

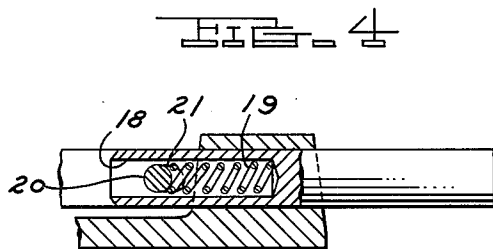
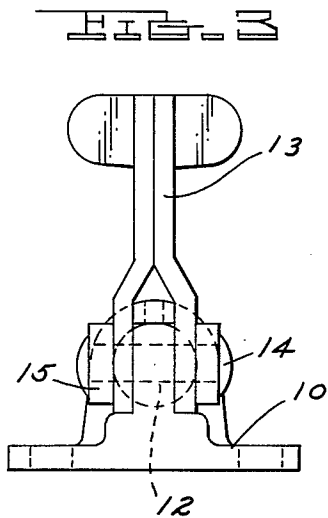
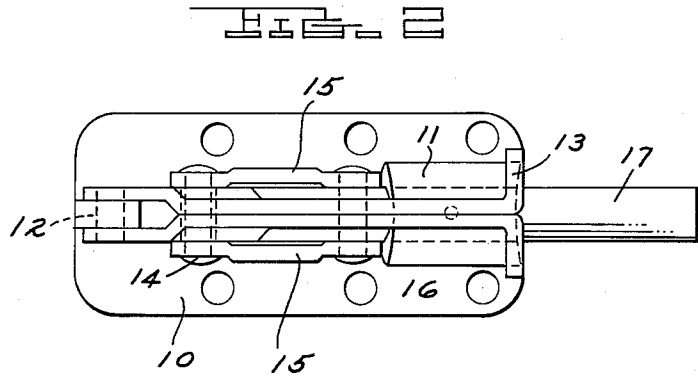
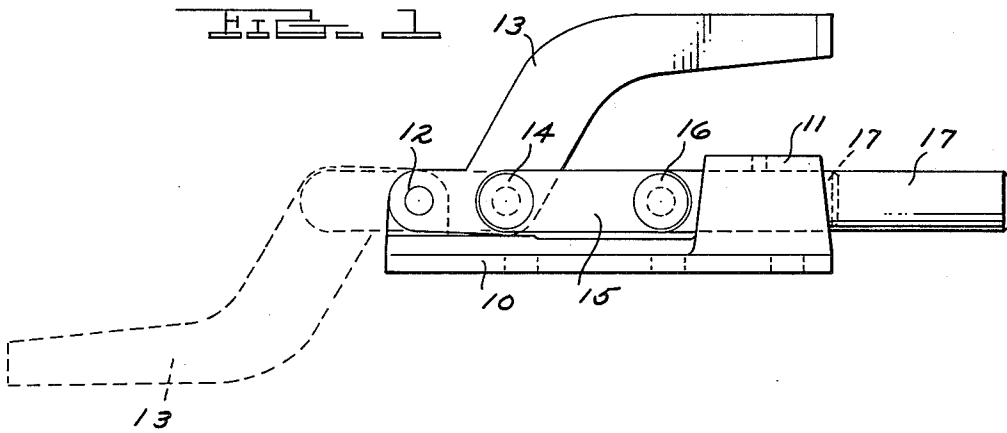
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RESILIENT PLUNGER CLAMP

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RESILIENT PLUNGER CLAMP

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5 Claims. (Cl. 74-106)

This invention relates to a toggle-actuated plunger clamp and more particularly to a plunger clamp incorporating a resilient element in the linkage which automatically compensates for thickness variations in castings, forgings and similar production parts which the clamp is adapted to hold as in production processing.

One object of the invention is to adapt a standard clamp to incorporate such resilient feature with a minimum of modification. Another object is to completely enclose the resilient mechanism to keep it free from dirt, chips and weld spatter.

These and other objects will be more apparent from the following detailed description of a preferred embodiment of the invention with reference to the drawings disclosing the same wherein:

FIGURE 1 is a side elevation of a conventional plunger clamp;

FIGURE 2 is a plan view of said clamp;

FIGURE 3 is an end elevation of said clamp; and

FIGURE 4 is a fragmentary side elevation showing a modified construction incorporating the resilient feature of the present invention.

Referring to FIGS. 1, 2 and 3 the conventional clamp comprises a base 10 having a cylindrical plunger guide 11 and a vertical boss pivotal connection 12 mounting a clamp handle 13 having a second pivotal connection 14 with a pair of side link elements 15 in turn pivotally connected at 16 to a generally cylindrical plunger 17, the open position of the clamp elements being shown in dotted line in FIG. 1. The toggle action provided by closing the clamp handle to bring the central pivot 14 into alignment between the rear pivot 12 and the forward pivot 16 moves the plunger 17 into pressure engagement with a workpiece to be held (not shown).

As shown in FIG. 4 a resilient feature is incorporated by providing a cylindrical end bore 18 in the pivot end of the plunger 17 in which a compression spring 19 is inserted and pre-compressed upon insertion of the pivot pin 20. A pivot pin slot 21 of suitable length is provided to accommodate back travel of the plunger further com-

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pressing spring 19. Thus a part thickness variation equal to the length of slot 21 is accommodated with a minimum clamping pressure equal to the pre-compression of spring 19 in the assembled condition shown.

While a particular preferred embodiment has been shown and described above in detail it will be understood that certain modifications might be resorted to without departing from the scope of this invention as defined in the following claims.

I claim:

1. A toggle plunger clamp comprising a base, a fixed plunger guide on said base, a compression clamp plunger confined by said guide to straight line reciprocating movement toggle linkage pivotally connected to one end of said plunger, a transverse pivot pin forming the pivotal connection between said toggle linkage and said plunger, a helical compression spring seated within said plunger reacting at one end against said pivot pin, and an enlarged transverse slot in said plunger forming a seat for said pivot pin, said slot accommodating limited travel of said plunger along said line relative to said pivot pin against compressive resistance of said spring.

2. A toggle clamp as set forth in claim 1 wherein said plunger comprises a cylindrical element having an axial bore extending to a limited depth from one end for housing said compression spring.

3. A toggle clamp as set forth in claim 2 wherein said transverse slot is elongated in the direction of the axis of said plunger and helical compression spring.

4. A toggle clamp as set forth in claim 3 wherein said toggle linkage is actuated by a handle pivotally connected to said linkage with a transverse pivotal axis substantially intersecting an extension of said plunger and helical spring axis when said toggle clamp is in closed position.

5. A toggle clamp as set forth in claim 4 wherein said handle element is pivotally connected to said base with another transverse pivotal connection also substantially intersecting an extension of the axis of said plunger and helical compression spring.

References Cited by the Examiner

UNITED STATES PATENTS

912,277	2/09	Benson	74-520
1,951,212	3/34	Sawatzky	74-39
2,514,839	7/50	Caswell	74-106 X
2,574,281	11/51	Olson	74-106 X

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