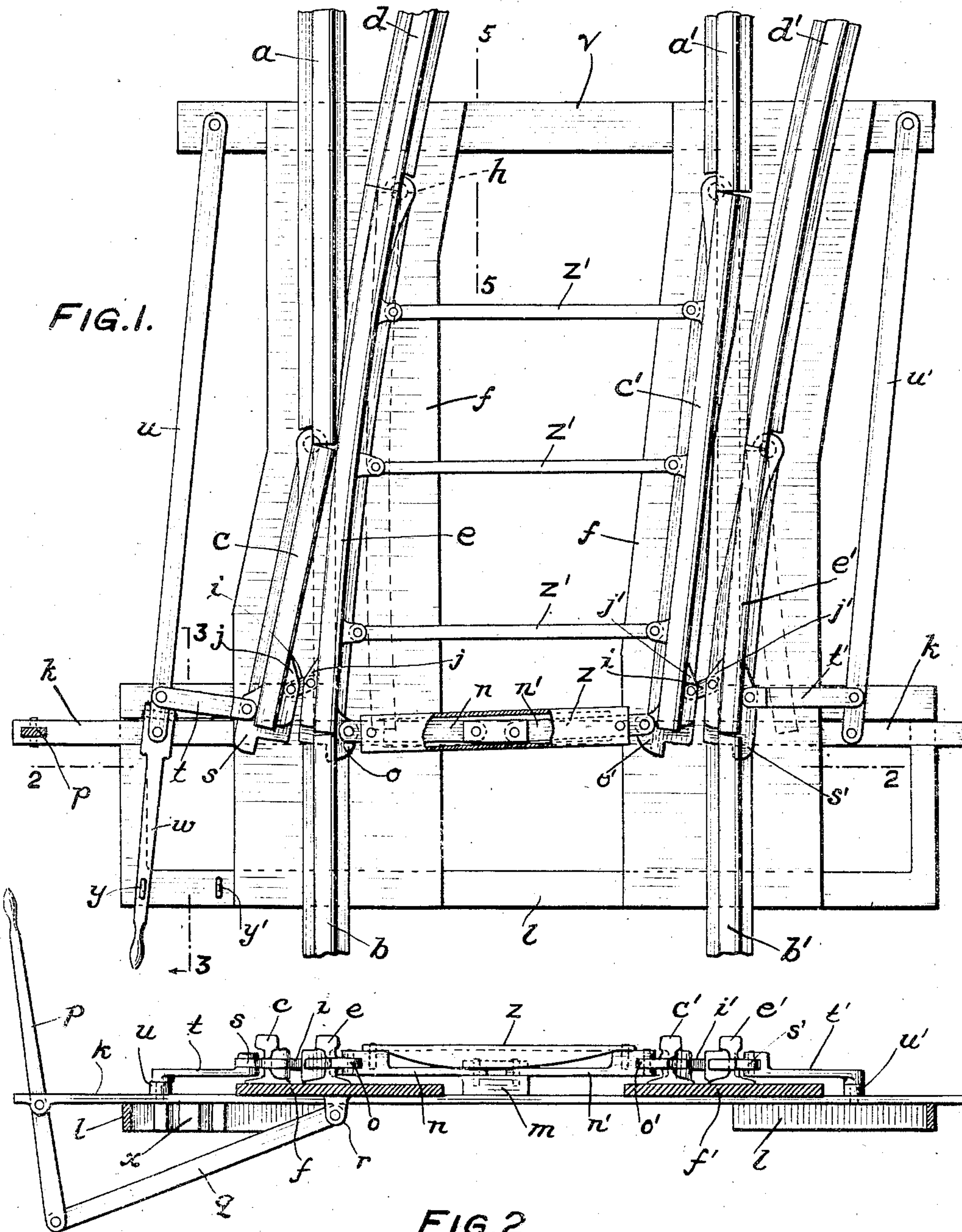


D. B. BROADWATER.  
RAILROAD SWITCH.  
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924,629.

Patented June 15, 1909.  
2 SHEETS—SHEET 1.



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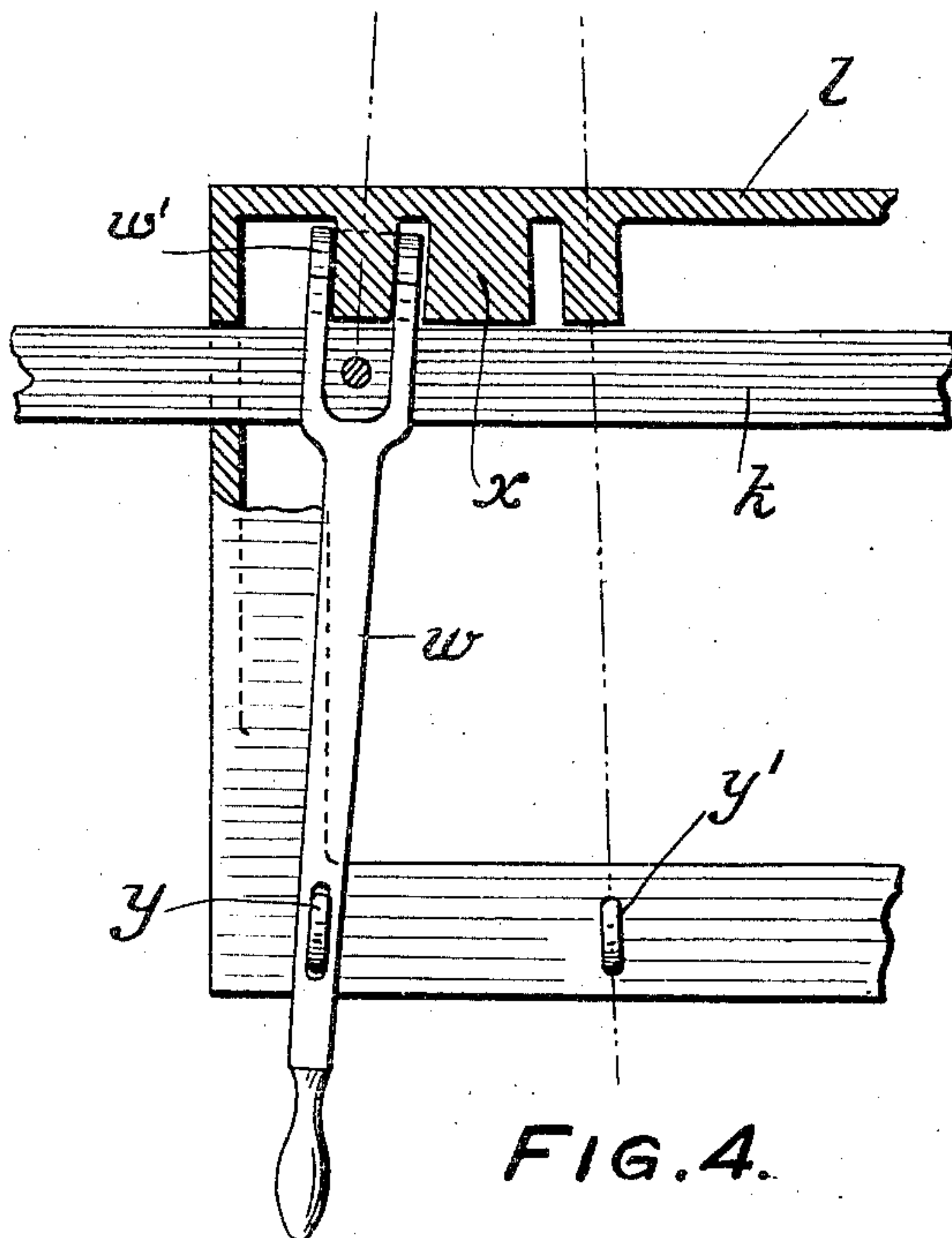


FIG. 4.

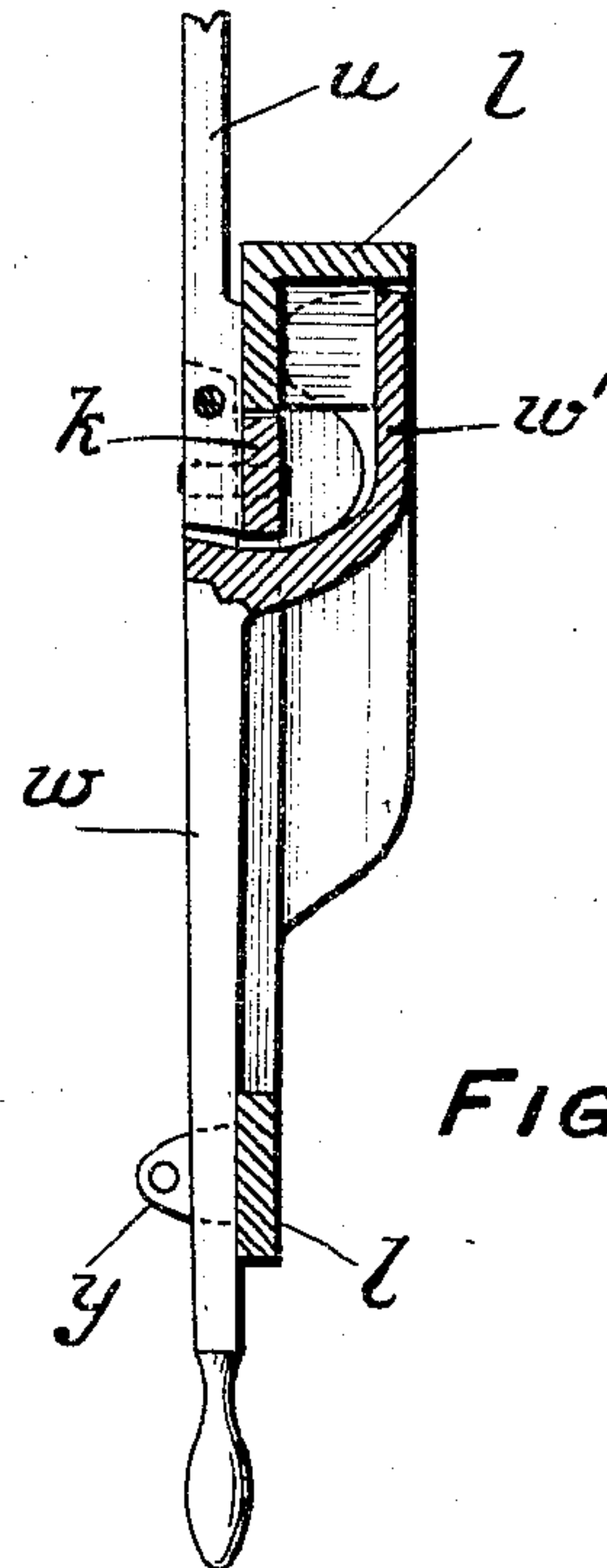


FIG. 3.

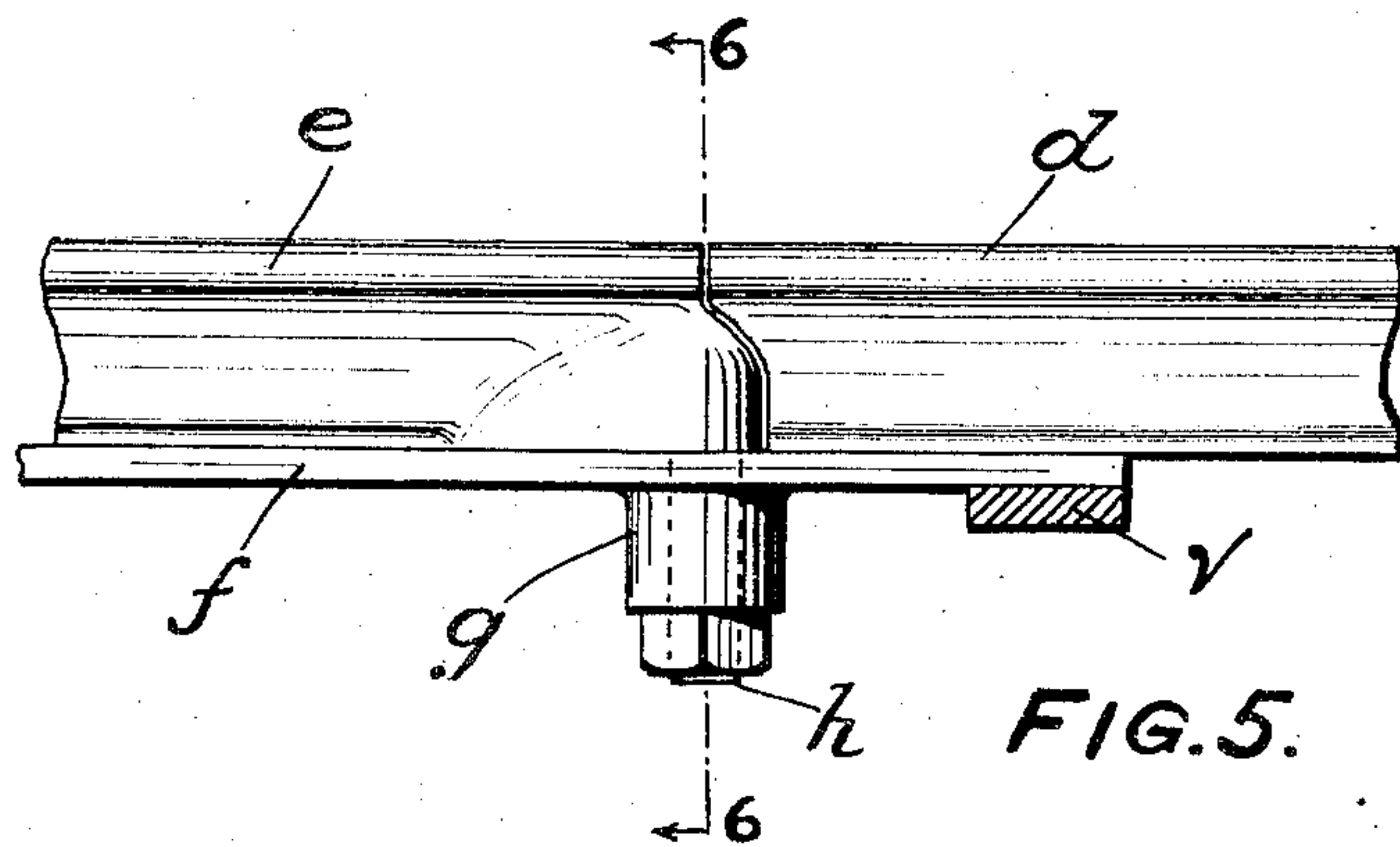


FIG. 5.

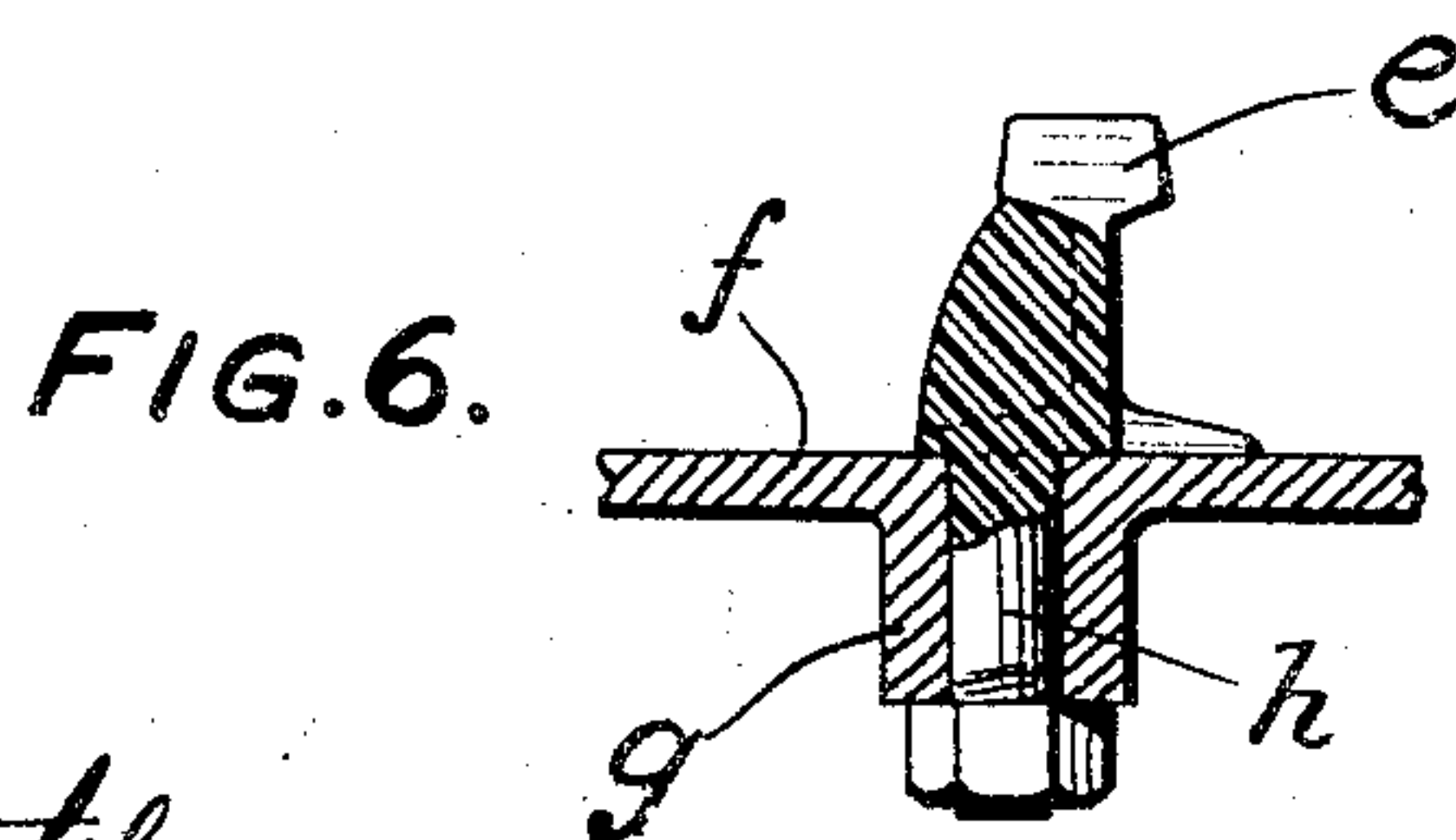


FIG. 6.

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# UNITED STATES PATENT OFFICE.

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## RAILROAD-SWITCH.

No. 924,629.

Specification of Letters Patent.

Patented June 15, 1909.

Application filed March 10, 1909. Serial No. 482,515.

To all whom it may concern:

Be it known that I, DAVID B. BROADWATER, a citizen of the United States, residing at Clayton, county of Gloucester, and State of New Jersey, have invented a new and useful Improvement in Railroad-Switches, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

The object of my invention is to produce a new and improved railroad switch in which the usual switch points are dispensed with and the switching from one track to another accomplished by means of blunt-end sections.

The invention consists in the general and specific arrangement of parts hereinafter described in which is comprised, in addition to the specific association of movable rail sections, means for insuring the exact alinement of the movable and fixed rail sections and for locking as well as bracing the movable rail sections in either of their operative positions.

In the drawings: Figure 1 is a plan view of the switch; Fig. 2 is a section on the line 2—2 of Fig. 1; Fig. 3 is an enlarged section on the line 3—3 of Fig. 1 showing the locking lever partly broken away; and Fig. 4 is a plan view of same partly broken away; Fig. 5 is an enlarged section on the line 5—5 of Fig. 1; Fig. 6 is a cross section on the line 6—6 of Fig. 5.

$f, f'$  are plates secured to the ties which, for purposes of clearness, are not shown in the drawings. To these plates the fixed rail sections are secured and the movable rail sections pivoted.

Referring first to the rail sections attached to the left-hand plate,  $a$  represents the end of one rail of the through track and  $b$  the end of another alining rail of the same track.

$a$  and  $b$  may, if desired, be fixed rail sections that abut against full length rails of the main track. These rails or rail-sections are fixedly secured to the plate  $f$  and are spaced apart and adapted to be connected by a rail section  $c$  pivoted on the plate  $f$ , as hereinafter described, and so pivoted that the outer edge of its pivoted end adjoins the outer edge of the adjacent end of the rail section  $a$ . The rail section  $c$  is of such length that when it is swung into the posi-

tion shown in dotted lines in Fig. 1, it just spans the space between  $a$  and  $b$ .

$d$  represents the end of one rail of the branch track, or a rail section adapted to abut against a rail of the branch track. It is fixedly secured to the plate  $f$  and extends inside of the rail section  $a$  and is spaced from the rail  $b$  a distance substantially greater than the distance separating rail sections  $a$  and  $b$ . The rail section  $e$  is pivotally secured to the plate  $f$  by means of a downward projection or pin  $h$ , on a thickened part of the rail, socketed in a lug  $g$  on the plate  $f$  (see Figs. 5 and 6). The rail section  $e$  is adapted, when moved into the position shown in full lines, to span the space between, and connect rail sections  $b$  and  $d$ . The rail section  $e$  is pivoted on the plate  $f$  in the same manner that the rail section  $c$  is pivoted.

The free or movable ends of rail sections  $c$  and  $e$  are secured together by means of a link  $i$  connecting lugs  $j, j$ , secured respectively to the ends of  $c$  and  $e$ .

$a', b', c', d'$  and  $e'$  represent rail sections corresponding respectively to rail sections  $a, b, c$ , and  $e$  but secured to plate  $f'$  in the same manner respectively that the last named rail sections are secured to plate  $f$ . In this group of rail sections, however, the rail section  $c'$ , which is adapted to connect the fixed rail  $a'$  and  $b'$ , is substantially longer than the rail section  $e'$  which is adapted to connect the fixed rail  $a'$  and branch rail  $d'$ ; the arrangement in this respect being therefore the reverse of that of the group first described.

$k$  is a bar extending under the plates  $f$  and  $f'$  and slidable in guides on the frame  $l$  secured to the plates. Secured to the bar  $k$  is a block  $m$ , which is connected by links  $n$  and  $n'$  with blocks  $o$  and  $o'$  secured respectively to rail sections  $c$  and  $c'$ . When the bar  $k$  is moved to the right, rail sections  $c$  and  $c'$  are moved into alinement with rails  $a$  and  $a'$  respectively, and the main track is thus closed, as shown in dotted lines in Fig. 1. When the bar  $k$  is moved to the left, as shown in full lines, in Fig. 1, rail sections  $c$  and  $c'$  are moved into alinement with rails  $b$  and  $b'$  respectively, and the main track is open and the branch track closed, as shown in full lines in Fig. 1. To operate the bar  $k$  there is provided a hand lever  $p$  pivoted on



the frame and connected by a link  $q$  with a lug  $r$  secured to the plate  $f$ .

$s$  and  $s'$  are blocks secured respectively to the outside of the ends of rail sections  $c$  and  $c'$ . These blocks, and also blocks  $o$  and  $o'$  (which may be, as shown integral respectively with lugs  $j$  and  $j'$ ,  $j$  and  $j'$ ) project beyond the ends of the rails to which they are secured and serve to limit the movement of the switch in each direction. That is, when the switch is moved to the right, as shown in dotted lines in Fig. 1, block  $s$  engages rail  $b$ , and block  $o'$  engages rail  $b'$ ; and when the switch is moved to the left, as shown in full lines in Fig. 1, block  $s'$  engages rail  $b'$  and block  $o$  engages rail  $b$ .

To brace the switch from being moved by the impact of the wheel flanges striking the inside of the head of the movable ends of the pivoted rails, links  $t$  and  $t'$  connect respectively blocks  $s$  and  $s'$  with levers  $u$  and  $u'$  each pivoted at one end to a cross-piece  $v$  secured to plates  $f$  and  $f'$  and at the other end to the bar  $k$ .

The switch may be locked in either of the two positions to which it is moved by means of a locking lever  $w$  (see Figs. 3 and 4). This lever is pivoted to the lever  $u$  and has a forked arm  $w'$  extending underneath bar  $k$  and adapted when the arm  $w$  is depressed, to engage recesses formed in a block  $x$  secured to the frame  $l$ . Which of the several recesses will be in line with the arm on the locking lever  $w$  depends upon which of the two operative positions the switch has assumed. When the locking lever  $w$  is depressed, a slotted portion thereof engages a lug  $y$  or  $y'$  secured to the frame  $l$ . Each of these lugs is provided with a transverse orifice through which may be inserted a pin, padlock, or other device by means of which the locking lever  $w$  may be held in its locking position, thereby preventing the operation of the switch-bar  $k$ .

$z$  is a flanged guard plate attached at its opposite ends to the outer ends of links  $n$  and  $n'$ , thereby protecting the links from dirt or other damage.

$z', z', z'$  are tie rods, similar to those employed on ordinary switches, connecting the movable rail sections.

It will be understood that the terms "main rails" and "branch rails" are arbitrary terms employed for convenience of description and are without other significance, being in fact convertible terms. With this understanding it will be observed that in principle of construction the two sides of the switch are, in the embodiment of my invention illustrated, precise duplicates. That is, the short movable rail sections  $c$  and  $c'$  each connects a fixed rail common to both tracks with the outside rail of the two adjacent rails, while the long movable rail section  $e$  and  $e'$  each connects a fixed rail

common to both tracks with the inside rail of the two tracks. The duplicate movable rail sections are, however, alternately in operative position, as will be understood from the foregoing description.

Having now fully described my invention, what I claim and desire to protect by Letters Patent is:

1. In a switch, the combination with a pair of fixed rails forming one track section and four fixed rails, disconnected at their ends, forming two track sections, of a pair of movable switch rails pivoted respectively at the ends of the two fixed rails forming one of the last named two track sections, a pair of movable switch rails pivoted respectively at the ends of the two rails forming the other of the last named two track sections, and means to move said switch rail sections simultaneously on their pivots to connect the first named track section with either of the other two track sections.

2. In a switch, the combination with fixed main rails  $a$  and  $b$  spaced apart, of a branch rail  $d$  alongside the rail  $a$  and spaced from rail  $b$  a distance greater than the space between the first named rails, main rails  $a'$  and  $b'$  spaced apart a distance greater than the first named rails, a branch rail  $d'$  alongside rail  $a'$  and spaced from rail  $b'$  a distance less than the space between rails  $a'$  and  $b'$ , a rail  $c$  pivoted at the end of rail  $a$  and adapted to be moved to connect rails  $a$  and  $b$ , a rail  $e$  pivoted at the end of rail  $d$  and adapted to be moved to connect rails  $b$  and  $d$ , a rail  $c'$  pivoted at the end of rail  $a'$  and adapted to be moved to connect rails  $a'$  and  $b'$ , a rail  $e'$  pivoted at the end of rail  $d'$  and adapted to be moved to connect rails  $b'$  and  $d'$ , and manually controlled means for moving said movable rails on their pivots.

3. In a switch, the combination with a pair of fixed rails forming one track section and four fixed rails forming two track sections, of two relatively short movable rail sections adapted to connect the first named rails with the two outside rails respectively of the remaining fixed rails, two relatively long rail sections adapted to connect the first named rails with the two inside rails respectively of the remaining fixed rails, and means to move one short movable rail and one long movable rail on opposite sides into connecting position and the other movable rails simultaneously out of connecting position, and vice versa.

4. In a switch, the combination with two pairs of fixed main rails and a pair of fixed branch rails respectively alongside the two rails of a pair of fixed main rails, of four movable connecting rails pivoted at the ends of the two fixed branch rails and the adjacent fixed main rails, a cross-bar, links connecting the cross-bar and the two inner connecting rails, links connecting the inner



connecting rails with the respective adjacent outer connecting rails, and means to move the cross-bar.

5 5. In a switch, the combination with two pairs of fixed main rails and a pair of fixed branch rails respectively alongside the two rails of a pair of fixed main rails, of four movable connecting rails pivoted at the ends of the two fixed branch rails and the adjacent fixed main rails, a cross-bar, connections by which the connecting rails are moved on their pivots from the cross-bar, means to move the cross-bar, a locking lever attached to the cross bar, and a locking recess adapted to be engaged by the locking lever.

15 6. In a switch, the combination with two pairs of fixed main rails and a pair of fixed branch rails respectively alongside the two rails of a pair of fixed main rails, of four movable connecting rails pivoted at the ends of the two fixed branch rails and the adjacent fixed main rails, a cross-bar, connections by which the connecting rails are moved on their pivots from the cross bar, means to move the cross-bar into one of two operative positions, a locking lever attached to the cross-bar, and a pair of locking recesses, one or the other of which is in position to be engaged by the locking lever dependent upon the position to which the cross-bar is moved.

7. In a switch, the combination with two pairs of fixed main rails and a pair of fixed branch rails, the last named rails located respectively alongside the two rails of a pair of fixed main rails, of four movable rails pivoted respectively at the ends of the fixed branch rails and of the last named fixed main rails, a cross-bar, connections by which the cross-bar operates said pivoted rails, levers on opposite sides of the track pivotally connected to the cross-bar, a frame to which said levers are also pivoted, and links respectively connecting said levers with the two outside movable rails.

8. In a switch, the combination with two pairs of fixed main rails and a pair of fixed branch rails respectively alongside the two rails of a pair of fixed main rails, of four movable connecting rails pivoted at the ends of the two fixed branch rails and the adjacent fixed main rails, a cross-bar, links connecting the cross-bar and the two inside connecting rails, and a guard plate overhanging said links.

In testimony of which invention, I have hereunto set my hand, at Philadelphia, on this 8th day of March, 1909.

DAVID B. BROADWATER.

Witnesses:

M. M. HAMILTON,  
E. E. WALL.