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A. E. JESSER

2,074,475

SPRING CLIP

Filed May 12, 1933

Fig. 1.

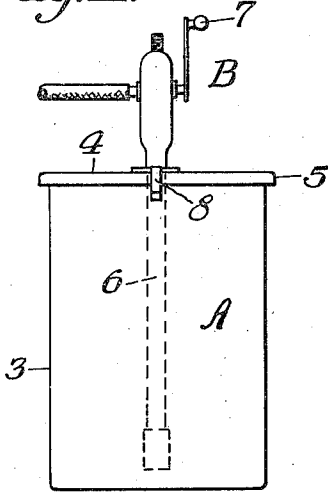


Fig. 3.

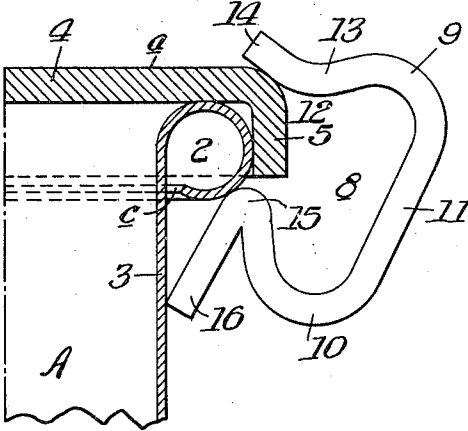


Fig. 2.

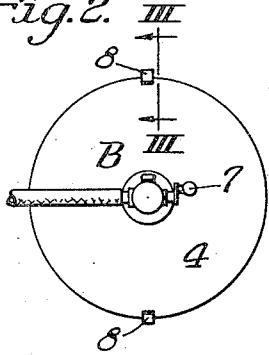


Fig. 4.

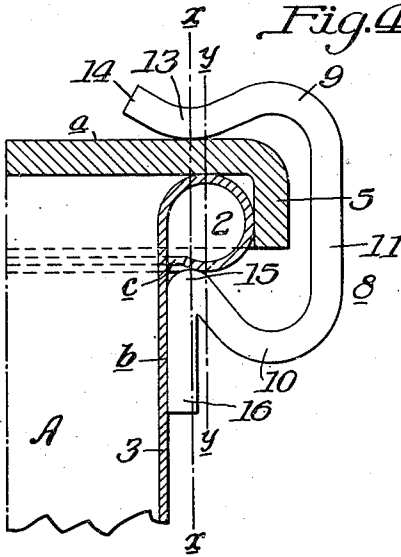


Fig. 6.

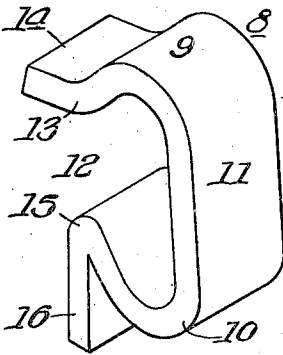
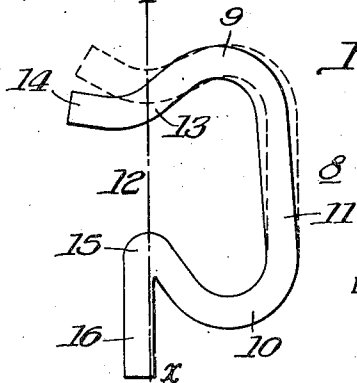


Fig. 5.



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## UNITED STATES PATENT OFFICE

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## SPRING CLIP

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5 Claims. (Cl. 220—55)

This invention relates to improvements in spring clips, having particular application for removably securing the covers or heads to containers or receptacles.

In the lubrication art, it is common practice to dispense oil or grease from what are known as steel drums or barrels, having removable covers or closures which are removed and the oil or grease withdrawn by means of portable pumps inserted within said drums, the drums and pumps being standardized for interchangeability.

Such pumps generally include a drum-engaging head or cover for removably supporting the pump within a drum, which head comprises a flat circular plate having a circumferential depending flange for telescoping engagement with the upper open end of the drum.

The pump proper is generally of the well known gear and rack type having a rotatable operating handle or arm, the turning moment of which necessitates some means for stabilizing or steadying the pump on the drum to which it is applied, as for example, by fixing the pump head to the drum.

Various means such as bolts, hook-bolts, wedges, etc. have been employed heretofore with partial success for securing the pump head, such means however adding materially to the cost of the equipment, owing to the additional parts required and the necessity of providing suitable openings in the drum and pump head for receiving the same.

Among the difficulties of application and/or removal of such securing means, it became necessary to provide a flange at the open end of the drum to afford a bearing for such means. In practice, such flange took the form of an inwardly extending annular ring portion, which reduced the size of the opening in such drum to such an extent as to prevent facile and complete removal of the grease or other contents of the drum, resulting in considerable waste.

By means of my invention, it is possible to utilize what is known in the art as a full-removable-head drum, having one end of the drum completely open, thus dispensing with the restricting flange described and providing for complete removal of the drum contents.

Such drums are formed with a roll or bead around the circumference of the open end thereof, for cooperation with and engagement by removable covers or heads, such heads being applied and sealed for transportation of the drum and its contents to the consumer.

I have found that a drum of this character

may be made of suitable size to cooperate with the said standard pump head, the flange of the latter receiving the roll or bead of the drum therebehind.

When so positioned, my invention provides a spring clip which may be readily applied to the drum head and the roll or bead, and which co-operates therewith to securely fasten the head on the drum.

My invention contemplates a clip of novel design which when positioned on the drum will secure itself against accidental removal, but which, due to its flexibility, may be readily removed when desired by the manner set forth herein.

Additional objects and advantages will become apparent from the following description taken in connection with the accompanying drawing, wherein:

Fig. 1 is an elevational view of an oil or grease drum, showing a pump applied thereto with the head thereof secured to said drum in the manner of my invention;

Fig. 2, a top plan view of Fig. 1;

Fig. 3, an enlarged detail section, taken on the line III—III of Fig. 2, showing the manner of applying the spring clip;

Fig. 4, a view similar to Fig. 3, showing the clip applied;

Fig. 5, a detail elevation of the clip, showing the spring action thereof; and

Fig. 6, a perspective view of the clip.

Referring to the drawing, A designates a steel drum known in the art as a full-removable-head drum, having a completely open end formed with a circumferential roll or bead 2, preferably formed as an integral part of the cylindrical side wall or body portion 3 of the drum by rolling the upper edge thereof outwardly, downwardly and inwardly into a bead of substantially round cross-section.

In the dispensing of oils, greases, etc., a pump, diagrammatically illustrated at B, is applied to the drum A by means of a head or cover 4, which head consists of a flat circular member or plate having a terminal circumferential down-turned flange 5 of such proportions as to snugly fit or telescope over the roll or bead 2 of the drum, as clearly shown in Figs. 3 and 4. In this manner, the pump, or more particularly the working barrel 6 thereof, is suspended within the drum for dispensing the contents, such as oil or grease, by rotation of the crank arm or handle 7 of the pump.

For the purpose of removably securing the

pump head 4 on the drum, I provide means co-operating with the bead and flange connection of the head and drum, applicable at any point in the circumference thereof, said means comprising a one-piece spring clip 8 preferably formed of a flat strip of spring or tempered steel of such configuration as to embrace the roll of said drum and head in holding engagement.

While my clip may assume various shapes or designs, I prefer to form the same into substantially C-shape having upper and lower oppositely disposed arcuate or semi-circular portions 9 and 10 respectively, said portions being spaced apart and joined at one side by means of a connecting portion 11. At the other side, the portions 9 and 10 are separated to form an entrance opening or throat 12, the upper portion 9 having a reversely curved contacting portion at 13 and an upwardly inclined lateral terminal 14. The lower curved portion 10 as shown, is upwardly concave, and at its side opposite the connecting portion 11 terminates in a sharp or abruptly reversed portion 15 comprising a hook member. Said hook member is provided with an elongated depending tail-piece 16.

In constructing the clip of my invention, the throat 12 thereof, or the opening defined by the distance between the portions 13 and 15, is smaller than the distance from the upper surface *a* of the pump head 4 to the lowermost extremity or under surface of the drum roll or bead 2.

Hence, in applying the clip to the head and drum, said clip will assume a position somewhat in the manner of Fig. 3, with the assembled head and bead partially entered within the clip throat 12, and with the lower end only of the tail-piece 16 in contact with the wall 3 of the drum.

Upon striking the portion 11 of the clip a sharp blow with a hammer or other tool, the clip will be distended into embracing engagement with the pump head and drum bead in the manner of Fig. 4, with the hook member 15 engaged under the bead 2 and the tail-piece 16 extending downwardly along and in complete lengthwise contact *b* with the outer surface of the wall 3 of the drum.

The major deflection of the clip occurs in its upper portion 9, as illustrated in Fig. 5, thereby displacing the curved portion 13 thereof directly over or into approximate alinement *x—x* with the hook member 15. This line of application *x—x* of the holding force of the clip is preferably spaced inwardly of the center line *y—y* of the roll or bead 2, whereby the hook member 15 is urged upwardly behind the lowermost surface of the bead into binding contact, resisting disengagement thereof and efficiently fastening the pump head 4 thereto.

In constructing the drum A, the lower inner edge *c* of the roll or bead 2 is preferably spaced from the wall 3 of the drum, thus providing for resiliency. Hence, when applying the clip 8 thereto, the bead 2 will be deflected, or more particularly, the said edge *c* thereof will assist the holding action of the hook member 15 of the clip by deflection upwardly, thereby affording a more secure engagement for the said hook member.

When the clip is in place, it is to be noted that the tail-piece 16 thereof has an extensive contact *b* with the wall 3 of the drum, the said contact being along a line substantially parallel to the direction *x—x* of the holding force of the clip. In this manner provision is made for resisting

rotative movement of the clip, thereby preventing accidental disengagement thereof from the drum and head.

The terminal 14 of the clip inclines upwardly from the upper surface *a* of the drum head when applied, and is employed for disengaging the clip from the drum, either by an upward and outward prying action, or by striking the same a sharp outward blow with a hammer or other tool, thus springing the clip out of engaging position.

Thus it will be seen that I have provided a means for removably securing the pump head or cover to a full-removable-head or completely open-ended drum which may be applied and/or removed without the necessity of bolts and the like, and which will require no special drum construction for its application. In practice, a plurality of my clips may be applied around the circumference of the pump head, and will stabilize or steady said head against movement while actuating the pump.

By reason of their simplicity, the clips of my invention are practically indestructible and may be used repeatedly. They are designed for use in connection with the now standard pump head, it being understood that the same may be modified or changed to meet future requirements.

I claim:

1. A securing clip for holding a flat top head to the rounded rim of a drum consisting of a bent strip of resilient metal having an upper inwardly rounded terminal for frictionally engaging the flat surface of said head, and a lower spaced apart oppositely rounded rim-engaging terminal provided with a reversely disposed depending tail piece for engaging the drum below the rim thereof to resist disengagement of the upper terminal from the drum head, said rim-engaging terminal engaging under the rim inwardly beyond the largest diameter thereof.

2. A securing clip for holding a flat top head to the rounded rim of a drum consisting of a bent strip of resilient metal having an outer looped portion extended to form an upper inwardly rounded and upwardly deflected terminal for exerting downward clamping pressure on the flat surface of said head, and an oppositely disposed spaced apart inwardly rounded rim-engaging terminal provided with a reversely disposed straight tail piece for engaging the drum below the rim thereof to resist disengagement of the upper terminal from the drum head, said rim-engaging terminal engaging under the rim inwardly beyond the largest diameter thereof.

3. A securing clip for holding a flat top head to the rounded rim of a drum consisting of a bent strip of resilient metal having a lower terminal engaging the rim inwardly beyond the largest diameter thereof, a spaced upper terminal engaging and exerting downward clamping pressure on the flat surface of the drum head, and a depending tail piece disposed in contact with the drum below the rim thereof along a line substantially parallel to the direction of said clamping pressure on the drum head, for resisting outward rotative disengagement of the upper terminal from said head.

4. A securing clip for holding a flat top head to the rounded rim of a drum consisting of a bent strip of resilient metal having a lower terminal engaging the rim inwardly beyond the largest diameter thereof, a spaced upper terminal engaging and exerting clamping pressure normally to

the flat surface of the drum head, and a depending tail piece disposed in contact with the drum below the rim thereof for resisting movement of the upper terminal along said flat surface of the drum head.

5 5. The combination with a drum having a circumferential rounded bead, said bead having a lower inwardly extending free edge portion, of a

removable head therefor, a spring clip for securing the head to the bead, said clip having a lower terminal engaging the free edge portion of the bead inwardly beyond the largest diameter of said bead, a spaced upper terminal engaging the drum head, said clip also having a depending tail piece engaging the drum below the rim thereof. 5

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