

Fig 6

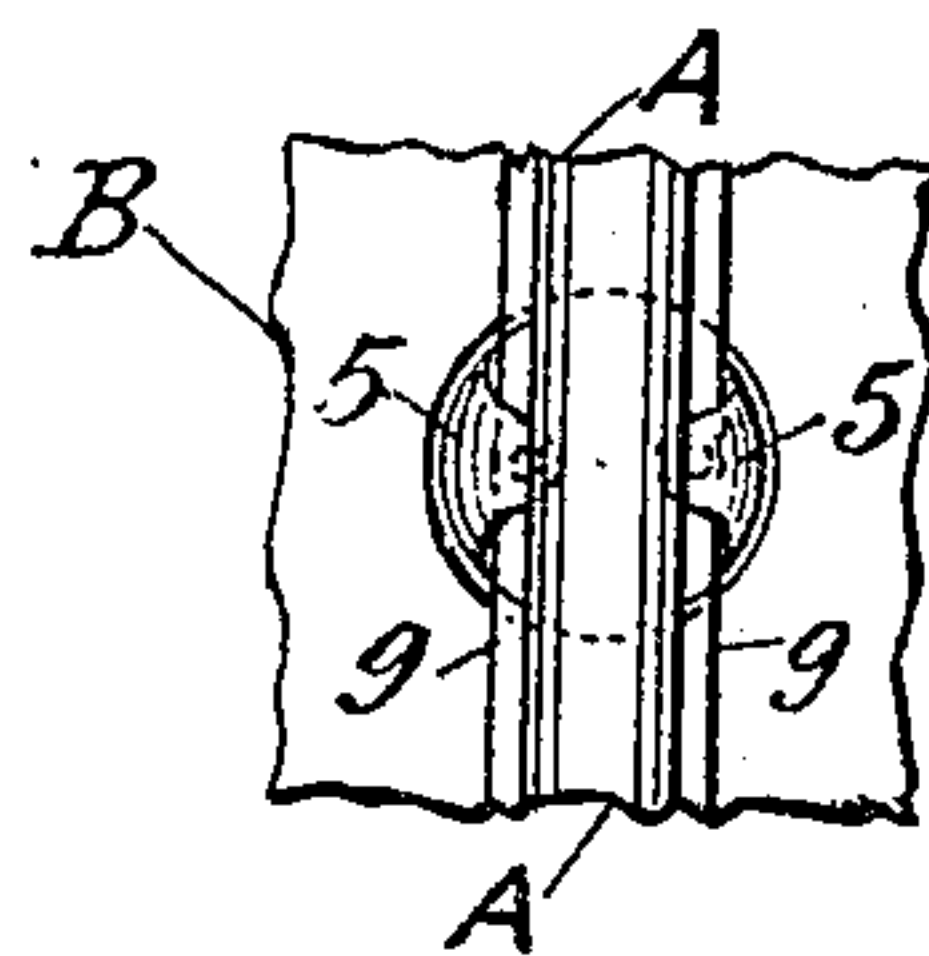


Fig 7

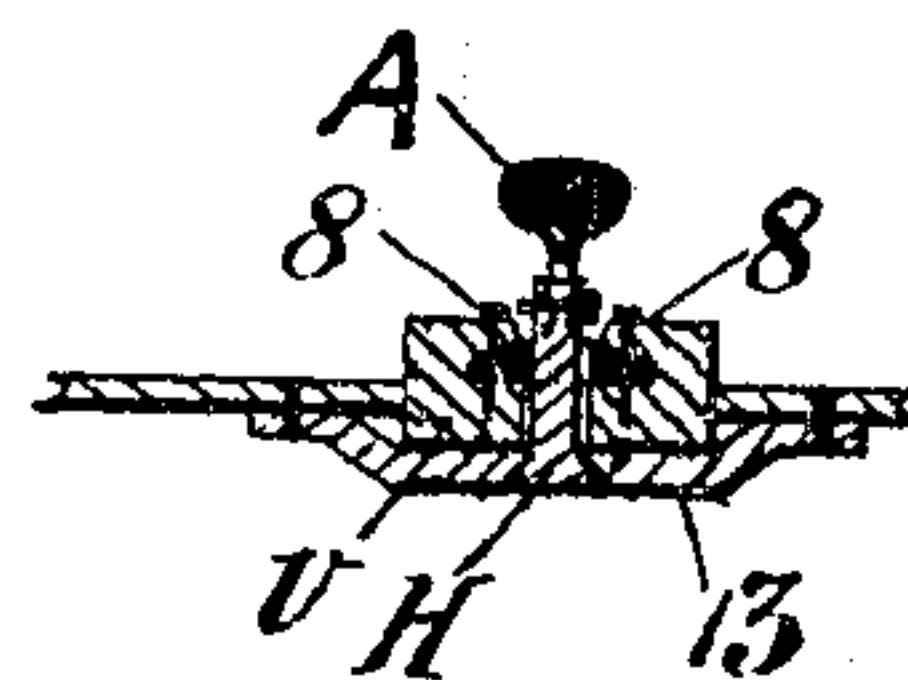


Fig 20

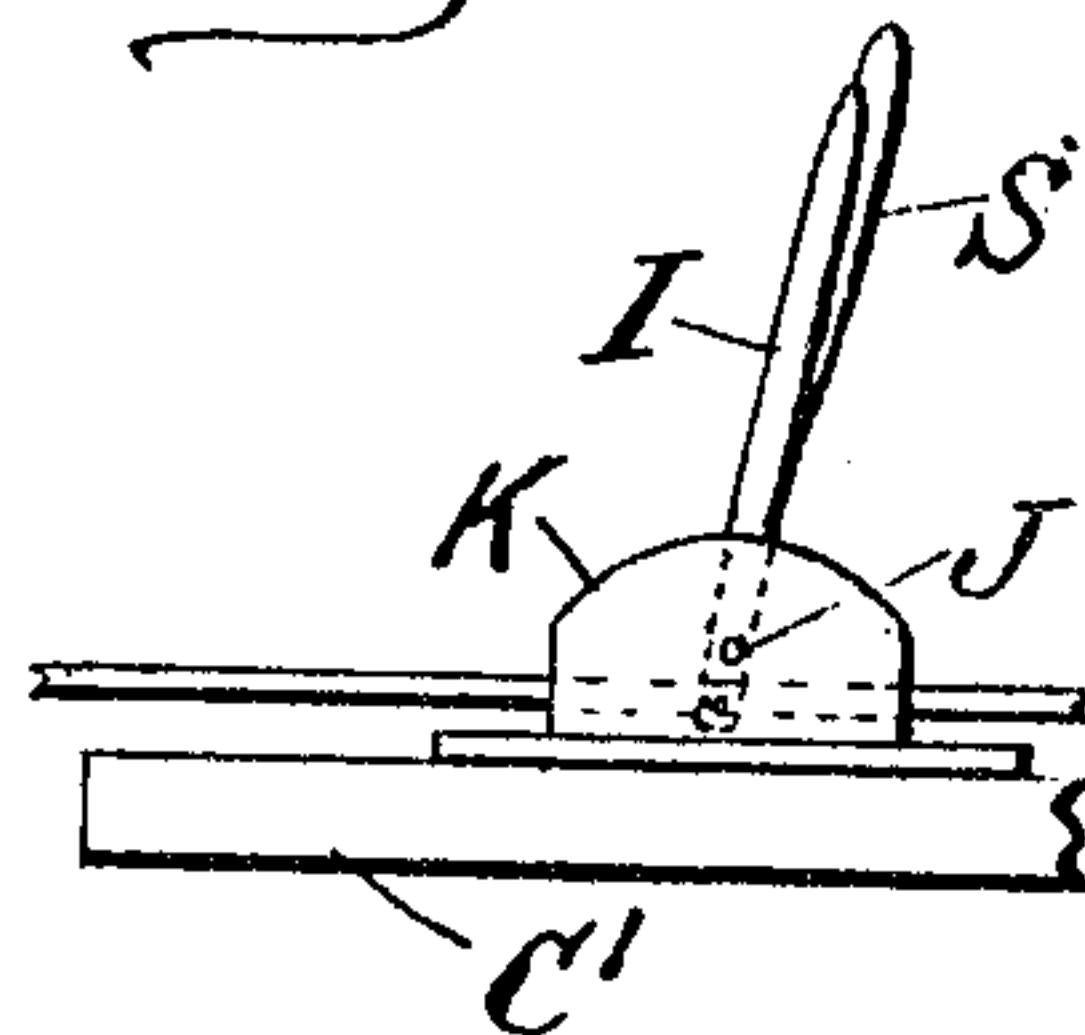
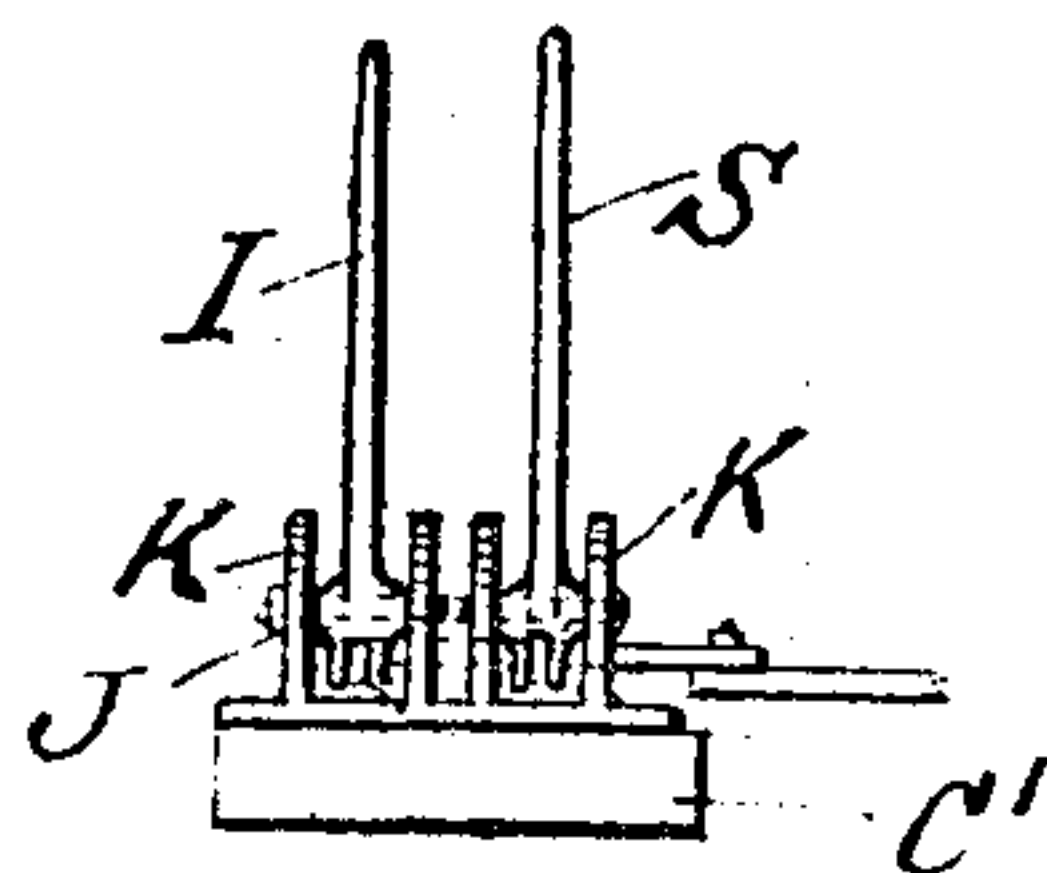


Fig 21



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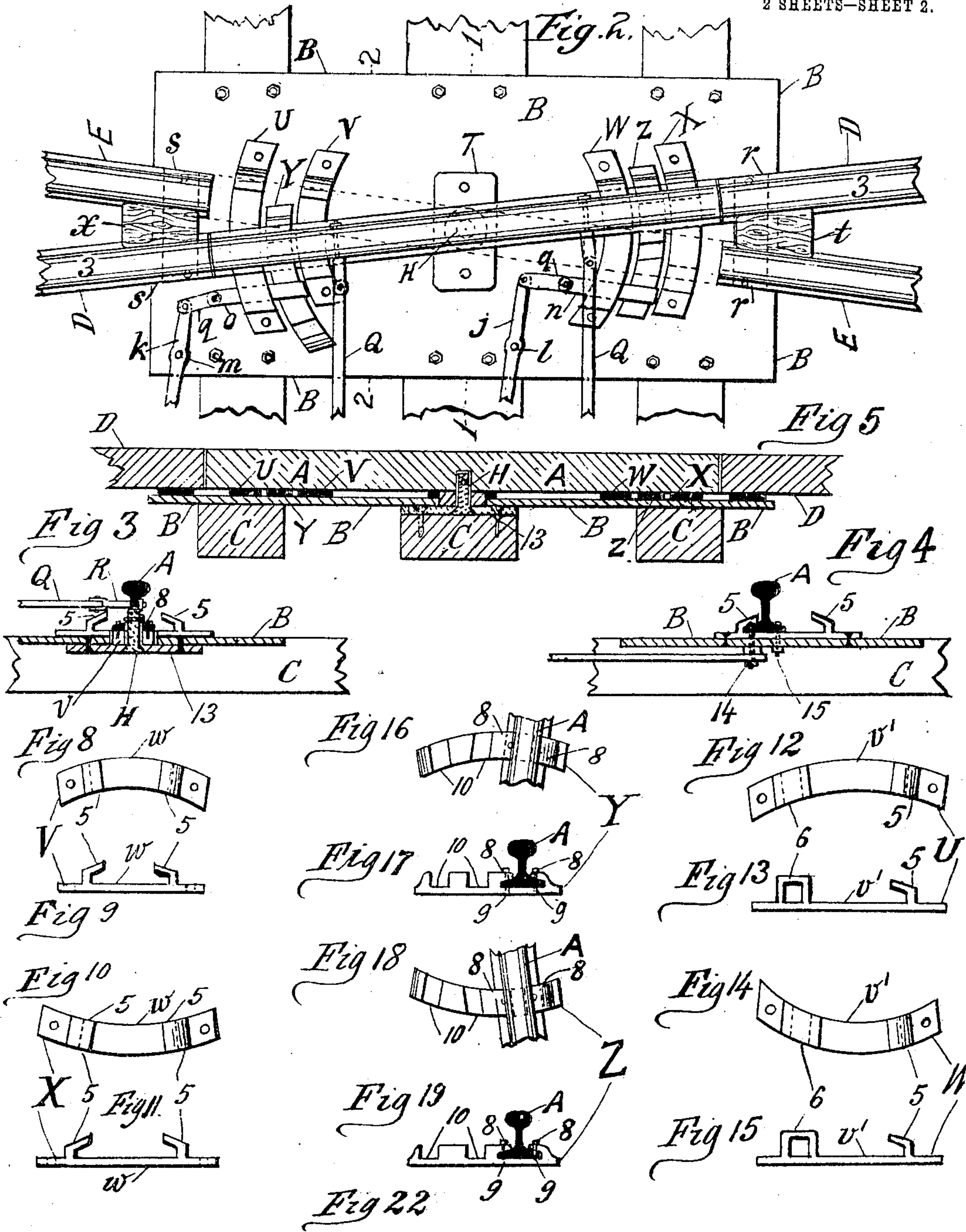
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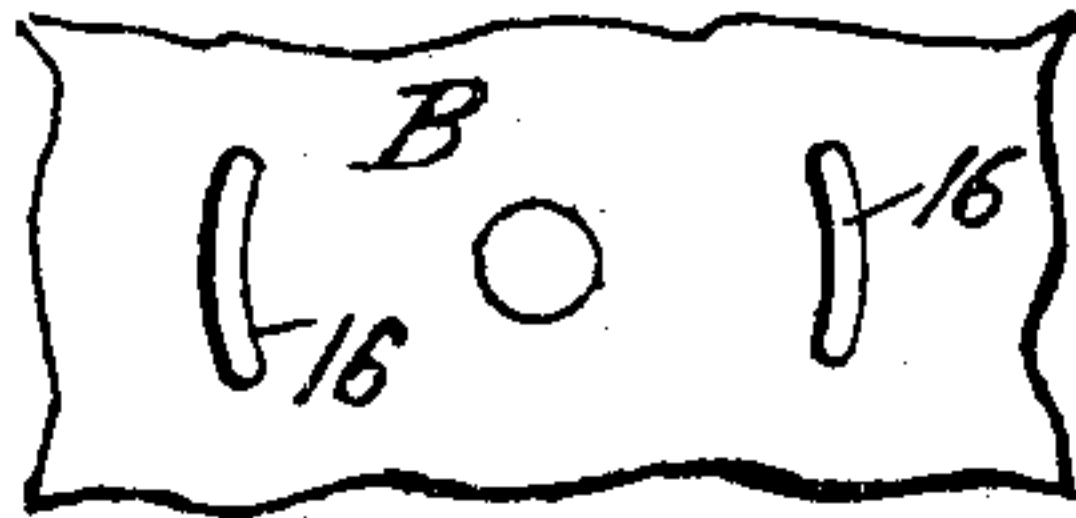
RAILWAY CROSSING.

APPLICATION FILED JAN. 11, 1905.

2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

REGINALD HENRY PIERCE AND GEORGE DAVENCOURT WESTROPP, OF  
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## RAILWAY-CROSSING.

No. 799,260.

Specification of Letters Patent.

Patented Sept. 12, 1905.

Application filed January 11, 1905. Serial No. 240,640.

*To all whom it may concern:*

Be it known that we, REGINALD HENRY PIERCE and GEORGE DAVENCOURT WESTROPP, British subjects, employees on the Rajpootana-Malwa railway, and residents of Ajmir, Rajpootana, India, have invented certain new and useful Improvements in Railway-Crossings, of which the following is a specification.

This invention relates to improvements on our previous specification regarding railway-crossings, the object being to secure perfect safety and efficiency in the working of the centrally-pivoted single-rail crossing by securely locking the pivoted rail when swiveled into either position for main or siding line.

In the description hereunder given to make it quite clear the whole invention is included with the additional improvements.

In the drawings hereto annexed, and which are to be read as part of this specification, like letters or numerals are used to indicate the same parts in each of the several figures.

Figure 1 shows a plan of improved rail-crossing with main line and siding and the locking apparatus. Fig. 2 is a plan to enlarged scale of a portion of same, showing abutting rails E D and E D, bed-plate, centrally-pivoted rail, and locking-chairs attached to bed-plate. Fig. 3 shows a vertical section of Fig. 2 through center of bed-plate, with actuating-ties attached to web of rail on line 1 1, Fig. 2. Fig. 4 is a vertical section of same on line 2 2, showing an alternative method of attaching the actuating-ties to pivoted rail beneath bed-plate. Fig. 5 shows a longitudinal vertical section of rail and bed-plate on line 3 3. Figs. 6 and 7 show a plan and section of a central pivotal bearing for broad-gage heavy rails. Figs. 8, 9, 10, and 11 show plans and side elevations of the pair of locking-chairs marked V X fixed to bed-plate. Figs. 12, 13, 14, and 15 show plans and side elevations of the pair of locking-chairs marked U W fixed to bed-plate. Figs. 16, 17, 18, and 19 show plans and side elevations of the pair of locking-shoes securely attached to rail and which move to and fro with it, (marked Y Z.) Fig. 20 shows a side elevation of the actuating-levers S and I. Fig. 21 is a vertical section of same on line 4 4, Fig. 1. Fig. 22 shows plan of a portion of bed-plate B with two curved slots in it for rail-bolts 14 and 15 to travel in.

This improved rail-crossing consists of a

single rail A, centrally pivoted on its central pin H, attached to a substantial bed-plate B, securely fixed to wooden sleepers C and working in conjunction with the main-line rails D and the siding-rails E and the movable points F, which are the same as have hitherto been used.

The switching-gear consists of a lever I, working on its pin J in casing K, which actuates rod L, bell-crank M, points-rod N, T O, swiveling on its center pin P, tension-ties Q, pinned to outer ends of links R, the inner ends of which are connected to web of pivoted rail A in any suitable manner.

The locking-gear consists of lever S, pinned in frame K, its lower end being connected to rod a, pinned to bell-crank b, which swivels on its angle-pin c, fixed in sleeper C', the other end of crank b being pinned to tie-rod d, the forward end of which connects to arm of another bell-crank e, which swivels on its angle-pin f, fixed in sleeper. The forward end of crank e is hinged to end of long rod g, to which is also hinged by pins at points h and i the two arms j and k, which swivel on pins l and m, securely fixed in sleeper. The other ends of rods k and j carry the locking-bolts n and o with two short links p and q intervening.

In laying the bed-plate B, which should be prepared in the workshop and brought to site with all its fittings on it, the ends r s of the pair of abutting rails are first bolted together through blocks of wood t and u. The ends of bed-plate are then pushed in under the ends of the rails which are riveted down to bed-plate through rail-flanges. The bed-plate is then secured to sleepers by spikes or preferably by coach-screws. The switch-rail points F are secured in their place in the usual manner and are connected by bar u, as at present.

For a meter-gage line the bed-plate may be ten feet long by two to two and one-half feet wide and half an inch thick, and it may be countersunk in the sleepers to the extent of its own thickness.

The fittings on the bed-plate are the central bearing-plate T, which has a disk cut out of it and also out of block v, attached to center of pivoted rail. The bearing-plate may be oblong or circular and attached to bed-plate by rivets. Then there are the two pairs of curved locking-chairs, (marked U V and W X,)



their concave sides facing inward to the central point. These chairs are securely riveted to bed-plate. The pair V X are exactly alike, except that their curves are reversed, and the bed *w* of X is slightly longer than that of V. They have two jaws 5, under which the flanges of rail catch as it swings to and fro over the center part *w*. The pair marked U W are also exactly alike, except that their curves are reversed, and the bed *w'* of U is a little longer than that of W. They are securely riveted to bed-plate B and have two jaws 5 fitted on their outer ends, their inner ends being fitted each with a boxed-in compartment 6 for housing the locking-bolts *n* and *o*.

The fittings attached to the pivoted rail are the pair of locking-shoes Y Z, which are exactly alike with the exception of their curves being reversed. At one end they are fitted with a pair of jaws 8, within which the flanges of rail A are secured by screws 9, the inner ends of each shoe being fitted with a pair of slots 10 to receive the ends of locking-bolts. These locking-shoes swing with the rail and fit into and travel in the space between each pair of chairs.

Fig. 3 shows a cross-section of 11, Fig. 2 of the central bearing for a light or meter gage railway. The jaws 5 are seen in elevation. The pivot-pin H is shown secured in the under bearing-plate 13 and passing through bed-plate B into a bore-hole made in the center of foot of rail, a split pin passing through its top to prevent rail lifting off. The flanges of rail are securely riveted to a bearing-block V, which bears on plate 13 and on which the rail turns. In Fig. 3 the actuating-rods Q, with links R, are shown attached to web of rail.

Figs. 6 and 7 show a bearing-block for broad-gage heavy rails, in which a broader base is given to the circular bearing-block, to the top of which is given jaws 8, in which rail-flanges are secured by screws or rivets.

Fig. 4 shows a method of attaching the rods Q to bolts 14 and 15, depending from bottom of rail and traveling in slots 16 (see Fig. 22)

in bed-plate B. The rod Q is shown attached to one bolt, the other having a nut only on it; but both must be left a little slack to allow of the easy travel of the bolts, or they may be fitted with two nuts each, the inner one being left a little slack and the outer one being screwed up tight. Whenever this alternative method of attaching the points-rod Q to foot of pivoted rail is adopted the adjoining sleepers should be set on masonry blocks.

Fig. 5 shows a longitudinal section of rail A through its center line 3 3. Here it is shown that rail A bears on the center bearing-block and also on U V and W X.

The locking-gear shown can be varied and simplified by using a single end-linked rod centrally pivoted instead of the parts *b d e* and lengthening rod *a* to meet it.

The term "centrally pivoted" should be taken to mean in or about the center, as in certain circumstances it may be found necessary to pivot the rail slightly off its center in order to obtain a greater angle of divergence at the exit end of the rail than at the entrance or trailing-points end. If the balance of the rail is much affected, it can be counterbalanced by bolting fish-plates to web of short length.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is—

In railway-crossings, a centrally-pivoted splice-rail, means for actuating said rail, a base-plate, stop-chairs secured to said plate on which the rail moves, chairs carried by the rail and sliding on the base-plate, locking-bolts carried by the stop-chairs on the base-plate and adapted to engage the chairs on the rail to lock the rail in position and means for operating said bolts.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

REGINALD HENRY PIERCE.

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