(No Model.)

C. VOORHIS.

SUSPENDER BUCKLE.

No. 365,713. Patented June 28, 1887.

Fig. 3.

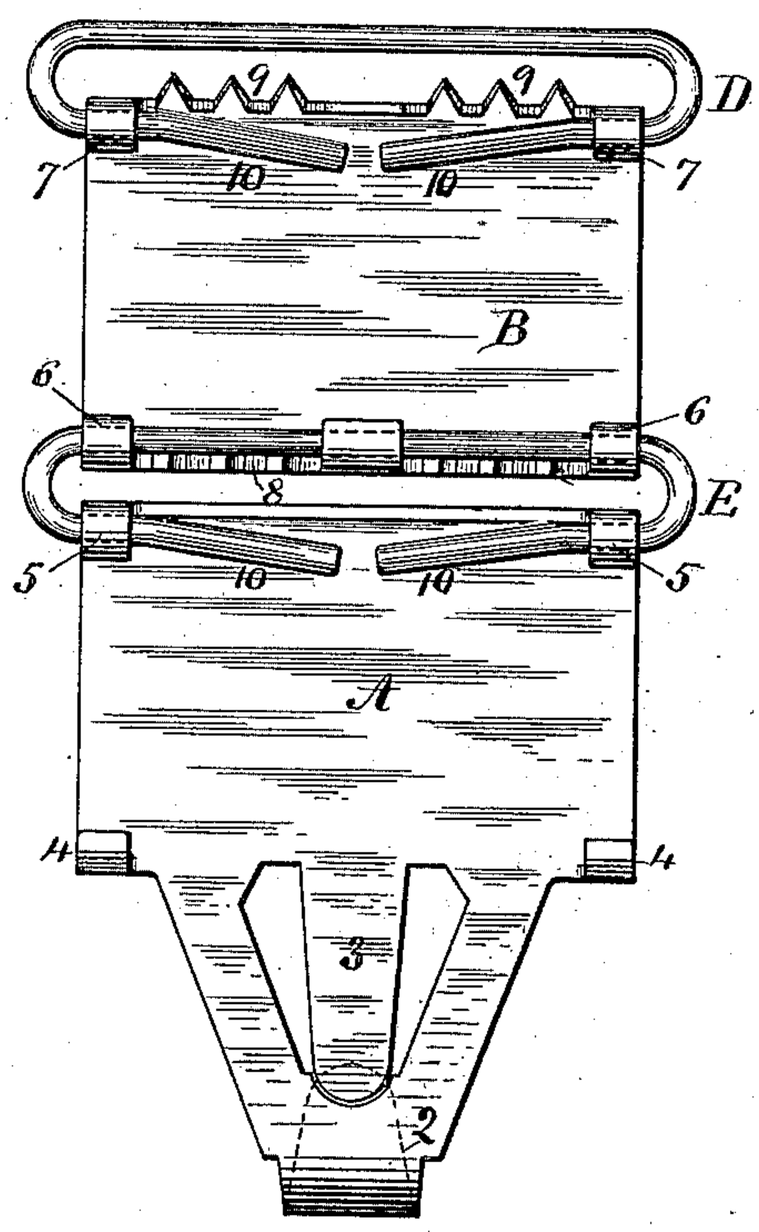


Fig. 2.

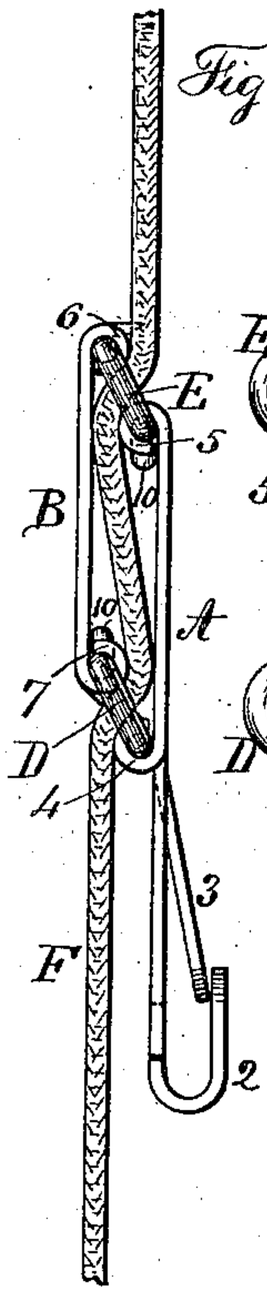


Fig. 1.

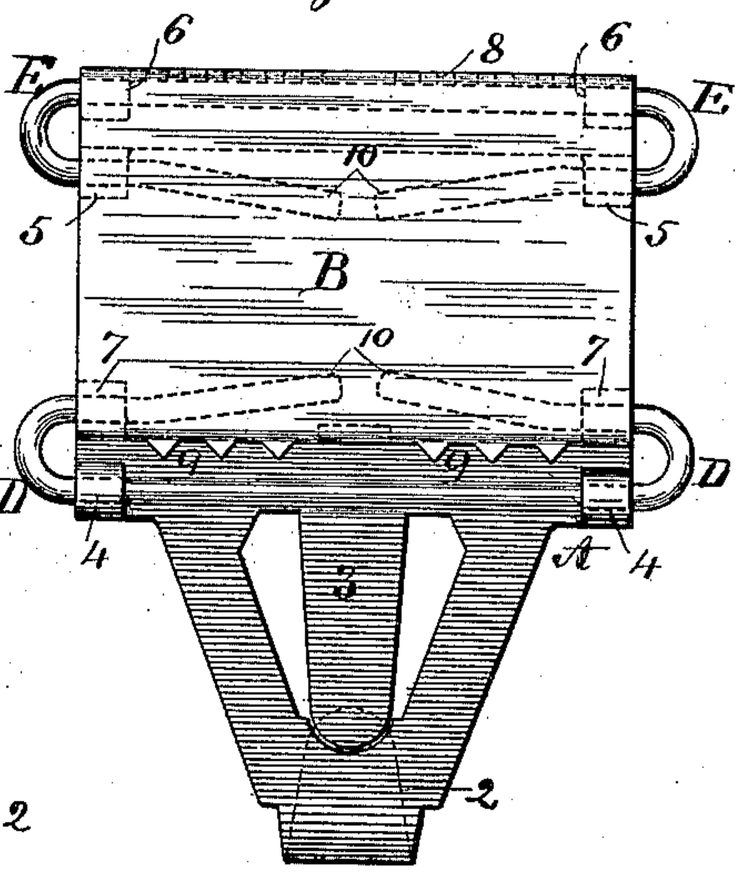


Fig. 4.

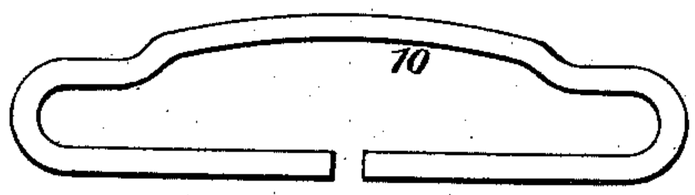


Fig. 5.

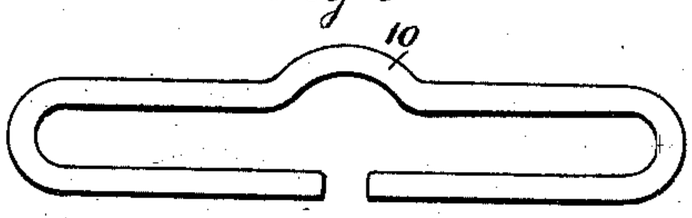


Fig. 6.

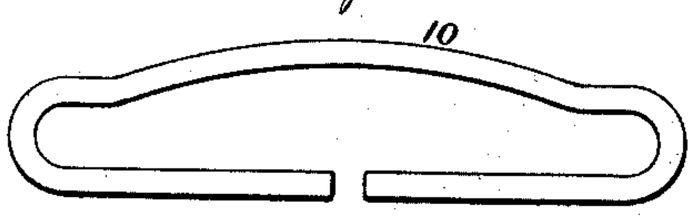


Fig. 7.

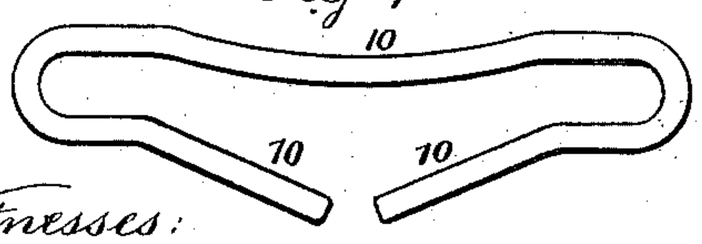
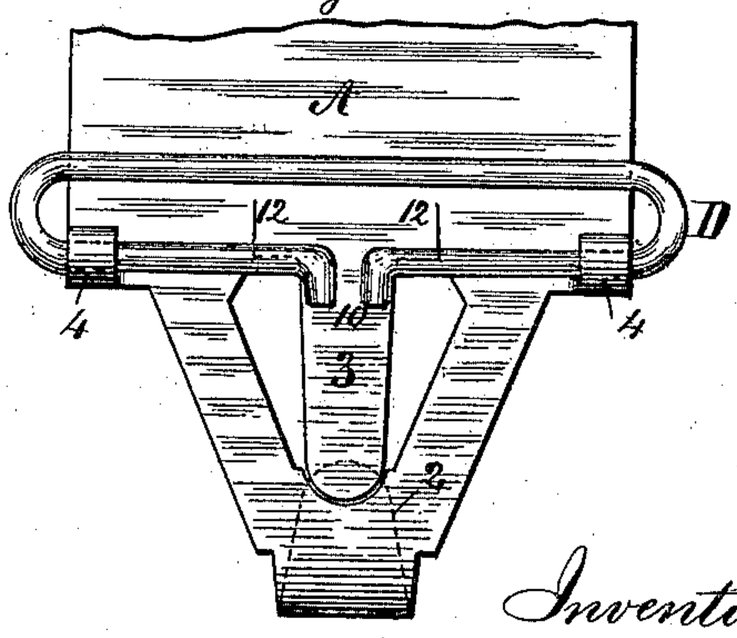


Fig. 8.



Witnesses:
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per Samuel W. Serrell atty.

UNITED STATES PATENT OFFICE.

CALVIN VOORHIS, OF NEW YORK, N. Y.

SUSPENDER-BUCKLE.

SPECIFICATION forming part of Letters Patent No. 365,713, dated June 28, 1887.

Application filed November 29, 1886. Serial No. 220,129. (No model.)

To all whom it may concern:

Be it known that I, CALVIN VOORHIS, of the city and State of New York, have invented an Improvement in Spring-Hinges for Suspender-Buckles, &c., of which the following is a specification.

Buckles for suspenders have been made of two principal parts—the front and back plates—united together at the top and bottom corners by wire loops or links, and there have been projecting ribs with teeth to come into contact with the suspender strap to clamp and hold the said strap, in consequence of the links acting to swing the back plate toward the front plate when the pull on the strap tends to lift the back plate. A buckle of this general character may be seen in Letters Patent No. 346,851, granted August 3, 1886, to J. C. Hyde.

In suspender-buckles the movements to which the parts are constantly subjected when in use cause any joints to wear loose and to swing very freely; hence in buckles of the character before described the back plate may drop away from the suspender-strap when the tension on such strap is lessened, so that the buckle ceases to hold such strap.

My invention relates to a simple and efficient spring-hinge, which, when combined with the aforesaid buckle, tends to swing the back plate up toward the front plate, and thereby keep such back plate constantly pressing against the suspender or other strap passing through the buckle. This spring-hinge is made with a pivot portion that is bent out of a straight line and rests against the metal plate upon which the pivot-ears are made, so that when the parts of the hinge are swung the pivot-wire slides or rubs laterally upon the surface of the metal plate, and is thereby sprung or compressed, and the spring of the wire, tending to move the same laterally upon the surface of the plate, causes the hinge of the buckle or other article to swing in the proper direction.

In the drawings, Figure 1 is a rear view of a buckle with my improved hinge applied to the same. Fig. 2 is an edge view of the buckle-plates with the suspender-strap in place. Fig. 3 is a rear view of the buckle-plates with one of the hinges disconnected and the plates laid out flat. Figs. 4, 5, 6, and 7 show the spring-wire of the hinge in different forms, and Fig. 8 shows a modification of such spring-wire and part of the buckle-plate to which it is connected.

The buckle-plates A B are of any desired size and shape, and I have shown the hook 2 and spring-tongue 3 as part of the front buckle-plate, A.

Upon the respective plates A and B are the eyes 4, 5, 6, and 7, in pairs at the respective corners of the plates, and the pivot-wires are shown in the form of loops D and E, passing through the respective eyes and uniting the front and back plates of the buckle, so that the back plate may swing upon the pivot-loops as such back plate approaches to or recedes from the front plate, A; and it will be seen by reference to Fig. 2 that when the suspender or other strap F is passed between the front and back plates and the teeth 8 and 9 engage such suspender-strap, then the tension upon the strap will tend to make the back swing toward the front plate under the tension to which the suspender-strap is subjected.

Instead of the pivot loops or wires D and E having straight parallel portions for passing through the eyes, the pivot-wires are deflected, as at 10, and this deflection should be in the line of a plane passing through the pivot wires or loops, so that when the wires or loops are introduced into place they may lie against the plate A or B, as indicated in Fig. 3; but when such pivot wire or loop is turned up at right angles, or nearly so, to the plate, (A or B,) then the said pivot-wire is sprung or pressed in laterally, and cannot assume its normal form until liberated. The consequence of this construction is that the pivot wires or loops tend to raise the back plate and swing it up toward the front plate, and in so doing the strap introduced between the two plates will be pressed by the back plate toward the front plate, and such strap will thereby be constantly grasped, and there will be no tendency of the back plate to fall and liberate the strap or suspender.

In order to introduce the strap or suspender between the plates A and B, or to liberate such strap and allow it to be moved endwise, the plate B has to be swung down for its edges to come opposite to the edges of the front

plate, A, and in so doing the loops or links D E are turned in the respective pairs of eyes 4 5 6 7, and the diverging or bent portions 10 of the pivot wires or loops are sprung so as to be brought into line, or nearly so, with the pivot-eyes; and the expansion of these pivot-wires, when the pressure upon the plate B is removed, will act to turn the pivot-wires in the eyes and swing the plate B bodily toward the plate A as the pivot-wires turn in their respective eyes.

I do not limit myself to the use of these spring-hinges with suspender-buckles, but intend to use the same wherever available.

The bends 10 (represented in Figs. 4, 5, 6, and 7) act in the same manner as the bends shown in Figs. 1 and 3. In all instances such bends, acting against the surface of the plate, tend to rotate the wire link within the eyes upon the plate and swing such loop into line, or nearly so, with the respective plates, and such bends are more or less straightened as the wire loops are swung into a position at right angles to the plates. The bends 10 upon the ends of the wire loop shown in Fig. 8 act in the manner before described to rotate such wire loop or pivot in the respective eyes and to aid in the operation of the spring. The metal of the plate A, at the base of the spring-tongue 3, is slotted, as at 12, so that the sheet metal will spring under the action of the bent ends 10 of the wire link.

I claim as my invention—

1. The combination, with the plates A and B and the pivot-eyes upon the same, of the pivot-wire having a bend or deflection, substantially as described, resting against one of the plates and forming a spring that tends to rotate the pivot-wire in its eyes, substantially as set forth.

2. The combination, with the plates A and B and their pivot-eyes 4 5 6 7, in pairs, of the links D E, having deflections or bends at 10 and forming springs that tend to revolve the pivot-wires in the eyes thereof, substantially as set forth.

3. The combination, with the suspender-buckle having the plates A and B and a hook or attachment for the suspender-end, and the eyes upon such plates, of the pivot wire or loop uniting the two plates and having a deflection or bend at 10, that serves to rotate the wire within its eyes, and thereby swing the pivot-loop and move the plate B in relation to the plate A, substantially as set forth.

Signed by me this 24th day of November, 1886.

CALVIN VOORHIS.

Witnesses:
GEO. T. PINCKNEY,
WILLIAM G. MOTT.