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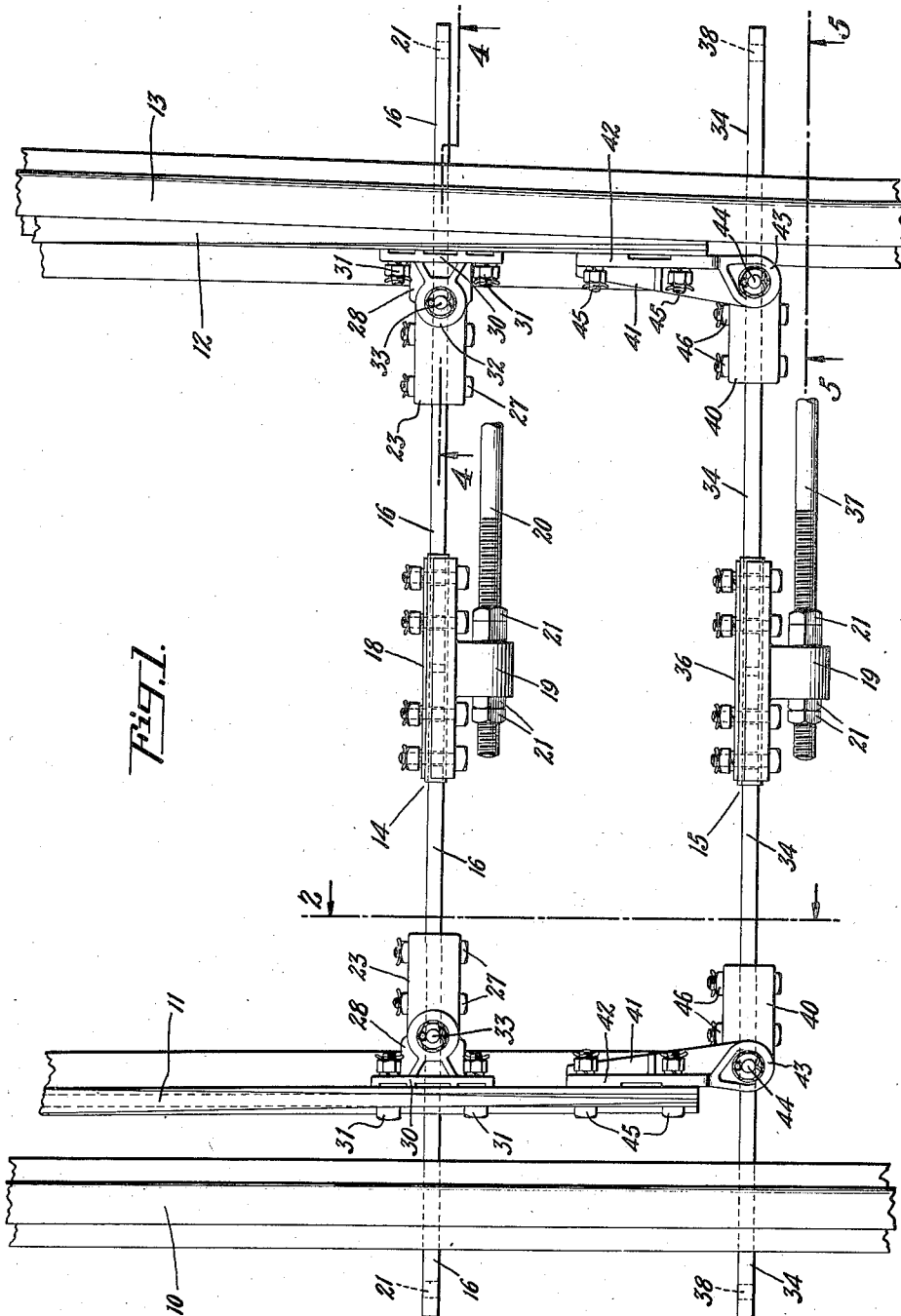
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2,099,559

RAILWAY SWITCH

Filed Dec. 7, 1934

3 Sheets-Sheet 1



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3 Sheets-Sheet 2

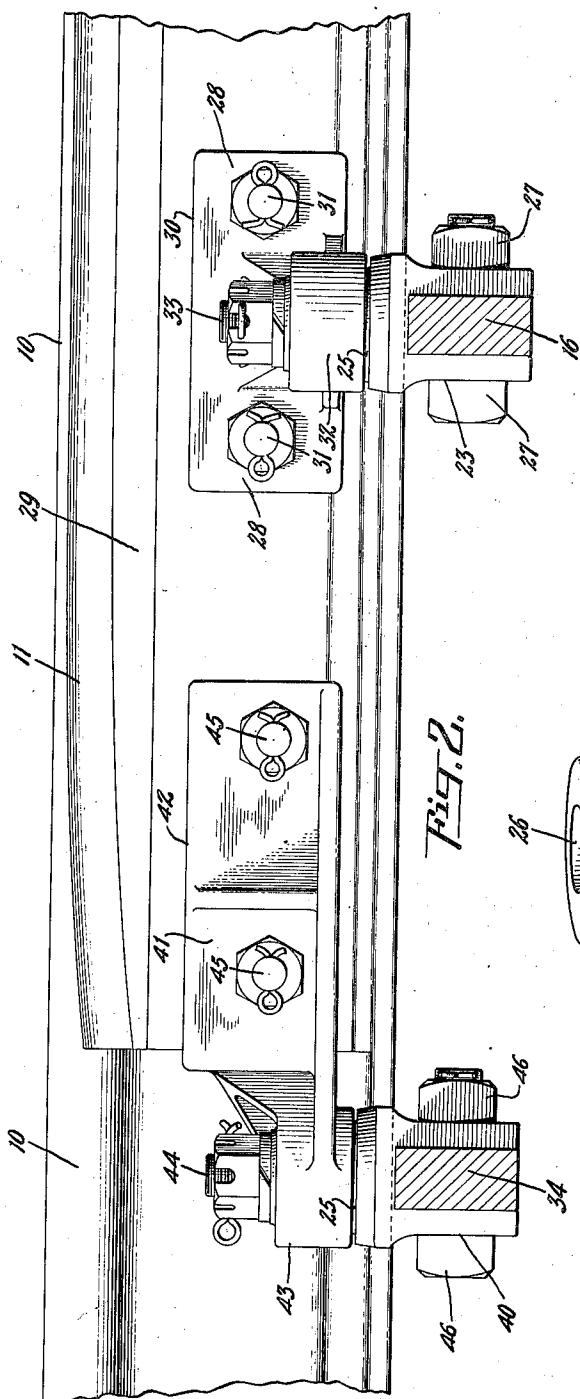


Fig. 2.

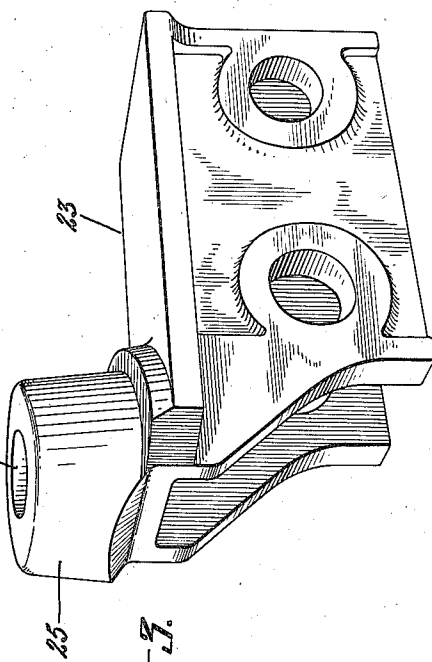


Fig. 3.

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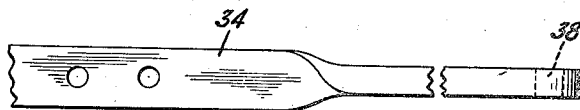
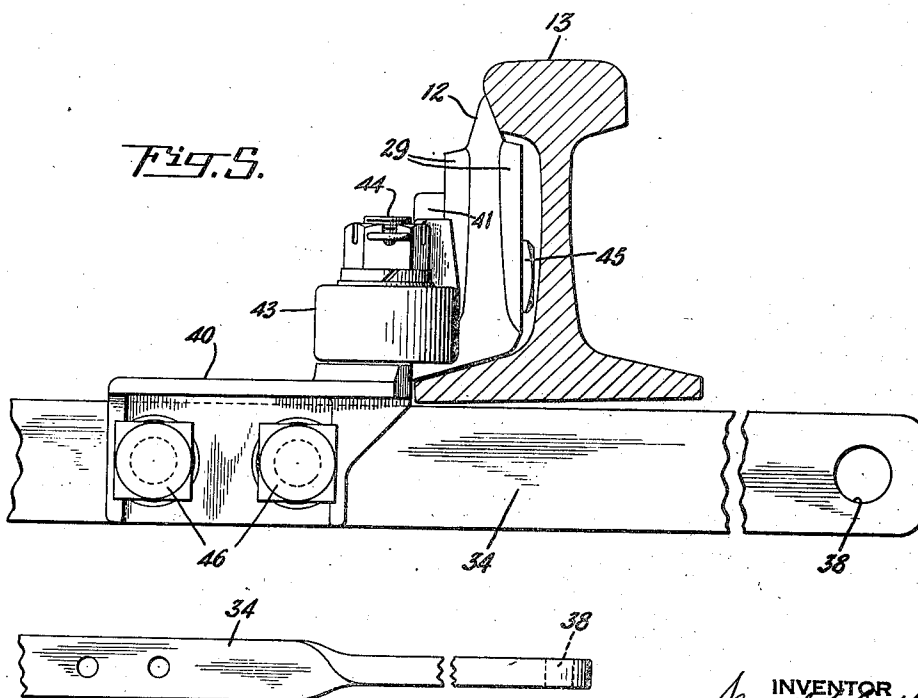
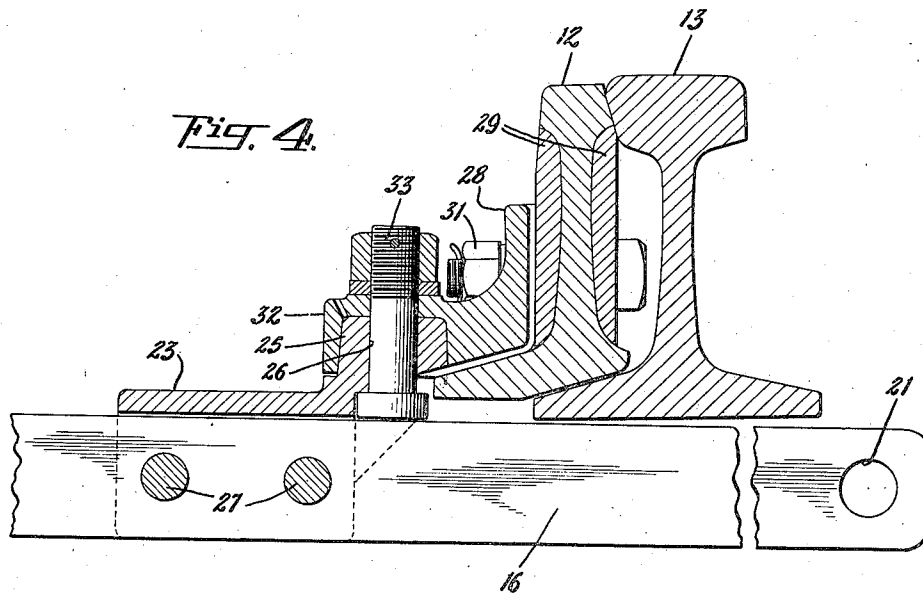
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RAILWAY SWITCH

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3 Sheets-Sheet 3



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2,099,559

RAILWAY SWITCH

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6 Claims. (Cl. 246—452)

The invention relates, in general, to railway track equipment, and more particularly to railway switches.

According to one form which the invention may assume, the switch points may be connected by flat, vertically disposed switch rods. These rods may be rigidly connected to dogs which may be pivotally connected to clips rigidly secured to the switch points. The vertical disposition of the flat switch rods where they pass under the stock rails assists in effectively holding down the switch points. The swivel connection between the rods and the points relieves strain on the rods and permits the switch to be thrown more easily. The switch rods may be single rods extending from point to point or they may be separated at the middle by insulation. The switch rods may have holes at their ends for connection to the operating rods or lock rods, or the operating rods and lock rods may be connected to the switch rods at the center points thereof. If desired, the vertical switch rods may be twisted to horizontal at their ends for connection to the operating or lock rods.

A switch rod according to the invention may be used at the extreme end of the switch point and also, if desired, one or more additional switch rods may be used at other positions along the switch points. In addition to single switches, the invention is applicable to derailing switches and also to double slip switches both to the switch points and center points thereof.

The invention also consists in certain new and original features of construction and combinations of parts hereinafter set forth and claimed.

Although the novel features which are believed to be characteristic of this invention will be particularly pointed out in the claims appended hereto, the invention itself, as to its objects and advantages, and the manner in which it may be carried out, may be better understood by referring to the following description taken in connection with the accompanying drawings forming a part thereof, in which

Fig. 1 is a plan view of a single switch;
Fig. 2 is a section on the line 2—2 of Fig. 1;
Fig. 3 is a perspective of a dog forming part of the swivel connection between rod and point;
Figs. 4 and 5 are sections on the lines 4—4 and 5—5, respectively, of Fig. 1; and

Fig. 6 is a detail illustrating an alternative construction in which the rod has its end twisted to horizontal for connection to an operating rod or lock rod.

In the following description and in the claims,

various details will be identified by specific names for convenience but they are intended to be as generic in their application as the art will permit.

Like reference characters denote like parts in the several figures of the drawings.

In the drawings accompanying and forming part of this specification, certain specific disclosure of the invention is made for purposes of explanation, but it will be understood that the details may be modified in various respects without departure from the broad aspect of the invention.

Referring now to the drawings and more particularly to Fig. 1, the through or stock rails are denoted by 10 and 13 and the switch points are denoted by 11 and 12 forming a single switch. The rail 10 and switch point 12 may form the main line, while the rail 13 and switch point 11 may form the siding or branch line. It will be understood that these rails will rest on tie plates which in turn rest on spaced wooden railway ties in the usual manner. The tie plates and ties have been omitted in the drawings for purposes of simplicity.

The switch points 11 and 12 are connected by switch rod assemblies 14 and 15, assembly 15 being connected at the extreme end of the switch points and assembly 14 being connected at another position. If desired, one or more additional rod assemblies may also be provided connecting the switch points at other positions toward the heels of the switch points. Rods 20 and 37 may be connected to the mid points of assemblies 14 and 15 for operating and locking the switch. If it is not desired to extend the operating and lock rods to the mid points of the switch rods, they may be connected at the extreme ends of the switch rods, holes 21 and 38 being provided for this purpose.

The operating rod is preferably connected to the switch rod assembly 14 with the lock rod preferably connected to the switch rod assembly 36 although, if desired, the connections may be reversed. It will be understood that the switch rod assemblies 14 and 15, together with the operating and lock rods, will be disposed between railway ties in the usual manner, as will be understood by those skilled in the art.

Referring now to the rod assembly 14, this assembly is made up of a pair of flat rods 16 connected by a basket 18. The basket 18 is for the purpose of insulating one rod section 16 from the other and for connecting the rod 20 thereto.

The basket 18 may be of any well known construction, it not being necessary to describe it in detail here. It is sufficient to point out that the

basket has secured thereto a hollow lug 19 through which threaded end of rod 20 passes. Lock nuts 21 are provided for adjusting the position of rod 20 in the lug 19.

5 The rod sections 16 are of rectangular, oblong cross section with their planes vertically disposed as illustrated. These rod sections 16 pass under the stock rails 10 and 13 and effectively hold down the switch points. The rod sections 16 have 10 holes 21 for connection to an operating rod, if desired.

The connection between each rod section 16 and its respective switch point is the same except that one construction is right hand, while the 15 other is left hand. Consequently, it is only necessary to describe one connection in detail.

Referring to Fig. 3, the dog 23 is provided with depending vertical walls forming a vertical channel for receiving the rod section 16 to which it is 20 securely bolted by bolts 27. The dog 23 has a conical journal portion 25 and a central hole 26 for a purpose hereinafter described more in detail.

Connected to the switch point 12 is a clip 28 having a flange portion 30 rigidly bolted to the 25 switch point 12 by bolts 31 and the reenforcing plates 29 thereof. Depending from the flange 30 is a bearing portion 32 having a conical inner surface fitting a conical surface on journal 25. A bolt 33 passes through the opening 26 and an aligned opening in the bearing 32 for swiveling the 30 dog 23 and clip 28 together.

It will be noted that the journal portion 25 overlaps the base flange of the switch point 12 (Fig. 4) so that, even if the bolt 33 should fail, it is impossi- 35 ble for the dog 23 to drop out of the clip, thus providing greater safety.

Referring now to assembly 15, this construction is made up of rod sections 34 connected by basket 36 to which is secured a rod 37 which is preferably 40 a lock rod. Holes 38 are provided for connection of the lock rod at these points instead of to the basket 36, if desired. It will be understood that the construction of the basket 36 and of the rod sections 34 are similar to corresponding parts in 45 assembly 14.

The rod section 34 has a dog 40 secured thereto by bolts 46, which is similar in construction to the dog 23. The dog 40 is swiveled to a clip 41 in a manner similar to the corresponding swivel connection in assembly 14. However, the clip 41 is 50 of somewhat different construction from clip 28. Clip 41 has a flange 42 rigidly bolted to the extreme end of switch point 12 by bolts 45. Extending beyond the switch point is a bearing portion 55 43 which receives the journal portion on dog 40. Bolt 44 swivels the dog 40 to clip 41 in a manner similar to the swivel connection between dog 23 and clip 28.

In operation, it will be understood that when 60 the switch is thrown from one position to the other, the dogs 23 and 40 swivel in the clips 28 and 41. This reduces horizontal strains on the switch rods and makes it easier to operate the switch so that the switch can be operated at a greater distance 65 from the tower. When the rolling stock passes over the switch, the engagement of the switch rod sections 16 and 34 with the stock rails prevents the switch points from rising relative to the stock rails.

70 The disposition in a vertical plane of the switch rods as they pass under the switch points and under the stock rails provides valuable strength to effectively hold down the switch points and to prevent them from rolling from their vertical position, when subject to the heavy strains of the 75

rolling stock passing over the switch. Furthermore, the pivot connection is doubly safe in that, if both pivot bolts 33 and 44 should fail, the dog 23 will remain in operative position since it is prevented from dropping out by the base flange of 5 the switch point.

It will be noted that the dog bolts and nuts 27 and 46 for fastening the dogs 23 and 40 to the switch sections 16 and 34 are accessible and visible for easy inspection at all times. 10

Although the invention is shown as applied to a single switch, it is obvious that it may also be applied to similar constructions, as for example, to derailing switches and double slip switches. 15 In the case of double slip switches the invention may be applied to both the switch points and the center points. It will, furthermore, be seen that the invention is simple and rugged and that it increases the safety of constructions in which it is used and that it provides a more efficient hold 20 down construction for the switch points.

While certain novel features of the invention have been disclosed and are pointed out in the annexed claims, it will be understood that various omissions, substitutions and changes may be made 25 by those skilled in the art without departing from the spirit of the invention.

What is claimed is:

1. In a railroad switch having a stock rail and a switch point cooperating therewith, a clip comprising a flange bolted to said switch point, said 30 flange having a laterally projecting bearing portion open at the bottom thereof, a horizontally extending vertically positioned, flat tie rod passing under said switch point and stock rail, a dog having depending side flanges forming a vertical recess enclosing said rod, fastening devices passing 35 through said side flanges and rod, said dog having an upwardly projecting journal portion fitting within said bearing portion, and a swivel bolt centrally passing through said journal portion and bearing portion, said journal portion extending in above the edge of the switch point base, whereby the dog cannot drop from position even though 40 the swivel bolt breaks.

2. In a railroad switch having a stock rail and a switch point cooperating therewith, a clip secured to said switch point in a position spaced from the tip of said switch point, said clip comprising a flange having a bearing portion open at 50 the bottom thereof and projecting laterally from a mid point of the flange, a fastening device on each side of said bearing portion passing through said flange and switch point, a horizontally extending, vertically positioned, flat tie rod passing 55 under said switch point and stock rail, a dog having depending side flanges forming a vertical recess enclosing said rod, fastening devices passing through said side flanges and rod, said dog having an upwardly projecting journal portion fitting within said bearing portion, and a swivel bolt centrally passing through said journal portion and bearing, said journal portion extending in 60 above the edge of the switch point base, whereby the dog cannot drop from position even though the swivel bolt breaks. 65

3. In a single railway switch, a set of switch points, stationary rails cooperating therewith, clips secured to the switch points, each clip comprising a laterally projecting bearing portion, a 70 flat switch rod of rectangular cross section disposed edge up and extending under both said stationary rails, dogs connecting said rod to said clips, each dog having depending side flanges forming a vertical recess opening downwardly 75

and enclosing said switch rod, horizontally extending fastening devices passing through said side flanges and rod, each dog having an upwardly projecting journal portion fitting within said bearing portion, a swivel bolt passing through said journal portion and bearing portion, said swivel bolt being aligned with said switch rod with its lower end disposed above said switch rod, said depending side flanges extending away from their respective switch points so that both ends of said dog fastening devices are readily inspectable from a point above the track.

4. In a railway track construction, a stock rail, a rail point cooperating therewith adapted to be spaced therefrom to permit passage of the wheel flanges therebetween or adapted to have engagement therewith to permit passage of the wheel treads thereacross, a clip secured to the rail point, a rod passing under said stock rail and rail point and having a dog secured thereto, said dog having a journal portion, said clip having a bearing portion receiving said journal portion, a fastening device centrally passing through said journal and bearing portions, said dog having a portion extending in above the edge of the rail point, whereby the dog cannot drop from position even though the fastening device fails.

5. In a single railway switch, a set of switch points, stationary rails cooperating therewith, clips secured to said switch points, each clip comprising a plate extending lengthwise of the switch point, horizontally extending fastening devices securing said plate to the web of said switch point, said plate carrying at the lower part thereof a horizontally extending bracket overlying the flange of the switch point, a bearing carried by said bracket and having a downwardly opening bearing surface, the top wall of said bearing having a central opening, a flat switch rod disposed edge up, dogs secured to said switch rod, each dog comprising a seat for said rod, horizontally extending fastening devices passing through said dogs and rod, each said dog having at its upper and inner end a journal fitting within said bearing and insertable from beneath, said journal having a central opening, a swivel fas-

tening device passing through the openings in said journal and bearing, all of said horizontally extending fastening devices being inspectable from a point above the track, an edge of each said journal being located above the flange of the switch point so that said journal cannot drop out of said bearing in case said swivel device fails.

6. In a railway track construction, a stock rail, a rail point cooperating therewith and adapted to be spaced therefrom to permit passage of the wheel flanges therebetween or to have engagement therewith to permit passage of the wheel treads thereacross, a clip comprising a plate extending lengthwise of the rail point, horizontally extending fastening devices securing said plate to the web of said rail point, said plate carrying at the lower part thereof a horizontally extending bracket overlying the flange of the rail point, a bearing carried by said bracket and having a downwardly opening bearing surface, the top wall of said bearing having a central opening, a flat switch rod disposed edge up and extending under both said rail point and said stock rail, a dog comprising an upper wall having depending side flanges secured thereto forming a vertical recess opening downwardly and snugly enclosing said tie rod, horizontally extending fastening devices passing through said side flanges and tie rod, said dog having at its upper and inner end a journal fitting within said bearing and insertable from beneath, said journal having a central opening, a swivel fastening device passing through the openings in said journal and bearing, said wall being located at about the same level as the flange of the stock rail, said journal extending above the level of the flange at the point rail and inwardly from the upper wall of the dog, all of said horizontally extending fastening devices being inspectable from a point above the track, an edge of said journal being located above said point flange to prevent said journal from dropping out of said bearing in case said swivel device fails.

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