May 10, 1949. E. J. NEWHOUSE 2,469,742

EXPANSION SLEEVER

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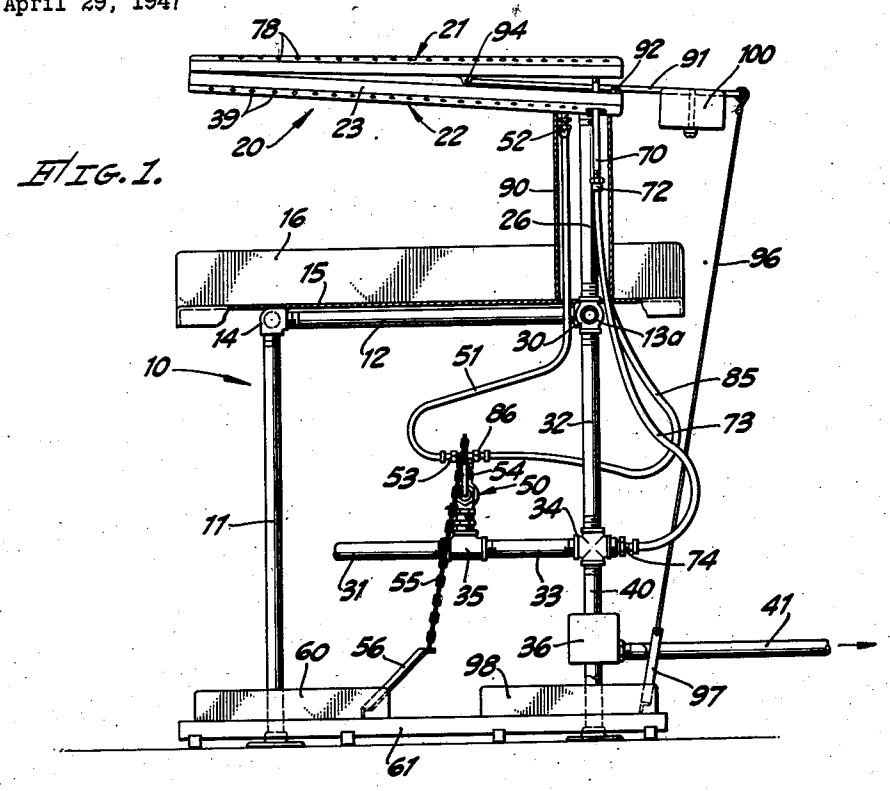


FIG. 1.

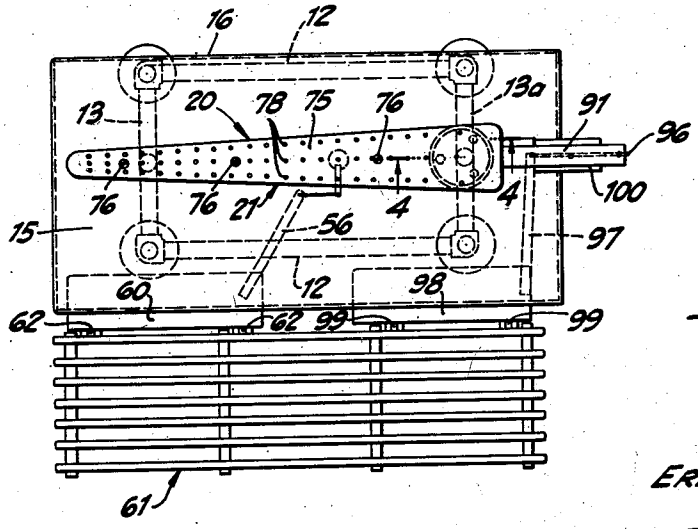


FIG. 2.

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FIG. 3.

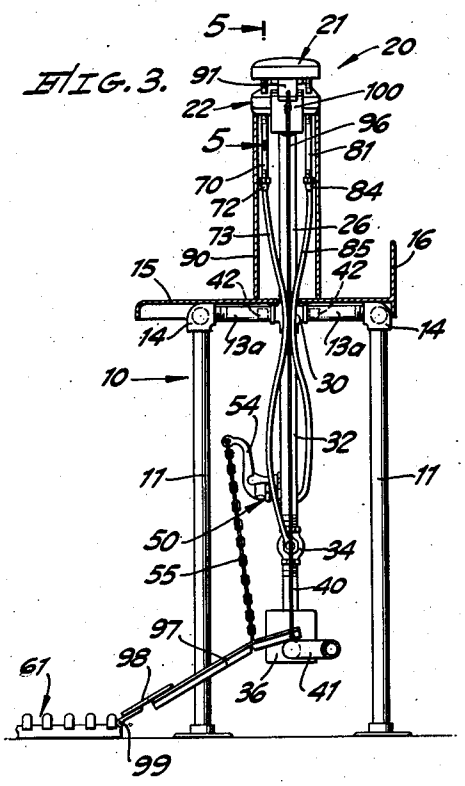
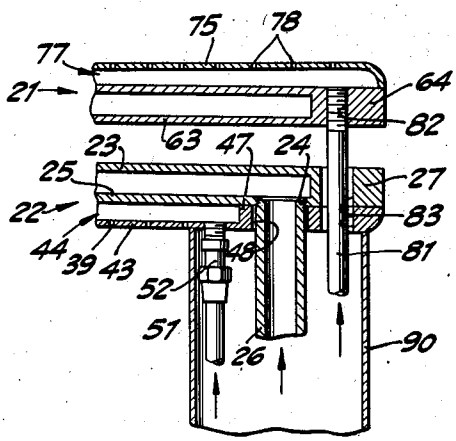


FIG. 4.



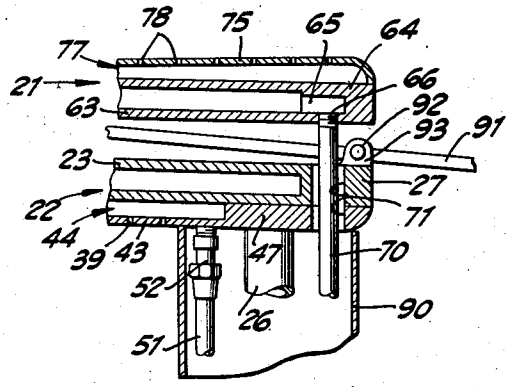
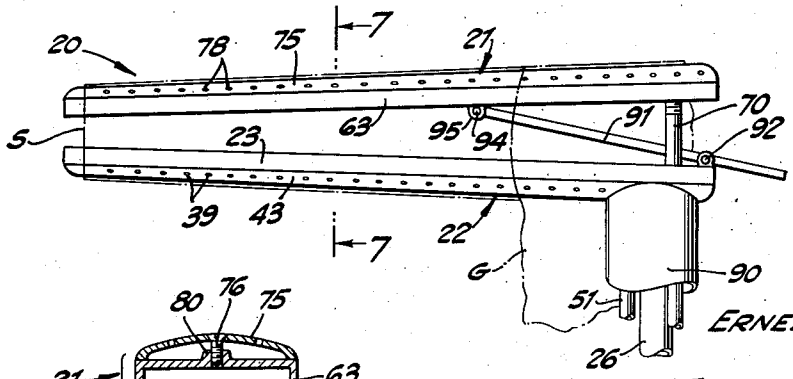


FIG. 5.

FIG. 6.



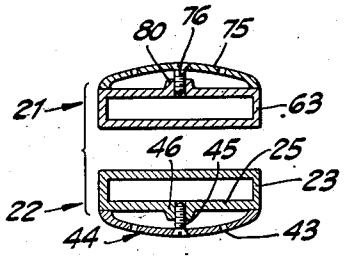


FIG. 7.

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UNITED STATES PATENT OFFICE

2,469,742

EXPANSION SLEEVER

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10 Claims. (Cl. 223—73)

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The present invention relates to machines used in the garment pressing industry, and more particularly to a class of machines known as "sleevers" which are employed primarily to press and reshape the sleeves of coats, jackets, and other garments after cleaning.

Prior sleevers have consisted, for the most part, of a relatively narrow steaming board which extends horizontally outward from its supporting body, and the sleeve of the garment to be pressed is pulled over the free end of the board, smoothed down, and then steamed by opening a valve which admits steam to the interior of the board. The steam, escaping through perforations in the top of the board, blows through the material of the sleeve and produces the desired smoothing and pressing effect.

The principal drawback to the above arrangement is that considerable time is consumed in smoothing the sleeve down over the board before admitting the steam, and in rotating the sleeve on the board and repeating the operation so as to press all sides of the sleeve.

Another disadvantage of this form of sleever is that the sleeve material must be stretched over the board by hand when stretching to correct for shrinkage, which is tedious and slow, and requires considerable skill on the part of the operator in applying uniform tension to all parts of the sleeve.

Another known form of sleever employs a supporting arm which is enclosed by a fabric bag, over which the garment sleeve is pulled. Steam is then admitted to the interior of the bag, inflating the latter until it completely fills the sleeve, thereby smoothing out any wrinkles in the material. A certain amount of the inflating steam escapes through the relatively open fabric of the bag, and blows through the material of the garment sleeve, with the desired effect. This form of sleever overcomes some of the shortcomings of the first-mentioned type, in that the garment sleeve is automatically smoothed out by the bag as the latter is inflated, thereby eliminating the operations of smoothing by hand over a board, and also by reason of the fact that the entire sleeve is pressed in one operation instead of two or more. However, in the matter of stretching the sleeve material, this latter form of sleever is as deficient as the other, since the pressure obtained in the bag is relatively low and ineffective for stretching purposes, nor is it capable of being controlled with any practical degree of accuracy.

The primary object of the present invention, therefore, is to provide a new and improved sleever which can be operated to apply a uniform, fully controlled tension to the sleeve material in all parts thereof for the purpose of stretching the material to reshape the sleeve and correct for shrinkage.

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Another object of the invention is to provide an expansion sleever having two head units which are adapted to be spread apart after the garment sleeve has been pulled over them, so that the entire sleeve is smoothed out in one operation prior to steaming.

Another object of the invention is to provide an expansion sleever in which the two head units are spread apart by means of foot pedals, leaving both hands of the operator free to manipulate the garment.

Still a further object of the invention is to provide an expansion sleever having two head units, each of which is divided into a heater compartment and a perforated steamer compartment, with means for continuously supplying steam to the heater compartments to maintain the units at a high temperature so as to minimize condensation, and manually controlled valve means for admitting steam to the steamer compartment, from which it issues through perforations in the compartment wall to blow through the sleeve material.

The foregoing and other objects and advantages of the present invention will become apparent to those skilled in the art upon consideration of the following detailed description of the preferred embodiment thereof, reference being had to the accompanying drawings, in which:

Figure 1 is a partially cut away side elevational view of an expansion sleever embodying the principles of the invention;

Figure 2 is a top plan view of the same;

Fig. 3 is an end view of the same;

Figure 4 is an enlarged fragmentary sectional view taken along the line 4—4 in Figure 2;

Figure 5 is an enlarged fragmentary sectional view taken along the line 5—5 in Figure 3;

Figure 6 is a view showing the two head units spread apart to stretch out a sleeve; and

Figure 7 is an enlarged sectional view taken along the line 7—7 in Figure 6.

In the drawings, the reference numeral 10 indicates a supporting stand or frame, made up of four iron pipe legs 11 having horizontal pipe frame members 12 and 13 connected to their upper ends by three-way corner pipe fittings 14. Resting on top of the frame 10 and secured thereto in any suitable manner is a sheet metal table top 15 having a back stop 16 extending upwardly therefrom along its rear edge.

The operating mechanism of the expansion sleever is designated in its entirety by the reference numeral 20 and comprises a pair of substantially horizontally extending head units 21 and 22 which are positioned above the work table 15 and which are supported entirely at one end, leaving the other end free so that a garment sleeve can be pulled over the same. The head units 21, 22 are arranged one above the other and back-

to-back, and when the machine is at rest, the two heads are disposed closely adjacent one another, converging to the left to a point of contact at their outer or free ends.

Both the upper and lower heads 21, 22 are preferably made up of die cast aluminum sections, and each comprises a heater compartment and a steamer compartment which are independently supplied with steam to perform their respective functions, as will be described in more detail hereinafter. The two heads are generally similar in configuration, each being elongated, tapered in plan form, and having a rounded nose at its outer end.

The heater compartment of the lower head 22 is shown at 23, and comprises a closed chamber of rectangular cross section, having a solid end portion 27 at its right hand end, with a tapped hole 24 (Figure 4) formed in the bottom wall 25 thereof adjacent the end portion 27. The threaded upper end of a supporting steam pipe 26 is screwed into the hole 24 and the bottom end of the pipe 26 extends down through an opening in the table 15 and is threaded into the top branch of a cross fitting 30. The two side branches of the fitting 30 are threaded onto the adjacent ends of horizontal pipe sections 13a in the right hand end of the frame 10, and the steam pipe 26 is thus an integral part of the supporting stand, providing support for both heads of the operating mechanism 20, since the upper head 21 is supported on the lower head 22 by a linkage arrangement which will be discussed presently.

In addition to its function of supporting the mechanism 20, the pipe 26 also serves to carry steam to the heater compartment 23 of the lower head, and as a drain line for condensate formed therein. To this end, the pipe 26 is connected to a steam supply pipe 31 through the agency of two intermediate pipes 32, 33, and a cross fitting 34. Pipe 32 is threaded at its upper end into the bottom branch of the cross fitting 30, and its bottom end is threaded into the top branch of cross fitting 34. Pipe 33 is threaded at one end into one of the side branches of fitting 34, and at the other end into a T-fitting 35 which is threaded, in turn, onto the end of the steam supply pipe 31. A steam trap 36 is connected by a short length of pipe 40 to the bottom branch of the fitting 34, and its function is to receive condensate draining back down the pipes 32, 40 and to discharge the same through a discharge pipe 41. To insure proper drainage of the heating compartment 23, the latter is mounted on the supporting pipe 26 with its free end tilted upwardly at a slight angle so that condensate forming in the compartment runs down the incline and out the pipe 26, the top end of the latter being disposed slightly below the surface of the bottom wall 25.

In order to confine the steam to pipes 32 and 26 and prevent it from passing through the pipes of the supporting stand 10, the two frame pipe sections 13a connected into the side branches of cross fitting 30 are closed up solidly by plugs 42, as shown in Figure 3.

Mounted on the underside of the heating chamber 23 is a deeply crowned cover plate 43, the upwardly turned edges of which lie flat against the bottom surface of the chamber 23 so that the plate 43 and wall 25 cooperate to form the steamer compartment 44. The cover plate 43 has a plurality of rather closely spaced perforations 39 formed therein, said perforations being arranged in three rows extending the length of the head. The plate is secured to the chamber 23 by means of countersink screws 45 which extend through holes in the plate and are threaded into tapped holes provided in bosses 46 formed on the bottom surface of the wall 25. The right hand end of the crowned cover plate 43 is filled in solidly at 47, and this solid portion has a hole 48 formed therein, through which the pipe 26 extends, said hole being slightly larger in diameter than the outside diameter of the pipe so that the latter passes through freely without interference.

Steam is admitted to the steamer compartment 44 by means of a valve 50, and is conveyed from the valve to the compartment through a length of copper tubing 51. One end of the tubing 51 is connected into the steamer compartment 44 by a coupling 52 which is threaded into a tapped hole in the plate 43, while the other end of the tubing is connected by a coupling 53 to one of two outlets on the valve 50. The valve 50 is mounted on the top branch of the T-fitting 35, and thus communicates directly with the steam supply pipe 31. A pivoted valve-operating lever 54 is connected by a chain 55 to the front end of an angle iron 56 extending forwardly from a pedal 60. The pedal 60 is disposed adjacent the left hand end of a wood slat floor rack 61, and is connected to the front slat thereof by hinges 62.

The upper head 21 is generally similar in construction to the lower head 22, but is inverted so that the heater compartment is on the bottom and the steamer compartment on top. The heater compartment is designated at 63 and comprises a closed chamber of rectangular cross section, having a solid end portion 64 at its right hand end. A cavity 65 (see Figure 5) extends into the solid end portion 64 on the side of the longitudinal center line of the heating chamber nearest the operator, and opening into the cavity from below is a tapped hole 66. The threaded top end of a copper tube 70 is screwed into the hole 66, and the tube extends down through alined holes 71 in the solid end portions 27 and 47 of the chamber 23 and plate 43, respectively, of the lower head. At its lower end, the tube 70 is connected by a coupling 72 to a flexible metal hose 73, and the latter is connected, in turn, by a coupling 74 to the right hand branch of the cross fitting 34. The hose 73 and tube 70 supply steam to the heater compartment 63 and also act as a drain line for condensate formed therein, carrying the condensate down to the cross fitting 34 where it runs down pipe 40 into the steam trap 36 and is discharged through pipe 41. To promote proper drainage of the heater chamber 63, the upper head is mounted so that, when at rest, its free end is tilted upwardly at a slight angle. The flexible hose 73 permits movement of the upper head 21 with respect to the stationary structure, and it will also be noted that the holes 71 are considerably larger in diameter than the tube 70, permitting considerable lateral and angular displacement of the latter without interference.

Mounted on the top side of the heating chamber 63 and cooperating therewith to form the steamer compartment 77 is a crowned cover plate 75 having perforations 76 provided therein. As in the case of the bottom plate 43, the plate 75 is secured by countersink screws 76 which are threaded into tapped holes in bosses 80 formed on the top surface of the compartment outer wall. A steam supply tube 81 is threaded into a tapped

hole 82 formed in the solid portion 64 of the heater compartment 63 behind the cavity 65. The tube 81 extends down through alined oversize holes 83 in the solid end portions 27 and 47 of the lower head, and is connected by a coupling 84 to a flexible metal hose 85. The hose 85 is connected, in turn, by a coupling 86 to the second of the two outlets, referred to earlier, on the valve 50. The hose 85 and tube 81 carry steam to the steamer compartment 77 when the valve 50 is actuated, and since the steamer compartments of both the upper and lower heads are served by parallel lines connected into the valve 50, it will be seen that both steamer compartments receive steam simultaneously and at the same pressure.

The supporting pipe 26 and other steam lines leading up to the two heads 21, 22 are preferably, although not necessarily, enclosed by a tubular sheet metal enclosure 90 extending from the table top 15 up to the cover plate 43 on the lower head, the purpose of which is to protect the operator from being burned by accidental contact with the hot steam pipes.

The upper head 21 is supported on the lower head 22 for movement toward and away from the latter, by means of a sturdy lever arm 91 which is pivotally connected intermediate its ends by a pivot pin 92 to a pair of laterally spaced lugs 93 extending upwardly from the top surface of the lower head heater compartment 23 at the extreme right hand end thereof. The left hand end of the lever arm 91 extends into the space between the upper and lower heads, and is connected by a pivot pin 94 to a pair of lugs 95 projecting downwardly from the bottom surface of heater chamber 63 intermediate the ends of the latter.

A cord 96 is attached to the right hand end of the lever arm 91, and is fastened at its lower end to an angle iron 97 projecting forwardly from a pedal 98. The pedal 98 is disposed adjacent the right hand end of the floor rack 61 and is connected to the front slat thereof by hinges 99. When the pedal 98 is stepped on, the right hand end of the lever arm 91 is pulled down and the left hand end thereof is swung upwardly, raising the upper head 21 away from the lower head 22. A counterweight 100, bolted to the lever arm 91 adjacent the right hand end of the latter, balances out a portion of the weight of the upper head 21 so that substantially the entire force of the foot pressure applied to the pedal 98 is applied to the upper head to exert a stretching force on the material of the garment sleeve. The flexible connection of the left hand end of the lever arm 91 to the upper head 21 at the point shown, intermediate the ends of the head, results in an equalized application of tension forces to all parts of the garment sleeve in much the same manner that an equalizer bar transmits force equally to two separate points of application.

To operate the expansion sleever of my invention, the sleeve S of a garment G (Figure 6) is drawn over the free end of the heads 21, 22, and pedal 98 is then depressed, raising the upper head 21, as shown, until the sleeve is stretched smooth. The pedal 98 is then depressed, opening the valve 50 and admitting steam to the two steamer compartments 44 and 77. The steam escapes through the holes 39 and 78 in the heater compartment cover plates, and blows through the sleeve material, leaving the latter smoothly pressed and free of wrinkles. If the sleeve requires some stretching to shape to correct for shrinkage, the

operator merely increases the pressure on the pedal 98 while steam is being applied.

The steam which is continuously admitted to the two heater compartments 23 and 63 heats the steamer compartments 44 and 77 to a sufficiently high temperature to reduce condensation therein to a minimum.

While I have shown and described in considerable detail what I believe to be the preferred form of my invention, it is to be understood that this is merely an illustrative embodiment, and that various changes may be made in the shape and arrangement of the several parts thereof without departing from the broad scope of the invention, as defined in the appended claims.

I claim:

1. An expansion sleever comprising a supporting stand, a pair of generally horizontally disposed heads arranged one above the other, the lower head being rigidly supported at one of its ends from said stand, and the upper head being movable toward and away therefrom, each of said heads having a heater compartment and a steamer compartment, means for raising said upper head away from said lower head, means for continuously admitting steam to said heater compartments, and valve means controllable by the operator for admitting steam to said steamer compartment.

2. An expansion sleever comprising a supporting stand, a pair of generally horizontally disposed heads arranged one above the other, the lower head being rigidly supported at one of its ends from said stand, and the upper head being movable toward and away therefrom, each of said heads having an outside steamer compartment and an inside heater compartment, means flexibly connected to said upper head intermediate the ends thereof for applying a force tending to raise said upper head away from said lower head, means for continuously admitting steam to said heater compartments, and valve means controllable by the operator for admitting steam to said steamer compartment.

3. An expansion sleever comprising a supporting stand, a pair of generally horizontally disposed heads arranged one above the other, the lower head being rigidly mounted at one end on said stand and tilting upwardly therefrom at a slight angle, each of said heads having a heater compartment and a steamer compartment, means flexibly connected to said upper head intermediate the ends thereof for applying a force tending to raise said upper head away from said lower head, a steam supply pipe, another pipe connecting said steam supply pipe to the heater compartment of said lower head at said one end thereof, a flexible line connecting said other pipe to the heater compartment of said upper head, said other pipe and said flexible line serving both to carry steam to said heater compartments and to drain off condensate formed therein, a steam trap arranged to receive condensate from said other pipe and said flexible line and to discharge the same, a manually operable valve connected to said steam supply pipe, and lines connecting said valve to the steamer compartments of both of said heads.

4. An expansion sleever comprising a supporting stand, a pair of generally horizontally disposed heads arranged one above the other, the lower head being rigidly mounted at one end on said stand and tilting upwardly therefrom at a slight angle, each of said heads having a heater compartment and a steamer compartment, a lever

connected intermediate its ends to said lower head, the inner end of said lever being pivotally connected to said upper head intermediate the ends of the latter, a pair of foot pedals, one of said pedals being connected to the outer end of said lever arm whereby pressure applied to said one pedal causes said upper head to be raised away from said lower head and to apply an equalized tension to all parts of a garment sleeve inserted over said heads, a steam supply pipe, another pipe connecting said steam supply pipe to the heater compartment of said lower head at said one end thereof, a flexible line connecting said other pipe to the heater compartment of said upper head, said other pipe and said flexible line serving both to carry steam to said heater compartments and to drain off condensate formed therein, a steam trap arranged to receive condensate from said other pipe and said flexible line and to discharge the same, a valve connected to said steam supply pipe and having an operating lever, lines connecting said valve to the steamer compartments of both of said heads, and means connecting the other of said pedals to said valve operating lever.

5. An expansion sleever comprising a supporting stand, a pair of head units arranged back-to-back adjacent one another, one of said head units being movable toward and away from the other one, each of said head units having a heater compartment and a perforated steamer compartment, means for continuously admitting steam to said heater compartments, and valve means controllable by the operator for admitting steam to said steamer compartment.

6. An expansion sleever comprising a supporting stand, a pair of head units arranged back-to-back adjacent one another, one of said head units being movable toward and away from the other one, each of said units having an outside steamer compartment and an inside heater compartment, means flexibly connected to said one head unit intermediate the ends thereof for applying a force tending to move the same away from the other head unit, means for continuously admitting steam to said heater compartments, and valve means controllable by the operator for admitting steam to said steamer compartments.

7. An expansion sleever comprising a supporting stand, a pair of head units arranged back-to-back adjacent one another, one of said head units being movable toward and away from the other one, each of said units having a heater compartment and a perforated steamer compartment, each of said heater compartments having a steam supply pipe connected therewith for continuously admitting steam and for draining off condensate, a steam trap arranged to receive condensate from said pipes and to discharge the same, a manually controllable valve, and steam lines connecting said valve to each of said steamer units.

8. An expansion sleever comprising a supporting stand, a pair of generally horizontally disposed heads arranged one above the other, the lower head being rigidly mounted at one end on said stand and tilting upwardly therefrom at a slight angle, each of said heads having a heater compartment and a steamer compartment, means flexibly connected to said upper head intermediate the ends thereof for applying a force tending to raise said upper head away from said lower head, a steam supply pipe, a second pipe connecting said steam supply pipe to the heater compartment of said lower head adjacent said one

end thereof, a third pipe connected to the heater compartment of said upper head and extending down through a vertical hole in said lower head, a flexible line connecting said third pipe to said second pipe, the heater compartments of said upper and lower heads being supplied continuously with steam by their associated pipes, a manually operable valve connected to said steam supply pipe, and lines connecting said valve to the steamer compartments of both of said heads.

9. An expansion sleever comprising a supporting stand, a pair of generally horizontally disposed heads arranged one above the other, the lower head being rigidly mounted at one end on said stand and tilting upwardly therefrom at a slight angle, each of said heads having a heater compartment and a steamer compartment, means flexibly connected to said upper head intermediate the ends thereof for applying a force tending to raise said upper head away from said lower head, a steam supply pipe, a second pipe connecting said steam supply pipe to the heater compartment of said lower head adjacent said one end thereof, a third pipe connected to the heater compartment of said upper head and extending down through a vertical hole in said lower head, a fourth pipe connected to the steamer compartment of said upper head and extending down through another vertical hole in said lower head, said third and fourth pipes being engageable with the sides of their respective holes to brace the upper head against lateral displacement with respect to the lower head, a flexible line connecting said third pipe to said second pipe, the heater compartments of said upper and lower heads being supplied continuously with steam by their associated pipes, a pedal operated valve connected to said steam supply pipe, a line connecting said valve to the steamer compartment of said lower head, and a flexible line connecting said valve to the bottom end of said fourth pipe.

10. An expansion sleever comprising a supporting stand, a pair of head units arranged back-to-back adjacent one another, one of said head units being stationary and the other being movable toward and away therefrom, each of said head units having a heater compartment and a perforated steamer compartment, a steam supply pipe, another pipe connecting said steam supply pipe to the heater compartment of said stationary head unit, a flexible line connecting said other pipe to the heater compartment of said movable head unit, a valve connected to said steam supply pipe, a pair of lines connecting said valve to the steamer compartments of both of said heads, a pair of independently operable foot pedals, and means connecting one of said pedals to said movable head unit for moving the latter away from said stationary head unit, the other of said pedals being connected to said valve to operate the same.

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