J. AMES.

HOOK.

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905,400. Patented Dec. 1, 1908.

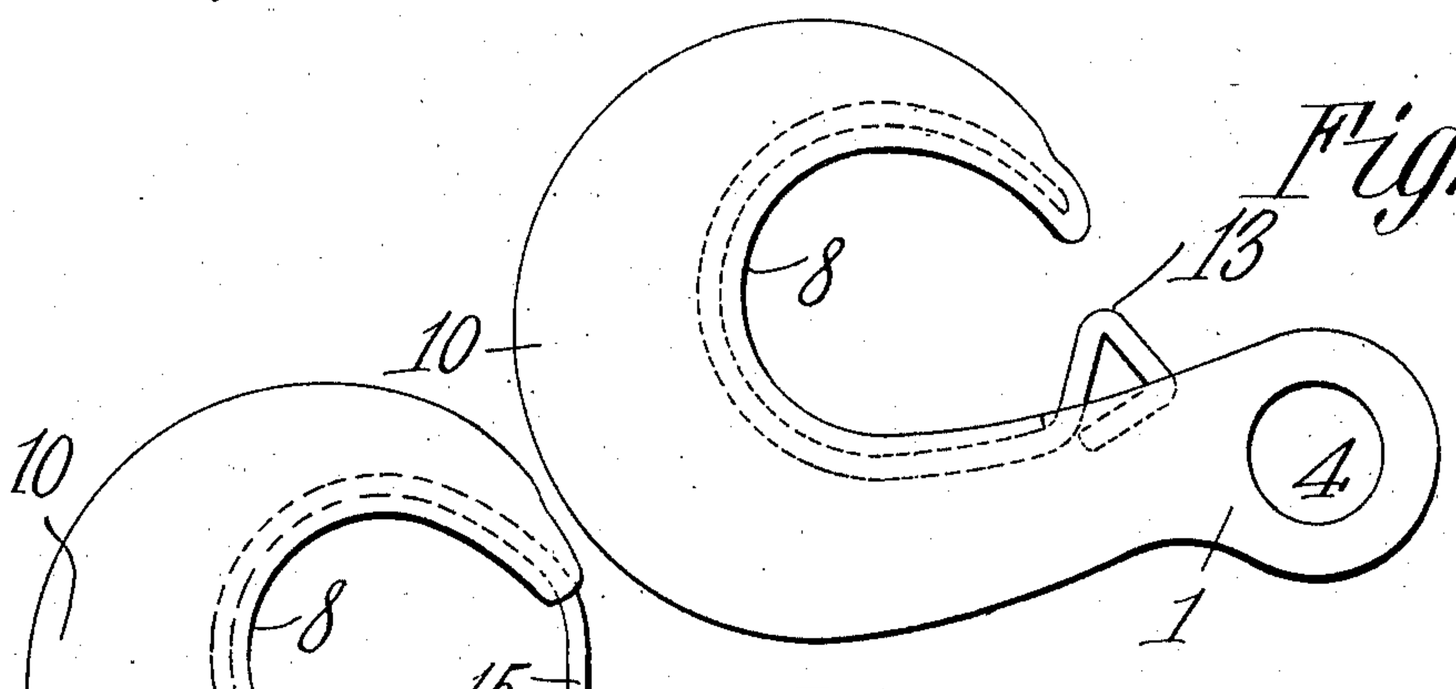

Fig. 1.

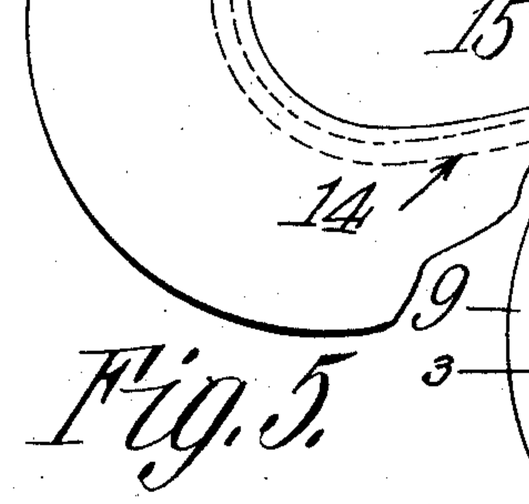

Fig. 5.

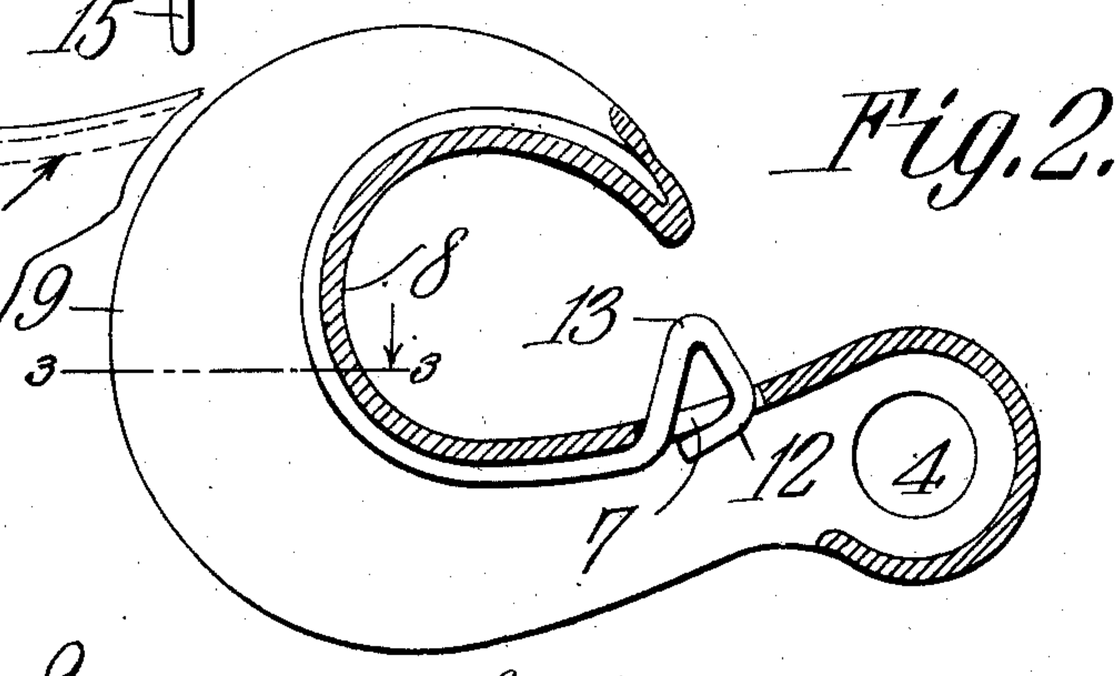

Fig. 2.

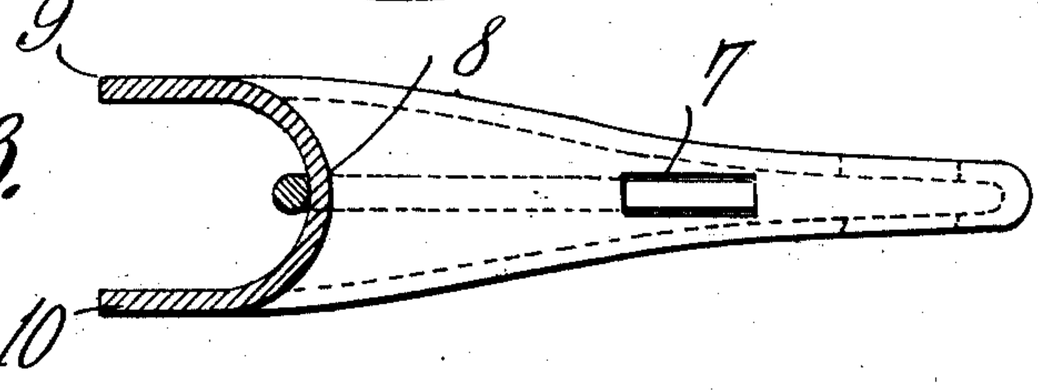

Fig. 3.

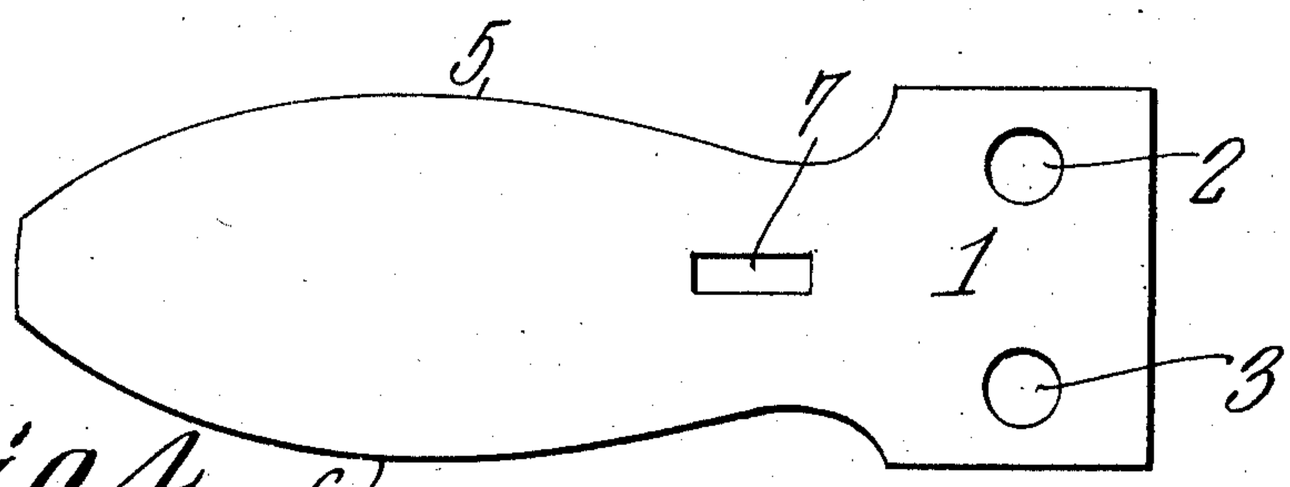

Fig. 4.

WITNESSES:

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UNITED STATES PATENT OFFICE.

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HOOK.

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To all whom it may concern:

Be it known that I, JOHN AMES, a citizen of the United States, residing at Seattle, in the county of King and State of Washington, have invented a new and useful Hook, of which the following is a specification.

My present invention relates to improvements in hooks such as are employed in connection with ropes, chains and hoisting and draft apparatus in general, and it has for its object to provide an improved article of this character that may be made of sheet steel or other material so that its cost of manufacture is considerably cheapened and liability of breakage is minimized by reason of the disposition of the metal which serves as a reinforcement for the hook, and furthermore, to provide an improved safety latch for preventing accidental disengagement of the hook, the construction and mode of applying the latch insuring proper operation thereof and the latch is so housed that it is protected from injury and it does not interfere with the operation of the hook.

To these and other ends, the invention comprises the various novel features of construction and combination and arrangement of parts, which will be more fully described hereinafter and set forth particularly in the claims appended hereto.

In the accompanying drawing:—Figure 1 is an exterior view of a hook constructed in accordance with the present invention. Fig. 2 represents a longitudinal section of the hook shown in Fig. 1. Fig. 3 represents a section on the line 3—3 of Fig. 2 looking in the direction indicated by the arrows. Fig. 4 is a plan view of the blank from which the hook is formed. Fig. 5 shows another mode of applying the safety latch to a hook constructed in accordance with my present invention.

Corresponding parts in the several figures are indicated throughout by similar characters of reference.

The present invention enables hooks of the character described to be manufactured almost wholly by die or press work, the hooks being composed of a blank of sheet material, preferably steel, and the blank is bent into a channel formed about its longitudinal axis, and finally curved about its transverse axis, and in cases where it is desirable to employ a safety latch, the latter is housed between the flanges of the channel and it has one of its ends rigidly fixed in the point of the hook, the latch portion projecting through a slot or aperture formed in the hook at a point opposite to its point, the safety latches being also formed of a strip of resilient material, such as wire.

The blank employed in forming the hook shown in the present embodiment of my invention is cut by dies or other means from sheet metal of appropriate gage and it employs a shank portion 1 preferably oblong in a direction transversely of the length of the blank and has a pair of symmetrically arranged eyes 2 and 3 formed thereon at points equidistant from the longitudinal central line of the blank, so that when the shank portion of the blank is doubled longitudinally, these eyes will register to form a single eye 4 to receive a ring or other attaching device of a chain or rope. The longitudinal edges of the blank beyond the shank portion are bowed or expanded, as at 5 and 6, so as to increase the width of the flanges at the bight of the hook when the blank is formed up, and arranged centrally of the blank, measured transversely, is a slot 7, the latter being arranged adjacent to the shank portion of the blank.

The blank thus formed is first doubled on its longitudinal axis, thus giving the blank a channel form, the web 8 being wider between the bowed portions of the blank, and narrowed toward its point and shank portions. The blank is finally bent about its transverse axis to form a hook, the flanges 9 and 10 projecting outwardly beyond the web and being substantially wider at the bight of the hook than toward its ends so as to effectually resist bending strain on the hook which is greatest at this point, the web of the channel forming a relatively wide surface at the inner side of the hook.

The hook may be employed with or without a safety latch for preventing its accidental disengagement, the latch shown in the present instance being composed of a single piece of wire or other metal of sufficient resilience, the wire being bent into a loop corresponding in curvature to that of the outer surface of the web of the hook, one end of the wire latch being secured in the point of the hook in any suitable manner, such as by welding or hammering in the flanges at the point of the hook, so as to compress and secure the latch. The oppo-

site end of the latch is bent in the plane of the loop first at an obtuse angle relatively to one of the arms of the loop, thence doubled back and provided with an inturned end 12, the bending of the loop in this way forming a dog 13 that operates through the slot 7 in the web of the hook and serves to so contract the opening between it at the point of the hook as to prevent accidental disengagement of the rope or chain engaged by the hook, the resilient action of the material composing the latch permitting the dog thereon to be pressed inwardly either by hand or by the rope or chain when positively moved toward the opening of the hook by the operator.

A hook constructed in accordance with my invention provides maximum strength with a given weight, while at the same time there is provided a comparatively wide or extended bearing surface for the rope or chain. The broad bearing surface is obtained by providing a comparatively wide web, while resistance to strains tending to bend the hook is provided by the flanges which extend from the edges of the web in the direction of the strain. Moreover the hook is particularly adapted to receive a safety latch such as that shown, for the reason that the latch may be readily fastened therein and it is housed between the flanges of the hook so that it is protected from injury. These hooks may be composed of sheet metal of any desired gage that will afford sufficient rigidity commensurate with the service the hook is to be subjected to, the manufacture of the hook by means of dies insuring a relatively low cost, and the hooks may be relatively light in weight so that in very large sizes they may be handled easily by the operator.

In Fig. 5 the safety latch is applied in a different manner from that shown in Figs. 1 to 3, inclusive, in that the fixed end of the yoke-shaped spring of the latch is secured in the shank portion of the hooks, as at 14, and the free end of the latch extends beyond the point of the hook and is provided with a dog 15 which is yieldingly pressed inwardly toward the shank of the hook, the latch being guided from lateral disengagement by the flanges between which it rests.

What is claimed is:—

1. A hook of the character described composed of sheet metal doubled longitudinally to form a central web extending throughout the length of the hook, and a pair of flanges proceeding outwardly from the web, the flanges being continued to the shank of the hook and having registering perforations to form an attaching eye.

2. A hook composed of sheet material and embodying an inner web provided with a slot at a point opposite to the point thereof, flanges projecting outwardly beyond the web, and a safety latch encircling the hook at the outer side of the web and between the flanges, and having one end rigidly secured by the flanges at the point of the hook and its opposite end provided with a dog arranged to operate through said slot in the web.

3. A hook composed of sheet metal having an inner web portion expanded or widened toward the bight of the hook, and outwardly extending flanges also widened toward the bight of the hook, the flanges of the shank portion forming converging continuations of those at the bight of the hook and being provided with registering perforations to form an attaching eye.

4. A hook substantially channel shaped in cross section, the flanges thereof projecting outwardly beyond the web portion, the flanges converging and the web narrowing as they approach the point, the web having a slot therein opposite to the point of the hook, and a safety latch encircling the hook at the outer side of the web and lying between the said flanges, one end of the latch being fastened between the convergent flanges at the point of the hook and its opposite end being bent to form a dog arranged to operate through the said slot in the web.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JOHN AMES.

Witnesses:
C. F. GAGE,
C. K. CAMPBELL.