Nov. 2, 1937. G. F. McDOUGALL 2,097,596

SHOCK ABSORBING LATCHING DEVICE

Filed March 9, 1937

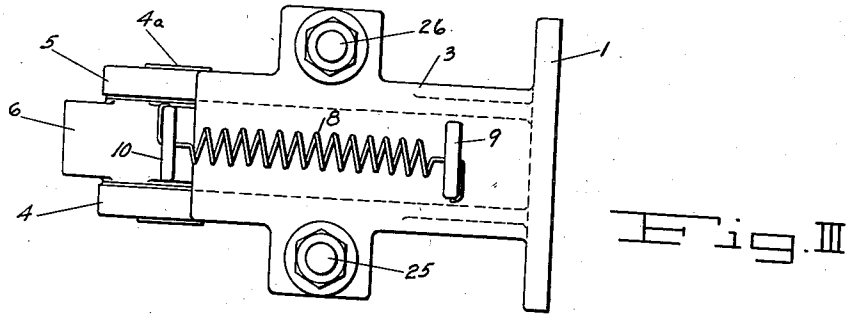


Fig. III

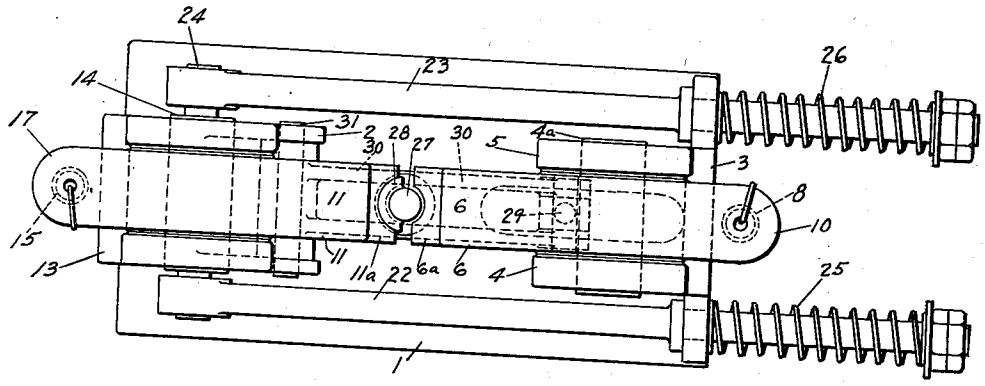


Fig. II

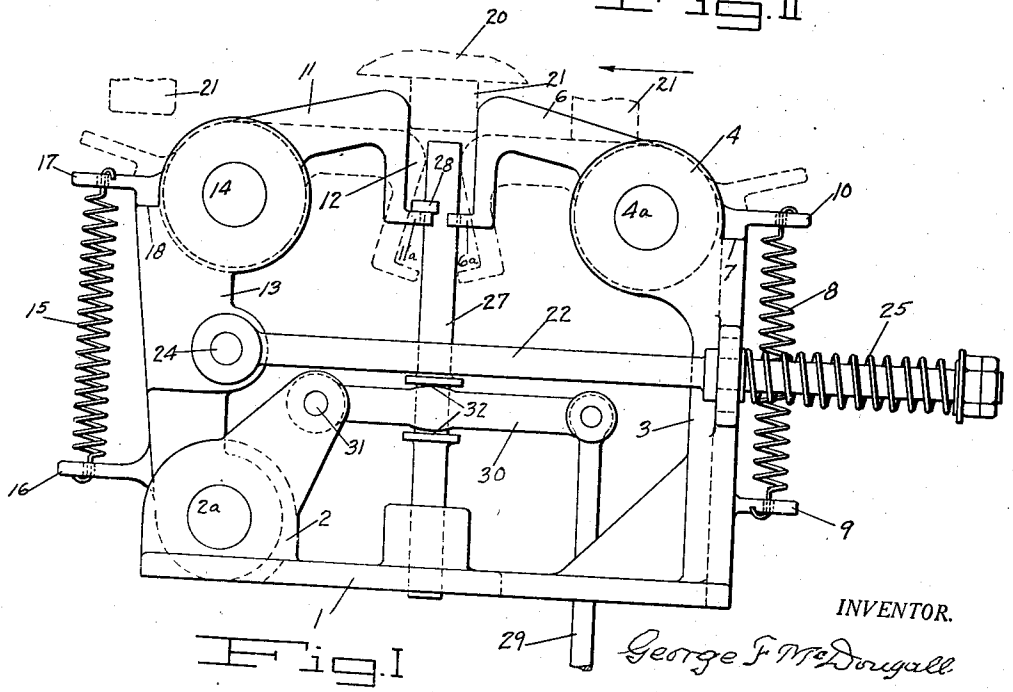


Fig. I

INVENTOR.

George F. McDougall

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UNITED STATES PATENT OFFICE

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SHOCK ABSORBING LATCHING DEVICE

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Application March 9, 1937, Serial No. 129,846

4 Claims. (Cl. 38—63)

This invention relates to latching devices where a heavy piece of equipment is moved under considerable velocity, as in automatic or semi-automatic machinery, to register with another piece of machinery for a second step of a mechanical processing. It was developed for a modification of the garment pressing machine according to the George H. Rawlinson invention, Serial No. 52,366, filed Nov. 30, 1936.

In its application on the press, a plurality of bucks weighing more than 100 pounds each, are moved into and out of pressing relationship with pressing jaws. To get production they must be moved rapidly and be brought to rest in precise registration. This involves a shock absorbing device that will function to stop the heavy moving part by letting it run somewhat too far in overcoming a spring or the equivalent, which spring instantaneously returns it to the position required and holds it accurately in correct position.

The objects of the invention are therefore a latching device in combination with a shock absorber wherein the shock absorber does not impair the accuracy of position of a latched part.

A further object is a structure of the character indicated that is rugged and can be made cheaply without slides, dash-pots and other multiple appliances that increase the cost and impair reliability.

The foregoing and other objects that will be apparent from this specification and the structures and combinations pointed out in the claims, define the invention and its purpose.

I accomplish the objects by the structures illustrated in the accompanying drawing, in which,—

Fig. I is a side elevation of the device, showing certain parts in dotted outline that cooperate with it and indicating both operated and normal position of certain parts;

Fig. II is a top view of Fig. I in orthographic projection; and

Fig. III is a view from the right hand end of Fig. II.

In the drawing, 1 is a base that will be securely attached to a relatively fixed part such as a machine base, 2 and 3 are standards made integral with the base 1.

A pair of lugs, 4 and 5, are made integral with the standard 3 and a similar pair of lugs comprise the standard 2, hence are not designated by a separate indicating numeral.

The lugs are bored for close fitting pins 4*a* and 2*a*, and a jaw 6, provided with a jackknife joint 7, is pivotally connected to the standard 3 by the pin 4*a* and is maintained in the position shown in full lines by the tension spring 8, attached by one end to the lug 9, made integral with the standard 3 and by the other end to the lug 10 made integral with the jaw 6. Action of the spring 8 is limited by the jackknife joint 7.

A jaw that is similar to the jaw 6 is oppositely disposed thereto, designated by the numeral 11 to define a latching space therebetween, indicated by 12.

The jaw 11 is pivoted to the top of a link 13 by the pin 14 and is urged to the position shown in full lines by the spring 15 attached in like manner as the spring 8 to lugs 16 and 17 and serving the same purpose for the jaw 11 as that described for the jaw 6. A jackknife joint 18 is also provided to limit the action of the spring 15.

The link 13 is pivotally connected to the standard 2 by the pin 2*a* and serves also as a movable distance piece to hold the jaws 6 and 11 in the same plane.

A buck carriage is indicated at 20 in dotted outline and moves as indicated by the arrow, Fig. I, and embodies a latch member 21. When the buck carriage 20 moves, the latch 21 will depress the jaw 6 and contact the jaw 11, usually with some violence. Since the point of contact is above the centerline of the pin 14 and the jackknife joint prevents other relative movement, the jaw 11 and the link 13 yield, the latter pivoting on the pin 2*a*, which movement is resisted by the reach-rods 22 and 23, pivotally connected to the link 13 by the pin 24 and transferred by these reach-rods to the compression springs 25 and 26 so that the shock of contact is resiliently transferred to the standard 3.

Lugs 6*a* and 11*a* are made integral with the jaws 6 and 11 and in part span the space 12, being grooved on their opposed faces to accommodate the release rod 27, provided with the lug 28 and which is adapted to be operated by the tension rod 29 which attaches a treadle or the like that is effective to make a selective movement of the beam 30, this beam being pivotally attached at one end by the pin 31 to the standard 2 and having an engaging device such as that shown at 32 so that its movement under the influence of the tension rod 29 is expressed as a vertical movement, in the appropriate direction, of the release rod 27.

When the latch 21 contacts the jaw 6, it will be depressed as shown in dotted outline, without in any manner affecting the jaw 11 which will remain in position in the path of the latch 21.

When it is desired to free the latch 21 that the carriage 20 may move in the direction of the arrow, an appropriate motion of the release rod 27, as heretofore explained, will depress the jaw 11, when the carriage 20 may be moved without resistance.

A number of parts shown have not been designated by reference numerals or described, but their purpose is so obvious from the drawing that this is thought unnecessary.

When the carriage 20 and its latch 21 contact the jaw 11, the latter will yield by causing compression of the springs 25 and 26 and these will reassert themselves immediately to return 21 and the attached carriage to a position central with the space 12, which is predeterminedly placed in the correct position.

Having thus disclosed my invention so that those skilled in the art may be able to construct and use it, what I claim as new and desire to secure by Letters Patent, is,—

1. A latching device comprising a base, one fixed and one pivoted standard normal to the base, two opposing jaws pivotally mounted one on each standard to define a latching space between the jaws, springs and jackknife joints to limit the position of the jaws and resilient shock absorbing means positioned to cushion an impact against the pivoted standard.

2. In a latching device of the character described, a base, fixed and pivoted standards normal to the base, jaws pivotally mounted on the standards and resiliently sustained to engage a movable latch and a shock resisting spring means positioned to absorb impact of a latch against the pivoted standard and restore it to predetermined position upon dissipation of the impact force.

3. A combined latch receiving device and shock absorber comprising a pair of upright standards one of which is rigid and the other pivotally movable, spring sustained jaws pivotally mounted on the standards in position to receive a latch therebetween and resilient means attached to the movable standard effective to yield to absorb shock applied thereto and return the standard to its normal position.

4. A latching device that embodies a shock absorber, including a pair of spring sustained depressible latching jaws adapted to automatically engage a latch, and supports to which said jaws are pivoted, characterized by one of said supports being pivotally mounted on supporting means and spring sustained to resiliently absorb shock applied to the jaw mounted thereon.

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