

July 23, 1957

J. I. VINNER ET AL
GRAPPLING MEANS

2,800,355

Original Filed Aug. 1, 1952

2 Sheets-Sheet 1

Fig. 1.

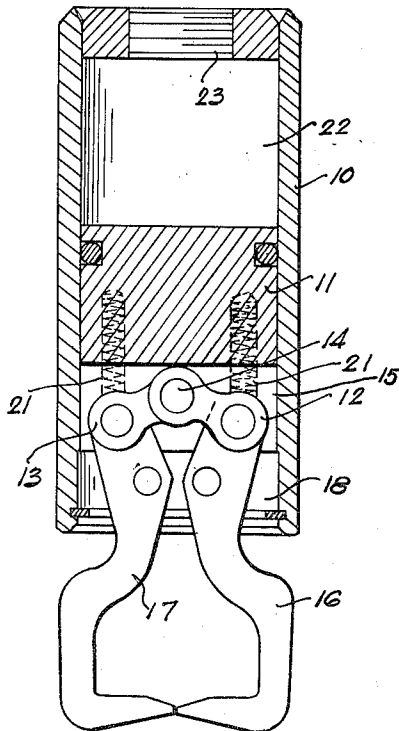


Fig. 2.

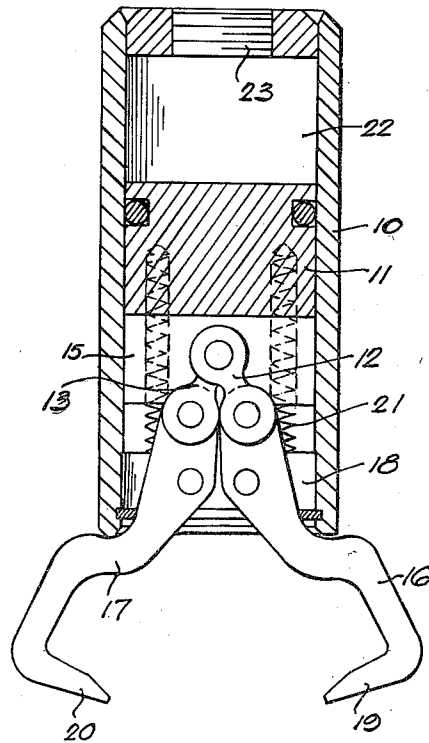


Fig. 4.

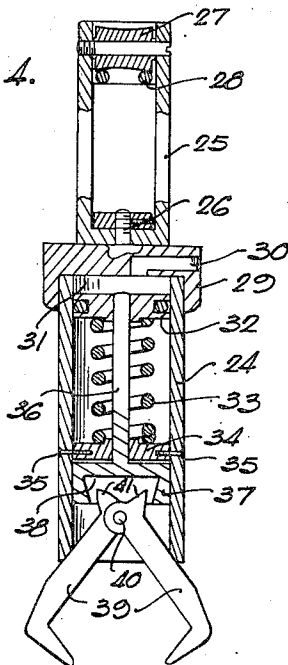
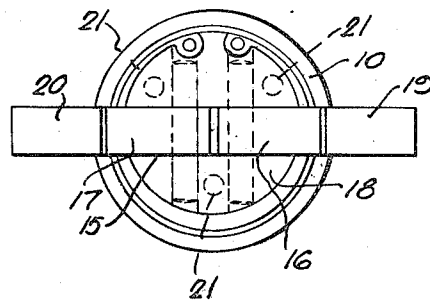


Fig. 3.



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Fig. 6.

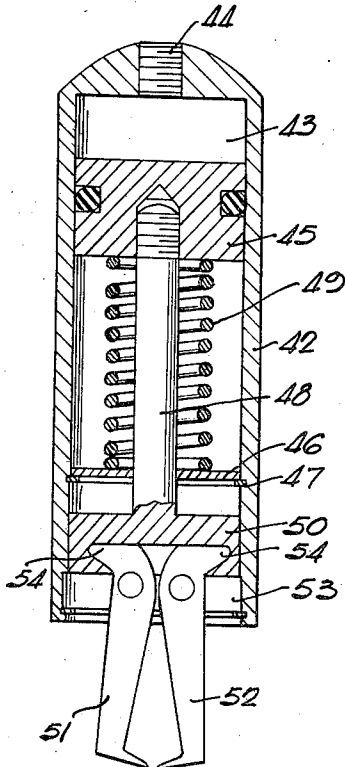


Fig. 7.

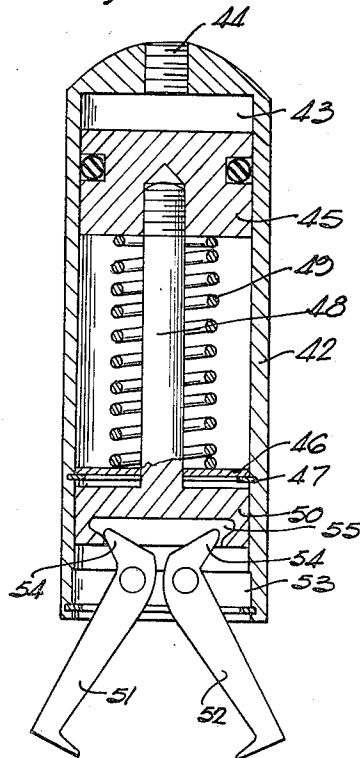


Fig. 8.

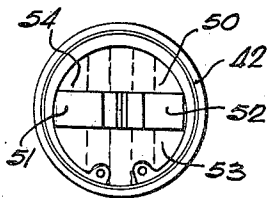
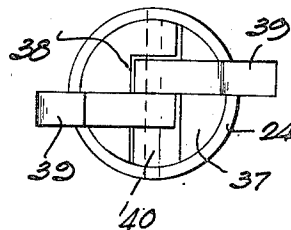


Fig. 5.



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GRAPPLING MEANS

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Original application August 1, 1952, Serial No. 302,075. Divided and this application October 5, 1953, Serial No. 384,257

1 Claim. (Cl. 294—88)

This invention relates to grappling means, and has for one of its objects the production of a simple and efficient means for gripping the battery lugs of a battery, such as an automobile battery, to facilitate the extraction of the interior contents of the battery from its case.

A further object of this invention is the production of a simple and efficient grappling means in the nature of a battery clamp or hook unit which may be efficiently actuated by means of hydraulic pressure.

Other objects and advantages of the present invention will appear throughout the following specification and claim.

This is a divisional application from our pending application filed August 1, 1952, Serial Number 302,075, relating to Machine for Pulling the Metal Parts of a Battery from its Case.

In the drawings:

Figure 1 is a vertical sectional view through one form of hook unit or grappling element, showing the jaws in a closed position;

Figure 2 is a vertical sectional view similar to Figure 1, showing the jaws in an open position;

Figure 3 is a bottom plan view of the structure shown in Figure 2;

Figure 4 is a vertical sectional view of a modified form of the hook unit;

Figure 5 is a bottom plan view of the structure shown in Figure 4;

Figure 6 is a vertical sectional view of a further modified form of the hook unit with the jaws in a closed position;

Figure 7 is a vertical sectional view similar to Figure 6 with the jaws in an open position;

Figure 8 is a bottom plan view of the structure shown in Figure 7.

By referring to the drawings, it will be seen that 10 designates the casing of the grappling element or hook unit, shown in Figures 1 to 3, inclusive. A piston 11 is slidably mounted in the casing 10 and carries a pair of diverging links 12 and 13 which are pivotally secured to a common journal pin 14 within its lower notched end 15. A pair of jaws 16 and 17 are pivotally mounted upon the closure plug 18 in the bottom of the casing 10. These jaws 16 and 17 are provided with inner end portions and are also provided with intumed terminals 19 and 20 respectively at their outer ends, the terminals extending toward each other in opposed relation to facilitate the gripping of a battery post or lug. The inner end portions of the jaws 16 and 17 are connected to the links 12 and 13. A plurality of expansion heavy duty coil springs 21, preferably three in number, are interposed between the closure plug 18 and the piston 11 to force the piston upwardly when pressure is released from the chamber 22 in the upper end of the casing 10. The interior mechanism is retained within the casing 10 in any suitable manner, such as a suitable expansion ring. Pressure enters the chamber 22 from a suitable connection of an hydraulic hose through the opening 23. The form of

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hook unit shown in Figures 1, 2 and 3 is preferably suspended by a suitable pliable hydraulic hose connection such as is shown in our co-pending application above identified from which this is a divisional application.

The lower notched end 15 receives the journal pin 14 and the upper ends of the links 12 and 13, so as to maintain the links 12 and 13, the journal pin 14, the piston 11 and spring 21 in proper alignment.

Figures 4 and 5 illustrate a modified form of the hook unit wherein a casing 24 is provided to be suspended from a hanger 25. The hanger 25 is connected to the casing 25 by a suitable swivel 26. The hanger 25 may be suspended by fitting the roller 27 over a suitable track element 28. The casing 24 is provided with a cap 29 having a port 30 to which a suitable hydraulic hose may be connected. The port 30 communicates with the pressure chamber 31 in the upper end of the casing 24, in which the piston 32 is mounted. A strong coil expansion spring 33 supports the piston 32, the lower end of the spring 33 resting upon the plate 34. This plate 34 is held in place by means of the set screws 35. The piston 32 is carried by the piston rod 36 which is slidable through the plate 34. The lower end of the piston rod 36 carries a block 37 having an upwardly flared deep socket 38 in the lower face of the block 37. A pair of oppositely flared gripping jaws 39 are pivotally connected upon the journal pin 40 carried by the lower end of the casing 24. These jaws 39 are provided with oppositely diverging lugs 41, which fit into the flared socket 38. As pressure is applied to the piston 32 through the port 30, the block 37 moves downwardly upon the jaws 39 to close the jaws. When pressure is released, the coil spring 33 returns the piston 32 to a raised position, thereby releasing the jaws 39.

In Figures 6, 7 and 8, there is shown a further modified form of the hook unit. In this form, a casing 42 is provided having a pressure chamber 43, to which a pressure supply means is adapted to be connected through the port 44. A piston 45 is slidably mounted in the chamber 43. An abutment wall 46 is carried within the casing 42 and rests upon the expansion ring 47, which is carried by the casing 42. A piston rod 48 is carried by the piston 45 and is slidable through the abutment wall 46. A coil expansion spring 49 is interposed between the wall 46 and the piston 45 and encircles the rod 48 to return the piston 45 after pressure is released from the chamber 43. A jaw actuating block 50 is carried by the rod 48 and is slidable in the lower end of the casing 42. Jaws 51 and 52 are pivoted to the plate 53 at the bottom of the casing 42. Each jaw 51 and 52 is provided with an out-turned finger 54, one finger being outturned in an opposite direction relative to the other finger. The finger 54 fits within the upwardly flared socket 55, which is formed in the under face of the actuating block 50. As the piston 45 descends under pressure within the chamber 43, the jaws 51 and 52 swing to a closed position. As pressure is relieved from the chamber 43, the coil spring 49 returns the block 50 and piston 45 to a raised position, the jaws 51 and 52 are swung to an open position. The expansion ring 47 holds the abutment wall 46 in place and an expansion ring 54 holds the plate 53 in position within the lower end of the casing 42.

The hook unit shown constitutes grappling elements to tightly grip protruding portions of the contents of a battery case to extract the contents from the case, as shown in our co-pending application Serial Number 302,075, filed August 1, 1952, relating to Machine for Pulling the Metal Parts of a Battery from its Case.

Having described the invention, what we claim as new is:

A device of the class described comprising a casing

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having a pressure receiving chamber, a piston slidably mounted in said chamber, a pair of diverging links pivotally secured to a common journal pin, said piston having a lower notched end, the point of contact of said links with said piston being within said lower notched end, a closure plug in the bottom of said casing, a pair of jaws pivotally mounted upon said closure plug, the inner end of each jaw being connected to one end of said links and the opposite ends of said links being respectively connected to said journal pin, at least one intumed terminal carried by each of the outer ends of said jaws, and expansion heavy duty coil springs interposed between said closure plug and said piston to force said piston inwardly of said chamber when pressure is released from said piston within said chamber, said lower notched end main-

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taining said links, journal pin, piston and springs in proper alignment.

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