

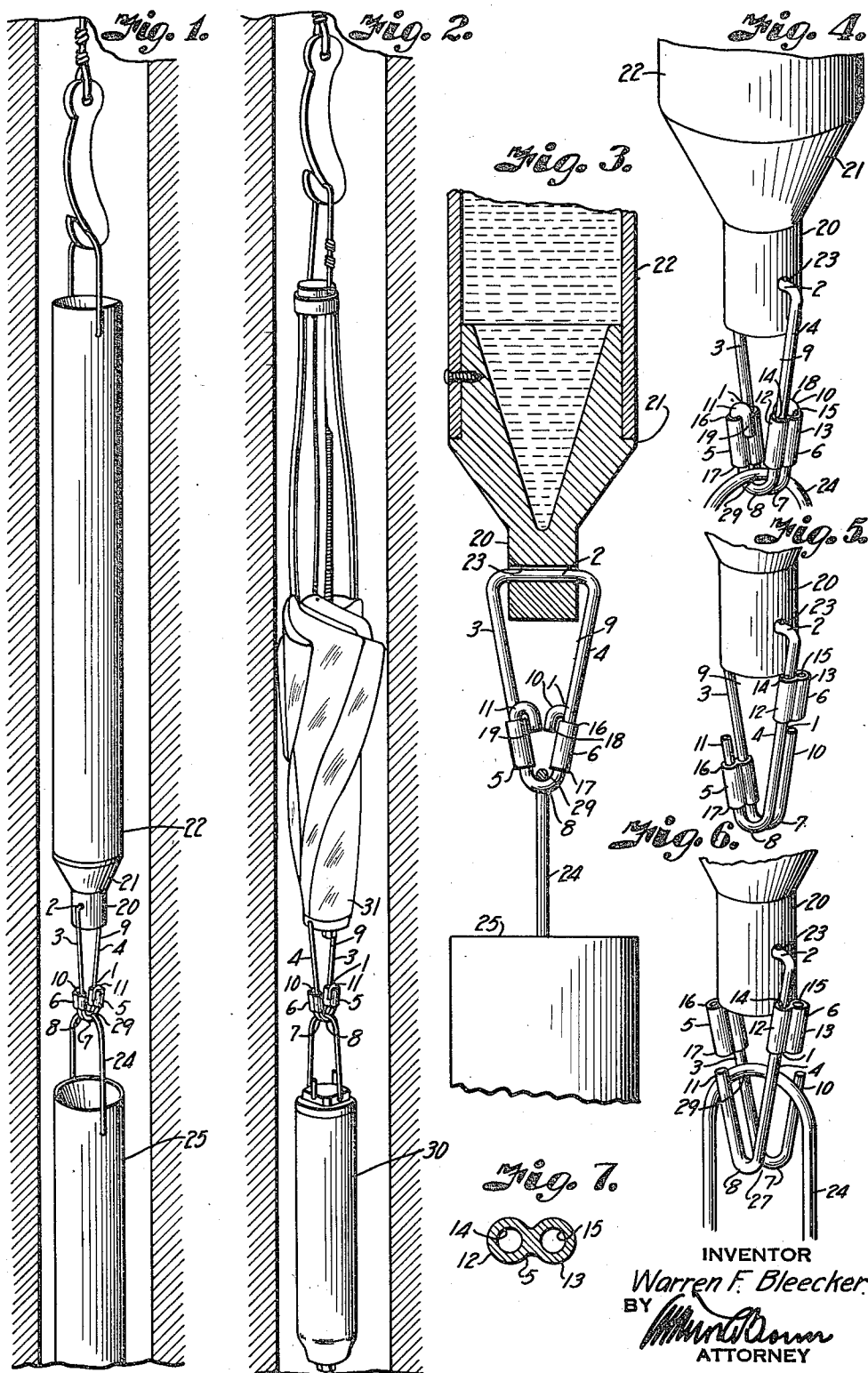
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SAFETY HOOK

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SAFETY HOOK

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This invention relates to safety hooks and more particularly to those of that character for use in interconnecting a plurality of objects that are lowered into an oil or like well, for example, a plurality of nitroglycerine shells, a bridging device and a nitroglycerine shell, a bridging device and a weight, or other similar combinations of elements incidental to well practices, and has for its principal object to provide a hook of this character with means for preventing accidental release of the hook or distortion thereof while under load of the objects which the hook suspends.

Other important objects of the invention are to provide a hook which is of simple, inexpensive construction, and that can be readily applied without loss of time.

In accomplishing these and other objects of the invention, as hereinafter pointed out, I have provided improved details of structure, the preferred form of which is illustrated in the accompanying drawing, wherein:

Fig. 1 is a perspective sectional view of a portion of a well hole showing a couple of nitroglycerine shells being lowered therein and which are connected together with a safety hook embodying the features of the present invention.

Fig. 2 is a similar view showing the use of the hook for connecting a bomb to a bridging device that is being lowered into a well hole.

Fig. 3 is an enlarged elevational view of the hook showing its connection with the lower end of the upper shell and the bail of the lower shell illustrated in Fig. 1.

Fig. 4 is a perspective view of the parts shown in Fig. 3.

Fig. 5 is a perspective view of the hook showing one of the safety locks being raised preparatory to connecting the bail of the lower shell.

Fig. 6 is a similar view showing application of the bail to the hook.

Fig. 7 is a transverse sectional view through the safety lock.

Referring more in detail to the drawing:

1 designates a safety hook embodying the features of the present invention and in the illustrated instance is formed from a length of wire, preferably spring like in nature, but capable of being bent to shape without danger of fracturing. In shaping the hook, the length of wire is bent intermediate its ends to form a bar portion 2 and lateral converging side bar portions 3 and 4 on which are slidably mounted lock members 5 and 6, later described.

The ends of the wire are then curved retractionally to provide coincident bar portions 7 and 8

to complete a substantially triangular shaped loop 9. The terminal ends 10 and 11 of the wire terminate in parallel relation with the opposite side bar portions 3 and 4 respectively to be engaged by the locking members 5 and 6 now to be described.

The locking members each include interconnected sleeve portions 12 and 13 having their axes extending in parallel relation with each other and are provided with parallel bores 14 and 15 of suitable diameter to slide freely over the wire so that the sleeve portion 12 is slidably mounted on a side bar portion of the hook, while the other sleeve portion 13 is in position to slide over the terminal end of the other side bar portion as shown in Fig. 5.

Thus when the sleeve portion 13 of each locking member is moved over the respective terminal ends 10 and 11 of the wire, the hook is in closed condition to retain whatever form of loop or the like that has been passed between the open ends thereof, as hereinafter described.

In order to prevent displacement of the lock members when in locked position, the terminal ends 10 and 11 are of sufficient length to project from the ends 16 of the sleeve portions 13 when the opposite ends 17 thereof are engaged with the curved bar portions 7 and 8 of the hook, Fig. 5. The projecting ends 18 and 19 can then be bent retractively over the sleeve portions as shown at Figs. 3 and 4. When in this condition, the respective ends of the locking members are closely engaged between the curved portions 7 and 8 of the hook and the bent ends 18 and 19 respectively, so that it is impossible for them to slide upwardly on the side bar portions of the hook.

Should the hook be applied to a lug 20 on the lower end 21 of a nitroglycerine shell 22, as shown in the drawing, it is, of course, necessary to first pass the wire from which the hook is formed through the aperture 23 of the lug and then the ends of the wire are bent to complete the hook as above described.

In this instance, the hook will be a permanent part of the shell and will be applied thereto at the time of its construction, so that it will be ready for attaching the bail 24 of another shell or like object when the shell is run into a well.

Assuming that a second shell such as indicated at 25 in Figs. 1 and 3 is to be connected with a shell 22 that is equipped with a hook constructed as above described, the locking members 5 and 6 are slid retractively over the side bar portions of the hook to free the ends 10 and 11, which are then spread apart to provide a passageway 27 to permit passage there-

across of the bail 24 of the second shell, as shown in Fig. 6.

The bail 24 is then moved upwardly until the cross bar portion 29 thereof clears the ends 10 and 11. The shell to be attached is then given a quarter turn so that the bail when again lowered will seat in the curved bar portions 7 and 8 of the hook 1. Upon passing of the bail from between the ends of the hook and the adjacent side bar portions 3 and 4, the springlike nature of the material from which the hook is constructed will cause these parts to spring together as shown in Fig. 5.

In this position, the lock members 5 and 6 may be moved downwardly so that the sleeve portions 13 thereof engage over the ends 10 and 11 of the hook. The projecting portions 18 and 19 are then turned downwardly over the ends 16 of the sleeve portions 13 to complete the connection.

If desired, the safety hook may be applied in like manner to connect a bomb 30 with a bridge 31 which is used in supporting a stemming material over a charge of nitroglycerine in conventional shooting practice.

From the foregoing, it is obvious that I have provided a hook which is adapted for ready interconnection of a plurality of elements to be lowered into a well and that when applied the couplings are retained against stretching out under strain because of the locking sleeves.

What I claim and desire to secure by Letters Patent is:

1. In a device of the character described, a hook having overlapping coincident end portions, and means movable on the hook for engaging said ends to lock the ends in coincident relation said hook having bendable portions to anchor said locking means.

2. A device of the character described including side bar portions terminating in coincident curved end portions having terminal ends extending in parallel relation with the side bar portions, and lock members movable on the side bar portions and engageable over said terminal ends.

3. In a device of the character described including side bar portions terminating in coincident curved end portions and having terminal ends extending in parallel relation with the side bar portions, and locking members having interconnected sleeve portions respectively slidable on the side bar portions and said terminal ends to lock the ends to the side bar portions.

4. In a device of the character described including side bar portions terminating in coincident curved end portions and having terminal ends extending in parallel relation with the side bar portions, and locking members having interconnected sleeve portions respectively slidable on the side bar portions and said terminal ends to lock the ends to the side bar portions, said terminal ends being bendable over the locking members to prevent displacement thereof when in locking position.

5. In a device of the character described, a member having side bar portions terminating in coincident curved end portions and having terminal ends extending in parallel relation with the side bar portions, locking members having interconnected sleeve portions respectively slidable on the side bar portions and said terminal ends to lock the ends to the side bar portions, and means for preventing displacement of the locking members when in locking position.

6. In a device of the character described, a member including a single wire strand bent to form a loop having separable coincident overlapping hooked end portions to pass a bail for seating in said member, and means respectively slidable on said end portions and respectively engageable with the overlapping hooked ends of the other end portion for locking said portions against separation after the bail is applied.

7. In a device of the character described, a member having an end bar portion and converging side bar portions terminating in coincident curved end portions opposite the first named end bar portion and having terminal ends extending in parallel relation with the side bar portions, and lock members movable on the side bar portions and engageable over said terminal ends.

8. In a device of the character described, a member having an end bar portion and converging side bar portions terminating in coincident curved end portions opposite the first named end bar portion and having terminal ends extending in parallel relation with the side bar portions, and locking members having interconnected sleeve portions respectively slidable on the side bar portions and said terminal ends to lock the ends to the side bar portions.

9. In a device of the character described, a wire bent to form a substantially triangular shaped loop having side bar portions terminating in reversely curved end portions extending in parallel relation with opposite side bar portions, and locking members having interconnected sleeve portions respectively slidable on the side bar portions and said terminal ends to lock the ends to the side bar portions, said terminal ends being bendable over the locking members to prevent displacement thereof from locking position.

10. In a device of the character described, a wire bent to form a substantially triangular shaped loop having an end bar portion and converging side bar portions terminating in curved end portions opposite the first named end bar portion and having terminal ends extending in parallel relation with the side bar portion, locking members having interconnected sleeve portions respectively slidable on the side bar portions and said terminal ends to lock the ends to the side bar portions, and means for preventing displacement of the locking members from locking position.

11. In a device of the character described, a wire loop member having separable coincident end portions to pass a bail for seating in said loop member, and interconnected sleeve members slidable on the loop for locking said portions against separation after the bail is applied.

12. A safety hook including a loop having overlapping ends separable to insert a member to be connected therewith, and means positively securing said overlapped ends together at the point of said overlap.

13. A safety hook comprising a loop having separable end portions adapted for passing a member to be connected therewith, retaining means movable upon the loop to connectingly retain said separable end portions, and a terminal on the loop bendable over the retaining means.

14. A safety hook comprising a loop having coincident, overlapping end portions separable to pass a member to be connected therewith, retaining means movable on the loop to retain said end portions in overlapped relation, and bendable

terminals on said end portions for anchoring said retaining means.

15. A safety hook comprising a loop having overlapped, hook portions separable to pass a bail therebetween for seating said bail when the hook portions are returned to overlapping relation, sleeve members slidable on said loop and respectively engageable with the respective hook portions, and bendable terminals on the hook portions adapted to be bent over the sleeve members

to retain said hook portions in overlapped relation.

16. A safety hook comprising a loop having separable end portions adapted to pass a member to be connected therewith, interconnected sleeve members slidable upon the loop to retain said separable end portions, and terminals on the loop bendable over the sleeve members.

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