J. HAUSLER.

CRANE HOOK.

APPLICATION FILED JAN. 3, 1920.

1,367,044.

Patented Feb. 1, 1921.

2 SHEETS—SHEET 1.

FIG. 1.

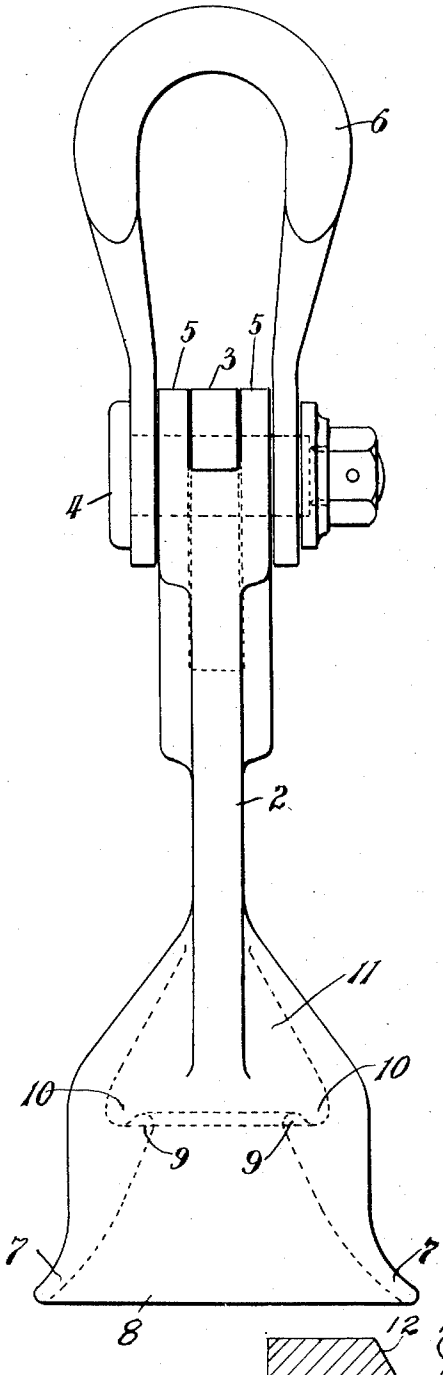
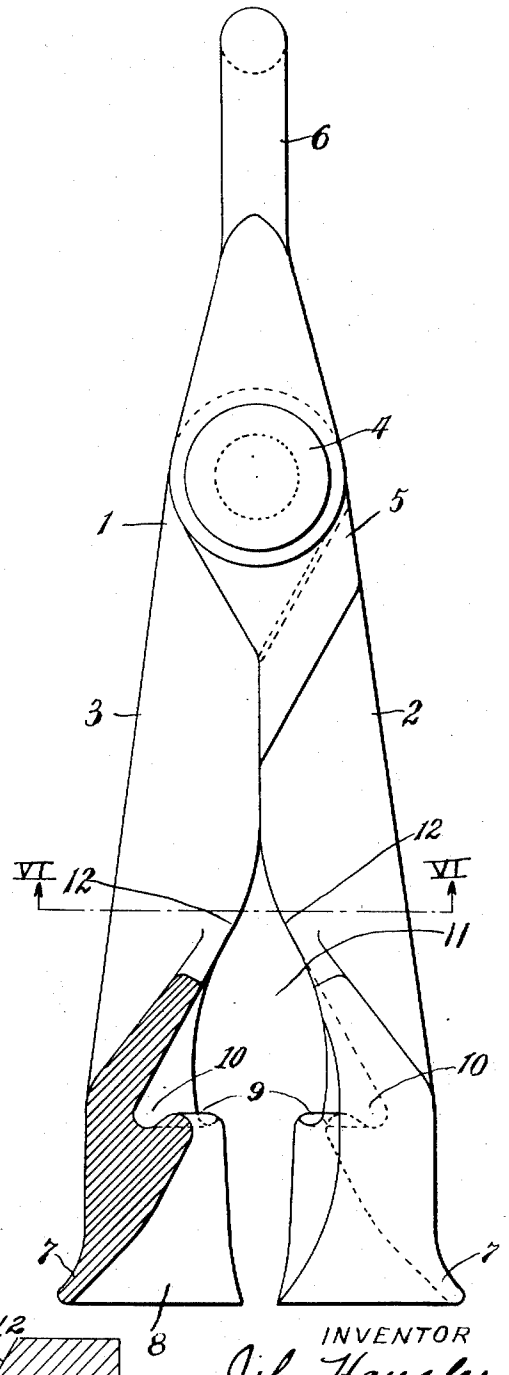


FIG. 6.

FIG. 2.



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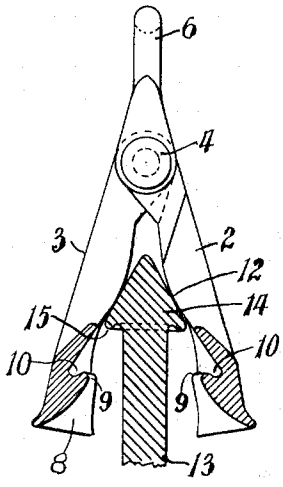


FIG. 4.

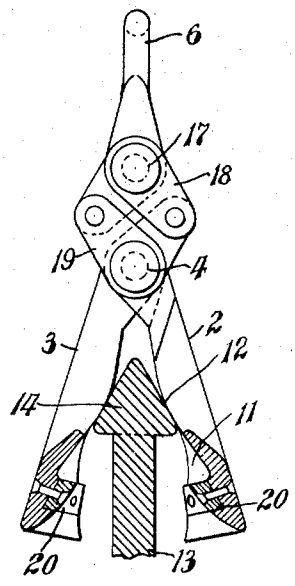


FIG. 5.

FIG. 3.

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UNITED STATES PATENT OFFICE

JOHN HAUSLER, OF DONORA, PENNSYLVANIA.

CRANE-HOOK.

1,367,044. Specification of Letters Patent. Patented Feb. 1, 1921.

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To all whom it may concern:

Be it known that I, JOHN HAUSLER, a citizen of the United States, and a resident of Donora, Washington county, Pennsylvania, have invented a new and useful Improvement in Crane-Hooks, of which the following is a specification.

My invention relates to a bell hook attachment for cranes.

The object of the invention is to provide a crane hook which is self-engaging with and disengaging from the article to be handled.

Another object of the invention is to provide a crane hook which will engage the means provided on the article to be handled without an exact adjustment relatively thereto.

A further object of the invention is to provide a crane hook which cannot accidentally engage any article other than those designed to be handled by it.

In the accompanying drawings, Figure 1 is a front elevation of the crane hook; Fig. 2 is a side elevation thereof; Fig. 3 is a view illustrating the suspension of the hook and its engagement with a bucket and showing the hook in vertical section; Fig. 4 is a vertical section through the hook showing it in its disengaging position; Fig. 5 is a side elevation of the hook illustrating a modified form of the device; and Fig. 6 is a transverse section on the line VI—VI of Fig. 2.

In the drawings, the numeral 1 designates generally the bell hook, which has as its primary elements the arms 2 and 3, and the horizontally disposed pin 4 upon which the arms are pivotally mounted. At its upper extremity, the arm 2 is provided with a forked hook portion 5, arranged to embrace the pivot pin 4 and to receive the single hook of the arm 3 between its forks. This construction permits the arms to move in opposite directions about the pivot pin without binding. A yoke 6 is pivotally mounted on the pivot pin 4, and serves as an engagement for any suitable supporting means such as a crane hook of the usual type.

The lower portions of both arms 2 and 3 are so arranged that each at its extremity forms a substantially semi-cylindrical cup. At their lower extremity, the arms are flared as at 7, and the metal of the arms is of gradually increasing thickness upwardly of the cup formed therein; so that the arms together form the bell or belled cup 8. At the upper extremity of the bell 8, the arms are provided with internal shoulders 9 having therein seating grooves 10. Above the shoulders 9, the arms are so formed as to provide an upper or engaging bell or recess 11, of substantially conical form and above the recess 11 the interior surfaces of the arms are shaped to provide the cam surfaces 12. These cam surfaces 12 are beveled in the manner shown in Fig. 6. When desired the cam surfaces may be rounded so as to be semi-circular.

It will be noted that neither the bell 8 nor the recess 11 is continuous; but, when viewed in side elevation, it is seen that a considerable space is left open in the lower bell 8 on both sides of the hook and that a much larger space is left open in the upper recess 11 on both sides of the hook.

In order that the hook may engage the article to be lifted, such article is provided with a stem 13 carrying a substantially conical engaging head 14. The engaging head 14 is of a size to fit in the upper bell or recess 11, and is preferably provided at its base with an annular bead 15 arranged to engage in the seating grooves 10 in the shoulders 9 of the arms.

In engaging an article to be lifted, the hook 1 is lowered onto the engaging head 14 carried by the article to be handled. As the hook is lowered over the engaging head, the head enters the lower bell 8, and separating the arms 2 and 3, enters the recess 11. It is not necessary that the central portion of the hook be lowered directly upon the apex of the conical head 14, as the flare of the arms at the lower extremity of the bell 7 provides a relatively great area for the reception of the head, and the shape of the bell itself will center the head therein and cause it to enter the recess 11.

With the head 14 in the recess 11, and with the bead 15 in the grooves 10, the weight of the article being lifted will, in itself, secure the head 14 with the bell; the head 14 being secured in position by the engagement of the bead 15 in the grooves 10. This position of the parts is illustrated in Fig. 3 of the drawings in which the hook is illustrated in lifting engagement with the engaging head on a bucket 16.

When the article being handled has been deposited in the desired spot, the hook 1 may be readily disengaged therefrom without manual or any other special adjustment,

In order to disengage the hook, it is merely lowered farther after the bucket or other article is at rest on a solid foundation. As the hook is lowered, its own weight, together with the weight of its supporting means, will cause the engaging head 14, acting on the surfaces 12 of the arms 2 and 3, to separate the arms as the hook moves downwardly over the engaging head. When in this position, illustrated in Fig. 4 of the drawings, the transversely rounded or beveled edges of the cam surfaces 12 will cause the hook to swing or slide sidewise on the conical surface of the head 14 until clear of this head.

In the modification illustrated in Fig. 5 of the drawings, the yoke 6 is not placed directly on the pivot pin 4, but engages a pin 17 which also carries a pair of arms 18. The arms 18 are secured to a similar pair of arms 19 carried by the pin 4. In lifting with a hook embodying this modification, the scissors action of the arms 18 and 19 positively clamps the engaging head 14 in the recess 11 of the hook 1. In this modification moreover, replaceable wearing plates 20 are shown provided on the cupped portions of the arms 2 and 3 which form the lower bell 8 of the hook. This use of these plates increases the life of the hook as the engaging head strikes at this point when the hook is lowered accurately into engagement with it.

The crane hook above described requires no manual adjustment for either engagement with or disengagement from an article to be handled; and, as will be readily seen, is capable of engaging only such articles as are provided with the particular form of head with which the hook is adapted to engage.

The crane hook is susceptible of a number of modifications without departing from the spirit of the invention as embodied in it, and the invention is therefore, limited only by the scope of the appended claims.

What I claim is:

1. In combination, a crane hook comprising pivoted arms providing a recess therebetween, and an engaging head arranged to enter and to be engaged in said recess, said arms being provided with cam surfaces adapted to engage said head when said hook is lowered a predetermined distance and thereby automatically disengage said hook from said head.

2. In combination, a crane hook comprising pivoted arms providing a recess therebetween, said arms being provided with shoulders within said recess, and cam surfaces above said shoulders, and an engaging head arranged to enter said recess and engage with said shoulders, said cam surfaces being adapted to engage said head when said hook is lowered a predetermined distance and thereby cause said hook to slide sidewise and automatically disengage itself from said head.

3. In combination, a crane hook comprising a pair of pivoted arms providing a recess therebetween, and an engaging head arranged to enter and be engaged in said recess, said arms being provided with surfaces adapted to engage said head when said hook is lowered a predetermined distance, and thereby spread said arms and disengage the hook from the head.

4. In combination, a crane hook comprising a pair of pivoted arms providing a tapered recess therebetween, said arms being provided with beveled cam surfaces adjacent the upper end of said recess, and an engaging head arranged to engage therein, the lower portions of said arms being arranged to guide the engaging head into said recess, and said beveled cam surfaces being adapted to engage said head when said hook is lowered a predetermined distance relative to the head, and thereby cause said hook to slide sidewise and automatically disengage itself from said head.

5. The combination with an engaging head, of a crane hook comprising a pair of pivoted arms providing a recess therebetween, shoulders on said arms within said recess adapted to engage under said head, beveled cam surfaces provided on said arms within said recess and above said shoulders, said cam surfaces being adapted to engage said head when said hook is lowered a predetermined distance relative to the head and to thereby cause said hook to slide sidewise and disengage from said head, the lower portions of said arms being arranged to guide the engaging head into said recess.

In witness whereof I hereunto set my hand this 30th day of December, 1919.

JOHN HAUSLER.

Witnesses:
L. R. DIETRICH,
A. L. HALLAS.