

G. R. SMITH.  
Railway Switch.

No. 20,959.

Patented July 20, 1858.

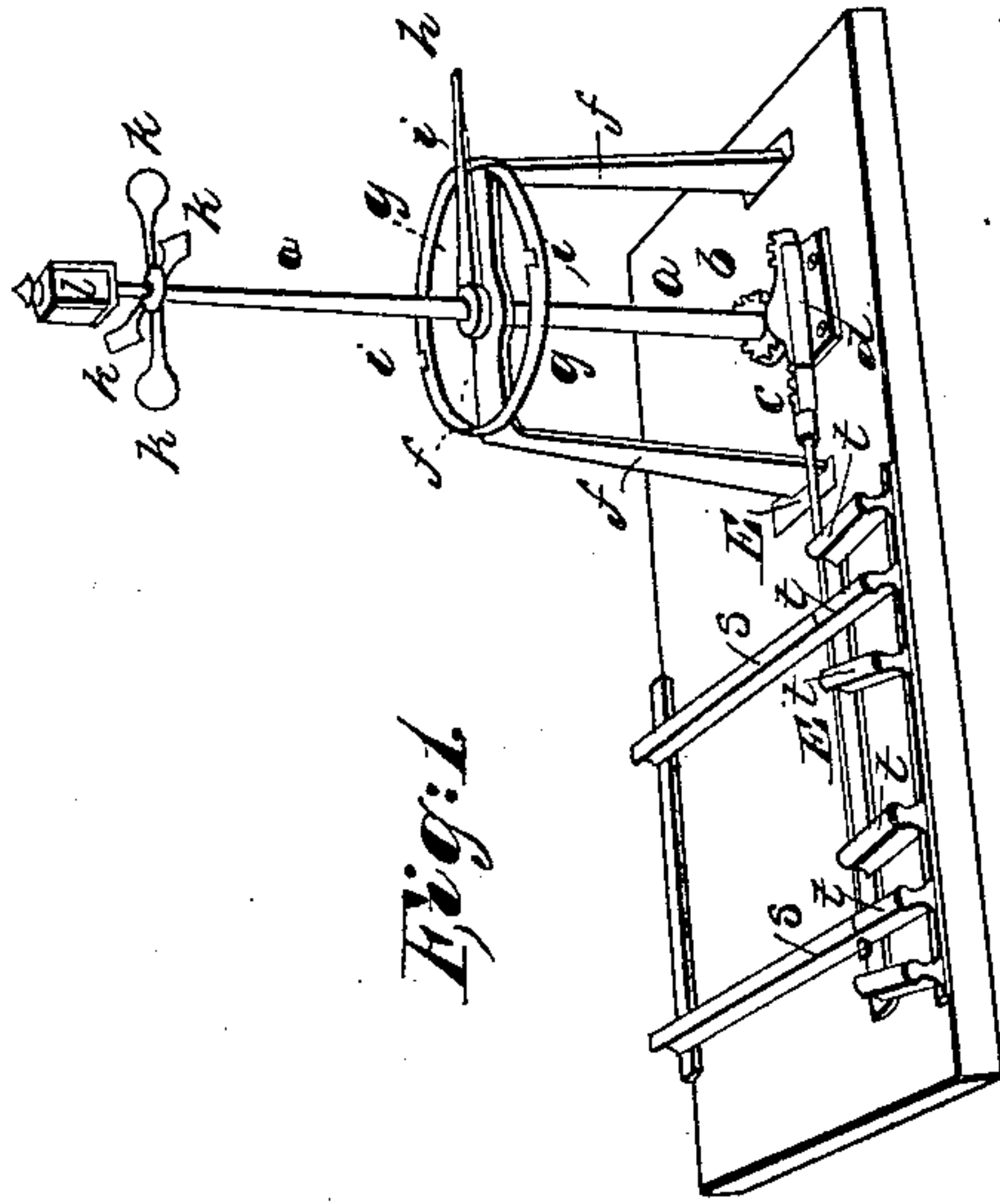


Fig: 1.



Fig: 2.

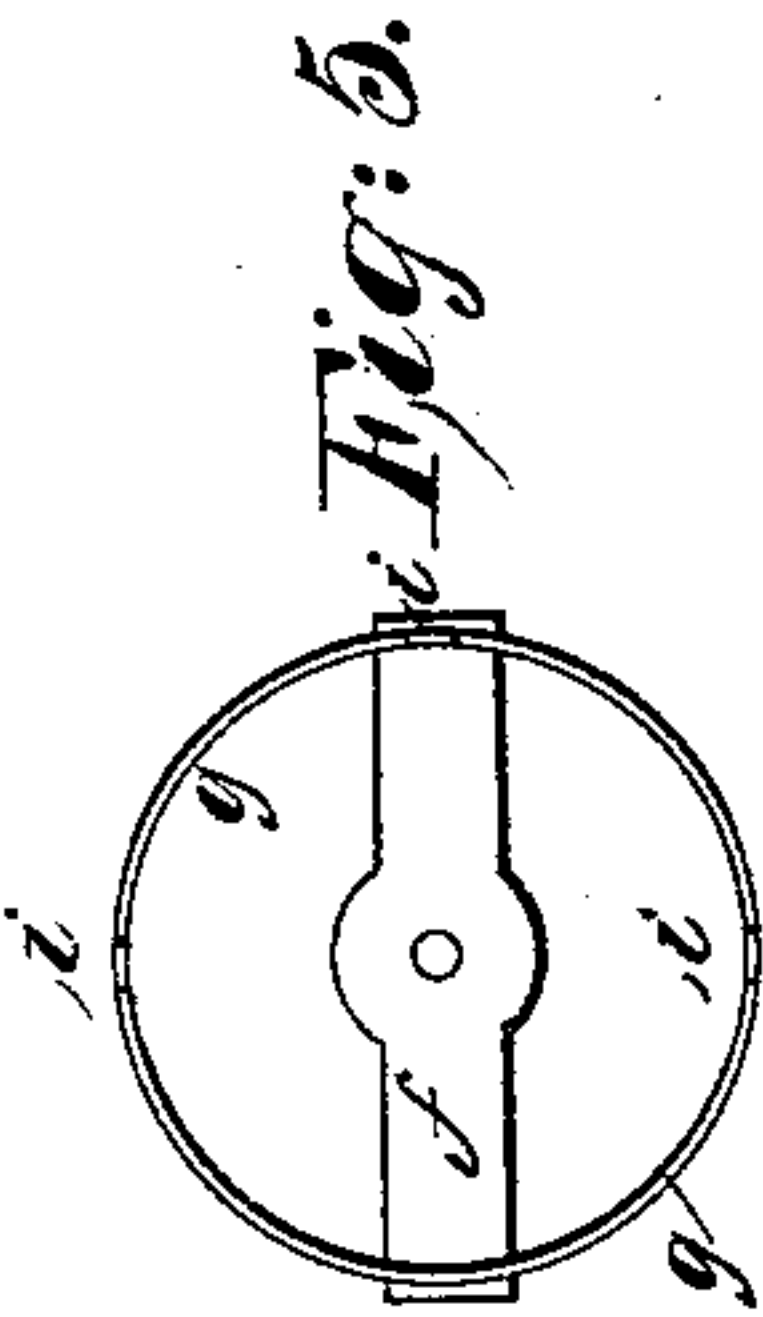


Fig: 3.



Fig: 4.

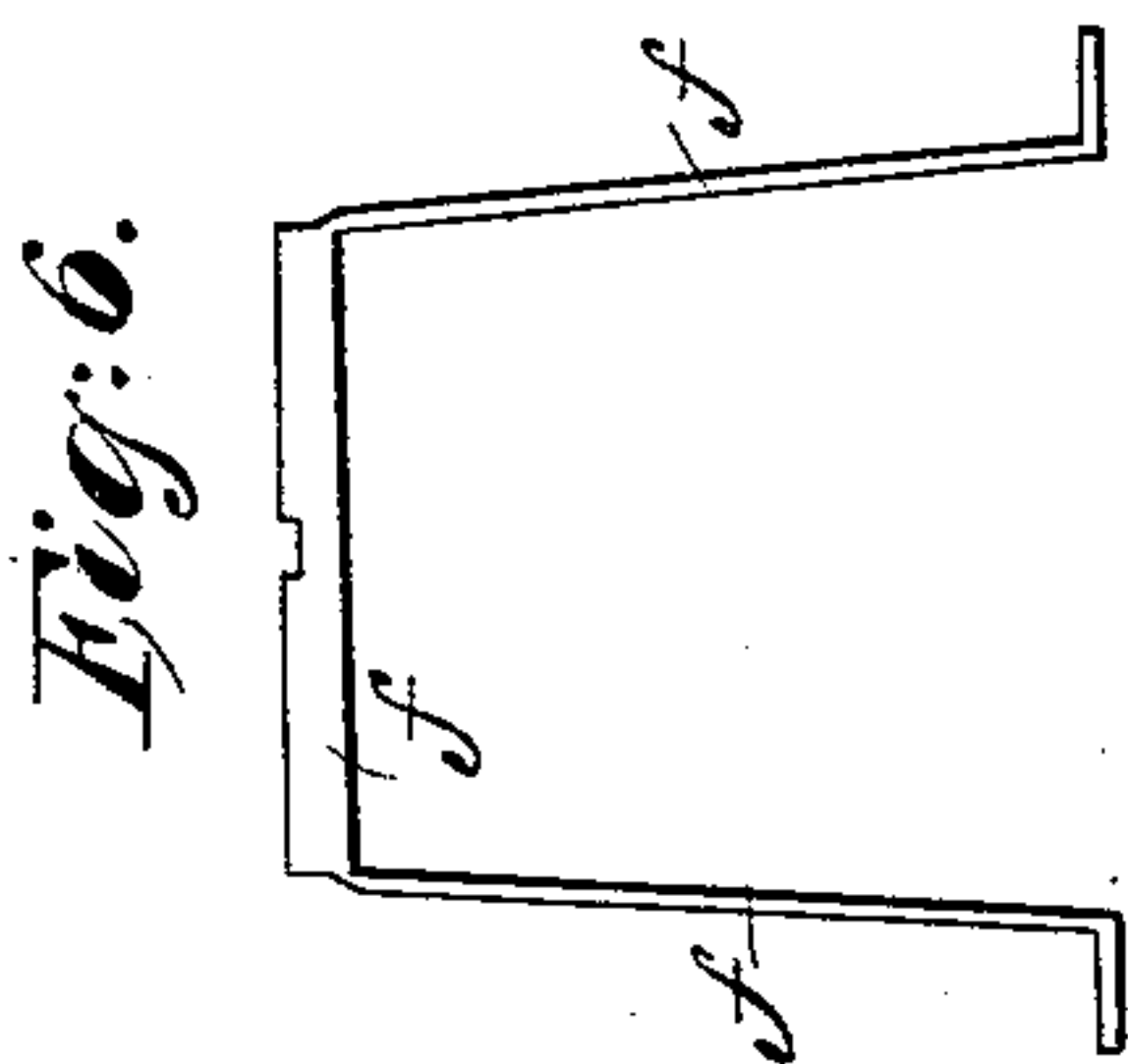
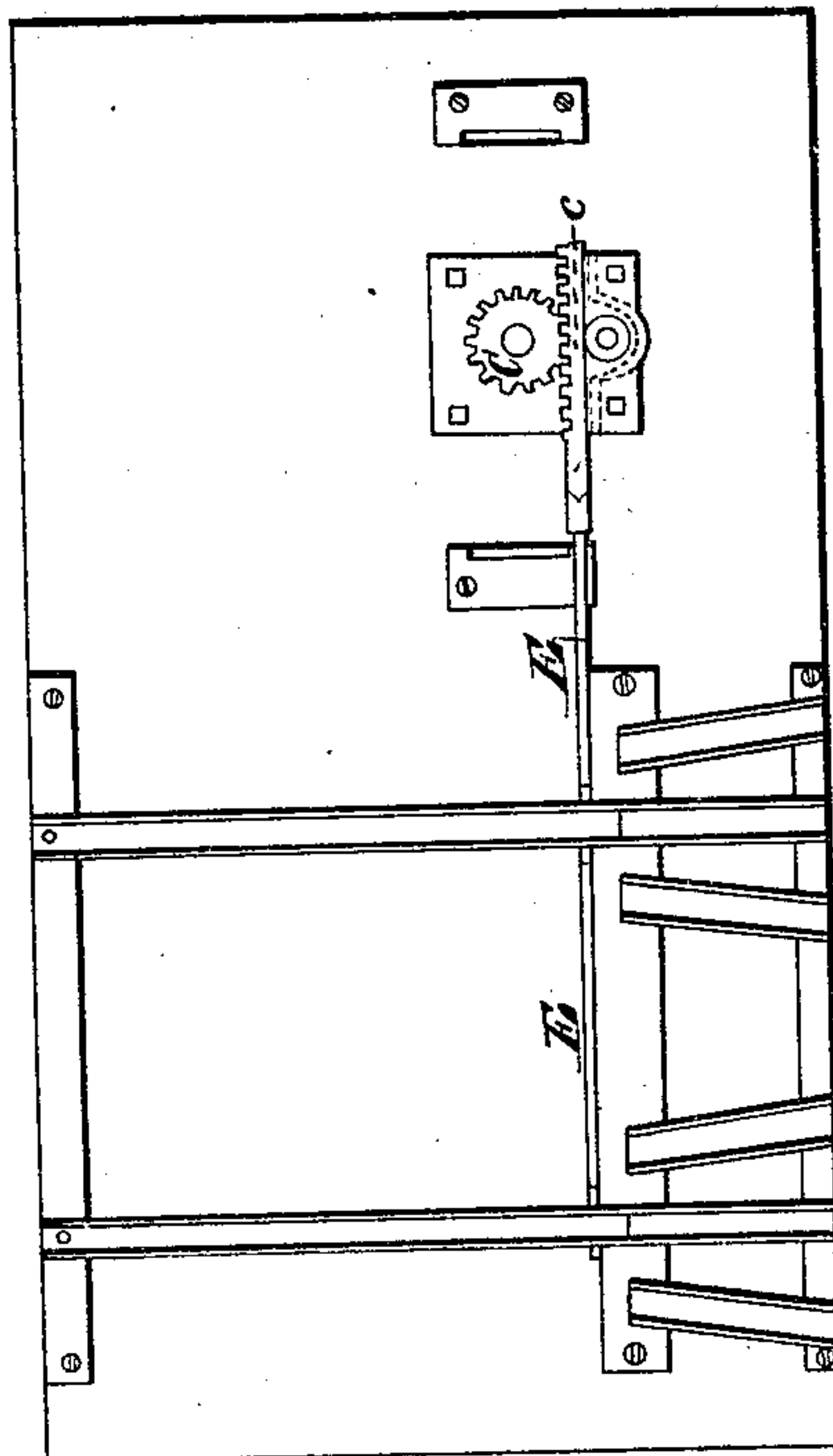


Fig: 5.

Fig: 3.



# UNITED STATES PATENT OFFICE.

GEORGE R. SMITH, OF ITHACA, NEW YORK.

## RAILROAD-SWITCH.

Specification forming part of Letters Patent No. 20,959, dated July 20, 1858; Reissued December 17, 1867, No. 2,814.

*To all whom it may concern:*

Be it known that I, GEORGE RANDALL SMITH, of Ithaca, county of Tompkins, and State of New York, have invented a new and Improved Railroad-Switch; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and letters of reference marked thereon.

Figure 1, is a perspective view of the switch complete as attached to the truck. Letters *a, a*, represent the upright shaft, the lower end of which rests upon and turns in a metallic bed plate. Letter *b* is the pinion which is securely keyed to the lower extremity of the shaft *a*. Letter *c* is a rack of any required length in which the cogs of the pinion *b*, play. Letter *d*, is a cap-piece extending over both rack and pinion to hold them down to their places. In the cap piece *d*, is a friction roller resting against the back of the rack *c*. Letters *e, e*, represent the rod extending from, and forming part of the rack *c*, with clamps clasp- ing the rails near their movable extremity. Letters *f f f* are the frame or standard (which should be made of iron) and supports the shaft *a*, and the circle *g, g*, on which circle the spring lever *h*, slides. The spring lever *h*, is to turn the shaft *a*, and is securely attached to said shaft immediately above its bearings in the frame *f, f, f*. Letters *i, i, i*, represent slots in the upper surface of the circle *g, g*, into which the spring lever *h*, drops when the rails are in opposition. The lever is held sufficiently firm in these slots by its own spring. The size of the slots should accurately correspond to the size of the lever. Letters *k, k, k, k*, represent signals so attached to the upper extremity of the shaft *a, a*, as to exhibit to the approaching train the condition of the switch. Letter *l*, represents a signal light or lantern and is so constructed, as will be shown here- after, as to show a white light when the switch and main truck are in opposition and to invariably show red light when the switch is turned to either side. Letters *s, s*, show the movable portion of the rails, and *t, t, t, t, t, t*, the stationary track.

Fig. 2 letter *h* is a view of the spring lever.

Fig. 3, letters *b, c*, and *e, e*, is a separate view of the pinion and rack and its extend- ing rod.

Fig. 4 letter *d*, is a sectional view of the cap piece.

The lamp or signal light above referred to is to be made four sided; two sides, op- posite each other, to be of clear glass, and the other two sides of stained or red glass. The lantern is set upon the top of the shaft *a* and turns with it. The upper end of the shaft is to be made of the proper shape to fit accurately an oblong opening in the bottom of the lamp. By this simple device it is im- possible for any one to place the lamp either designedly or carelessly so that it shall de- ceive the approaching train.

The following are some of the advantages claimed for this over other switches. It can be changed more rapidly than any other; it is sure to be fastened when the switch is changed. The strain being so nearly at the end or rest of the shaft does not rack the switch so much as when lever power is used. The rack and pinion may be securely boxed from storm or dirt. Lastly economy, being less expensive and more durable than ordi- nary switches.

I claim—

1. The described rack and pinion at the base of a perpendicular rotating or partially rotating shaft, when combined with a spring lever, and a circle or segment of a circle; said lever being fixed at right angles to said shaft, and playing on said circle or segment, and into slots in the same; and said seg- ment or circle being horizontal.

2. Further I claim the above named com- bination when further combined with a sig- nal lantern; which lantern revolves wholly or in part, when adjusted to the top of said shaft; said lantern having different colored glasses, and revolving on an axis drawn per- pendicularly through the center of said lantern.

GEORGE R. SMITH.

Witnesses:

J. O. M. INGERSOLL,  
A. H. FOWLER.