

No. 649,267.

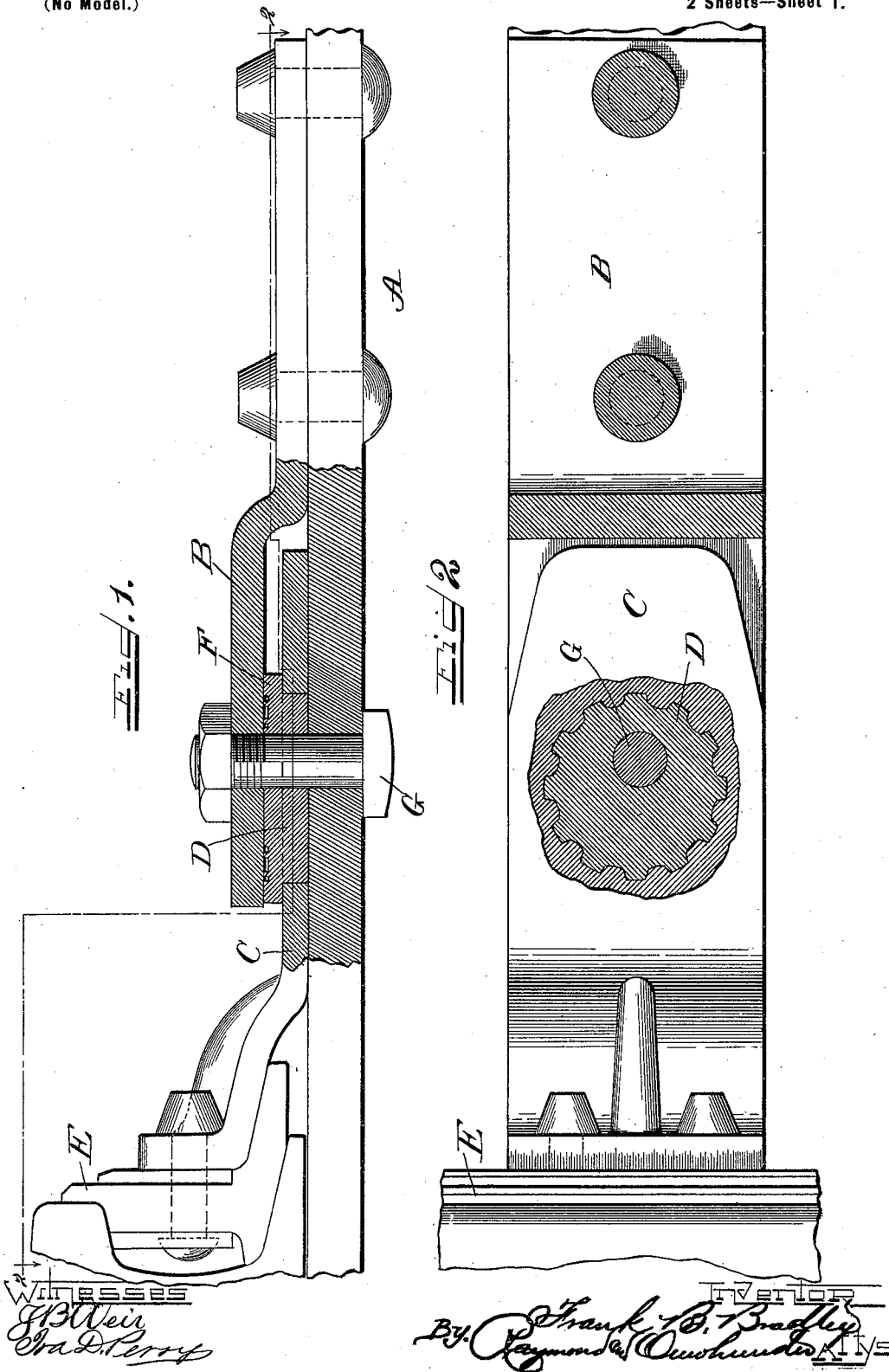
Patented May 8, 1900.

F. B. BRADLEY.
ADJUSTABLE SWITCH ROD.

(Application filed Mar. 26, 1900.)

(No Model.)

2 Sheets—Sheet 1.



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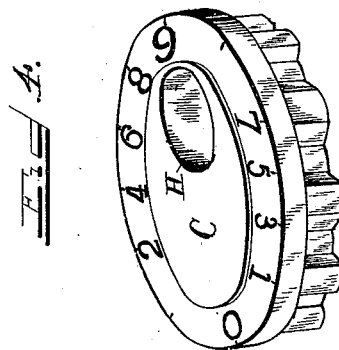
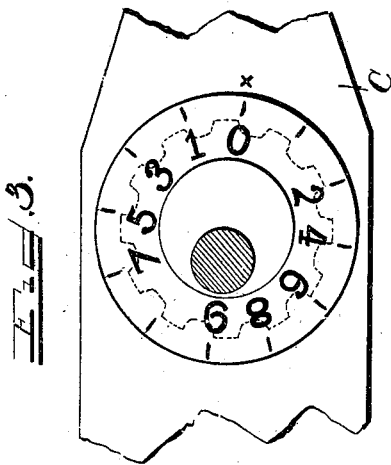
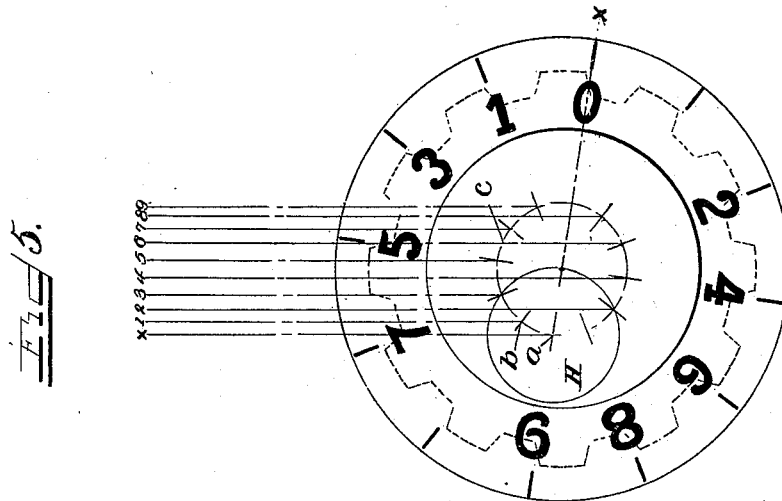
Patented May 8, 1900.

F. B. BRADLEY.
ADJUSTABLE SWITCH ROD.

(Application filed Mar. 28, 1900.)

(No Model.)

2 Sheets—Sheet 2.



WITNESSES

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UNITED STATES PATENT OFFICE.

FRANK B. BRADLEY, OF CHICAGO, ILLINOIS.

ADJUSTABLE SWITCH-ROD.

SPECIFICATION forming part of Letters Patent No. 649,267, dated May 8, 1900.

Application filed March 26, 1900. Serial No. 10,273. (No model.)

To all whom it may concern:

Be it known that I, FRANK B. BRADLEY, a citizen of the United States, residing at 3819 Prairie avenue, Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Adjustable Switch-Rods, of which the following is a specification.

This invention relates to improvements in adjustable switch-rods, and more particularly to the means for adjusting the length of the switch-rod to change the position of the switch-rail connected therewith with reference to the track-rail. Prior to my invention many different means have been proposed for accomplishing this result, some of which have included an adjustable block seated in the rail-chair and connected by an eccentric-bolt with the switch-rod, suitable means being provided for locking the bolt in any adjusted position. The objection to all of such prior constructions as I am familiar with is the inability to make fine adjustments without interlocking features of a corresponding fineness, such as would render them wholly impracticable in the rough service to which they are subjected in use, where they are called upon to sustain sudden and heavy strains.

The primary object of my invention is to enable the maximum number and degree of fineness in the adjustments of the length of the switch-rod while maintaining under all conditions the same and comparatively-coarse interlocking features.

Another object is to have the eccentricity between the adjusting-block and the bolt connecting the same with the switch-rod so disposed that, while the interlocking features between the block and the rail-chair are uniformly and circumferentially positioned, every change in position of the block possible produces a different adjustment from that produced by any other position of the block.

These and such other objects as may hereinafter appear are attained by the devices illustrated in the accompanying drawings, in which—

Figure 1 represents a sectional elevation of a portion of an adjustable switch-rod embodying my invention. Fig. 2 is a horizontal section thereof on the line 2 2 of Fig. 1, looking

in the direction indicated by the arrows. Fig. 3 is a detail plan view of a portion of the rail-chair, showing the adjustable block in place. Fig. 4 is a detail perspective view of the block, and Fig. 5 is a diagrammatic view showing the range of adjustment of the block.

Similar letters of reference indicate the same parts in the several figures of the drawings.

Referring by letter to the accompanying drawings, A indicates a switch-rod of the usual dimensions, and B a plate riveted or otherwise rigidly secured to said rod, the free end of said plate being offset to form, in conjunction with the rod, a jaw to receive one end of the chair C and the adjustable eccentric block D, as clearly shown in Fig. 1, the opposite end of the chair C being rigidly secured to the switch-rail E in any suitable manner.

The eccentric block C, which is shown in detail in Fig. 4, is preferably of a thickness sufficient to entirely fill the jaw, while the chair C is of a less thickness, so that the block may have an annular flange F to rest upon the chair. The main body of the block fits within an opening in the chair, and the bolt G, which passes through the rod A and plate B, as well as eccentrically through the block D, serves to hold the parts together. The contiguous walls of the block and the opening in the chair in which it fits have interlocking features which in the present instance are teeth which may be of any desired shape. By preference I form these teeth like the teeth of an ordinary internal and external gear, because by so doing the block may be substantially round in its contour without any danger of rotation, such as would result from a polygonal surface divided into as many sides as are presented by the teeth. This result, it will be understood, is obtained because of the interlocking of the teeth on the block with the teeth on the chair. Hence the number of adjustments or different positions in which the block may be placed in its socket in the chair may be very greatly increased over that possible with any prior construction known to me without loss of strength and without such a degree of fineness in the interlocking features as would require ma-

chine-fitting or a fineness that would prove objectionable in the rough and exposed service to which these devices are subjected. A still more important feature of my invention, however, and one absolutely essential to secure the maximum number as well as degree of fineness of the adjustments with a given number of interlocking features resides in the disposition of the eccentrically-located opening in the block for the pivoting-bolt G of the switch-rod. If the axis of the bolt G were so disposed that a radial line drawn from the center of the block to the center of a tooth on the block would intersect the center of the bolt, then manifestly the maximum number of adjustments would be represented by one-half the number of teeth on the block and the degree of fineness of the adjustments would be controlled by the distance between the tooth-centers, while the adjustments would be the same whichever way the block were turned from the dead-center represented by the radial line before referred to, although differing in length with each change of position. In other words, with the block having twelve teeth, as represented in the drawings, the maximum number of adjustments would be six; but these would not be in equal parts, but, on the contrary, would vary with each successive change. What I propose is to increase the number of adjustments, but to have the length of the adjustments uniform for each successive change. As shown in the drawings, I secure nine adjustments of substantially equal length with the twelve teeth, and I accomplish this by having the eccentric opening on a radial line which passes between the centers of two teeth, as plainly shown in Figs. 3 and 5. This radial line projected across the block to the opposite side I mark with a "0," and on the chair C, I place some suitable mark, such as "X," so that when the "0" and the "X" are in alinement the adjustment will be understood as at "0"—that is, as far in one direction as it can be moved. Then at intervals around the top surface of the block I place marks showing the various positions for adjustment, which I prefer to number from "1" to "9," as shown in the drawings, the even numbers being in one half of the block while the odd numbers are in the other half.

Now, assuming the mark "X" to be stationary, if the block is turned until the mark "1" registers with the "X" it will be seen that the eccentric center *a* has moved from the point indicated to the point *b* or a linear distance represented by the distance between the lines "X" and "1" in the diagram. If, on the other hand, the block be turned until the mark "6" registers with the "X," then the center *a* will have moved around to the point *c* or a linear distance equal to the distance between the line "X" and "6." It will thus be seen that there is a substantially-regular progression of steps from "0" to "9,"

that nine different adjustments are obtainable; that the difference between any two adjustments of successive numbers is practically the same, and that without reducing the distance between the teeth I have secured nine adjustments instead of six, which would otherwise be all possible with the same number of teeth.

Not only is the number of adjustments important in a device of this kind, but the degree of fineness thereof is of the utmost importance, although there is a limitation put upon this degree of fineness by the practicable fineness of the interlocking features, because both on account of the expense and the severe service to which this device is subjected in use a fine gearing could not be satisfactorily employed. With my invention, however, I have comparatively-coarse interlocking features, permitting the block to be formed as a drop-forging and the opening or seat for the block to be stamped out of the forge-chair, thus reducing the expense to the minimum, while securing absolute certainty in the locking of the members in any adjusted position, as well as affording a ready means whereby the switchman or trackman may readily determine the movement necessary to make the proper adjustment.

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

1. In a switch-rod adjustment, the combination with the switch-rod provided with a jaw, of a block fitting in said jaw having a regularly-disposed series of teeth on the periphery thereof, a chair having a socket therein with correspondingly-toothed walls to receive the toothed portion of the block and a bolt passing eccentrically through said block and through the jaw, substantially as described.

2. In a switch-rod adjustment, the combination with a switch-rod provided with a jaw and a block fitting in said jaw and provided with a regularly-disposed series of teeth on the periphery thereof, of a chair having a socket therein having correspondingly-toothed walls to receive the toothed portion of said block and a bolt passing eccentrically through said block and through the jaw, the center of said bolt being intersected by a radial line extending from the center of said block to a point between the centers of two of the teeth thereon, substantially as described.

3. In a switch-rod adjustment, the combination with a switch-rod provided with a jaw and a block fitting in said jaw and provided with a regularly-disposed series of teeth on the periphery thereof, of a chair having a socket therein having correspondingly-toothed walls to receive the toothed portion of said block, a bolt passing eccentrically through said block and through the jaw, the center of said bolt being intersected by a ra-

dial line extending from the center of said
block to a point between two of the teeth
thereon, an index-mark on the chair and a
series of characters on the block correspond-
5 ing in number with the adjustments of the
block and indicating the successive steps of
such adjustments when brought to register

with the index on the chair, substantially as
described.

FRANK B. BRADLEY.

Witnesses:

C. L. WOOD,
O. R. BARNETT.