and adjustably joined together and also connected to said first named blades, the outer ends thereof adjustably fitting the said slots of said stock, and means for holding
50 all of said blades in different positions in relation to said stock, substantially as described.

2. A marker for stairs of the class described, comprising a slotted handle, a pair of blades joined at their inner ends to form a right-angle adjustably mounted in the
55 slots of said handle, a pair of secondary blades pivotally joined at their inner ends and adjustably hinged to one of said first named blades, a pair of screw-clamps carried by said handle adapted to hold all of said blades in a number
60 of positions in relation to said handle, substantially as described.

3. A stair templet of the class described, comprising a pair of blades rigidly joined at one end to form substantially a right-angle adapted for marking the position of the risers and treads of a stairway, a pair of wedge-markers disposed within the angle formed by joining the
65 said blades, the said wedge-markers being pivotally connected near their inner ends, and one of said wedge-markers being pivotally connected to one of said blades, and a stock having one side formed into a double straight-edge and having slots formed near the ends thereof adapted
70 to receive the free ends of said blades and also said wedge-markers, substantially as described.

4. A stair templet, comprising a pair of blades joined near their inner ends to form a right-angle, one of said blades adapted for marking the position of the riser and
75 the other of said blades adapted for marking the position of the tread-board of a stair-step, a series of graduations on said blades to indicate the height and breadth of a stair-step, a pair of independent marking-blades pivotally
80 joined together and connected with said riser-blade, a handle having a straight-edge and having slots adapted to receive and adjustably hold the free ends of all of said blades, and an independent adjustable gage for locating
the nosing of a stair tread, substantially as described.

5. A stair templet or gage, comprising a slotted stock
85 having one side formed into a straight-edge, an angular member adjustably mounted in slots in said stock adapted for partially marking gains for the risers and treads of a stair, a pair of blades adjustably connected with each
90 other and also with said angular member, adapted for completing the marking of the gains for the risers and treads and also for the insertion of wedges, and a clamping-stud carried by each end of said stock adapted to hold
said member and said blades in position when adjusted,
95 substantially as described.

6. A device of the class described, comprising a slotted handle, a templet-member comprising two arms joined together to form by their inner edges a right-angle, the free
100 ends of said member being adjustably mounted in slots in said handle, a pair of wedge-blades adjustably connected to each other and also to said templet-member and having their free ends inserted in the slots of said
handle, the said wedge-blades adapted to cooperate with
said templet-member to form a gage for marking mortises
105 for the risers and treads of a stairway, and an adjustable nosing-marker connected to said templet-member, substantially as described.

7. A marker for stairs, comprising a slotted handle, a pair of blades joined at their inner ends to form a right-angle adjustably mounted in the slots of said handle,
110 and a pair of secondary blades pivotally joined at their inner ends and connected to one of said first named blades, substantially as described.

8. A stair templet, comprising a handle having two oppositely facing slots in each end thereof, a pair of blades
115 joined at right-angles adjustably fitting corresponding slots in said handle, a pair of wedge-blades adjustably hinged at their inner ends to each other and also to one of said first named blades, and a pair of studs passing
120 through the handle and between the free ends of said blades adapted to clamp and hold all of said blades rigidly when adjusted, substantially as described.

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

CHARLES E. CORY.

Witnesses:

HARRY DE WALLACE,
ARTHUR L. CHAPMAN.