

(No Model.)

W. SPIELMAN.
RAILWAY SWITCH.

No. 391,986.

Patented Oct. 30, 1888.

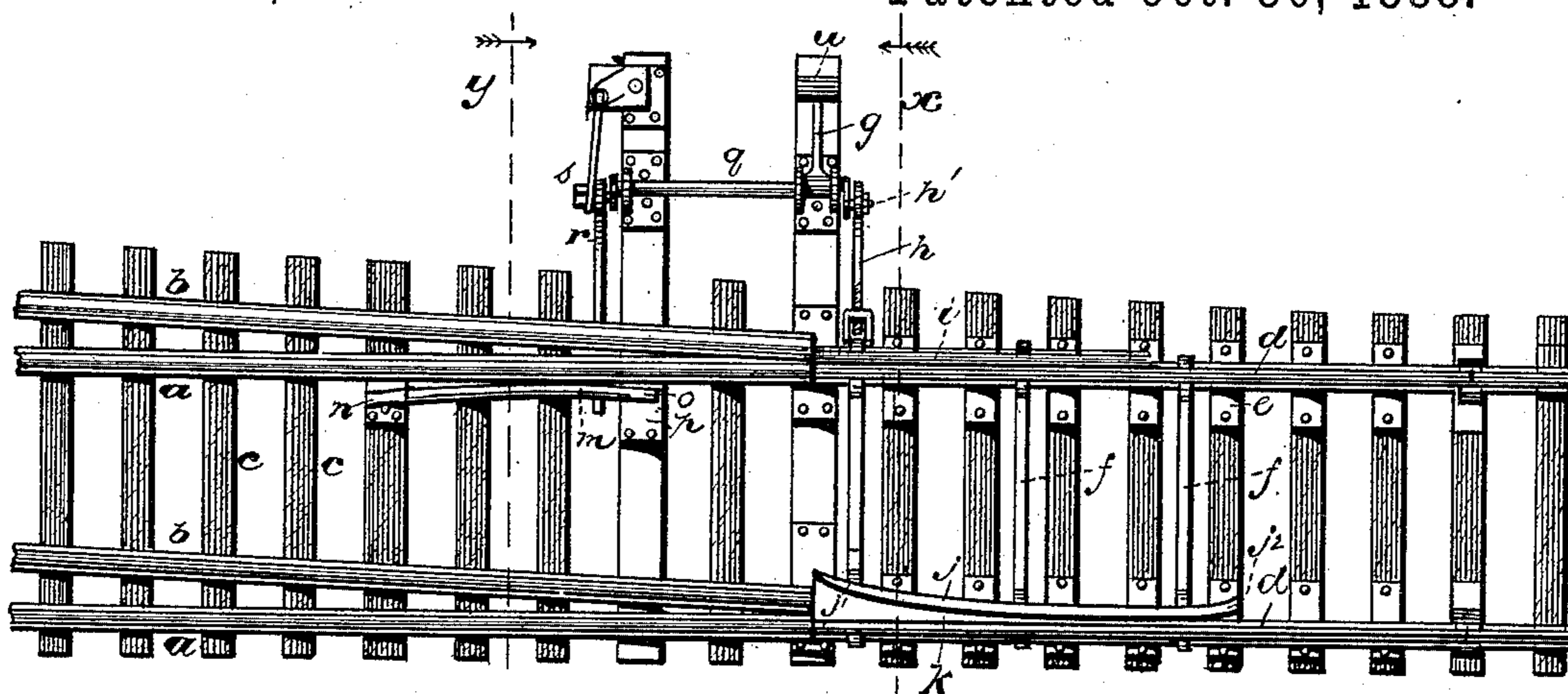


Fig. 1.

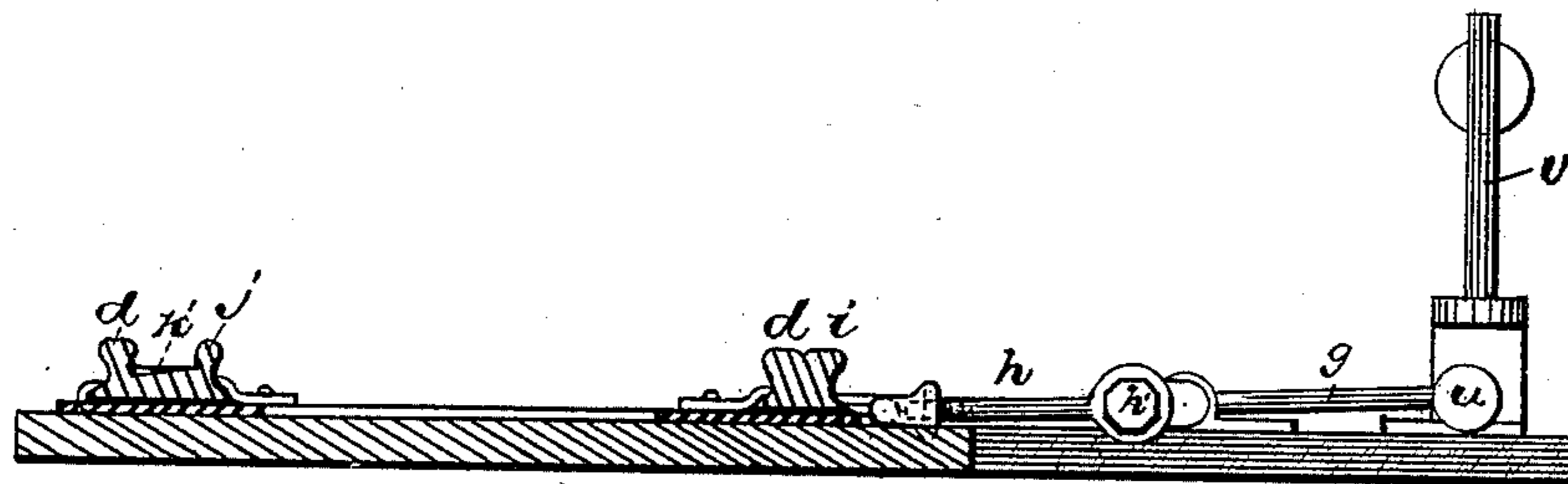


Fig. 2.

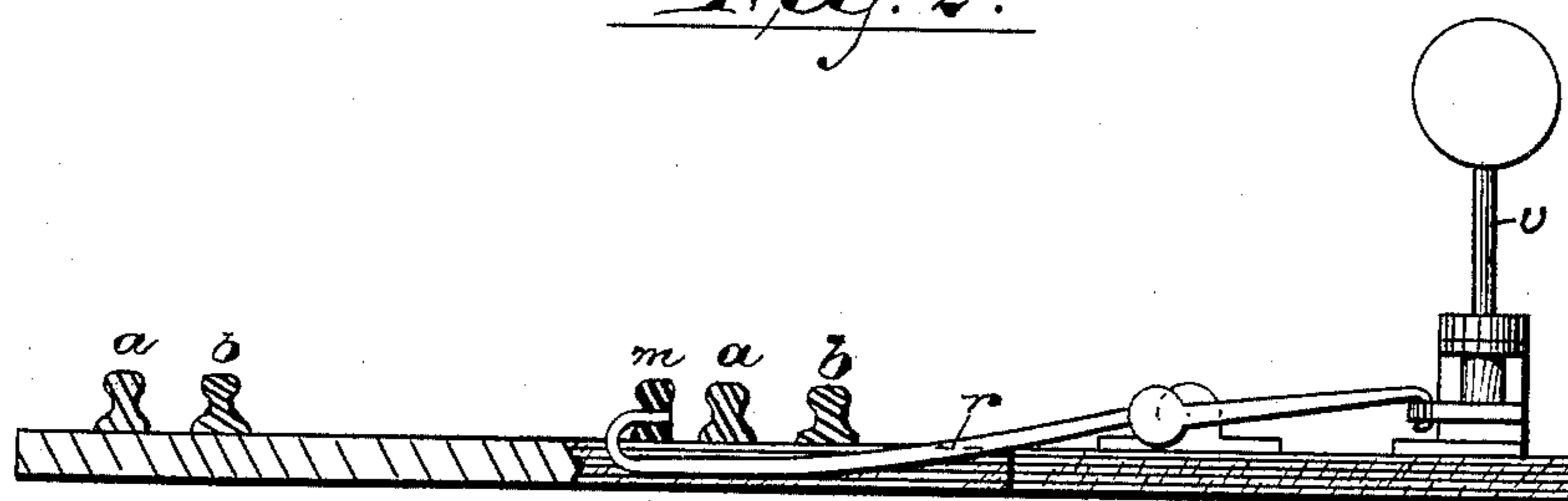


Fig. 3.

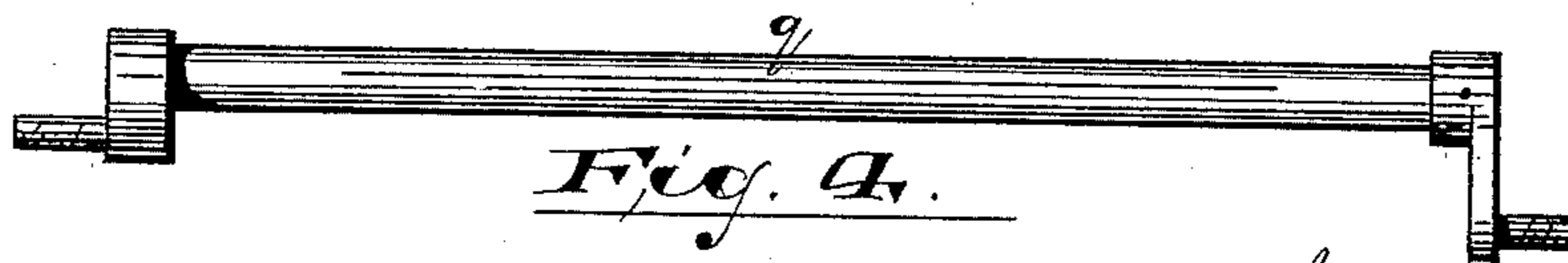


Fig. 4.



Fig. 5.

WITNESSES:

H. Edward, Reeve.
William L. Rhoades.

INVENTOR:

William Spielman,

BY Drake & Co. ATTY'S.

UNITED STATES PATENT OFFICE.

WILLIAM SPIELMAN, OF NEWARK, NEW JERSEY, ASSIGNOR TO SIMSON J. NAUMBURG, OF SAME PLACE.

RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 391,986, dated October 30, 1888.

Application filed July 28, 1887. Serial No. 245,552. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM SPIELMAN, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Railway-Switches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The object of this invention is to more effectively prevent railway-cars from being derailed because of misplaced switches or because of the carelessness of the switchman.

The invention consists in the improved switch for railway-tracks, having the peculiar arrangement and combination of parts thereof, substantially as will be hereinafter set forth, and finally be embodied in the claim.

Referring to the accompanying drawings, in which like letters of reference indicate corresponding parts in each of the several figures, Figure 1 is a plan of the improved switch. Fig. 2 is a sectional view of the same, taken through line X. Fig. 3 is a sectional view taken through line Y; and Figs. 4 and 5 are views showing parts in detail, which will be hereinafter duly explained.

In said drawings, *a a* indicate the track of the main line, and *b b* the track of the branch or siding, said tracks being suitably laid on sleepers *c c* in any ordinary manner.

d d are the switch-rails adapted to move laterally from the rails of the main track to those of the siding or branch track at one end, and to abut against the main track and remain in such position permanently at the other end.

The sleepers are provided with suitable plates, *e e*, to receive the laterally-movable rails and prevent them from working into the wood thereof, as will be understood.

The switch-rails *d d* are held together by ties *f f*, adapted to hold said rails into permanent relation to one another, so that when said rails slide on the plates *e e* they are prevented from spreading, as will be understood. The switch-rails are forced from the branch rails to the main rails, or vice versa, by means of

levers *g* and *h* in any suitable manner, a preferred construction, however, being provided for hereinafter. The switch-rails are each of peculiar construction, and are so formed as to automatically cause the train of cars to pass from the one track to the other, even should the switch be open, so that there will be no danger of derailing the train through the carelessness of the switch-tender.

The rail *d*, *j*, and *k* of the switch consists of the main portion *d*, adapted for ordinary traveling purposes, a curved guarding portion, *j*, running approximately parallel with the main portion and flaring therefrom at the opposite ends at *j'* and *j''*, as shown in Fig. 1. The flaring ends of said curved rail serve as guides to prevent the flange of the wheel from slipping from the filling *k*, which embraces the third portion of the said rail. The filling *k* of said track section or rail is formed on an incline, as shown in Fig. 2, being high toward the portion *j* and low toward the main rail portion *d*. By this construction the car-wheel slides laterally thereon toward the main track, so that by the time it reaches the termination thereof the body of the wheel will rest flat upon the main portion *d* of the track. In the opposite track-section, *d i*, of the switch the portion *i* is inclined or wedge-shaped at its forward end, as shown in Fig. 5 at *l*, and flush with said track, or slightly higher, at a point back of the incline. The smaller end of the track, being considerably lower than that of the main portion of the rail and lying in the path of the flange of the wheel, receives the same, so that it runs up the incline *l* and is drawn over upon the main track. By this construction, should the car be upon the siding or branch and the switch be turned to the main line, the flanged wheel as it leaves the branch will strike the incline of the switch and be raised to the top of the main track, being drawn laterally toward said main track by the wheel on the opposite co-operating track, the lateral motion being secured by the wheel sliding down incline *l'*.

Should the car be upon the main track and the switch be set for the branch, I have provided means at a point on the track in advance of said switch adapted to automatically turn the switch into proper position. To this end

I have provided a movable guard-rail, *m*, fastened upon the chair *n* at the forward end and sliding at the opposite end, *o*, upon the plate *p*, said movable end lying in close juxtaposition at its movable end to the main track. Said movable end is connected with an eccentric or crank shaft, *q*, by means of a connecting-rod, *r*, said connecting-rod *r* being secured upon the crank-pin of said crank-shaft. Upon reference to Fig. 4 it will be observed that the opposite ends of the crank-shaft *q* are provided with pins *h'* *h*². These are disposed on different centers, which are not in a horizontal plane in the operative device with the rod *r* and shaft *q*, whereby there is no danger, when the movable rail is actuated by the car-wheel, of said pin being found in a "dead-center." The rods *r* and *h* have a positive pivotal relation with the said pins, and when the lever *g* is locked there can be no movement of the switch-rails such as would allow of the switch being opened. Upon said crank-shaft is fastened rigidly a weighted lever, *g*, which may be locked by a padlock or other suitable fastening down to the tie *u*. When the switch is turned to the branch track, the movable end of the guard-rail *n* is in close engagement with the main track and the guard moves forward toward said guard-rail and switch. The flange of the forward wheel thereof enters between the two rails and forces the movable guard-rail away from the main track. By this action the crank-rod is turned pivotally, and the switch, which is also connected with said crank-shaft by means of the connecting-rod *h*, is secured upon the crank-pin *h'*, and is forced from the siding to the main track.

I am aware that various changes of construction or modification may be made in the invention without departing from the spirit thereof, and I do not wish to be understood as limiting myself to the exact arrangement and combination of parts positively described.

In connection with the crank-shaft I have arranged a signal, *v*, which is adapted to indicate danger and to be turned automatically by the action of the movable guard rail when the car strikes the same.

By the arrangement of the danger-signal in connection with the automatic switch mechanism I am enabled to obtain added security.

I am aware that heretofore switches have been provided which were, to a certain extent, automatic. Some of these are illustrated in United States Patents Nos. 147,774, 197,915, 157,876, 267,308, 272,789, 22,844, 328,842, 8,557, and 55,736. Some of these switches possess features common to my improvement.

I therefore do not claim the common features, broadly.

The improved device presents a switch which can be locked when or while set for the main track, so that it cannot be manipulated by unauthorized or vicious persons, and at the same time one in which the switch-rails can be directed or moved automatically by the car-wheel from the siding-track to the main track when the car is on the portion of the main track lying at the side of the siding and moving toward the switch; and while possessing the two adaptabilities above referred to said improved device is also adapted to direct the car from the siding to the main track when the switch is set for the main track. Again, by my improvement, after the switch has been thrown by the car to its closed position or when the car has passed from the siding to the main track, in either case, the main track is always left in a condition to allow a train to run thereover in either direction.

The advantage of allowing the switch to be locked when set for the main track will be apparent. The advantage of the automatic actions referred to is also apparent. It will therefore be understood that a device in which the switch can be locked at the main track and be automatically closed when open will be of special value.

Having thus described the invention, what I claim as new is—

The improved railway herein described, combining therein the main rails *a*, siding-rails *b*, switch-rails, one of which comprises a main portion, *d*, a curved guarding portion, *j*, running approximately parallel with the main portion and flaring therefrom at the opposite ends, *j'* *j*², and a filling, *k*, and the other of said rails comprising parts *d i*, of which the latter is inclined at its forward end to raise the wheel over the body portion of said rail, a movable guard-rail, *m*, arranged to lie at one side of one of the main tracks and fastened at one end and movable at the opposite end, a crank-shaft, *q*, a rod, *r*, connecting said shaft *q* and movable rail *m*, a rod, *h*, connecting said shaft *q*, and the switch-rails *d j k* and *d i*, and a lever for operating said crank-shaft and the parts co-operating therewith, substantially as herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 26th day of July, 1887.

WILLIAM SPIELMAN.

Witnesses:

CHARLES H. PELL,
F. PULASKI.