Sept. 20, 1955 G. A. BRACE 2,718,076

SELF-LIFTING SAD IRON

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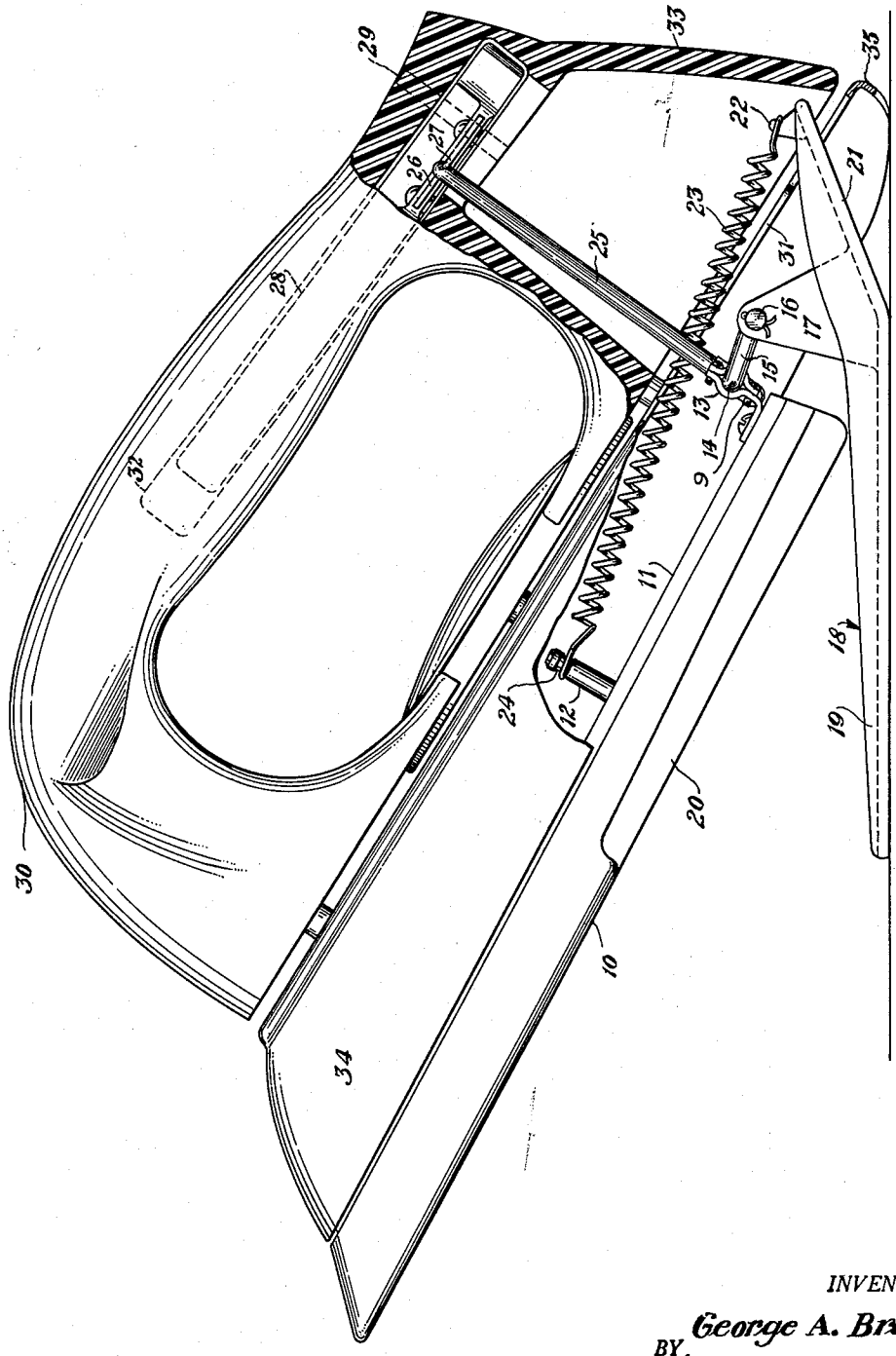


Fig. 1

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SELF-LIFTING SAD IRON

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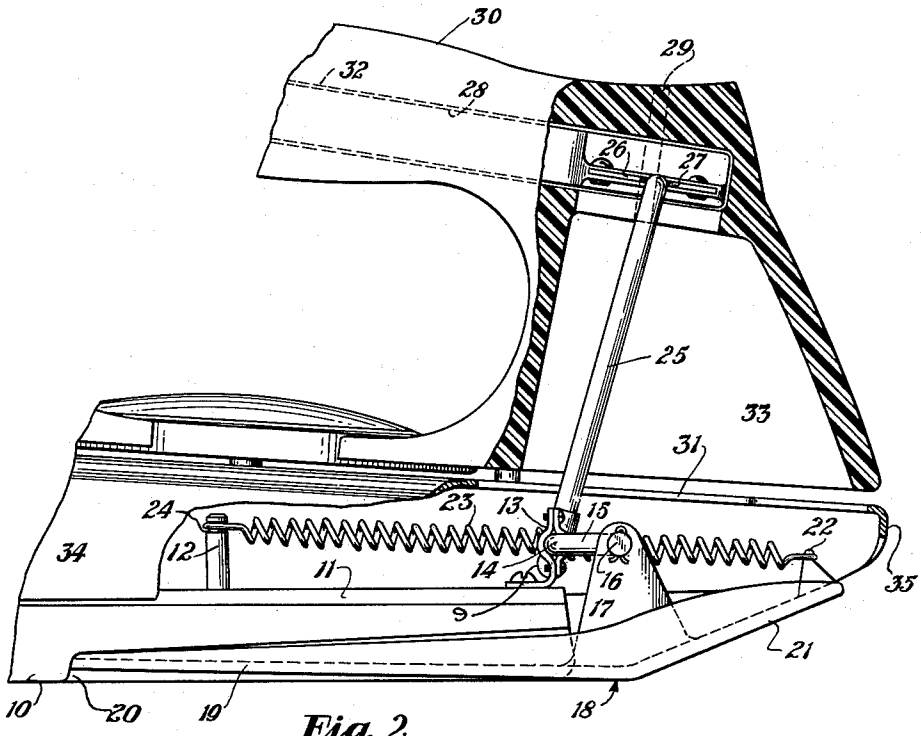


Fig. 2

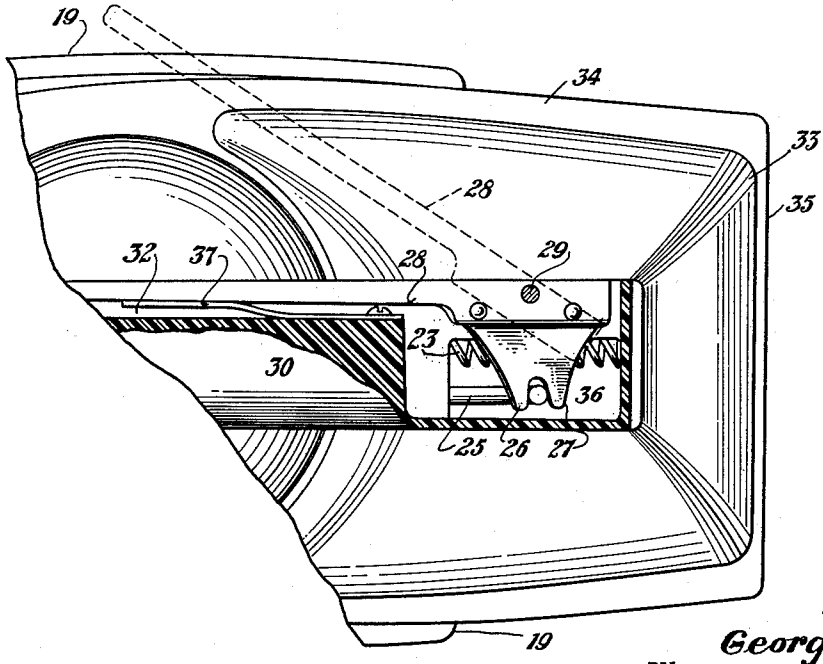


Fig. 3

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SELF-LIFTING SAD IRON

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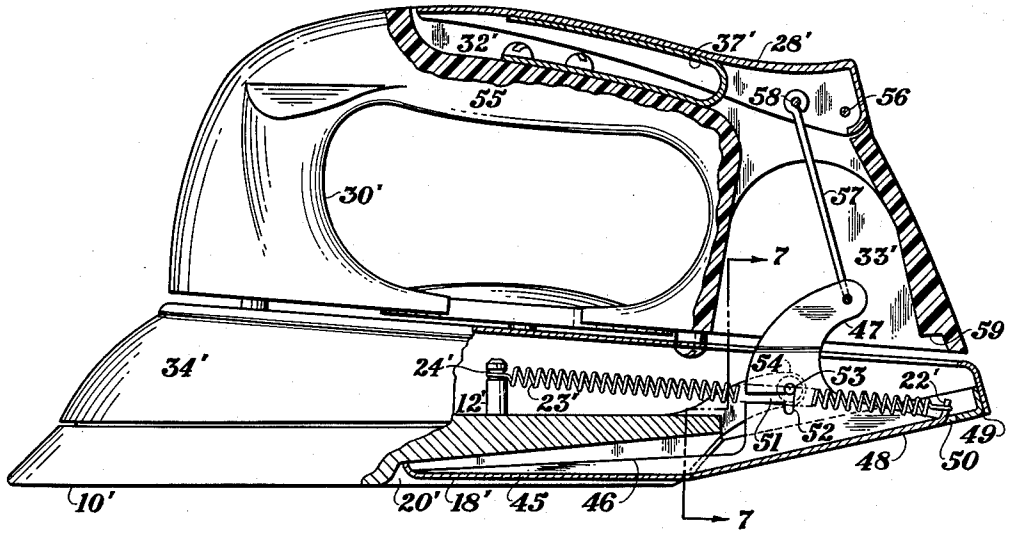


Fig. 4

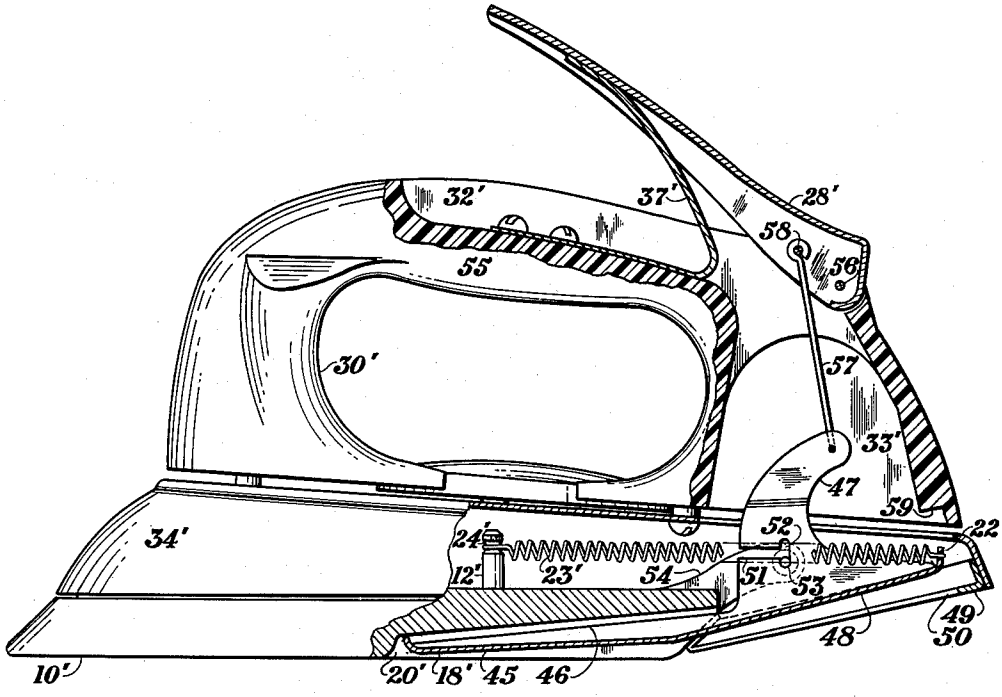


Fig. 5

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SELF-LIFTING SAD IRON

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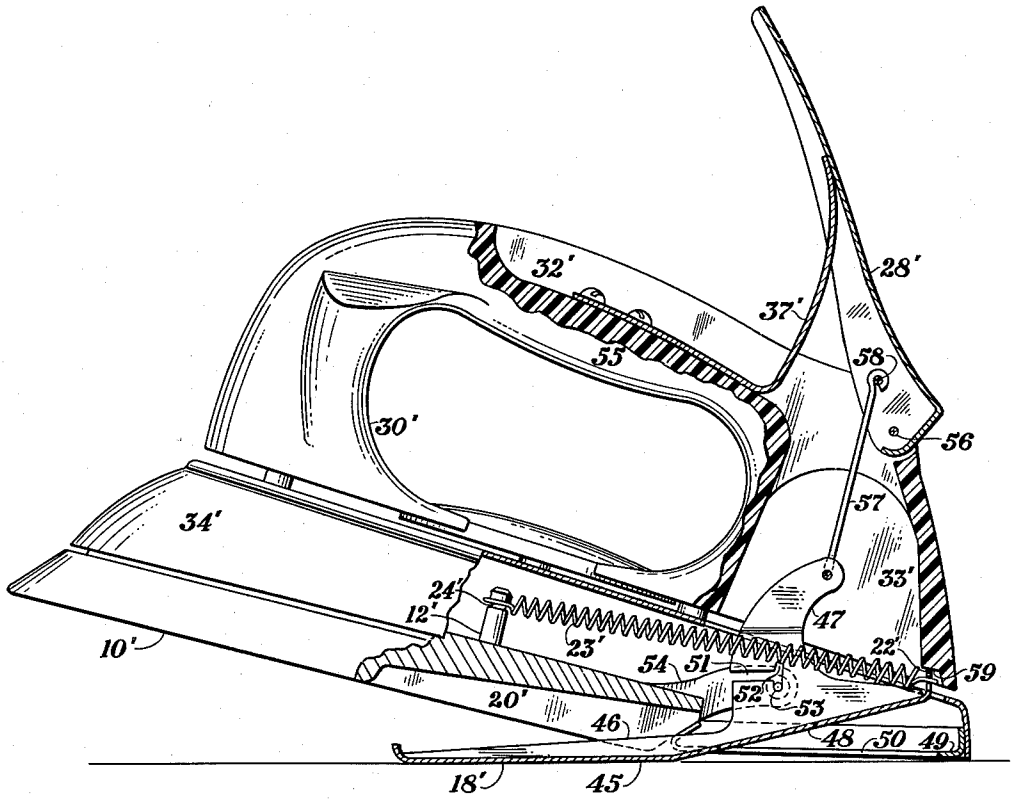


Fig. 6

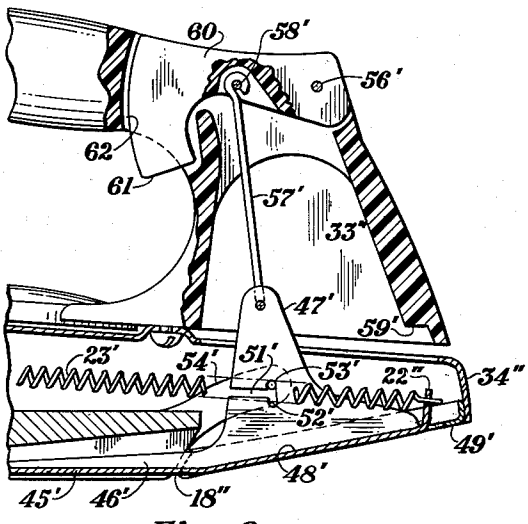


Fig. 8

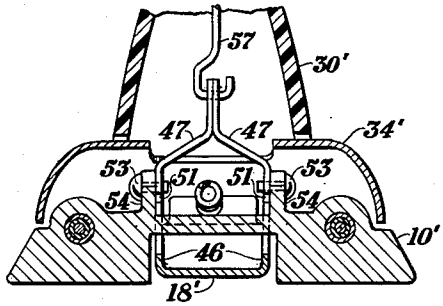


Fig. 7

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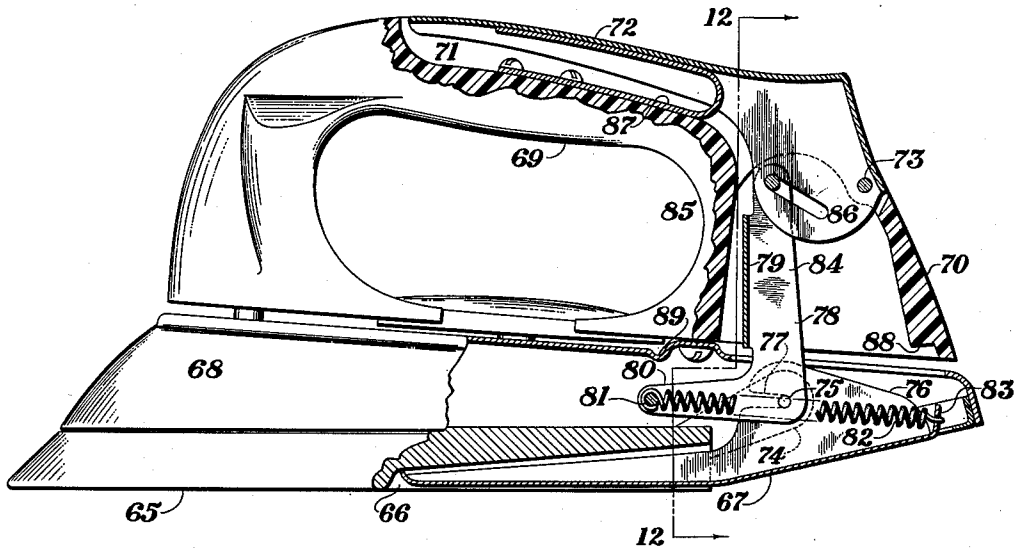


Fig. 9

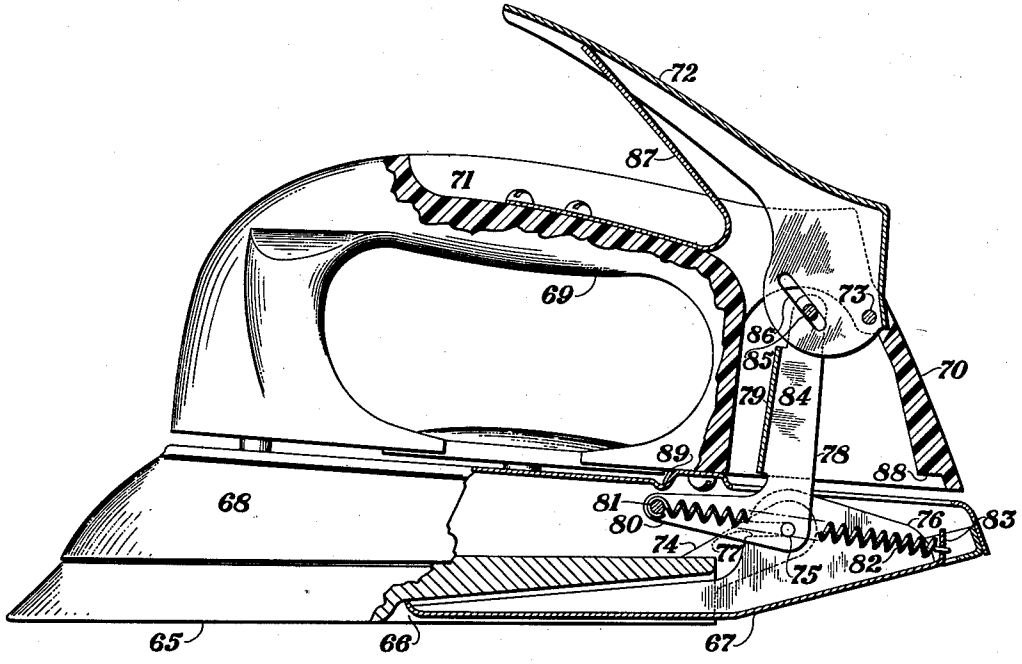


Fig. 10

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SELF-LIFTING SAD IRON

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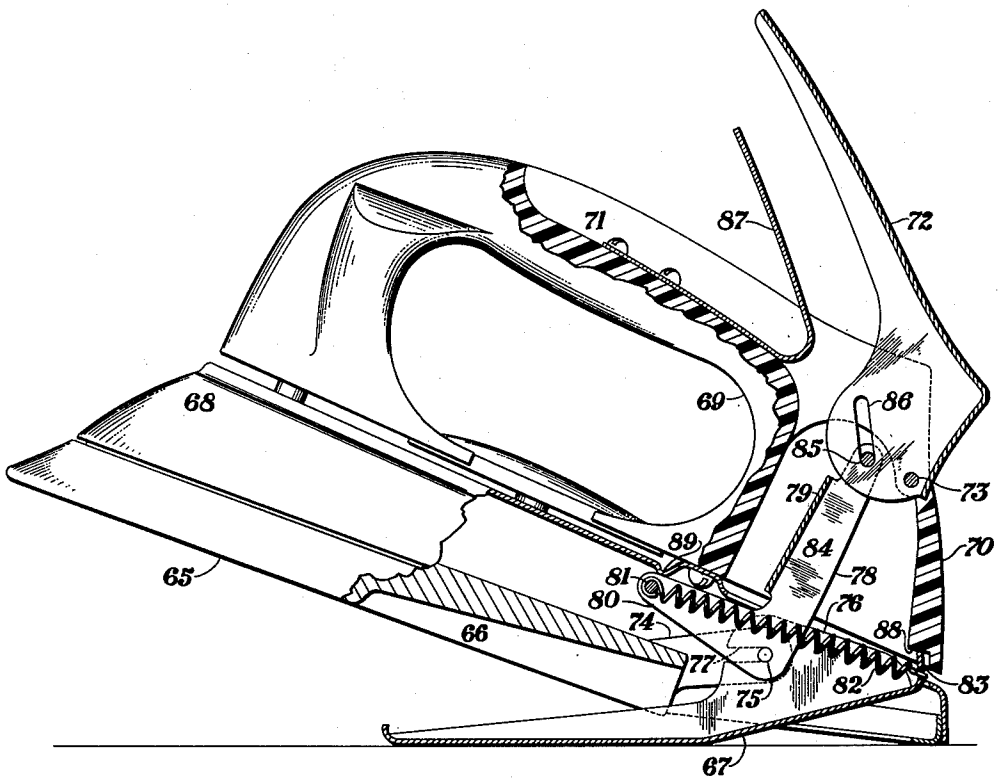


Fig. 11

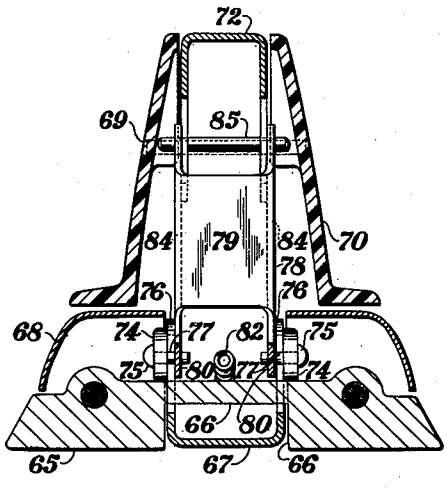


Fig. 12

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United States Patent Office 2,718,076
Patented Sept. 20, 1955

2,718,076

SELF-LIFTING SAD IRON

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Application January 2, 1952, Serial No. 264,469

22 Claims. (Cl. 38—79)

This invention relates to electrically heated irons and more particularly to a support therefor which is automatically operable upon release of the handle by the operator to raise the sole plate upwardly out of contact with the surface upon which the iron rests so that the material being ironed will not be burned even though the operator leaves the control at the "on" position.

The invention features a truly self-lifting mechanism which operates automatically to elevate the sole plate out of contact with the ironing surface upon the actuation of the control therefor and without the necessity of the operator lifting any part of the weight of the iron. This is accomplished by incorporating a toggle device within the lifting mechanism which is so designed that the movement of the parts required to break the toggle occurs above the surface of the sole plate. Thereafter, the toggle operates to extend the lifting mechanism in a manner to elevate the sole plate by energy derived from the toggle spring.

According to another aspect of this invention a support is pivoted to the body of the iron by means of a spring-biased over-center linkage so that the spring will normally bias the support downwardly relative to the iron body to hold the sole plate above the surface upon which the iron rests within any attention from the operator other than releasing the grasp of the handle. A member is pivoted to the handle to control the lifting means in such a manner that when the handle is grasped as the iron is lowered to its normal operating position the lifting mechanism is rendered ineffective to lift the sole plate but when the handle is released the lifting mechanism is rendered effective immediately to raise the sole plate upwardly.

More specifically, the invention comprises a support pivoted to the iron body through a toggle device controlled by means located in the handle grip. So long as the operator grasps the handle grip the toggle locks the support in retracted position; upon release of the grip, a toggle control immediately unlocks the toggle whereupon the iron is automatically raised onto the support. The control may be merely a spring-biased lever pivoted to the handle so as to be grasped simultaneously with the grasping of the handle grip. This lever functions to control the toggle as will be explained in greater detail below.

According to another feature of this invention the cover shell of the iron is extended rearwardly from the sole plate proper into such a position that when the supporting means raises the iron body upwardly the extension will contact the surface upon which the iron rests so as to arrest upward movement of the iron and form a sort of stop for the over-center linkage mechanism.

According to another feature of this invention the rear end of the support is curved upwardly and rearwardly in a smooth contour to form a surface of great assistance in smoothing wrinkles from material being ironed during rearward movement of the iron.

Still another feature of the invention is the provision of a collapsible support which, on opening to its extended

position, remains out of contact with the ironing surface until the toggle mechanism moves past neutral position whereupon the support contacts the ironing surface as the weight of the iron is transferred thereto.

Another object is the provision of an iron rest which is entirely automatic in operation, extremely simple, sturdy in construction, positive in operation, unusually economical to make and highly efficient.

Other objects and advantages of this invention will become apparent as the description proceeds when taken in connection with the accompanying drawings of several illustrative embodiments in which:

Figure 1 is a side view of an iron embodying this invention showing the parts in the position they occupy when the iron is in its supported position;

Figure 2 is a sectional side view of a portion of an iron embodying this invention showing the position the parts occupy when the support is retracted and the iron is in its ironing position;

Figure 3 is a top plan view showing the iron of Fig. 1 with the parts of the handle broken away to show how the lever is pivoted to the handle.

Figure 4 is a side view of a second embodiment partially broken away and showing the position of parts with the support collapsed and the manual control therefor in its closed position;

Figure 5 is a view of the second embodiment with the control in open position and with the support in readiness to expand to its extended position;

Figure 6 shows the position of parts when the support is fully extended;

Figure 7 is a sectional view along line 7—7 on Figure 4;

Figure 8 is a view similar to Figure 4 but showing a third embodiment of the invention;

Figure 9 is a view similar to Figure 5 of a fourth construction;

Figure 10 shows the position of parts of this latter construction as the toggle is broken but before the iron is elevated onto the support member;

Figure 11 shows the iron at rest in its inclined position; and

Figure 12 is a view along line 12—12 on Figure 9.

This application is a continuation-in-part of my co-pending application for Letters Patent Serial No. 26,657, filed on May 12, 1948, now abandoned.

Referring to the drawings the reference numeral **10** represents a sole plate having a heating element (not shown). A pressure plate **11** is secured to the sole plate **10** by any suitable means. Secured to the pressure plate **11** is an anchor pin **12** and a pair of brackets **13**. A toggle shaft **14** carrying crank arms **15** and pintles **16** is rotatably mounted in brackets **13**. Pivoted to the pintles **16** by means of lugs **17** is a U-shaped supporting member generally indicated by the reference numeral **18**. The supporting member **18** comprises a stamping. If formed of sheet stock, lugs **17** may be struck upwardly from the stock in a well known manner. The legs **19** of support **18** are adapted to fit into recesses **20** in the sole plate **10** when the iron is in use. As shown in Figure 2 the legs **19**, and particularly the ends thereof, extend upwardly into the recesses **20** when in retracted position so as to have some freedom of movement relative to the surface upon which the iron rests for a purpose which will be explained hereinafter. An upwardly and rearwardly extending web **21** connects the legs **19** and its under surface forms a smoothing surface or wrinkle eliminator as will be explained hereinafter.

At the rear of web **21** is a hook like member **22** which anchors one end of a tension spring **23**, the opposite end being anchored to the sole plate **10** by the anchor pin **12** having a groove **24**. The toggle shaft **14** is formed

with a downwardly extending loop as shown at 9, Figs. 1 and 2, immediately below the spring 23 to permit the spring to move to the position shown in Fig. 2. Spring 23 is of sufficient strength to lift the iron to the position shown in Figure 1. When lifted, the iron is supported substantially entirely by the U-shaped support 18 in the manner indicated in Figure 1.

Rigidly attached to the toggle shaft 14 at its axis of movement is an arm 25 which extends upwardly through a recess 36 in the rear leg 33 of the handle 30. The end of this arm is positioned between ears 26 and 27 of control lever 28 which is pivoted to the handle 30 by means of a pin 29. The handle may be attached to the sole plate 10 in any suitable manner. The free end of the control lever 28 fits into a recess 32 in one side of the handle 30 and is spring-biased outwardly by a light spring 37 secured to the inner face of the recess 32.

Positioned between the handle 30 and the sole plate 10 is a cover shell 34 which is extended rearwardly of the sole plate 10 as at 35. The down turned edges of the extension 35 cooperate with the support 18 to support the iron in an inclined position as shown in Figure 1, and also as a stop limiting upward tilting of the iron on the support 18. From Figure 1 it will also be observed that as the iron tilts upwardly, spring 23 comes into contact with the inner end of slot 31 formed in the cover shell 34. This contact tends to distort spring 23 downwardly and in so doing arrests the upward tilting of the iron. This resilient stop may be utilized together with the stop provided by the extension 35, or as the sole stop for the automatic lift of this invention.

Referring to Figure 2 it will be observed that when the iron is down, the center line of spring 23 coincides almost exactly with the center line of arms 15 and pintles 16. Under these conditions the spring is ineffective to tilt the iron upwardly about the pintles. If, however, the pintles 16 are pivoted only slightly counter-clockwise, the hook 22 will move upwardly to move the center line of spring 23 above the axis of pintles 16. The spring 23 is then free to contract and, in so doing, pivots the iron upwardly about the pintles 16 and into the position illustrated in Figure 1 in which the iron is completely supported above the ironing surface on the support 18.

It will be obvious that if the center line of the pintles 16 is above the center line of the spring 23 when the iron is in lower position, then the spring 23 will tend to rotate the support 18 clockwise. When so designed, the toggle locks the support against the sole plate, and the pintles must be moved below the spring center line before the iron can be elevated by the spring 23. The small amount of energy required to break the toggle is supplied by spring 37 acting on control lever 28 as will be readily understood.

Operation

Assume that the iron is in the position shown in Figure 2 and that the operator is grasping the handle 30 so as to hold the lever 28 against the handle as shown in Figure 3. It is to be noted that the axis of the pintles 16 is slightly above the center line of spring 23, in which case the groove 24, the axis of the toggle shaft 14, and hook 22 are in substantial alignment.

When the operator releases handle 30 spring 37 pivots lever 28 out of recess 32 and rotates arm 25, toggle shaft 14 and pintles 16 counter-clockwise. This will also rotate support 18 slightly counter-clockwise about a pivot provided by the forward ends of recesses 20. Although pintles 16 move upwardly slightly, hook 22 moves upwardly to a much greater extent. As the center line of the spring passes above the center line of arms 15, the spring will contract. As it does so, it is afforded an opportunity to exert its maximum lifting force to elevate the iron proper to the position shown in Figure 1. It will be noted from Figure 2 that support 18 is designed to rotate about pintles 16 to a limited extent before the forward ends of legs 19 contact the supporting surface. This rotation further increases the mechanical advantage of the lever system upon which the spring acts. By reason of this construction spring 23 is highly effective in elevating the iron quickly and effortlessly.

As the iron body rotates clockwise about the pintles 16, the spring 23 moves upwardly in the slot 31 until it abuts the forward end of the slot and resiliently arrests the clockwise movement of the iron body. As the iron body comes to rest in the position shown in Figure 1 the rear end 35 of the cover shell 34 comes into contact with the surface upon which the iron rests. This construction provides an unusually stable support for the iron as will be readily apparent.

When the operator desires to move the iron back into ironing position, the handle 30 is grasped simultaneously with the lever 28 and the iron body is pivoted downwardly about the pintles 16 so that legs 19 of the support 18 move into recesses 20 of the sole plate 10. During this movement spring 23 will be tensioned and lowered until its axis lines up with groove 24, the axis of toggle shaft 14, pintles 16 and hook 22. This will occur as legs 19 are moving into grooves 20. As legs 19 move into the grooves 20, the pintles 16 will move slightly above the center line of spring 23 so that the tension of the spring 23 will snap the forward ends of the legs 19 against the upper surfaces of grooves 20 to provide clearance between the forward ends of the legs 19 and the surface upon which the iron rests. So long as the operator grasps the handle the rest will remain in collapsed position and the iron can be lifted without releasing the automatic rest.

Another feature of the invention is the design of web 21 in such manner that it serves the additional important function of removing or dissipating wrinkles in the material being ironed. This formation is unusually effective in smoothing out wrinkles as the iron is moved backwardly. The web also forms a bottom cover plate for extension 35 of the iron housing.

From the foregoing it can be seen that this embodiment provides a simple over-center mechanism which is automatically operable to raise the sole plate from the surface upon which it rests as soon as the operator releases the handle of the iron. Also due to the fact that the spring 37 is comparatively light little pressure need be exerted by the operator to maintain the support in its retracted position when the iron is in use.

Second embodiment

Reference will now be had to Figures 4 to 7 showing a second embodiment of the invention. The same or similar parts to those in the first described construction will be referred to by the same reference characters distinguished by a prime. As is clearly evident from the drawings, the snap-action toggle mechanism is generally similar to that described above but is somewhat simpler structurally. Moreover, the supporting member 18' operates in a depression extending lengthwise of the central rear portion of the sole plate surface.

Referring particularly to Figure 4, it will be noted that member 18' comprises a generally horizontally extending rest 45 formed from sheet metal and having upwardly bent side reinforcing members 46, 46 which merge with much higher sides 47, 47 at the rear portion of the supporting member. Side members 47, 47 extend vertically for a substantial portion of their height and then merge to form a common connecting link to the control for the toggle mechanism, as will be more clearly evident from Figure 7. The rear base portion 48 of support 18' is inclined upwardly at a small angle so as to lie substantially flush with closure plate 49 when the rest is in its collapsed or retracted position. Cover plate 49 forms a removable closure for the rearward extension of cover shell 34' and is slotted at 50 so that the rear end of support 18' may move therethrough during the opening and

closing of the support. Cover 49 may be removably secured to the cover shell in any suitable manner.

Sides 47, 47 of the supporting member are provided with a pair of T-slots 51 extending rearwardly from their forward edges. Head 52 of the T-slot is located in a generally vertical plane and provides a lost motion connection or seat for a pair of bearing pins 53, 53 rigidly supported in a pair of brackets 54, 54 cast integrally with the sole plate and projecting beyond the rear end thereof. If desired, slot 52 may be formed as an arc having a center located at the rear end of toggle spring 23'.

Toggle spring 23' has one end carried in groove 24' of post 12' projecting upwardly from the sole plate, while the rear end of the spring hooks into an upstanding tab 22' at the rear of support member 18'. When the supporting mechanism is locked in its collapsed position, pins 53, 53 are located at the top of slots 52 and the center line of spring 23' is located below the center of these pins, as shown in Figure 4. However, should the rear end of the support member be swung upwardly until pins 53 lie in the bottom of slots 52, then the center line of spring 23' will overlie the pins and the toggle spring will then be effective to tilt the iron as a whole upwardly about pins 53 acting as a pivot.

The manual control means for the supporting mechanism is here shown as comprising a lever 28' having a top contour conforming to that of handle grip 55 and normally lying in a depression 32' along the top side of the grip. Lever 28' is pivotally supported on the handle by through pin 56, and is operatively connected to side members 47 of the supporting mechanism by a link 57 and a pin 58. This lever is urged upwardly by a light leaf spring 37' having one end bearing on the under side of the lever and the other end secured to the bottom of depression 32' in the handle. As clearly shown in the drawings, the control lever and its connecting link is housed in the hollow rear leg 33' of the iron handle 30'. The lower rear edge of the handle is preferably provided with a shoulder or stop 59 against which the top edge of tab 22' of the support member abuts when the rest mechanism is extended as illustrated in Figure 6.

Operation of second embodiment

Let it be assumed that the rest mechanism is fully collapsed and that the operator is holding lever 28' depressed against the action of spring 37' by embracing the grip portion of the handle with her hand as is customary in using the iron. If the operator discontinues the use of the iron, immediately upon relaxing her grasp of the handle, spring 37' pivots lever 28' upwardly to the position shown in Figure 5. As the lever pivots about pin 56 link 57 causes supporting member 18' to pivot counter-clockwise about a fulcrum formed by the foremost end of the depression 20' in the sole plate. This pivoting action is permitted by the lost motion connection formed by bearing pins 53 and slots 52 and results in the center line or axis of toggle spring 23' being shifted from a position slightly below pins 53 to a point slightly thereabove. If slots 52 are formed as an arc about the rear end of spring 23' this spring is placed under no additional tension as the toggle crosses its neutral position. This circumstance together with the long lever arm through which support member 18' is pivoted permits the toggle mechanism to be broken by the application of only a very slight amount of energy. This energy is provided by spring 37' and the lever linkage through which it is applied to the toggle.

It will be readily apparent that as soon as the center line of spring 23' overlies the pivot pins, that it is then highly effective to pivot the iron upwardly about the pins to the position shown in Figure 6 wherein shoulder 59 on the handle abuts the rear end of the support member and arrests further pivotal movement. The toggle spring will then hold the iron in its inclined rest position with all portions of the sole plate supported above the ironing surface. Accidental sidewise tipping of the iron is prevented by the wide rear end of the cover shell which contacts or is closely spaced from the ironing surface when the iron is supported on the rest.

At this point, it is desired to call attention to the fact that when the rest is in its collapsed position, the lower surface of supporting member 18' lies slightly above the surface of the sole plate. As pointed out above, during the breaking of the toggle, supporting member is further elevated a slight distance as is clearly evident from Figure 5. Accordingly, as the toggle mechanism starts to open further spring 23' first acts to pivot the supporting member counter-clockwise the slight amount to bring the forward end of the support in contact with the ironing surface. As soon as this occurs, the toggle spring is operative to pivot the iron clockwise about pins 53.

To restore the iron to its operating position, the operator grasps the handle from the rear of the lever 28', presses this lever as well as the iron proper downwardly to the normal operating position as shown in Figure 4. As the control lever is pivoted downwardly, it tends to pivot about pin 58 as well as about pivot 56 causing the rearmost end of the lever 28' and the iron to be elevated. This is for the reason that the lever is directly connected through link 57 to the supporting member which is resting on the ironing surface. In consequence of the upward movement of the rear end of the iron, bearing pins 53 are transposed to the upper end of slots 52. As this is occurring, the operator's hand will reach the grip and carry the forward end of the iron downwardly into contact with the ironing surface. By the time the sole plate is in full surface contact with the ironing surface, the center line of the toggle spring will have passed below the center of pins 53 and below the neutral point of the toggle. The toggle spring is therefore effective to rotate the support clockwise until the foremost end of the support abuts the upper surface of depression 20', where it will be locked by the toggle spring so long as lever 28' is fully depressed. The only force then tending to open the toggle is that provided by spring 37'. However, the pressure of this spring is very small and provides only that amount of force required to overcome the surface friction between the rear side of slot 52 and the two small pins 53. In consequence, the pressure exerted on the operator's hand is so small as to be negligible. It is to be obseved that so long as handle 28' is held depressed, the automatic supporting means is locked in its retracted position so that the iron may be picked up and maneuvered in any position required in ironing without the likelihood of the supporting mechanism being released and extended.

Third embodiment

Another embodiment illustrated in Figure 8 differs from the second embodiment in the use of a control which must be manually operated to release the toggle as well as to restore it to its collapsed position. Accordingly, the same reference characters distinguished by a single or a double prime have been employed to designate parts corresponding to the two preceding arrangements.

The toggle mechanism per se is identical with that described in Figures 4 to 7. The means for breaking the toggle comprises a simple one-piece lever 60 pivoted to the rear of the handle by pin 56'. This lever is provided with a finger piece 61 extending downwardly through an opening 62 in the handle grip. Control link 57' is connected between the upstanding sides 47' of the rest member and pin 58' on the lever.

As shown in full lines in Figure 8, the rest is locked in its collapsed position since the center line or axis of spring 23' is located below the center of pivot pins 53'. Should the operator desire to release the rest it is merely necessary for her to place her little finger beneath the lower end of finger member 61 and press it upwardly.

As lever **60** and connecting link **57** move upwardly about pivot **56'**, rest **18''** will pivot upwardly about the foremost end of the support until the lower end of slot **52'** contacts the undersides of pins **53'** and arrests further upward pivotal movement. During this movement the center line of spring **23'** is carried above pivot pins **53'** so that the toggle spring is effective to pivot the iron upwardly exactly in the same manner as described above in connection with Figures 4 to 7. The upward tilting of the iron is, of course, arrested when tab **22''** abuts shoulder **59'** on the rear of the handle.

The iron is restored to its normal ironing position when the opertaor grasps the handle grip and depresses the toe of the iron as the heel of her hand depresses lever **60** to the full line position shown in Figure 8. The lowering of the lever depresses rest **18''** to the extent permitted by slot **52'** and pins **53'** and shifts the axis of toggle spring **23''** below pivots **53'** where it is effective to hold the parts in a stable fully retracted position.

Fourth embodiment

Still another embodiment of the invention is illustrated in Figures 9 through 12. This form may be said to differ from the others primarily in the fact that the support member does not move during the breaking of the toggle and also by the fact that the forward end of the toggle spring is movably supported through a linkage coupled to the control means for the toggle mechanism.

Referring to the drawings, it will be noted that Figures 9 to 12 show an iron having a sole plate **65** provided with depression **66** extending longitudinally of the rear half of the sole plate and in which supporting member **67** seats while the iron is in use. Overlying the sole plate is the usual cover shell **68** extending rearwardly of the heel of the sole plate in the same manner and for the same purpose as described above. The operating handle **69** is secured to the cover shell and is provided with a hollow rear leg **70** and a depression **71** along its upper surface for receiving a control lever **72** which is pivoted to the handle at its rear end by pin **73**.

The toggle mechanism is pivotally supported at the rear of the iron on a pair of brackets **74** carrying a pair of pivot pins **75**. The upturned sides **76** of support member **67** are provided with slots **77** to receive and be journalled upon pins **75**. L-shaped toggle lever **78** consists of a pair of bell-crank members joined to one another by web **79** and is journalled upon pins **75**. The forwardly extending arms **80** of the lever are connected together by a pin **81** which provides the forward support for toggle spring **82**. The rear end of this spring is connected to an upstanding tab **83** at the rear end of support **67**. Vertical arms **84** of lever **78** support a pin **85** which extends through a cammed slot **86** in the downwardly extending sides of control lever **72**. Pin **85** may be of fiber or other suitable heat insulating material to prevent heat flow to the control lever. A U-shaped leaf spring **87** has one leg connected to the handle and the other bearing against the underside of lever **72** and urging the same upwardly to its open position. This spring is of sufficient strength to move the toggle spring from the stable retracted position of the support across the neutral point of the toggle mechanism so that the toggle spring is ineffective to pivot the iron upwardly onto the rest as in the previously described embodiments.

As will be clear from Figures 9, 10 and 11, the axis of the toggle spring lies below the axis of pins **75** when the support is in its collapsed or retracted position. In this position, the spring is effective to urge support **67** to rotate clockwise and so as to hold the forward end of the support in contact with the bottom of depression **66** in the sole plate. However, when the rest is in its extended position the axis of the toggle spring is well above pins **75** where the spring is most effective in holding the iron in its stable elevated position of rest.

Operation

So long as the operator is grasping the handle grip, control lever **72** is held closed against the slight resistance provided by spring **87**. Under these conditions the support is retracted and positioned slightly above the surface of the sole plate. When the operator releases her grasp of the handle, spring **87** pivots control lever upwardly with the result that slot **86** operates through pin **85** to pivot toggle lever **78** clockwise carrying the forward end of the toggle spring to the position shown in Figure 10 in which the axis of this spring is slightly above the center of pins **75**. During this part of the operation, the support member remains stationary in its retracted position. However, as soon as the spring is shifted above its neutral position or above the center of pins **75**, the spring is effective to pivot the support downwardly into contact with the ironing surface while pivoting the iron itself upwardly about a pivot provided by pins **75** until the iron is in the position shown in Figure 11.

One or more stops limit the upward movement of the iron. For example, tab **83** on the rear of the support member may come in contact with shoulder **88** on the rear of the handle to limit the upward movement of the iron. Or the bead **89** struck in top of the cover shell may contact the forward end of lever **78** and limit the movement of the parts.

To restore the iron to use, the operator merely grasps the handle as she depresses lever **72** and the iron itself to its normal operating position. As the lever **72** is moved to closed position, slot **86** acts through pin **85** and member **78** to restore the toggle mechanism to the closed or retracted position as shown in Figure 9 wherein the center line of the toggle spring is located below the center of pins **75**.

It is, of course, to be understood that spring **87** may be omitted and that lever **72** can be provided with a finger piece corresponding to the one designated **61** in Figure 8, if so desired. When so modified, it is necessary for the operator to press the lever carrying the finger piece upwardly with her finger to initiate opening of the rest and to depress the lever to restore the rest to its retracted position.

From the foregoing discussion of four embodiments of the invention, it will be at once apparent that various other arrangements of parts are within the scope of the present invention and may be employed without departing from the basic principles thereof. It will therefore be understood that these embodiments are to be taken as illustrative only and not in a limiting sense. I do not wish to be limited to the particular structures shown and described but to include all equivalent variations thereof except as limited by the scope of the annexed claims.

I claim:

1. A smoothing iron comprising, a sole plate, a handle attached to said sole plate, a shaft carried by the rear end of said sole plate, pintles carried by said shaft and offset from the axis thereof, a support pivotally carried by said pintles, said support having portions extending forwardly toward the toe of said sole plate and a portion extending rearwardly and upwardly therefrom to the rear of said pintles, a tension spring having one end connected to said sole plate forwardly of said shaft and its other end connected to the upward and rearward extending portion of said support and manually actuatable means secured to said shaft and movable in one direction for rotating said shaft to raise said pintles above the center line of said spring whereby said spring will hold the forwardly extending portions of said support in retracted position adjacent said sole plate.

2. A smoothing iron according to claim 1 in which said last mentioned means is also operative by movement in the opposite direction to rotate said shaft in the opposite direction to move said pintles below the center line of said spring whereby said spring will raise said sole plate upwardly relative to said support.

3. A smoothing iron according to claim 1 in which said last mentioned means includes a lever pivoted to said handle, said lever being operatively connected to said shaft and having a portion extending along said handle so as to be grasped along with said handle, the arrangement being such that when said portion is positioned against said handle the pintles will be positioned above the center line of said spring so that said support will be held in retracted position.

4. A smoothing iron according to claim 3 including spring means for biasing said lever outwardly relative to said handle when said handle is released whereby said pintles will be moved below the center line of said spring to permit said spring to raise said sole plate relative to said support.

5. A smoothing iron comprising, a sole plate, a support pivoted to the rear of said sole plate on laterally movable pivots, said support including a portion extending forwardly toward the toe of said sole plate and a rearwardly extending portion, a tension spring having one end secured to said sole plate forwardly of the pivot point of said support and its other end secured to the rearwardly extending portion of said support and manually actuatable means connected to said pivots and movable in opposite directions for moving the pivots upwardly and downwardly relative to said sole plate between positions above and below the center line of said spring whereby said spring is selectively effective to hold said sole plate in collapsed position with respect to said support or to bias said sole plate upwardly relative to said support.

6. A smoothing iron according to claim 5 including a handle carried by said sole plate and means carried by said handle and operatively connected to said pivot moving means for actuating the latter to selectively move the pivots of said support above or below the center line of said spring.

7. A smoothing iron according to claim 5 including a handle carried by said sole plate, a lever pivoted to said handle and extending along said handle so as to be grasped along with said handle when the iron is in use, said lever being operatively connected to said pivot moving means so that when said lever is positioned against said handle the pivots of said support will be positioned above the center line of said spring and when it is moved away from said handle the pivots of said support will be positioned below the center line of said spring.

8. A smoothing iron according to claim 7 including spring means for biasing said lever away from said handle.

9. A smoothing iron according to claim 5 including means carried by said sole plate and positioned to come into contact with the central portion of said spring as said sole plate approaches its elevated position so as to stress said spring and dampen upward movement of said sole plate.

10. A smoothing iron comprising a sole plate, a support, an over-center toggle for movably attaching said support to said sole plate, a portion of said sole plate constituting one arm of said toggle and a portion of said support constituting the other arm, the pivot point of said toggle being centrally located and laterally movable relative to its arms and being positioned at the rear of said sole plate, a tension spring connected between the ends of said toggle arms, and manually actuatable means connected to the pivot point of said toggle for moving said pivot point to one side or the other of the center line of said spring whereby said spring will either bias said support against said sole plate or bias said sole plate away from said support and raise said sole plate upwardly relative to said support.

11. A smoothing iron according to claim 10 including a handle carried by said sole plate, said manually actuatable means comprising a lever pivoted to said handle so as to lie against said handle to be grasped simultaneously with said handle and to be moved away from said handle, said lever being operatively connected to the pivot point of said toggle to move it to opposite sides of the center line of said spring, the arrangement being such that when said lever is positioned against said handle the pivot point of said toggle will lie above the center line of said spring so that said spring will bias said support against said sole plate.

12. A smoothing iron according to claim 11 including means for biasing said lever away from said handle to move the pivot point of said toggle below the center line of said spring to cause said spring to bias said sole plate upwardly relative to said support.

13. In combination, an electric sad iron having a body including a sole plate, a handle overlying and attached to said body, said handle having a grip for the operator's hand and a hollow supporting leg opening downwardly into said body, a unitary support on said iron movable between an extended position in which said sole plate is supported out of contact with an ironing surface and a retracted position above the lower surface of said sole plate, means within said iron for movably supporting said support, a spring interconnected between said iron and said movable support and forming a toggle therewith so as to urge said support to the retracted position thereof as said support approaches said retracted position and to urge said support to said extended position as the support is moved away from said retracted position, said spring being sufficiently strong to hold said support in its extended position in opposition to the weight of said iron, and manually operable control means carried by said handle for moving said support away from the retracted position thereof whereby said spring snaps said support to said extended position and automatically elevates said iron above an ironing surface, said control means extending through an opening in said handle and having one portion positioned adjacent said grip and another portion extending into said hollow leg.

14. In combination, a sad iron comprising a body having a sole plate, an operating handle including a grip positioned between front and rear supporting legs, one of said legs having a vertically extending cavity opening downwardly into said body, an over-center snap acting mechanism for supporting said iron in an inclined rest position above an ironing surface comprising a unitary movably mounted support member, a toggle spring having one end connected to said iron and the other end connected to said support member, said spring being operable to move said support member with a snap action between a retracted position and an extended position in which said iron is supported in said inclined rest position, and control means for moving said support member away from said retracted position, said control means including a lever pivotally supported in a lateral opening in said handle at the upper end of said hollow leg, said lever extending closely adjacent and generally parallel to said grip for convenient access by the operator, said supporting means being readily movable to said retracted position by downward pressure on said handle grip in opposition to said toggle spring until said spring snaps said support to said retracted position.

15. A self-lifting smoothing iron comprising a body having a sole plate provided with a toe portion and a heel portion at the opposite ends thereof, a handle carried above said body having a pair of supporting legs one of which is provided with a cavity opening through the bottom thereof, collapsible supporting means carried by said iron movable between a retracted position and an extended position in which the sole plate of said iron is supported in an inclined stable rest position above an ironing surface, said collapsible supporting means including a support member, means for mounting said member on said iron for movement from an extended position across a neutral position and to a retracted position in which the lowermost surface of said member is slightly above the bottom surface of said sole plate including a

toggle spring for snapping said member to said retracted position or to said extended position against the weight of said iron, one end of said spring having a connection with said iron and the other end being connected to said support member and being so arranged with respect thereto that said support moves across a neutral position in which said spring is inoperative to move the support member toward either the extended or retracted positions thereof, and means extending upwardly through the cavity in said one handle leg including a manually releasable control means adjacent a hand grip on said handle for shifting said support member across said neutral position away from the retracted position thereof and without elevating said iron out of contact with an ironing surface to render said toggle spring effective to tilt said iron upwardly to said inclined rest position on said support member and to hold the iron in this position until an operator applies a downward pressure on said handle to move said supporting member beyond said neutral position toward said retracted position.

16. A smoothing iron according to claim 5 including a cover shell carried by said sole plate and having a rearward extension, a slot in said rearward extension positioned to receive the rear end of said spring when said sole plate is in its elevated position, the arrangement being such that the forward end of said slot is positioned between the ends of said spring and comes into contact therewith as said sole plate approaches its elevated position whereby said spring is stressed to dampen upward movement of said sole plate.

17. A self-lifting smoothing iron having a body, an electrically heated sole plate on the under side thereof, an operating handle secured to the upper side of said body, of self contained means for automatically elevating said iron and supporting the same with said sole plate out of contact with an ironing surface when said iron is not in use, said self contained means comprising a support member extending longitudinally of said iron, shiftable pivot means movably connecting said support member to said iron so that the same is movable between a normally retracted position within the confines of said iron and an extended position below the lower surface of said sole plate, spring means having one end reacting against said iron and its other end reacting against said support member at a point such that the line of action of said spring means is positioned on one side of said pivot means when said support member is retracted, and manually controlled means for moving said shiftable pivot means and said support member to shift the line of action of said spring means to the other side of said shiftable pivot means wherein said spring means is operable to move said support member to the extended position thereof and to elevate said sole plate to a position out of contact with an ironing surface.

18. A self-lifting smoothing iron having a body, an electrically heated sole plate and an operating handle mounted on said body, automatically operable means for elevating and supporting said iron at an inclined angle with said sole plate out of contact with an ironing surface comprising an elongated support member extending longitudinally of said iron at the rear lower portion thereof, pivot means connecting said support member to said iron for limited angular movement with respect thereto between a retracted position above the surface of said sole plate and an extended position below said sole plate, said pivot means including means for shifting the active pivotal axis of said support relative to said iron, spring means interconnecting said support and said iron and having an axis movable from one side to the other of said pivot means for said support, and means for moving said support member to shift its pivotal axis relative to said sole plate so as to shift the axis of said spring in one direction across the axis of said pivot means while said support remains above the lower surface of said sole plate to render said spring means effective to move said support to its extended position and to elevate said iron thereonto.

19. A self-lifting smoothing iron as defined in claim 18 including means for shifting the pivotal axis of said support in the reverse direction as said support is moving back into its retracted position to return the axis of the spring to the normal position thereof relative to said pivotal axis and wherein said spring is effective to urge said support toward its retracted position and away from its extended position.

20. In a smoothing iron of the type having a sole plate, a cover shell therefor and an operating handle having a hollow rear supporting leg, of means for supporting said iron in an upwardly inclined position out of contact with the ironing surface comprising, a support member underlying the heel of said sole plate and pivotally supported thereon, a toggle lever pivotally supported at the rear of said iron and having an end positioned forwardly of the pivot for said support member, a toggle spring having one end connected to the forward end of said toggle lever and its other end connected to said support member rearwardly of the pivot therefor, said toggle lever being movable to shift the axis of said spring from its normal position below the pivot for said support member to a position above said pivot whereby the toggle spring is operative normally to hold the support member retracted against the sole plate and is operative to pivot the support member away from the sole plate when the toggle spring is shifted upwardly above the pivot for the support, and means for controlling the position of said toggle lever including a manually operable control extending through an opening in said handle with one portion adjacent the grip of said handle and another portion housed within said hollow rear leg.

21. A smoothing iron as defined in claim 20 including common pivot means for said support member and for said toggle lever.

22. A smoothing iron as defined in claim 20 wherein said toggle lever is an L-shaped lever pivoted to said iron near the junction point of its two arms, one of said arms extending forwardly beneath said cover shell, the other arm extending upwardly into a cavity in the rear leg of said operating handle, said control means for said toggle lever being operatively connected to said upwardly extending arm.

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