(No Model.)

D. S. PAUL.

PATTERN.

No. 445,859. Patented Feb. 3, 1891.

Fig. 1.

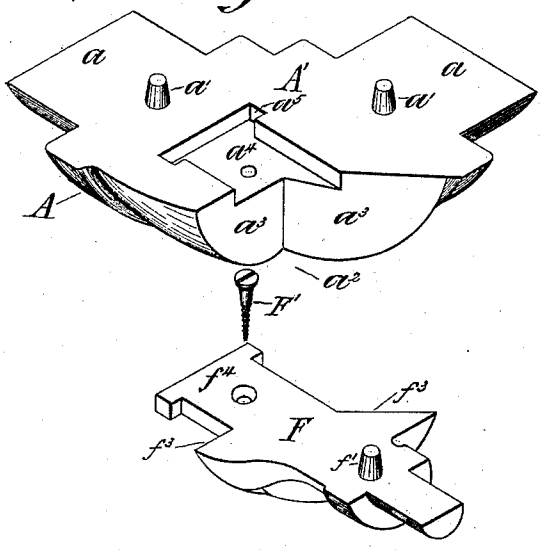


Fig. 2.

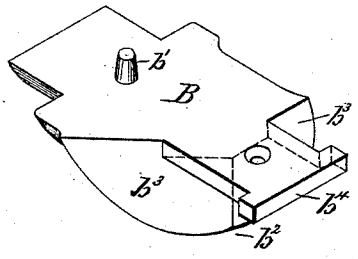


Fig. 2ª

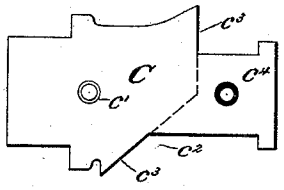


Fig. 2ᵇ

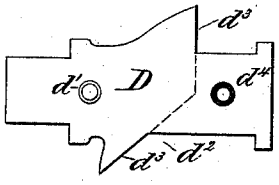


Fig. 2ᶜ

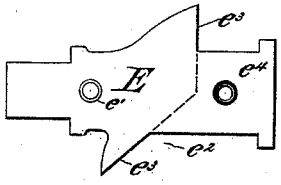


Fig. 3.

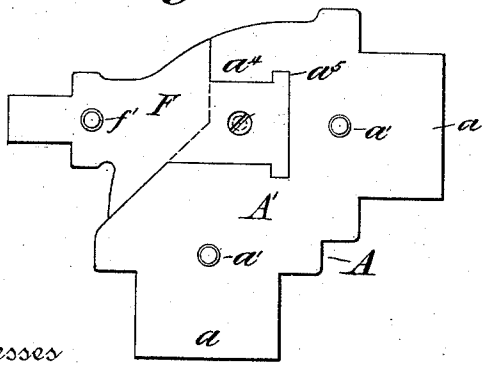
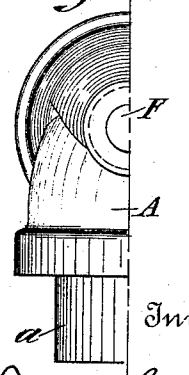


Fig. 4.



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UNITED STATES PATENT OFFICE.

DAVID SELLERS PAUL, OF PHILADELPHIA, PENNSYLVANIA.

PATTERN.

SPECIFICATION forming part of Letters Patent No. 445,859, dated February 3, 1891.

Application filed October 14, 1890. Serial No. 368,098. (No model.)

To all whom it may concern:

Be it known that I, DAVID SELLERS PAUL, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Patterns for Special Castings; 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.

My invention relates to the art of casting "specials" or "special castings," such as T's, elbows, quarter-turns, and crosses, and similar articles used in plumbing or in gas and steam fitting; and the same has special reference to patterns which will enable a great variety of such specials to be cast with a comparatively small number of patterns and core-boxes. A great multiplicity of such specials are required in practice, and they vary in the size of one or more of the outlets, their numbers, and their location. In order to produce these various specials and at the same time make an accurate casting, it has heretofore been necessary to provide as many patterns as there are specials to cast, involving a great outlay in making the castings.

My invention consists in making the patterns in sections, a main section for the body of the casting and a number of interchangeable sections for the outlets which are most subject to variations, said interchangeable sections being adapted to be accurately fitted to the main sections. It will readily be seen that with a comparatively small number of interchangeable sections and a greatly smaller number of main sections I am enabled to produce an immense number of combinations, thus providing patterns for the largest conceivable variety of castings.

It is my object, moreover, to provide the sections with means whereby the same when united are accurately and securely fitted or locked together, and form, to all intents and purposes, one pattern which may be moved and handled without deranging the relative position of its parts.

To this end my invention consists in forming the sections so that when united they will be securely held together by an interlocking joint. This joint is preferably formed by forming the main section with a mortise having vertical walls, and preferably a horizontal dovetailed or shouldered mortise intersecting the first-named mortise, and also providing the interchangeable sections with abutments and tongues engaging with said mortises and affording a firm bearing, preventing any lateral or other displacement. In order to lock the parts firmly together, a screw passing through the tongue into the horizontal mortise may be employed.

My invention also consists in such further features as will be hereinafter pointed out and covered in the claims.

In order to enable the invention to be fully understood, I will now give a detailed description thereof, reference being had to the accompanying drawings.

In the drawings, Figure 1 shows an isometric view of one-half of the main and interchangeable section of a pattern for a special, such as a "T." Fig. 2 represents a similar view of one of the interchangeable sections for the variable outlet to be attached to the main section; Figs. 2^a, 2^b, and 2^c, plan views of some of the other interchangeable sections employed; Figs. 3 and 4, a plan and an end elevation, respectively, of a completed half-pattern formed by uniting the main sections with one of the interchangeable sections.

The drawings show only one half of the pattern embodying my invention, inasmuch as the other half is a mere counterpart of the same, as will be understood.

Referring now to the drawings which represent the parts of a pattern for what is known as a "T," it will be noted that the main section A thereof is formed in the usual way with the points a a for the two main outlets of the T, and with dowels a' a' for engaging with corresponding holes or mortises of the main section of the other half of the pattern when the two halves are assembled. The main section A, it will be noted, is cut away at a^2, where the variable outlet is to be formed. I preferably make this cut-away portion in the form of an angular mortise, having vertical walls a^3 a^3, as shown. By

this angular mortise a sufficiently secure bearing would be formed for the correspondingly-shaped walls of the interchangeable sections B, C, D, and E, which could be secured to the same by a simple screw; but to make a perfectly secure and accurate interlocking joint I provide the inner face A′ of the main section with a horizontal groove or mortise a^4, which may be shouldered or dovetailed, as at a^5, to produce a still securer joint. This horizontal mortise, it will be seen, is preferably made to intersect the mortise a^2.

The interchangeable sections B C D E, &c., correspond to the sizes of the variable outlet of from one and one-half to five inches in diameter, and are each provided with a point a and with the bearing-surfaces b^2 c^2 d^2 e^2, &c., corresponding to and adapted to impinge against the cut-away portion a^2 of the main section when assembled. In the present instance they are shown as consisting of the two walls b^3 b^3 c^3 c^3, &c., forming the same angle as the walls of the angular mortise of the main section. Moreover, in the present embodiment of my invention I have shown these interchangeable sections provided each with a shouldered or dovetailed tongue b^4 c^4 d^4, &c., corresponding in shape to the dovetailed or shouldered mortise a^4, and of such thickness that when the parts are assembled the tongue will be flush with the inner face of the main section A and the inner face of the assembled pattern half will form a plane surface. A screw F′, passing through one of the tongues b^4 c^4 d^4, &c., into the main section, firmly holds the two together when interlocked, thus forming practically a single undivided pattern whose parts are effectually prevented from displacement.

When it is desired to change the size of the one outlet in the T, all that is necessary is to remove the single screw holding the two sections together and substitute one of the other interchangeable sections in lieu thereof, and then secure the same by the said screw.

The outer contours of the pattern-sections are so formed that when the main section is connected with any of the interchangeable sections the surface of the pattern presents an even continuous surface without any bumps or breaks whatever interchangeable section may have been employed. I am thus enabled to produce a casting of even thickness at all parts and without any waste of metal. This advantage is due to my removable and interchangeable sections, whose outer contour can readily be so formed as to take up the decrease or increase in the size of the variable outlet, and to form an easy and natural continuation of the contour of the part of the main section adjacent thereto.

The application of my pattern is well known to those familiar with the art of molding and need not be set forth here.

While I have shown my invention as applied to T's with one variable outlet, it is evident that the same may be applied with equal facility to other specials, such as elbows, quarter-turns, crosses, and the like, that several variable outlets may be provided for, and that the direction of the outlets may be varied, all without departing from the principle of my invention.

It is also obvious that the pattern may be divided into more than two sections, and that in certain instances the distinction between main and interchangeable sections may disappear, each section being interchangeable with every other in the pattern outfit.

It is also obvious that the pattern may be varied in many other details. I do not therefore desire to limit myself to the exact constructions shown and set forth; but

What I claim, and desire to secure by Letters Patent, is—

1. In patterns for casting specials, the combination of a main section having an angular mortise and a horizontal mortise in the surface adjoining the angular mortise and intersecting the angular mortise, with a removable section provided with an angular abutment fitting into the angular mortise, and a tongue engaging the horizontal mortise, substantially as described.

2. In patterns for casting specials, the combination of a main section having an angular mortise and a horizontal dovetailed or shouldered mortise intersecting the angular mortise, with an interchangeable section for forming the various sizes of outlets, each provided with an angular abutment fitting into the angular mortise, and a dovetailed or shouldered tongue for engaging the horizontal mortise, substantially as shown and described.

3. In patterns for casting specials, the combination of a main section having an angular mortise or rabbet and a horizontal dovetailed or shouldered mortise intersecting the angular mortise, with an interchangeable section for forming the various sizes of outlets, each provided with an angular abutment fitting into the angular mortise, a dovetailed or shouldered tongue for engaging the dovetailed or shouldered mortise, and a single screw for securing the sections and passing through the dovetailed tongue into the permanent section, substantially as set forth.

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

DAVID SELLERS PAUL.

Witnesses:
THEODORE W. CARTER,
ADDISON REICHNER.