Oct. 30, 1928. 1,689,744

J. NEUROTH

PRESSING MACHINE OPERATING MECHANISM

Filed June 30, 1926

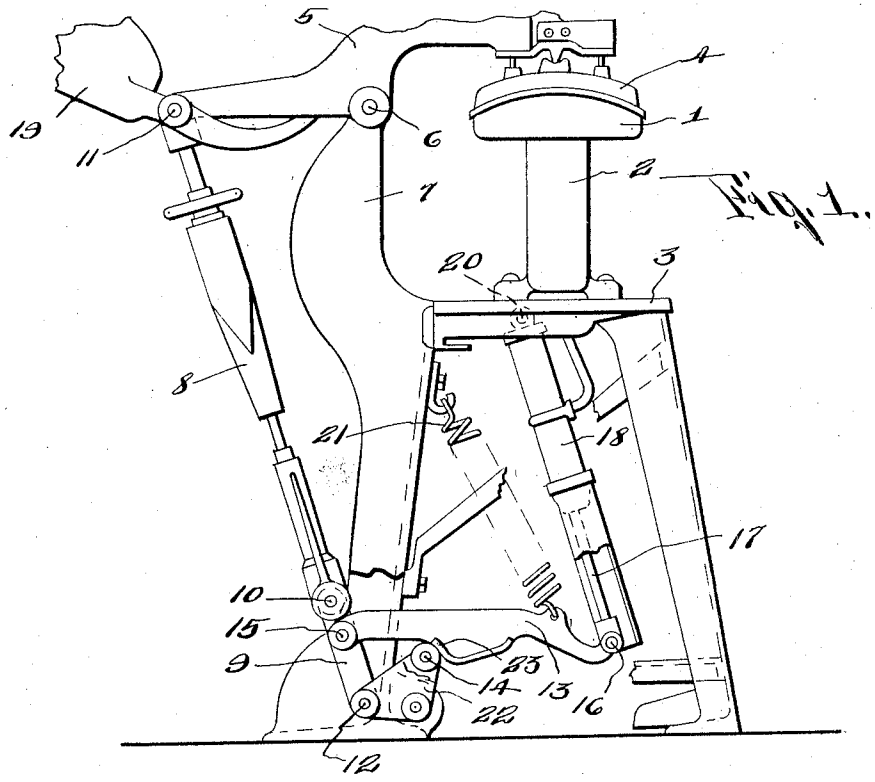


Fig. 1.

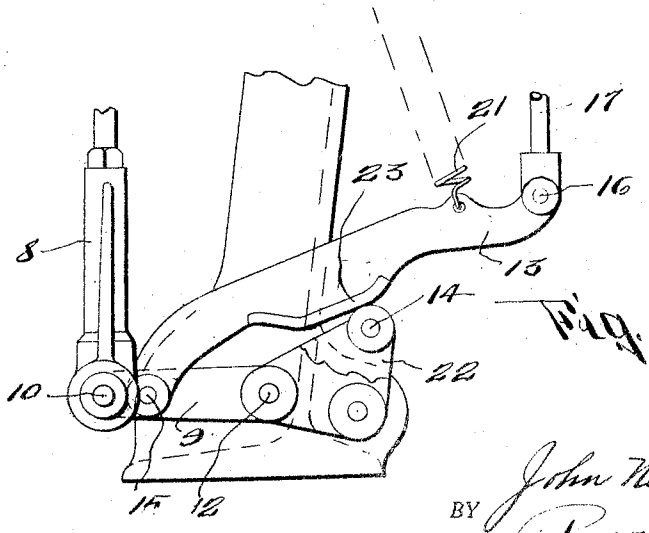


Fig. 2.

INVENTOR.

BY John Neuroth

Parmus & Bodell.

ATTORNEYS.

Patented Oct. 30, 1928. 1,689,744

UNITED STATES PATENT OFFICE.

JOHN NEUROTH, OF SYRACUSE, NEW YORK, ASSIGNOR TO THE PROSPERITY COMPANY INC., OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK.

PRESSING-MACHINE-OPERATING MECHANISM.

Application filed June 30, 1926. Serial No. 119,730.

This invention has for its object a particularly simple, compact and efficient motion transmitting mechanism especially applicable for first effecting a relatively great movement of the part to which the power is to be applied upon a small movement of the actuator and finally applying heavy pressure through a small movement of the part to which the power is applied but upon a relatively great movement of the actuator.

The mechanism is particularly adapted for pressing machines such as are used in laundries and garment factories to effect a quick closing of the press head and a heavy final pressure between the press head and the buck.

The invention consists in the novel features and in the combinations and constructions hereinafter set forth and claimed.

In describing this invention, reference is had to the accompanying drawing in which like characters designate corresponding parts in all the views.

Figure 1 is a side elevation partly broken away of a pressing machine to which this motion transmitting mechanism is applicable.

Figure 2 is an enlarged detail view of the lever forming the subject matter of this invention, and contiguous parts.

This motion transmitting mechanism comprises, generally, an intermediate lever fulcrumed between its ends and connected at one end to the part to which motion is to be transmitted and at its other end to an actuator, and means for positively shifting the lever on its pivot during rocking of the lever, this means being self contained with the lever.

This motion transmitting mechanism is here shown as applied to a pressing machine of the usual well known construction including cooperating pressing elements, one of which is movable toward and from the other, as a buck 1, mounted on a bracket 2 which in turn is mounted upon a frame 3, and a head 4 movable toward and from the buck 1 and carried by a yoke or lever 5 pivoted at 6 between its ends to a standard 7 rising from the frame. The head 4 or the yoke lever 5 is usually actuated through a toggle consisting of links 8, 9 pivoted together at 10, the link 8 being pivoted at its upper end at 11 to the rear arm of the yoke lever 5, and the link 9 being pivoted at its lower or outer end at 12 to the frame. Straightening the toggle from open position first closes the press or the head 4 down toward the buck 1 and the final straightening movement of the toggle, which effects but very little movement of the head 4, applies heavy pressure.

13 designates the intermediate lever of this motion transmitting mechanism, this lever being fulcrumed at 14 between its ends to the frame and pivoted at 15 at the rear end to the toggle or one of the links thereof. The lever 13 is pivoted at 16 at its front end to a reciprocally movable actuator as a piston rod 17, the piston of which works in a cylinder 18. In order that the power may be most effectively applied, this cylinder 18 and piston rod 17 are in parallelism to the toggle, particularly the link 8 thereof. The cylinder 18 is pivoted at 20 to the frame and swings on its pivot substantially maintaining such parallelism as the head 4 moves down onto the buck 1. The cylinder 18 is usually single acting and the flow of motive fluid as air or steam is controlled to and from the cylinder in any suitable manner, and as the control of such fluid forms no part of this invention, further description is thought to be unnecessary. The cylinder being single acting, a suitable counter-weight 19 and a counter-spring 21 are employed to open the press head.

During the closing of the press from wide open position, the toggles 8, 9 move toward straightened position and in so doing, the head 4 comes down onto the buck 1 without pressure. Thereafter, while the toggle is moving into or nearly into its dead center line, the pressure is applied. A relatively small movement of the piston rod 17 effects the closing of the press head and a relatively large movement of the piston rod 17 effects the straightening of the toggle through a small arc and hence the applying of heavy pressure to the head 4. This result is accomplished by the endwise movement of the lever 13.

The endwise movement is brought about by means as a cam self-contained with the lever 13 and coacting with the fulcrum 14 thereof. The fulcrum is usually a roller suitably carried by a bracket 22 fixed to the frame 1. The cam is a wedge 23 arranged to come into action when the toggle has been nearly but not quite straightened. Obviously, during rocking of the lever 13, the toggle will move toward straightened position and in so doing, the lever will be shifted endwise on its fulcrum, this endwise movement being effected by the movement of the toggle. Now, in order to finally straighten the toggle, the lever 13 must act

as a pull link. When the toggle has been preliminarily moved toward its straightened position, the cam or wedge 23 is brought into operative relation to the fulcrum 14 so that continued rocking movement of the lever 13 by the piston rod 17 causes the cam 23 to ride on the fulcrum 14 and positively pull the link endwise and hence positively straighten the toggle to apply pressure to the head 4.

What I claim is:

1. The combination with a pressing machine comprising a frame, cooperating pressing elements supported by the frame and one being movable toward and from the other, means for actuating the movable pressing element including a lever carrying the movable pressing element, a toggle including links pivoted together, one being pivoted at its outer end to said lever and the other being pivoted at its outer end to the frame, a reciprocally movable actuator connected to the frame and arranged in substantial parallelism to the upper link of the toggle, an intermediate lever fulcrumed between its ends on the frame, one arm thereof being connected to the toggle and the other to the actuator, and means whereby the lever may have an endwise shifting movement relatively to the fulcrum point.

2. The combination with a pressing machine comprising a frame, cooperating pressing elements supported by the frame and one being movable toward and from the other, means for actuating the movable pressing element including a lever carrying the movable pressing element, a toggle including links pivoted together, one being pivoted at its outer end to said lever and the other being pivoted at its outer end to the frame, a reciprocally movable actuator connected to the frame and arranged in substantial parallelism with the upper link of the toggle when the toggle is in straightened position, an intermediate lever fulcrumed between its ends on the frame, one arm thereof being connected to the toggle and the other to the actuator, and means on the lever for shifting the lever relatively to its fulcrum during the straightening of the toggle.

3. The combination with a pressing machine comprising a frame, cooperating pressing elements, one mounted on the frame and one being movable toward and from the other, means for actuating the movable pressing element including a lever carrying the movable pressing element and pivoted to the frame, a toggle including links pivoted together, one being pivoted at its outer end to said lever and the other being pivoted at its outer end to the frame, a reciprocally movable actuator connected to the frame and arranged in substantial parallelism to the link pivoted to the first lever, an intermediate lever fulcrumed between its ends on the frame, one arm thereof being connected to the toggle and the other to the actuator, and means on the lever for positively shifting it transversely of its fulcrum during the straightening of the toggle, said means comprising a cam surface on the lever coacting with the fulcrum.

4. The combination with a pressing machine comprising coacting pressing elements having relative movement one toward and from the other, of means for actuating the movable pressing element including a lever fulcrumed between its ends, means on the lever for moving it endwise transversely of its fulcrum point during the rocking movement of the lever, actuating means coacting with one arm of the lever and motion transmitting means between the other arm of the lever and the movable pressing element the actuating means including a part connected to one end of the lever and movable downwardly and forwardly during the closing of the press and the motion transmitting means including a part connected to the other end of the lever and movable upwardly and forwardly during the closing of the press.

5. The combination with a pressing machine comprising coacting pressing elements, one of which is movable toward and from the other, of means for actuating the movable pressing element comprising a lever fulcrumed between its ends, the lever having a cam surface at one side of its fulcrum for positively moving the lever endwise during the rocking movement of the lever on its fulcrum, actuating means connected to one arm of the lever and motion transmitting means between the other arm of the lever and the movable pressing element the actuating means including a part connected to one end of the lever and movable downwardly and forwardly during the closing of the press and the motion transmitting means including a part connected to the other end of the lever and movable upwardly and forwardly during the closing of the press.

6. The combination with a pressing machine comprising coacting pressing elements, one of which is movable toward and from the other, of means for actuating the movable pressing element including a lever, motion transmitting parts connected to one end of the lever and to the movable pressing element and acting to thrust the lever endwise and movable upwardly and forwardly during the closing of the press and an actuating part connected to the other end of the lever and movable downwardly and forwardly during the closing of the press, means self-contained with the lever and coacting with the fulcrum thereof for positively moving the lever endwise and thereby actuating said motion transmitting parts by such endwise movement of the lever.

7. The combination with a pressing machine comprising coacting pressing elements,

one of which is movable toward and from the other, of means for actuating the movable pressing element including a lever fulcrumed between its ends and a part connected to the forward end of the lever and movable downwardly and forwardly during the closing of the press, motion transmitting parts connected to the rear end of the lever and to the movable pressing element and movable upwardly and forwardly during the closing of the press, the lever having a cam surface coacting with its fulcrum and acting to positively move the lever endwise to apply force to said part and actuating means connected to the other arm of the lever.

8. The combination with a pressing machine comprising coacting pressing elements, one of which is movable toward and from the other, of means for actuating the movable pressing element including toggle links one of which is connected to the movable pressing element, a reciprocally movable actuator, a lever fulcrumed between its ends and connected at one end to the toggle and at its other end to the actuator, the lever having means self-contained therewith to shift it endwise transversely of its fulcrum as the toggle moves towards straightened position the toggle links being movable upwardly and forwardly during the closing of the press and the actuator downwardly and forwardly during the closing of the press.

9. The combination with a pressing machine comprising coacting pressing elements, one of which is movable toward and from the other, of means for actuating the movable pressing element including toggle links, one of which is connected to the movable pressing element, a reciprocally movable actuator, a lever fulcrumed between its ends and connected at one end to the toggle and at its other end to the actuator, the lever having means self-contained therewith to shift it endwise transversely of its fulcrum as the toggle moves towards straightened position, said self-contained means comprising a cam on the lever and coacting with the fulcrum the toggle links being movable upwardly and forwardly into straightened position during the closing of the press and the actuator being movable downwardly and forwardly during the closing of the press.

In testimony whereof, I have hereunto signed my name, at Syracuse, in the county of Onondaga and in the State of New York, this 2nd day of June, 1926.

JOHN NEUROTH.