

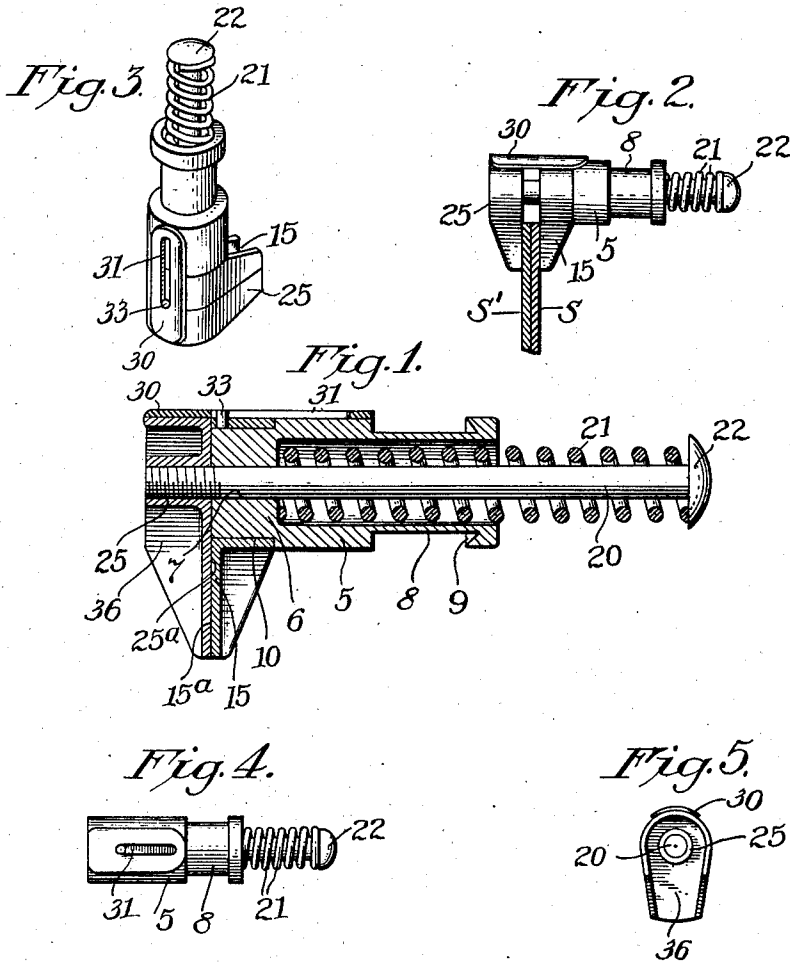
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CLAMPING TOOL

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CLAMPING TOOL

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5 Claims. (Cl. 85-5)

This invention has to do with clamps and, more particularly, it relates to resilient clamps for clamping sheets together along their side edges.

It is among the objects of the invention to provide a clamp of this character which may be easily and rapidly operated, which is extremely durable, which is economical of manufacture and which embodies effective safety features.

For example, we shall now describe a presently preferred adaptation of the invention, although the details resorted to in the following description are to be understood merely as aids to a clear understanding of the invention since within its broader scope as defined by the appended claims it will become obvious that the invention is susceptible of being carried out in other specific forms of apparatus.

In the accompanying drawing showing the exemplar selected for the purpose of explaining our invention:

Fig. 1 is a longitudinal sectional view;

Fig. 2 is a side elevation showing the device applied to work being clamped;

Fig. 3 is a perspective view;

Fig. 4 is a rear plan view; and

Fig. 5 is an end view.

Referring now to the drawing, we show at 5 a cylindrical body having an end wall 5 provided with a central opening 7. Adjacent the top end of the body there is a reduced diameter portion 8 to receive an applying tool, not shown, and providing an annular undercut shoulder 9 for engagement with the applying tool whereby to hold the body against longitudinal movement as will be hereinafter explained.

The bottom end portion 10 of the body is of reduced diameter to facilitate the mounting thereon of an inner jaw 15 whose outer face 15a provides one of the work engaging surfaces. It will be understood, of course, that jaw 15 may be formed integral with body 5 if preferred although we find the structure described to be advantageous from a manufacturing standpoint.

An operating plunger 20 is reciprocally mounted longitudinally in the body for protraction and retraction through the opening 7 in the body end wall 6. A coil spring 21, seating at its inner end against the inner surface of end wall 6 and seating at its outer end against the headed end 22 of the plunger, normally urges the plunger 20 into retracted position.

An outer jaw 25 is threadedly or otherwise suitably secured on the opposite end of the plunger 20, the inner surface 25a of this jaw pro-

viding a work engaging surface opposed to the work engaging surface 15a of the other jaw.

On the back portion of the jaw 25 we secure, as by spot welding or in any other suitable manner, an elongated plate 30 which projects longitudinally along the jaw 15 and the body exterior and is provided with a longitudinal slot 31. A pin 33, secured at its inner end in a hole in the jaw 15, projects into the slot 31. This pin and slot arrangement serves to prevent jaw 25 from rotating with respect to the body and out of register with jaw 15 but permits relative longitudinal movement between those members.

To lighten the device the jaws 15, 25 are hollowed at 36.

In operation, the clamp device is placed in an applying tool, not shown, a tool suitable for this purpose being shown in United States Letters Patent No. 2,296,439, dated September 22, 1942. By means of this tool, the body 5 is held while the plunger 20 is pushed inwardly of the body against the pressure of the spring 21. Such protraction of the plunger separates the work engaging surfaces 15a, 25a of the jaws, in which position the jaws may be applied over the side edges of the work to be clamped, the work being here shown as two superposed sheets S, S' (Fig. 2). Release of the protracting pressure on plunger 20 permits the spring 21 to urge the jaw 25 towards jaw 15 to clamp the work between the work engaging surface of those jaws as shown in Fig. 2.

We claim:

1. A device adapted to clampingly engage the side edges of work to be clamped, comprising a body, a laterally projecting inner jaw carried by the lower end of the body, a plunger reciprocally mounted in the body for protraction and retraction through the lower end of the body, a spring normally urging the plunger into retracted position, and an outer jaw secured to and projecting laterally from the lower end of the plunger in register with the inner jaw, said jaws being operable by virtue of retraction of the plunger to resiliently clamp the work therebetween.

2. A device adapted to clampingly engage the side edges of work to be clamped, comprising a body, a laterally projecting inner jaw carried by the lower end of the body, a plunger reciprocally mounted in the body for protraction and retraction through the lower end of the body, a spring normally urging the plunger into retracted position, an outer jaw secured to and projecting laterally from the lower end of the plunger in

register with the inner jaw, said jaws being operable by virtue of retraction of the plunger to resiliently clamp the work therebetween, and means preventing rotative movement of one of the jaws with respect to the other.

3. A device adapted to clampingly engage the side edges of work to be clamped comprising a body, a laterally projecting inner jaw carried by the lower end of the body, a plunger reciprocally mounted in the body for protraction and retraction through the lower end of the body, a spring normally urging the plunger into retracted position, an outer jaw secured to and projecting laterally from the lower end of the plunger in register with the inner jaw, said jaws being operable by virtue of retraction of the plunger to resiliently clamp the work therebetween, and means preventing rotative movement of one of the jaws with respect to the other, said last-mentioned means including a longitudinally slotted projection carried by one of the jaws and a pin carried by the other jaw, said pin projecting into and being slidable along the slot.

4. A device adapted to clampingly engage the side edges of work to be clamped, comprising a cylindric body having an end wall, an opening through the end wall, an inner work engaging jaw carried by and projecting laterally from the side of the lower end portion of the body, a plunger reciprocally mounted in the body for protraction and retraction through said opening, an outer work engaging jaw carried by and projecting laterally from the lower end of the plunger in register with the inner jaw, said jaws being movable towards each other upon retraction of

the plunger, and a coil spring mounted in the body around the plunger, said spring seating at one end against the body end wall and seating at its other end against an end portion of the plunger whereby to normally urge the jaws towards each other and into clamping engagement with the work.

5. A device adapted to clampingly engage the side edges of work to be clamped, comprising a cylindric body having an end wall, an opening through the end wall, an inner work engaging jaw carried by and projecting laterally from the side of the lower end portion of the body, a plunger reciprocally mounted in the body for protraction and retraction through said opening, an outer work engaging jaw carried by and projecting laterally from the lower end of the plunger in register with the inner jaw, said jaws being movable towards each other upon retraction of the plunger, a coil spring mounted in the body around the plunger, said spring seating at one end against the body end wall and seating at its other end against an end portion of the plunger whereby to normally urge the jaws towards each other and into clamping engagement with the work, and means preventing rotative movement of one of the jaws with respect to the other, said means including an elongated plate secured to the rear surface of the lower jaw and projecting along the outer surface of the inner jaw, a longitudinal slot in the plate, and a pin secured in the inner jaw, said pin projecting into and being slidable along the slot.

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