

(No Model.)

3 Sheets—Sheet 1.

J. W. UMSCHIED & C. H. KLUTE.
RAILROAD SWITCH.

No. 531,983.

Patented Jan. 1, 1895.

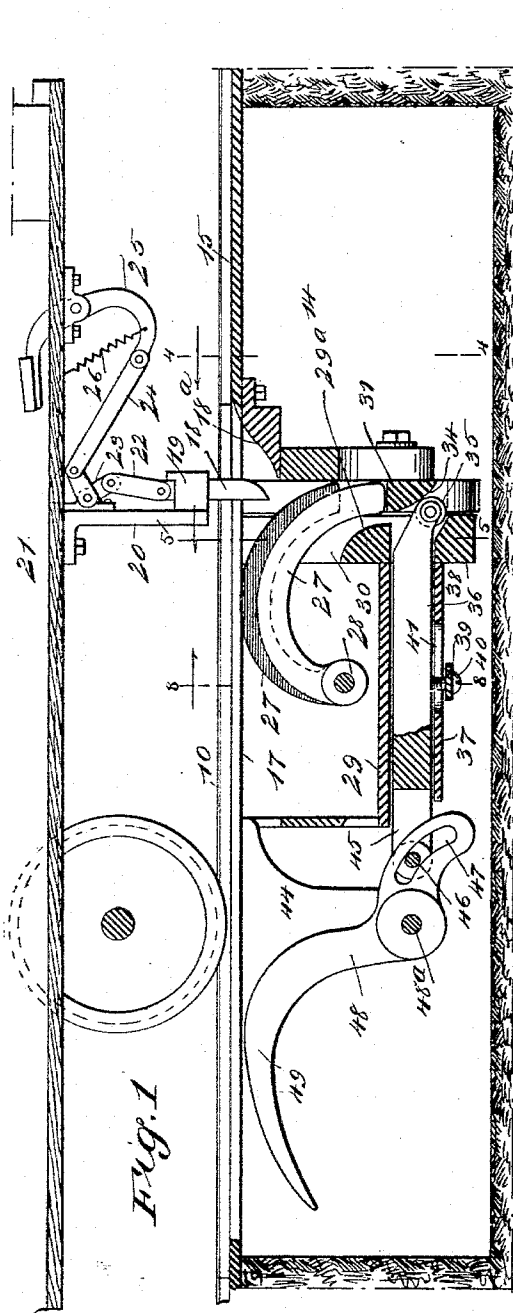


Fig. 1

WITNESSES:

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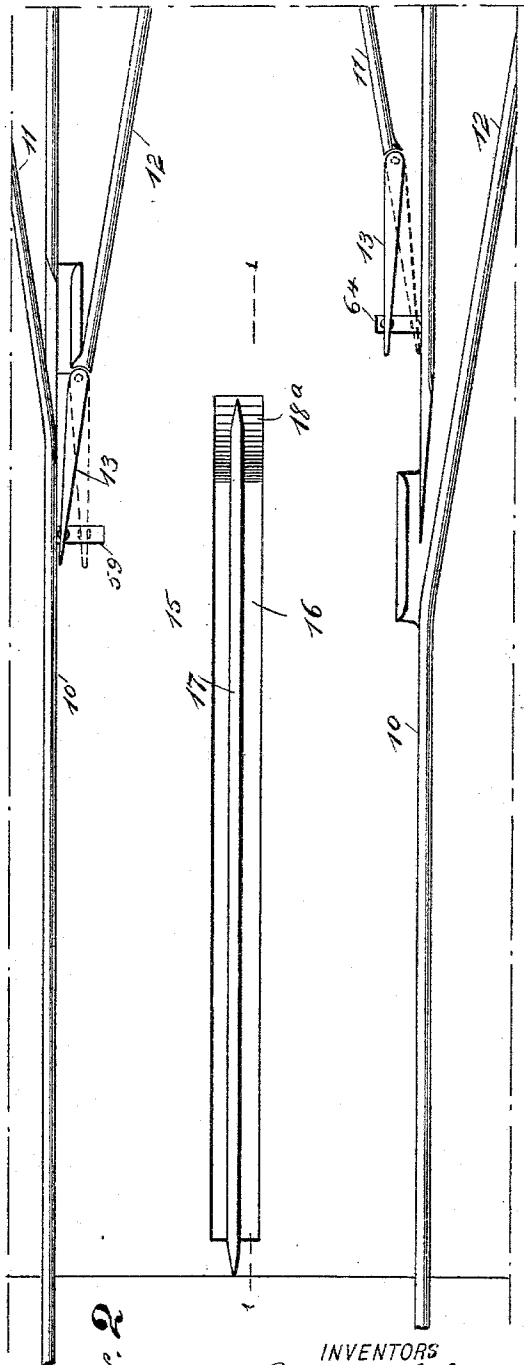


Fig. 2

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(No Model.)

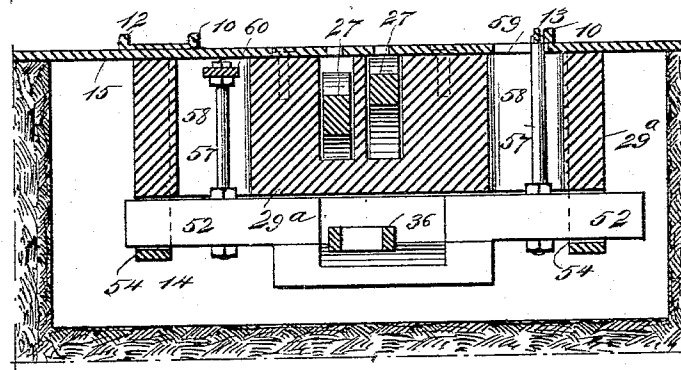
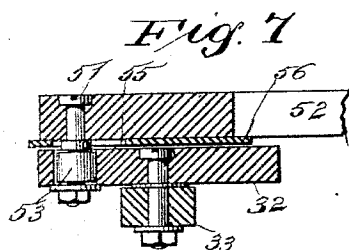
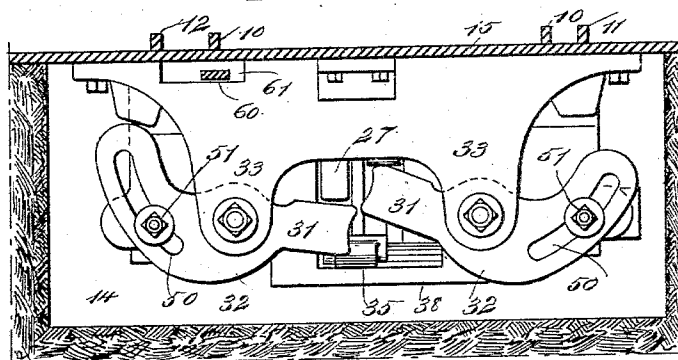
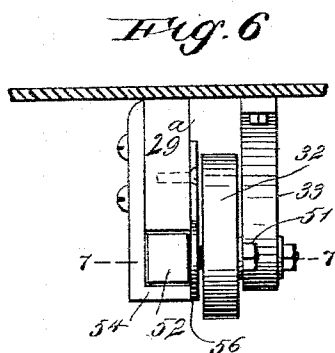
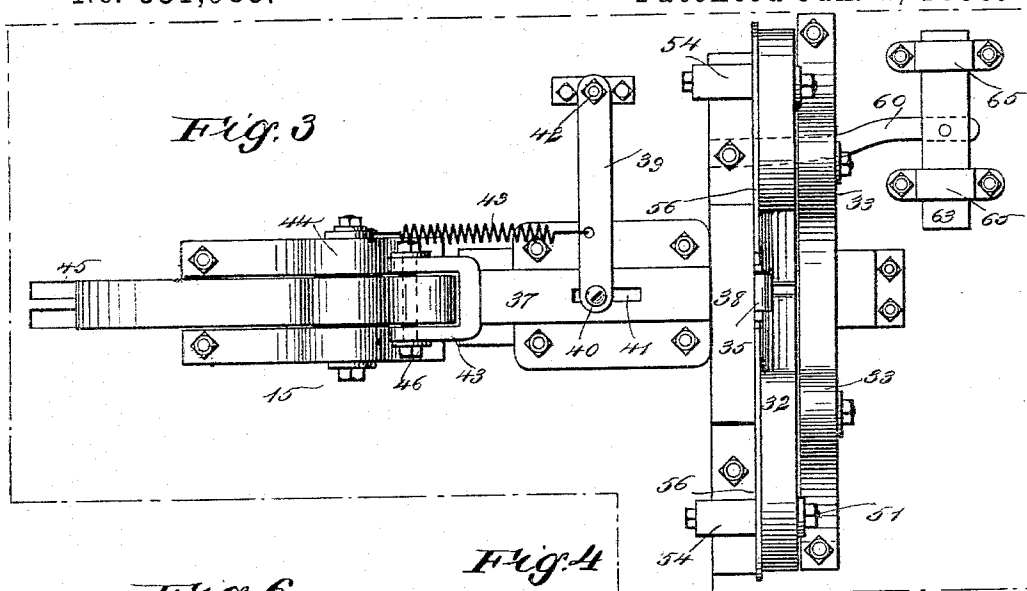
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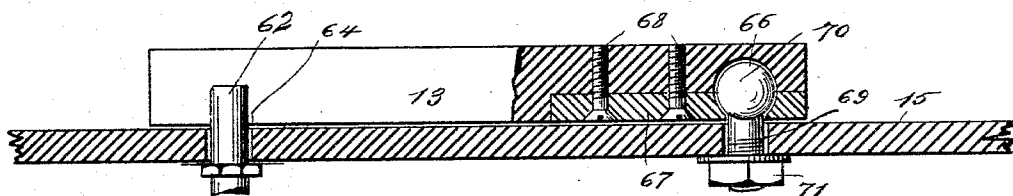
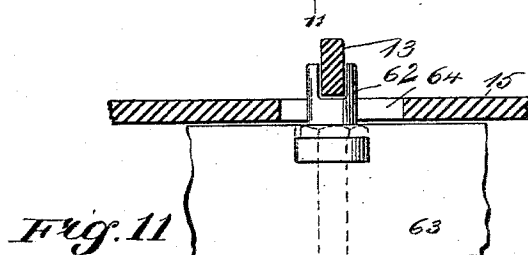
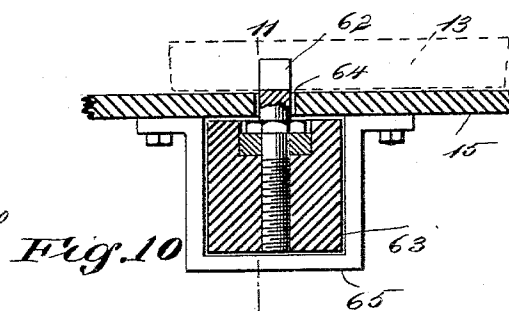
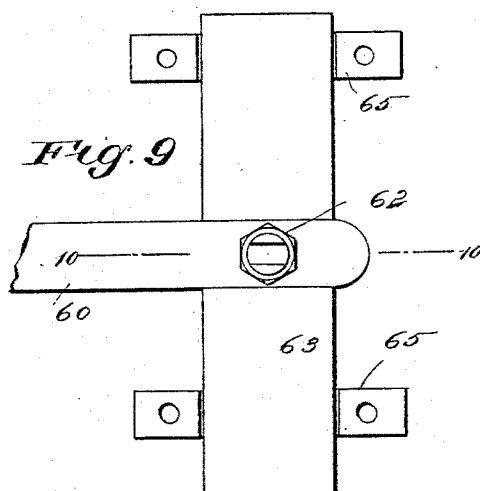
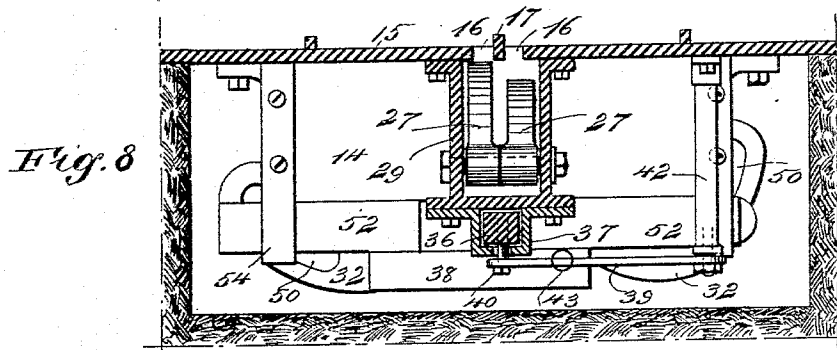
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UNITED STATES PATENT OFFICE.

JOHN W. UMSCHIED AND CHARLES H. KLUTE, OF UNION HILL, NEW JERSEY; SAID KLUTE ASSIGNOR TO SAID UMSCHIED.

RAILROAD-SWITCH.

SPECIFICATION forming part of Letters Patent No. 531,983, dated January 1, 1895.

Application filed February 13, 1894. Serial No. 500,067. (No model.)

To all whom it may concern:

Be it known that we, JOHN W. UMSCHIED and CHARLES H. KLUTE, of Union Hill, in the county of Hudson and State of New Jersey, have invented a new and Improved Railroad-Switch, of which the following is a full, clear, and exact description.

Our invention relates to improvements in railroad switches; and the object of our invention is to produce a switch and working mechanism therewith which may be conveniently operated from a passing train, also to provide working mechanism which may be operatively connected with a number of switch points to turn them, which may be made to turn either switch point at the discrimination of the operator on the train, which has its mechanism arranged in such a manner that it cannot become clogged and inoperative, and which is durable and little likely to get out of repair.

To these ends our invention consists of certain features of construction and combinations of parts, which will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a sectional elevation on the line 1—1 of Fig. 2, of our improved switch-working mechanism. Fig. 2 is a plan view of a double switch, provided with our improved switch-working mechanism. Fig. 3 is an inverted plan of the switch-working mechanism. Fig. 4 is a cross section on the line 4—4 of Fig. 1. Fig. 5 is a cross section on the line 5—5 of Fig. 1. Fig. 6 is a detail side elevation of a portion of the switch-working mechanism, showing particularly one of the cam levers and its connection with the adjacent slide bar. Fig. 7 is a sectional plan on the line 7—7 of Fig. 6. Fig. 8 is a cross section on the line 8—8 of Fig. 1. Fig. 9 is an enlarged inverted plan of the slide bar for moving one of the switch points and the rod connected with the slide bar. Fig. 10, is a vertical section on the line 10—10 of Fig. 9. Fig. 11 is a vertical section on the line 11—11 of Fig. 10; and Fig. 12 is a broken sectional ele-

vation of one of the switch points, showing the manner in which it is hung.

As shown in Figs. 1 and 2 the main line 10 is connected with the two sidings 11 and 12 by the ordinary switch points 13, and the mechanism for working the switch points is illustrated as operatively connected with both, but other switch points may be used in connection with other sidings if necessary or desirable, as will be hereinafter explained.

The switch points are arranged in the usual manner and are like the ordinary switch points, except in the manner in which they are journaled, as will appear below. The mechanism for working the switch points is contained in a recess 14 below the track, the top of this recess being covered by a plate 15 on which the switch points swing. The plate 15 is slotted longitudinally, as shown at 16, and extending longitudinally of the slot is a bar 17 which is pointed at the ends in order that the plungers or contact arms 18 only one of which is shown in the drawings may readily slide to one side of the bar without danger of being brought into contact with either end of it. At one end of the slot 16 is an inclined plate 18^a which causes the plungers or arms 18 to be automatically pushed upward and out of the slot when they strike it. We have illustrated a plunger 18 extending downward through the slot 16 to work the mechanism, as hereinafter described, two of these plungers being used so that one can enter either side of the slot, and as shown the plungers 18 are held in a guide 19 on a bracket 20 which is suspended beneath the car 21, the plungers being each connected by means of a link 22, bell crank 23, and pitman 24 with a treadle lever 25 which is depressed to actuate the plunger and which is held normally raised by a spring 26. This mechanism for working the plunger or contact arm is not shown or described with great detail, because any suitable mechanism may be used instead of the arms 18, as illustrated.

The arms 18 are adapted to strike, when depressed, the curved cam arms 27, which are arranged with their convex sides up and beneath the slot 16 on opposite sides of the bar 17. These cam arms are, at one end, jour-

naled loosely on a shaft 28 which extends transversely through a casing 29 which incloses the cam arms, and the free ends of the cam arms extend through an opening 30 in one end of the casing 29 and rest on the inner ends 31 of the cam levers 32, which levers are arranged transversely in the recess 14 and fulcrumed near the center on a bracket 33 which depends from the plate 15, as shown clearly in Figs. 1 and 4.

The inner ends 31 of the cam levers 32 are rounded on the side next the casing 29, as shown at 34 in Fig. 1, so as to readily engage the roller 35 which is journaled on the end of a slide bar 36, this bar being movable longitudinally through a slideway 37 beneath the casing 29, and the roller moves over an abutment 38 beneath the front end of the casing 29, which abutment forms part of a transversely moving slide which will be described below; and it will be seen that by pushing the slide bar 36 forward the roller 35, striking the inner rounded end of which ever cam lever 32 is depressed, will lift the said lever to the level of the other and cause the said levers to be held in a central position, thus centering the switch points which are connected with the levers, as will appear from the description to follow. It will thus be seen that while the slide 36 and its roller 35 will raise whichever cam lever is depressed, so as to bring the levers and the cam arms 27 to a central position, yet since a cam arm 27 engages each cam lever the depression of one of the cam arms will move but one lever, and consequently throw the switch to one side.

The slide bar 36 is secured to an arm 39 by means of a screw 40, or its equivalent, this being adapted to slide in a slot 41 in the under side of the slideway 37, see Fig. 1, and the outer end of the arm 39 is pivoted to a support, as shown at 42 in Fig. 3, and secured to the arm is a spring 43 which is also secured to one of the brackets 44, and the tension of the spring is such as to normally retract the bar 36 and keep the roller 35 from beneath the cam levers 32. The outer end of the slide bar 36 is forked, as shown at 45 in Figs. 1 and 3, and a bolt 46 extends through this forked end of the slide bar and through a cam slot 47 in one end of the centering lever 48, which is fulcrumed at 48^a between the brackets 44 and has a curved end portion 49 which extends beneath the slot 16, this end of the centering lever being wide enough to extend on each side of the guide bar 17.

It will be seen that when either plunger or arm 18 is depressed to work a switch, the centering lever is first struck and depressed so that the switches are first centered, and the depression of the upper end of the lever throws the lower end forward and the lower wall of the cam slot 47, striking the bolt 46, pushes the slide bar 36 forward so that the roller 35 raises the inner end of the depressed cam lever 32 and centers the switch, as will appear below. The outer ends of the levers

32 are curved upward and slotted longitudinally, as shown at 50, and these slots receive the bolts 51 which connect with a transversely moving slide 52, and the bolts at the points where they enter the slots 50, are provided with rollers 53 to guard against excessive friction.

The slide 52 moves in a slideway formed by brackets 54, which are secured to the hanger 29^a forming the front end of the casing 29, and the bolts 51 are held to move in slots 55 of a guide plate 56, which is secured to one side of the hanger 29^a, and this arrangement causes the slide 52 to be moved accurately when either of the cam levers 32 are tilted. The slide 52 has secured to it, near opposite ends, upwardly-extending posts 57 which are rigidly attached to the slide and move with it through slots 58 in the hanger 29^a, and the upper end of one post projects through a slot 59 in the plate 15 and is clamped, near the point, to a tongue or point 13, as shown in Figs. 2 and 5, so that the moving of the slide shifts the switch point. The opposite post 57 does not extend quite to the plate 15, and it has secured to it near the top an arm 60 which projects parallel with the track and beneath the plate 15, this arm being secured to a slide bar 63 by means of a bolt 62 which projects up through the slide bar and through a slot 64 in the plate 15, see Figs. 1 and 10, and the bolt 62 is, at its upper end, fulcrumed to the other switch point 13.

The slide bar 63 moves in suitable hangers 65 and is arranged parallel with the slide 52, and consequently when the slide is moved it carries the arm 60 and slide bar 63 with it and throws the switch point. It will thus be seen that the movement of the slide 52 throws both switch points 13, and consequently if the slide is held in a central position the switch points will both be held centrally so as to open the main line, while if thrown farther to one side it opens the switch to the siding 11 and if moved in the other direction, it opens the switch to the siding 12.

The slide 52 is shown connected with two switch points, as described, so as to simultaneously operate them, and it will be understood that by means of several arms 60 and slide bars 63 other switch points farther away from the slide may be operated in exactly the manner already described.

To insure easy movement of the switch points, each is provided on its under side and at its wider end, with a socket 66, and a plate 67 which is secured to the under side by means of screws 68 or equivalent fastenings, the plate being also socketed to form a continuation of the socket 66, and this socket is adapted to receive the ball shaped head 70 of a bolt 69 which projects through the plate 15 and is held in place by a nut 71 and a suitable washer.

The switch mechanism is operated as follows:—When the train approaches the switch, the operator depresses one of the plungers or

arms 18, according to which siding he desires to take, and the arm first strikes the lever 48 tilting the lever, actuating the slide bar 36 as described, and throwing the slide 5 52 and switch points 13 into a central position, after which the arm 18 strikes one of the cam arms 27 which tilts but one of the levers 32, and this throws the slide 52 to one side, actuating the switch as specified. If 10 the switch is open to either siding and it is desired to keep the train on the main line, either arm 18 is depressed so as to actuate the lever 48 and center the switch points, after which the pressure on the arm 18 is re- 15 moved so that the arm springs up before striking either of the cam arms 27.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

20 1. The combination, with the switch point having a socket in its under side and the bed plate on which the switch point rests, of a bolt held in the bed plate and provided with a ball shaped head to enter the socket of the 25 switch point, substantially as described.

2. The combination with the switch points, of pivoted levers, connections between the said levers and the switch points, and swinging arms for engaging the levers, substantially 30 as described.

3. The combination with the switch points, of a transverse sliding bar connected with the switch points, pivoted levers connected with the sliding bar, and swinging arms engaging 35 the said levers, substantially as described.

4. The combination with the switch points, and the slotted bed plate, of a vertically tilting lever beneath the bed plate, a transverse slide operatively connected with the switch 40 points, pivoted levers connected with said slide, swinging arms for operating the pivoted levers, and a slide bar actuated by the tilting lever and adapted to engage the pivoted levers, substantially as described.

45 5. The combination with the switch points, and pivoted levers for operating the said points, of a swinging lever, and a sliding bar connected with the said lever and engaging the pivoted levers, substantially as and for the 50 purpose set forth.

6. The combination, with the switch points

and the slotted bed plate, of the laterally movable slide operatively connected with the switch points, a pair of cam levers connected with opposite end portions of the slide to move 55 the same, a slide bar arranged to actuate the cam levers simultaneously, and a tilting centering lever mounted beneath the slot in the bed plate and operatively connected with the slide bar to move it, substantially as described. 60

7. The combination, with the tilting cam levers operatively connected with the switch points to move them and having rounded inner ends, of the slide bar having a roller to contact with the rounded ends of the cam lever, the slotted bed plate, and the centering 65 lever arranged beneath the bed plate and adapted to actuate the slide bar, substantially as described.

8. The combination, with the switch points 70 and the slotted bed plate, of a centering lever arranged beneath the slot in the bed plate mechanism actuated by the centering lever to simultaneously move the switch points, a pair of independent contact cam levers ar- 75 ranged beneath the slot in the bed plate, and mechanism actuated by the tilting of the cam arms to move the switch points, substantially as described.

9. The combination, with the switch points 80 and the slotted bed plate, of the transversely movable slide beneath the bed plate, cam levers pivoted adjacent to the slide and connected therewith to move it in opposite directions, a connection between the slide and the 85 switch points, and a pair of cam arms hung beneath the slot in the bed plate and connected with the cam levers to tilt them, substantially as described.

10. The combination, of the transversely 90 movable slide, the cam levers pivoted adjacent thereto and provided with cam slots, bolts connecting the slide with the cam lever, and a slotted guide plate held rigidly to a support and arranged to guide the bolts of the 95 slide, substantially as described.

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Witnesses:

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