Nov. 15, 1932. M. E. PIERSON 1,887,783

PNEUMATIC MEANS FOR OPERATING INSPECTING FORMS

Filed April 29, 1931

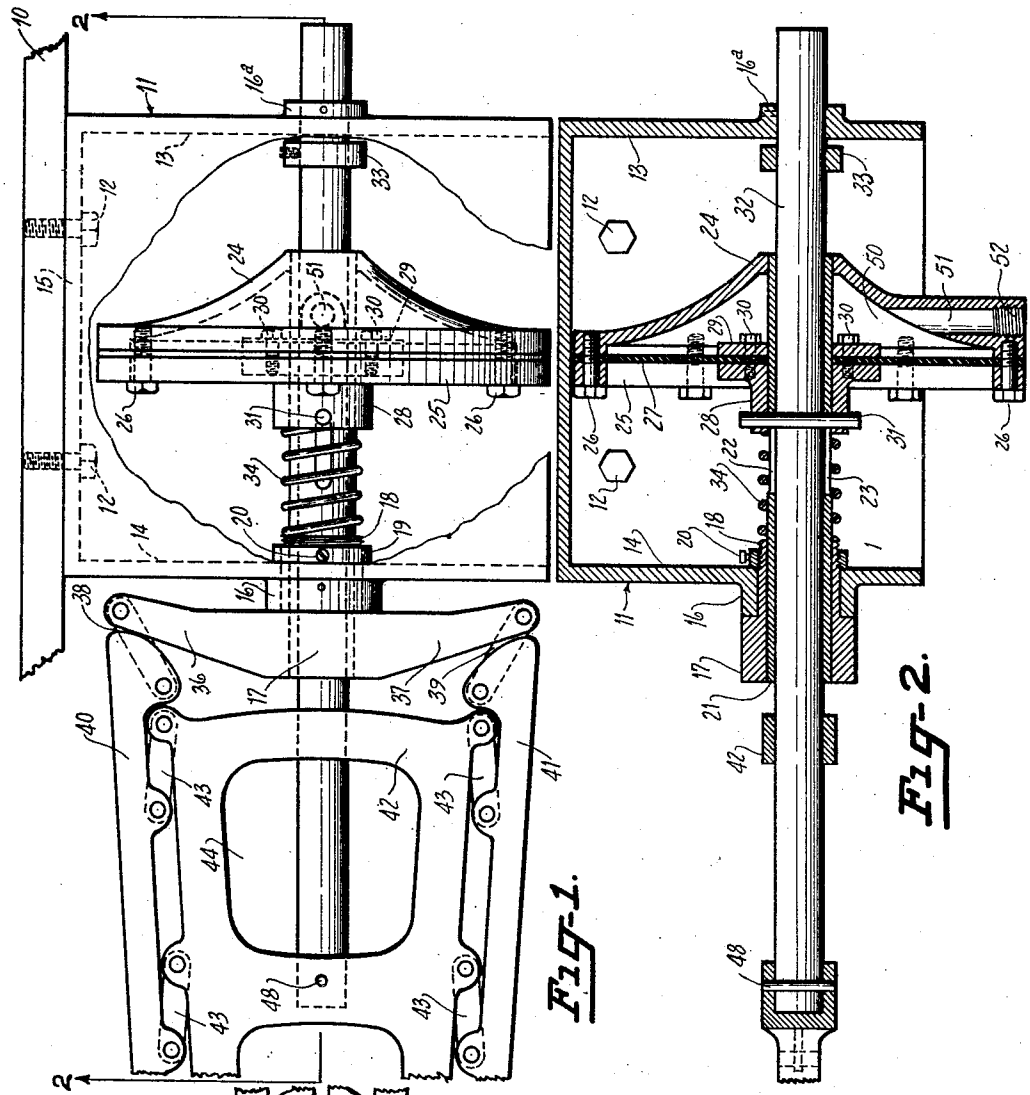


Fig-2.

Fig-1.

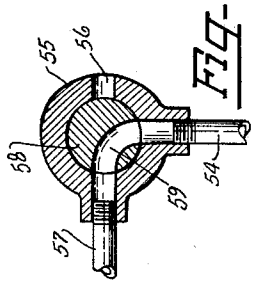


Fig-3

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UNITED STATES PATENT OFFICE

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PNEUMATIC MEANS FOR OPERATING INSPECTING FORMS

Application filed April 29, 1931. Serial No. 533,752.

This invention relates to pneumatic means for operating hosiery stretching forms and inspecting forms and the like, and comprises means whereby an inspecting form may be operated by compressed air instead of the usual manual means heretofore employed.

An object of this invention is to provide a diaphragm, together with especially constructed mechanism associated therewith, with means for attaching the same to an inspecting form for hosiery for operating the form and expanding the same for the inspecting operation by means of compressed air instead of the operator having to do this work manually.

It is well known that thousands of stockings are inspected each day, by an operator and the force exerted by the operator in manually operating the inspecting form for stretching the hose tends to tire the arms of the operator on account of the force necessary, and the repeated operations incident to inspection during a full day's work and, therefore, I have provided pneumatic means adapted to be connected to an air pressure line for operating the inspecting forms by air pressure instead of the usual manual means heretofore employed.

Usually the inspecting tables are arranged in rows with an inspecting form in front of and attached to each table, and I have provided means whereby pneumatic means can be attached to each inspection table for supporting and operating the inspecting form, and at the same time rendering the form capable of rotation about its longitudinal axis.

Some of the objects of the invention having been stated, other objects will appear more fully as the description proceeds when taken in connection with the accompanying drawing, in which—

Figure 1 is a plan view of an inspecting form and my means for operating the same with certain portions thereof broken away;

Figure 2 is a longitudinal sectional view taken along the line 2—2 in Figure 1;

Figure 3 is a transverse cross sectional view taken through a three-way valve for controlling the admission and exhausting of compressed air to and from the means for operating the inspecting form.

Referring more particularly to the drawing, the numeral 10 indicates a portion of an inspecting table, and to this portion 10, I secure a bracket 11 which is secured to the portion 10 by any suitable means such as screws 12 and this bracket has the sidewall portions 13 and 14 and a back portion 15 with bosses 16 and 16*a* in the sidewalls 13 and 14 for supporting the inspecting form and the pneumatic means for operating the same. Mounted rotatably in boss portion 16 is a member 17 which is threaded as at 18 and has a nut 19 threadably secured thereon with a suitable set screw 20 for securing the nut 19 in position, and fixedly secured in the portion 17 is a tubular member composed of material such as brass and indicated by reference character 21, which tubular member has slots 22 and 23 therein and which tubular member extends through the diaphragm and is connected to base portion 24 of the diaphragm in a fixed manner.

Said base member 24 has a ring portion 25 secured thereto by means of stud bolts 26, and between ring 25 and the periphery of member 24 is secured a flexible diaphragm composed of any suitable material such as rubber and indicated by reference character 27. Diaphragm 27 has a central opening, and through this central opening, tubular member 21 projects, and slidably mounted on member 21 is a circular member 28 which is secured to diaphragm 27 by means of a ring 29 being secured to diaphragm 27 by any suitable means such as stud bolts 30 being threadedly embedded in ring 28 after penetrating ring 29. This member 28 has fixedly secured therein a pin 31 which is fixedly mounted in shaft 32, said ring penetrating shaft 32 and having a slidable relation with slots 22 and 23. A collar 33 is secured on shaft 32 to limit its movement to the right in Figures 1 and 2. A compression spring 34 is mounted around tubular member 21, and normally pushes the diaphragm and rod 32 to the right as viewed in Figures 1 and 2. Member 17 has laterally extending arms 36 and 37 which arms have links 38 and 39

pivotally secured in their free ends which links 38 and 39 are pivotally secured at their other ends to expansible bars 40 and 41 which bars are pivotally secured to a member 42 by means of a plurality of links 43, said links being pivotally secured at one end to members 40 and 41, and at their other ends to member 42.

Member 42 has a plurality of openings 44 therein to aid in the inspection process so as to render the hose or any defects therein highly visible, and the end of member 42 has a rounded portion 45 over which the toe of the hose fits. Rod 32 is secured to member 42 by any desired means such as a pin 48. Member 17 is rotatably mounted in boss 16 so that the inspecting form can be turned about its longitudinal axis and, of course, diaphragm portion and shaft 32 is turned with the inspecting form. Between diaphragm 27 and base portion 24 a cavity 50 is formed to which cavity a passageway 51 leads from the exterior of the diaphragm and a suitable nipple may be secured in the threaded portion 52 of passageway 51, and from this nipple a flexible pipe such as re-enforced rubber tubing may be led to pipe 54 of three-way valve 55 which has an exhaust port 56 and an intake pipe 57 associated therewith, said valve having a rotatable member 58, having a passageway 59 therethrough, and in the position shown in Figure 3, compressed air may be admitted to the valve through pipe 57 from any suitable source of compressed air, and will pass to the diaphragm in this position, but when the valve is given a counter clockwise one-quarter turn, then the passageway 59 will register with port 56 and pipe 54, and the air will be exhausted from the diaphragm and spring 34 will return the parts to normal unexpanded position as shown in the drawing.

It is seen that when compressed air is admitted to the diaphragm that the shaft 32 will be moved to the left hand in Figures 1 and 2 and member 17 being held in a non-slidable position with relation to sidewall 14 and members 40 and 41 being pivotally secured thereto, and member 42 being secured to shaft 32, it is seen that member 42 will be moved to the left in Figure 1 and this will spread members 40 and 41 apart and the inspection operation can be performed while the members 40 and 41 are spread apart, and when the inspection operation is completed, the valve will be given a turn in a counter clockwise direction as shown in Figure 3 and the air will be exhausted from the diaphragm and spring 34 will return the parts to the position shown in Figures 1 and 2, and the hose will be removed from the form and another one placed thereon ready for the operation above described to be repeated.

In the drawing and specification there has been set forth a preferred embodiment of the invention and although specific terms are employed they are used in a generic and descriptive sense only and not for purposes of limitation, the scope of the invention being set forth in the appended claim.

I claim:

In a hosiery inspecting form, laterally distendable members, a slidable member pivotally connected to said laterally distendable members, a shaft fixedly secured to said slidable member, a bracket, a tube rotatably mounted in said bracket, means for preventing sliding movement of said tube with relation to said bracket, said tube having oppositely opposed slots therein, a diaphragm base fixedly secured on said tube, a diaphragm in said diaphragm base, a collar secured to said diaphragm, said collar being slidably mounted on said tube, a pin penetrating said collar and said slots in said tube, a shaft slidably mounted in said tube, said pin also penetrating said shaft, means for connecting said shaft to said slidable member, means for admitting compressed air between said diaphragm base and said diaphragm, and means for exhausting the air from said diaphragm chamber.

In testimony whereof I affix my signature.

MOSES EVERETT PIERSON.