

(No Model.)

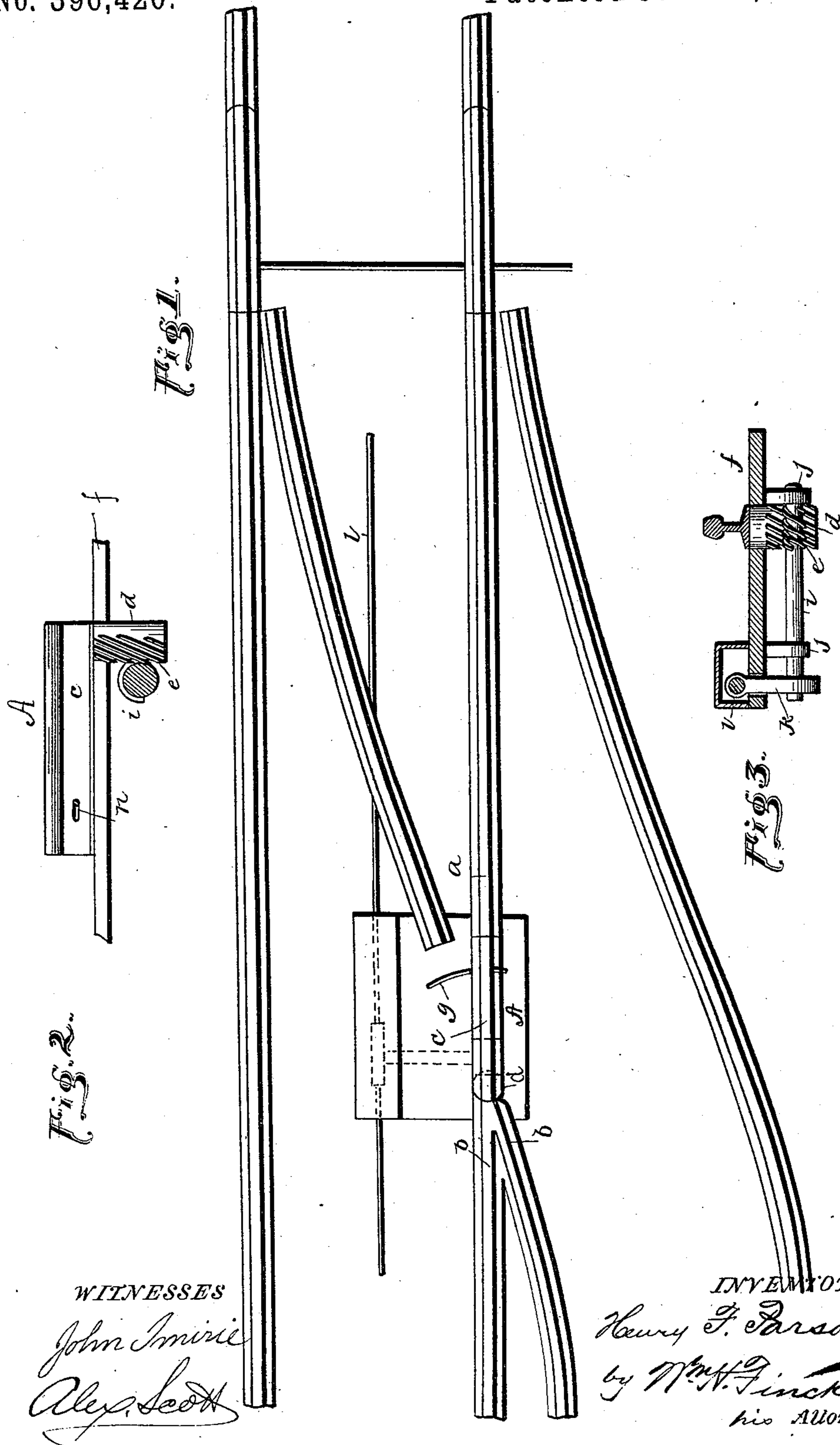
2 Sheets—Sheet 1.

H. F. PARSONS.

CONTINUOUS RAIL FROG FOR RAILWAYS.

No. 396,420.

Patented Jan. 22, 1889.



WITNESSES

John Imirie
Alex. Scott

INVENTOR.

Henry F. Parsons
by Wm. H. Finckel
his Attorney.

(No Model.)

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Fig. 4.

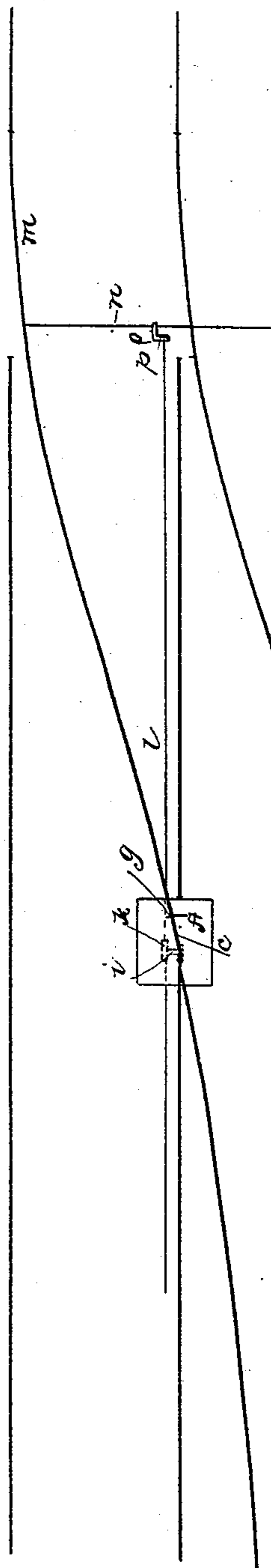


Fig. 5.

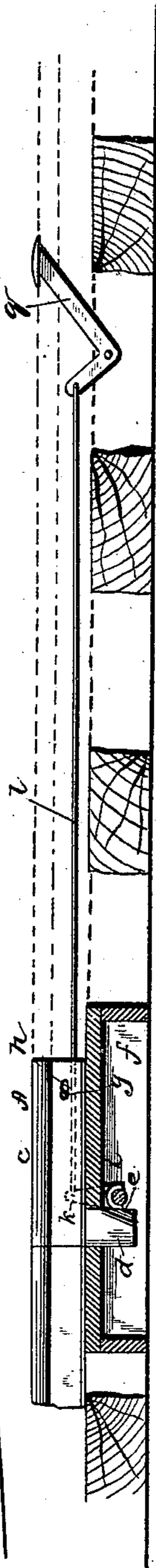
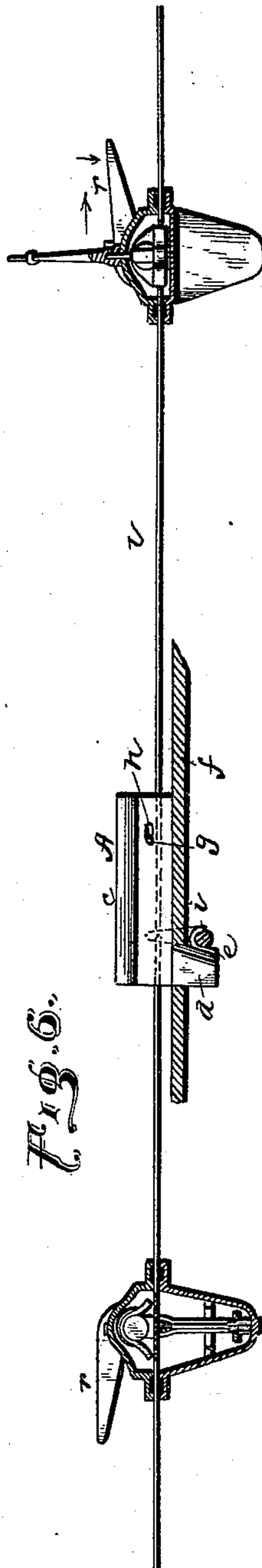


Fig. 6.



WITNESSES.

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UNITED STATES PATENT OFFICE.

HENRY F. PARSONS, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE PARSONS BLOCK, SWITCH AND FROG COMPANY, OF SAME PLACE.

CONTINUOUS RAIL-FROG FOR RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 396,420, dated January 22, 1889.

Application filed April 23, 1888. Serial No. 271,509. (No model.)

To all whom it may concern:

Be it known that I, HENRY F. PARSONS, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a certain new and useful Improvement in Continuous Rail-Frogs for Railways, of which the following is a full, clear, and exact description.

The object of my invention is to provide what I am pleased to call a "continuous rail-frog" for railways, whereby the common pointed frog is dispensed with and the frog is as smooth and durable as any other portion of the rail. The frog itself is simply a section or piece of ordinary railway-rail so far as outline and material are concerned, and is provided with worm-gearing for operating it. This worm-gearing imparts positive movement to the frog, and, in addition, locks the frog in any given position, so that it cannot be accidentally displaced. The frog may be moved through its worm-gearing by means of any suitable mechanism, but I prefer to operate it automatically; and in this connection I desire to refer to the invention entitled "railway switch and signals," set forth in my concurrent application for patent, wherein this continuous rail-frog is embodied as an element, although I do not limit the application of my frog to any particular switch or signal mechanism nor to any specific form of operating device.

My invention consists in a self-locking continuous rail-frog constructed and arranged substantially as I will now proceed particularly to set forth and claim.

In the accompanying drawings illustrating my invention, in the several figures of which like parts are similarly designated, Figure 1 is a plan view. Fig. 2 is a side elevation; Fig. 3, a sectional elevation. Fig. 4 is a diagrammatic plan view of one form of operating mechanism. Fig. 5 is a side elevation of another form of operating mechanism; and Fig. 6 is a sectional side elevation of another form of operating mechanism, (the proportions being exaggerated,) this last view showing part of the automatic system of switch

and signal mechanism set forth in the case above referred to.

Any usual or suitable junction pieces or connections, *a b b*, of a main track and siding or crossing may be used to receive my frog. These pieces are intersected by the frog, which, for convenience of reference, I designate comprehensively by the letter A.

The frog A consists of a section or piece, *c*, of the general outline of an ordinary railway-rail, and of the same material, and of suitable length. One end is made with a depending lug or boss, *d*, which is provided with a segmental worm-gear, *e*. This boss is arranged in an opening in a bed-plate, *f*, and thus serves also as a pivot or axis for the movement of the frog from one rail *b* to the other, the pivot being arranged at the junction-piece *a*—that is to say, where the rails meet.

The frog *c* may be guided in its movements by a traveler-rail, *g*, secured to the bed-plate *f*, and engaging a transverse opening, *h*, in the web of the frog. The segmental worm-gear *e* is engaged by a worm-shaft, *i*, which may be suspended from the bed-plate in bearing-lugs *j j*. The worm-shaft is provided at one end with an arm, *k*, and this in turn is connected with an operating-rod, *l*, which is reciprocated longitudinally to rotate the worm-shaft and through it and its connection with the segmental worm-gear vibrate the frog.

It will be observed that the worm-gearing not only positively moves the frog, but also at the same time locks it in any position into which it may be moved.

I have shown various forms of operating mechanism.

In Fig. 5 *m* is a switch having the usual switch-bar, *n*, which bar is connected to any usual switch-stand, and has a longitudinal rectilinear reciprocating motion. *l* is the frog-operating rod, and A the frog. A bell-crank lever, *o*, pivoted at *p* to any suitable support is interposed between the rod *l* and switch-bar *n*, and jointed to each, so that upon the reciprocation of the switch-bar its motion will be transmitted to and converted into a rotary motion of the worm-shaft *i*, and so shift the

frog in harmony with the shifting of the switch. In this arrangement I include any and all switch-operating mechanisms, manual or automatic. As an alternative construction, 5 the rod *l* may be connected to an elbow-lever, *q*, (see Fig. 5,) arranged alongside of a rail and adapted to be operated by the wheels of a passing locomotive. A similar rod and lever may be arranged on the other side of the 10 frog to reverse. Such frog-operating mechanism is not uncommon.

In Fig. 6 I have illustrated in part my automatic system before mentioned. Briefly, this consists of two series of similar levers, *r* 15 *r*, one series being reversed or set for operation automatically by the operation of the other, and the two series being connected by rods *l* through intervening gearing set in motion by the depression of the lever by means 20 of mechanism on the locomotive, as will appear more fully in the case mentioned.

Instead of the worm-gearing described it is obvious that by proper rearrangements of the parts ordinary toothed wheels may be employed to connect the shaft and frog. I include, therefore, in and as of my invention, 25 other forms of gearing than the worm-gearing illustrated and described, excepting where the latter is specifically claimed.

30 I reserve for the case named all claims for specific combinations of this continuous rail-frog with automatic switch mechanism and herein claim only the broad invention.

What I claim is—

1. A continuous rail-frog combined with 35 self-locking worm-gearing for operating it, substantially as described.

2. A railway-frog provided with a toothed gear, combined with a shaft and a toothed gear 40 thereon meshing with the gear of the frog, and by its rotation serving to move or shift the frog and lock it in given position, substantially as described.

3. The combination with a pivoted frog and a segmental worm-gear thereon, of a worm- 45 shaft geared with the worm-gear and adapted to be rotated to shift the frog from one position to another and back again and incidentally to lock the frog in its positions of use, 50 substantially as described.

4. The combination, with a continuous rail-frog, of automatic operating mechanism and self-locking worm-gearing connecting the two, 55 substantially as set forth.

5. A railway-frog provided with a toothed 55 gear, and a shaft and a toothed gear thereon meshing with the gear of the frog, and by its rotation serving to move or shift the frog and lock it in given position, combined with auto- 60 matic operating mechanism connected with said shaft, substantially as described.

In testimony whereof I have hereunto set my hand this 21st day of April, A. D. 1888.

HENRY F. PARSONS.

Witnesses:

JAS. MCG. SMITH,
ROBT. L. REDFIELD.