Jan. 11, 1944. W. F. GAYRING 2,338,808

MEANS FOR SMOOTHING SLEEVED ARTICLE ON PRESSING TABLE AND OPERATING MEANS THEREFOR

Filed Dec. 4, 1941 2 Sheets-Sheet 1

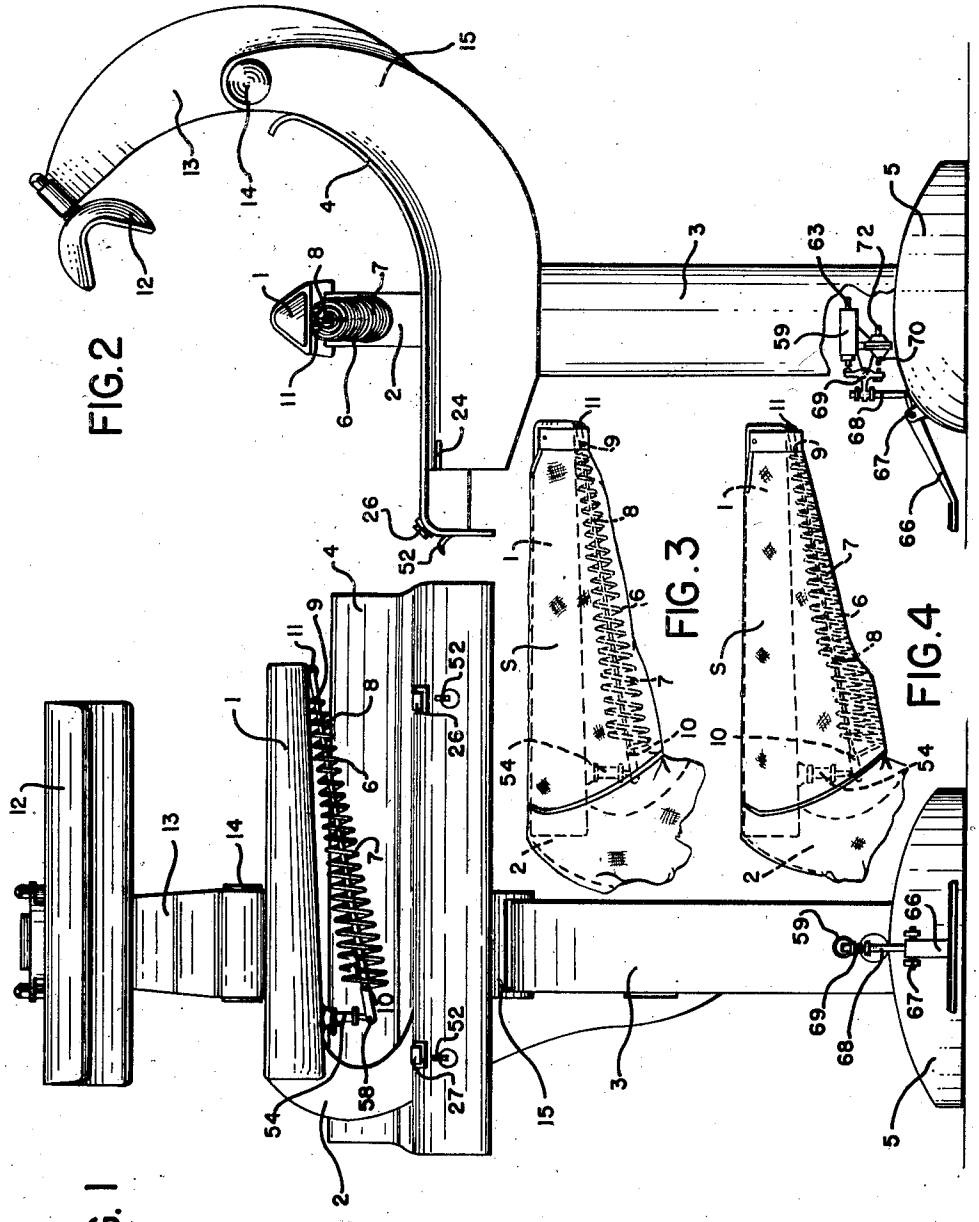


FIG. 2

FIG. 3

FIG. 4

FIG. 1

INVENTOR.
WALLACE F. GAYRING

BY Bodell & Thompson
ATTY.

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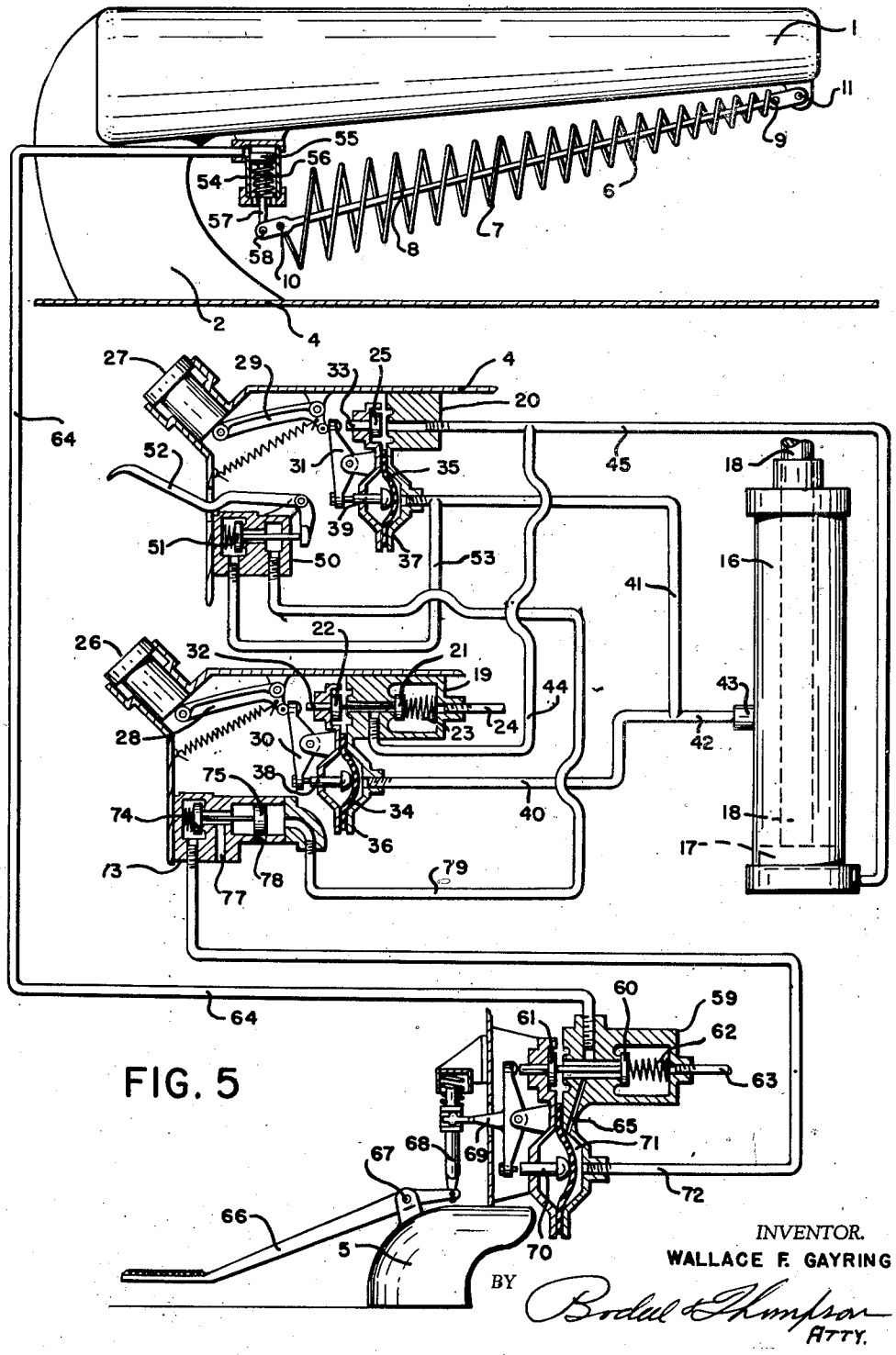


FIG. 5

INVENTOR.
WALLACE F. GAYRING

BY Bodell & Thompson
ATTY.

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MEANS FOR SMOOTHING SLEEVED ARTICLES ON PRESSING TABLES AND OPERATING MEANS THEREFOR

Wallace F. Gayring, Minoa, N. Y., assignor to The Prosperity Company, Inc., Syracuse, N. Y., a corporation of New York

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12 Claims. (Cl. 223—57)

This invention relates to means for smoothing sleeved articles on pressing tables, and has for its object a particularly simple means for automatically taking the slack out of tubular articles sleeved on the table and conformable to the contour of the sleeved article, in order to apply a uniform tension to the articles when taking the slack out of the same.

It further has for its object means for shifting the slack take-up means to facilitate the sleeving of the article on the table, the removal of the sleeved article from the table and also permit re-adjustment or turning of the sleeved article about the table to press different portions thereof on the pressing face of the table.

It further has for its object a slack take-up means consisting of a sinuous resilient member anchored at its opposite ends and having portions spaced apart throughout its length, which portions are yieldable individually relatively to each other to conform to different contours of the sleeved article and apply a substantially even tension to the article cross wise of the article throughout the length thereof. More specifically, it has for its object a slack take-up member consisting of a coiled spring, and preferably a conical coiled spring normally under tension so that its coils are spaced apart, and the individual coils constitute individually yieldable portions to conform to the contour of the sleeved article and apply an even crosswise tension to the sleeved article throughout the length thereof, this member or spring being normally arranged under the overhanging portion of the ironing table and inclining from the overhanging or free end toward the supported end, the member being shiftable relative to the ironing table to vary the angle thereof relative to the table, and hence tighten it in the sleeve after the sleeve has been sleeved on the table and loosen preliminary to re-arranging or turning the sleeve on the table, or to removing it from the table.

It further has for its object operator controlled mechanism for actuating the slack take-up member and holding it in its operated or tightened position, and also mechanism for actuating the press head, which coacts with the table, and for holding it in its pressing position, together with means for releasing the actuating mechanism for the slack take-up member when the actuating mechanism for the press head is released to permit the press head to open.

The invention consists in the novel features and in the combinations and constructions hereinafter set forth and claimed.

In describing this invention, reference is had to the accompanying drawings in which like characters designate corresponding parts in all the views.

Figures 1 and 2, respectively, are front and side elevations of a pressing machine embodying this invention.

Figures 3 and 4 are fragmentary views of the pressing table showing different ways that the slack take-up member conforms to the contour of the sleeved article.

Figure 5 is a side elevation of the pressing table or buck of a pressing machine equipped with this invention, the actuating mechanism for the press head and the control therefor and also the actuating mechanism for the slack take-up member and control therefor being shown diagrammatically.

1 designates a pressing table here shown as the lower pressing element or buck of a pressing machine, the table 1 being supported at one end by a bracket 2 carried by the frame or pedestal 3 of the machine, the greater part of the pressing table 1 overhanging a table top 4 carried by the frame. The pedestal 3 is mounted on a suitable base 5. The slack take-up means comprises a sinuous resilient member having portions spaced apart in a direction lengthwise of the member and individually movable relatively to each other and at an angle to the lengthwise axis of said member to conform to different contours of the sleeved article, the slack take-up means being suspended from its ends beneath the overhanging portion of the pressing table or buck 1.

The sinuous member here shown is a coiled spring 6 under tension to separate its coils 7 a considerable distance, so that they may act with comparative freedom relative to each other to conform to the different contours of the sleeved articles, as illustrated in Figure 4. Some of the sleeved articles are merely tapered, others are on two tapers with a bulge or curved portion between the tapers. Regardless of its form, this sinuous member or spring applies an even tension to the article downwardly throughout the length of the sleeved article, and smoothes the portion of the article over the pressing face of the table 1. The spring is preferably conical with the diameters of the coils increasing from the overhanging end of the pressing table 1 toward the supported end. Also, the spring is ar-

ranged with its axis inclining downwardly from the free end of the pressing table 1 toward the supported end. The spring is preferably supported by a carrier or rod 8 extending axially therethrough, the spring being anchored at its opposite ends at 9 or 10 to the rod. The rod is pivoted at one end at 11 to the free overhanging end of the pressing table 1 and at its other end is pivotally connected to the table through mechanism operable to change the angle of the spring and the rod relatively to the table 1. The spring is normally arranged at a minimum inclined angle and is shifted to a greater angle to apply crosswise tension to the sleeved article and is released from the greater angle for the purpose of facilitating the sleeving of the article on the table or buck, removing the sleeved article therefrom and for turning it on the pressing table or buck to bring the portion hanging beneath the buck up onto the pressing face of the buck.

12 designates a press head movable toward and from the buck or pressing table 1, this being shown as carried by a lever 13 pivoted between its ends at 14 to an arm 15 forming part of the frame of the machine, one arm of the lever extending inwardly into the pedestal 3, which is hollow, and in which power actuating mechanism is located.

This mechanism, as here shown, consists of a cylinder 16 (Figure 5) having a piston 17 therein, the rod 18 of which is connected in any suitable manner to the head-carrying lever 13. The flow of power to the cylinder 16 is controlled by any suitable means, that here shown is a two-hand control for controlling the flow of compressed air to the cylinder 16. The control here shown comprises a normally-closed intake and exhaust valve 19 arranged with its intake closed and its exhaust open, a normally open exhaust valve 20, these valves being connected in series in a conduit system for compressed air, and manuals for operating the valves respectively. The valve 19 includes a suitable casing and a movable valve member therein including a normally-closed intake valve head 21, a normally open exhaust valve head 22, a sprinf 23 acting to hold the movable member in its normal position, these valve heads being connected together so that they act as a unit. The intake end of the casing is connected to a feed pipe 24 for motive fluid, as air. The exhaust valve 20 includes a suitable casing with a normally open, spring-pressed exhaust valve head 25. The movable valve members are operated by manuals, as push buttons 26, 27 respectively, these acting on levers or other motion transmitting parts 28, 29 respectively, which coact with two arm levers 30 and 31, the lever 30 coacting with the stem 32 of the combined intake and exhaust valve 19 to close the exhaust valve head 22 and open the intake valve head 21. The lever 31 coacts with the stem 33 of the head 25 of the exhaust valve 20. These valves are held in their operated position by diaphragms 34 and 35 respectively located in diaphragm chambers 36 and 37 which act through plungers 38 and 39 on the levers 30 and 31 respectively. The pressure sides of the diaphragm chambers are connected through pipes 40, 41 and 42 to a port 43 in the side of the cylinder 16 located to be passed by the piston 17 when the piston has passed far enough on its power stroke to actuate the head 12 to a position in contact with, or close to, the table or buck 1 or the work thereon. The casing of the exhaust valve is connected to the intake end of the cylinder 16.

The two-hand control per se forms no part of the invention.

Upon the operation of both push buttons 26, 27, the intake valve head 21 of the valve 19 will be opened and the exhaust valve head 22 thereof closed, and likewise the exhaust valve head 25 of the valve 20 will be closed, so that air is free to pass from the feed pipe 24, past the open intake valve head 21 of the valve 19 through pipe 44 and through pipe 45 to the intake end of the cylinder 16. The pipe 45 is also connected to the casing of the exhaust valve 20, so that if the exhaust valve 25 is not closed, the air will exhaust to the outer air. When the piston 17 passes the port 43, the pressure passes through the pipes 42, 40 and 41 to the diaphragm chambers 36, 37 and locks the valves 19 and 20 in their operated position. To open the press, the air is released from the diaphragm chambers permitting the valves 19 and 20 to return to their normal position, wherein the exhaust valve head 22 of the valve 19 is open, and also the exhaust valve head 25 of the valve 20 is open. The air is released from the diaphragm chambers 36 and 37 by a release valve 50 consisting of a valve casing having a normally-closed, spring-pressed valve head 51 therein, which is operated by means of a finger lever 52, and the casing of the valve 50 is connected by a pipe 53 to the pipe 41, and hence through the pipe 40 with the diaphragm chamber 36, so that when the finger lever 52 is operated to open the valve head 51, the air will exhaust from both diaphragm chambers 36, 37 through the casing and permit the movable members of the valves 19 and 20 to return to their normal position, it being assumed that the operator has released the push buttons 26, 27. The air passing through the release valve 50 passes to the release valve of a mechanism for operating the slack take-up member, as will be presently described.

The mechanism for operating the slack take-up member to change the angle thereof and to tighten the same in the sleeve, after the sleeved article has been placed on the pressing table or buck 1, comprises a pressure-operated motor and an operator-operated control therefor. The motor is here shown as a cylinder and piston motor carried on the under side of the pressing table near the supported end thereof or near the bracket 2. 54 designates the cylinder, 55 the piston therein, and 56 a return spring acting on the piston to retract the same, when the power tending to actuate it is released. The rod 57 of the piston is pivoted at 58 to the end of the rod 8. The flow of air to the cylinder 54 is controlled by an operator-operated valve here shown, as pedal operated. 59 designates the valve of the combined intake and exhaust pipe, it having a movable member therein having a normally-closed intake valve head 60 and a normally open exhaust valve head 61, these being connected together to act as a unit. The valve is pressed to its normal position by a spring 62. The intake end of the casing of the valve 59 is connected to an air inlet pipe 63 and the valve casing is connected by a pipe 64 to the upper or intake end of the cylinder 54. The valve is held in its operated position by a diaphragm in a diaphragm chamber, both similar to those used in connection with the valves 19 and 20, except that the pressure side of the diaphragm chamber is connected by a duct 65 to the interior of the casing of the valve 59, so that air can enter the diaphragm chamber through this duct when the movable member of

the valve 59 has been operated to open the intake valve head 60 and close the exhaust valve head 61. The valve is operated by a pedal 66 pivoted at 67 on the base 5 of the machine, the lever acting upon a vertically movable motion transmitting part or rod 68 which coacts with an arm 69 of a three arm lever, the other two arms coacting with the movable member of the valve 59 and with the plunger 70 operated by the diaphragm in the diaphragm chamber. Upon the depression of the pedal 66, air is free to pass from the feed line 63 through the valve 59 and pipe 64 to the intake end of the cylinder 54 to actuate the piston therein and press downwardly the adjacent end of the rod 8 of the slack take-up member, causing it to swing about the pivot 11 and tighten the sleeved article, the individual portions or coils 7 acting individually to conform to the contour of the sleeved article, as seen in Figures 3 and 4, and applying even transverse tension to the sleeved article along the length thereof in a direction at a right angle to the pressing face of the buck 1. The pressure side of the diaphragm chamber of the valve 59 is connected by a pipe 72 to an exhaust valve 73, this including a suitable casing having a normally-closed, spring-pressed exhaust valve 74 and a slide valve 75, these being connected together by a stem to act as a unit. An air exhaust port 77 leads from the valve casing between the head 74 and the slide valve 75, and also a port 78 leads from the valve casing and is normally covered by the slide valve. The end of the valve casing in which the slide valve 75 is located is connected by a pipe 79 to the casing of the valve 50. Thus, when the release lever 52 is operated to open the head 51 of the valve 50, the pressure of the air exhausting from the cylinder 16 and from the diaphragm chambers 36, 37 through the pipe 53 through valve 59, passes through pipe 79 to the casing of the valve 73 and first causes the slide valve 75 to uncover the port 78 therein, and in so doing, opens the valve head 74, permitting the air to exhaust from the diaphragm chamber 71 through the pipe 72 so that the spring 56 returns the slack take-up member to its upper retracted position.

What I claim is:

1. The combination with a pressing table supported at one end so that the greater portion of the table overhangs for permitting an article to be ironed to be sleeved over said table, and means suspended beneath and extending lengthwise of the overhanging portion of the table, for entering the article when being sleeved thereon and conforming to the same to take up the slack in the portion of the article hanging from the table, said means comprising a single elongated spring member secured at its opposite ends to end portions of the table, so that the spring acts as a unit in a direction transversely of its length to apply pressure to the article, the spring having spaced apart portions between its ends yieldable individually in a direction transversely of the lengthwise dimension of the spring, and each being yieldable relatively to adjacent portions, to conform to the contour of the article sleeved on the table, whereby the article is subjected to the pressure of the spring throughout the length thereof and to that of the individual portions of the spring.

2. The combination with a pressing table supported at one end so that the greater portion of the table overhangs for permitting an article to be ironed to be sleeved over said table, and means suspended beneath and extending lengthwise of the overhanging portion of the table, for entering the article when being sleeved thereon and conforming to the same to take up the slack in the portion of the article hanging from the table, said means including a coiled spring anchored at its opposite ends and tensioned so that the coils are spaced apart throughout its length and are yieldable relative to adjacent coils in the direction of a right angle to the axis of the spring to conform to the contour of the sleeved article.

3. The combination with a pressing table supported at one end so that the greater portion of the table overhangs for permitting an article to be ironed to be sleeved over said table, and means suspended beneath and extending lengthwise of the overhanging portion of the table for entering the article when being sleeved thereon and conforming to the same to take up the slack in the portion of the article hanging from the table, said means including a coiled spring anchored at its opposite ends and tensioned so that the coils are spaced apart throughout the length of the member and are yieldable relative to adjacent coils in the direction of a right angle to the axis of the spring to conform to the contour of the sleeved article, the spring being conical and tapering from the supported end of the table toward the overhanging end.

4. The combination with a pressing table supported at one end so that the greater portion of the table overhangs for permitting an article to be ironed to be sleeved over said table, and means suspended beneath and extending lengthwise of the overhanging portion of the table, for entering the article when being sleeved thereon and conforming to the same to take up the slack in the portion of the article hanging from the table, said means including a coiled spring anchored at its opposite ends and tensioned so that the coils are spaced apart throughout its length and are yeildable relative to adjacent coils in the direction of a right angle to the axis of the spring to conform to the contour of the sleeved article, said spring diverging downwardly from the overhanging end of the table toward the supported end.

5. The combination with a pressing table supported at one end so that the greater portion of the table overhangs for permitting an article to be ironed to be sleeved over said table, and means suspended beneath and extending lengthwise of the overhanging portion of the table for entering the article when being sleeved thereon and conforming to the same to take up the slack in the portion of the article hanging from the table, said means including a coiled spring anchored at its opposite ends and tensioned so that the coils are spaced apart throughout the length of the member and are yieldable relative to adjacent coils in the direction of a right angle to the axis of the spring to conform to the contour of the sleeved article, the spring being conical and tapering from the supported end of the table toward the overhanging end, said spring diverging downwardly from the overhanging end of the table toward the supported end.

6. The combination with a pressing table supported at one end so that the greater portion of the table overhangs for permitting an article to be ironed to be sleeved over said table, and means suspended beneath and extending lengthwise of the overhanging portion of the table, for entering the article when being sleeved

thereon and conforming to the same to take up the slack in the portion of the article hanging from the table, said means including a coiled spring anchored at its opposite ends and tensioned so that the coils are spaced apart throughout the length of the member and are yieldable relative to adjacent coils in the direction of a right angle to the axis of the spring to conform to the contour of the sleeved article, and a rod suspended from the table and extending through the spring and to which opposite ends of the spring are anchored.

7. The combination with a pressing table supported at one end so that the greater portion of the table overhangs for permitting an article to be ironed to be sleeved over said table, and means suspended beneath and extending lengthwise of the overhanging portion of the table, for entering the article when being sleeved thereon and conforming to the same to take up the slack in the portion of the article hanging from the table, said means including a coiled spring anchored at its opposite ends and tensioned so that the coils are spaced apart throughout the length of the member and are yieldable relative to adjacent coils in the direction of a right angle to the axis of the spring to conform to the contour of the sleeved article, a rod suspended from the table and extending through the spring and to which opposite ends of the springs are anchored, and means for varying the angle of the rod relatively to the table.

8. The combination with a pressing table supported at one end so that the greater portion of the table overhangs for permitting an article to be ironed to be sleeved over said table, and means located beneath the overhanging portion of the table for entering the article when being sleeved thereon and conforming to the same to take up the slack in the portion of the article hanging from the table, said means including a coiled spring anchored at its opposite ends and tensioned so that the coils are spaced apart throughout the length of the spring and are yieldable relative to adjacent coils in the direction of a right angle to the axis of the spring to conform to the contour of the sleeved article, the spring being conical and tapering from the supported end of the table toward the overhanging end, a rod extending axially of the spring and pivotally supported at its opposite ends to the table and also inclined downwardly from the overhanging end of the table, and means for varying the angle of the rod relatively to the table.

9. The combination with a pressing table supported at one end so that the greater portion of the table overhangs for permitting an article to be ironed to be sleeved over said table, and means located beneath the overhanging portion of the table for entering the article when being sleeved thereon and conforming to the same to take up the slack in the portion of the article hanging from the table, said means comprising a sinuous member having portions spaced apart in a direction lengthwise of the member and individually movable relatively to each other at an angle to the lengthwise axis of said member to conform to diqerent contours of the sleeved article, a carrier for said member pivotally connected at its ends to opposite end portions of the table, and means for raising and lowering the end of the carrier toward the supported end of the table and thereby changing the angle of the sinuous member relatively to the table.

10. The combination with a pressing table supported at one end so that the greater portion of the table overhangs for permitting an article to be ironed to be sleeved over said table, and means located beneath the overhanging portion of the table for entering the article when being sleeved thereon and conforming to the same to take up the slack in the portion of the article hanging from the table, said means comprising a sinuous member having portions spaced apart in a direction lengthwise of the member and individually movable relatively to each other at an angle to the lengthwise axis of said member to conform to different contours of the sleeved article, a carrier for said member pivotally connected at its ends to opposite end portions of the table, releasable, operator controlled mechanism operable to increase the angle of said member relatively to the table, a movable press head operable to cooperate with the pressing table, actuating mechanism therefor, and means operable by the release of the press head out of pressing position to release the mechanism for varying the angle of said member and thereby permitting said member to return to its normal position.

11. The combination with a pressing table supported at one end so that the greater portion of the table overhangs for permitting the article to be ironed to be sleeved over said table, and means located beneath the overhanging portion of the table for entering the article when being sleeved thereon to take up the slack in the portion of the article hanging from the table comprising a resilient member normally arranged in retracted position and shiftable into position to apply tension to the sleeved article in a direction vertically crosswise of the table, releasable means operable to shift said member from normal position and tighten the same against the sleeved article, a movable press head operable to cooperate with the pressing table, mechanism for actuating the press head and holding it in its pressing position, and means operable by the release of the press head from pressing position to release said member and permit the same to return to its normal position.

12. The subject matter of claim 11 in which the mechanism for operating said member comprises a pressure-operated motor and the mechanism for operating the head includes a pressure-operated motor and a control for controlling the flow of power to and from the last motor, and the means operable by the release of the press head to release said slack take-up member is operated by the release of power from the last motor for releasing the power from the first motor.

WALLACE F. GAYRING.