PORTABLE IRONING STAND WITH IRON SUPPORT

John Henry Walter Lewis, Chaldon, near Caterham, England
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This invention relates to improvements in and relating to ironing equipment and in particular to ironing stands of the portable, transportable or folding type and embodying a fireproof support upon which the iron is rested when not in use.

The invention is directed particularly though not exclusively to stands for use in conjunction with electrically heated irons of the “cordless” type, i.e., irons in which the heating element is not connected with any electric current leads during the operation of ironing.

It is a disadvantage of ironing equipment as at present constructed that when the work of ironing is finished the iron is still hot, and it is usually necessary to allow it to cool over a lengthy period before it can be safely stowed away. Thus if the portable or transportable or folding ironing stand is to be stowed immediately, it becomes necessary to find a suitable separate place for location of the iron whilst it is cooling off.

It is the primary object of the present invention to provide ironing equipment whereby this disadvantage is overcome.

In accordance with the present invention a portable or transportable ironing stand is provided comprising an ironing surface for the work, a fireproof support for the reception of the iron when not in use for ironing, and securing means for retaining the iron fixed in position on the fireproof support.

The iron retaining device may be under the control of the operator, being allowed to remain in a non-retaining condition throughout the entire ironing operations including the intervals during which the iron is rested temporarily on the support, and being operable to fix the iron in position on the support when the ironing operations are completed, so that the stand may be stowed away, or folded and stowed away, with the iron remaining in position on the fireproof support, in which position it is safely left to cool.

In the case of an ironing stand of the kind having a foldable stand it is desirable, after the iron has been placed on the fireproof support, that the fixing of the iron in position on the fireproof support be effected before the stand is folded for stowing, to avoid the possibility of the iron falling from the stand, and in accordance with a further feature of the invention the fixing means for the iron is associated with parts of the stand which are required to move relative to one another when the stand is to be folded, in such manner as to prevent such relative movement and hence folding of the stand until the fixing means for the iron has been caused to take the iron fixing position.

The fixing means for the iron and the parts of the stand with which said means are associated for the above described purpose are preferably also disposed in such manner that manipulation of the fixing means for the iron to permit the latter to be removed from the fireproof support is rendered impossible whilst the stand is in the folded condition.

One embodiment of the invention is illustrated by way of example in the accompanying drawings in which

Figure 1 is a view in side elevation of a complete stand.
Figure 2 is a view in plan of the top of the stand.
Figures 3 and 4 are views in sectional elevation showing the method of connection of the folding support with the top of the stand.
Figure 5 is a view in sectional end elevation on the line 5—5 of Figure 1 and on a larger scale.
Figure 6 is a part plan view also on a larger scale and

Figure 7 and 8 are perspective views of parts of the locking mechanism.

Figure 9 is an end view in elevation of an alternate arrangement by which the iron is secured in its fireproof support on the stand, and Figure 10 is a view in elevation, the iron being shown in dot and dash lines, taken on the line X—X of Figure 9.

Figure 11 is a detail of a portion of the mechanism shown in Figure 9, with the control bar shown in section.

Figure 12 is a plan view of the parts shown in Figure 11.

Referring to the drawings, the improved stand comprises an ironing top or board 1 formed as a sheet metal pressing with downwardly depending edge flanges 2 and provided on its underside with channel section reinforcement bars 3 affixed for example by welding.

The top 1 is covered over the greater part of its upper surface including one end, with a layer of felt 4 or other appropriate padding material which in turn is covered with fabric 5 adapted to form the ironing surface.

The uncovered portion at one end of the top 1 is apertured or recessed and in the aperture or recess is mounted a fireproof support for the iron, in the form of a metal tray 6 having a flat base 7 wider at one end than the other, side
walls 8 of small depth at the wide end of the base 7 and of increasing depth in the direction away from said wide end, and an end wall 9 at the narrow end of the base 7. At the wide end of the base 7 is provided an apron 10 extending downwards below the top 1 of the stand and this apron may be an integral extension of the base 7 of the tray. A narrow slot exists between the apron 10 and the adjacent end of the aperture or recess in the top 1 of the stand.

A roller 12 extends across the width of the wide end of the base 7, being carried on a fixed axis pin connected to the side walls 8 of the tray and a second and parallel roller 13 is mounted between lugs 14 bent up from the base of the tray on an intermediate line somewhat closer to roller 12 than the end wall 9 of the tray. The base 7 of the tray may be asbestos lined and the rollers 12 and 13 are mounted close to the base 7 and the dimensions are such that the upper sides of the rollers lie just above the asbestos lining of the tray.

The side walls 8 and end wall 9 are flanged as shown at 11 and the arrangement is such that when the tray is mounted in the aperture or recess in the top 1 with the edge flanges 11 resting upon the top 1, the upper side of the roller 12 is approximately in the plane of the iron's surface on top 1 and the base 7 of the tray is at a small downward inclination thereto, the roller 13 being at a lower level than roller 12. The tray is preferably mounted with its longitudinal centre line at an inclination, indicated by angle in Figure 1, with the longitudinal centre line of the top.

Thus an iron can be moved from the ironing surface of the top 1 into the fireproof support formed by the tray 6 by a simple arcuate sliding movement which is an extension of a normal sliding movement as employed in the ironing operation and without any necessity for lifting the weight of the iron, and the small downward inclination of the base 7 ensures retention of the iron on the fireproof support by gravity.

The downward inclination of the base 7 is small so that little or no additional effort is required to slide the iron from the fireproof support onto the ironing surface.

When the stand is to be used with a "cordless" iron a terminal box 15 is provided on the underside of the top 1 beyond the outer end wall 9 of the tray 6 and the said wall 9 is apertured as at 16 for the passage of contacts 17 provided in known manner on the rear end of the iron 18 for engagement with contacts 19 in the terminal box 15 when the iron is moved fully home on the fireproof support as shown in Figure 6.

The terminal box 15 is adapted to be connected through a lead 20 with a source of current, and with the current to box 15 on, the heating circuit of the iron is closed by the engagement between the contacts 17 on the iron and the contacts 19 in the terminal box 15, each time the iron is placed on the fireproof support so that heating up of the iron takes place in the intervals between ironing operations.

The iron is preferably provided in known manner with an adjustable heat-sensitive or thermostat switch within its body adapted to open the heating circuit when the iron has reached a desired temperature and an indicator lamp 21 is provided in the terminal box 15, viewable through a window in a cover plate 22 fixed over an aperture in the top 1 of the stand above the terminal box 15 to indicate whether the heating circuit of the iron is closed or not.

Within the fireproof support 6 at the narrow end thereof are fixed a pair of angle pieces 23 with one limb of each affixed to one vertical wall 8 of the tray and with the other limbs 24 (Figure 6) extending towards one another across the fireproof support. The adjacent edges of the projecting limbs 24 are shaped to conform closely to the body of the iron 18 shown in dotted lines in Figure 6) at the rear end thereof above the widest part, considered in a vertical direction, at the lower edge of the body or above the usual projecting edge 25 of the sole plate of the iron. The shaped projecting limbs 24 ensure that the iron can only be placed upon or removed from the fireproof support by a transverse movement in the direction from the wide, towards the narrow end of the base 7, and in the case of a "cordless" iron they ensure the iron taking the precise centralised position necessary for passage of the contacts 17 on the iron through the apertures 16 in the end wall 9 of the fireproof support.

In accordance with the present invention means are provided for locking the iron in position on the fireproof support and the means for this purpose in the case illustrated are as follows:

Upon the vertical centre line of the downwardly depending apron 10 and below the top 1 is mounted a rotatable metal disc 26 having a pair of symmetrically arranged cam slots 27 in which engage pins 28 on the lower ends of a pair of hooked bell crank levers 29 mounted to rock about separate fixed pivots 30 on the apron 10, the other ends of said levers being shaped to form claws 31 (Figure 5). These bell crank levers 29 constitute movable iron retaining members in this form of the invention. Tension springs 32 are connected between the claw ends of the levers 29 and fixed anchorages 33 on the apron 10. The disc 26 is movable about its centre pivot through a fixed angle by means of a control bar 34 making pin and slot connection at one end 35 with the disc 26 and being arranged to slide in guides 36 on the underside of a block 37 fixed beneath the top 1 of the fireproof support to engage a knob 38 accessible at one side of the top 1.

By thrusting the bar 34 inwards into the position shown in full lines in Figure 5 the disc 26 is rotated and the levers 29 caused to take the position shown in full lines in that figure in which the claws 31 are engaged over the projecting edge 25 of the sole plate of the iron at points towards the front end of the iron, i.e. forwards of the widest part of the sole plate of the iron.

The shape of the cam slots 27 in the disc 26 is such that the levers 29 cannot be moved except by rotation of the disc, so that in the above described position of the parts the iron is held locked to the fireproof support by the engagement of the limbs 24 of the angle pieces towards the rear end of the iron, and the claws 31 of the levers 29 towards the front end of the iron, over the edge of the sole plate.

The ironing top 1 is carried upon a folding support comprising a pair of frames 39 and 40, each formed by two legs conveniently of metal tubing, connected at the lower ends in each frame by cross braces 41. The legs of each frame are flared outwards in the downward direction (Figure 4) to provide improved stability when the stand is
in use, and the width of one frame 40 is such that it may be mounted between the legs of the other frame 39, the two frames being pivotally connected together intermediate their ends as shown at 42, Figure 1. The frame 39 is somewhat longer than frame 40, and is pivotally connected at its upper end with the side of the top 1 by flattening and boring the ends of the legs and mounting them on bearing members 43 carried in lugs 44 depending from the underside of the top 1 in the region of the whole or entry end of the fireproof support 6 (Figures 1 and 4). The bearing members 43 are spring tube 46 and the flattened ends of the legs from the lugs 44 by spacing members 48 and the whole is held assembled by nuts 47 screwed onto the ends of a rod 48 passing through tube 45 and the bearing members 43.

The legs of the frame 43 are pivotally connected at their upper ends to the free ends of a pair of parallel links 49 of angle section, the other ends of which are pivotally connected to lugs 50 fixed to the underside of the top 1 at a distance from the pivot lugs 44 of frame 39 slightly greater than the length of the links 49. With the stand unfolded for use the frames 39, 40 occupy the position shown in full lines in Figure 1, in which the links 49 connected with frame 40 extend to the left in the figure from the fixed pivot 50 with the top 1 resting on the links.

To fold the stand, the left-hand end of the top 1 in Figure 1 is raised about the pivot of frame 39 and frame 40 is moved about its pivot 42 on frame 39, the links 49 at the same time moving about the pivot 50 on the top 1. Frame 40 and links 49 are in effective contact, and to complete the folding, this toggle linkage 49, 49 is made to take its maximum length or dead center position and moved on until the links 49 take a position close to the underside of the top 1 but now extending to the right in Figure 1, the frames 39 and 40 being at the same time constrained to take a position close to the underside of the top 1 as shown in dotted lines at 54.

Unfolding of the stand is carried out by a sequence of movements in the reverse direction to that described above.

It will be readily understood that it is desirable to ensure that the iron which is to rest upon the fireproof support when the stand is stowed away should be fixed to the fireproof support before the stand is folded, if possible upsetting or accident with the iron is to be avoided and the improved stand is provided with means to ensure such preliminary fixing or locking of the iron before the stand is folded.

For this purpose a plate 51 is welded to the upper end of one of the legs of frame 39, for movement with said frame about the bearings in lugs 44 beneath the top 1. This plate is provided in its edge with a slot 52 located so that when the stand is unfolded, i.e., is in the full line position of Figure 1, the hand-controlled bar 34 controlling movement of the locking means for the iron extends through the slot 52 (Figures 6 and 7). The control bar 34 is also provided on one edge with a slot 53 of a size to permit the plate 51 to move within it.

With the stand in use for ironing, the control bar 34 occupies its drawn-out position, i.e., the dotted line position shown in Figure 8, so that the claw end 31 of the locking lever is in the position below the ironing surface of the top 1 and the iron can be moved freely onto and off from the fireproof stand, and in this position of the bar 34 the slot 53 therein is out from register with plate 51 (see Figure 7). Since the bar 34 extends through the slot 52 in the plate 51 movement of the plate 51 and therefore of the bearings 43 is prevented, so that folding of the stand cannot take place. If however the bar 34 is thrust inwards to the full line position shown in Figure 5, as is necessary to lock the iron on the fireproof support, the bar moves through the slot 52 in plate 51 until the slot 53 in the bar is brought together by a spring 47 and the flattened ends of the legs from the lugs 44 by spacing members 46 and the whole is held assembled by nuts 47 screwed onto the ends of a rod 48 passing through tube 45 and the bearing members 43.

The means to prevent folding of the stand is as will be seen from Figure 7 so that the bar 34 as will be seen from Figure 7 so that the bar cannot be moved longitudinally to release the iron from the fireproof support.

Thus from the unfolded condition of use of the stand it is made possible to fold the stand without first operating the mechanism for locking the iron to the fireproof stand, and with the iron locked to the fireproof support and the stand folded, it is impossible to remove the iron from the fireproof support without first unfolding the stand to bring it to the position of use.

It is to be understood that the embodiment described above and illustrated in the accompanying drawings is one example only of a construction according to the invention.

In an alternative construction as shown in Figs. 9 and 10 the means for securing the iron 18 on the fireproof support 6 is in the form of a U-shaped hoop or yoke 54 carried directly at the ends of a pair of parallel bars 55 pivoted at 56 to brackets 57 on the top of the stand, the hoop or yoke 54 being movable with the bars 55 about the pivots 56 between a position of clamping engagement over the forward end of the body of the iron as shown in full lines in Figs. 3 and 10, and a position where the hoop hangs over the end of the top of the stand as shown in dotted lines in Fig. 10. The U-shaped hoop or yoke 54 terminates at each end in extension pieces with end hooks 58, these parts being adapted, in the position for clamping the iron, to extend down through holes in the top 1. The U-shaped hoop or yoke 54 constitutes the movable iron retaining member in this form of the invention.

A control bar 34 with operating knob 38 is mounted as in the previously described construction for sliding movement beneath the top, and the bar 34 in this case is provided with apertures 59 for passage of the hook ends of the hoop or yoke 54.

The control bar 34 is biased in one direction by a tension spring 58 in such a manner as to maintain the bar engaged above the hooks 58 as shown in Fig. 9 to hold the hoop in the iron retaining position.

To release the iron, the control bar 34 is moved by the knob 38 in the direction against the spring 58 to a position permitting the upward swing of the hooks 58 from the apertures 59 and upwards through the table top and swinging of the hoop or yoke 54 to the position shown in dotted lines in Fig. 10. Cams 61 on the control bar 34 are engaged by the sides of the hooks 58 to move the control bar 34 to permit the hooks to pass through the apertures therein when the hoop is returned to the iron retaining position.

The means to prevent folding of the stand until
the iron has been fixed by the hoop or to prevent removal of the iron from the stand whilst folded may be similar to that previously described.

While I have shown and described several preferred embodiments of my invention, it is to be understood that modifications and variations may be made in those preferred embodiments, as described, which would nevertheless come within the scope of my invention. It is therefore my intention to include as part of my invention all such modifications and variations as properly fall within the scope of the appended claims.

I claim:

1. Ironing equipment comprising a stand including an ironing top for the work to be ironed and having an electrical outlet, a foldable supporting structure connected with said ironing top for movement between a folded condition for stowing of the stand and an unfolded condition for use of the stand, a fireproof support fixed to said ironing top for reception of a cordless iron when not in use, electrical connectors on the said ironing top for engagement with corresponding coating connectors of a cordless iron, said connectors being engageable with one another by longitudinal movement of the iron into position on the said fireproof support, movable iron retaining means mounted on the ironing top and movable into a position of retaining engagement with a cordless iron when said iron is in position on the said fireproof support with said coating connectors engaged with one another to prevent disengagement of said coating connectors from one another and to serve in conjunction with said engaged connectors to retain a cordless iron on the said fireproof support, a locking means on said foldable structure and a control member on said top, said control member engaging with said locking means and iron retaining means to lock the latter in iron retaining position against movement relative to the top when the supporting structure is folded.

2. A portable ironing stand comprising an ironing top for the work to be ironed, a foldable supporting structure connected with said ironing top for movement between a folded condition for stowing of the stand and an unfolded condition for use of the stand, a fireproof support fixed to said ironing top for the reception of an iron when not in use; a control member movable between two positions on said stand and cooperating with said foldable structure to lock same against folding when unfolded; means comprising at least one movable iron retaining member carried by the ironing top for movement between iron locking and unlocking positions with respect to said fireproof support, a locking member on said stand and cooperating with said control member to lock said foldable structure against movement into folded position, said control member coupling said iron retaining member and locking member for coaction so that when said control member is in one of said two positions, said iron retaining member is unlocked and said locking member is engaged with said control member to lock said foldable structure against folding; and when said control member is in the other position, said iron retaining member is locked against movement in iron locking position and said locking member is disengaged from said control member for folding said foldable structure.

3. A stand according to claim 2 in which the ironing top is slotted adjacent said fireproof support, and said iron retaining member comprises a pair of hooked levers pivotally supported below low said top, said hooked portions extending through said slots to engage or release from engagement an iron supported in said fireproof support, said levers being connected to and controlled by said control member.

4. A stand according to claim 2 in which said fireproof support comprises bottom and side walls, guide elements fixed to said side walls and extending towards one another across said bottom and spaced therefrom, said elements supporting part of the body of an iron when seated in said support.

5. A stand according to claim 2 in which the ironing top is slotted adjacent said fireproof support, and said iron retaining member comprises a yoke pivotally supported on said top for movement into or out of iron locking position on said top, said control member being supported below said top, said yoke having means extending through said slots for releasable engagement with said control member.

6. A stand according to claim 2 in which the ironing top is slotted adjacent said fireproof support, and said iron retaining member comprises a yoke movable supported on said top for movement into or out of iron locking position on said top, said control member being supported below said top, said yoke having means extending through said slots for releasable engagement with said control member.

7. A stand according to claim 2 in which the locking member is fixed to said foldable structure and is released from locking coaction with said control member in one position of said control member.

8. A stand according to claim 2 in which the locking member is fixed to said foldable structure and is locked against movement by said control member when the stand is in ironing position.

9. A stand according to claim 2 in which the locking member is fixed to the foldable structure and is slotted adjacent the control member and said control member, in one position, passes through said slot to lock said foldable structure in ironing position.

10. A stand according to claim 2 in which the control member is slotted adjacent the locking member, said locking member being fixed to the foldable structure and passing through said slot in one position of said control member when the foldable structure is folded.

JOHN HENRY WALTER LEWIS.

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