June 5, 1923. 1,457,648

W. C. BAILEY

CASING AND TUBING HOOK

Filed Feb. 20, 1922

Fig. 1.

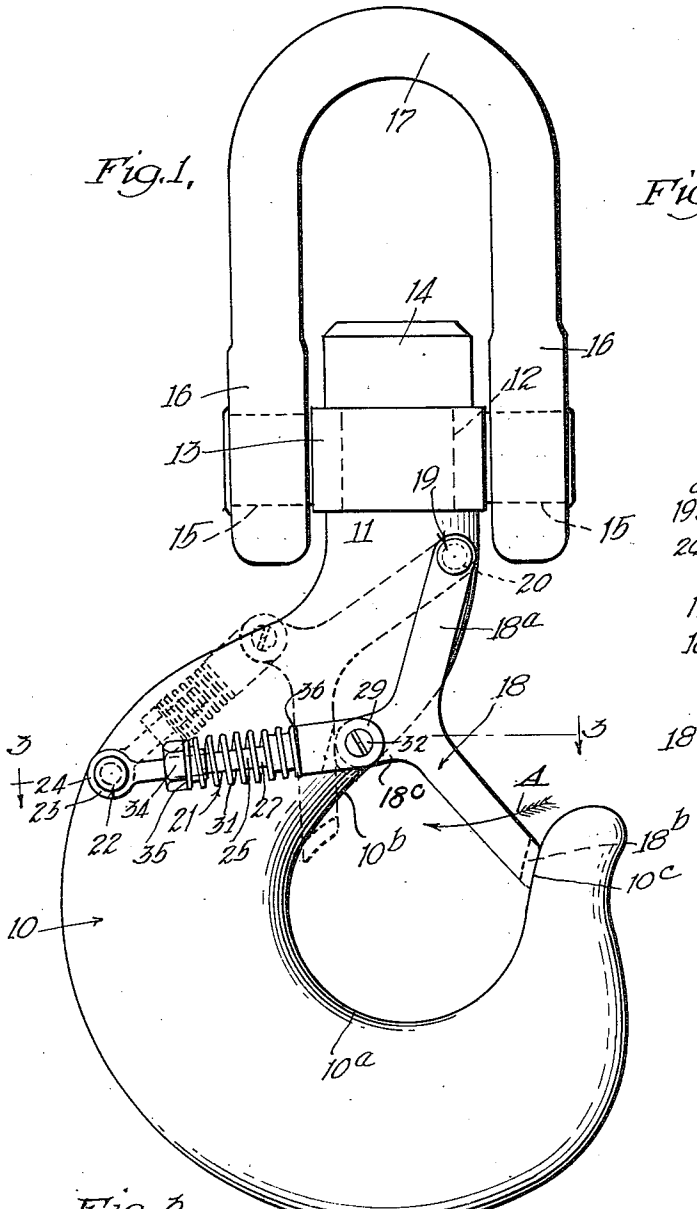


Fig. 2.

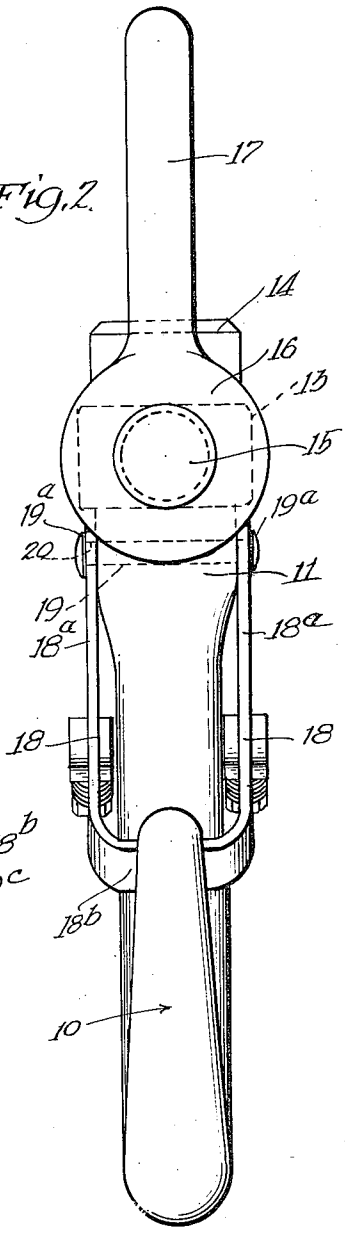
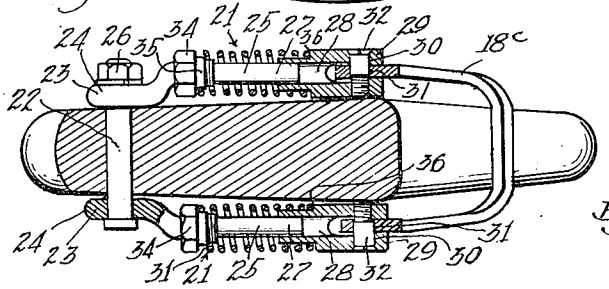


Fig. 3.



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UNITED STATES PATENT OFFICE.

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CASING AND TUBING HOOK.

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To all whom it may concern:

Be it known that I, WALTER C. BAILEY, a citizen of the United States, and a resident of the city of Long Beach, county of Los Angeles, and State of California, have invented new and useful Improvements in Casing and Tubing Hooks, of which the following is a full, clear, and exact disclosure.

While my invention may be said generally to pertain to tubing hooks, commonly used in connection with oil well drilling and pumping apparatus; it specifically pertains to a yielding closure for the bight of the hook; producing, in effect, a device somewhat in the nature of a snap hook.

My improvement is herein specified to be in connection with tubing hooks, and the like, owing to its adaptability to heavy work of that character; nevertheless, it will be obvious, from the description hereinafter made of my preferred specific form, that it need not be limited in its application to that particular use. On the contrary, it may have a wide application to other uses where found suitable.

In the accompanying drawings, forming part of this specification, I have illustrated my improvement; in which drawings:

Fig. 1 is a side elevation of a typical tubing hook, showing the application of my invention thereto; Fig. 2 is a front elevation of the same; and Fig. 3 is a transverse sectional plan view, taken as indicated by the line 3—3 of Fig. 1.

Referring now to the drawings, the numeral 10 designates generally a tubing hook of the usual configuration, terminating in a shank 11 at its upper end; which shank is reduced to form a spindle 12 (shown in dotted lines in Fig. 1). The spindle 12 extends through a bore and bearing block 13, and a bearing cap 14 is formed on its upper end to produce a swivel connection. The block 13 has coaxial trunnions 15, revolubly journaled in suitable bearings in arms 16 of a clevis 17. This structure provides the usual means by which the hook 10 is universally supported.

My invention resides in the provision of a closure member—generally designated by the numeral 18—pivotally mounted upon the hook 10 to yieldingly extend across the bight of the hook; and, it will be noted in connection with the following description that the closure member is designed to thus yieldingly extend either across the bight of the hook, or be moved to an out of the way position where it will be yieldingly held away from interference with the engagement of the members in the bight 10^a.

The member 18 termed the "closure member"—may be constructed of a single piece of material, such as a strap iron; bent to a substantially U-shaped configuration in plan; the parallel arms 18^a being again bent in parallel planes to form elbow bends, as shown in Figs. 1 and 2. The closure member 18 thus comprises a yoke, the arm 18^a of which extends on either side of the hook 10 and across the bight by the cross portion. 18^b. It is obvious that the degree of angularity in the arms 18^a may be varied to suit conditions; however, it is preferable that it be such that when the portion 18^b is in engagement with the side 10^c of the bight 10^a, the upper angular portions will lie back of the side 10^b while the lower angular portions will extend substantially across the mouth of the bight. The relative angularity of the portion 10^b will preferably conform to the face 10^c when the member is in the position shown in solid lines in Fig. 1; and its engagement at that point prevents its movement out of the mouth of the bight.

The closure member 18 is pivotally mounted upon the hook 10, by means of a common pivot pin 19, extending through the shank 11 at a point towards its front face and through suitable apertures 20 in the upper ends of arms 18^a; the ends of the pin 19 being peened or riveted over, as at 19^a, or secured in any other suitable manner. Suffice to say that the member 18 is pivotally moved upon the pin 19, so that its lower end may be oscillatingly moved across the bight 10^a of the hook. The member 18 is thus formed U-shaped and pivotally mounted upon the pin 19, with the arms 18^a movable on either side of the hook, to evenly balance it and give it added strength and rigidity.

While the member 18 is limited in its forward or closing movement by engagement of the portion 18^b with the side 10^c of the bight, it is likewise limited in its opening or rearward movement by the engagement of this portion with the opposite side 10^b, as illustrated by dotted lines in Fig. 1.

Preferably the closure member 18 is so formed that the points of angularity of the arms 18^a will lie just back of or at about the

perimeter 10^b, of the bight 10^a, when the lower angular portions of the arms lie across the bight (see Fig. 1) and the end 18^b is in engagement with the side 10^c.

The closure member 18 is normally held in either of the positions shown in solid and dotted lines in Fig. 1, by the action of a pair of telescoping arms—generally designated by the numeral 21—each pivotally mounted at one of their ends upon the hook 10, while their opposite ends pivotally engage the closure member. These arms are mounted upon opposite sides of the hook so each will exert a like pressure upon the closure member and give it a balanced movement.

The arms 21 are identical; each being pivotally mounted upon the hook 10, upon a common pivot pin 22 extending through the web of the hook and loosely through eyes 23 in the enlarged ends 24 of one of the complementary arm members 25. Any means for securing the pin 22 in place may be utilized, such as a nut 26.

The arm members 25 may be formed in any suitable manner, and of any material desired, preferably being constructed of round iron which may be flattened at one end to form the portions 24. The opposite ends 27 are offset relative to the portions 24, so that the latter may engage the opposite side faces of the book (10 as shown in Fig. 3), while the former stand out sufficiently clear of these faces to slidingly engage in axial bores 28 in complementary arm members 29. The latter may properly be termed "socket members".

The complementary socket members 29 are preferably of the configuration shown, being inwardly slotted or bifurcated at their outer ends to receive arms 18^c extending rearwardly from the elbow bends of the arms 18^a; each having coaxial bores 30 extending through these bifurcated ends to register with similar bores 31 in the arms 18^c; and through which bores cap screws or suitable pivot pins 32 extend to complete their pivotal connection. It is to be noted that the pivotal connections between the members 29 and the arms 18^a, are made at the point of angularity or elbow bends of the two angular portions comprising the arms; the object of which is to permit a toggle movement between the arms 21 and the upper portions of the arms 18^a, in the manner clearly illustrated by solid and dotted lines in Fig. 1. Also this connection obviates possibility of the arms 21 in any way interfering with the action of the member 18 or extending into the bight of the hook.

The member 18 is yieldingly held in closed position across the bight of the hook and also in full open position, by the action of expansive spiral springs 33 surrounding the portions 27 of the arm members 25, and confined between nuts 34, screw-threadedly mounted on the latter and the socket members 29. The nuts 34 are annularly rabbeted, as at 35, to form seats for one end of the springs 33, and the socket members are likewise annularly reduced, as at 36, to form seats for their opposite ends. By rotation of the nuts 34 upon the portions 27, the compression of the springs 33 may be varied.

The pivotal points of the arms 21 (the pivot pin 22) will be so positioned upon the hook 10, relative to the pin 19, that when the closure member is in its extreme rearward position (as shown in dotted lines in Fig. 1) the pivotal connections between the arms 21 and the closure member (the pins 32) will lie just beyond a dead center line passing through the pins 19 and 22. Thus the expansive action of the springs 33 will hold the closure member 18 in this rearward position when the intermediate pivotal points are past dead-center. The throw of these points past dead center will be very slight as it is desired that the closure member have the greatest possible opening throw and return to closure without danger of its ordinarily being held in open position; while at the same time, if desired, it may be thrown to its open position and there held as above described.

In practical use objects, such as elevator bails, and the like, may be engaged in the bight of the hook merely by striking the lower angular portion of the closure member with such object, as indicated by the arrow "A" in Fig. 1, and the yielding action of arms 21 will permit the member to swing back across the mouth of the bight, admitting the object, after which the arms 21 will return it to its normal closed position. If it is desired to remove the closure member to an out of the way position, it may be manually moved to such position, as indicated by dotted lines in Fig. 1, where it will be held by the expansive action of the arms 21.

While I have here shown and described the preferred specific embodiment of my invention, I nevertheless reserve the right to make any changes or modifications in structure which may properly come within the scope of the appended claims.

Having described a preferred form of my invention, I claim:

1. The combination with a hook of a U-shaped closure member pivotally mounted at its free ends upon the shank of the hook and adapted to swing across the bight, and yielding arms pivotally mounted upon the hook and pivotally connected to said member to hold said member in either open or closed position.

2. The combination with a hook of a U-shaped closure member comprising a yoke extending on either side of the hook and

pivotally mounted thereon at its free ends to swing across and close the mouth of the bight, and yielding arms pivotally mounted on each side of the hook pivotally engaging said closure member to hold it in either open or closed position.

3. The combination with a hook of a closure member pivotally mounted thereon to swing across and close the bight, and an arm pivotally mounted at one end upon the hook and pivotally engaging said closure member intermediate its ends to yieldingly hold it in either open or closed position.

4. The combination with a hook of a U-shaped closure member comprising a yoke extending on either side of the hook and pivotally mounted thereon at its free ends to swing across and close the mouth of the bight, and arms pivotally mounted on either side of the hook and pivotally engaging said closure member to yieldingly hold it in either open or closed position, said arms each comprising a member pivotally mounted at one end upon the hook, a socket member pivotally engaging said closure member intermediate its ends, said socket member having an axially disposed bore in which the free end of the first mentioned arm slidingly engages, and a spring to hold said members in relatively extended relation.

In witness that I claim the foregoing I have hereunto subscribed my name this 9 day of February 1922.

WALTER C. BAILEY.

Witness:
E. D. CAVENDER.