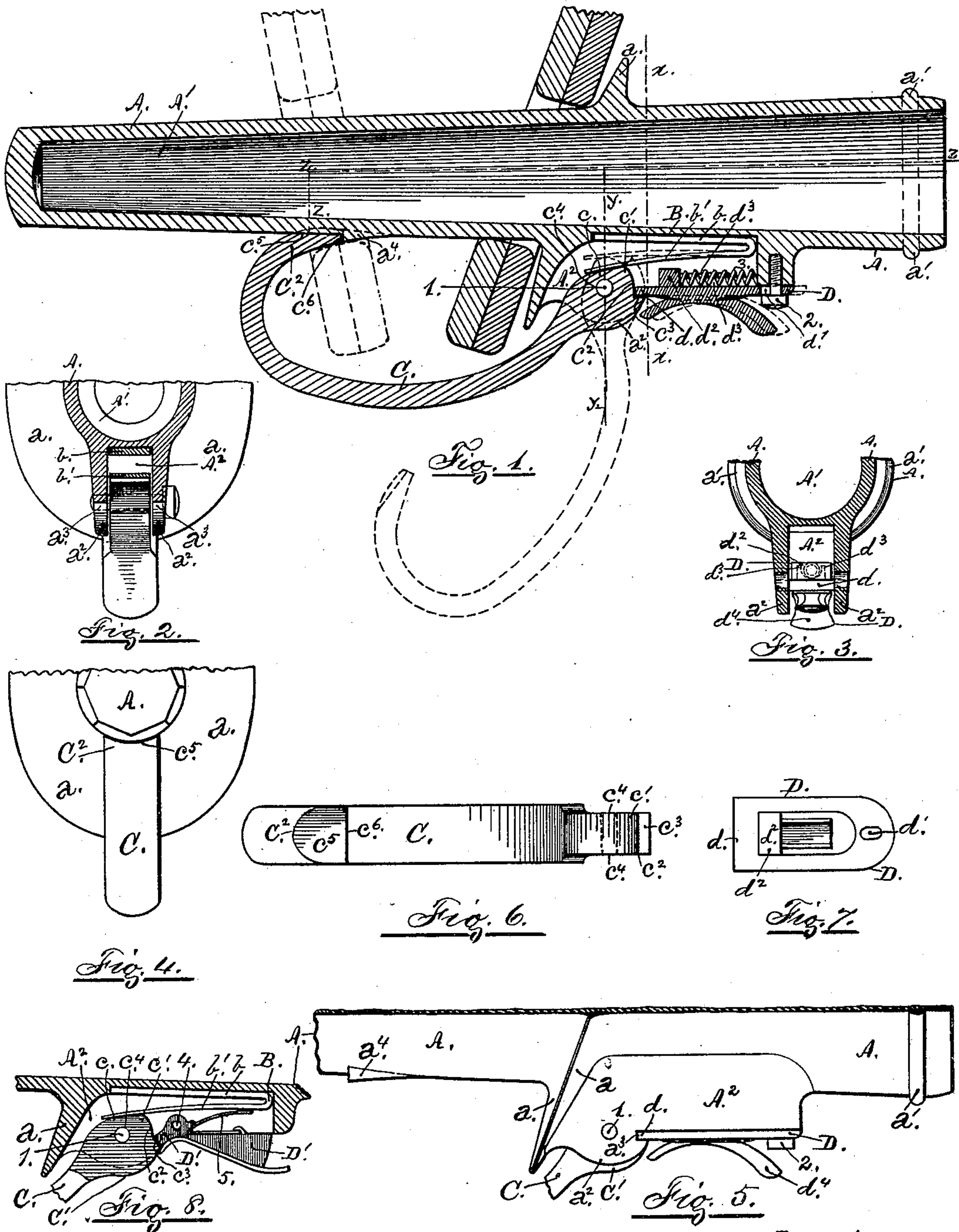


(No Model.)

T. J. HOUGHTON.  
VEHICLE POLE TIP.

No. 481,791.

Patented Aug. 30, 1892.



Witnesses:  
J. Grant Johnston  
Frank G. Urban.

Inventor  
Thomas J. Houghton,  
By  
Dan H. Herr,  
Attorney.



# UNITED STATES PATENT OFFICE.

THOMAS J. HOUGHTON, OF LANCASTER, PENNSYLVANIA.

## VEHICLE-POLE TIP.

SPECIFICATION forming part of Letters Patent No. 481,791, dated August 30, 1892.

Application filed December 17, 1890. Serial No. 375,048. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS J. HOUGHTON, of Lancaster, in the county of Lancaster and State of Pennsylvania, have invented certain new and useful Improvements in a Safety Pole-Tip; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in a tip for vehicle-poles, which I call a "safety pole-tip," and belongs to that class of tips in which an ordinary socket-tip having a ring flange or shield surrounding it to act as a stop to prevent the yoke-strap from moving back onto the pole is provided on the under side and immediately behind said ring flange or shield with a chamber made integral with said tip and adapted to have pivoted to its side walls within the forward end of the chamber the heel of a safety-lock or clasp-hook, as well as to contain a flat V-shaped spring acting against said heel to close said clasp-hook and acting outward to keep it closed as well as to keep it open when it is desired to remove the yoke from the tip, while a slide-bolt or pivoted trigger closes the opening of the chamber, locks the clasp-hook, and firmly holds its forward end to the tip when the yoke-strap shall have been put in place thereon.

The object of my invention is the production of a safety pole-tip that is simple in construction, being an improvement upon the combination of elements for which I obtained Letters Patent No. 382,529, dated May 8, 1888.

I attain the purposes of my invention by the mechanism illustrated in the accompanying drawings, in which similar letters and figures refer to similar parts throughout the several views, and in which—

Figure 1 is a longitudinal vertical section of a pole-tip embodying the elements of my invention, showing a portion of a yoke-strap in place; Fig. 2, a sectional view of the lower part of the portion to the left of the line  $xx$  in Fig. 1, the portion of the locking device removed; Fig. 3, a sectional view of the lower part of the portion to the right of the line  $yy$  in Fig. 1, the portions of the clasp-hook, pivot-pin, and V-spring removed; Fig. 4, an end view from the left of the lower part of Fig. 1 com-

pleted, the portion of the yoke-strap removed; Fig. 5, a side view of the removed part to the right of and below the line  $zzz$  in Fig. 1, the forward portion of the clasp-hook broken away; Fig. 6, a completed view of the clasp-hook removed from Fig. 1; Fig. 7, a completed view from above of the slide-bolt removed from Fig. 1, and Fig. 8 a sectional view showing a trigger-pawl to lock the clasp-hook in place of the slide-bolt shown in Fig. 1.

In the drawings, A represents the shell of a pole-tip; A', the socket into which the forward end of the vehicle-pole is fitted when the tip is affixed thereto.

$a$  designates the ring guard or shield surrounding the tip and acting as a stop to prevent the yoke-strap from slipping back on the pole when a team is hitched to the vehicle, and  $a'$  represents a bead or molding surrounding the rear end of the tip, giving a finish thereto.

A<sup>2</sup> designates a rectangular chamber formed by walls projecting from the under side of the shell, being integral therewith and with the rear side of the guard  $a$ , as is shown. At the forward portions of the side walls of the chamber A<sup>2</sup> are located slightly-curved projections  $a^2$ , forming lugs or ears adapted to have pivoted between them the heel of the clasp-hook, yet to be described, while in the rear ends of these projections are situated angular recesses  $a^3$  to receive and keep in place the forward end of the slide-bolt, also to be described, the remainder of the walls being level and the rear wall of the chamber rounded and adapted to receive the screw holding said slide-bolt in place. In front of the guard and just behind where the point of the clasp-hook meets the tip is a slight projection  $a^4$ , sloping rearward and sidewise till it vanishes in the shell of the tip, forming a slope to prevent the yoke-strap from catching against the point of the hook should said strap slip in this direction. A folded strap or V-spring B, having a straight arm  $b$  and a curved arm  $b'$ , with the fold toward the rear, is placed in the chamber A<sup>2</sup>, the straight arm being recessed into the shell of the tip to keep the spring in place, and the forward end of the curved arm is adapted to engage the heel of the clasp-hook, as shown.

C designates the clasp-hook having the heel C' and retroverted point C<sup>2</sup>. The heel C' has



a straight portion  $c$ , adapted to engage the forward end of the curved arm  $b'$  of the spring B, a curved point  $c'$ , adapted to compress the curved arm  $b'$  of the spring B, a radially-curved portion  $c^2$ , a projecting angular lip  $c^3$ , adapted to engage the forward end of the slide-bolt to lock the clasp-hook, and the orifice  $c^4$ , adapting the heel of the clasp-hook to be pivoted within the chamber  $A^2$  to the lugs  $a^2$ , and to which said heel is pivoted by a pin or screw 1; and the outer face of the retroverted point  $c^2$  has a concaved portion  $c^5$  to lie close to the shell of the tip and the angular end  $c^6$ , adapted to rest against the shell projection  $a^4$ , being even with the forward end of said projection, edge to edge.

D designates a slide-bolt adapted to move backward and forward on the straight edges of the walls of the chamber  $A^2$  and to completely close the opening to said chamber back of the pivot-lugs and the heel of the clasp-hook. The forward end  $d$  of the bolt is adapted to enter the angular recesses  $a^3$  (before described) and to engage the lip  $c^3$  (also before described) to securely lock the clasp-hook after the same shall have been closed over the yoke-strap against the tip. In the rear end of the bolt is an oblong orifice  $d'$ , through which a headed screw 2, tapped into the rear wall of the chamber, holds the bolt in place, allowing motion back and forth, while the angular recesses  $a^3$  keep the forward end of the bolt from dropping. From the inner face of the bolt projects a lug  $d^2$ , with walls  $d^3$  extending rearward and serving to support and keep in place a coil-spring 3. The spring pressing against the lug and the rear wall of the chamber acts to keep the bolt pressed forward into the recesses  $a^3$  and in engagement with the lip  $c^3$  to lock the clasp-hook, while on the outside the bolt is provided with a handle  $d^4$  to move the bolt back when it is desired to unlock the hook.

In Fig. 8 is shown a trigger-pawl  $D'$ , pivoted to the walls of the chamber by a pin 4 and actuated by a spring 5, secured thereto with its free end resting on the folded end of the V-spring to lock the clasp-hook and to close the chamber, taking the place of the slide-bolt just before described.

Now the several parts being in the several positions indicated in the drawings the safety tip affixed to the forward end of the pole of a vehicle and a team hitched thereto the slide-bolt pressed forward by the spring 3 or the pawl acted upon by the spring 5 the clasp-hook will be securely locked and the yoke-strap safely held to the pole-tip, being confined between the shell or guard  $a$  and the retroverted point  $C^2$  of the clasp-hook C. Should the traces break or otherwise get loose from the vehicle in going up grade, the yoke-strap will assume the position indicated by the dotted lines and be prevented from slipping off the tip and the vehicle held or kept from backing downhill, the heel of the clasp-hook being pivoted within the forward end

of the chamber with either the slide-bolt or the trigger-pawl, both as described, completely closing the opening to said chamber against the admission of dust or dirt to within its walls, protecting the mechanism placed therein. Again, when it is desired to remove the yoke from the pole, the slide-bolt is drawn back by means of the handle  $d^4$  or the pawl raised by compressing the trigger, and when the forward end of either is free from the lip  $c^3$  the clasp-hook may be turned in the direction indicated by the arrow 6. The point  $c'$  will depress the arm  $b'$  of the V-spring B, and when the lip  $c^3$  comes in contact with said arm  $b'$  the hook, the V-spring, and the bolt will assume the several positions indicated by the dotted lines in Fig. 1, and being held therein by the action of the spring B upon the point  $c'$  and upon the lip  $c^3$  of the clasp-hook the yoke-strap may be slipped off from the tip at pleasure, and should it be desired to hitch a team to a vehicle having a pole provided with my safety-tip the several parts are first placed in the several positions indicated by the dotted lines in Fig. 1 by the method described in the preceding paragraph and the yoke-strap slipped thereon against the guard, as indicated by full lines in Fig. 1. A pressure against the back of the clasp-hook in the dotted position will force said hook forward, and when its retroverted point comes in contact with the tip the forward edge of the slide-bolt or of the trigger-pawl, each actuated by its spring, will engage the lip  $c^3$  and securely lock and hold the clasp-hook in place. It may here be observed that the yoke-strap in passing from the position in full lines to that of the dotted lines slips easily up the slope of the projection  $a^4$  of the tip onto the retroverted point  $C^2$  of the hook without the least tendency to disturb said point in its contact with the tip.

Having now fully described my invention and set forth its application, what I do consider new, and desire to secure by Letters Patent, is—

1. In a safety pole-tip, a tip-shell or ferrule forming a socket to receive the forward end of a vehicle-pole and having a sloping ring guard or shield surrounding its body to keep the yoke-strap from slipping back, an ornamental bead around and near its rear end on the under side before the ring guard or shield, a forwardly-sloping projection to protect the point of the clasp-hook, and behind said ring guard or shield a rectangular chamber, the forward portion of its sidewalls having projecting ears to have pivoted therebetween the heel of the clasp-hook at the rear base of the ears, angular recesses to receive and hold the forward end of the slide-bolt, the remaining edges of the walls level to allow a sliding motion to the bolt, the rear wall thickened to receive a screw to hold the rear end of said bolt, and the interior of the chamber to hold the V-spring to act on the heel of the clasp-hook, and the coiled spring to act on the slide-bolt,



the tip-shell, ring-guard, walls of the chamber-bead, and forwardly-sloping projection of the shell all made integral or forming one body, substantially as described, and for the purpose set forth.

2. In a safety pole-tip, a clasp-hook having a heel to be pivoted behind the guard and within the forward end of the chamber, and a retroverted point having a concaved outer face to lie close to the shell of the tip, and an angular end to rest against the forwardly-sloping projection of the shell, the heel having the straight portion to receive the action of the curved arm of the V-spring, the rounded point to depress said arm, the radially-curved portion to oppose the forward end of the slide-bolt, the angular rearwardly-projecting lip to engage the forward end of said bolt to lock the clasp-hook, and the orifice through the heel, through which to pivot said heel, all substantially as described, and for the purpose set forth.

3. In a safety pole-tip, the herein-described slide-bolt to move on and to cover the chamber to the rear of the heel of the clasp-hook pivoted therein, having the forward edge  $d$  to enter the angular recesses  $a^3$  and to en-

gage the lip  $c^3$  to lock the clasp-hook, the oblong orifice  $d'$  to receive the headed screw 2 to support the rear end of the bolt, the lug  $d^2$  30 to support the forward end of the coil-spring to press the bolt forward, the walls  $d^3$  to keep said spring laterally in place, and the handle or thumb-grip  $d^4$  to draw the bolt back, all substantially as described, and for the purpose set forth. 35

4. In a safety pole-tip, the herein-described V-spring B, folded closely at the heel, having the straight arm  $b$  to rest upon and to lie close to the shell of the tip within the chamber  $A^2$ , 40 and the curved arm  $b'$ , having its forward portion to engage the portion  $c$  of the heel of the clasp-hook C to hold said hook closed and to engage the point  $c'$ , and the lip  $c^3$  of said heel to hold said hook opened, all substantially as 45 described, and for the purpose set forth.

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

THOMAS J. HOUGHTON.

Witnesses:

CHAS. C. HERR,  
DANL. H. HERR.