

1,387,558.

Patented Aug. 16, 1921.

Fig. 1.

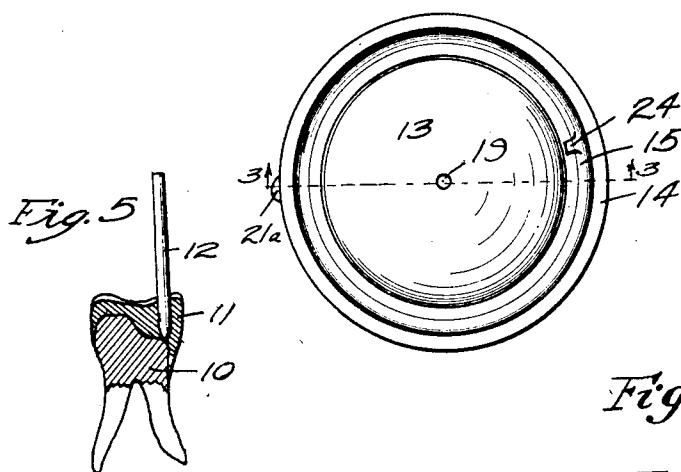


Fig. 2.

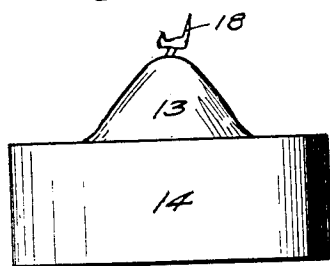


Fig. 3.

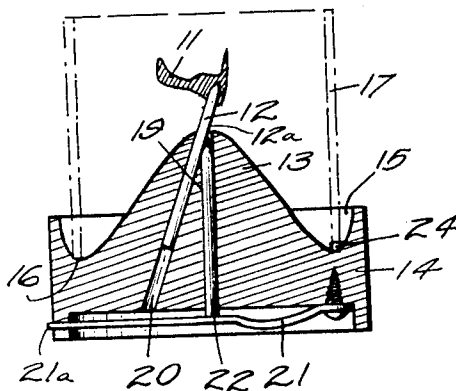
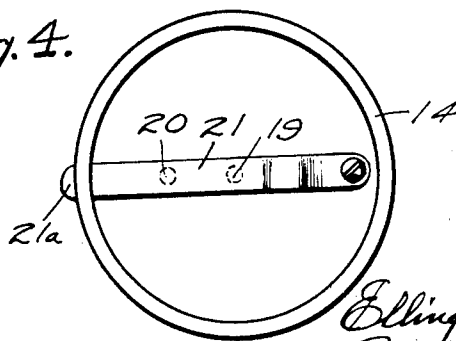


Fig. 4.



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SPRUE-FORMER.

1,387,558.

Specification of Letters Patent.

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Application filed April 11, 1921. Serial No. 460,403.

To all whom it may concern:

Be it known that I, ELLING I. ROSHEIM, a citizen of the United States, and a resident of Roland, in the county of Story and State of Iowa, have invented a certain new and useful Sprue-Former, of which the following is a specification.

The object of my invention is to provide a sprue former of very simple, durable and inexpensive construction.

More particularly, it is my object to provide a sprue former, having parts so constructed and arranged as to make possible the ready and easy centering of the pattern with relation to the ring or form in which the mold is made.

With these and other objects in view, my invention consists in the construction, arrangement and combination of the various parts of my device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which:

Figure 1 shows a top or plan view of a sprue former embodying my invention.

Fig. 2 shows a side elevation of the same, illustrating one of the movable parts in a certain position.

Fig. 3 shows a vertical, transverse, sectional view of a sprue former, showing the movable parts in another position.

Fig. 4 shows an inverted plan view of the device; and

Fig. 5 shows a side elevation of a wax pattern, showing a pin inserted therein.

In preparing a filling or inlay for teeth, it is the common dental practice to first prepare the cavity, then fill the cavity with wax for making a pattern for the casting of the inlay or filling.

In Fig. 5, I have shown a tooth indicated generally by the reference numeral 10, having a cavity in which the wax pattern 11 has been made. After the pattern has set slightly, it must be removed from the cavity. This is accomplished in various ways, but the preferable way is to insert the point of a pin 12 into the wax pattern 11 adjacent to one side thereof, as illustrated for instance in Fig. 5.

The pin 12 should be inserted parallel with the longitudinal axis of the tooth. This method of inserting the pin for pulling off the wax pattern is much preferred by many members of the profession.

If the pin is not inserted, as just mentioned, it is inserted into the middle part of the pattern, after the pattern has been removed from the tooth.

The pin 12 is then placed in inverted position in the hole in the center of the dome-shaped member 13 of a sprue former 14.

The sprue former consists of a base, having in its upper surface a dome-shaped portion 13, surrounded by a channel 15, having a flat annular bottom portion 16.

It will be seen that where the pin is inserted, as shown in Fig. 5, into the pattern, then if the pin is inserted into a vertical hole in the sprue former, the pattern will be offset with relation to the sprue former.

After the pattern has been mounted on the sprue former, the next step is to place a ring or tubular member 17, shown by dotted lines in Fig. 3, on the sprue former, as shown in Fig. 3, and thereafter the ring is filled with the composition from which the mold is made.

It is desirable that the pattern 11 be substantially at the diametrical center of the mold. This is obvious because it is desirable that the heat should reach the pattern on all sides at the same time and at a uniform degree. The uniform penetration of the heat to the pattern from all sides is very difficult and almost impossible to secure, unless the pattern is properly centered in the mold.

It is my purpose therefore to provide a sprue former, which makes it possible to readily and easily center the wax pattern, such as the pattern 11, with relation to the ring 17, and having parts so constructed and arranged that the wax pattern can be readily centered whether it be a large or small one.

In Fig. 2, I have shown a smaller wax pattern 18. The ordinary sprue former has a vertical hole 19, extending from the upper central portion of the convex or dome-shaped member 13.

In my sprue former, I provide the hole 19, which extends entirely through the dome-shaped member 13. In the ordinary sprue former, the hole is made deep enough simply to form a socket and support for the pin 12.

In my sprue former, I also provide an inclined hole 20, which communicates with the hole 19 near the upper part thereof and extends downwardly away therefrom to the bottom of the sprue former 14.

I secure to the bottom of the sprue former,

a spring 21 adapted to stand adjacent to the lower end of the hole 19 and projecting slightly beyond the periphery of the sprue former, as at 21^a.

- 5 The hole 19 is of such size as to permit a pin 22, similar to the pin 12 to slide freely therein.

In the use of my improved sprue former, the pin 22 is inserted in the hole 19 and the
10 spring 21 is pressed downwardly slightly until the upper end or point of the pin 22 is below the junction of the hole 20 with the hole 19.

I preferably provide in connection with
15 my sprue former, a pin 12 having a flat side 12^a. The sprue former is preferably formed with an upwardly projecting member, such for example as the lug 24, adapted to coact with a notch in the ring, which lug is shown
20 in Fig. 3.

The pin 12 with the pattern 11 or 18, as the case may be, mounted thereon, is inserted in inverted position from above into the hole 20.

- 25 The spring 21 is depressed to permit the pin 12 to slide freely in the hole 20. The pin 12 is raised or lowered until the pattern is in position to be properly centered in the ring 17, whereupon the spring 21 is released
30 and the pin 22 will be forced into engagement with the pin 12, and will hold the pin 12 by frictional engagement in the position to which said pin 12 has been adjusted.

It will be seen that if I have a large pat-
35 tern, the pin 12 may be moved farther upwardly in order to center the pattern, and if I have a small pattern, the pin 12 may be moved farther downwardly, as illustrated respectively in Figs. 3 and 2.

- 40 By lowering the spring 21 slightly, the pin 22 may be made to drop away from the pin 12 for permitting the pin 12 to be adjusted readily longitudinally in the hole 20.

After the pattern has been mounted on the
45 sprue former it may be painted. In this connection, it will be noted that because the pin 12 is gripped in the sprue former, the latter forms a holding device for the pin which makes for convenience and ease in the
50 painting operation.

This is important where a quick method of making a mold is involved.

- By providing the pin 12 with the flat side 12^a, it is possible to arrange the flat side 12^a
55 in a certain position with relation to the pattern in all instances. This position should be such that the flat face will be engaged by the pin 22 when the pattern is mounted on the sprue former.

60 The use of the pin 12 with the flat side 12^a affords a convenient way for always arranging the pattern in a certain position in the mold, so that the user can readily determine the location of the extreme edges of
65 the pattern in the mold. This location is

facilitated and its determination made easy by the notch in the ring, which coacts with the lug 24 of the sprue former. That is to say, the user of my sprue former may always readily determine the location of the extreme
70 edges of his pattern after the mold has been formed, by observing the location of the notch in the ring. The location of the notch being ascertained the user will know the inclination of the pin 12. The inclination of
75 the pin 12 will always be the same with relation to the notch, because of the use of the flat side 12^a. It thus follows that it will always be easy to determine the position of the pattern in the mold.

80 It will be seen that my sprue former is very simple and of inexpensive construction, and yet it permits the easy and quick adjustment of the pattern when the pin is inserted therein in the manner illustrated in
85 Fig. 5 with relation to the ring 17 for centering the pattern therein.

Some changes may be made in the construction and arrangement of the parts of my improved sprue former without depart-
90 ing from the real spirit and purpose of my invention, and it is my intention to cover by my claims, any modified forms of structure or use of mechanical equivalents, which may be reasonably included within their scope.

I claim as my invention:

1. A sprue former having a central upper dome-shaped member with a channel surrounding said dome-shaped member, said dome-shaped member having an opening in-
100 clined from its upward central portion downwardly and away therefrom, and means for engaging a pin in any position of the longitudinal adjustment of said pin in said opening.

2. A sprue former having a central upper dome-shaped member with a channel surrounding said dome-shaped member, said dome-shaped member having an opening in-
110 clined from its upward central portion downwardly and away therefrom, and means for engaging a pin in any position of the longitudinal adjustment of said pin in said opening, said means comprising a slidable member adapted to frictionally engage a
115 pin received in said opening, and means for yieldably holding said slidable member in engagement with a pin in said opening.

3. A sprue former having a central upper dome-shaped member with a channel surrounding said dome-shaped member, said dome-shaped member having an opening in-
120 clined from its upward central portion downwardly and away therefrom, and means for engaging a pin in any position of the longitudinal adjustment of said pin in said opening, said means comprising a slidably
125 mounted pin, having one end projecting from the body of said sprue former and the other end arranged adjacent to said opening,

and a spring adapted to engage the outer end of said second pin for holding said second pin in engagement with a pin in said opening.

5 4. A sprue former having a body formed with a central upper convex portion surrounded by a channel, said sprue former having an inclined opening extending from the upper center part of said convex portion
10 downwardly and laterally, said sprue former

having another opening extending vertically downwardly from the upward central part of said convex portion through the body of said sprue former, a pin slidably mounted in said second opening, a spring secured to 15 said sprue former and arranged to engage the lower end of said pin.

Des Moines, Iowa, April 1, 1921.

ELLING I. ROSHEIM.