Feb. 16, 1937. E. D. MEYER 2,070,996

PRESSING MACHINE

Filed Jan. 14, 1935 2 Sheets-Sheet 1

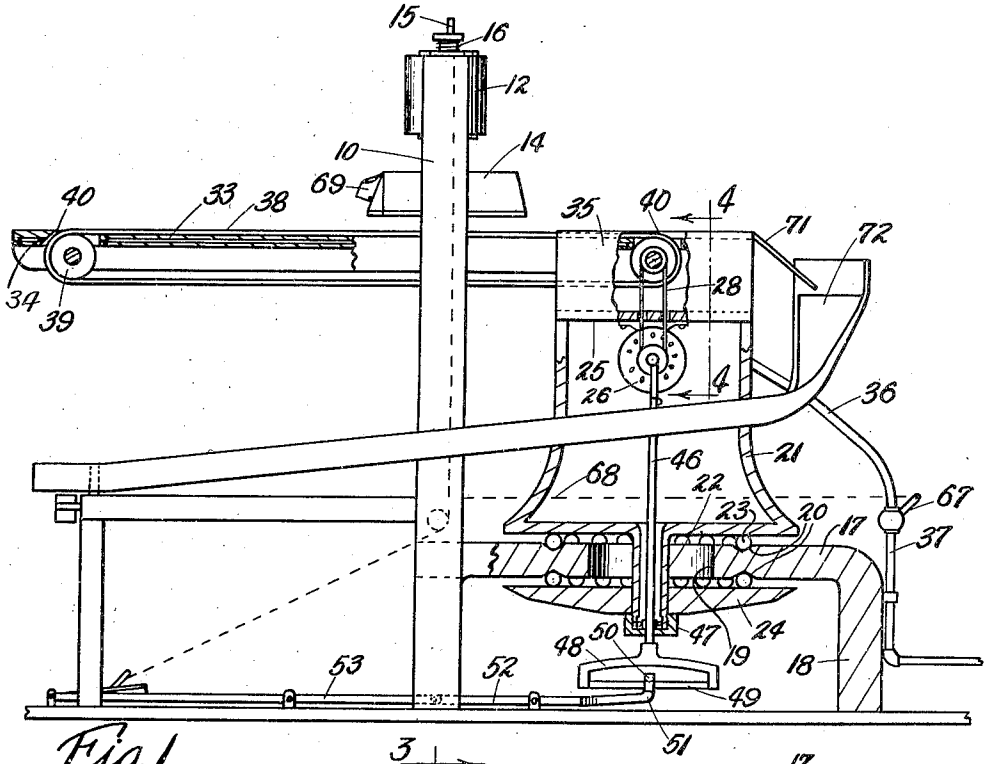


Fig. 1

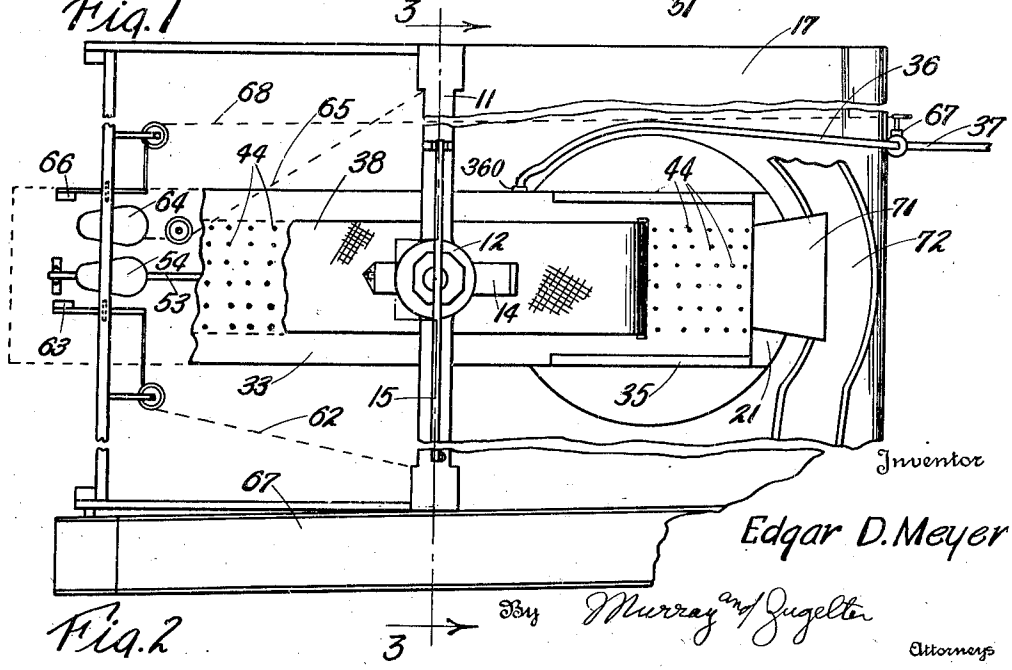


Fig. 2

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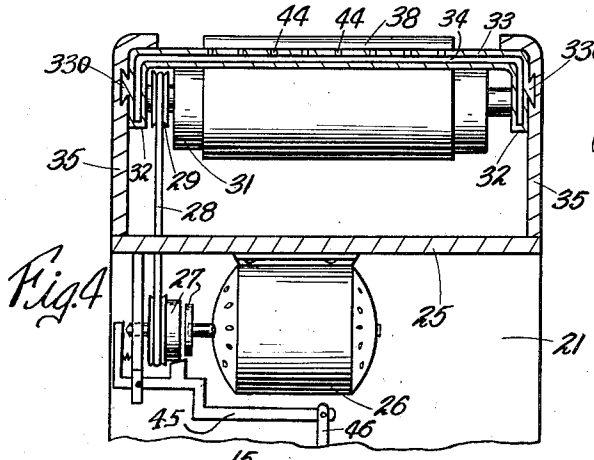


Fig. 4

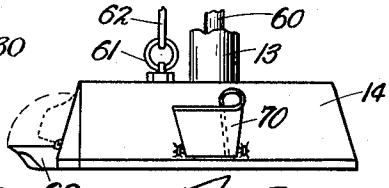


Fig. 5

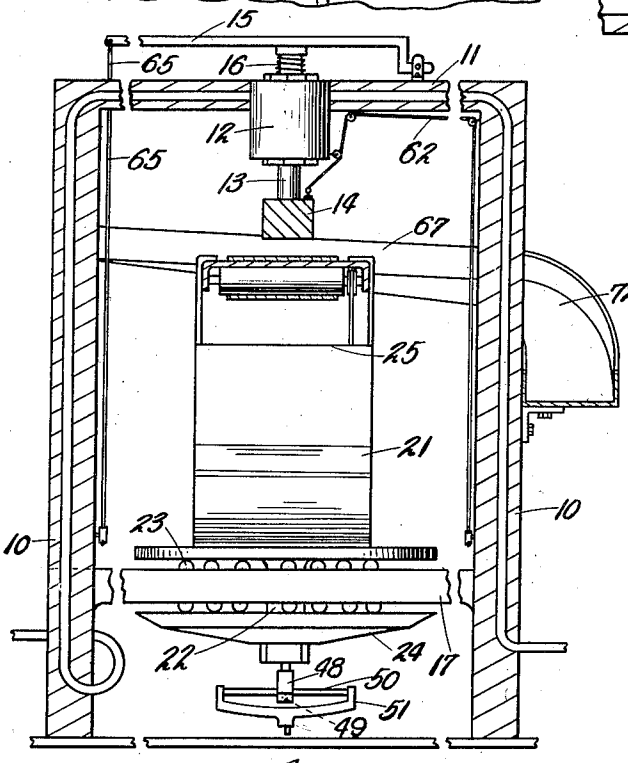


Fig. 3

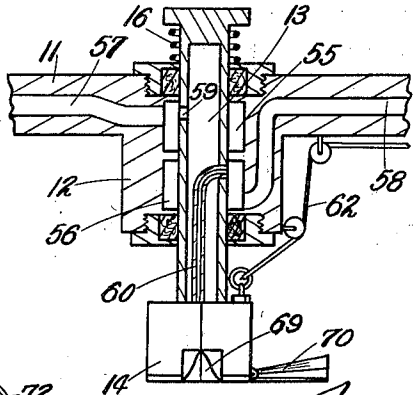


Fig. 6

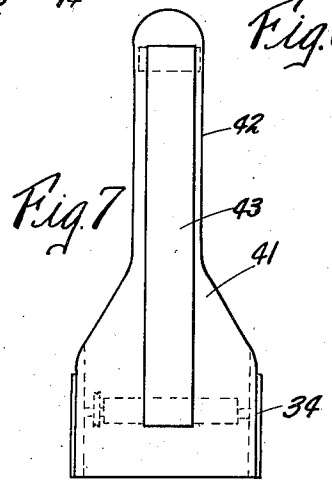


Fig. 7

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UNITED STATES PATENT OFFICE

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PRESSING MACHINE

Edgar D. Meyer, Cincinnati, Ohio

Application January 14, 1935, Serial No. 1,611

11 Claims. (Cl. 38—10)

The present invention relates to pressing equipment and particularly to a device that is adapted for any and all under-pressing operations employed in the construction of garments and other cloth and fabric articles which require seam pressing, forming or flat pressing of small parts, and has for an object the provision of means whereby both simple and difficult pressing operations incident to such work may be accomplished in a minimum of time and with a maximum of facility.

Another object of the present invention is to provide pressing apparatus for the purposes stated whereby a controllable power feed for moving the material relative to the pressing member is capable of substantially universal shifting and turning relative to the iron to enable the heretofore difficult and laborious shrinking and stretching operations in forming the garment to be effected with speed and ease.

Another object of the invention is to provide a device of this type that is readily adaptable to the use of interchangeable bucks or pressing tables so that all manner of garment parts in the process of fabrication may be handled expeditiously as to the under-pressing operations. Other objects of the invention are to provide in an apparatus of this character readily controlled means for dampening the material operated upon, seam opening means, edge folding means, a means whereby material operated upon may be returned to a point within convenient reach of the operator for disposal or subsequent pressing operations.

These and other objects are attained by the means herein described and disclosed in the accompanying drawings in which:

Fig. 1 is a side elevational view partly in cross section showing one form of the device of the invention.

Fig. 2 is a fragmental top plan view of the device shown in Fig. 1.

Fig. 3 is a view taken on 3—3 of Fig. 2.

Fig. 4 is an enlarged cross sectional view showing the driving mechanism and conveyor forming a detail of the invention.

Fig. 5 is a side elevational view of the pressing element with the seam opening member in operative position, and a cloth folder in inoperative position.

Fig. 6 is a front view of the pressing element also showing the operative mounting thereof in the device of the invention.

Fig. 7 is a top plan view of an interchangeable buck forming a detail of the invention.

Heretofore, in practice, under-pressing operations have been performed rather slowly and laboriously as hand operations, particularly in the construction of well-made garments because no practical means has been available to enable the skilled operator to properly shrink and stretch the moistened cloth with the hands while manipulating the usual heavy pressing iron. It has been heretofore proposed that seams may be opened and flat-pressed through the agency of controlled power means, but such means have met with little success because such machines are entirely unadapted to molding and forming the garment parts and to many other operations.

With the device of the present invention the operator is enabled to sit before the apparatus and control the pressure application and power feed with the feet and the dampening and suction means with leg controls, leaving the hands free for manipulating and guiding the cloth relative to the pressing member.

To this end there is provided a depressible depending pressing member which is provided with means to steam heat it and discharge steam from it for dampening the cloth, and a work table or buck universally shiftable in a plane below the iron. Said buck carries a movable belt on which the cloth rests as it passes beneath the pressing member. A controlled motor driven means is provided for operating said belt and suction means is further provided to draw away the excess vapors and moisture from the cloth during and after movement beneath the pressing element. The buck or pressing table is removably connected with a universally shiftable pedestal member which carries the driving motor and controls so that the hard and tedious labor heretofore required is largely obviated in practice.

The under-pressing operations in the manufacture of garments entail many pressing operations, including the opening of seams, the molding, i. e. the dampening, shrinking, stretching, pressing and drying of the cloth to impart form and curves to the garment parts and also numerous flat pressing and/or edge folding and pressing operations incident to the preparation of flaps, belts, cuffs, etc., before assembling them in the garment body.

Referring now to the drawings the device comprises a relatively heavy base frame having widely-spaced uprights 10, connected by a cross member 11 in which a central hub 12 is formed for reciprocably mounting the stem 13 which carries the pressing member or iron 14. A pedal-controlled lever 15 serves to depress the iron or pressing member 14 against the resistance of a spring 16 which normally lifts the pressing member as-

sembly to an inoperative position. A heavy structural web 17 is connected at its opposite forward sides with the uprights 10 and carries depending foot or leg 18 at its rear thus forming with the uprights a heavy standard preferably with a three-point support which forms a stable mounting base for the entire structure. The web 17 has an aperture 19 preferably of circular form and this is surrounded on its upper and lower faces by annular grooves or ball races 20. A shiftable pedestal member 21 has a stem 22 which extends through aperture 19 in the web 17 and serves as a means for limiting the shifting movement of pedestal 21 on the balls or anti-friction members 23 in the upper annular groove 20. A plate 24 is fixedly secured to stem 22 and is disposed beneath the lower face of web 17 and serves together with the base of the pedestal to form a universally shiftable mounting for the pedestal on the web portion 17 of the frame.

Referring now to Fig. 4 a shelf portion 25 on pedestal 21 has a motor 26 suspended from it. A variable speed clutch 27 is associated with the motor shaft and carries a belt 28 driving pulley 29 on roller 31 which is journaled on the depending side structure 32 of a removable buck member 33. The motor and variable speed clutch may be of any suitable type, for example they may be combined in a single unit similar to devices purchasable in the open market as the so-called individual sewing machine motor and control unit which is commonly employed with power sewing machines. The removable buck member is preferably provided with dove-tailed keys 330 engaging in complementary slots in the sides 35 of the pedestal member. The removable pressing table or buck member 33 preferably has an hollowed-out chamber 34 therein connectible as at 362 by a flexible tube 36 to a controllable suction pipe 37 thereby affording a rapid exhaust of waste steam and moisture that is driven through the material operated upon and through the porous fabric conveyor belt 38 which is carried by the roller 31. At the forward end of the pressing buck or table 33 is journaled a roller 39 which carries the opposite end of belt 38, said belt passing through suitable slots 40 in the top of the pressing table. It is also the function of the suction chamber and piping to retain the cloth upon the belt 38 against accidental shifting during the pressing operation thereby affording the operator considerable liberty in the manipulation of the cloth during the shrinking and forming operations.

It is to be understood that the buck 41 shown in Fig. 7 is interchangeable with the buck 38 shown in Figs. 1, 2, 3 and 4 and differs essentially in that the forward end 42 thereof is materially narrower, enabling the operator to press sleeves, trouser legs and other tubular garment parts by passing the end 42 through such garment parts.

The conveyor belt 43 of this member is likewise considerably narrower than the belt 38. The top face of member 41 is optionally provided with perforations corresponding to the perforations 44 in the top face of member 33. The control of the conveyor belt is by way of clutch 27 which is of the slipping clutch type commonly available in the market and this is controlled by a lever arm 45 pivoted on the housing of motor 26 and having connected to its free end, a rod 46 which passes through the hollow stem 22. Various pressures of the bent end of lever arm 45 against the actuator end of the clutch effect corresponding degrees of engagement of the slipping clutch drive elements and the slipping clutch driven elements, whereby the pulley for belt 27 is rotated at various speeds up to motor speed depending upon the degree of pressure which the operator exerts on the actuating linkage for lever arm 45. The lever arm 45 also assists in braking and disengaging the driven element from the driving element of the clutch. One or more anti-friction guides 47 are provided within the stem 22 so that rod 46 is constrained to a vertical reciprocatory movement. Downward movement of the rod 46 serves to progressively engage the slipping clutch for effecting increasing speed of the driving belt 28. Fixedly secured on the depending end of rod 46 is a yoke 48 which has an elongated rod 49 journaled for free rotation at the opposite ends therein. A substantially similar freely rotatable rod 50 crosses above rod 49 and is mounted on a yoke 51. The yoke 51 is constrained to vertical raising and lowering under the influence of the compound linkage members 52 and 53 and thereby permits universal shifting of the pedestal 21 and all associated parts relative to the yoke 51, and, at the same time allows the rod 46 to be pulled down through the foot operated linkage and yokes to control the driving speed of the motor on the conveyor belt. A foot treadle 54 controls this mechanism.

As shown in detail in Fig. 6 the pressing member or iron 14 is preferably heated by a circulating steam system, the supply and return of which constitute no patentable detail of this device, and is hence not illustrated. The steam supply and return for heating the pressing iron and dampening the cloth are desirably, but not necessarily, housed within the body lines of the cross member 11 thereby avoiding the danger and discomfort commonly experienced when flexible steam coupling hoses become disconnected. This is accomplished by providing within the hub 12 an annular steam supply groove 55 and an annular steam return groove 56 connected respectively to inlet and outlet steam passages 57 and 58, respectively. The tubular supporting stem 13 for the pressing iron has an inlet port 59 at all times in communication with groove 55 and also an inner return and condensate tube 60 communicating with the groove 56. Stem 13 may thus be depressed under the pressure of actuating arm 15 without interrupting the supply and exhaust of circulating live steam.

A steam ejector valve 61 is adapted to control discharge of live steam through the bottom face of iron 14 and is actuated by cable 62 operating over suitable pulleys to a knee lever 63. A treadle 64 operating a cable 65 serves to depress the pressing member 14 according to requirements of the operator.

Knee lever 66 actuates suction control 67 by means of cable 68.

The pressing member or iron may be manually rotated with stem 13 through an angle of 90° so as to selectively present the wide side or the narnower end thereof to the normal feed of the conveyor belt. On one end and one side the member 14 is adapted to interchangeably receive a sharp-nosed seam opening plough 69 and any suitable cloth folding attachment such as is shown at 70. These members 69 and 70 may be moved to inoperative position on the pressing member as is indicated particularly in Fig. 5.

At the rear end of the pedestal is a downwardly inclined member 71 which during all shifting movement of the pedestal overhangs a chute 72 which extends around the rear and one side of

the machine. This chute is preferably of highly polished metal and, when garment parts have passed beyond the influence of the pressing iron they may drop to this chute and be suitably returned to a convenient place within the reach of the operator adjacent the front of the apparatus.

The operation of the device is as follows:

An operator seated adjacent the free end of pressing buck 33 has the actuating members 54, 63, 64 and 66 conveniently located for selective actuation with the feet and knees. The top of the pressing buck having the movable conveyor belt of fabric movable thereover is at a convenient level and at all times has some part thereof disposed beneath the pressing iron 14. When it is desired to rapidly press a multiplicity of small flat parts such as pocket flaps etc., these may be laid one behind the other on the belt, the operator then retaining the one foot upon the pedal 54 to attain the desired speed of travel of belt 38 while treadle 64 is periodically depressed and released as the parts are carried beneath the iron by the belt 38. Whenever it is desired to dampen the cloth at a given place the operator merely releases the clutch pedal and actuates the steam ejector control, thus applying steam at the desired place. The suction operating through tube and pipe 36 and 37 serves to retain the cloth in position on the movable belt against accidental shifting and also carries away the moisture and waste steam from the field of operation. In pressing a seam, the plough is dropped about its hinged connection to the position shown in Fig. 5 whereupon the seam is progressively opened as the conveyor belt moves the garment automatically beneath the pressing iron 14. When it is desired to mold a curve in the garment on opposite sides of the seam the operator dampens the desired area by the steam ejector means and is free to bodily shift and/or turn the entire pressing buck and mounting pedestal assembly in any direction while gathering the cloth with the fingers of one hand and stretching it with the fingers of the other hand. The lateral and longitudinal bodily shifting is accomplished by the hands and forearms of the operator resting upon the material and/or table so that a relatively inexperienced operator may, in a short time, become proficient in the various under-pressing operations incident to expert tailoring. Furthermore, these operations may be carried on with surprising rapidity because there has been eliminated the necessity for time-consuming manual shifting of the iron and the step by step spot pressing of the parts as well as the previously necessary delays for the manual shifting of the material after removing the pressing iron from the material.

Insofar as applicant is aware, it is novel to provide for the mounting of a folding guide upon a pressing member and have a conveyor means to progressively pull the cloth through such folder and at the same time press the fold flat and solid. This arrangement particularly in the embodiment shown affords a simple means to rapidly prepare various small folded parts in such manner as to eliminate in certain cases separate sewing and facing operations.

What is claimed is:

1. Pressing apparatus comprising in combination a depressible pedal actuated pressing element, a pressing table universally shiftable in a plane beneath the pressing element, a power-driven conveyor belt operating over the face of the pressing table and pedal actuated means for controlling the speed of the conveyor belt.

2. Pressing apparatus comprising a base, a pedestal universally shiftable upon the said base, a pressing table supported at its rear end on said pedestal and shiftable therewith, a conveyor belt movable over the top face of said pressing table, a motor carried by the pedestal, clutch means for controllably operating the conveyor belt from said motor, a clutch control rod projecting from said pedestal and actuating means for said clutch control rod comprising complementary engaging elements relatively shiftable and nonshiftable respectively with the pedestal.

3. In a pressing apparatus the combination with a suitably supported depressible pressing element, of a base structure associated therewith and having an opening therein, a pedestal having a depending stem extending through said opening whereby to limit movement of the pedestal on the base, a plate member secured to said stem and disposed beneath said apertured base portion, anti-friction members interposed between the base and said pedestal and plate respectively, a motor carried by said pedestal, a clutch member driven by said motor, a clutch actuating rod extending through said stem member and projecting below said plate, a pressing table supported by the pedestal, a belt carrying roller on said table adapted to be driven from said clutch, a second belt carrying roller on said table, a conveyor belt on said rollers and having one reach thereof movable thereby across the top face of the table beneath the pressing element and pedal operated means for actuating the clutch actuating rod in all positions of the pedestal on said base.

4. In a pressing apparatus the combination of a base, a pressing table shiftable universally in a horizontal plane thereon, a porous conveyor belt movable longitudinally over the table and bodily shiftable therewith, a pressing member vertically depressible onto said belt and independent means controlling movement of the pressing member and belt, said pressing table being manually shiftable independently of said control means.

5. In a device of the class described the combination of a depressible pressing member, a pressing table universally shiftable in a plane beneath said pressing member, a conveyor belt carried by said table, means shiftable with the table for driving said belt and a fixed chute for receiving materials from the discharge end of the belt and returning them adjacent the forward end of the pressing table.

6. In combination a relatively fixed depressible pressing iron, a pressing table universally shiftable in a plane beneath said iron, said table having a suction chamber therein and having longitudinal series of perforations in its upper face, a conveyor belt movable longitudinally around an intermediate portion of said table and the chamber therein, means to discharge steam from said pressing member onto said conveyor, the suction into said chamber serving to assist in retaining material to be pressed upon said belt and to carry away exhaust steam from said material and conveyor.

7. In combination a depressible pressing element adapted to discharge steam from the bottom thereof, a pressing table, a conveyor belt carried by said table, suction means operative through said table and belt and means mounting said table for universal shifting in a plane beneath said pressing member.

8. In combination a base, a pedestal univer-

sally shiftable relative to said base, a motor and power transmission clutch carried by the pedestal, a clutch actuating member depending through said pedestal and base and cooperating means on said clutch actuating member and base for effecting actuation of the clutch in all positions of the pedestal.

9. In an under-pressing apparatus the combination of a pressing member, a flat belt conveyor movable therebeneath whereby to carry material to be pressed beneath the pressing member and independently controlled suction means disposed in advance of the pressing member and operative through said conveyor and material to hold the material against accidental shifting during movement to the pressing member.

10. In a device of the class described the combination of a depressible pressing member, a pressing table universally shiftable in a plane beneath said pressing member, a power-actuatable conveyor belt having one reach thereof extending across the top surface of the table and running between the table and pressing member, means to depress the pressing member onto the conveyor belt and an independent means for controlling power actuation of the conveyor belt.

11. An underpressing apparatus adapted for seam pressing comprising a depressible pressing member, a suitably supported flat belt conveyor movable beneath the pressing member whereby to carry materials to be pressed and to move the material as it is pressed, and independently controlled suction means operative through the conveyor belt and the material beneath the pressing member to preclude accidental shifting of the material on the belt during the pressing operation.

EDGAR D. MEYER.