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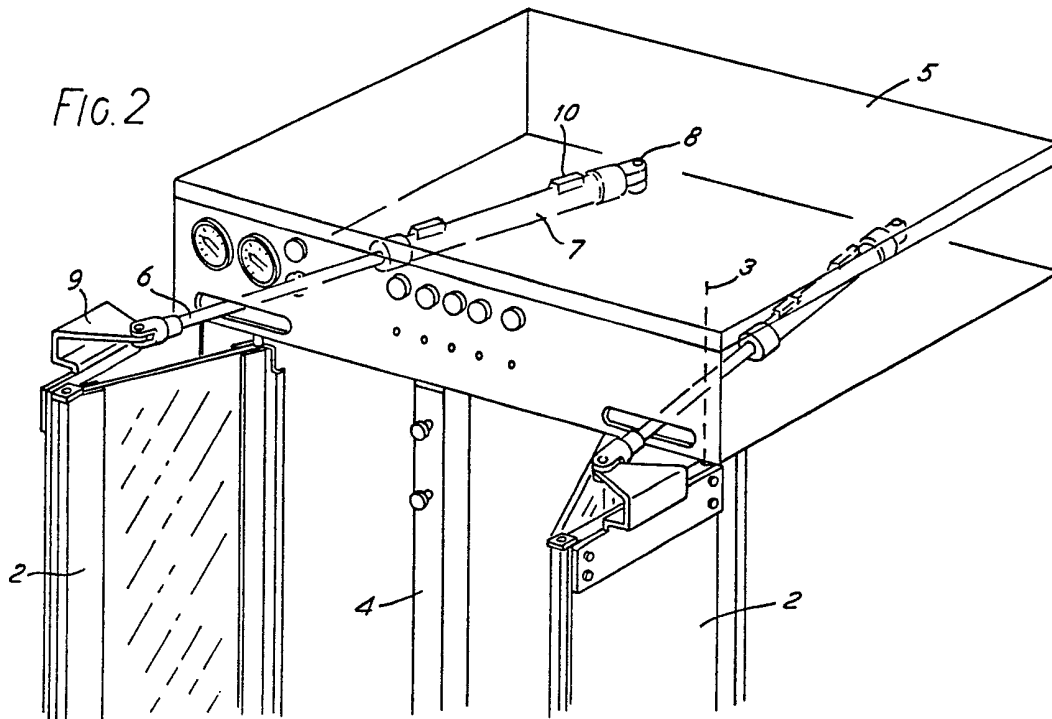
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(54) Garment ironing cabin: door actuator

(57) A cabin for automatically ironing garments comprises driving means to open and close folding doors (2) pivotally connected to the main body of the cabin. Said driving means comprises cylinder (7) - piston (6) mechanisms each of which is pivotally connected (8) to the cabin and to a bracket (9) secured to the edge of a door at a position spaced from the hinge axis of the door. The spacing of the bracket (9) from the hinge axis produces a movement which facilitates the tight closing of doors against air and steam, and increases the speed of the movement of said doors. The driving means may be controlled by proximity switches (10).



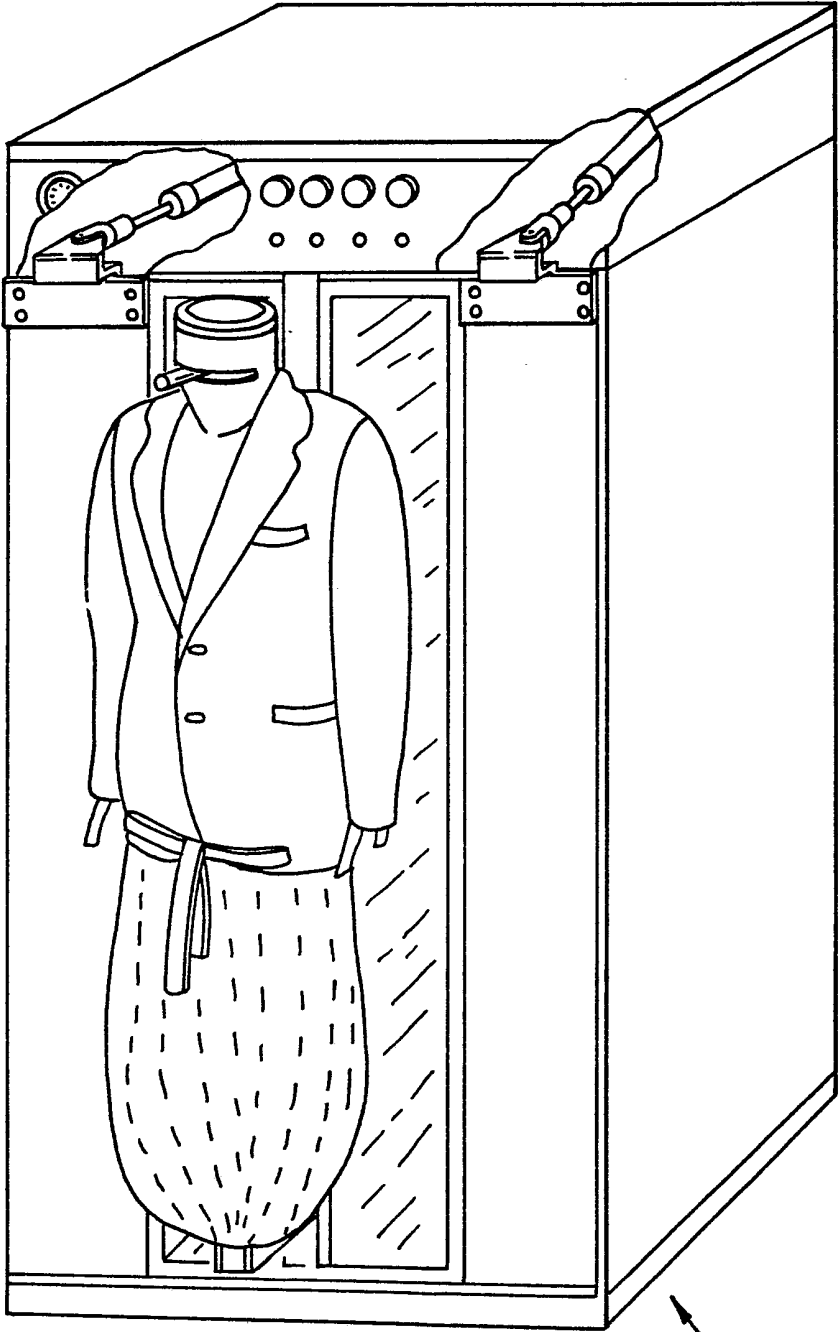


FIG. 1

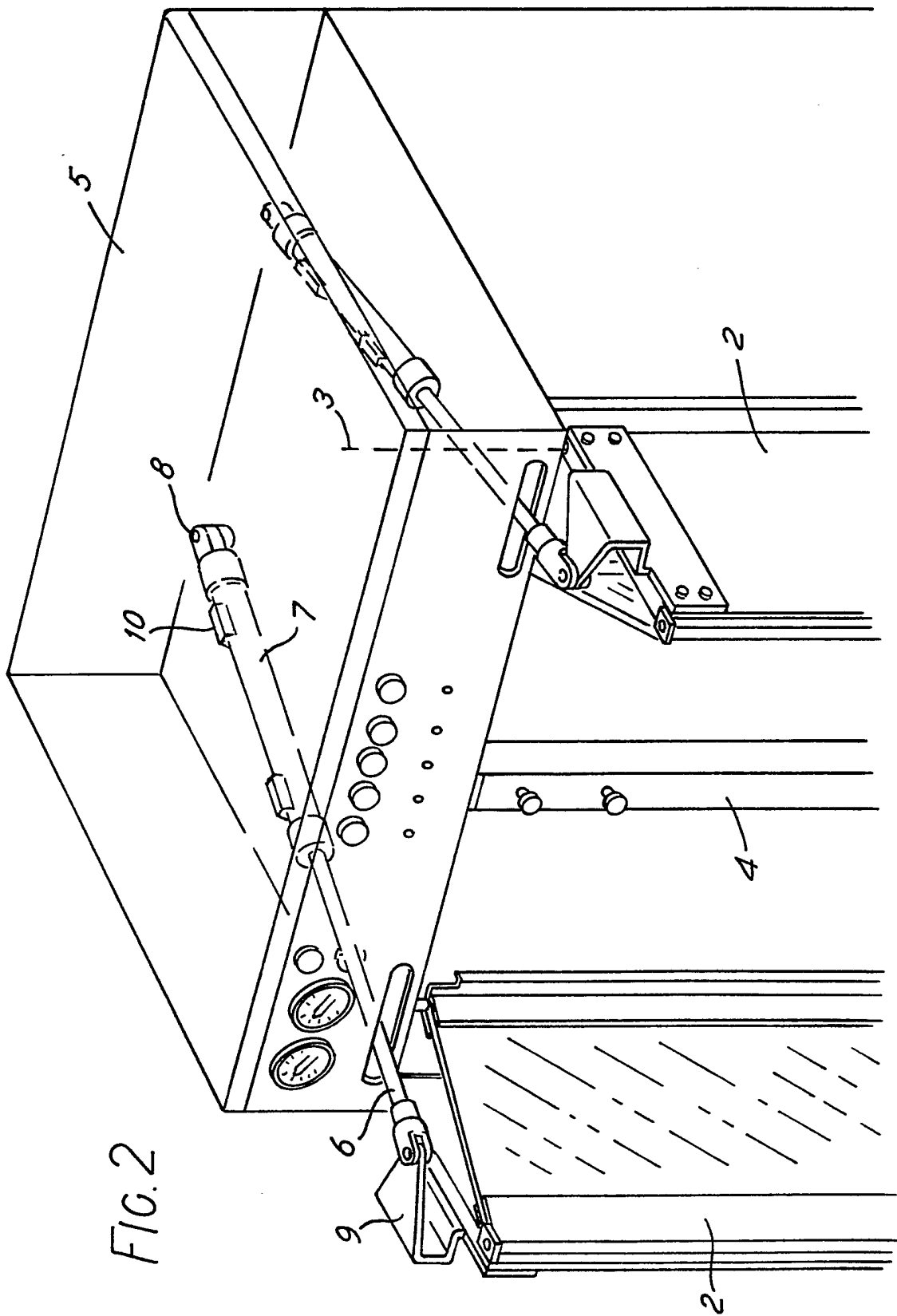


FIG. 2

CABIN FOR AUTOMATICALLY IRONING
GARMENT ARTICLES IN GENERAL

The present invention relates to a cabin for automatically ironing garment articles in general.

The cabins for automatically ironing textile articles and garments consist of apparatuses wherein the article to be ironed, duly supported on a pivoting rod, is brought inside the cabin where the ironing cycle is automatically carried out. Said cycle comprises vaporisation, ventilation and drying steps wherein steam and air currents are blown inside the cabin. The cabin walls define then an ironing chamber where the ironing process is carried out, said chamber having to be kept insulated from the outside.

For this purpose, the conventional ironing cabins comprise a pair of bellows doors, cooperating each other, automatically driven between a closed position (ironing step) and an open one (end of the ironing step and beginning of the subsequent one).

The door movements of the known machines of this type are obtained through corresponding double action cylinders acting, by means of an articulated mechanism, on a pinion. The latter meshes with a sprocket mounted keyed on the rotation pin of the door. The door is thus opened and closed depending on the sense of rotation (clockwise and counterclockwise) of the pinion and sprocket.

In the aforesaid known solutions, mostly due to the lack of a lever arm between the origin of the force (sprocket) and the axis of rotation of the door, the main drawback consists in that the above described mechanism supply a very noticeable closing force to produce a tight closure with respect to air and steam. The driving mechanism will thus quickly wear out and need to be frequently repaired.

Due to the above drawbacks, the conventional cabins for automatically ironing garments do not give rise to an effective tight closure against steam, especially when the apparatus has been used over a long
5 time. Steam and hot air can escape at the engaging surfaces of the doors against the cabin frame and the central upright thereof. These air and steam blows compromise the quality of the ironing process and can also be dangerous.

10 A further drawback of the thereinabove mentioned cabins consists in the fact that, due to the small dimensions of the sprocket of the driving mechanism, the doors move very slowly and the length of the ironing process is increased.

15 According to the present invention there is provided a cabin for automatic ironing of garments comprising a main body, one or more doors, the or each door being mounted on said main body for rotation about an axis and having driving means for opening and closing
20 the door, the point of application of the driving means on the or each door being spaced from the axis of rotation of the door thereby to effect a lever arm.

Preferably the or each driving means comprises a double acting device acting between the main body of the
25 cabin and the associated door.

Conveniently the or each device comprises a piston/cylinder arrangement having one end pivotally connected to the main body of the cabin and the other end pivotally connected to a bracket secured to the door
30 at a location spaced from the axis of the door and the or each piston/cylinder arrangement is electronically controlled by means of proximity microswitches.

In a preferred embodiment the or each door is in the form of a bellows door.

In comparison with the aforementioned solutions, the present cabin is advantageous in that even when the apparatus is used over a long time, the doors are tight closed against steam and air circulating under pressure
5 into the cabin.

Due to the lack of stresses on the driving mechanisms, any clearance is avoided and the maintenance of the apparatus is reduced. In comparison with the known cabins, the present apparatus shows further the
10 advantage of increasing the opening and closing operation speed of the doors, and the ironing process is more rapid.

These and further characteristics and advantages will become apparent from the following description of a
15 preferred embodiment of the invention illustrated, by way of an indicative example, in the accompanying drawings, where:

Figure 1 is a perspective view illustrating the cabin according to the present invention and,
20 Figure 2 illustrates the driving mechanisms of the doors shown in Figure 1.

The cabin according to the present invention is indicated at 1 in Figure 1 and comprises two bellows doors 2 pivotally mounted on pins, the axes thereof
25 defining the axes 3 of rotation of said doors 2. The same doors are suitably mounted so as to close onto a central upright 4 provided with fittings adapted to support garment articles.

An upper portion 5 is provided with an
30 electronic device to control the various steps of the automatic ironing cycle. Said upper portion is further provided with the driving mechanism for the doors as shown in Figure 2. Said driving mechanism consists of a piston 6 - cylinder 7 double action system, adapted
35 for driving each door and operated in a synchronized

manner through the automatic system for controlling the ironing cycle.

The free end of each cylinder 7 pivots on the rotation point 8, the latter being fixed with respect to
5 the cabin body.

The free end of each piston 6 is rotatably secured to a holder element in the form of a bracket 9 fixed to the corresponding door 2 at a point far from the axis 3 of rotation of said door.

10 A direct leverage mechanism for driving the doors is thus realised comprising a lever arm adapted for closing them by a force effective to securely close the cabin in a tight manner with respect to air and steam circulating in the ironing chamber.

15 The cylinder-piston systems, one for each door of the cabin, further comprise proximity microswitches 10 electronically operated and adapted for controlling the door movements according to the automatic ironing program.

20 The preferred embodiment of the invention, as hereinabove described and illustrated, is clearly capable of being modified within the scope of the present invention. Thus, for example, the piston-cylinder system can be substituted by any other
25 mechanism showing an equivalent effect; the free end of the piston 6 can also be directly pivotally secured to the corresponding door of the cabin. The above described bellows doors can be also substituted by
30 similar closure systems.

CLAIMS

1. A cabin for automatic ironing of garments comprising a main body, one or more doors, the or each door being mounted on said main body for rotation about an axis and having driving means for opening and closing
5 the door, the point of application of the driving means on the or each door being spaced from the axis of rotation of the door thereby to effect a lever arm.
2. A cabin as claimed in claim 1 wherein the or each driving means comprises a double acting device
10 acting between the main body of the cabin and the associated door.
3. A cabin as claimed in claim 2 wherein the or each device comprises a piston/cylinder arrangement having one end pivotally connected to the main body of
15 the cabin and the other end pivotally connected to a bracket secured to the door at a location spaced from the axis of the door.
4. A cabin as claimed in claim 3 wherein the or each piston/cylinder arrangement is electronically
20 controlled by means of proximity microswitches.
5. A cabin as claimed in any one of claims 1 to 4 wherein the or each door is in the form of a bellows door.
6. A cabin as claimed in any one of claims 1 to 5
25 wherein two doors are provided.
7. A cabin for automatic ironing of garments substantially as herein described with reference to and as illustrated in the accompanying drawings.