W. C. REES.

ASEPTIC WATER CLOSET.

APPLICATION FILED JUNE 6, 1914.

1,156,175.

Patented Oct. 12, 1915.

3 SHEETS—SHEET 1.

Fig. 1.

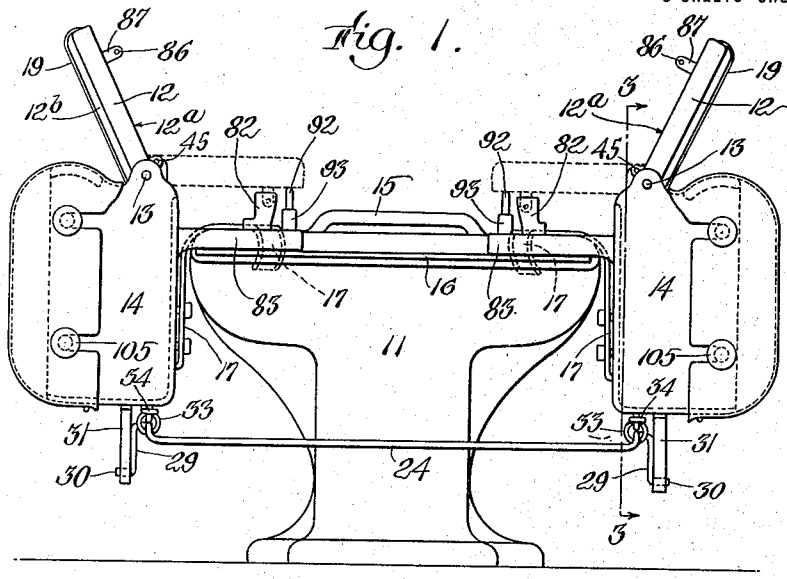
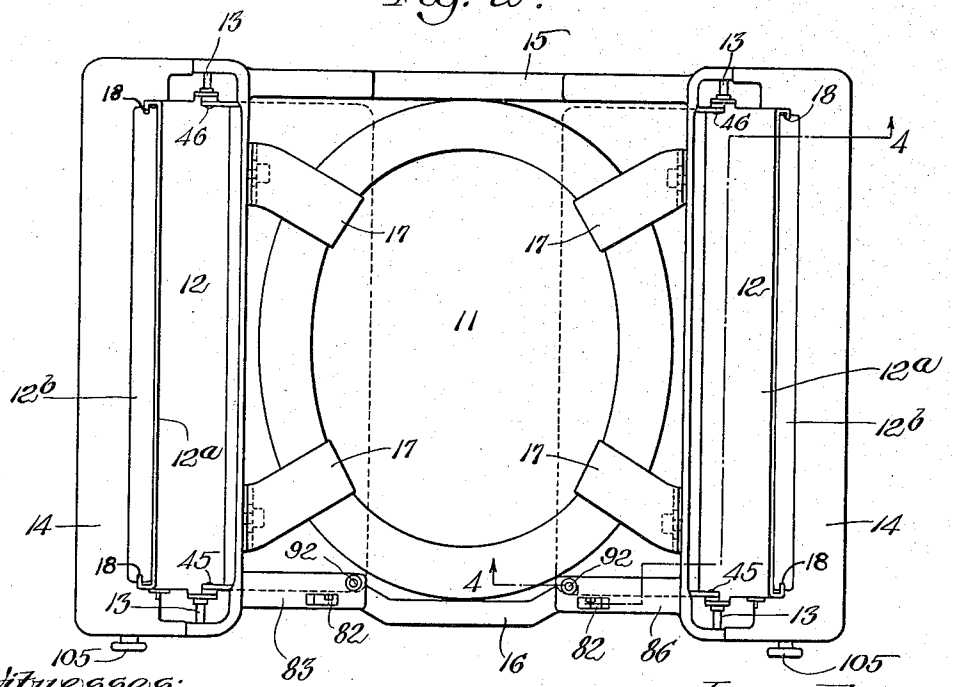


Fig. 2.



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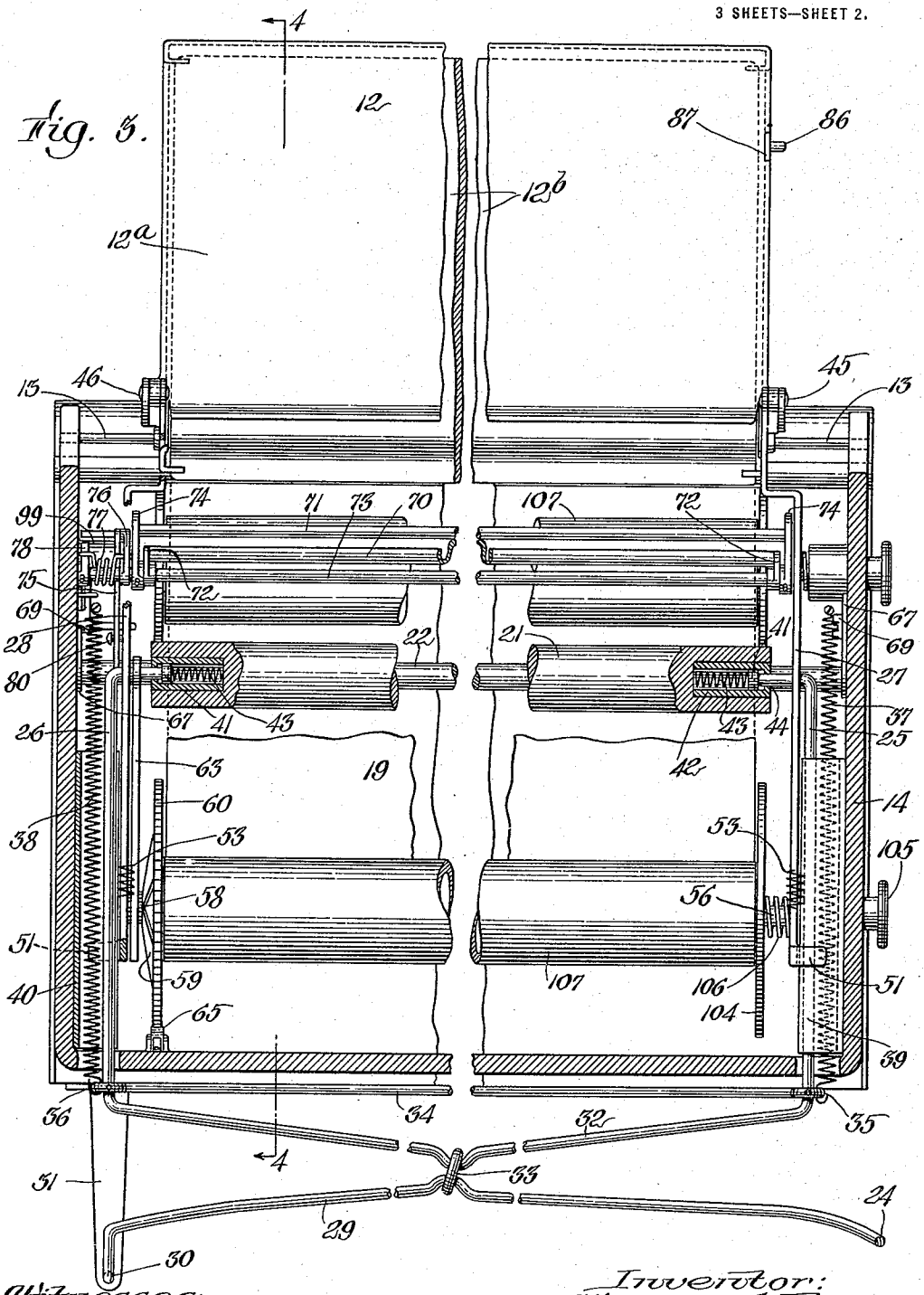
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3 SHEETS—SHEET 2.

Fig. 3.



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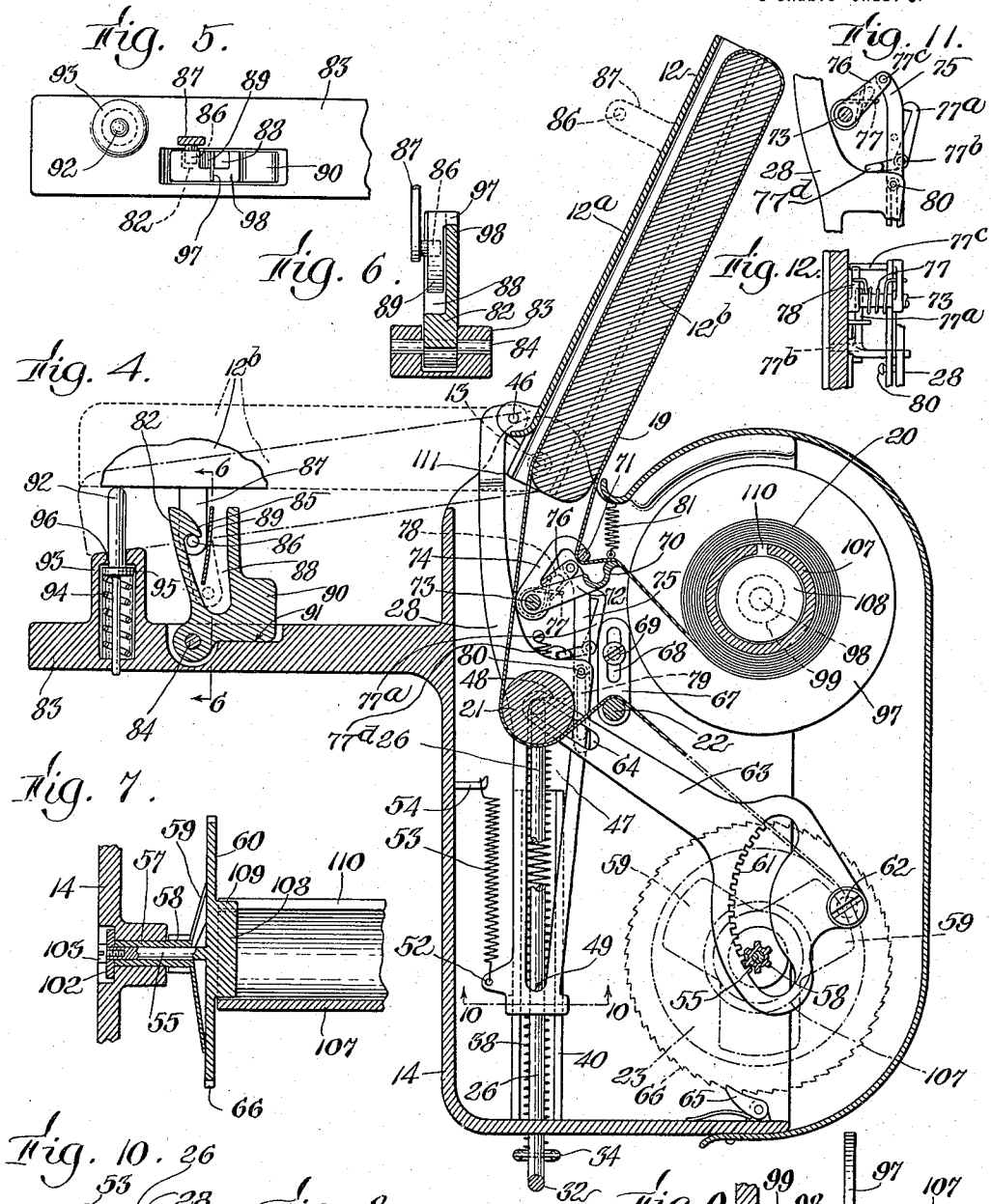
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

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ASEPTIC WATER-CLOSET.

1,156,175. Specification of Letters Patent. Patented Oct. 12, 1915.

Application filed June 6, 1914. Serial No. 843,442.

To all whom it may concern:

Be it known that I, WARREN C. REES, a citizen of the United States, and resident of Somerville, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Aseptic Water-Closets, of which the following is a specification.

The present invention relates to water closets of the type in which a covering member is placed over the seat, and is changed or renewed after each use to provide a fresh clean surface for each use and to prevent the spread of infection.

Among the objects sought by my present invention are to provide in a closet of this character a seat which is pivotally mounted and may be brought into horizontal position for use and into a raised position when not in use; to provide means in connection with such a seat for supplying a fresh covering or a fresh section of a continuous covering strip over the surface or face of the seat whenever the latter is brought into the horizontal position; to provide a tension and take up device for the aseptic covering arranged and operative to keep the covering in a smooth condition while permitting a certain amount of movement thereof over the seat; to permit adjustment of the width of the seat, or in other words the extent to which the seat projects over the closet bowl; and to provide other improvements in an apparatus of this character as hereinafter more fully appears.

An embodiment of means which at the present time I consider preferable to others, for accomplishing the foregoing objects is illustrated in the accompanying drawings, and described in the following specification for the purpose of illustrating and explaining the novel principles involved in my invention, but without the intention of limiting the invention to the particular form or construction of such means here illustrated.

In the accompanying drawings, Figure 1 represents a front elevation of the closet referred to. Fig. 2 is a plan view of the closet. Fig. 3 is an elevation of one of the seats and the operating mechanism, partly broken away, showing the casing in which the operating mechanism and aseptic covering member are contained in section, the section being taken on line 3—3 of Fig. 1 and the parts being represented as viewed in the direction of the arrows on such line. Fig. 4 is a vertical sectional view of the seat and operating mechanism taken on line 4—4 of Figs. 2 and 3 looking in the direction of the arrow. Fig. 5 is a plan view of the locking device which holds the seat in horizontal position. Fig. 6 is a sectional view of said locking device taken on line 6—6 of Fig. 4. Fig. 7 is a sectional detail view of one end of the take-up roll. Fig. 8 is a similar view of the opposite end of this roll, and representing also the construction of the corresponding end of the supply roll. Fig. 9 is a similar view of the opposite end of the supply roll from that shown in Fig. 8. Fig. 10 is a detail view representing a horizontal section on line 10—10 of Fig. 4. Figs. 11 and 12 are detail elevations of a latch provided for holding the tension device in gripping position until released.

The same reference characters indicate the same parts in all the figures.

In the drawings, 11 represents a water closet bowl which may be of any ordinary or other preferred construction and form.

My present invention being concerned with the seat and the means for protecting the seat, and with the combination of which such seat and means and the bowl are elements, it is not material how the bowl is constructed in respects other than those concerning such combination.

12 represents the seat or seat member as a whole, which is composed of the parts 12^a and 12^b hereinafter described. In the illustrated embodiment of the invention there are two seat members 12 arranged at respectively opposite sides of the bowl and extending forwardly and rearwardly thereof. For the purposes of this description each of these members may be considered to be a seat and will be so called. Although I have shown a design in which two such seats or members are arranged to coöperate with each other and to be used simultaneously by one person, yet the invention is not limited to such a design or arrangement of seats or members, but may be embodied in a design wherein one member is sufficient or more than two may be employed. The two seats here shown and the means for operating them and for feeding the covering element are duplicates of one another, wherefore a

description of one will suffice for both and only one will be described. Each seat is mounted upon pivot pins 13 secured to a casing 14 in which the supply and take-up means for the aseptic covering and the operating mechanism are contained. The two casings are arranged on respectively opposite sides of the bowl, as shown in Figs. 1 and 2 and are connected rigidly to one another by cross members or braces 15 at the rear and 16 at the front of the bowl. The casings are supported by a sufficient number of brackets or clamps 17 which grasp the rim of the bowl.

It is within the contemplation of my invention to make a construction in which the mountings for the seat, or the casings for the aseptic covering, or both, are part of the bowl structure, and such a construction, as well as one in which these elements are structurally separate from the bowl is included within the scope of my appended claims.

Referring particularly to Figs. 2 and 4 for illustration of the construction of the seat in detail it will be seen that such construction is composite consisting of a frame 12^a and a body 12^b. The frame here shown is made from a metal plate having its ends bent up and inwardly toward each other to form ribs or flanges 18, and the body 12^b here illustrated is a piece of wood having grooves in its ends adapted to receive the ribs 18 and having sufficient thickness to give the necessary strength. The consequence of this construction is that the seat body may be moved upon the frame or seat bodies of varying width may be substituted for one another so as to vary the extent by which the seat projects over the bowl when in the position for use, whereby the seat may be adjusted to permit of use by children, and it may be entirely removed to facilitate placing a new covering strip, as will be later explained.

The seat may be constructed otherwise than of the materials and in the form here shown, provided it has the capability for adjustment here described and provided it possesses the other characteristics hereinafter described.

The aseptic covering for the seat is shown at 19 and is preferably a strip of paper approximately as wide as the length of the seat between the ends of the frame or holder 12^a. This strip is provided upon a supply spool 20 mounted in the casing 14, whence the strip is led over the seat, around its outer end or edge, back between the seat body and the frame 12^a between the flanges 18 by which it is guided, under a movable drawing off member 21, over a guide 22, and thence to a take-up spool 23.

The seat is normally retained in its raised position shown in full lines in the drawings and it is adapted to be brought into the horizontal position shown in dotted lines in Figs. 1, 2, and 4 prior to being used, by means of a treadle 24, a pair of rods 25, 26 and connecting links 27, 28. The treadle is formed on the forward end of a lever 29 having a pivot 30 which is mounted in a bracket 31 depending from the under side of the casing 14. The same treadle operates simultaneously the mechanism for both seat members in an apparatus arranged as here shown, and preferably therefore the treadle and two levers 29 are made integral with one another from a single rod or bar. This is a preferred feature of construction but is not essential. The two rods 25 and 26 are mounted near the front and rear of the casing respectively and are connected together beneath the casing by a crossbar 32, and the latter is coupled with the lever 29 by a coupling 33. A brace or thrust bar 34 is connected to the rods 25 and 26 below the casing so as to prevent the latter being sprung toward one another through bending of the crossbar 32 under powerful pressure applied by the treadle lever 29 to its middle point. The thrust bar 34 also provides means at 35 and 36 for the attachment of powerful springs 37, 38, respectively which raise the seat and hold it elevated when both the seat and the treadle are released and left free. Rod 25 and spring 37, and correspondingly rod 26 and spring 38, are contained in open guides 39 and 40, respectively, secured to the front and rear walls of the casing, the transverse formation of which is shown in Fig. 10. The upper ends of the rods 25 and 26 are turned toward one another and are entered into recesses in the end of the drawing off roll 21, as shown in Fig. 3, each entering a thimble 42 which is set into a recess in the end of the roll and has an aperture in its outer end receiving the end or arm of the rod, and contains a spring 43 abutting against the inner end of the recess and pressing against the end of the rod through a washer 41. As there are two springs in the roll, one at each end, the roll is retained in a central position. Removal of the roll in order to apply fresh paper is accomplished by first moving the roll endwise in one direction far enough to disengage its opposite end from the adjacent rod, and then moving it obliquely in the opposite direction.

The links 27 and 28 are duplicates of one another and are connected with the seat at opposite ends thereof by pivots 45 and 46, respectively, which pivots are above and at one side of the pivotal axis of the seat, as shown in Fig. 4, being set over toward the bowl from a vertical plane through said axis so as to enable downward movement of the links to swing the seat from the raised to the horizontal position. Each link extends past

and below the adjacent end of roll 21 and has a slot 47 through which passes the end of the adjacent upright rod 25 (and correspondingly 26), such end being bent as shown in Fig. 3 to engage both the roll 21, and links 27 and 28 in the slotted parts of said links. In other words the rod 25, and correspondingly 26, has a laterally extending arm which passes through the slot in the adjacent link and is engaged with the roll 21. The upper and lower ends of the slot 47 terminates in stops, or shoulders 48 and 49, which are separated from one another by a distance less than the total amount of travel given to the rods and drawing off roll by the treadle or actuator 24. The lower end of the link is provided with lugs or wings 50, 51 which embrace the adjacent guide member 39 (and correspondingly 40) previously mentioned, guiding this end of the link and having a sufficiently loose fit to permit the upper end of the link to swing laterally to the extent required as its pivotal connection with the seat is laterally displaced when the seat is lowered and raised. Each link has a lug 52 to which is connected a spring 53, the latter being also connected with the casing by a pin 54. The spring is constructed and arranged to apply force upwardly to the link, balancing the weight of the link and supplementing the lifting action of the springs 37 and 38, also preventing the seat from falling before rods 25 and 26 engage the lower ends of slots in links 27 and 28.

Depression of the treadle actuates the seat by first drawing down the rods 25 and 26 and the arms which pass through the links 27 and 28 into the roll 21. When these arms strike the abutments 49 in the links 27 and 28, they exert a pull on the links which latter, through their connections with the seat, swing the seat from the raised to the horizontal position. The same movement of the rods and roll 21 cause a fresh supply of aseptic covering to be drawn from the supply spool and sets in motion a means for taking up the used portion of the covering strip after use of the closet. I will now describe the mechanism which actuates the take-up spool 23 to reel up the used portion of the covering strip. This spool 23 is provided with trunnions 55 and 56 at its opposite ends (shown in Figs. 7 and 8) which are rotatably mounted in bearings in the end walls of the casing 14. The bearing for the trunnion 55 is a sleeve 57 rotatably mounted in the casing wall and capable of rotating about the trunnion 55. It is provided with a gear pinion 58 which may be integral with the sleeve or fixed to it in any desired way, and also with a friction clutch 59 engaging the adjacent head 60 of the spool. Said clutch is here shown as formed of three resilient blades or arms pressing against the face of the head 60. It may be made in any other manner, however, provided it is so constructed as, when positively rotated, to apply yieldingly to the spool a force sufficient to take up slack in the covering strip and at the same time so light as to slip as soon as the slack is all taken up. The pinion 58 meshes with a gear segment 61 pivoted on a stud 62 which is mounted in the adjacent end wall of the casing at one side of the axis of the spool, as shown in Fig. 4. Said gear segment has an arm 63 extending across the end of the adjacent rod 26 and provided with a slot 64 through which the laterally extending end or arm of said rod passes. Thereby when the rod is lowered the gear segment is turned in left hand rotation with respect to Fig. 4, and when the rod rises the gear segment is turned in the opposite direction of rotation. The pinion 58 and clutch 59 are correspondingly rotated, but the spool is turned only during the rising or return movement of the rod and gear segment, being held stationary during the downward movement by a pawl 65 pivoted to a portion of the casing and engaging ratchet teeth 66 cut in the rim of the head 60, the clutch or friction device 59 slipping when the spool is so held.

The fact that the spool is held during the downward movement of the rods and of the drawing off roll 21, prevents said roll from unwinding the strip from the take-up roll and causes it to draw a fresh supply from the spool 20, which is free at all times to turn. The length of the fresh portion of the strip thus drawn out is pulled around the seat and is made sufficient to cover the entire surface of the seat. A regulation and adjustment of the length of the strip so drawn off is made possible by the guide rod 22 over which the strip passes after passing under the drawing off roll 21. This rod is equipped with arms 67 at its ends having slots 68 through which clamping screws pass into the sides of the casing, permitting the rod to be raised and lowered.

The covering strip is engaged between the supply roll and the seat by a tension device which consists of a recessed clamp member 70 and a coöperating clamp member 71, the former being supported by arms 72 pivotally and freely mounted on a rock shaft 73 and the clamp member 71 being supported on arms 74 rigidly fixed to this rock shaft. The strip passes over the member 70 and under the member 71, whereby it may be gripped between the members. I have provided the member 70 with a recess which may be entered by the member 71 in order to increase the area of gripping contact, but these coöperating clamp members may be otherwise constructed without departing from the spirit of the invention.

A link 75 lies beside the link 28, being

pivotally hung from an arm 76 which is adapted to turn about the rock shaft 73 and is engaged with a spring 77 which bears on an arm 78 fixed to the rock shaft (see Figs. 3 and 4). Link 75 is provided with a slot 79 occupied by a stud 80 carried by the seat actuating link 28. The length of the slot 79 is less than the extent of travel permitted to the link 28 by an amount approximately equal to or possibly somewhat greater than the distance which link 75 must be moved to bring the clamp member 71 into the groove of the clamp member 70 from the position shown in Fig. 4. When the member 71 is brought into the groove of member 70, it is held in gripping position by a latch 77^a, pivoted to the casing wall at 77^b which hooks over the pin 77^c. The covering strip is then clamped with a yielding pressure between the two members, the member 71 being pressed upon yieldingly by the spring 77, and member 70 being pressed in the opposite direction by a spring 81, connected to the member 70 and to a portion of the casing as shown in Fig. 4. The strip is retained in this gripped condition as long as the seat remains depressed and until it is raised and the link 28 on its return movement strikes a toe 77^d of the latch and releases the latch from pin 77^c.

Preferably the motion given to link 75 is enough to displace the member 70 and distort the spring 81 after the strip has been gripped. The grippers 70 and 71 have the function of keeping the strip smooth over the surface of the seat, preventing the possible over rotation of the supply spool from leaving the strip slack. As there is no brake of any sort on the supply spool, a sudden pull on the strip by the drawing off mechanism might set the supply spool into rotation with such momentum as to cause unreeling of more than enough paper to provide a fresh covering, which excess of paper would not be taken up by the drawing off mechanism and might wrinkle on the seat, and a portion of it might be left after one use of the toilet where it would come into contact with the person of the next user. The grippers prevent unreeling of any more than just the proper amount of paper to provide a fresh covering and to be taken up on the receiving spool after use. The clamping device also, by reason of the springs 77 and 81 act as a tension device and take-up, permitting the paper to be moved somewhat with movements of the user, and drawing the paper smoothly over the seat when there is no tendency to displace it. On account of these functions the gripping device is at the same time a stop for preventing unreeling of an excessive length of paper and is a tension device and take-up for that portion of the paper which lies over the surface of the seat. The term "surface" as here used has a special significance, meaning that face or surface of the part 12^b of the seat which serves as the seating surface thereof.

I provide a latch or locking device to retain the seat in its horizontal position after having been brought into that position by the mechanism described, until it has been used. A form of latch for this purpose is shown at 82. It is pivoted to an arm 83 which extends toward the bowl from the casing 14 near the forward end of the latter. The latch is pivoted to a pivot pin 84 mounted in the arm 83 and is provided with a hook 85 adapted to co-act with a stud 86 carried by a bracket 87 which projects from the under side of the seat. The hook 85 is formed near the upper end of one side of a recess 88 which is formed in the latch. A switch member 89 is mounted in the latch body and extends into the recess 88 beside the hook 85. Such switch member is preferably made as a strip or tongue of springy metal, fixed at its upper end to the body of the latch and projecting toward the bottom of the recess 88 and toward the wall or side beneath the hook 85. The latch has a weighted portion 90 at one side of its pivot disposed so as normally to hold the latch in the position shown in Fig. 4, in which a shoulder 91 on the latch rests on a part of the arm 83 and the hook is in the path traversed by the stud 86 when the seat approaches its horizontal position. Thus when the seat is lowered the stud 86 passes between the latch hook 85 and the spring switch, displacing the latch by contact with the upper inclined face thereof. The counter weight 90 then swings the latch hook over the stud and interlocks it with the latter in the position shown in Fig. 4, preventing the springs 37 and 38 from raising the seat. At the same time the seat makes contact with a plunger 92 projecting from a socket 93 and held up by a spring 94 which presses upon a collar 95 on the pin and holds this collar against a stop shoulder 96 in the outer end of the socket. Spring 94 may be made stiff enough to prevent the pressure of the treadle from causing disengagement of the latch before the closet is used. When the weight of the occupant is placed on the seat, the latter is depressed farther from the position in dotted lines in Fig. 4 to that shown in dot and dash lines, until the seat brings up against the upper end of the socket 93, which forms a positive stop. At the same time the stud 86 has been brought past the lower end of the switch 89, displacing the latter and coming to rest at the opposite side of the switch from the first position. The switch has sprung back after the stud has passed it. Thereupon the seat is held down only by the weight of the occupant. When this weight is removed the seat

is free to rise under the pull of the springs 37 and 38, the latch hook being no obstacle on account of the switch 89, which is now between the stud and the hook and prevents the stud from engaging the hook. The latch is free to yield as the stud passes upwardly in contact with the switch. A convenient detail of construction by which the switch is fastened to the latch is shown in Figs. 5 and 6. The switch has a lug 97 which is contained in a slot or notch in the outer wall 98 of the latch, such outer wall extending over one side of the recess 88, such recess being open at its other side to permit free movement of the stud.

The mode of operation of the apparatus may now be readily understood. When it is desired to use the toilet the prospective user first presses his foot down on the treadle 24, which being depressed draws down upon the coupling 33 and rods 25 and 26, lowering the drawing off roll or member 21 and pulling the covering strip from the supply spool and over the seat, the length of strip thus drawn off being determined by the extent of travel of the roll 21 and the height of the adjustable guide rod 22. When the treadle is near its lowermost position the arms or offset ends of the rods 25 and 26 engage the abutments 49 on the links 27 and 28, pulling said links downward and swinging the seat into the horizontal position where it is caught by the latch 82 as above described. Just before the link 28 reaches its limit of travel the stud 80 carried by said link brings up against the end of the slot 79 in the link 75, causing said link to depress the clamp member through the arm 76, spring 77, arm 78, rock shaft 73 and arms 74, to clamp the strip against the complemental gripper 70, the latch 77^a then locking with pin 77^c. By the time the gripper 71 is thus acted on, the treadle has reached its limit of downward motion. In the mean time the arm 63 of the gear segment 61 has been swung downwardly and the pinion 58 and friction clutch 59 has been rotated, but without rotating the take-up spool, which has been held stationary by the pawl 65. As soon as the seat has been caught by the latch 82, the pressure may be removed from the treadle, for return of the seat is prevented by the latch, and the treadle is now retracted by springs 37 and 38 the distance between shoulders 49 and 48, and the segment is caused thereby to rotate the take-up spool and wind up the slack of the strip. Thereafter when the user's weight is placed on the seat the latch is disengaged from, and prevented from again engaging, the seat, so that when the user's weight is removed the seat is free to rise, and is raised by the springs 53, assisted by the springs 37 and 38 acting through the rods 25 and 26 and the engagement of the offset arms of said rods with the abutments 48 at the upper ends of the slots in said links. In the rotation of the spool which winds up the slack of the strip the ratchet teeth 66 slip past the pawl 65. The friction device is adapted to slip when the diameter of the spool has been made so great by accumulation of paper thereon that the travel of its surface is more than sufficient to take up slack in the paper. The mechanisms are so designed that at each operation enough fresh paper is drawn off from the supply spool to cover the entire surface of the seat and an equivalent amount of used paper is wound up on the take-up spool.

The construction of the spools of the casing permits ready removal of a roll filled with used paper and insertion of a new roll of fresh paper. For this purpose the spools are made in three parts, consisting of two heads and a removable center or barrel. One head of the take-up spool is shown at 60 and has already been described. The corresponding head of the supply spool is designated 97 and is shown in Fig. 9. It has a trunnion 98 which passes through a boss 99 of the casing, in which it has a bearing, and is retained in place by a washer 100 and a screw 101. The trunnion 55 for the head of the take-up spool is held in a similar manner by means of a washer 102 and a screw 103. The opposite head of each spool is shown at 104 in Fig. 8. It is fastened to the trunnion 56 which passes through the end of the casing and has a knob 105. The knob may be pulled, whereby to move the head against the pressure of a spring 106 and disengage it from the barrel 107 of the spool, leaving the latter free so that it may be disengaged from the opposite head 60 or 97 respectively. Each of the heads has a boss 108 which enters the open end of the barrel and centers it. The boss on head 60 has a key 109 which enters a notch or slot 110 in the barrel so that the barrel of the take-up spool is positively driven by the head 60. The barrel of an empty supply spool may be disconnected from the trunnions of that spool and substituted in the take-up spool in place of the barrel filled with the roll of used paper, leaving room for the insertion of a new tube or barrel filled with a fresh supply of paper.

An important feature which has been already incidentally mentioned is that the seat construction, which provides a passage between the seat body 12^h and the bottom of the frame 12^a for the paper after passing over the seat, enables the frame to serve as a protector for the paper when such frame is made of a plate or sheet of metal, or otherwise with a continuous surface underlying the whole extent of the seat body. The frame prevents wetting of the paper and guards against the effects which would follow from wetting, such as weakening it

and incurring liability of tearing it by the drawing off mechanism. Springs 53 constantly tend to elevate the seat, assisted by the springs 37 and 38, acting through rods 25 and 26, said rods bearing against shoulders 48. Upon arriving in the raised position the seat is held there and prevented from falling over backward by the engagement of shoulders 111 on the seat with the links 27 and 28, the shoulders being located in the same planes with the respectively adjacent links. This engagement occurs when the center of gravity of the seat has passed over its pivotal axis and before the connections of the links with the seat have reached a vertical plane through the axis of the seat.

The fact that the seat body 12^b and the drawing off roll 21 are removable, enables a strip from a fresh spool to be threaded into the apparatus with the utmost ease, the strip being passed around the seat body and also around the drawing off roll when the latter are removed, and such seat body and roll being put in place with the strip properly arranged about them.

While the apparatus is intended to be operated by the treadle, and a full supply of paper can be drawn off only through such operation, yet it is possible that the seat may be grasped by hand and pushed into the horizontal position. I have designed the mechanism so that even with this mode of operation a feed of the paper strip is accomplished and so much paper as is fed is taken up by the supply spool when the seat returns to normal raised position. Moving of the seat down and back causes the links 27 and 28 to be lowered and raised, and the drawing off roll 21 to be operated sufficiently to draw off a certain amount of paper. The gear segment 61 is likewise shifted back and forth far enough to cause taking up by the supply spool of as much paper as is drawn off by such limited movement of roll 21.

In characterizing the aseptic covering 19 as a paper strip, I have not intended to introduce a limitation into the invention or to imply that any other material than paper or any material provided in other forms than as a continuous strip, might not be used in some aspects of the invention for the aseptic covering.

The term "aseptic" as here used is not used with any restricting significance, and is not intended to limit the covering member to one which has been especially treated in any way, as by medicaments or sterilization, etc. Any clean material which has not been used for the same purpose previously without an intermediate cleansing, whether sterilized or medicated or not, when used in a combination of the character herein set forth is within the terms of the present invention.

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

1. The combination of a pivotally mounted seat adapted to be raised and lowered about its pivot, said seat being normally in its raised position when not in use, a covering strip passing over the seat, a drawing off device for said seat, means for moving said device through a given distance whereby to shift the covering strip across the seat, said means being connected to the seat so as also to lower the same, and take up means for the strip.

2. In a water closet, the combination of a bowl, a seat pivotally mounted adjacent to the rim of said bowl and normally placed in a raised or upright position, a flexible covering extending over the surface of said seat, and means for advancing said covering to place a fresh portion of the same over the seat when the latter is brought into horizontal position, and means for taking up an extent of the covering equal to that so drawn over the seat.

3. The combination of a pivotally mounted seat, means normally holding said seat in a raised position above its pivot, a covering strip passing over the seat, a supply container from which said strip passes, means for drawing a definite length of the strip across the seat, and a take-up spool for winding up an equivalent length of the strip.

4. In a water closet, the combination of a bowl, a seat pivotally mounted adjacent to the rim of said bowl arranged to be placed in horizontal position for use and to be raised when not in use, automatic means for raising the seat and normally holding it in raised position, means for causing a covering element to be fed over the seat when the seat is placed in horizontal position, and a take-up device for the covering element thus drawn over the seat.

5. The combination of a seat, a supply container for a covering member located at one side of the seat, from which the covering member issues and passes over, around, and under, the seat, a guard extending across the part of the member which passes under the seat, and means located at the same side of the seat with the container for feeding the covering member to place fresh portions thereof on the seat.

6. In an apparatus of the character described, the combination of a seat, a flexible aseptic covering overlying the surface of said seat, movably mounted gripping means grasping said covering and a spring connected to said means and arranged to exert a pull away from the seat, whereby to hold the covering in a stretched condition and permit displacement thereof.

7. In an apparatus of the character described, a seat, a strip of aseptic material passing over the seat, complemental grip-

ping members between which said strip passes, means for drawing said strip over the seat to place a fresh portion thereof in position for use and means for closing said members on the strip at the conclusion of feeding to prevent overfeed thereof, said members being yieldingly mounted and spring actuated to move as a unit, and to maintain tension in the strip, and permit shifting thereof.

8. In an apparatus of the character described a seat, a strip of aseptic material passing over the seat, means for feeding said strip over the seat to place a fresh portion thereof in position for use and a device operable at the conclusion of feeding for grasping the strip to prevent overfeed thereof, said device being movably supported, and a spring arranged to exert force yieldingly on said device in a direction opposite to the direction of feeding of the strip, whereby to maintain the covering strip in a smooth condition and permit a limited amount of displacement thereof over the seat.

9. In an apparatus of the character described, a seat, a drawing off device for drawing a covering strip over the seat, means for so supporting and guiding such strip that a portion thereof passes said device and crosses the line of movement of said device, and means for moving said device in a direction transverse to the plane occupied by the seat when in use, whereby to feed the strip across the seat.

10. In an apparatus of the character described, a seat, a rectilinearly movable drawing off device movable toward and away from the seat for feeding a covering strip which passes over the seat and crosses said device, and means for so moving said device.

11. In an apparatus of the character described, a seat, a drawing off device for drawing a covering strip over the seat, means for moving said device in a direction transverse to the plane occupied by the seat when in use, whereby to feed the strip across the seat, a take-up spool to which the strip passes from the drawing off device, means for holding said spool against rotation while said device is moved in one direction, and means for rotating the spool to wind up the slack in the strip left by the return of said device.

12. The combination of a seat adapted to occupy a substantially horizontal position when in use, a strip of covering material passing across the seat, a drawing off device movable back and forth approximately vertically, under which the strip passes, means for moving said device back and forth in its appointed path, and means to which the said strip passes from the drawing off device and by which the same is held during the downward movement of the device, whereby said device is caused during such movement to feed the strip.

13. The combination with a seat of a covering strip overlying the seat, a take-up spool to which the said strip passes, a drawing off device engaging the strip between the seat and spool, means for moving said seat respectively away from and toward the plane occupied by the seat when in position for use, the strip being located at that side of said device toward which the device moves away from said plane, and means for preventing rotation of said spool when the device is moved away from said plane, whereby to cause said device to feed the strip.

14. In a water closet, the combination of a bowl and a seat consisting of two members mounted at opposite sides of the bowl and projecting toward one another partially over the bowl, leaving a space between their nearest edges, said members being adjustable toward each other to alter the width of such space.

15. In a water closet, the combination of a bowl and a seat constructed of a frame portion movably connected to the bowl and a body portion movably mounted on said frame portion, and adapted to be shifted thereon so as to project to a greater or less extent over the bowl.

16. In a water closet, the combination of a bowl and a seat composed of a frame portion and a body portion, one of said portions having ribs at its opposite ends and the other having complemental grooves containing said ribs slidably and extending approximately parallel to the surface of the seat, whereby said body portion may be adjusted to project to a greater or less extent over the bowl.

17. In a water closet, the combination of a bowl, and a seat pivoted beside the bowl and constructed with a member which provides the seating surface and a guard element lying across said member on the side thereof next to the bowl, and adapted to protect a covering strip passing over the seating surface of said member and between the latter and said guard element from becoming wet.

18. In a water closet the combination of a bowl, a seat pivotally mounted beside the bowl and movable between an upright and a horizontal position, a supply spool from which a strip to cover the seat may be drawn, a take-up spool on which the strip may be wound after passing about the seat, a drawing off device adapted to engage the strip between the seat and the take-up spool, mechanism operable for first moving said drawing off device so as to pull the strip over the seat and then bring the seat into horizontal position, and means for returning the draw-

ing off device to normal position and bringing the seat into its raised position.

19. In an apparatus of the character described, the combination of a seat, a take-up spool adapted to receive and wind up a protective strip passing across the seat, a drawing off device adapted to engage the strip between the seat and take-up spool, means for moving said drawing off device across the line traversed by the strip in passing from the seat to the spool whereby to feed the same over the seat, a gear segment connected with the drawing off device, and a friction clutch member engaged with the take-up spool and geared to said gear segment.

20. In an apparatus of the character described, a pivotally mounted seat adapted to swing between an upright and a substantially horizontal position, an operating lever, an endwise movable rod coupled to said lever, a link connected with the seat at one side of the pivot thereof and having a lost motion connection with said rod, whereby said rod is adapted when moved in one direction to swing the seat into horizontal position and when moved in the opposite direction to raise the seat, a drawing off device connected with said rod, a supply spool, a take-up spool, a pawl for preventing rotation of said take-up spool in the unwinding direction while permitting rotation in the winding direction, a friction clutch engaged with said spool, an oscillating gear segment in mesh with said clutch and engaged with said rod in a manner such as to be oscillated by movements of the rod.

21. In an apparatus of the character described, a seat, a drawing off device for drawing a covering strip over the seat, a take-up spool for winding up the slack of the strip, means for moving said drawing off device back and forth in directions approximately perpendicular to the seat when in position for use, for first drawing the strip over the seat and then releasing the strip, and mechanism operated by the drawing off device in its second movement for rotating the take-up roll so as to wind up the slack of the strip.

22. In combination with a seat mounted to swing to a horizontal axis between an upright position and a substantially horizontal position, an operating lever, connections between said operating lever and said seat for moving the same from one position to the other, a feeding device operated by said connections for advancing a protective covering strip over the seat, and coöperating clamping members arranged on opposite sides of the strip between the seat and the point whence the strip is drawn, said clamping members being operable by said connections to grip the strip at the conclusion of the feed thereof.

23. In an apparatus of the character described, a seat, a supply spool, a take-up spool on which a strip issuing from said supply spool is wound after passing from the seat, a drawing off device and a guide member between the seat and take-up spool, the strip being carried past the drawing off device and the guide member on respectively opposite sides thereof, the drawing off member being movable toward that side across which the strip passes, and the guide member being adjustable in directions approximately parallel to the movement of the drawing off device.

24. In an apparatus of the character described, a seat, means for holding fast one end of a covering strip passing over the seat, a drawing off device between the seat and said holding means movable across the line of the strip for causing the same to be fed across the seat, and a guide member arranged on the opposite side of the strip from the drawing off device, adjustable in the general direction of movement of the said device for regulating the extent of feeding accomplished by said device.

25. In a machine of the character described, the combination of a seat, a paper supply from which a strip may issue and be led around such seat, a drawing off device, and a take-up, the seat and drawing off device being removable whereby to facilitate threading in of a fresh strip.

26. In a device of the character described, the combination of a seat, means normally holding said seat in inoperative position, means for feeding a protective covering strip over the seat and placing the seat in operative position, a tension device arranged to grip the strip and hold the same with a yielding pull, and a locking device for maintaining said tension device operative while the seat remains in its operative position.

27. In an apparatus of the character described the combination with a seat, means for drawing a covering strip over the seat, a tension device arranged to engage the strip at the side of the seat whence the strip is produced, means for causing said tension device to engage the strip, and a locking device for holding said tension device in its operative position.

28. In combination a pivotally mounted seat, a covering member passing over said seat, a tension device adapted to grasp the member near one side of the seat and apply a pull yieldingly thereto, means for causing said tension device thus to grasp the strip when the seat is brought into horizontal position, and locking means for maintaining said tension device in gripping condition while the seat remains in the horizontal position.

29. In an apparatus of the character described, a seat movable into operative and

inoperative position, a releasable tension device adapted to engage a covering strip for holding the same smooth upon the seat, and mechanism for causing said tension device to engage the strip when the seat is in the operative position, and to cause said tension device to release the strip when the seat is brought into its inoperative position.

30. An apparatus of the character described, comprising a seat, a strip-feeding device, an operating member, and connections from said operating member to said feeding device and to said seat, including direct means from the operating member to the feeding device and lost motion connections with the seat, whereby the feeding device is permitted to make a complete cycle of operations while the cycle of the seat remains incomplete.

31. In an apparatus of the sort described, the combination of a seat pivoted adjacent to one extremity thereof and adapted to be shifted between a substantially upright position above its pivot and a substantially horizontal position, a supply spool mounted at one side of the pivot of said seat adapted to provide a covering strip to extend over and under the seat, a take-up spool, a guide for the strip between the take-up spool and the point at which the strip leaves the seat, and a drawing off member arranged on the opposite side of the guide from the take-up spool, and means for moving said drawing off device in a direction transverse to a line between the point at which the strip leaves the seat and said guide.

32. In an apparatus of the character described, a pivotally mounted seat, a link connected to the seat eccentrically of the pivot thereof, a drawing off device movable back and forth and adapted to engage a covering strip passing over the seat, and means for moving said drawing off device, whereby the same is caused to feed a length of covering strip over the seat, said drawing off device having a lost motion connection with said link, whereby it is adapted to engage the link and cause the seat to be shifted about the pivot thereof.

33. In an apparatus of the character described, a combined drawing off and reeling up mechanism for a covering strip comprising a take-up spool rotatably mounted, a drawing off member movable bodily in a direction transverse to the length of a strip leading to said spool, means for moving said drawing off member back and forth, a gear element connected to said member and movable simultaneously therewith, and a complemental gear element having a frictional engagement with the spool and in mesh with the first named gear element, whereby to be rotated by the movement of the first element and to apply force tending to rotate the spool.

34. In an apparatus of the character described, a feeding and take-up device for a covering strip comprising a spool, a rotatable friction clutch element approximately coaxial with said spool and engaged therewith, a gear element connected with the clutch member, a positive clutch device for preventing movement of the spool in one direction but permitting movement thereof in the opposite direction, a drawing off device, adapted to engage the paper strip, arranged approximately parallel to the spool and movable in a plane parallel to, and outside of, the axis of the spool, and a gear element connected and movable with said drawing off device and engaged with the gear element of the aforesaid friction clutch.

In testimony whereof I have affixed my signature, in presence of two witnesses.

WARREN C. REES.

Witnesses:

ARTHUR H. BROWN,

P. W. PEZZETTI.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."