

J. A. DUGGAN.
Switches.

No. 157,120.

Patented Nov. 24, 1874.

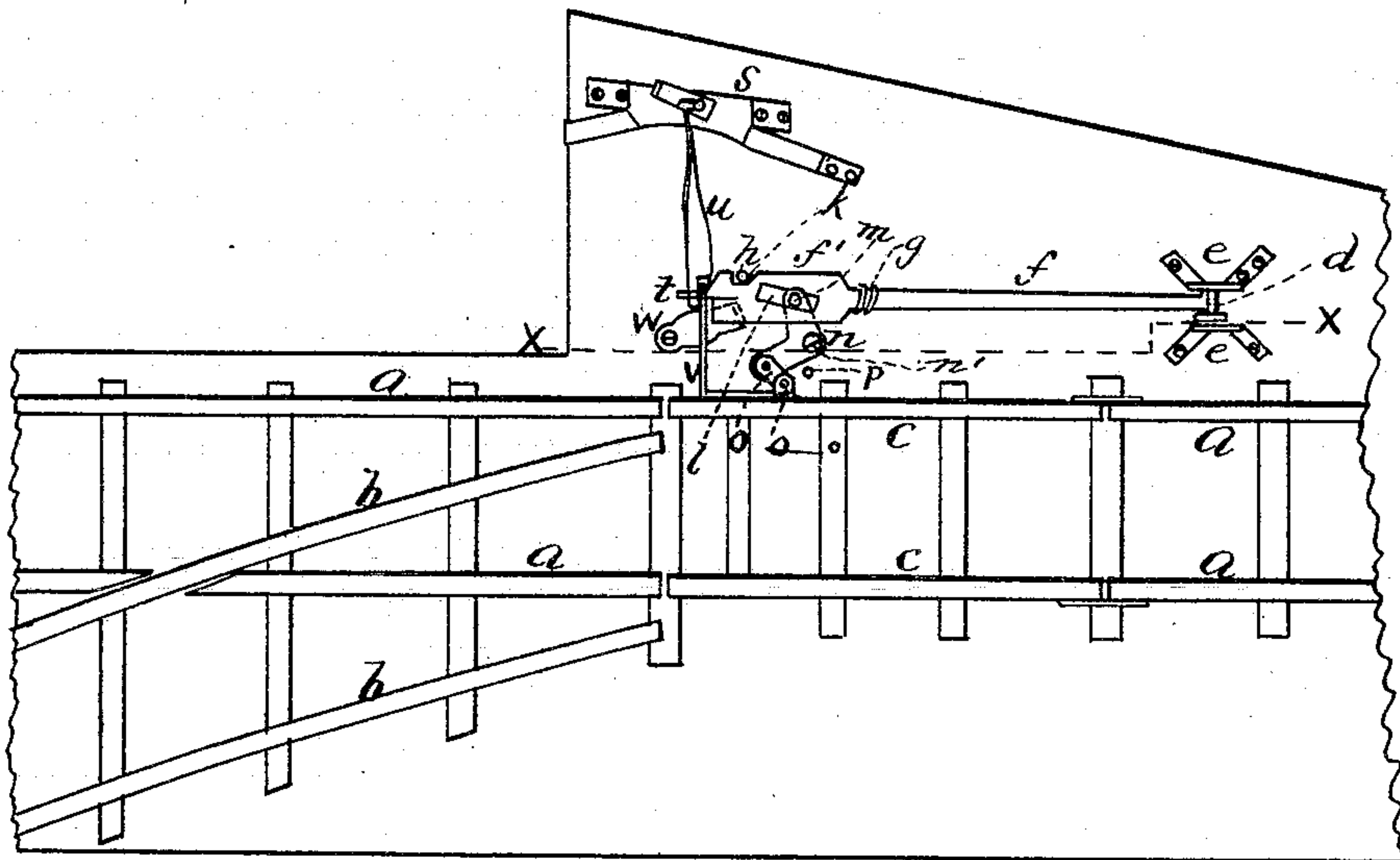


Fig. 1

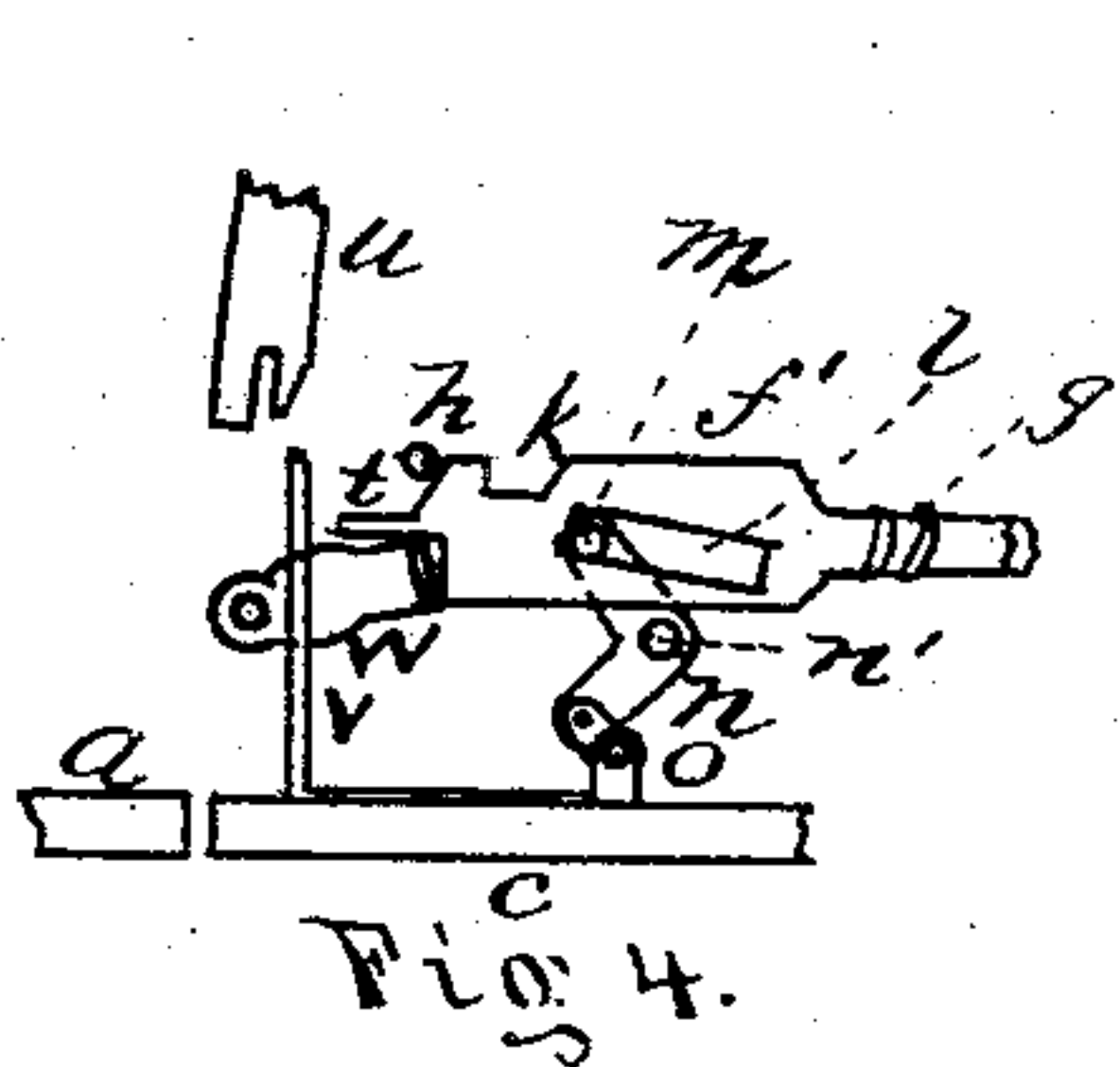


Fig. 4.

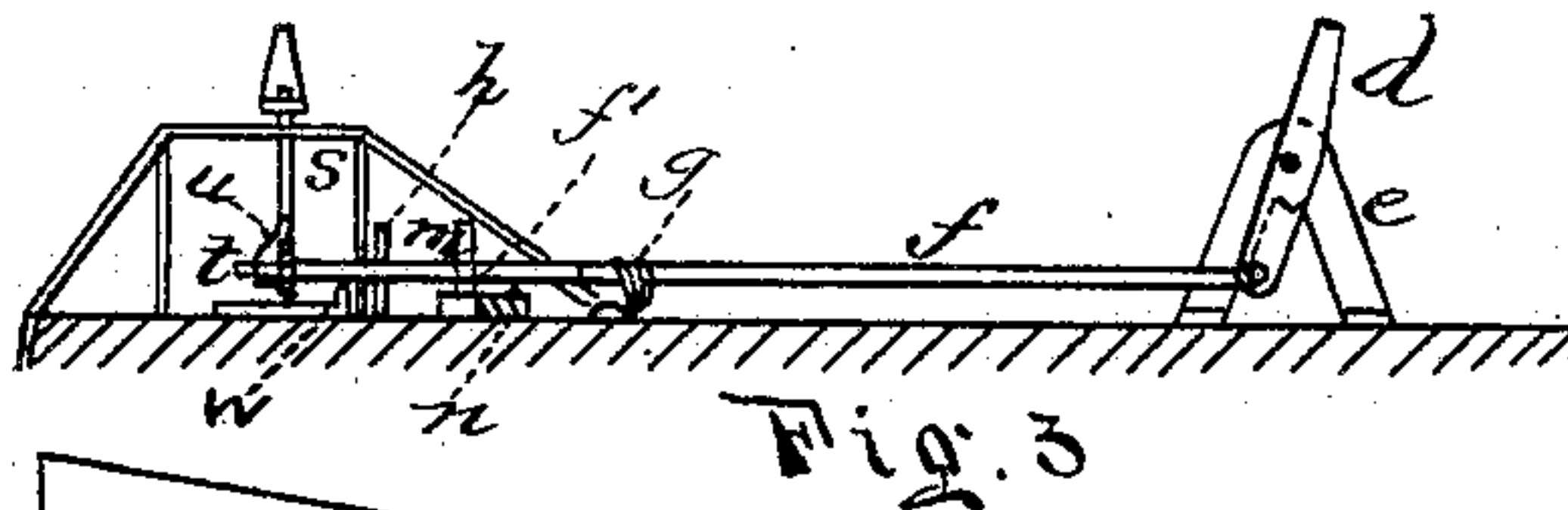


Fig. 3

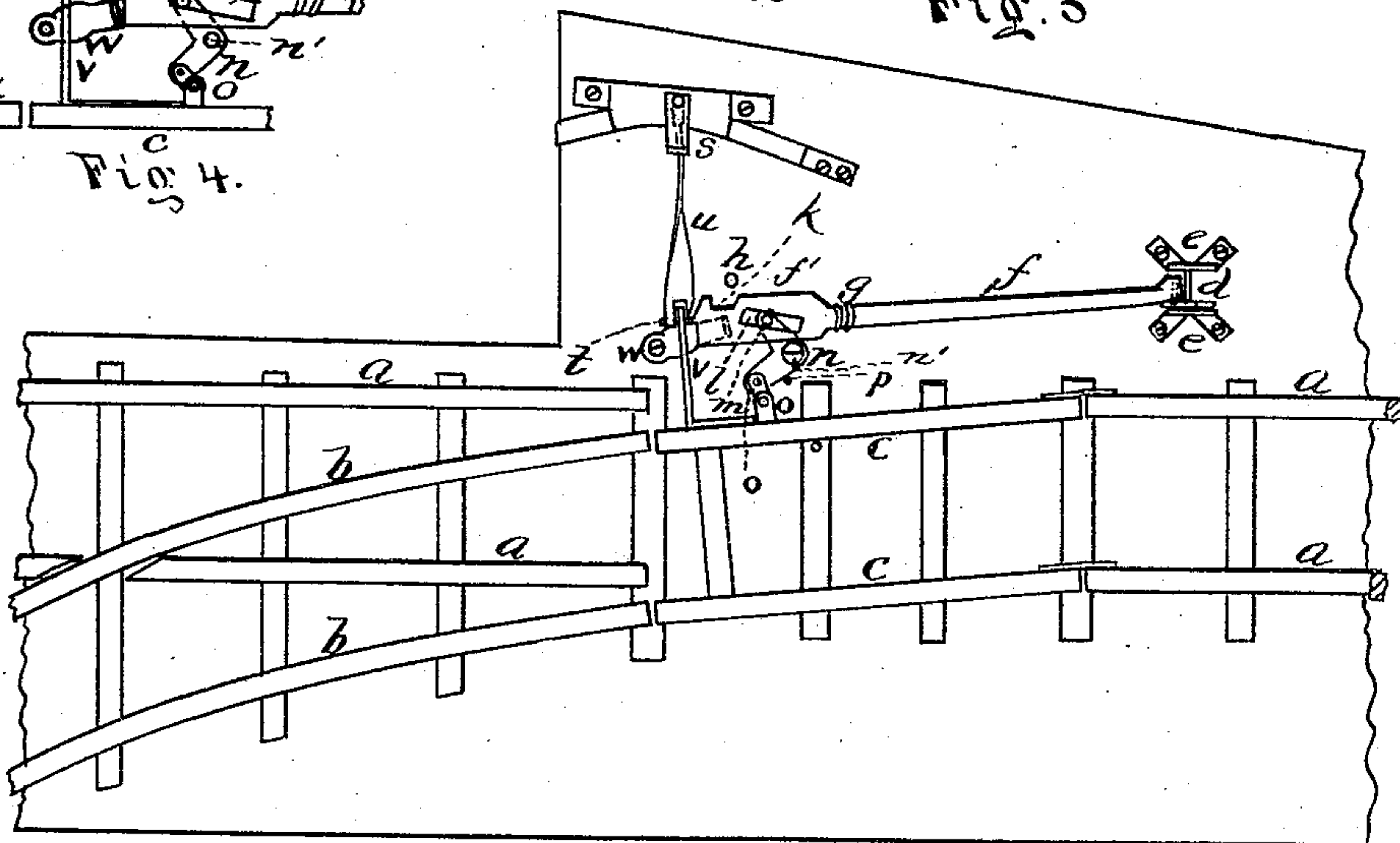


Fig. 2

Witnesses
E. H. Ober.
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John A. Duggan Inventor
By his Attys
Henry W. Williams

UNITED STATES PATENT OFFICE.

JOHN ADAMS DUGGAN, OF QUINCY, MASSACHUSETTS, ASSIGNOR OF ONE-THIRD HIS RIGHT TO JOHN B. F. RAMSDELL, OF SAME PLACE.

IMPROVEMENT IN SWITCHES.

Specification forming part of Letters Patent No. **157,120**, dated November 24, 1874; application filed April 1, 1874.

To all whom it may concern:

Be it known that I, JOHN A. DUGGAN, of Quincy, in the county of Norfolk and State of Massachusetts, have invented a new and valuable Improvement in connection with Railroad-Switches; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

This invention, which I term a "safety attachment to railroad-switches," is a device which may be applied to any ordinary switch, so that the switch may be shifted from the locomotive in case of an emergency as well as in the ordinary manner. A rod is attached to any convenient place on the engine or the tender, and is arranged in any suitable manner, so that, as the train approaches a switch, the rod may be used to strike my device, which is attached to the switch, and shift it from the engine.

My safety attachment is intended to be used only in case of necessity or danger of accident, as in the case of a misplaced switch. At all other times the switch will be operated in the ordinary manner. Many accidents may be avoided and lives saved by the use of this invention.

I claim nothing new in connection with the rod above alluded to, but propose to use any method of striking my attachment which is found to be practicable.

The nature and operation of my invention are fully described below.

In the accompanying drawings, Figure 1 is a plan view, and illustrates my invention in the position assumed when the main track is in the proper condition, the device having been struck from the engine, and thereby placed in position. Fig. 2 is a plan view illustrating the position of my attachment when the switch is so turned as to lead a train of cars upon a side track. Fig. 3 is a longitudinal vertical section cut through the broken line *x x*.

Similar letters of reference indicate corresponding parts.

a is the main track. *b* is the side track. *c* is the switch, or that portion of the track

which can be moved so as to guide a train approaching from the right, in the drawing, upon either the main track *a* or the side track *b*. It will be understood, in this description, that the track in Fig. 1 is in proper condition, and that seen in Fig. 2 has been misplaced. *d* is a vertical, or nearly vertical, lever moving in the frame *e*, and attached at its lower end to the horizontal lever *f*. This lever *f*, which is attached, by means of any kind of spring or elastic substance *g*, to the ground or whatever is next beneath, broadens at *f'* into a plate notched or having a piece removed at *k*. A stop, *h*, rests in the opening *k*, to prevent any tampering with the device by evil-disposed persons. *l* is a slot cut in the plate *f'*, through which projects the upright *m*, which proceeds from, and is fixed to, the elbow-lever *n*. The elbow-lever *n*, which turns at the point *n'*, is connected with the switch *c* by means of the connecting-rod *o*, jointed at its center. The lever *n* is prevented from turning too much, and thus misplacing the track, by means of the short stop *p*. *s* is an ordinary frame and crank for moving the switch *c*. It is connected with the said switch by horizontal levers *u* and *v*, into a hole in each of which loosely plays the rod *t*, projecting horizontally from the lever or rod *f f'*.

The switch may be regulated and moved in the ordinary manner, on common occasions, by the levers *u v* and apparatus *s*. When the switch, instead of being in the proper position seen in Figs. 1 and 3, becomes turned, as in Fig. 2, the engineer on an approaching train, noticing the mistake, strikes the lever *d* as the engine passes, and the lever *d* pulls back the horizontal lever *f f'*. The upright *m* is pulled back by the edge of the slot *l*, and the elbow-lever *n* pulls the switch *c* into the proper position, as shown in Figs. 1 and 4. The rod *t* is drawn out of the levers *u* and *v*, and the lever *f f'* rests against the stop-plate *w*, being pressed tightly against it by the spring *g*. Fig. 4 shows the position of the device at this juncture. The whole apparatus may afterward be restored to the position shown in Fig. 1, when it may again be operated in the ordinary manner by the common device represented at *s*.

The operation of the common device above named is not in any manner hindered or interfered with by my addition. It will be understood that when the lever *f* is drawn back by the striking of the lever *d* the levers *u v* are first released, and then the switch *c* is moved by the elbow-lever *n*. It would be, of course, impossible to move the switch *c* if the levers *u v* were not released.

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

1. The combination of the levers *d f f'*, spring *g*, slot *l*, stop *w*, upright *m*, and levers *n o*, substantially as and for the purpose herein specified.

2. The combination of the lever *f f'* and rod *t* with levers *u v* and post *h*, as and for the purposes above set forth.

JOHN ADAMS DUGGAN.

Witnesses:

HENRY W. WILLIAMS,
E. H. OBER.