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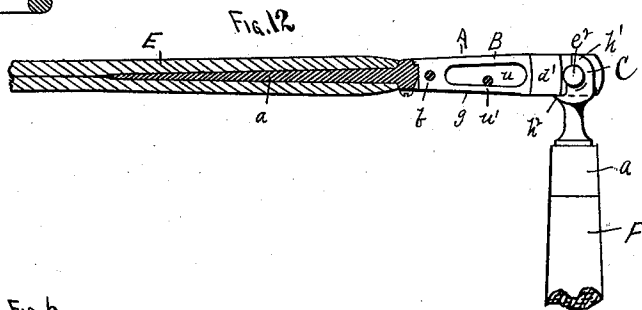
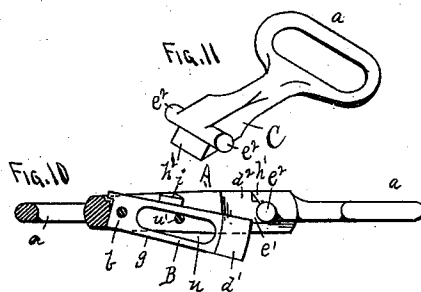
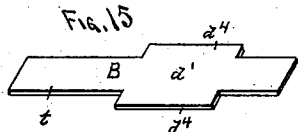
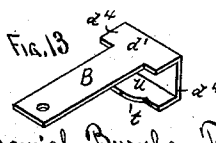
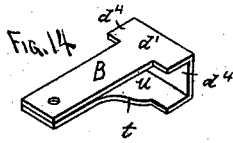
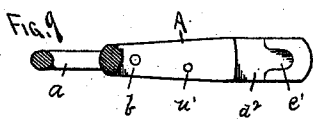
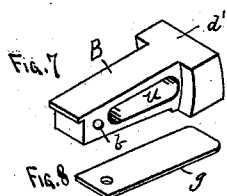
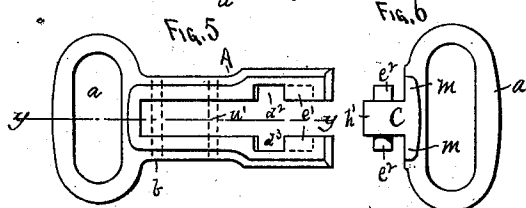
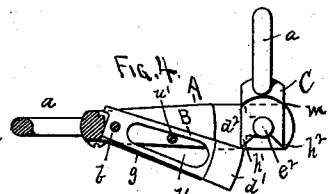
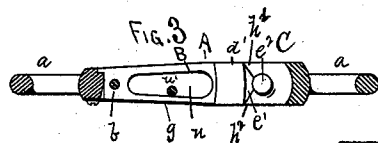
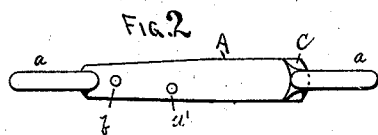
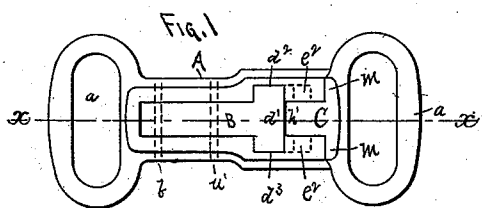
2 Sheets—Sheet 1.

J. B. TAINTER & N. B. NOBLE.

SNAP HOOK.

No. 400,511.

Patented Apr. 2, 1889.



WITNESSES.
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Geo. D. Buff.

Jeremiah Burnham Tainter.
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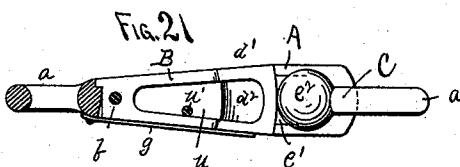
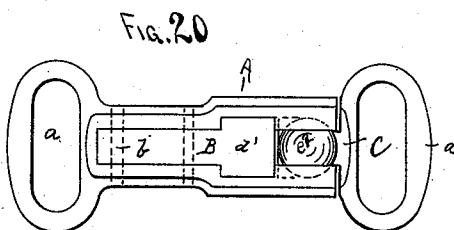
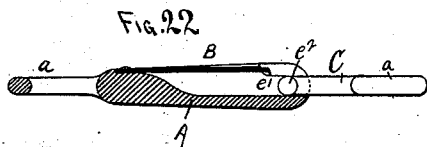
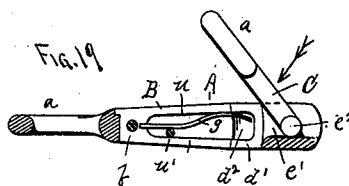
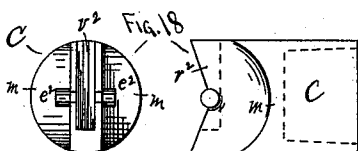
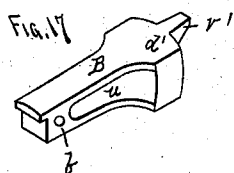
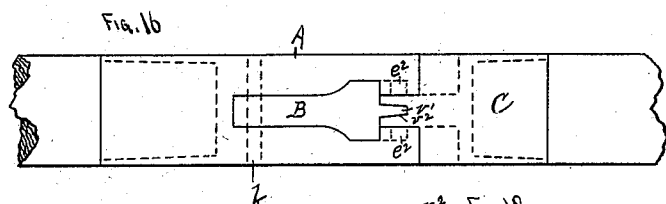
(No Model.)

2 Sheets—Sheet 2.

J. B. TAINTER & N. B. NOBLE.
SNAP HOOK.

No. 400,511.

Patented Apr. 2, 1889.



WITNESSES.

H. S. Webster
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UNITED STATES PATENT OFFICE.

JEREMIAH BURNHAM TAINTER, OF MENOMONEE, AND NATHAN B. NOBLE,
OF RICE LAKE, WISCONSIN.

SNAP-HOOK.

SPECIFICATION forming part of Letters Patent No. 400,511, dated April 2, 1889.

Application filed September 5, 1888. Serial No. 284,617. (No model.)

To all whom it may concern:

Be it known that we, JEREMIAH BURNHAM TAINTER, a citizen of the United States, residing at Menomonee, in the county of Dunn and State of Wisconsin, and NATHAN B. NOBLE, a citizen of the United States, residing at Rice Lake, in the county of Barron and State of Wisconsin, have jointly invented certain new and useful Improvements in Snap Hooks or Clasps, of which the following is a specification.

This invention relates to snap hooks or clasps whereby the different parts of harness and similar articles may be readily connected and disconnected, and which may also be employed in connecting articles of jewelry, wearing-apparel, and for other purposes; and it consists in the construction, combination, and arrangement of parts, as hereinafter shown and described, and specifically pointed out in the claims.

In the drawings, Figure 1 is a plan view, and Fig. 2 is a side view, of the snap hook or clasp complete. Fig. 3 is a section on the line X X of Fig. 1, showing the clasp closed, as in Fig. 1. Fig. 4 is a similar view to Fig. 3, showing the position of the parts when the clasp is about to be disconnected. Figs. 5, 6, 7, and 8 are views of the different parts disconnected, Figs. 7 and 8 being in perspective. Fig. 9 is a sectional view on the line Y Y of Fig. 5, showing the interior construction of the main part of the clasp. Fig. 10 is a view similar to Fig. 3, illustrating a slight modification in the construction. Fig. 11 is a perspective view illustrating the construction of the "head" portion of the device when the modification shown in Fig. 10 is employed. Fig. 12 is a view similar to Fig. 10, illustrating the construction when the clasp is applied to connecting traces to the ends of whiffletrees. Figs. 13, 14, and 15 are detached perspective views illustrating a modification in the manner of constructing the tongue of the clasp. Figs. 16, 17, and 18 are views representing the construction which will be employed when the invention is applied to articles requiring an inflexible joint. Figs. 19, 20, 21, and 22 show modifications of the construction.

The clasp consists, principally, of three

parts—a frame, A, a spring-tongue, B, and a head, C, as shown. The frame A and head C are each provided with a loop, *a*, or other means for securing them to the articles which it is designed to connect, as shown. When employed as an ordinary harness-snap, the loops *a*, as in Fig. 1, will be employed, and when employed as in Figs. 12, 16, 17, and 18 the loops will be replaced by such modifications as may be found necessary to adapt the device to the different uses for which it is required.

The free end of the tongue B will be provided with a T-head, *d'*, the sides of the latter curved, as shown, in the segment of a circle of which the pivot *b* of the tongue is the center, and adapted to fit into correspondingly-curved recesses *d*² *d*³ in the legs or sides of the frame A. The insides of the "legs" of the frame A, between their open ends and the recesses *d*² *d*³, are provided with cavities *e'*, into which studs *e*² on the head C are adapted to fit, to prevent the separation of the parts A C when they are subjected to strains which are exerted in opposite directions, the function of the part B being to prevent the parts A and C being disconnected when the strains are removed, or when strains are exerted otherwise than in a direct line. The tongue B is supported and held in place, as in Figs. 1 and 2, by a spring, *g*. When the construction shown in Figs. 1, 2, 3, 4, 5, 6, 10, 11, 12, 16, and 17 is employed, the end of the head C adjacent to the tongue B will be formed with two prongs, *h'* *h*², which rest in contact with the upper and lower edges of the T-head *d'* of the tongue, while the free ends of the legs of the frame A and the adjacent faces of the head next the free ends of the legs are curved in a segment of a circle of which the studs *e*² and the centers of the recesses *e'* are the centers, so that when all the parts are united, as in Figs. 1 and 2, a smooth unbroken exterior surface is presented on all sides of the device, which is a great advantage, as it prevents snow, ice, and dust from finding a lodgment upon any part, or the clasp from catching upon any object with which it may come in contact. To unite the two parts, one of the prongs *h'* or *h*², or the body of the head C, is pressed upon the T-head *d'* until the

tongue B is depressed sufficiently to allow the studs e^2 to slip into the recesses e' , when the spring g will throw the tongue back into its normal position, as in Figs. 1 and 2. When the parts are to be disconnected, the head C is turned up at or near right angles to the frame A, as shown in Fig. 4, this action causing the prong to depress the tongue and leave the head to be moved backward until the studs e^2 are out of the recesses e' , when the two parts will be disunited.

In Fig. 19 a construction is shown by which the prongs h' h^2 are dispensed with, the tongue being depressed only by the thumb of the operator, or by the leverage of the shank of the head C, as hereinafter explained.

It will be observed that the parts cannot be separated until the upper surface of the tongue has been depressed below the line of the recesses e' and studs e^2 , and this depression can only be accomplished (when the construction as shown in Figs. 1 to 6 is employed) by turning the head C into a position almost at right angles to the frame A—a position that it would never assume when in operation—so that the two parts will never become separated while in actual operation unless manipulated by the hand of the operator, with the design of purposely disconnecting them.

The clasp may be employed under conditions where it is desirable to disconnect the parts without turning the head C at an angle to the frame A, as in Fig. 10; and to enable this result to be attained the head C is formed without the lower prong, h^2 , so that when the tongue B is depressed by the pressure of the thumb upon the button i , as in Fig. 10, the head C is free to be moved backward until the studs e^2 are out of the recesses e' . When this construction is employed, the shoulders m on the head C will be dispensed with and the shank continued backward to the loop a , as in Fig. 11.

This construction may be employed to advantage in clasps for bracelets and other forms of jewelry.

In Fig. 12 we have shown the construction when the clasp is employed to unite traces or tugs to whiffletrees, consisting in attaching the frame A, with its tongue B, to the free ends of the traces E, and attaching the head C, with its studs e^2 , to the ends of the whiffletree F, the only modification required being the replacing of the loop a , with means for connecting the parts A and C to the traces and whiffletrees, and slightly changing the positions of the prongs h' h^2 on the head C. Otherwise the construction and operation are precisely the same.

In Figs. 13, 14, and 15 we have shown a modification in the construction of the tongue B, consisting in forming the tongue B and spring g in one piece of bent steel, the elasticity of the spring enabling it to regain its position when depressed and serve the double purpose of the spring and tongue.

The lower section, t , may be bent backward and upward, as in Fig. 13, or continued backward in the form of a double leaf, as in Fig. 14.

Fig. 15 represents one of the spring-blanks before being bent up into shape, as in Fig. 13.

The springs will be formed with ears d^1 to fill and cover the recesses d^2 .

The tongue B is shown in all of its modifications with an open-ended internal cavity, u , the object of this being to form a recess for the reception of the dust or ice which may accumulate on or in the clasp, and thus prevent it from obstructing the operation of the tongue, as the contents of the cavity will be discharged every time the clasp is operated or the tongue moved in its place in the frame A. This is a very important feature of our invention, as it effectually prevents the clogging of the device by any cause. This cavity u is also present, it will be observed, in the modification shown in Figs. 13 and 14. The cavity u also serves to receive the stop u' , by which the throw of the tongue is limited. This method of connecting articles together may be used to advantage in uniting the ends of the sections of jointed fish-poles and similar articles, where a rigid joint is required, by forming a small projecting tongue or stud, v' , on the free end of the main tongue B, fitting into a cavity, v^2 , made for it in the end of the head C, the other end of this smaller tongue or stud being outside of the center line of the studs e^2 , so that the joint will remain rigid until the spring-tongue B is depressed sufficiently to throw the smaller tongue, v' , below the line of the surface of the head C, or out of contact therewith. By this simple modification a joint between the two parts is secured, which remains rigid until manipulated by the hand of the operator for the purpose of disconnecting it. This modification will also be found useful in connecting a number of different instruments to one handle—such as surgeons' and dentists' instruments—and for other similar purposes.

The modification shown in Fig. 19 also shows a very important function possessed by this "snap," which is not shown or possible, so far as we are aware, in any other form of snap, and that is the ability to utilize the leverage force of the head part C to depress the spring-tongue in releasing the studs e^2 from the frame A. This leverage force is used in all the different modifications shown, (except that shown in Fig. 10,) the only difference in the action of the construction shown in Figs. 4 and 18 being that the pressure of the prongs h' h^2 enables the snap to be disconnected by placing the parts at a less acute angle in the former than in the latter.

There is still another important advantage gained by utilizing the leverage force of the head C to disconnect the parts, and that is that a very powerful spring may be employed to support or form the tongue B, as a spring of almost any power may be depressed by the leverage power of the head,

whereas in snaps in which the power of the thumb of the operator is alone utilized to depress the spring a comparatively weak spring only can be employed.

5 The spring may be placed entirely inside the tongue B, if preferred, as shown in Fig. 21.

The construction shown in Fig. 4 might be used to advantage in some locations, whereas the construction shown in Fig. 18 might be found equally as advantageous in other locations. The modification shown in Fig. 20 is also an important one, the studs e^2 being replaced by a "ball" or sphere, and the recesses e' being formed to receive it, thereby trans-
10 forming the joint into a swivel or "ball-and-socket" joint, which will be found advantageous under some circumstances.

The construction, functions, and results are substantially the same in all the modifica-
20 tions shown.

The frame A may be formed "bifurcated," as in Fig. 5, or with the recesses for the tongue B and head C only partially through the frame, as preferred, or as the construction
25 employed may require.

The shoulders on the tongue B are not necessarily an essential feature of the invention, being merely intended to fill the cavities d^2 d^3 , which would otherwise be left open after
30 the insertion of the studs e^2 .

In cheaper grades of the clasp the end of tongue B next the head C would not project down into the frame A, the head C and its studs e^2 in that modification being free to run
35 back beneath the tongue, as in Fig. 22. This modification, however, does not affect the val-

uable and novel leverage function of the head C in releasing itself from the frame A by depressing the tongue when turned backward over the frame A, as in Fig. 19.

Having thus described our invention, what we claim as new is—

1. The snap-clasp consisting of the frame A, having the recesses d^2 d^3 and cavities e' , spring-tongue B, supported within said frame, and a head, C, having projections e^2 fitting
45 said cavities, whereby said parts A and C are capable of being connected and disconnected, substantially as and for the purpose set forth.

2. In a snap-clasp, a frame, A, having recesses d^2 d^3 and cavities e' , tongue B, supported within said frame, and a head, C, having projections e^2 fitting said cavities, and with prongs h' h^2 , and adapted to depress
50 said tongue when said head is oscillated upon said studs, substantially as and for the purpose set forth.

3. The snap-clasp consisting of the frame A, having the recesses d^2 d^3 and cavities e' , head C, having projections e^2 fitting said cavities, and a tongue, B, supported within said
60 frame, and with internal cavity, u , whereby the clogging of the tongue is prevented, substantially as and for the purpose set forth.

In testimony whereof we have hereunto set
65 our hands in the presence of two subscribing witnesses.

JEREMIAH BURNHAM TAINTER.

NATHAN B. NOBLE.

Witnesses:

C. N. WOODWARD,

H. S. WEBSTER.