

April 2, 1929.

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1,707,663

RESILIENT PADDING

Filed March 5, 1928

2 Sheets-Sheet 1

Fig. 1

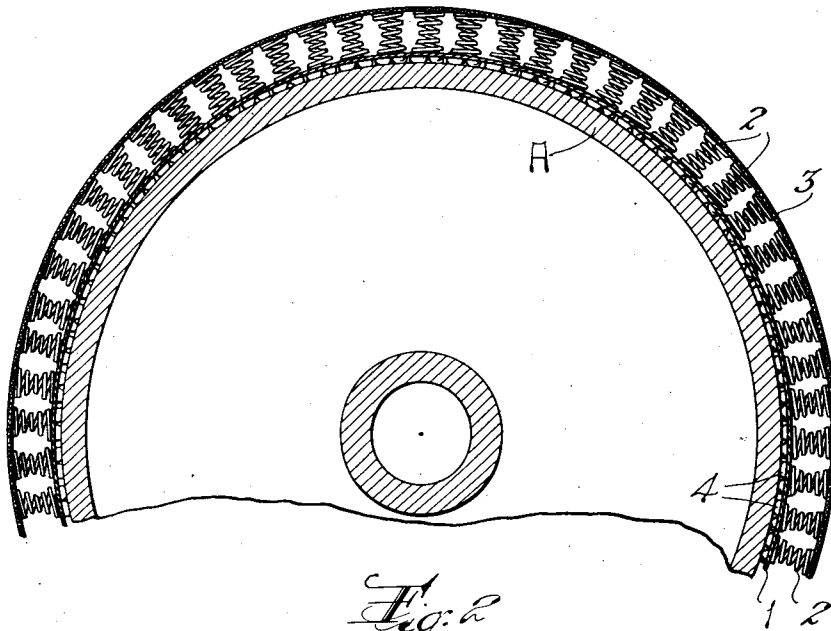


Fig. 2

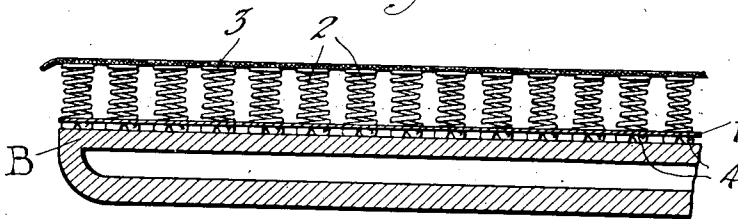
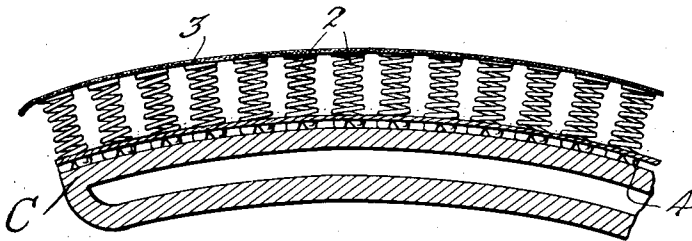


Fig. 3

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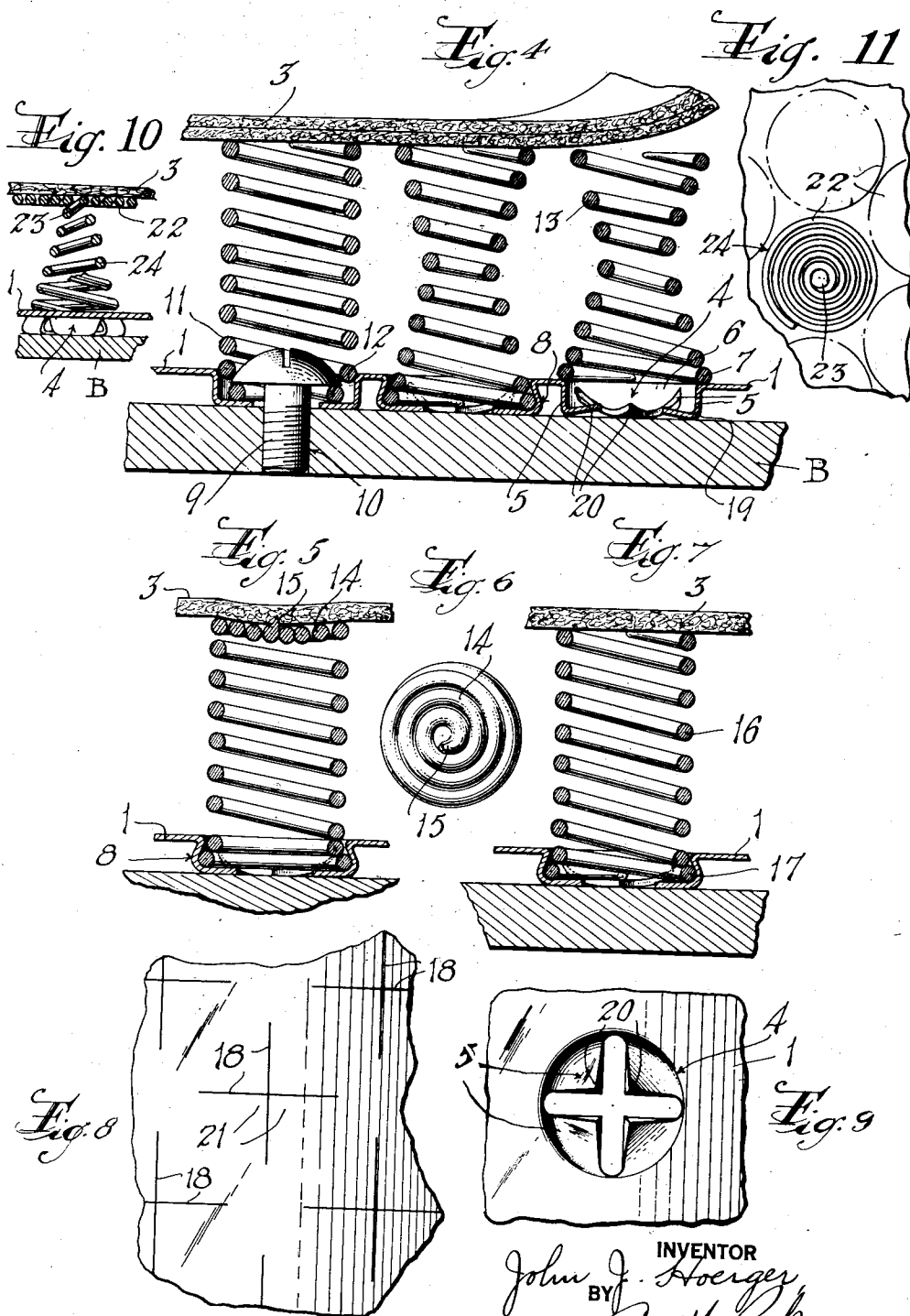
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RESILIENT PADDING.

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This invention relates to padding for use in ironing or pressing machines and which includes a plurality of resilient coils or springs attached at one end to a supporting plate and supporting upon their other ends a work engaging fabric pad.

One object of the invention is to provide a novel and improved combination and connection of the springs and the supporting plate whereby the springs are directly attached to and frictionally held upon the supporting plate so as to be easily and quickly attachable but at the same time sufficiently securely held against accidental displacement upon or disconnection from the plate.

Another object is to provide resilient padding of this character wherein the supporting plate contacts with the surface of the ironing roll or table only at spaced points and is perforated to provide space for circulation of air between the plate and said roll or table.

Further objects are to provide a resilient padding for ironing machines wherein the springs are frictionally held in sockets the mouths of which are less in diameter than said springs and their walls undercut, and to provide such padding wherein said springs are frictionally and resiliently secured in sockets having expanding or yielding walls inwardly of the mouths of the sockets which are of less diameter than said springs so that said walls are expanded by the radial resiliency of said springs.

Other objects are to provide such padding wherein the supporting plate is metal and has stamped therefrom sockets to frictionally and resiliently hold the springs therein; to provide a padding of this character wherein the spring holding sockets are formed of a plurality of resilient tongues stamped from the supporting plate and projecting from one side thereof; to provide in such padding helically coiled springs each having its free end in the form of a spiral coil to provide ample support for the fabric pad; to provide in such padding double conical springs to obtain great resiliency and permit yielding of the work engaging surface the maximum distance, and to obtain other results and advantages as will be brought out by the following description.

Referring to the accompanying drawings in which corresponding and like parts are designated throughout the several views by the same reference character,

Figure 1 is a transverse sectional view

through an ironing machine roll with padding embodying the invention applied thereto.

Figures 2 and 3 are transverse vertical sectional views through two different types of ironing machine beds showing the invention applied thereto.

Figure 4 is an enlarged fragmentary transverse vertical sectional view through the padding embodying the invention and a portion of an ironing machine bed.

Figure 5 is a transverse vertical sectional view through a portion of the padding showing a modified form of spring.

Figure 6 is a top plan view of the upper end of the spring shown in Figure 5.

Figure 7 is a view similar to Figure 5 showing another type of spring.

Figure 8 is a fragmentary plan view of the supporting plate, showing the first operation in the formation of the spring holding sockets,

Figure 9 is a fragmentary plan view of the supporting plate showing one of the sockets completed.

Figure 10 is a fragmentary sectional view, partially in elevation, showing another form of spring, and

Figure 11 is a top plan view of the spring shown in Figure 10 illustrating in dot and dash lines the arrangement of a plurality of such springs on the supporting plate.

The padding embodying my invention consists in general of a sheet metal supporting plate 1 over which are distributed and to which are secured at one end a plurality of helically coiled springs 2. Over the other or free ends of the springs 2 is arranged a fabric work-engaging pad 3. The pad may be applied to the ironing machine roll A as shown in Figure 1, or to a flat ironing machine bed B as shown in Figure 2, or a curved ironing machine bed C as shown in Figure 3. The supporting plate 1 may be secured to the ironing machine roll or bed in any suitable manner, but one preferred way will be hereinafter described.

The supporting plate has formed thereupon a plurality of spring receiving sockets 4 which are stamped integrally from the plate and are formed of a plurality of tongues 5 which are integrally connected to the plate at one end adjacent the mouths 6 of the sockets and are spaced at their other ends at the bases of the sockets. In plan view the sockets are of the same shape as the springs, in

the present instance circular, and the mouths of the sockets are of a diameter less than the diameter of the corresponding end 7 of the springs, as clearly shown in Figure 4 of the drawing. The tongues 5 which form the side walls of the socket are outwardly yieldable, and the springs are inserted in the sockets by slightly radially compressing the ends 7 of the springs and forcing them into the mouths of the sockets.

The radial resiliency of the springs then forces the tongues 5 outwardly as shown at 8 in Figure 4 of the drawings, so that the walls of the sockets are undercut, and the springs are then held upon the plate by the joint action of the radial resiliency of the springs and the undercut walls of the sockets 4. Preferably the metal of which the supporting plate 1 is formed, is also resilient so that the walls of the sockets formed by the tongues 5 are resiliently yieldable. Figure 4 shows at the right hand side, a spring about to be inserted into a socket, while the spring at the middle of the figure is shown seated in the socket.

The plate 1 is shown as secured to the bed B of the ironing machine by means of headed screws 9 fitted in a correspondingly threaded opening 10 in the bed, each of said screws passing through the opening in the bottom of one of the sockets 4 formed by the ends of the tongues 5. Preferably the screw 9 also serves to secure a special form of spring within the corresponding socket as indicated at 11 at the left hand side of Figure 4, said spring having its endmost convolution 12 of smaller diameter than the other convolutions so as to be clamped between the head of the screw and the base of the socket 4. Obviously, however, the springs may be omitted from the sockets 4 in which the fastening screws 9 are arranged.

Any suitable form of spring may be utilized in my padding, but preferably double conical springs 13 shown in Figure 4 of the drawings, are used, the convolutions of said springs gradually decreasing in diameter from the ends of the springs inwardly toward the longitudinal center thereof, and the convolutions being arranged so that each thereof may telescope over the smaller when the springs are compressed as by pressure upon the work engaging pad 3.

Also, preferably the outer or pad engaging ends of the springs are formed into the spirals 14 as shown in Figures 5 and 6, the planes of which are at substantially right angles to the axes of the springs. This spiral formation provides a support for the pad 3 which is sufficiently solid but at the same time somewhat yielding. Also the inner end of the spiral convolutions may be pointed and upturned as at 15 to penetrate the underside of the pad and hold the spring against lateral movements relative to the pad. It is desirable

that the formation of the spiral end 14 of the spring be somewhat concave as shown in Figure 5 of the drawings.

As shown in Figures 10 and 11 the spiral coil 22 may be coiled outwardly from the center of the spring 24 as at 23 to a size much greater in diameter than the body of the spring. With such a construction a plurality of the springs can be arranged on the supporting plate with the spiral coils 22 in almost circumferentially contacting relation, as shown by dot and dash lines in Figure 11, so as to provide an almost continuous supporting surface for the work engaging pad 3.

In many instances an ordinary straight helical coil spring 16 as shown in Figure 7 may be utilized instead of the double conical springs 13, but the endmost convolution 17 of such a spring should be somewhat greater in diameter than the mouth of the spring receiving socket 4 of the supporting plate 1, as is the end convolution 7 of the double conical spring 13 shown in Figure 4.

It will be observed that the springs of the padding embodying my invention are frictionally and resiliently held in the sockets 4, it being possible to forcibly pull the springs from the sockets; but the springs are sufficiently securely held in the sockets as to prevent accidental displacement or disconnection of the springs from the plate 1 during handling or operation of an ironing machine. Where the padding is used on an ironing machine roll, the security of the fastening of the springs in the sockets 4 is enhanced, due to the distortion of the sockets resulting from the flexing of the supporting plate. Obviously when the plate is flexed the sockets 4 are distorted into a more or less elliptical form which causes a more secure engagement of the walls of the sockets with the end convolutions of the springs.

The sockets 4 may be formed in any suitable manner but preferably a socket is formed by producing in the supporting plate 2, right angularly disposed slits 18 which are of equal length and intersect and mutually bisect, as clearly shown in Figure 8. The tongues 21 thus formed are pressed toward one side of the plate by suitable dies and bent intermediate their ends as at 19 (Figure 4) to form the sockets as illustrated at the right hand side of Figure 4.

It will be noted that the free end portions 20 of the tongues are initially at an angle to the plane of the bed B of the machine and incline upwardly and inwardly of the socket at an angle to the plane of the plate. When the spring is inserted in the socket, the outward expanding of the tongues under the influence of the spring swing these end portions 20 downwardly parallel to the plane of the plate and into contact with the surface of the bed B as shown in the middle of Figure 4. This initial formation of the sockets

admits of the easier expansion of tongues outwardly under the influence of the spring than would be possible were the end portions 20 initially arranged as shown at the middle 5 of Figure 4.

My construction above described has another advantage in that the plate 1 contacts with the ironing machine roll or bed only at spaced points, that is, at the bases of the 10 sockets 4, and the sockets with the spaces between the tongues 5 in effect form perforations in the plate, whereby air may freely circulate in the space between the plate and the ironing machine roll or bed upwardly 15 through the sockets and into the space around the springs between the plate and the work engaging pad 3.

While I have shown and described several embodiments of my invention, it will be un-

derstood that this is primarily for the purpose of illustrating the principles thereof and that many modifications and changes may be made in the details of construction by those skilled in the art, without departing from the spirit or scope of the invention. 25

Having thus described my invention, what I claim is:

A resilient pad for ironing machines comprising, a plurality of helical springs, and a supporting plate having a plurality of 30 sockets thereon with outwardly yieldingly expansible walls and the mouths of which are of less diameter than one end of said springs, said springs each having said end secured in one of said sockets by the joint action of 35 radial resiliency of said spring and the outwardly yielding walls of said sockets.

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