Oct. 11, 1927. 1,644,911

A. R. BRAUN

ELECTRIC PRESS

Filed March 25. 1924

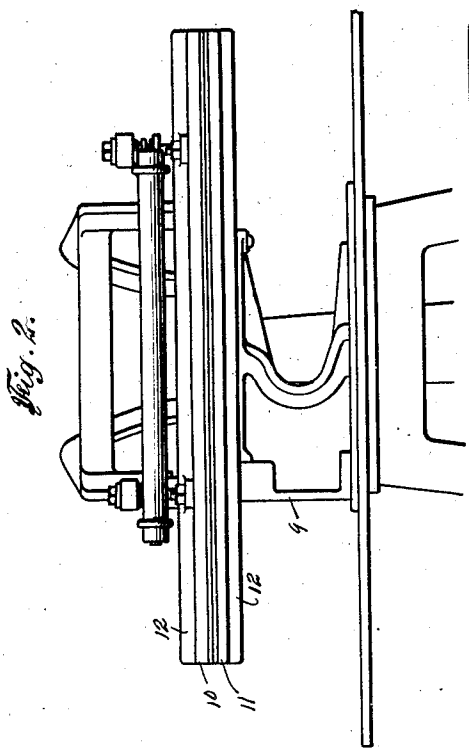


Fig. 2.

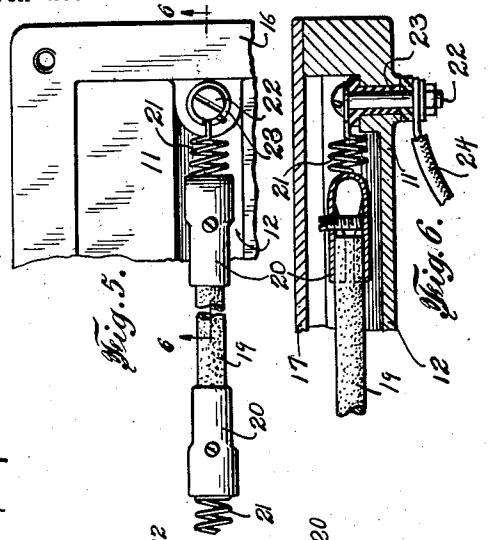


Fig. 5.

Fig. 6.

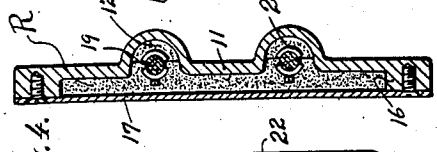


Fig. 4.

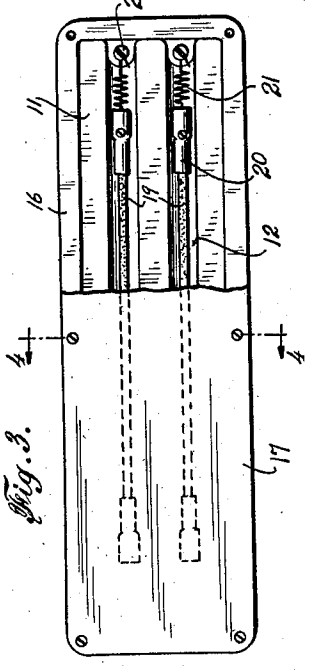


Fig. 3.

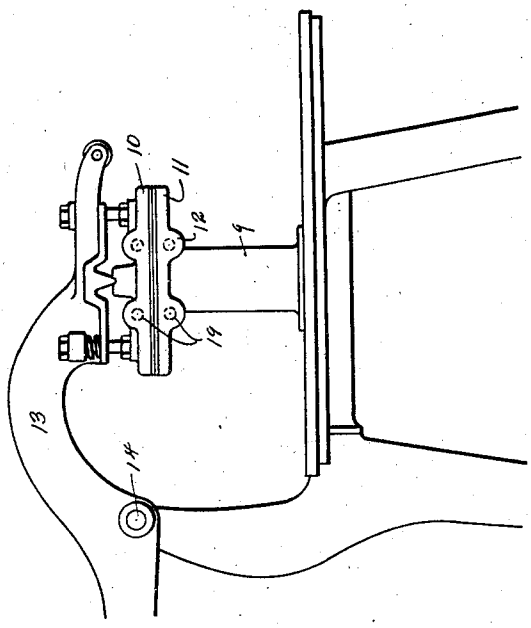


Fig. 1.

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UNITED STATES PATENT OFFICE.

AQUILA R. BRAUN, OF SYRACUSE, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE PROSPERITY COMPANY, INC., OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK.

ELECTRIC PRESS.

Application filed March 25, 1924. Serial No. 701,653.

This invention relates to garment pressing machines and ironing presses and more particularly to improvements in electric presses.

An object of the invention is to produce an electrically heated pressing machine having one or both pressing jaws thereof electrically heated for the purpose of pressing garments or pressure ironing wash goods; and simple construction constitutes characteristic features of my invention whereby electrically heated presses of durable construction may be produced at comparatively low cost. An additional object is to produce improved ironing press jaws electrically heated to avoid the expense and difficulty met in manufacturing hot fluid pressure tight sealed pressing members such as are required in steam heated pressing machines.

The accompanying drawing illustrates a preferred form of the construction and it is understood how certain changes may be made without departing from the scope and principle of the invention.

Figures 1 and 2 illustrate a side and front elevation of the upper main portions of a pressing machine utilizing improved electrically heated pressing members constructed in accordance with my invention.

Figure 3 illustrates a plan view of one of the electrically heated pressing members and said member is broken across to illustrate the internal construction thereof.

Figure 4 illustrates a cross-sectional view of the pressing member as developed on the line 4—4.

Figures 5 and 6 respectively illustrate a plan and side sectional elevation of an improved attaching means employed in the installation of the heating elements within the hollow pressing member.

Inasmuch as the present invention relates to the pressing members or jaws themselves, I have omitted the pedal and toggle operating mechanism from the accompanying illustrations such as is ordinarily employed in opening the pressing jaws or raising and lowering the pressing head for it is understood by those conversant in the art how this operation is executed by employing any approved means either manually or power operated, and for that reason I have illustrated the parts only of, the pressing machine namely, the pressing members thereof, which have to do with my invention.

Referring now more particularly to the drawings for a detailed explanation of the principles and construction constituting my invention, there is shown pressing members in the nature of a head 10 and buck 11. One of the members may be fixed or anchored to a frame 9 while the other member, usually the head, is carried on the forward end of a press lever 13 pivoted at 14 on the frame; and the press lever 13 is operated by any approved means for opening and closing the pressing jaws on the work. A description will now be made of one of the pressing members for it is understood how both the head and buck may possess duplicate construction for serving the purposes of economy in manufacture.

A pressing member base or shell 11 is provided with one or more channels or grooves 12 running longitudinally or crosswise depending upon the wishes of the manufacturer, and in the present disclosure I have illustrated channels disposed lengthwise in the pressing member for the purpose of holding an electric heating element in each channel or depression. The base is preferably made with a marginal rib or shoulder 16 across which is disposed and supported a press plate 17; and inasmuch as my pressing members are not provided with steam heating means, the parts do not have to be fluid tight and therefore the press plate 17 and base or shell plate 11 are secured together with a relatively small number of screws thus making for low cost in production.

An electrical resistance element in the nature of a carbon rod 19 or a resistor element of any other suitable characteristics and structural composition, is confined in each channel 12 and supported therein by such improved means as will permit the delicate carbon rod 19 to be rigidly supported within the hollow pressing member and yet at the same time permit the necessary expansion and contraction of parts without fracturing the heating element; and to this end, each end of the elements is provided with preferably a spring closing jaw

clamp 20 firmly grasping the extremity of the carbon rod. Each clamp 20 is anchored to a coil spring 21 the free end of which is usually made with an eye through which a clamp screw binding post 22 is passed. The screw 22 is confined in an insulator bushing 23 passing through the wall of the press head or buck; and on the outer end thereof an electrical feed wire 24 is connected. The heating elements are therefore placed in circuit with the current supply line 24 and heat the entire pressing member. The yieldable spring supports 21 perform the double purpose of supporting and feeding current to the resistance elements.

Each end of the plurality of electrical resistance rods is thus securely attached by resilient anchorage means to the pressing member and the heating elements are held in spaced relation from the upper and lower walls of the pressing members thereby permitting a free circulation of air therearound which enables the heat as radiated by the resistance elements to be diffused throughout the length and breadth of the pressing member thereby uniformly heating the pressing members. The press plate 17 is spaced relatively close to the base plate 11 but sufficient clearance is provided therebetween as will permit the air to circulate and be diffused throughout the pressing member. Each spring anchorage 21 contracts and expands to permit the cast iron or steel head and buck to contract and expand in the rising and falling temperature without fracturing the heating elements for it is to be understood that the delicate electrical resistance elements 19, whether constructed of carbon or of other suitable resisting compounds, would be broken in the severe usage to which pressing machines are put and during the heat- and cooling operation unless they are delicately suspended by the improved spring and clamp anchorage members 20—21 which constitutes a feature of my invention.

The channels 12 afford space for each heating element without unduly increasing the size or thickness of the pressing members. The said base plates 11 are usually cast so the heating element channels may be inexpensively formed, and the pressing plates 17 may to good advantage be constructed of steel or bronze for in the manufacture of ironing presses it ordinarily follows that one of the pressing members, usually the head, is made with an exposed highly polished pressing and ironing surface and thus the steel or bronze plate 17 provides such surface and especially so when plate 17 is made of bronze for in this case it readily takes a polished nickel ironing surface.

An improved feature of my invention resides in the simple construction of the pressing members, for pressing machines now largely in use are invariably fluid heated and necessarily must be steam and pressure tight which necessitates expensive construction in the finishing of the parts as well as the assembly thereof. But in my improved pressing members I avoid such expensive construction by reason of the fact that I employ electrical heating elements suspended within the hollow two part pressing member, and inasmuch as the electrical resistance bars are not placed in contact with the wall of the pressing members it follows that the pressing members are not overheated in any one place. The heat as radiated from the electrical heating elements sets up a circulation of air which rapidly diffuses the heat throughout the pressing members and raises the temperature thereof to a working and pressing heat. Press heads and bucks constructed in accordance with my invention are much lighter in weight and contain less metal than steam heated members with obvious advantages. Furthermore a steam boiler is not required which constitutes a large saving in many respects.

It is to be noted that the electrical heating elements may be installed on the underneath side of the pressing surface plate itself and that any suitable number of resistances may be employed in this construction to either extend longitudinally or transversely within the hollow member. Inasmuch as the air space clearance between the plate and shell may be very limited, it follows that a press plate constructed as set forth is very thin which presents a machine of improved appearance.

In some types of pressing and ironing machines it has been found desirable to fill the hollow ironing or pressing jaw with a suitable refractory material and in this connection the reference character R designates silica sand, soap stone, or other filling and packing material filling the member shown in Figure 4. The refractory material fills the entire air space within the hollow member and rapidly conducts the heat from the heating elements to all parts of the pressing member and acts to securely hold the heaters in position without interfering in any way with the relative contraction and expansion of parts; and the granular material employed in this connection readily flows to all parts of the member when the parts are assembled and produces a substantial solid and unitary structure. Furthermore, the refractory material constitutes an insulator positively holding the heating elements away from the metal walls of the heating member, and enables the manufacturer to place a large number of heaters in close relation if desirable without danger of coming in contact with one another, all of which

constitutes advantages in function and structure over other electrically heated pressing members.

What I claim is:

1. A pressing and ironing machine comprising cooperating hollow pressing members, means for electrically heating the pressing members embodying an electrical resistance suspended within the hollow pressing member, a contractible and expansible anchorage means connected to the resistance and to the pressing member to hold the resistance in suspended position, and a current feed line connected to the anchorage means.

2. A pressing and ironing machine comprising cooperating hollow pressing members, means for electrically heating the pressing members embodying an electrical resistance suspended within the hollow pressing member, said hollow pressing member being provided with channels within which the aforesaid resistance element is suspended, a flat cover pressing plate anchored over the channels, a contractible and expansible anchorage means connected to the resistance and to the pressing member to hold the resistance in suspended position, and a current feed line connected to the anchorage means.

3. A pressing member comprising a hollow flat surface metal part, a plurality of electrically heated resistance rods suspended therein in spaced relation from the walls of the hollow part, and resilient anchorage means secured to the hollow pressing member to permit contraction or expansion of the resistance rod and pressing member relatively one to the other.

4. A pressing member comprising a hollow flat surface metal part, a plurality of electrically heated resistance rods suspended therein in spaced relation from the walls of the hollow part, a spring support conductor attached to each end of the resistance rod, and a binding post anchored to the pressing member and supporting the end of the spring conductor to hold the resistance rod in suspension within the hollow pressing member.

5. An electrically heated pressing member comprising a shell made with channels formed therein, a binding post and electrical terminal anchored to the pressing member at each end of the channels, a spring current conductor fixed to each binding post terminal, and a carbon rod electrical resistance element having each end attached to the spring conductor and suspended in the said channel.

6. An electrically heated pressing member constituting a hollow shell having a pressing surface, a plurality of binding posts anchored in the shell and projecting through the wall thereof, a current supply wire connected to the binding posts, coil spring suspension supports having one end fixed to the said binding post within the shell, and an electrical resistance element supported by and between the free ends of the spring conductors in suspended relation closely arranged but spaced from the pressing surface.

7. A pressing member electrically heated, comprising a base plate having a marginal rib extending therearound, resilient current conductors having one end fixed to the pressing member and the other end left free, a carbon rod heater, a clamp holding the ends of the carbon rod in connection with current conductors, and a plate anchored to the marginal rib covering over the heating elements and acting as a pressing.

8. A pressing member comprising a base plate having a marginal rib extending therearound, said member provided with a plurality of channels reaching to the marginal rib, a carbon rod resistance element disposed within each channel, a spring having one end anchored to the extremity of the carbon rod, a binding post support holding the other end of the spring thereby suspending the carbon rod in the channel in spaced relation from the wall of the pressing member, and a press plate secured to the marginal rib covering over the heating elements.

9. A pressing member such as a jaw, comprising a cast shell, a marginal rib raised on the shell, a cover pressing plate secured to the rib and held in closely spaced relation to the wall of the cast shell thereby providing a space between the shell and cover, said shell wall being provided with a groove or channel therein providing additional clearance between the pressing plate and shell wall, a carbon rod suspended within the groove and spaced from the cover plate and shell, a spring conductor support fixed to each end of the carbon rod and resiliently suspending the said rod in the channel thereby permitting relative contraction and expansion between the pressing member and the carbon rod, and a current conducting binding support anchored to the pressing member and adapted to feed current through the spring support to the carbon rod.

10. A pressing and ironing machine comprising cooperating hollow pressing members, means for electrically heating the pressing members embodying an electrical resistance suspended within the hollow pressing member, a contractible and expansible anchorage means connected to the resistance and to the pressing member to hold the resistance in suspended position, a current feed line connected to the anchorage means, and refractory material filling the hollow member packed around the said suspended electrical resistance to hold them in place and conduct the heat therefrom to the walls of the pressing members.

11. A pressing member comprising a hollow flat surface metal part, a plurality of electrically heated resistance rods suspended therein in spaced relation from the walls of the hollow part, a granular refractory material filling the hollow member and packed around the said resistance rods to securely hold them in place and conduct the heat to the walls of the pressing member, and resilient anchorage means secured to the hollow pressing member to permit contraction or expansion of the resistance rod and pressing member relatively one to the other.

In testimony whereof I affix my signature.

AQUILA R. BRAUN.