

A. S. BRÖCHNER-LARSEN & O. P. KROGH.
LOCKING MECHANISM FOR RAILWAY POINTS.

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Fig. 1.

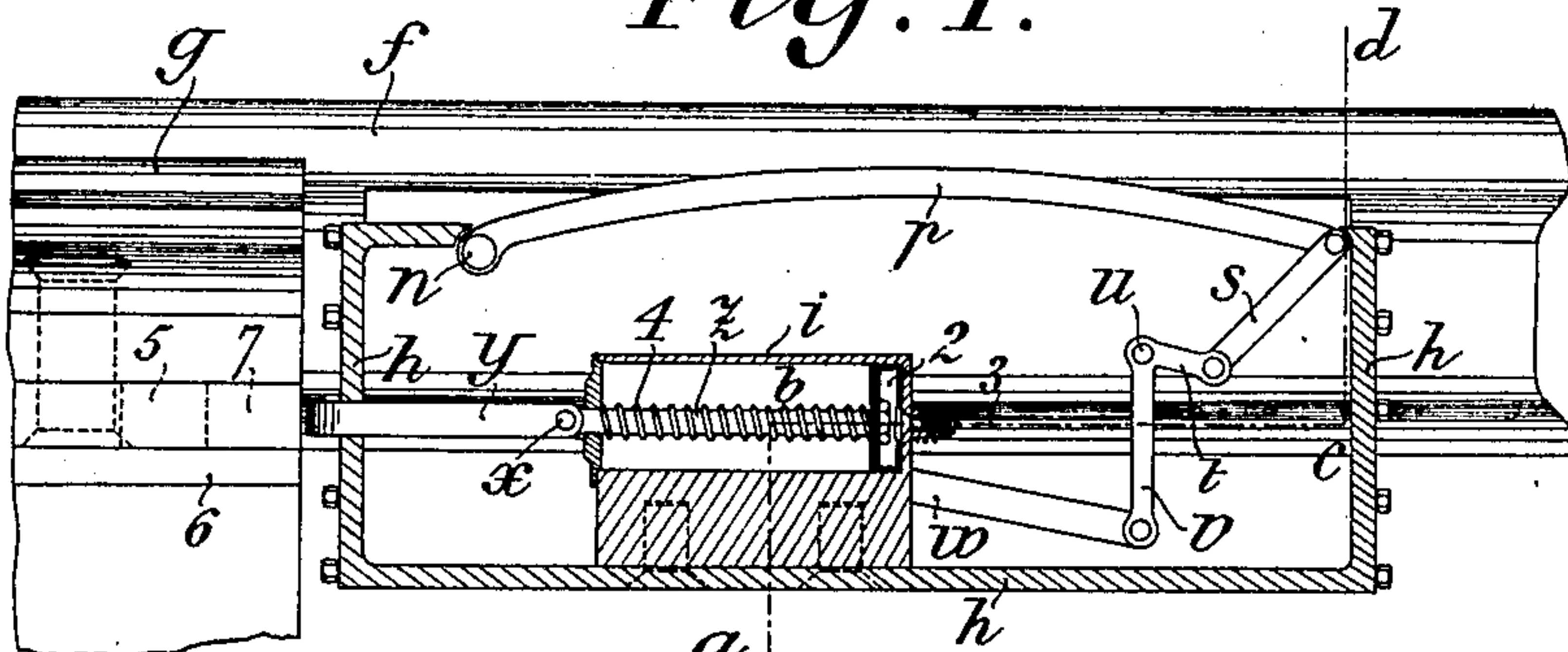


Fig. 2.

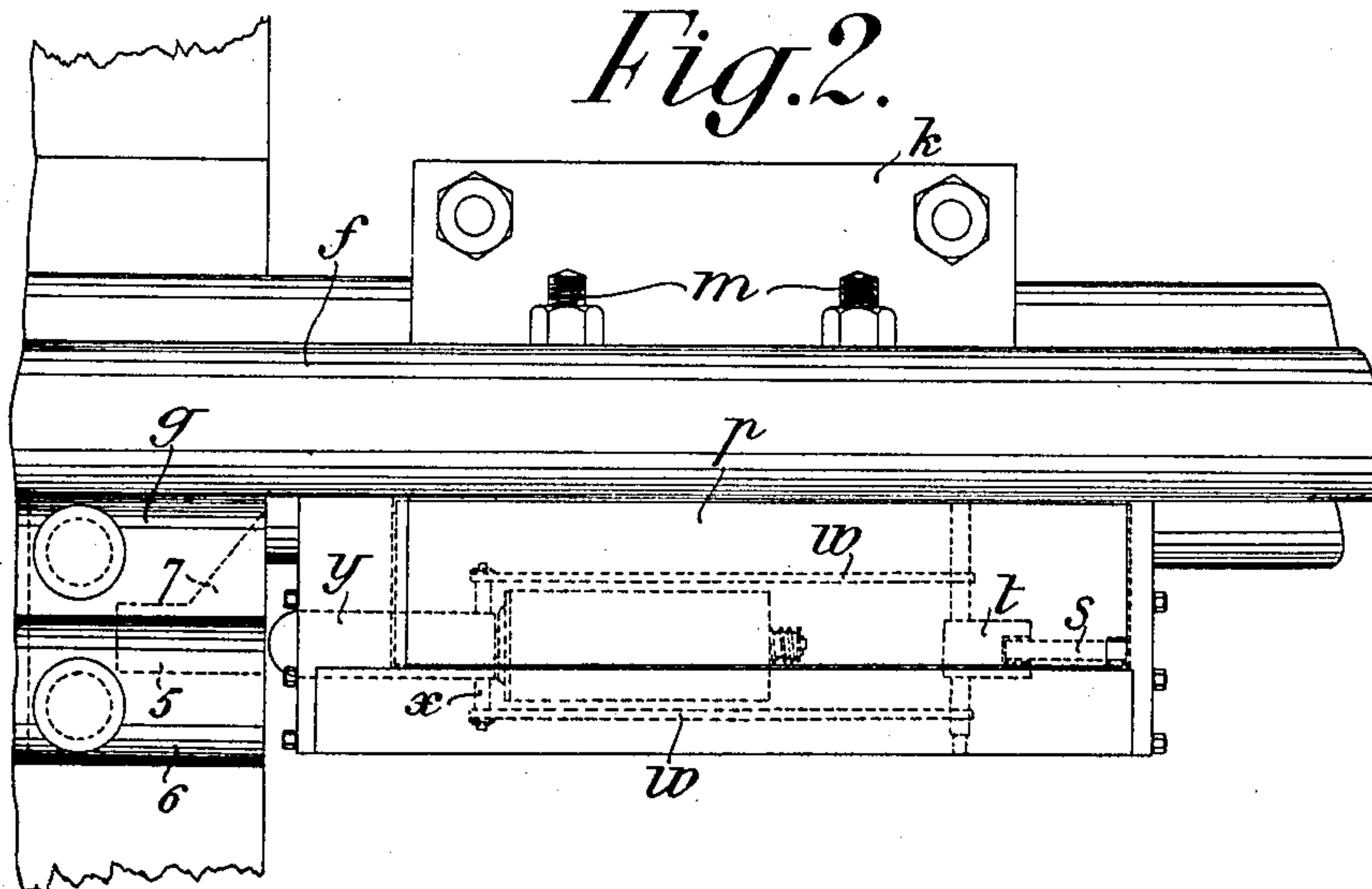
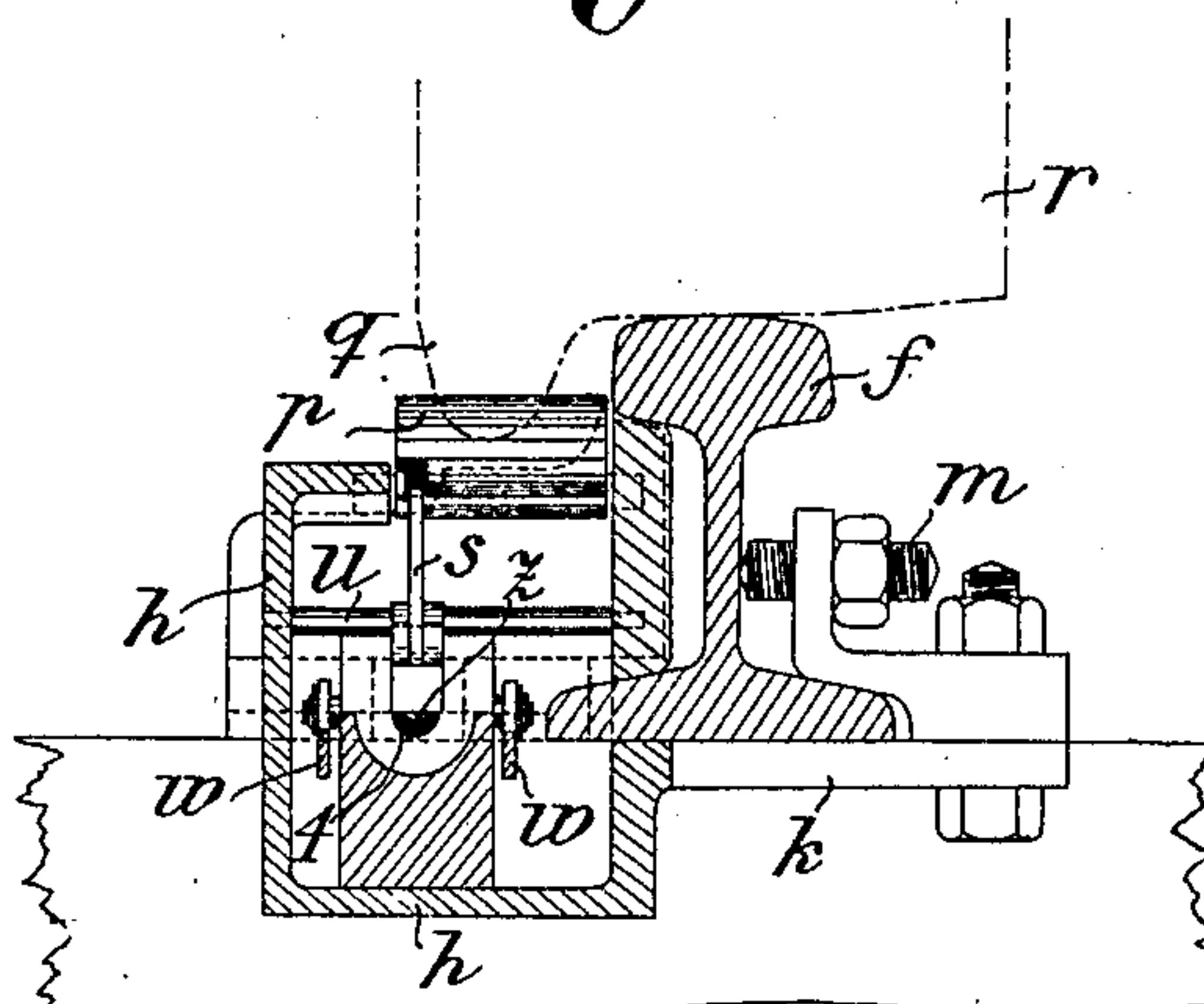


Fig. 3.



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LOCKING MECHANISM FOR RAILWAY-POINTS.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, AAGE SOFUS BRÖCHNER-LARSEN and OTTO PEDER KROGH, both of No. 15 Larsleistraede, Copenhagen, in the Kingdom of Denmark, civil engineers, have invented new and useful Improvements in Locking Mechanism for Railway-Points, of which the following is a specification.

The object of the present invention is to provide a locking mechanism for railway points, which serves on the one hand to prevent a correctly arranged point from being shifted while a railway train is going over it, and on the other hand, as soon as a train enters the point, to thrust the shifting rail right over to the stationary rail if the point were not completely pushed over.

In the accompanying drawing, Figure 1 is a side elevation, partly in section, of mechanism for locking railway points constructed according to our invention. Fig. 2 is a plan of the same, and Fig. 3 is a vertical section along the line *a—b—c—d* of Fig. 1.

f is the stationary rail, and *g* the shifting rail which lies along it. By the side of the stationary rail and in front of the shifting rail is placed a box *h*, which can be pressed tightly against the rail by means of a flange *h*, partly covered by the foot of the rail, and by clamping screws *m* arranged on the other side of the rail *f*. The lid of the box is formed by an arm *p*, pivoted vertically on a bolt *n*, and in some cases curved upwardly, which arm lies at such a height by the side of the rail *f*, that it is pressed down by the rim *q* of the wheel, as soon as the wheel *r* passes over the particular part of the rail, Fig. 3.

The arm *p* is connected by a link *s* to one arm *t* of a cranked lever pivoted on an axis *u*, the other arm *v* of the lever being connected by two draw-rods *w* (Fig. 2) to a cross bolt *x*. The latter is carried by a rod *y* forming an extension of a piston rod *z*. The piston 2 attached to the rod *z* works airtight in a cylinder *i*. In the end of the cylinder there is placed a valve 3, opening inward, which allows the air to escape slowly from the cylinder when the piston 2 is moved toward the valve 3 under the pressure of a spring 4. The piston 2 may of course be acted upon indirectly by a spring, as well as directly.

As soon as a wheel passes over the rail *f* immediately in front of the shifting rail, the

flange of the wheel presses down the arm *p*, and the motion of the arm *p* is transmitted to the rod *y* by the parts *s*, *t*, *v* and *w*. The rod *y* is thereby pressed against the action of the spring 4 and the end of the rod which passes through an opening in the wall of the box *h* enters a recess 5 in a piece of iron 6 lying under the end of the shifting rail. When the shifting rail *g* lies close to the rail *f*, and the point is completely closed, the recess 5 is directly opposite the rod *y* which therefore advances into the recess and locks the point. If, on the contrary, the point be only partly closed an oblique surface 7 of the recess 5 (Fig. 2) lies directly opposite the end of the rod *y* so that the rod *y* is forced to push the shifting rail quite over to the rail *f*, thus effecting complete closure. Simultaneously with the shifting of the rod *y*, the piston 2 moves toward the left (Fig. 1), air entering the cylinder *i* through the valve 3.

As soon as the pressure upon the arm *p* ceases, the spring 4 tends to return the piston 2 and with it the rod *y* to the position shown in Fig. 1. This motion is opposed by the air contained in the cylinder, which can only escape gradually through the valve 3. The point will therefore remain closed for rather a long time, so that even when the train is only traveling slowly the point is still closed when the arm *p* is pressed down by the next following wheel of the train. When the train has entirely passed over the point the escape of air through the valve 3 permits the rod *y* to be gradually moved out of the recess of the shifting rail, under the influence of the spring 4, so that the shifting rail is left entirely free.

The cylinder *i* operates in combination with the piston 2 and the valve 3 as an air brake, but a liquid brake of suitable construction may be used instead of it.

Having thus described our invention, we claim:

1. In a locking mechanism for railway points, the combination, with the fixed rail and the shifting rail, of a fixed pivot-bolt, an upwardly curved arm located alongside the fixed rail and pivoted at one end on said pivot-bolt, and a rod operated by other end of said arm and moved by the depression thereof into position to lock the shifting rail in closed position.

2. In a locking mechanism for railway points, the combination, with a fixed rail,

and a shifting rail having a recess in the end thereof, of a casing arranged alongside the fixed rail, a flange-engaging arm pivoted to said casing, and a rod in the casing operated
5 by said arm and arranged to take into said recess in the shifting rail.

3. In a locking mechanism for railway points, the combination, with a fixed rail, and a shifting rail having a recess in its end,
10 said recess having an oblique surface, of a flange-engaging arm, and a sliding rod operated by said arm and coacting with said recess of the shifting rail.

4. In a locking mechanism for railway
15 points, the combination, with a fixed rail and a shifting rail, of means to lock the shifting rail in closed position, and a single cylinder operated by fluid pressure by which the locking means is gradually released.

20 5. In a locking mechanism for railway points, the combination, with a fixed rail and a shifting rail, of mechanism to lock the shifting rail in closed position comprising a rod engaging with said rail, a spring normally holding said rod out of coöperative
25 engagement with said rail, and fluid-pressure means acting in opposition to said spring.

6. In a locking mechanism for railway points, the combination, with the fixed rail

and the shifting rail, of an elongated casing 30 secured longitudinally against the fixed rail, said casing being open at the top, an upwardly curved arm pivoted in the upper part of one end of the casing and forming a closure for the open top, locking means to 35 hold the shifting rail in closed position, and means located in said casing and connecting said arm and said locking means for operating said locking means by movement of said arm. 40

7. In a locking mechanism for railway points, the combination, with a fixed rail and a shifting rail, of mechanism to lock the shifting rail in closed position, comprising
45 a rod coacting with said rail, a spring normally holding said rod out of coöperative relation with said rail, and a single air-pressure cylinder adapted to act against said spring and retard the motion of said rod.

In testimony, that we claim the foregoing 50 as our invention, we have signed our names in presence of two subscribing witnesses.

AAGE SOFUS BRÖCHNER-LARSEN.
OTTO PEDER KROGH.

Witnesses:

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