A. HAUER.

HOOK.

APPLICATION FILED JULY 28, 1914.

1,165,406. Patented Dec. 28, 1915.

Fig. 1.

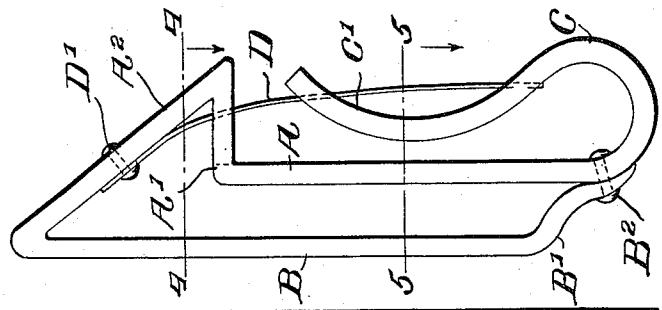


Fig. 2.

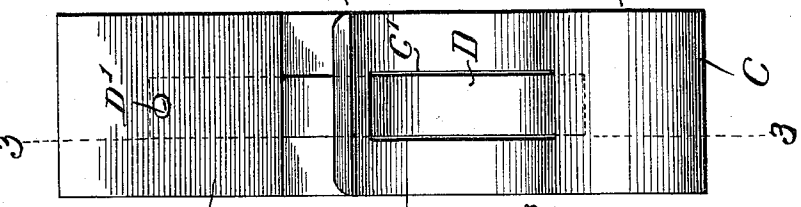


Fig. 3.

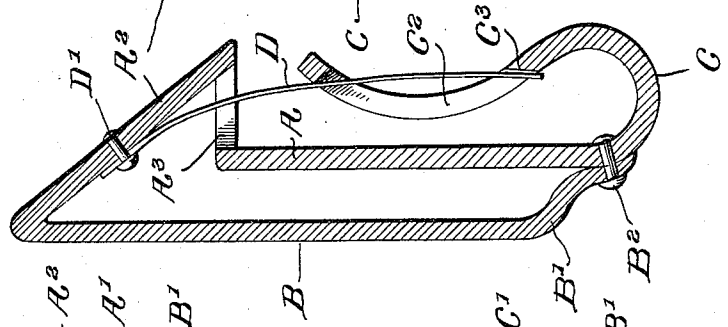


Fig. 4.

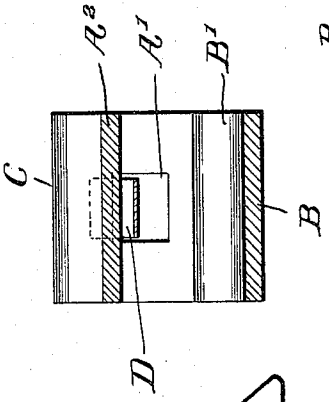


Fig. 5.

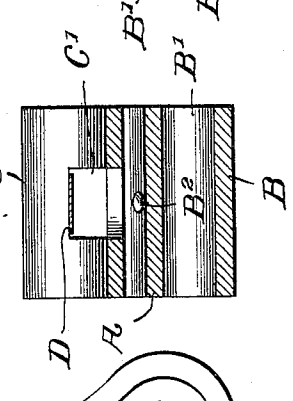
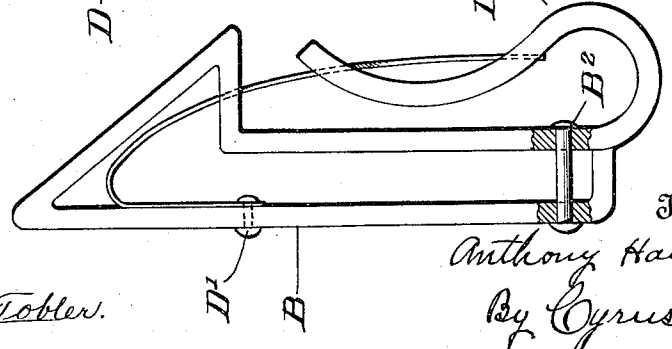


Fig. 6.



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UNITED STATES PATENT OFFICE.

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HOOK.

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Application filed July 28, 1914. Serial No. 853,742.

To all whom it may concern:

Be it known that I, ANTHONY HAUER, a citizen of the United States, residing at Chattanooga, in the county of Hamilton and State of Tennessee, have invented a new and useful Improvement in Hooks, of which the following is a specification, reference being had to the accompanying drawing.

My improvement relates particularly to hooks intended to be temporarily attached to a belt or similar device and used for carrying bunches of keys and similar articles, the keys or similar articles being usually assembled on a ring and the ring temporarily engaged to the hook.

The object of the invention is to provide a hook from which the key ring can not be accidentally detached, and which is at the same time of such simple construction as to permit economical manufacture and easy manipulation.

In the accompanying drawings, Figure 1 is a side elevation of a hook embodying my improvement; Fig. 2 is a front elevation of the same hook; Fig. 3 is a section on the line, 3—3, of Fig. 2; Fig. 4 is a section on the line, 4—4, of Fig. 1, looking downward and turning the structure at right angles; Fig. 5 is a section on the line, 5—5, of Fig. 1, looking downward and turning the structure at right angles; Fig. 6 is a side elevation with parts in section showing another form of the hook.

Referring first to Figs. 1, 2, 3, 4, and 5, the main element of the hook consists of a single, heavy and firm ribbon form piece of sheet metal, the upper end of which piece is folded rearward and then downward and the lower end of which piece is folded forward and upward to form of such metal piece a middle upright body portion, A, an upright downward-extending back portion, B, and a front rising hook portion, C, the entire piece in a general way taking the form of a reversed letter S. The lower end of the back portion, B, has an oblique forward-directed portion, B^1, directed against the lower portion of the back of the middle or body portion, A, and there secured by a rivet B^2.

In the upper portion of the middle portion, A, and above the front hook portion, C, is a forwardly-directed portion, A^1, and between said portion and the upper end of the back portion, B, is an oblique portion, A^2. In the portion, A^1, is an upper slot, A^3.

The upper portion of the front rising hook portion, C, has an upper portion, C^1, which is curved rearward (toward the body portion, A,) and then forward. Said portion, C^1, has an upright slot, C^2, the lower end of which has an approximately upright, rearward-directed face, C^3, forming an abutment for the lower end of the spring tongue, D. The upper end of said spring tongue rests against the inner face of the portion, A^2, of the body, A, and is suitably secured thereto, as by means of a rivet, D^1. Thence said tongue extends forward and downward through the slot, A^3, and through the upper portion of the slot, C^2, and again into said slot and downward far enough to have its end rest against the abutment face, C^3, without projecting materially below said face. The spring tongue is under strain tending to move its lower end forward, and it is so curved and the slots, A^3 and C^2, are so cut as to allow the lower end of the spring tongue to rest against the abutment face, C^3, while said tongue is at rest. The slot, A^3, extends far enough backward to allow the spring tongue to move backward when backward pressure is put upon the front face of the portion of the spring tongue which extends forward of the slot, C^2, between the ends of the latter.

In use, the hook is supported on a belt or similar device (not shown). For attaching a ring to the hook, the ring is placed against the portion of the tongue which is between the portion, A^1, and the portion, C^1, of the hook. When said tongue has yielded rearward, the ring is drawn downward until it has passed below the lower end of the tongue. Then the tongue moves automatically forward until its lower end rests upon the abutment face, C^3. Thereafter, when the ring moves upward, it passes rearward of the spring tongue, being guided by the portion, C^1, of the hook. Between the upper end of the portion, C^1, and the portion, A^1, the space is closed by the tongue.

The portions, A^2 and A^1, of the hook constitute a fender for the spring tongue and the portion, C^1, of the hook, for preventing any article foreign to the hook from moving downward, near the belt, and engaging the upper end of the portion, C^1, and bending the tongue, D, rearward and then, perhaps, allowing the ring to move upward between the spring tongue and the part, C^1. Such accidental catching of any foreign object on

the upper end of the portion, C^1, would also cause objectionable strains on the hook. By making the portion, A^1, approximately horizontal and making the portion, A^2, slanting, the fender is made slanting, and is, for that reason, more effective for protecting the tongue and the upper end of the portion, C^1. Said fender projects forward enough to also protect the portion of the tongue which lies in and in front of the slot, C^2.

When it is desired to release the key ring, the portion of the tongue which is exposed in the curved portion, C^1, of the hook is pressed rearward by the thumb or finger, and the ring is then drawn upward until it engages the front face of the tongue. Then it is drawn upward between the tongue and the portion, C^1, and then forward between the portion, C^1, and the portion A^1.

It will be observed that this structure is adapted to economical manufacture. Straight strips of sheet metal may be cut, in large numbers, to the desired length, and the slots C^2 and A^3, and holes for the rivets, D^1 and B^2, formed therein. Then these metal strips may be bent to the desired form and the tongue and rivets inserted.

In the form shown by Figs. 1, 2, 3, 4, and 5, the tongue is a nearly straight piece. In the form shown by Fig. 6, the bend in the tongue is readily formed. In all the forms the slots, A^3 and C^2, receive the middle and lower portion of the tongue in such manner as to require the use of only one rivet, D^1, to secure the upper end of the tongue, and this one rivet need not be so tight as to prevent lateral turning of the tongue, for the metal at each side of the slots forms abutments to limit the lateral movement of the tongue.

In Fig. 6, the upper end of the tongue is extended and bent downward and made to rest against the inner face of the downward extending back portion, B, and there secured by means of the rivet, D^1. The longer the tongue, the less the angle of flexure. In the same figure, the lower end of said back portion is bent abruptly forward, approximately at a right angle, and then secured to the body portion, A, by means of the rivet, B^2.

The space inclosed between the upright body portion, A, and the downward-extending back portion, B, receives the belt on which the hook is carried. This space may be extended to receive a wider belt. But, in making such extension, the fact should be taken into account that it is preferable to have the distance between the forward-directed portion, A^1, and the junction of the lower end of the middle portion, A, and the rising portion, C, less than the diameter of the ring to be used on the hook, in order that when the ring is in the hook and is turned upward, the lower portion of the ring resting in the lower end of the space inclosed by the portions, A and C, the upper portion of the ring will bear against the oblique portion, A^2, and will not enter the space between the portion, A^1, and the portion, C^1. If the hook is to be formed to receive a wider belt, the oblique portion, A^2, may be lengthened without changing the dimensions of the parts below the forward-directed portion, A^1.

It is to be noted that the outer face of the middle body portion, A, serves as an abutment for limiting the rearward movement of the lower portion of the spring, whereby excessive straining of the spring is avoided. It is also to be noted that the metallic strip of which the hook is formed may be flexible and the portion, C^1, bent backward far enough to make the space between said portion and the portion, A, a little less than the diameter of the ring, so that in passing into and out of the lower portion of the hook, the ring will force a slight separation between the portion, C^1, and the portion, A.

I claim as my invention,

1. A sheet metal structure comprising in combination a body portion, a hook portion at one end of the body portion, said hook being curved toward and then away from said body portion and provided with a slot in said curved portion, an angular shaped guard extending from the body portion and having one side in proximity to the end of the hook, and a spring extending from said guard through said slot and seating against a wall of said slot, substantially as described.

2. A sheet metal structure comprising in combination a body portion, a hook portion at one end of the body portion, said hook being curved toward and then away from said body portion and provided with a slot in said curved portion, an angular shaped guard extending from the body portion and having one side in proximity to the end of the hook, and a spring extending through said side of the guard and through said slot and seating against a wall of said slot, substantially as described.

In testimony whereof I have signed my name, in presence of two witnesses, this 21st day of July, 1914.

ANTHONY HAUER.

Witnesses:
O. M. SPENCE,
WALLACE C. BATHMAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."