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W. C. REES

SANITARY WATER CLOSET ATTACHMENT

Filed Oct. 8, 1921

2 Sheets-Sheet 1

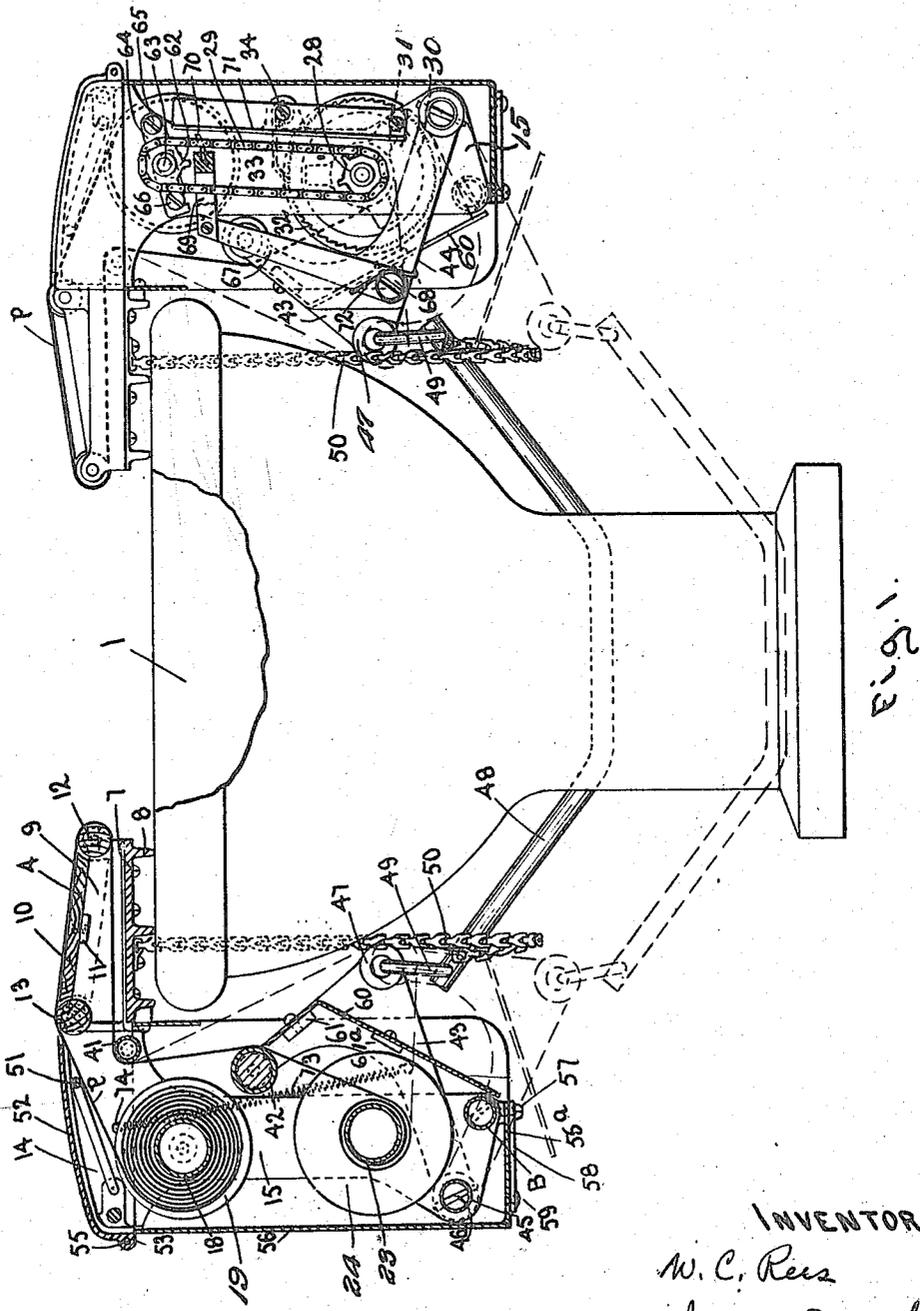


Fig. 1.

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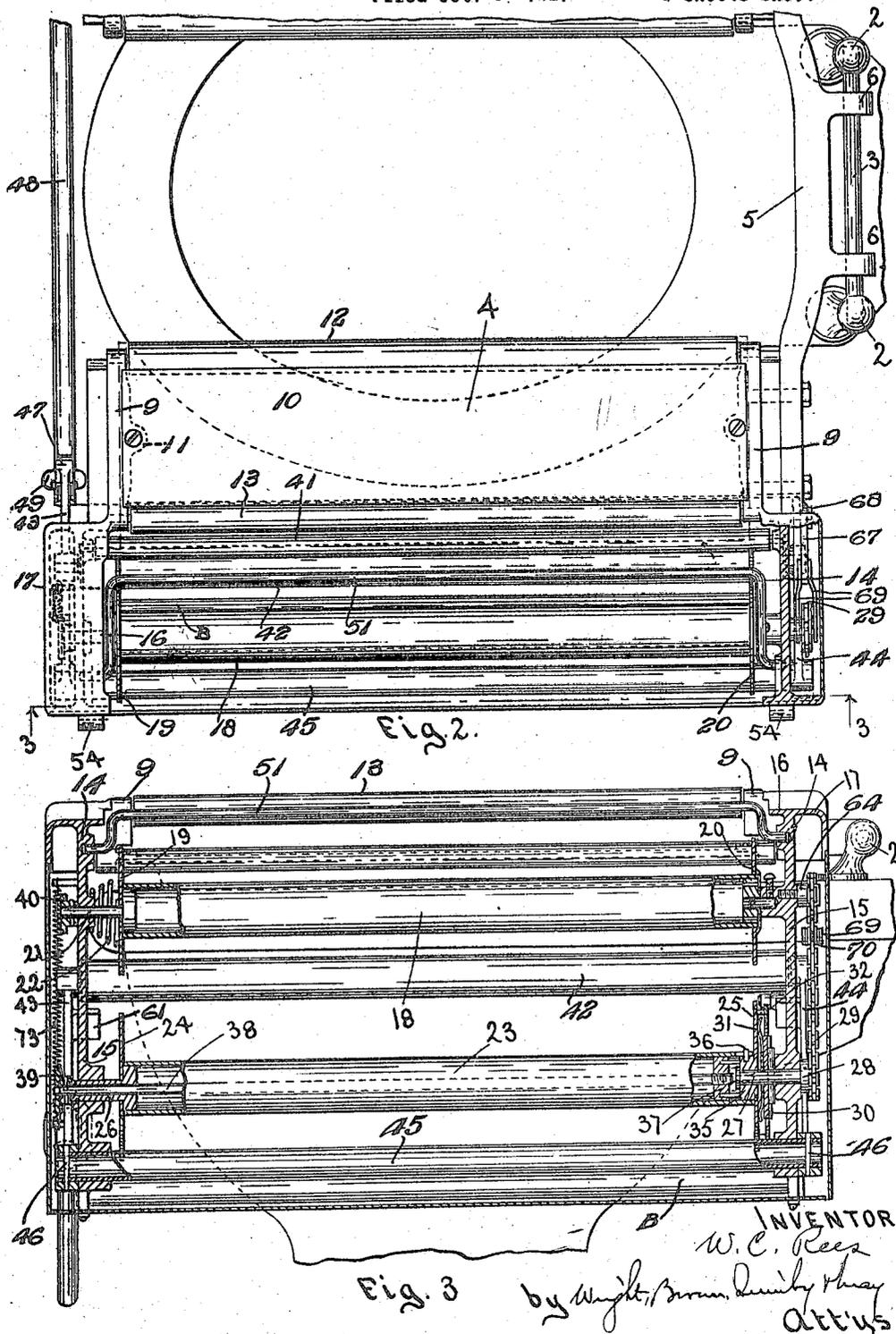
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2 Sheets-Sheet 2



UNITED STATES PATENT OFFICE.

WARREN C. REES, OF SOMERVILLE, MASSACHUSETTS, ASSIGNOR TO ASEPTIC SERVICE COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MAINE.

SANITARY WATER-CLOSET ATTACHMENT.

Application filed October 8, 1921. Serial No. 506,251.

To all whom it may concern:

Be it known that I, WARREN C. REES, a citizen of the United States, residing at Somerville, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Sanitary Water-Closet Attachments, of which the following is a specification.

The present invention relates to sanitary water closets of the type shown in my prior patents wherein seats arranged at each side of the toilet fixture are covered with a covering strip, and in connection with which means are provided for shifting the strip so as to expose a fresh, clean surface prior to each use of the toilet.

The object of the present invention is to produce an apparatus of this character at moderate cost and of such construction that it can be applied with the greatest possible ease to existing toilet fixtures and used in private homes or places of semi-public character where the more complete protection from contamination of the seat and its covering given by the machines and devices disclosed in my prior patents is not so important as is the case with water closets provided for use of the general public.

With this object in view the invention consists in the new combinations and features of construction and arrangement described in detail in the following specification and pointed out in the claims.

In the drawings furnished with this specification,—

Figure 1 is an elevation from the rear of a toilet fixture with the aseptic seat made according to the present invention applied to it; the seat and paper supplying means at one side of the fixture being shown in section and that at the other side being shown in elevation.

Figure 2 is a plan view of a part of the fixture and equipment, the seat and paper supplying means at one side of the fixture being fully shown.

Figure 3 is an elevation of the paper supplying means as if the enclosing casing were cut away substantially on line 3—3 of Figure 2.

In the drawings 1 represents a water closet bowl or toilet fixture of a common type and typifies any fixture of this nature, however constructed. Posts 2, 2 and a pintle rod 3 represent and typify means commonly

used with fixtures of this character for mounting a superposed seat. The apparatus in which my invention resides is an attachment for such a bowl or fixture consisting of two duplicate units, each having a seat or seat member 4 and suitable means for holding a paper covering strip (or a strip of any other suitable material) stretched over the seat and for feeding the strip so as to expose fresh, clean areas on the upper side of the seat. Although the two duplicate seats or seat members together are practically necessary to furnish the support for the occupant of the closet, each is called in this specification "a seat" for convenience. The two duplicate units of the attachment are connected together by a cross bar 5 having lugs 6, 6, adapted to be mounted on the pintle rod 3 in the same manner as the ordinary toilet seat, in substitution for the latter in fixtures already installed, and with the same capacity for being swung upward and backward out of the way, when need of so doing arrives. In addition to being partially supported by means of this connection the seat units also rest upon the rim of the bowl, but are not otherwise supported. These units are parallel to each other and spaced apart by a distance which has been determined by a scientific analysis of the average human frame to be sufficient for the uses of the toilet, but near enough together to afford a firm and comfortable seat for the occupant.

Each duplicate unit of the attachment comprises in its construction a base frame on which the seat proper and the paper supplying and feeding means are mounted. This base frame may be made as a casting and is formed with a horizontal web 7 overlapping the side of the fixture and having ribs 8 on its under side which rest on the rim of the fixture. At the ends of the webs 7 are upright webs 9 on which rest the ends of the seat proper 10, which is preferably a wooden board and is made fast by screws to lugs 11 on the webs 9. Rolls 12 and 13 at the inner and outer edges of the seat are journaled in the webs 9 and guide the covering strip around the edges of the seat without frictional drag. Extensions 14 of the webs 9 project outward from the fixture and from them depend webs or plates 15 by which are supported the paper supply and

take-up spools and the paper feeding device presently described. Lips 16 and 17 extend horizontally in opposite directions from the upper edge of the web extensions 14, and the lips 17 are carried downward at a distance from these extensions.

The frame consisting of the parts last described may be made as a single integral casting, which is preferred on account of its low cost, or it may be fabricated of separate members suitably secured together. A brace B extends between the lower ends of the two depending frame members 15 to hold them at a fixed distance apart. This brace is here shown as a tube, but it may be of any other suitable construction.

The supply spool previously mentioned consists of a central tubular body 18 and heads 19 and 20, the head 20 being fixed to one of the frame members 15 and the head 19 having a trunnion 21 which is movable endwise through the opposite frame member and is pressed against the tube by a spring 22. The take-up spool consists of a tubular body 23 and heads 24 and 25. The head 24 has a tubular trunnion 26 which is mounted rotatably in one of the frame members 15, while the other head 25 is adapted to turn freely about a shaft 27 which rotates in the opposite frame member 15 and is rotated by a sprocket wheel 28 and chain 29 presently described in detail.

A friction clutch consisting of a disk 30, made fast to the shaft 27, and a spider 31 affixed to disk 30 having spring arms compressed between this disk and the head 25, imparts rotation to the latter for winding up the used strip. Independently connected to the head 25 is an annular ratchet 32 with which cooperates a pawl 33 pivoted at 34 to the adjacent frame member 15 and held by gravity in contact with the ratchet. To the head 25 is connected a hub 35 having a key 36 which engages a slot in the tube 23, and a disk 37 is connected to the hub. A rod 38 passes through the tubular trunnion 26 and carries a knob 39 on its outer end. Its inner end is screwed into the disk 37. By unscrewing and withdrawing this rod the head 24 is released from the head 25 and may be moved outward far enough to release the tube 23, whereby a tube filled with used paper may be removed and an empty tube substituted. Similarly by pulling outwardly on the knob 40 which is secured to the trunnion of head 19, this head may be disengaged from the tube 18 of the supply spool and the latter removed when empty to make place for a full tube carrying a new roll of clean paper.

The paper covering strip and also the cover 52 are omitted from Figures 2 and 3 in order not to obscure the illustration of the frame and mechanism in those figures.

One of the strips is shown in section and the other in elevation in Figure 1, and both are designated by the letter P. Each strip passes from its supply spool over the roller 13 at the outer edge of the seat, thence over the upper surface of the seat and around the roller 12 at the inner edge, thence over a guide roll 41 journaled at its opposite ends in the frame members 15, and thence across a feed roll or feeder 42 to the take-up spool.

The feed roll is supported by two swinging plates 43 and 44 which are mounted on the opposite ends of a shaft 45 having its bearings in the depending frame members 15. These plates are essentially arms and have hubs which surround the ends of shaft 45 and are secured thereto by taper pins 46. These two plates or arms, together with the shaft on which the feed roll 42 is placed (such shaft being secured at its ends in the plates) constitute a swinging frame or swing. The plate or arm 43, which is at the forward side of the machine, carries an eye 47, and from the eyes 47 of the two swinging frames, at opposite sides of the toilet fixture, is hung a bar 48 by means of links 49. This bar is depressed in its middle part and provides a treadle hanging at the front side of the toilet fixture near the floor. It is adapted to be pressed upon by the foot of the user of the toilet and when depressed, as shown in dotted lines in Figure 1, it carries the two swinging frames downward, moving their rolls toward the fixture, across the line between the take-up spool and guide roll 41 of each unit. A chain 50 is connected to the treadle bar 48 near each end and hung from the frame members 7 of the adjacent unit. These chains arrest the bar 48 when both swings have been moved far enough to draw off such a length of paper as will provide a fresh covering for the seat and compel equal movement to be given to both swings, as later explained.

A rod 51 having its ends offset and journaled in sockets in the web extensions 14 rests on that stretch of the covering paper between the supply roll and the guide roll 13 to maintain tension in the paper and take up any slack due to additional paper being drawn from the supply roll by shifting of the occupant on the seat.

A cover 52 overlies the upper end of the frame outside of the seat, and is pivoted to the frame by means of lugs 53 on the cover and 54 on the frame and a pintle 55 passing through said lugs. The outer, rear, and front sides of each unit are enclosed and guarded by a shield 56 fitted to the webs or lips 17 of the base frame and detachably secured thereto. This shield surrounds and underlies the fixed frame, except at the side next to the toilet fixture, and its bottom

wall 56^a has an opening through which projects a headed stud 57 which is fixed in the brace B. A hook-shaped latch 58 is pivoted to this wall by a stud 59 and its hook is adapted to swing so as to embrace the shank and overlies the head of stud 57, thus affording means by which ready attachment and detachment of the shield may be effected. The take-up spool and the paper adjacent thereto are guarded on the side next to the fixture by a shield 60 secured to lugs 61 and 61^a on the arms 43 and 44 of the swing.

The chain 29 previously mentioned passes around the sprocket 28 on the take-up spool 27 and around an idler sprocket 62 arranged in the same plane with the sprocket 28 and supported by the main frame in a manner permitting it to be adjusted so as to take up slack in the chain. The sprocket support is a stud 63 fixed in a plate 64 which is pivoted to one of the frame members by a stud 65 and has a transverse slot or notch, occupied by a clamp screw 66 which is set into the frame. Such slot or notch permits angular movement of the plate, and by tightening the screw 66 these adjustments may be made permanent. The adjacent plate 44 of the swing carries an arm 67 pivoted by a stud 68, and fastened to the upper end of arm 67 are two straps 69 which embrace one stretch of the chain 29 and between which at their ends is fastened a finger 70 adapted to enter the links of the opposite stretch of the chain. The arm 67, straps 69 and finger 70 together constitute a driver adapted to drive the chain in the upward movement of the swing and of which the finger is so shaped that it readily withdraws from the chain and enters the nearest opening in the chain when the swing rises. A guide 71 is attached to the base frame parallel with that stretch of the chain which the driving finger engages in order to ensure engagement therewith of the finger in case the chain should be slack. The arm 67 of the pawl or driver is pressed upon by a spring 72 which is coiled around the pivot stud 68 and reacts against the adjacent arm 44 of the swing so as to maintain the feed finger in position to engage the chain. The spring may be omitted and gravity alone depended on to effect such engagement, since the center of gravity of the feed pawl is at the side of the pivot 68 toward the chain.

A spring 73 is attached at one of its ends to the arm 43 of the swing frame, and at its opposite end to a stud 74 on the fixed frame, in each unit; the tendency and effect of such spring being to raise the swing frame whenever the treadle is released after having been depressed.

The operation is as follows: Before using the toilet, the user presses with his foot on the treadle bar 48 until the latter is de-

pressed to the limit allowed by the chains 50. This action swings the paper drawing rolls 42 across the line of the paper, and downward, and thus causes enough paper to be drawn from the supply rolls across each seat to provide a fresh surface, for the take-up rolls are then prevented by their pawls 33 from turning. Equal feed of paper over each seat is produced because movement of the treadle bar is not arrested until the slack in both chains has been taken up, wherefore even if one of the paper feeding swings should move more easily than the other, and therefore act in advance of the other, the movement of the treadle bar will continue until the more reluctantly moving feed swing is operated, owing to the natural tendency of the operator to maintain the pressure on the treadle to the limit of its possible movement. During this action the feed finger is carried down to a low point in the outer stretch of the chain 29 in each unit. When the operator removes his foot from the treadle bar the returning springs of the paper feeders restore them to their previous positions; and in the course of their movement in this manner the feed pawls engage the chains 29 and drive the take-up rolls in the direction to wind up the paper left slack by the return of the draw-off rolls.

The movement thus given to the chain, and the size of the sprocket wheel 28, are designed to be of such values that all of the slack will be wound up even when the diameter of the take-up spool is the smallest, the condition when a new strip is first applied; and the friction clutch between the driving spindle and adjacent head of the take-up spool is adapted to slip when the spool has become enlarged by windings of paper on it. Thus under all conditions all of the slack of the paper is wound up and an even tension is maintained on the paper, and the drawing off or feed roll is allowed to return to that position from which its range of possible movement is great enough to draw off from the supply spool a length of paper substantially equal to, or slightly greater than, the width of the seat.

When all of the paper on the supply spool has been thus used up and transferred to the take-up spool, the tubular centers of these spools may be removed, a new roll of paper substituted in the supply spool and an empty tube substituted in the take-up spool; the shield 56 having first been removed to give access to the knobs 39 and 40, and being afterwards replaced.

I have referred to the sanitary covering of the seat as a paper strip because paper is the material which ordinarily will be used for the purpose. I wish it to be understood, however, that if any occasion should arise for using other material than paper for this

purpose, the use of such other material in an apparatus corresponding to the intent of the appended claims would be within the scope for which I claim protection for the invention.

It is to be understood also that various modifications in construction and arrangement of the various parts of the apparatus may be made within the same scope of protection. Thus, for instance, although I have described and shown a link chain as the driver for the take-up spool, I consider as equivalent thereof, and intend to protect by the appended claims, any flexible driving device, such as a belt or strap, whether perforated or not, which functions in a similar manner to the chain here shown. Likewise similar equivalents are within the intended scope of my claims as related to other parts of the combination.

What I claim and desire to secure by Letters Patent is:

1. A sanitary toilet comprising a seat proper normally stationary and occupying a horizontal position over the toilet fixture, supply and take-up spools for a covering strip supported adjacent to said seat, guide members arranged to guide the strip over and under and around one edge of the seat to the respective spools and a draw-off device arranged to bear on the strip between one of said spools and one of said guide members and movable away from the line between said member and spool, whereby it is enabled to draw lengths of the strip from the supply spool, the take-up spool being withheld from rotation in the unwinding direction.

2. A sanitary seat for toilets comprising a seat proper, a covering strip extending over and under said seat and around one edge thereof, a supply spool from which the strip leads to the seat, a take-up spool to which the strip is led from the seat, a guide around which the strip passes in going from one of the rolls to the seat, an oscillative swing including a draw-off member arranged to engage the strip between the last-named spool and guide and being movable with that part of the strip on which it bears away from the line between said spool and guide, means engaging the take-up spool to prevent unwinding movement thereof, a sprocket connected with the take-up spool, a chain passing around and in mesh with said sprocket, and a driver carried by said swing constructed to connect with said chain and apply a driving impulse thereto during the return of the swing after operation thereof in the manner described.

3. The combination with a toilet fixture of seat units normally occupying a stationary horizontal position overlapping the opposite sides of said fixture, including depending frame members beside the fixture,

supply and take-up spools mounted by said frame members with the supply spool above the take-up spool, a covering strip passing from the supply spool over, around and under the seat, a guide between the seat and the take-up spool, a swing pivoted to said frame members and including a draw-off bar arranged to bear on the strip between the said guide and take-up spool at the side of the strip away from the fixture, being normally held relatively near to the line between said spool and guide and being movable from normal position away from said line toward the fixture, whereby it is enabled to draw the strip from the supply spool, a pawl preventing movement of the take-up spool in the unwinding direction, a sprocket wheel frictionally connected with said spool for driving the latter when moved, a chain passing around said sprocket, and a chain driver carried by said swing arranged and constructed to travel idly along one stretch of the chain with the drawing off movement of the swing, and to engage and propel the chain during the movement of the swing in the opposite direction.

4. In combination with a toilet fixture and a seat therefor, a covering strip passing over and around the seat, supply and take-up spools from and to which, respectively, said strip is led, a sprocket chain adapted to drive said take-up spool for winding up the used strip, a back and forth movable feeder engaging with the strip to draw successive lengths thereof from the supply spool and over the seat, and a driver carried by said feeder and arranged to engage and propel said chain in the course of the movement of the feeder in one direction.

5. In combination with a toilet fixture and a seat therefor, a covering strip overlying the seat, supply and take-up spools for said strip, a feeder movable transversely back and forth of the strip for drawing off lengths thereof from the supply spool, a pawl device arranged to prevent unwinding of the take-up spool and means for rotating the take-up spool to wind up the slack of the strip comprising a sprocket engaged with the spool, a chain passing over the sprocket, and a driver carried by the feeder and arranged to engage and propel said chain during the return movement of the feeder.

6. A sanitary seat for toilets comprising two seat units adapted to rest on the opposite rims of a toilet fixture with a space between them, a paper supplying and feeding means associated with each of said units arranged to hold, guide and feed a paper strip over the upper surface of each seat unit, and a treadle consisting of a bar connected at its opposite ends at the forward

side of the fixture to the paper feeding means of each of the seat units, respectively, and suspended from such connections.

7. A sanitary seat as set forth in claim 6
5 in which the paper feeding means is an oscillative swing having two side arms and a cross bar secured to said arms and arranged to bear against a stretch of the paper and to draw out that stretch between

two supporting lines, and a treadle is sus- 10
pended from one side arm of each of the swings of the several units and is adapted when pressed upon in one direction to move the swings in the direction for drawing off
15 paper.

In testimony whereof I have affixed my signature.

WARREN C. REES.