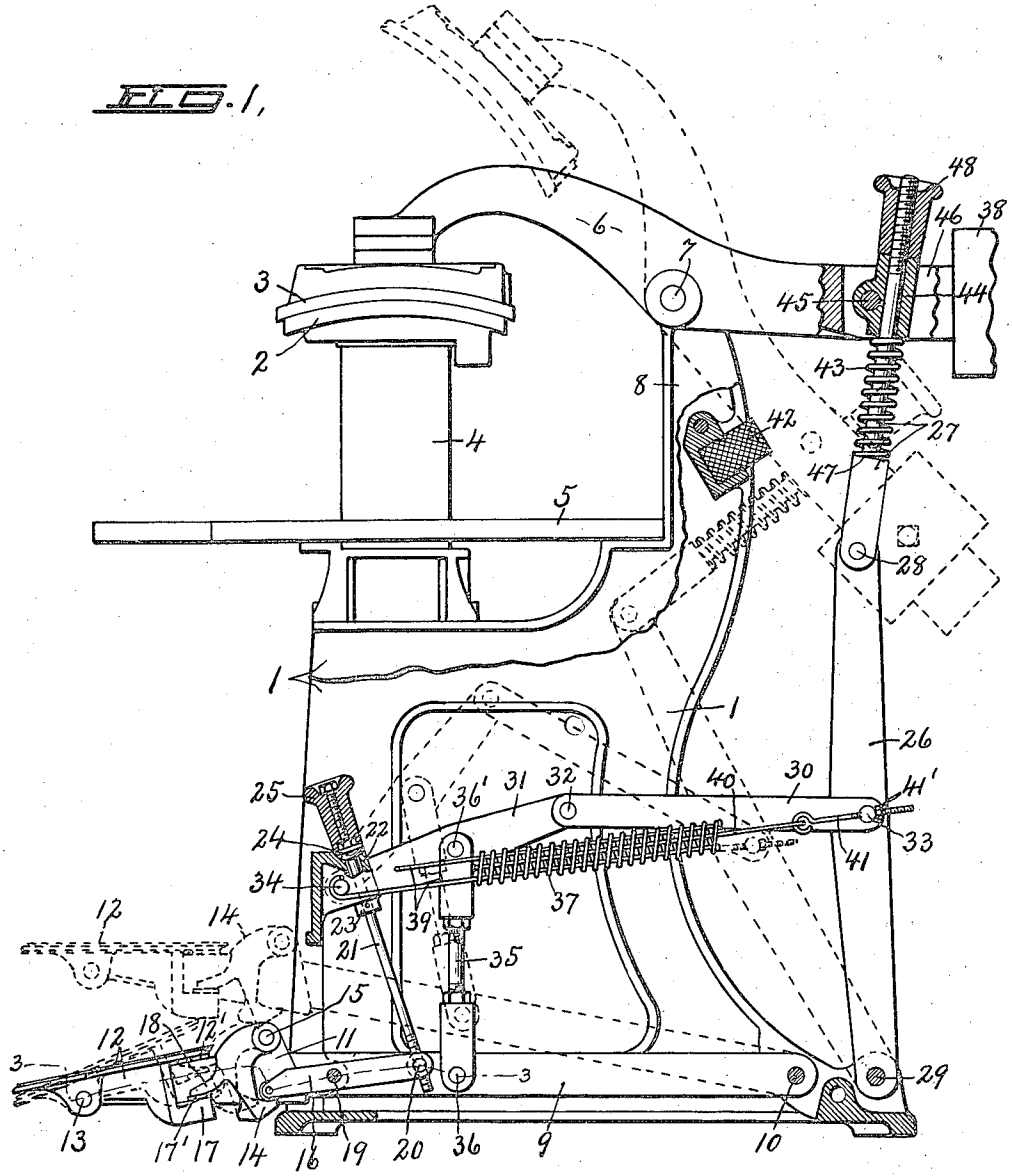
May 28, 1929. R. J. BEEDE 1,715,115

GARMENT PRESSING MACHINE

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FIG. 1.



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Fig. 2.

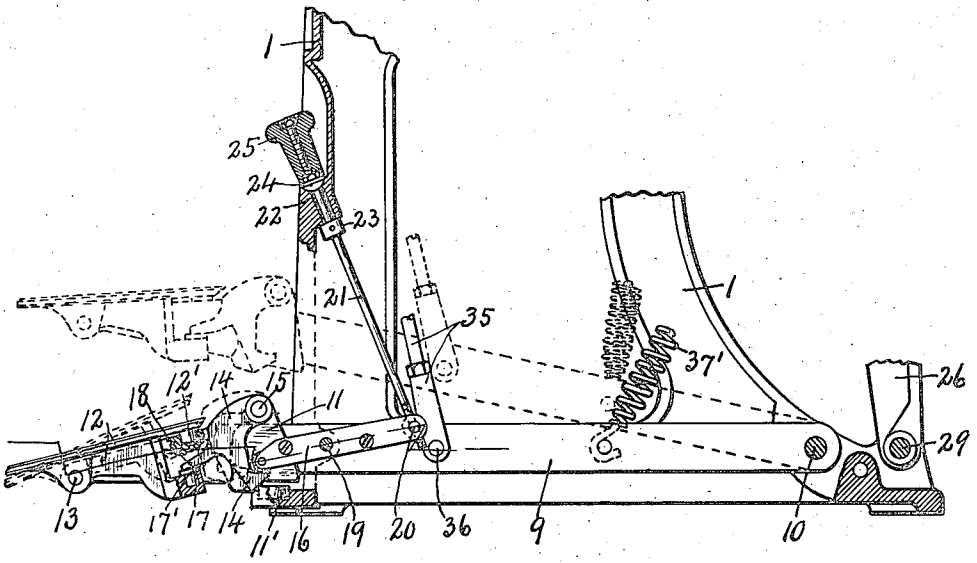
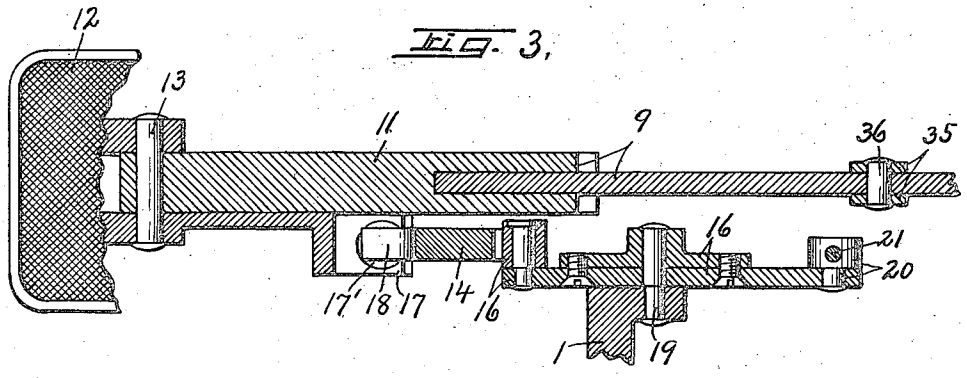


Fig. 3.



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UNITED STATES PATENT OFFICE.

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GARMENT-PRESSING MACHINE.

Application filed January 11, 1927. Serial No. 160,401.

This invention relates to a garment pressing machine adapted to be used in tailoring, dry cleaning, laundrying, clothing manufacturing and other establishments for steaming, sterilizing, shaping and drying garments in practically one operation or setting, and refers more particularly to the actuating and controlling means for the movable pressing element.

In machines of this character the upper pressing element, commonly known as the head, is hinged upon the main supporting frame to swing vertically about an axis parallel with and some distance to the rear of the longitudinal center of the lower pressing element or buck and is preferably operated and controlled by a system of toggle levers and links including a pedal lever and means for locking and releasing the pedal in and from its pressing position.

One of the specific objects is to provide the pedal lever with an operating pedal having an independent relative movement for tripping the locking means and thereby releasing the lever and parts actuated thereby from their pressing positions.

Another object is to provide means operable at will for adjusting one of the locking members relatively to its companion member for varying the locking position of the lever.

A further object is to provide resilient means, preferably in the form of a compression spring, adapted to be placed under compression only as the pedal lever approaches the end of its pressure stroke so that it may effect a quick retraction of the press head and its operating means immediately following the tripping of the locking means.

Other objects and uses relating to specific parts of the machine will be brought out in the following description.

In the drawings:—

Figure 1 is a side elevation, partly in section, of a garment pressing machine embodying the various features of the invention.

Figure 2 is a side elevation, partly in section, of the pedal lever and its locking and releasing mechanism with a modified retracting spring of the tension type.

Figure 3 is a detail horizontal sectional view taken in the plane of line 3—3, Figure 1, showing the pedal lever and the locking and releasing means therefor.

As illustrated, this machine comprises a main supporting frame —1— of any suitable form, size or material adapted to rest upon a floor or other foundation for receiving and supporting cooperative pressing elements —2— and —3—, together with other parts of the machine, in operative position most convenient for carrying out the objects stated.

The lower pressing element or buck —2— is preferably mounted in a substantially horizontal position upon the top of a bracket —4— which in turn is secured to the horizontal upper front portion of the frame —1—.

A shelf or table —5— is also mounted in a horizontal position upon the front portion of the frame in a plane some distance below the buck —2— to afford ample space around the buck for the manipulation of garments thereon preparatory to pressing.

The upper pressing element —3— is mounted upon the front end of a vertically movable rock arm —6— which is fulcrumed or pivoted intermediate its ends, at —7—, to an upwardly extending bracket —8— on the rear portion of the frame —1— to swing about a horizontal axis parallel with and some distance to the rear of the longitudinal center of the buck —2— for moving the press head into and out of pressing co-action with the buck, the bracket —8— and fulcrum —7— being disposed some distance to the rear of the buck to leave ample space for the manipulation of the garments around and upon the buck.

Head actuating mechanism.

The means for operating and controlling the operation of the rock arm —6— for moving the press head —3— into and out of pressing co-action with the buck —2— comprises a pedal lever —9— mounted in the base of the frame —1— to extend forwardly and rearwardly and having its rear end fulcrumed or pivoted at —10— to the lower rear portion of the frame and its front end extended forwardly some distance beyond the frame and provided with a pedal-supporting block —11— preferably of cast metal rigidly secured thereto by any suitable fastening means.

A lever-operating pedal —12— is pivoted or otherwise fulcrumed at —13— intermediate its ends to the front end of the block —11— for independent vertical rocking movement relatively thereto about an axis preferably parallel to the axis of movement of said lever for a purpose presently described.

The fulcrum —13— is preferably located forwardly of the center of gravity of the pedal —12— to cause the rear end thereof to automatically gravitate downwardly until limited by its engagement with the underlying portion of the block —11— as shown more clearly in Figure 1 but it is to be understood that this excess weight at the rear of the pivot may be easily overcome by slight downward pressure upon the front end of the pedal.

Lever lock and release.

Suitable means is provided for automatically locking and releasing the lever —9— in and from its pressing position and for this purpose is provided a gravity pawl or detent —14— which is pivoted at —15— to the upper rear portion of the block —11— at the rear of the pedal —12— to permit its lower end to swing into and out of engagement with a cooperative keeper —16—.

That is, the pawl —14— is suspended from the pivot —15— and is provided at its lower end with a hook-shaped shoulder having its lower face beveled rearwardly so as to automatically travel across the adjacent end face of the keeper —16— to interlock therewith when the lever is depressed by pressure upon the pedal —12— at the rear of its pivot —13—, the normal center of gravity of the pawl —14— being forward of the vertical plane of its axis of movement so as to assure its automatic engagement with the keeper —16— by its own weight.

The means for releasing the pawl —14— comprises a ledge extension —17— on the lower rear portion of the pedal —12— to extend laterally therefrom directly beneath a forwardly extending projection —18— on the pawl —14— so that when the pawl is in interlocking engagement with its keeper —16— the depression of the front end of the pedal lever —12— and resultant elevation of its rear end will cause the ledge —17— to engage the projection —18— and thereby withdraw the pawl —14— from said keeper to release the pedal from its locked position.

The upper rear end of the pedal —12— and the extension —18— of the pawl —14— are adapted to engage resilient buffers —12'— and —17'— respectively to reduce the shock and noise incidental to their operation.

Motion is transmitted from the lever —9— to the rock arm —6— through the medium of suitable toggles and links in such manner that the depression of the front end of the lever will effect a corresponding movement of the press head —3— into pressing co-action with the buck —2— while the reverse movement of the pedal lever will produce a corresponding reverse or lifting movement of the press head upwardly and rearwardly away from the buck.

Under these conditions it is desirable to provide means whereby the press head and its operating means may be locked in different pressing positions according to varying thicknesses of work operated upon and for this purpose the keeper —16— is pivoted or fulcrumed intermediate its ends at —19— upon the frame —1— to swing about an axis parallel with the axis of movement of the pawl —14—, said keeper being located at the rear of the lower end of the pawl and has its rear end provided with a pivoted stud —20— having a threaded aperture therethrough adapted to be engaged by the lower threaded end of an adjusting rod —21— which extends upwardly and forwardly through a journal-bearing —22— on the adjacent front portion of the frame —1— as shown in Figure 1.

The rod —21— is free to rotate in the journal-bearing —22— but is held against endwise movement by suitable collars —23— and —24— engaging the lower and upper faces respectively of the bearing —22—.

The upper end of the rod —21— is provided with a hand wheel —25— by which it may be rotated for adjusting the keeper —16— vertically relatively to the pawl —14— and thereby to enable the lever —19— and parts actuated thereby to be locked in different pressing positions.

The rear end of the rock arm —6— is operatively connected to the lower rear portion of the base of the frame —1— by a suitable mechanism including a toggle which comprises lower and upper members —26— and —27— pivotally connected to each other at —28— to form a flexing joint adapted to flex forwardly as the press head is opened, the lower end of the toggle member —26— being pivotally fulcrumed at —29— to the base of the frame —1— at the rear of the pedal-lever pivot —10— and preferably directly below the rear end of the rock arm —6— as shown in Figure 1.

The central portion of the toggle member —26— is operatively connected to the front portion of the frame —1— by means of a forwardly and rearwardly extending toggle composed of members —30— and —31— which are pivotally connected to each other at —32— to form a flexing joint.

The rear end of the member —30— is pivotally connected at —33— to the intermediate portion of the upright toggle member —26— while the front end of the toggle

member —31— is pivotally connected at —34— to the front portion of the frame —1— some distance above the pedal lever —9— and below the table —5— sufficient to allow the toggle joint —32— to flex upwardly when the press head and its operating mechanism are released from their locking positions.

Suitable means is provided for transmitting motion from the pedal lever —9— to the front toggle member —31—, said means consisting, in this instance, of a longitudinally adjustable link —35— having its lower end pivoted at —36— to the central portion of the pedal lever —9— just at the rear of the keeper —16— and its upper end pivotally connected at —36'— to the central portion of the toggle member —31— so that when the press head and its operating mechanism are forced to their pressing positions the link —35— will assume a substantially vertical position while both toggles will assume nearly a straightened position thus permitting the press head to be brought into pressing co-action with the buck with a relatively high degree of pressure by the application of a relatively low degree of power or pressure upon the pedal.

It will be noted that during the final closing of the press head the motive forces applied to the toggle levers —26— and —31— will be substantially normal or at right angles to direct lines between opposite ends of their respective toggles and approximately normal to direct lines between the fulcrums and flexing joints of said toggles for the purpose of producing a maximum final pressure with the application of minimum power or pressure upon the pedal lever —9—.

As previously stated, neither of the toggles are permitted to assume a straightened position when the movable pressing element and its operating means are forced to their extreme pressing positions as regulated by the adjustment of the link —35— and also by contact of the front end of the pedal lever with a buffer —11'— on the underlying portion of the base of the frame, the object of which is to permit the press head and its operating mechanism to automatically return to their open positions when the locking member —14— is released from locking engagement with its keeper —16—.

This return or retracting movement of the press head and its operating means is effected partially by one or more relatively light compression springs —37— and a counter-weight —38— which latter is mounted upon the rear end of the rock arm —6— as shown in Figure 1.

The compression spring —37— extends forwardly and rearwardly across the toggle joint —32— and has its rear end connected by a link —39— to the front pivotal pin —34— while its front end is connected by a link —40— to an eye bolt —41— having its threaded end passed through an aperture in the pivotal pin —33— and engaged by a nut —41'— for adjusting the tension of the spring.

The spring is adjusted so as to be brought under compression only when the press head and its operating means approach the limit of their pressing positions whereby when the pedal lever and its operating means will be instantly started on their return movements aided by the counter-weight —38— which is just sufficient to overbalance the weight of the press head and serves to complete the return movement of said press head and its operating mechanism to their extreme open positions, said opening movements being limited by the engagement of the rear end of the rock arm —6— with a resilient buffer —42— on the upper rear portion of the frame —1— as shown in Figure 2.

It is evident, however, that the pedal lever —9— and parts operated thereby may be retracted from their pressing positions by one or more tension springs as —37'—, Figure 2, if desired.

A hub or yoke —44— is eccentrically pivoted at —45— to and between opposite walls of a slot —46— in the rear end of the rock-arm —6— and is provided with a guide opening therethrough for receiving the upper end of the toggle member —27— which is free to slide endwise therein against and with the action of the spring —43—.

This spring —43— is interposed between the underside of the lower end of the yoke —44— and a shoulder —47— on the member —27— to compensate for varying degrees of closing movement of the press head upon work of different thicknesses.

The upper end of the member —27— is threaded and engaged by a hand nut —48— which engages the upper end of the yoke —44— and serves to vary the tension of the spring —43— and also to adjust the press head relatively to the buck, and further to regulate the flexion of the toggle joint —28— toward a straightened position.

Operation.

Assuming that the press head and its operating means are in their open positions as shown by dotted lines in Figure 1, the garment or portion thereof to be pressed is spread out upon the upper surface of the buck —2— after which the pedal lever —9— is depressed by pressure of the foot of the operator upon the pedal —12— for moving both toggles toward straightened positions and causing a corresponding closing movement of the press head into pressing co-action with the buck.

As the press head and its operating means approach the limit of their pressure stroke

the springs —37— will be placed under more or less compression according to the adjustment of the eye bolts —41— so that the gradually increasing resistance of the springs is more than counter-acted by the gradually increasing power of application of the pressure as the toggles approach straightened positions.

The toggles are adjusted through the medium of the nut so that their members will be disposed at an angle to each other when the pressing elements are brought into pressing coaction upon an interposed garment of approximately pre-determined thickness but in case the article operated upon or any portions thereof shall be excessively thick the resultant restrained movement of the press head would be compensated by the resilient connections between the toggle member —27— and rear end of the rock arm —6— by reason of the lifting action of the toggle member —27— upon the yoke —44— against the action of the spring —43—.

This coiled spring —43— also serves as a buffer to relieve the shock upon the press head and its operating means when limited by its pressing co-action with the buck.

When the pressing operation is completed a slight pressure of the heel of the operator upon the pedal —12— in front of its pivot —13— will cause the ledge —17— on the rear end of the pedal to trip the locking pawl —14— out of engagement with its keeper —16— whereupon the previously compressed spring —37— will effect a simultaneous flexing of both toggles in the direction indicated by the dotted lines for instantly opening the press head which continues its opening movement by the counter-weight —38—.

It will also be noted that if the coiled spring —43— is placed under tension by the closing of the press head it will then assist in effecting the flexing of the toggles as soon as the locking pawl —14— is tripped.

If the thickness of the articles to be operated upon varies to any considerable extent it may be compensated for by the adjustment of the keeper —16— through the medium of its adjusting rod —21—.

It is also evident that the relation of the toggle members —30— and —31— and the angle of flexion of the toggle joint of said members toward a straightened position may be regulated by the longitudinal adjustment of the link —35— which is preferably made in the form of a turn-buckle.

It is common practice in machines of this character when the press head is moved to approximately its pressing position to vibrate the press head into and out of engagement with the garment for effecting the desired shaping thereof and this vibratory action is accomplished by intermittent pressure of the foot upon the pedal —12— mainly at the front of the pivot —13— during which the pawl —14— will be held out of engagement with its keeper —16—.

This intermittent foot pressure upon the pedal for vibrating the press head requires but little power due to the approach of both toggles toward their straightened positions at which time the resultant pressure of the press head upon the garment is greatest.

The construction described is particularly simple and highly efficient in carrying out the objects stated but obviously may be modified in some of its detail without departing from the spirit of this invention.

What I claim is:—

1. In a garment pressing machine having a movable pressing element and a supporting frame therefor, means including a pedal lever for moving the pressing element to its pressing position, a locking lever pivotally mounted upon the frame to extend forwardly and rearwardly from its pivot, means operatively connected to the rear end of the locking lever for adjusting the same about its pivot and holding it in its adjusted position, a detent pivoted to the pedal lever to automatically swing into locking engagement with the front end of the locking lever when the pedal lever is depressed to its pressing position, a pedal pivoted to the lever to extend in opposite directions from its pivot and adapted to be operated in reverse directions by engagement of the foot therewith at opposite sides of its pivot, means on the pedal for engaging and depressing the pedal lever when the pedal is rocked in one direction, and additional means on the pedal for engaging and tripping the detent from its locking position when rocked in the reverse direction.

2. In a garment pressing machine having a movable pressing element and a supporting frame therefor, a pedal-operated lever fulcrumed on the frame to move vertically, and means actuated by the depression of the lever for forcing said pressing element to its pressing position, in combination with means for automatically locking the lever in its depressed position, and a pedal pivoted to said lever to extend in opposite directions from its pivot for vertical rocking movement and adapted to be operated in reverse directions by engagement of the operator's foot therewith at opposite sides of its pivot, said pedal having means for engaging and depressing the lever as the pedal is rocked in one direction, and with additional means for releasing said locking means as the rocking movement of the pedal is reversed.

In witness whereof I have hereunto set my hand this fifth day of January, 1927.

ROBERT JENKS BEEDE.