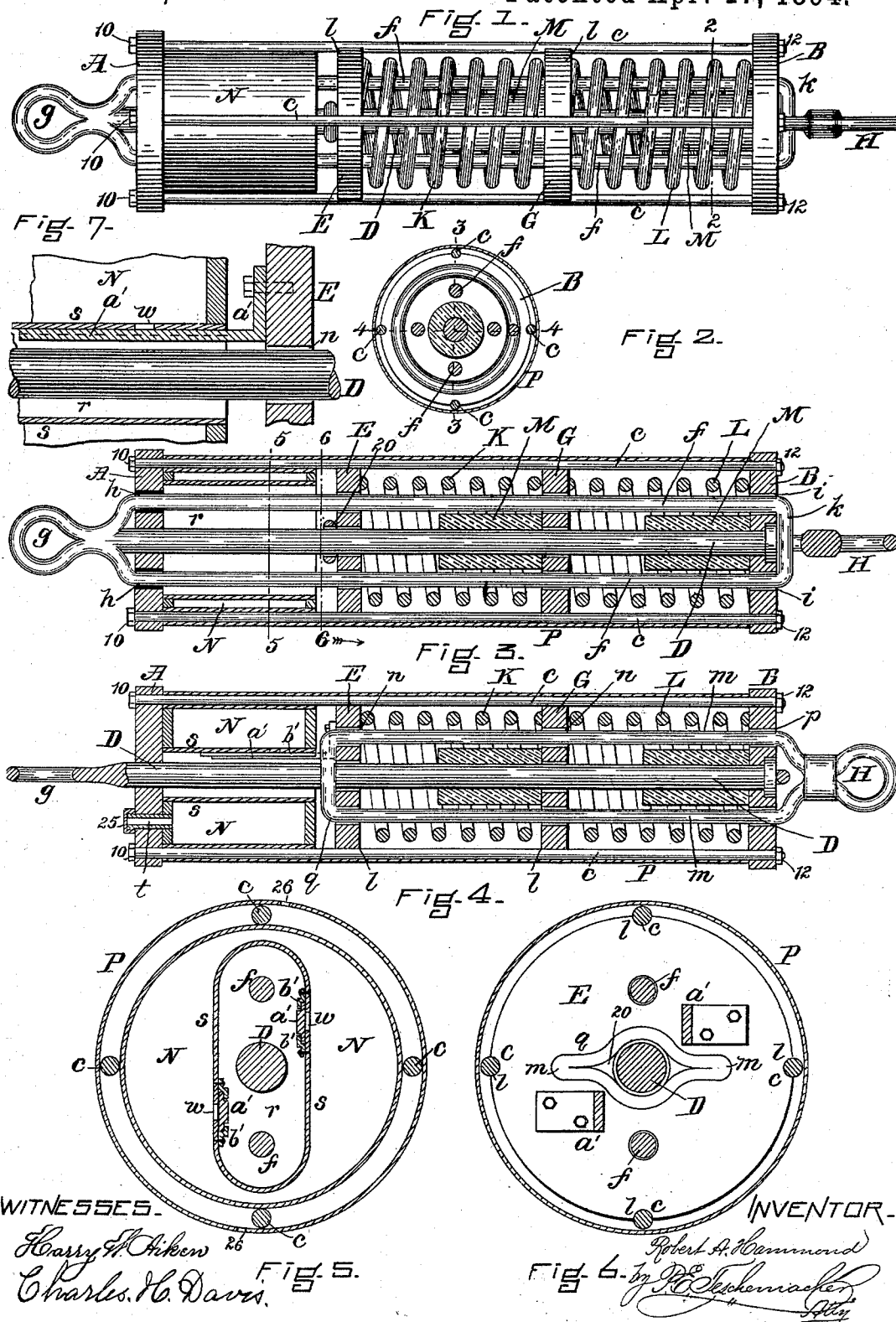


(No Model.)

R. A. HAMMOND.
COMBINED SPRING SHACKLE AND OIL DISTRIBUTER.

No. 518,502.

Patented Apr. 17, 1894.



UNITED STATES PATENT OFFICE.

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COMBINED SPRING-SHACKLE AND OIL-DISTRIBUTER.

SPECIFICATION forming part of Letters Patent No. 518,502, dated April 17, 1894.

Application filed June 2, 1893. Serial No. 476,384. (No model.)

To all whom it may concern:

Be it known that I, ROBERT A. HAMMOND, a citizen of the United States, residing at Provincetown, in the county of Barnstable and State of Massachusetts, have invented a Combined Spring-Shackle and Oil-Distributor for Attachment to Anchor-Cables and Towing-Hawsers of Vessels, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a side elevation of my combined spring-shackle and oil-distributor with the outer casing removed to show the interior construction. Fig. 2 is a transverse vertical section on the line 2, 2, of Fig. 1, with the outer casing in place. Fig. 3 is a longitudinal vertical section on the line 3, 3, of Fig. 2. Fig. 4 is a longitudinal section on the line 4, 4, of Fig. 2. Fig. 5 is an enlarged transverse section on the line 5, 5, of Fig. 3. Fig. 6 is an enlarged transverse section on the line 6, 6, of Fig. 3 looking in the direction of the arrow. Fig. 7 is an enlarged detail of a portion of the oil-reservoir and one of the valves.

My invention has for its object to provide the anchor cable or towing hawser of a vessel with a spring-shackle of novel construction, combined with an oil-distributor, whereby the strain on the cable or hawser is relieved to prevent breakage, and oil permitted to escape and distribute itself upon the surface of the water whenever the shackle is subjected to severe strain, as would occur in a heavy sea when the vessel was at anchor or being towed by a tow-boat or steamer.

To this end my invention consists in a spring-shackle provided with an oil-tank or reservoir having suitable valves for the escape of the oil, which are opened whenever the cable or hawser to which the shackle is attached is subjected in heavy weather to a certain amount of strain or draft, as herein- after more fully set forth.

In the said drawings, A, B, represent two circular metallic heads or disks which are connected together by rods *c* extending from one to the other, said rods each having a head 10 at one end outside the disk A, and a nut

12 at the other end screwed up against the outer side of the head B.

Extending between the heads A, B, and passing centrally therethrough, is a heavy rod or bar D preferably composed of steel, one end having a head countersunk in the outer face of the head B, and the other end passing through and beyond the head A where it is united with the ends of two steel strengthening rods *f, f*, the three being welded into a solid eye *g* which forms a means for the attachment of the shackle to the anchor, or the towing hawser or cable of a vessel or other object. The rods *f, f*, extend longitudinally from one end of the shackle to the other, and pass through apertures *h, i*, in the heads A, B, said rods being formed of a single piece of metal bent double at *k* where it passes across the head B; the rods *c, f, f*, and central rod D thus serving to firmly hold the heads A, B, together and prevent any possibility of their being separated under any strain to which the shackle might be subjected when in use.

E, G, are two heavy metallic disks each provided with a central aperture for the passage of the central rod D on which it is adapted to slide longitudinally; said disks being provided at their peripheries with notches *l* for the reception of the rods *c* which serve as guides to prevent any rotary movement of the disks E, G, as they slide on the rod D.

m, m, are two steel draft-rods which are secured to the disk E and extend longitudinally therefrom through the disk G and head B, suitable holes *n, n, p*, being provided for their passage. These rods *m, m*, are formed of a single piece of metal bent double at *q* to extend across the face of the disk E, said bent portion *q* having an eye 20 formed at its center for the passage of the central rod D as shown in Fig. 6. The outer ends of the rods *m, m*, outside of the head B are welded into a solid draft-eye H forming a means for the attachment of this end of the shackle to the cable, hawser, or other object.

Between the disks E, G, is placed a stiff spiral spring K, and between the disk G and the head B is placed a similar spring L, said springs being compressed when a strain is put upon the cable or hawser to which the

shackle is attached, which causes the disk E to be drawn toward the head B, the strain on the cable or hawser being thus relieved and all liability avoided of its parting under a heavy strain produced by a sudden shock, or by the lurch of a vessel in a heavy sea when at anchor or while being towed. If desired a single spiral spring of suitable length may be used, but I prefer to employ two short spiral springs separated from each other by a disk or partition as shown, instead of a single long spring, for the reason that a greater yielding resistance to a heavy sea is afforded; and to still further increase this resistance I provide the head B and disk G each with a cylindrical rubber spring or buffer M encircling the central rod D within the spiral spring as shown in Figs. 1, 2, 3, and 4. The buffers M form elastic stops for the disks E, G, in case the spiral springs K, L, should be subjected to an unusual degree of compression, thus affording a yielding resistance to any strain, however great, which might be put upon the shackle in a severe storm.

At one end of the shackle next to the head A is secured inside the rods *c*, a metallic oil-tank or reservoir N, which is provided at its center with an elongated aperture or passage *r* extending entirely through it from end to end, and separated from its interior by suitable walls *s, s*, said aperture permitting of the passage of the central rod D and strengthening rods *f, f*, as shown in Figs. 3, 4, and 5.

t is a short filling-tube connected with the interior of the tank N through which the oil can be introduced, said tube extending through the head A, outside of which it is provided with a screw-cap 25; and when the shackle is applied to the anchor of a light-ship which is to remain permanently in place, a hose may be coupled onto the tube *t* and extend up to the vessel, thereby affording a convenient means for filling the reservoir with oil without disturbing the anchor. The inner walls *s, s*, of the tank N are provided with outlet apertures *w* for the discharge of the oil, said apertures being covered by longitudinal slide valves *a'* which move in suitable guides *b'* and are secured to the sliding disk E as shown in Fig. 6, whereby when said disk is drawn out against the resistance of the springs K and L, the valves will be opened and the oil permitted to escape, when it will distribute itself over the surface of the water and prevent the breakage of heavy seas over the vessel in a well known manner. The valves *a'* lap over or extend beyond the apertures *w* as shown in Figs. 4 and 7, to such an extent that they are not drawn out sufficiently to uncover said apertures and permit the oil to escape until the springs K, L, have been compressed to a considerable extent by a strong draft or pull upon the cable or hawser; it being obvious that the discharge of the oil from the reservoir will not be required under a slight compression of the springs when a vessel is at an-

chor or being towed, and the sea is comparatively calm. The valves may however be so arranged or connected with the sliding disk E as to permit the oil to escape under any desired degree of compression of the springs, and as soon as the force of the draft is reduced the disk E will be forced back by the springs, causing the valves to be closed, when the discharge of the oil will cease.

Outside of the rods *c* is placed a tubular metallic casing P which fits between and is held in place by the two heads A, B, as shown in Figs. 3 and 4, said casing being preferably provided with a suitable number of small apertures 26, Fig. 5, through which the oil discharged from the reservoir N may escape; but these apertures 26 are not absolutely necessary as the oil will easily pass through the holes in the heads A, B, and between the latter and the ends of the tubular casing P.

My improved shackle can be used to great advantage in towing, as it can be placed anywhere between the tow-boat and the vessel, and will relieve all sudden strain on the hawser or cable, thus preventing breakage, and at the same time, will distribute the oil upon the water between the tow-boat and the barge or other vessel being towed, rendering the water smooth and preventing heavy seas from breaking over the deck of the vessel.

When applied to the cable of a vessel lying at anchor, my shackle will relieve all sudden strain upon the cable, and as the oil escapes it will rise up and spread itself upon the surface of the surrounding water, thus relieving anxiety with regard to the safety of the vessel; furthermore my shackle can be used on all steamers and sea-going vessels for attachment to a "drag" for keeping a vessel "head to the sea" or for any other purpose to which it may be found applicable.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A spring-connecting-shackle for anchor-cables, towing-hawsers, &c., composed of a pair of connected heads or ends, each provided with means for attachment to a cable or anchor, combined with a draft-rod and a spring for producing a yielding resistance, and an oil tank or reservoir arranged between said heads or ends, said reservoir being provided with a discharge-valve connected with and adapted to be opened by said draft-rod to permit the oil to escape when a predetermined compression of the spring has been effected, all constructed to operate substantially as and for the purpose set forth.

2. In a spring-shackle, the combination of the heads A, B, connected by the rods *c*, the central rod or bar D and the rods *f*, said bar and rods being welded together at one end to form an eye *g* outside the head A, the disks E, G, adapted to slide upon the rod D, the draft-rods *m*, secured to the disk E and passing through holes in the disk G and head B, and united outside the latter into a draft-eye H, and the springs K, L, the former placed

between the disks E and G, and the latter between the disk G and head B, all operating substantially as described.

3. In a spring-shackle, the combination of
5 the heads A, B, connected by the rods *c*, the central rod or bar D and the rods *f*, said bar and rods being welded together at one end to form an eye *g* outside the head A, the disks E, G, adapted to slide upon the rod D, the
10 draft rods *m*, secured to the disk E and passing through holes in the disk G and head B, and united outside the latter into a draft eye H, the springs K, L, the oil tank or reservoir N provided with valves connected with and
15 adapted to be operated by the disk E when the springs are compressed by strain or draft upon the shackle, and the outer casing P, all constructed and arranged to operate substantially as set forth.

20 4. In a spring-shackle, the combination, with the heads A, B, rods *c*, *f*, D, for connecting the

same, the disk E adapted to slide on the rod D, the draft rods *m*, and a spring, of the oil reservoir N provided with a central passage
25 *r* for the rods D, *f*, said passage having walls *s* provided with outlet apertures *w*, and the slide valves *a'* attached to the sliding disk E and adapted to normally lap or extend beyond said outlet apertures *w*, substantially
30 as and for the purpose set forth.

5. In a spring-shackle, the combination of the heads A, B, connected by the rods *c*, *f*, and the central rod D, the draft rods *m*, the disks E, G, the springs K, L, and the rubber buffers M, encircling the rod D and applied to the
35 disk G and head B, substantially as described.

Witness my hand this 27th day of May, A. D. 1893.

ROBERT A. HAMMOND.

In presence of—

P. E. TESCHEMACHER,
HARRY W. AIKEN.