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N. W. BERKLEY.
TEMPLET FOR USE IN THE MANUFACTURE OF RAILWAY
TRACK STRUCTURES.

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NO MODEL.

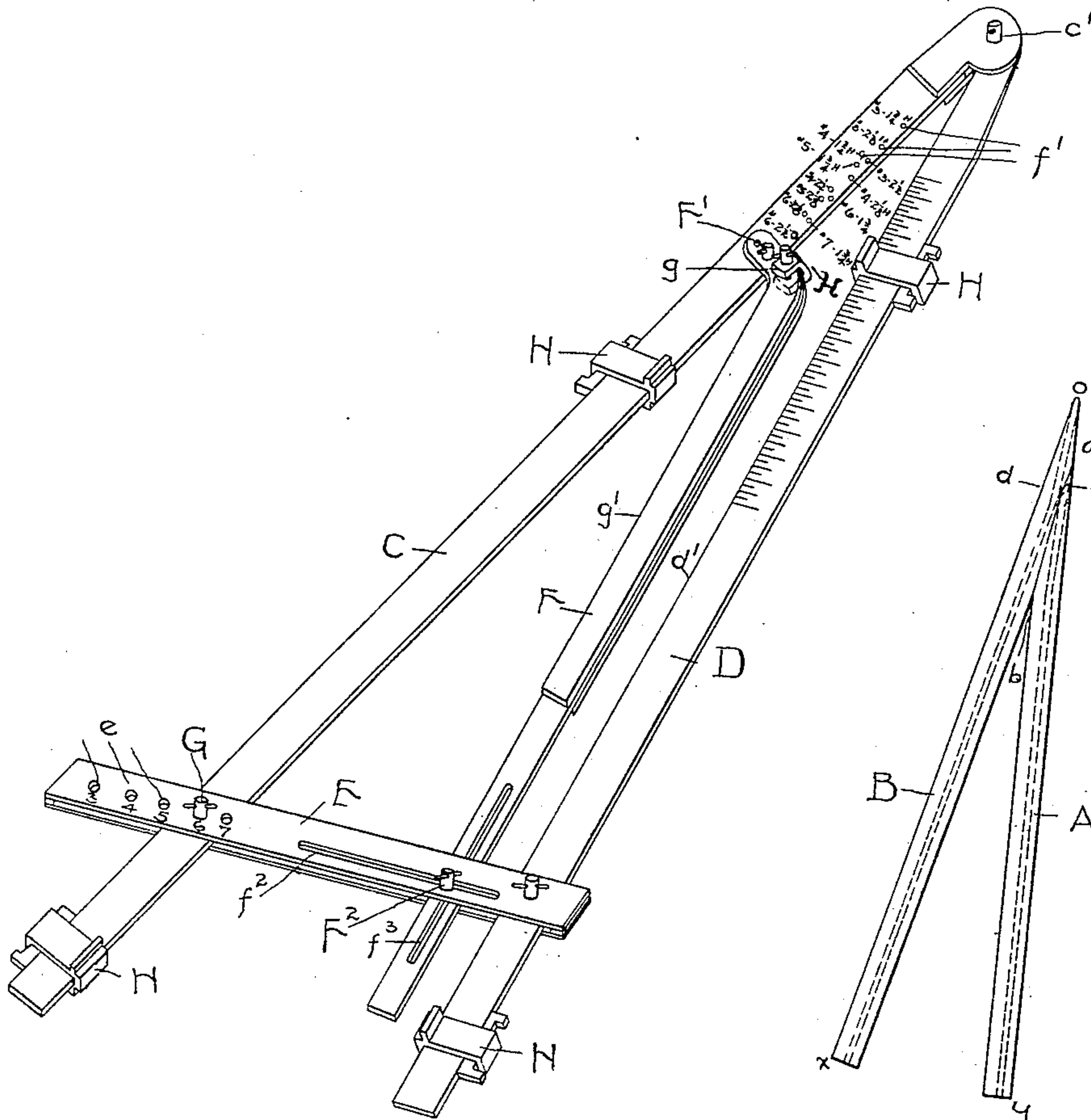


FIG. 1

FIG. 2

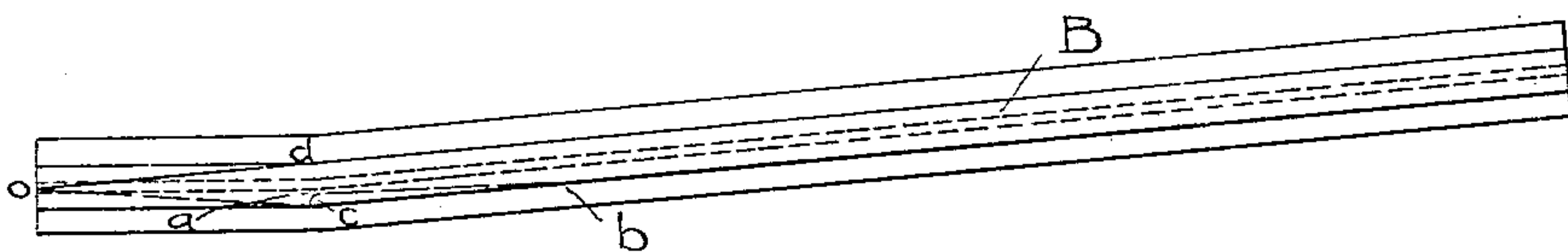


FIG. 3

WITNESSES:
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UNITED STATES PATENT OFFICE.

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TEMPLER FOR USE IN THE MANUFACTURE OF RAILWAY-TRACK STRUCTURES.

SPECIFICATION forming part of Letters Patent No. 745,767, dated December 1, 1903.

Application filed October 6, 1902. Serial No. 126,063. (No model.)

To all whom it may concern:

Be it known that I, NORMAN W. BERKLEY, of Johnstown, in the county of Cambria and State of Pennsylvania, have invented a new and useful Improvement in Templers for Use in the Manufacture of Railway-Track Structures, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My invention has relation to templers for use in the manufacture of railway-track structures, and is designed to provide a simple and convenient device by means of which rails or rail-sections which are to be fitted together at an angle may be accurately scribed or marked on the lines upon which they are to be cut and fitted.

My improved templer is particularly designed for use in the manufacture of frogs, although it can also be used to advantage in laying out the points of split switches, and is so constructed that a single templer may be used for frogs of widely different numbers and with rails of varying width of head.

With these objects in view my invention consists in a templer composed of three adjustable members, two of which may be set to give the gage-lines of the point for a frog of any given angle or number within the range of the templer, while the third member may be adjusted to give the meeting-lines for the long and short rails of the point and also the shaper or clearance cut.

My invention also consists in the novel construction and combination of parts, all as hereinafter described, and pointed out in the appended claims, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of my improved templer; Fig. 2, a plan view of a frog-point; and Fig. 3, a plan view of the long point-rail of a frog, showing how it is bent and cut.

Referring first to the frog shown in Fig. 2, in which the short point-rail A is fitted to the long point-rail B, the lines to be determined by the templer are the lines $a b$ on both the rails A and B, the curved shaper cut at c on both the rails, and also the lines $o c$ and $o d$, which include the angle of the point. These

lines $o c$ and $o d$ obviously vary with the angle of the frog, and the lines $a b$ not only change with each change in the frog-angle, but also with each change in the width of the rail-heads. Furthermore, since one end of this line $a b$ is at the point a , where the rail A has its least width when cut and fitted, which width is usually kept constant for all angles of frogs and for all widths of rail-head, and the point b is somewhere on the line which bisects the frog-angle $x o y$ at the place where the rail-heads both come to their full width, it is obvious that the point a will be located at a greater or less distance from the point o , according as the width of rail-heads is greater or less.

The templer consists of the two main members or legs C and D, which are preferably flat strips of steel pivoted together at c' , a slotted connecting-bar E, and an auxiliary member F. The connecting-bar E is fixedly secured to one of the members C or D, in the present instance to the member D. The member C is arranged to slide in the slot of said bar and is secured in the desired adjustment by means of a pin-hole, which may be made to register with any one of a number of similar holes e in the said bars, and a pin G, adapted to said holes. The holes e are each marked with a number corresponding to a certain frog-number, and when the pin G is inserted in any one of said holes and the corresponding hole in the member C the inner edges of said members C and D are in position to give the gage-lines $o c$ and $o d$ of the frog-point. The proper positions of the holes e can readily be determined by setting the members C and D at the several angles corresponding to the several frog-numbers or by simple mathematical calculation. The auxiliary member F has a bifurcated end portion which is adjustably pivoted to the member C by means of a removable pin F' , which is adapted to any one of a number of holes f' in said member C. This member F lies between the two members C and D and extends through the slotted connecting-bar E, in which it may be adjusted. It is secured in the desired adjustment by means of a clamping-pin F^2 , which seats in registering slots f^2 and f^3 in said member and in the bar E. Each of

the pin-holes F' is marked with a frog-number and also with figures denoting a certain width of rail-head.

In practice it is customary to make the width of the rail A at the point a constant for all angles of frogs and for all widths of rails, and it is also customary to make the transverse width of the frog-point on a line passing through a about equal to the full width of the head of one of the rails. Within certain limits, however, variations in width of rail-heads are usually ignored. For instance, supposing the distance of the point a from the apex of the frog-point to be determined for a given number or angle-frog and for rails whose heads are one and three-fourths inches wide this location may be adhered to for all rails up to and including those having a head width of, say, two and three thirty-seconds inches. When, however, the head width becomes as great as two and one-eighth inches, the point a is changed correspondingly, and this new point may be held to for all widths up to and including, say, two and fifteen thirty-seconds inches, when it is again changed. My templet is constructed in accordance with this practice, the particular templet illustrated being for use in laying out frogs from No. 3 to No. 7, both inclusive, and with rails varying in width from one and three-fourths inches to two and three-fourths inches. The proper position of the holes f' for any given frog-number and for any given rail-head may be readily determined by a simple proportion in which the first term is the number of the frog, the second term unity, and the fourth term the width of the particular rail-head in inches. The third term of this proportion will be the distance of the hole f in inches from the center of the pin c' measured along the inner gage edge of the member C, with a certain allowance for the actual position of the pin F' , as presently explained. To illustrate, suppose that it be required to locate the pin-hole f' for a proper adjustment of the templet in laying out the point of a No. 8 frog composed of rails two inches wide across the head. The theoretical distance would be determined by the proportion $8:1::x:2$, or the actual distance of the required hole from the pin c' will then be sixteen inches minus the radius of the curved edge g plus the distance of the pin F' from the said edge. The truth of this proportion is apparent when the well-known manner in which frog-numbers are derived is considered.

H wherever seen designates stops or guides for holding the templet in position on the rail to be scribed.

The templet is used as follows: The inner edge of the member D is provided with a scale in feet and inches, and tables are also provided for use with the templet which show the distance in feet and inches, or in inches only, from the apex of the frog-point to the point b , where the inner edges of the heads of

rails A and B meet each other, measured on the gage-line of the rail B for all frog-numbers and widths of rail-heads. As the point b is always on the line bisecting the frog-angle $x o y$ at the point where both rail-heads reach their full width, the determination of this distance for the purpose of making such tables is a simple trigonometrical calculation which need not be explained. Supposing it to be required to lay out the point of a No. 7 frog, composed of rail-heads two and one-half inches wide, the pin G is inserted in the hole e , marked "No. 7." The pin F' is placed in the hole marked "No. 7" two and one-half inches. The table above referred to is then consulted and will show that the distance of the point b from the point o for this particular frog, measured on the gage-line of the rail B, or, what is the same thing, on the inner gage edge of the templet member D, is, say, thirty-five and fifteen-sixteenths inches. The member F of the templet is then moved on its pivot until its gage edge g' is distant from the gage edge d' of the member D two and one-half inches, (the given width of rail-head,) measured at right angles to said edge d' at a point on said edge thirty-five and fifteen-sixteenths inches from the pin c' , as shown by the scale. The pin F^2 is then tightened to secure this adjustment. The long point-rail B having been first bent or kinked in the usual manner (see Fig. 3) to bring its web centrally under its head when cut to form the point, the templet is laid thereon with the lower projecting end of the pin c' bearing centrally against the kinked end of the rail, and the side guides or stops H on the member D holding the edge d' to the inner edge of the rail. The rail is then marked or scribed by the inner gage edges of the members C and D, which give the lines $o c$ and $o d$, and by the curved edge g and gage edge g' of the member F, which give the shaper cut at c and the line $a b$. The templet may then be transferred to the short point-rail A, on which it is held in proper position by the side stops H on the members C and D, and the said rail be marked by the edges g and g' of said member F. The templet is used in like manner for all frogs within the range for which it is constructed, which range may in practice be greater than I have illustrated. I prefer, however, to use one templet for even frog-numbers and a separate templet for fractional frog-numbers. In order to avoid interference between the several holes f' , they are preferably arranged in two or more lines, with a separate pin-hole in the member F for each of said lines.

It will be readily seen that the use of this templet saves a very considerable amount of time and heavy labor in handling rails, as it obviates the necessity for positioning the two point-rails with reference to each other and then taking the various measurements required to determine the desired lines. Its use also tends to avoid errors which might otherwise be very easily made.

I do not wish to limit myself to the exact construction and combination of parts which I have herein shown and described, as various changes may be made in the details thereof without departing from the spirit and scope of my invention.

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

10 1. A templet for use in laying out railway-track structures, consisting of two pivoted, main members, a connecting member for securing said main members in different angular adjustments, and an auxiliary member
15 adjustably pivoted to one of said main members and adjustably secured to said connecting member.

20 2. A templet for use in laying out railway frog-points, consisting of two pivoted main members having inner gage edges, and means for securing the same in different angular positions corresponding to different frog-angles, and an auxiliary member adjustably pivoted
25 to one of the main members, and having a gage edge which can be set relatively to the main members to give the meeting-lines of the two point-rails corresponding to a given frog-angle and with rails of different head width.

30 3. A templet for use in laying out railway frog-points consisting of two pivoted main members having each an inner gage edge, and means for securing the same in different angular adjustments corresponding to different
35 frog-angles, an auxiliary member adjustably pivoted to one of said main members and having a gage edge which may be set to give the meeting-lines of the two point-rails including the shaper or clearance cut therefor, and means for determining the proper adjustment of said auxiliary member, and for securing the same.

40 4. A templet for use in laying out railway

frog-points, consisting of two pivoted main members, a connecting-bar for securing said
45 members in different angular adjustments, and an auxiliary member adjustably pivoted to one of the main members and adjustably secured to said connecting-bar, the last-named main member having marked thereon
50 a plurality of different centers for the pivot of said auxiliary member, each of said centers being calculated for some given frog-point, and the other main member having a scale thereon, substantially as described. 55

5. A templet for the purpose described, consisting of two pivoted main members, and means for holding the same in different angular adjustments corresponding to different
60 frog-angles, an auxiliary member adjustably pivoted to one of the main members, and having a gage edge which can be set to give the meeting-lines of the frog point-rails for different frog-angles and with varying rail-head widths, means for indicating the proper ad-
65 justments of said auxiliary member and for securing the same, and guides or stops for holding said members in proper position relatively to the rail to be scribed.

6. The herein-described templet, comprising essentially the pivoted main members C and D having inner gage edges, the connecting-bar E, the auxiliary member F adjustably pivoted to the member C, and having the gage edge g, g' , stops or guides carried by said
75 members and means for indicating the proper adjustment of said members for the particular work to be done, and for securing them in such adjustment, substantially as described.

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

NORMAN W. BERKLEY.

Witnesses:

GEO. H. PARMELEE,
H. W. SMITH.