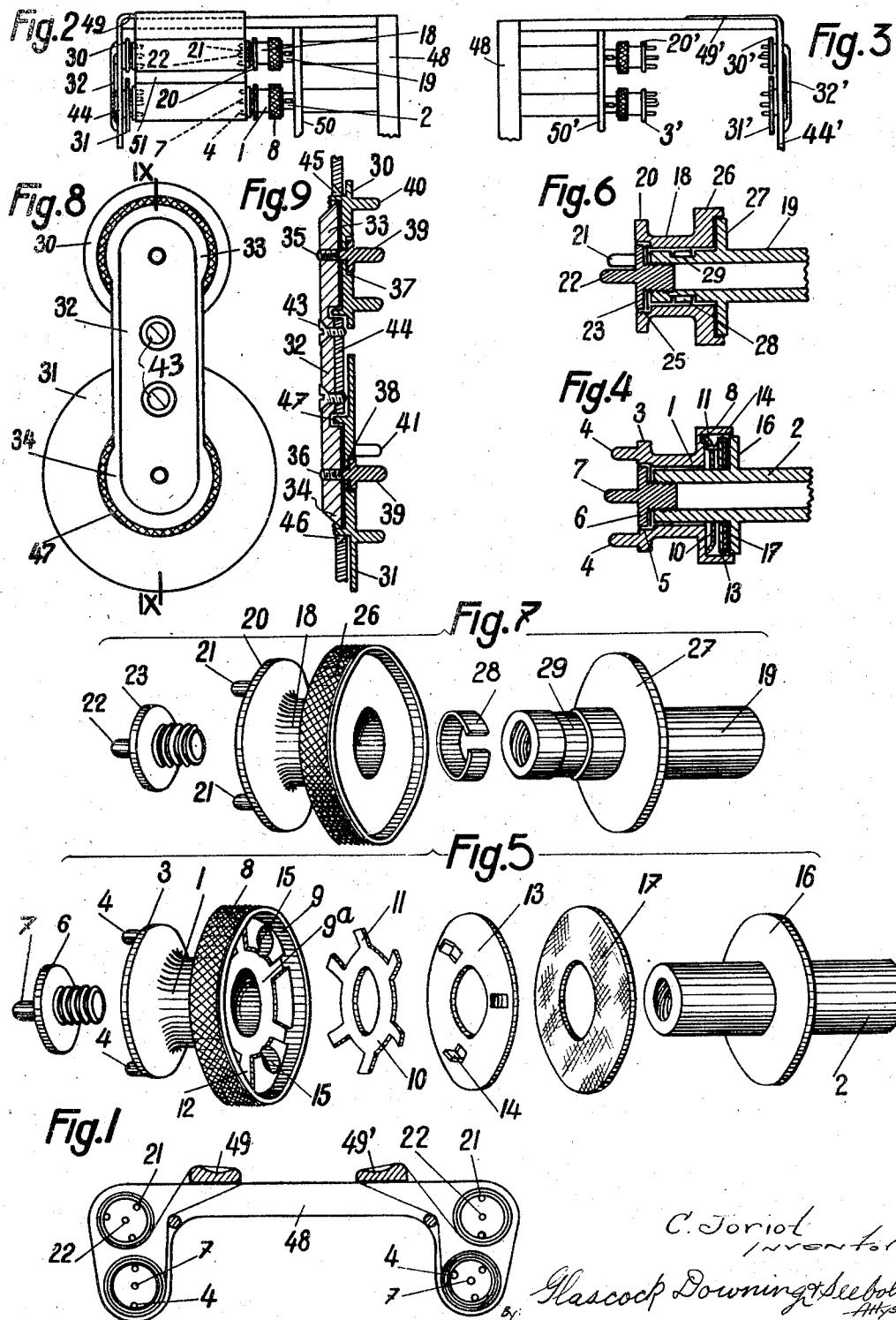


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DEVICE FOR PLACING PROTECTIVE COVERINGS AUTOMATICALLY
ON THE SEATS OF WATER CLOSETS
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DEVICE FOR PLACING PROTECTIVE COVERINGS AUTOMATICALLY ON THE SEATS OF WATER CLOSETS

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2 Claims. (Cl. 242—55)

This invention has reference to the apparatus described in my United States patent specification No. 2,002,948, granted the 28th May 1935, which apparatus effects automatically, before or after each usage of a sanitary apparatus, the placing in position of a clean protective seat covering and the removal of the seat covering which has been already used, and this invention more particularly refers to the art of winding and reeling of the seat covering.

In this type of apparatus the two portions of the seat, which is U-shaped, are each surrounded by a protective band, for example of paper, which is delivered by a supply roller and received on a winding-up roller, the two rollers being mounted below the seat and laterally to the pan, and a mechanism, which is actuated by the relative displacement of the seat to the cover, causes the rotation of the winding rollers of the two bands by the necessary amount for effecting the replacement of the seat covers.

The principal objects of the invention are as follows:—

In the first place, in order to obtain a mechanism such that all risk of damage to it or of the bands of paper tearing is avoided, and notably when a user causes the protective coverings to be nipped against the seat when the latter is moved, as practical experience has shown may happen.

In the second place, in order to permit an adjustment of the force necessary for effecting the operation of the mechanism, in accordance with the kind of paper employed, as well as the resistance which it is desired to have for effecting the unwinding of the bands when the seat is moved.

In the third place, in order to facilitate the placing in position of the rollers in the interior of the mechanism.

In the fourth place, in order to prevent any abnormal strain on the mechanism when the supply rollers become exhausted.

One example of embodiment, which constitutes a preferred form of construction of my invention, is shown in the accompanying drawing, in which:—

Fig. 1 is a view in cross section through a vertical plane perpendicular to the axes of the rollers showing the two protective bands, as well as their rollers,

Fig. 2 is a view in elevation of the members carrying and actuating the rollers situated at one side of the pan,

Fig. 3 is a similar view of the members carry-

ing and actuating the rollers situated on the other side of the pan,

Fig. 4 is a view in vertical longitudinal section in larger scale of the driving head of the rewinding roller,

Fig. 5 is a perspective view of the various elements forming the said head,

Fig. 6 is a view in vertical longitudinal section in larger scale of the supporting head of the supply roller,

Fig. 7 is a perspective view of the various elements forming the head shown in Fig. 6,

Fig. 8 is a left hand side elevation of Fig. 2 showing the plate on which there are mounted the supporting plates for the two rollers,

Fig. 9 is a section on line IX—IX of Fig. 8 showing the mounting of the plate.

In these figures, 1 is the driving head of the lower rewinding roller, this head being formed by a sleeve mounted with an easy fit on a hollow spindle 2, which is driven in a known manner by the rotating spindle of the mechanism and which is slidably mounted against the action of a spring so as to permit the roller to be put into position.

The sleeve 1 has, at one of its ends, a shoulder 3 carrying two pins 4 adapted to penetrate into corresponding orifices in the cheek of the rewinding roller. A seat 5 is provided in the shoulder 3 for receiving a threaded plug 6, the head of

which carries a pin 7, a little longer than the pins 4, for centering the roller. The threaded part of the plug screws into a corresponding tapping in the hollow spindle 2.

The plug 6 is mounted in the seat 5 in such a way as to permit the rotation of the head 1 about the plug. At its other end the sleeve 1 is provided with a shoulder 8 which

has a recess 9, the bottom of which is shaped so as to accommodate a resilient concave washer 10, the feet 11 of which fit in the hollow spaces 12

of the bottom 9a, this concave washer 10 being kept in position by a flat washer 13, whose feet 14

fit into other hollow spaces 15 of the bottom 9a. On the hollow shaft 2 there is provided a collar 16, which engages in the shoulder 8 of the head 1.

Between the collar 16 and the flat face of the washer 13 one or more fibre friction washers 17

are interposed, and the whole is kept in position by the plug 6.

In Fig. 1, 48 is the rear casing or housing serving as seating for the mechanism; 49 and 49' are the sides forming the seat proper; 50 and 50' (Figs. 2 and 3) are rear plates for the mounting of supporting roller elements; 44 and 44' are front plates for the mounting of supporting roller elements, all as described in the prior patent.

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One of the covering bands has been shown in Figure 1 and designated 51.

It is now easy to see that the driving of the head 1 by the rotating spindle 2 is caused by the elastic friction interposed between these elements and that therefore, in the case where an abnormal resistance would be opposed to the actuation of the rewinding roller, a sliding movement would take place between the head 1 and the spindle 2, and thus any possibility of damage to the mechanism or to the band of paper is prevented.

18 is the supporting head of the supply roller, formed by a sleeve mounted on a hollow spindle 19, which does not rotate, and which can slide on its support against the action of a spring not shown to facilitate the placing of the roller in position. The sleeve 18 has, at one of its ends, a shoulder 20 fitted with three pins 21 adapted to engage in corresponding orifices in the cheek of the supply roller, which is moreover centered by means of a pin 22, a little longer than the pins 21, arranged on a plug 23 which screws into an internal tapping at the end of the hollow shaft 19. The head 23 of the plug is accommodated in a seat 25 arranged in the shoulder 20, which can turn freely around the said head. At the other end, the sleeve 18 has a recessed shoulder 26 in which a collar 27 of the spindle 19 engages freely. In order to ensure a correct unwinding of the supply roller, i. e., in order to give to the paper band in course of unwinding a suitable degree of tension, the head 18 is frictionally mounted on the spindle 19, by the intermediary of a circular brake formed by a split elastic metal ring 28, which fits in a circular groove 29 on the circumference of the spindle 19, the said ring 28 projecting from the circumference of the said spindle.

With regard to the plates 30 and 31 supporting the rollers at their other ends, they are mounted on a common plate 32 so as to be freely rotatable. For this purpose they are fitted freely on to corresponding cylindrical seats 33 and 34 in the plate 32 and they are held freely by means of threaded plugs 35 and 36 respectively, which screw into the seats 33 and 34, the heads being accommodated in the seats 37 and 38 respectively of the plates 30 and 31, which turn about the heads. Each of the plugs 35 and 36 carries a pin 39 for the centering of the roller and the plates carry pins 40 and 41 respectively, a little smaller than the pin 39, to the number of two on the one hand and to the number of three on the other hand, which pins engage in corresponding holes arranged in the side faces of the rollers. In addition, the plate 31 is of larger diameter so as to form a support for the layers of paper being rewound and thus to ensure a correct rewinding.

The plate 32 is fixed by screwing at 43, 43 on to the front plate 44 of the housing of the apparatus, holes 45, 46 being made in the plate 44 for the assembly of the plates 30 and 31.

The opening 46 is widened out towards the outside, so as to permit the small collar 47, with a milled or corrugated surface, of the plate 31 to be turned by hand from the outside, so as to bring

its pins 41 opposite corresponding openings in the side face of the rewinding roller. The same applies to the plate 30 relative to the supply roller.

In order to avoid the risk of damage to the mechanism at the time when the supply roller becomes exhausted, it has been found preferable to treat the place where the first sheet of paper to be wound acts upon the roller with abrasive powder, emery, carborundum, ground glass or similar material, instead of gumming the end of this band. This new method of working has the advantage that, when the roll is used up, the end of the band of paper comes away by itself from the roller, without any effort, whereas in the case where it is fixed by gumming or a like manner to the roller, there occurs, when the paper is used up, a sudden check to the members drawing the paper, and this causes an abnormal strain which is likely to damage the mechanism. Moreover, when the supply roller is about to become exhausted a pre-arranged sign appears on the band of paper. This avoids the disassembly of the protective housing for the rollers before the time for exchanging the rollers.

I claim:

1. In a device for insuring winding and reeling of toilet seat covers provided with a supply roller having a supporting head and a re-winding roller, a hollow spindle adapted to receive rotation from a source of power, a sleeve constituting a driving head, mounted as an easy fit on the said hollow spindle, a shoulder at the end of the said sleeve on one side which carries driving pins for the rewinding roller, a resilient convex washer, a second shoulder at the other end of the said sleeve and serving as a seating for said resilient convex washer, a second washer to ensure the keeping in place of the said convex washer, a collar arranged on the hollow spindle, and at least one friction washer of fibre interposed between the said collar and said second washer, a threaded plug screwed on the end of the hollow spindle and ensuring the maintenance of the unit, the sleeve being able to turn freely about said plug, and said plug carrying a centering pin for the rewinding roller.

2. In a device according to claim 1, a second hollow spindle, a split elastic ring mounted on said second spindle about which the supporting head of the supply roller turns, a circumferential groove provided on said second spindle so as to receive and keep in place said ring, the supporting head of the supply roller being formed by a sleeve mounted on said second spindle and in the interior of which said ring rubs, a collar provided at one end of said sleeve and carrying pins engaging in the supply roller, a second shoulder provided at the other end, a collar arranged on the second spindle and engaging in said second shoulder, a threaded plug screwed to the hollow end of the second spindle and ensuring the maintenance in place of the unit, the sleeve being able to turn freely about said plug, said plug carrying a centering pin for the supply roller.

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