Sept. 21, 1965 D. A. CARLSON 3,206,770

RETRACTABLE SINK WITH DISPOSABLE BASIN

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Fig. 1

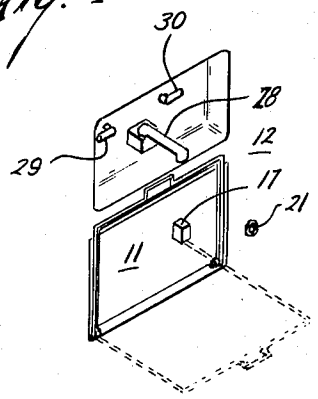
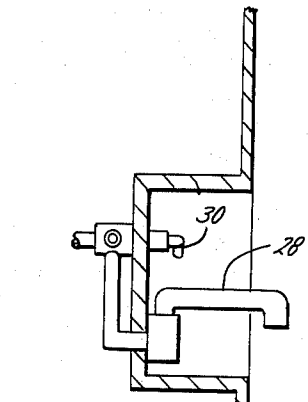


Fig. 2



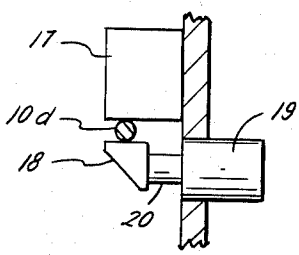
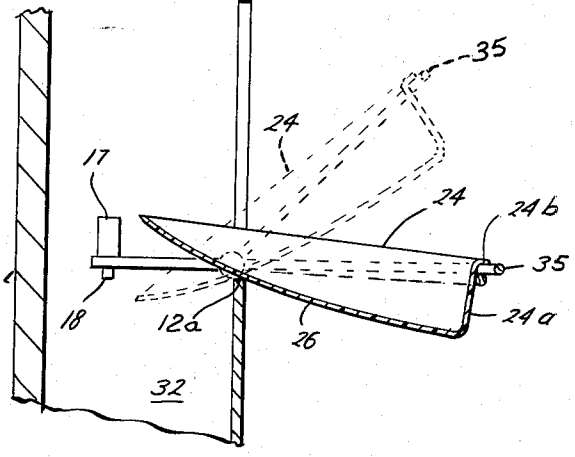


Fig. 3A



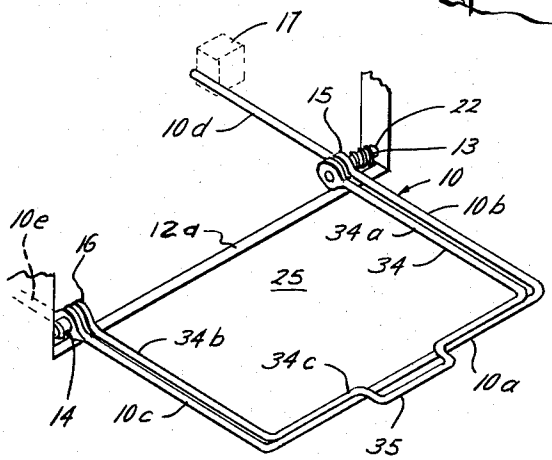


Fig. 3

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RETRACTABLE SINK WITH DISPOSABLE BASIN

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Fig. 4

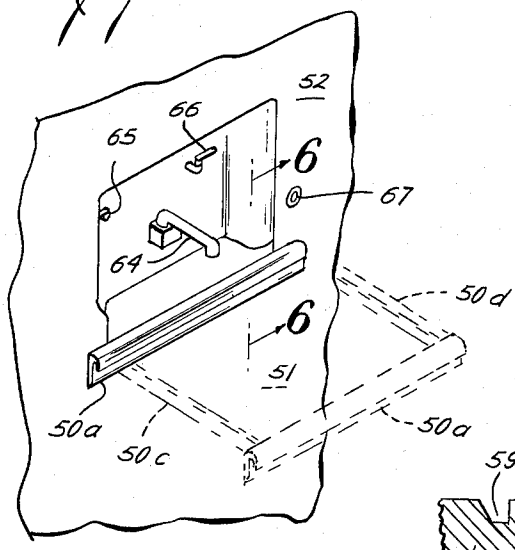
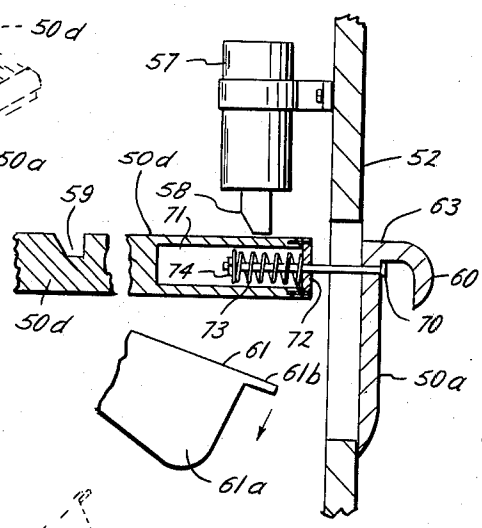


Fig. 6



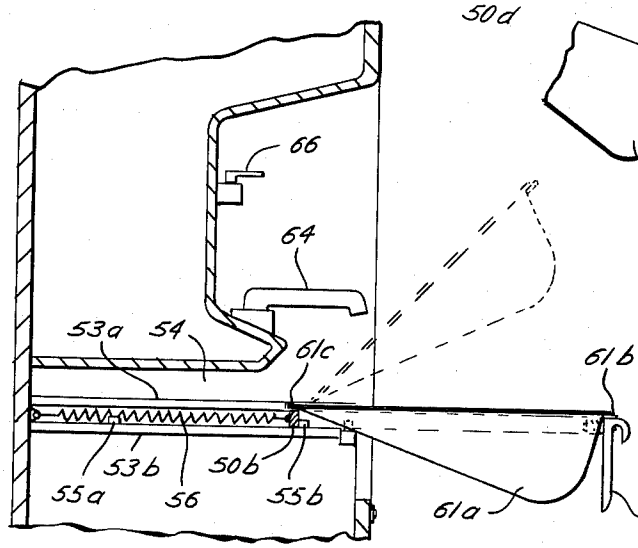
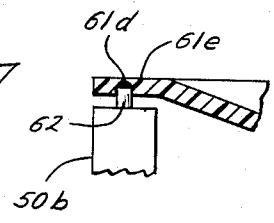


Fig. 5

Fig. 7



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RETRACTABLE SINK WITH DISPOSABLE BASIN

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Filed Apr. 24, 1964, Ser. No. 362,268
14 Claims. (Cl. 4—169)

This invention is a continuation-in-part of my copending application Serial No. 233,214, filed October 26, 1962, now Patent No. 3,132,350 and entitled Sanitary Shower Stall.

This invention relates to sinks in general, and, in particular, to a retractable sink having a disposable wash basin.

Where sinks or wash basins are provided for use by the public, there is the constant problem of maintaining them in a clean and sanitary condition. To do this with any degree of success an attendant is usually required. Further, in many cases such as in the washing facilities provided on trains, airplanes, buses, etc., there is the problem of providing adequate space for a sink along with the other items to be installed in the compartment set aside for this purpose.

It is an object of this invention to provide a retractable sink which furnishes a clean and sanitary wash basin for each successive user thereof.

It is another object of this invention to provide a sink which, when not in use, will not interfere with the use of the other facilities in the compartment.

It is another object of this invention to provide a sink which is retracted out-of-the-way of the occupant of the compartment until it is to be used, and which will dispose of the used wash basin when it is returned to its retracted, out-of-the-way position.

It is another object of this invention to provide a sink which is extended into the compartment only when in use.

It is another object of this invention to provide a disposable wash basin for a retractable sink which can be installed quickly and easily in the sink and which can be disposed of quickly and easily after it has been used.

These and other objects, advantages, and features of the invention will be apparent to one skilled in the art from this specification, attached drawings and appended claims.

These and other objects are obtained in accordance with this invention, by providing a sink which comprises a disposable wash basin and a supporting bracket therefor, the bracket being movable between an extended position for supporting the wash basin and a retracted, out-of-the-way position when not in use. Further, in accordance with this invention, when the bracket is moved to its retracted, out-of-the-way position, the wash basin portion of the sink is disposed of to allow a clean and sanitary wash basin to be installed when the bracket is again moved to its extended position for use by the next occupant. In this manner, the sink conserves space by being out-of-the-way when not in actual use and further, it provides a clean and sanitary wash basin for each succsive user of the sink.

The invention will now be described in connection with the attached drawings in which:

FIG. 1 is a front isometric view of one embodiment of this invention showing the support bracket for the disposable wash basin in its retracted position and showing in dotted lines the position of the bracket when it is extended in position to support the disposable wash basin;

FIG. 2 is a vertical sectional view of the embodiment shown in FIG. 1, showing the sink ready for use, and showing in dotted lines how the wash basin can be tilted to discard the water therein when desired, and also, how the shape of this embodiment of the wash basin allows it to

be disposed of when the bracket is returned to its retracted position;

FIG. 3 is an isometric view of the bracket of FIG. 1 in its extended position ready to support the disposable basin;

FIG. 3A shows the stop and detent arrangement used to releasably hold the bracket in its extended position;

FIG. 4 is an isometric view similar to FIG. 1 illustrating an alternate embodiment of the invention showing the bracket of this embodiment in both its retracted and extended positions, the latter position being shown with dotted lines;

FIG. 5 is a vertical section through the sink of FIG. 4 showing the sink ready for use and illustrating how the water in the sink can be dumped out by the user of the sink when this is desired;

FIG. 6 illustrates the means employed in this embodiment to remove the support from the wash basin when the bracket is returned to its retracted position to dispose of the basin by allowing the wash basin to fall through the opening in the bracket to prepare the bracket to receive another new, clean, sanitary wash basin when it is again moved to its extended position; and

FIG. 7 is a fragmentary view, partly in section, showing how the rear flange of the basin is supported in this embodiment.

As shown in FIGS. 1, 2 and 3, and 3A this embodiment of the invention, comprises a U-shaped bracket **10**, having a bight portion **10***a* and two leg portions **10***b* and **10***c*. The bracket is pivotally mounted in opening **11** in panel **12**, which can be the wall of a wash room in a railroad car compartment, of a railroad or bus station wash room, or it can be the wall of a shower stall such as the type described in the application mentioned above of which this is a continuation-in-part, where it would be particularly desirable to have a wash basin, which would be out of the way when not actually in use.

The bracket is pivotally mounted in opening **11** by means of stub shafts **13** and **14**. The shafts extend through openings provided therefor in eyelets **15** and **16** which are integrally connected to leg portions **10***b* and **10***c* of the bracket approximately midway between the ends thereof. In this manner the outer portions **10***d* and **10***e* of legs **10***b* and **10***c* extend into opening **11** of panel **12** to engage stop means, only one of which, stop means **17**, is shown in the drawing. Thus, when bracket **10** is pivoted to the position illustrated in FIGS. 2 and 3, portion **10***d* will engage stop means **17** and leg portion **10***e* will engage similar stop means (not shown) to thereby stop the bracket in a horizontal position. Releasable holding means **18** are provided to hold the bracket in its extended, horizontal position, by holding leg **10***d* in engagement with stop means **17**. As shown in FIG. 3A the releasable holding means of this embodiment includes a detent member **18** which is connected to a plunger **20** of solenoid **19**. Resilient means (not shown) are provided within solenoid **19** to urge detent **18** and plunger **20** toward the outward position shown in FIG. 3A. However, when leg **10***d* encounters the inclined lower edge of detent member **18** it can overcome the resilient means and force detent member **18** laterally out of the way to allow the leg to move into engagement with stop means **17**. Once past detent **18**, of course, the detent will move back into the position shown and hold leg **10***d* against downward movement. After the sink has been used, the occupant of the compartment can release the bracket for movement back to its retracted position by energizing solenoid **19** through push button switch **21**. Solenoid **19** will then move detent **18** laterally out of its holding position relative to leg **10***d* and allow the bracket to be

rotated back to the retracted, out-of-the-way position illustrated in FIG. 1.

In the embodiment illustrating, resilient means, comprising coil spring **22**, is provided to urge the bracket back to its retracted or out-of-the-way position. In this way when release switch **21** is closed and solenoid **19** moves detent **18** out of its holding position, spring **22** will return the bracket to its retracted position.

A disposable wash basin is provided to combine with the bracket to compete the sink. In this embodiment, as shown in FIGS. 2 and 3, wash basin **24** has a bowl portion **24***a* for holding a quantity of water for washing purposes and laterally extending flanges **24***b* which extend outwardly from the upper edge of bowl portion **24***a*. The flanges are designed to engage bracket **10** and help support the bowl portion of the basin within opening **25** defined by the U-shaped bracket and panel **12**.

How the wash basin is supported will depend upon the shape of the bowl portion. If the bowl portion is designed to extend entirely through opening **25**, it can be supported by providing laterally extending flanges **24***b* on opposite sides of the bowl to engage legs **10***b* and **10***c* of the bracket. In the embodiment shown, bowl portion **24***a* is provided with a rear wall **26**, which extends rearwardly into opening **11** of panel **12** and rests on the lower edge **12***a* of the opening. The front portion of lateral flange **24***b* then combines with the rear wall to support the basin on bracket **10**.

By providing the wash basin with a back wall, like back wall **26** which intersects the plane of lateral flanges **24***b* at a relatively small angle to provide a low-pitched sloping surface for engagement with panel **12**, the basin can be quickly and easily disposed of, by rotating the bracket to its retracted position, allowing the basin to slide out of the bracket along back wall **26**. This form of the basin is preferred for where the bowl portion extends completely into opening **25**, the basin has less tendency to fall from the bracket of its own weight, even when the bracket is moved to the vertical retracted position.

The wash basin is preferably formed of a material having sufficient strength to support the quantity of liquid in bowl **24***a* and sufficient rigidity, particularly in flange portions **24***b*, to protect the basin when it is filled with water. It is contemplated that when this sink is provided in facilities to be used by the public, where it is important that a clean, sanitary wash basin be provided to each subsequent user thereof, that a supply of these wash basins will be provided in some convenient container or dispenser where the user of the facilities can obtain a fresh, clean, sanitary wash basin for his use, either free, or by depositing a certain amount of money. Thus, when an occupant of the wash room desires to use the wash basin, he can remove disposable wash basin **24** from a container or dispenser, pull bracket **10** out to its extended position, as shown in FIGS. 2 and 3, place the disposable wash basin in opening **25** of the support member, and proceed to use the sink in the conventional manner. As shown, a spigot **28** and faucets **29** and **30** are located above the sink to provide water thereto.

After the user of the sink has finished with it, he can dump the water in the sink, dispose of the wash basin and return the bracket therefor to its retracted out-of-the-way position simply by pushing release button **21**. This all will take place, of course, if spring **22** can provide sufficient force to rotate bracket **10** back to its retracted, out-of-the-way position with a basin full of water resting thereon. Otherwise, means must be provided to furnish the necessary force, or the user will have to rotate the bracket back to its retracted position. In either event, whichever system is employed, as the bracket rotates back toward the vertical position, basin **10** will be tipped rearwardly, dumping its contents into chamber **32** in panel **12**. Concomitantly, with the dumping of its contents, the basin itself will slide along tapered surface **26** out of bracket **10** into chamber **32**. It is contemplated that within the panel below chamber **32**, a drain for the water and a receptacle for the used wash basins will be provided.

In many instances, the user of the wash basin may wish to dump water therefrom before he is ready to dispose of the basin. For this purpose he can simply lift up on the front end of the wash basin by flange **24***b* and dump the water out of the back into chamber **32**. Or, as in the embodiment illustrated, a second U-shaped member **34**, having legs **34***a* and **34***b* and a bight portion **34***c*, can be provided for this purpose. This basin tilting member is also arranged to be pivotally mounted on stub shafts **13** and **14** and to be located within the legs and bight portion of bracket **10** as shown in FIG. 3. Bight portion **34***c* of the tilting member is provided with a handle **35** which overlaps bight **10***a* of bracket **10** and prevents the tilting member from rotating on past bracket **10**. Also this insures that when basin supporting bracket **10** is rotated to its retracted position, it will carry tilting member **34** with it. However, with this arrangement tilting member **34** is free to rotate in a counter clockwise direction, as viewed in FIGS. 2 and 3, and thus the user of the sink can tilt the wash basin rearwardly to dump the water therein, simply by grasping handle **35** and lifting upward to the position shown by dotted lines in FIG. 2. This provides a convenient way for dumping the water out of the basin before the user is through therewith; however, the user should be careful to hold on to flange **24***b* as well as handle **35**, otherwise the basin may inadvertently slip out of bracket **10**.

An alternate embodiment of the invention is shown in FIGS. 4, 5, 6 and 7 of the drawings. In this embodiment, the sink comprises a bracket **50** which includes a front portion **50***a*, a rear portion **50***b* and two side portions **50***c* and **50***d* which combine to make a rectangular shaped bracket having an opening **51** therethrough. Bracket **50** is slidably mounted in wall or panel **52** to reciprocate from a retracted out-of-the-way position, as shown with the solid line in FIG. 4, to an extended position which is shown in FIG. 5, and by the dotted lines in FIG. 4. In other words, bracket **50** is mounted in opening **54** in panel **52**, much like a drawer, in that it slides between runners, only one pair of which, runners **53***a* and **53***b* in FIG. 5, are shown. On the opposite side of opening **54**, a similar pair of runners are located to guide and support the bracket as it slides back and forth between its extended and retracted position. Stop means **55***a* and **55***b* are located to limit the distance the bracket can travel into and out of opening **54**.

In the embodiment illustrated, resilient means, coil spring **56**, is connected to back portion **50***b* of bracket **50** and panel **52** of the rear of opening **54**, to bias bracket **50** toward its retracted position in engagement with stop **55***a*. Thus, when bracket **50** is extended for holding a disposable wash basin, releasable holding means are provided to hold it in its extended position in engagement with stop **55***b* against the force exerted by coil spring **56**. In the embodiment illustrated, the releasable holding means include solenoid **57**, which is provided with a detent plunger **58**, and which is resiliently biased outwardly to snap into slot **59** in side portion **50***d* and hold bracket **50** in its extended position. Then when it is desired to return the bracket to its retracted, out-of-way position, by energizing solenoid **57**, detent plunger **58** will be pulled from slot **59**, allowing coil spring **56** to return the bracket to its retracted position in engagement with rear stop **55***a*.

Thus, when an occupant of the wash room, where the embodiment of the invention is installed, desires to use the sink, he pulls outwardly on front portion **50***a*, which is provided with a drawer type handle **60** for this purpose, until detent **58** snaps into slot **59**. Bracket **50** is now in position to receive a disposable wash basin. Here, as was the case in the embodiment described above, it is

contemplated that wash basins will be provided in suitable dispensers, so that each successive user of the sink can use a different wash basin, thereby insuring that each user is provided with a clean, sanitary wash basin.

In this embodiment, wash basin **61** has a bowl portion **61***a* and front and rear laterally extending flanges **61***b* and **61***c* respectively, and no side flanges, at least none which extend out far enough to engage side portions **50***c* and **50***d* of the bracket. Front flange **61***b* engages support surface **63** on front portion **50***a* and rear flange **61***c* engages rear portion **50***b* to support the basin on the bracket. Rear flange **61***c* as shown in FIG. 7, is provided with a cavity **61***d* to receive protrusion **62** carried by rear portion **50***b* of bracket **50**. Preferably protrusion **62** is rounded as is cavity **61***d* to provide a pivot point around which the wash basin can be rotated to the position shown by the dotted lines in FIG. 5. This will allow the user of the sink to dispose of water in the wash basin from time to time without having to purchase a new wash basin. Thus, by lifting up on flange **61***b*, the water in basin can be dumped into opening **54**. A drain (not shown) to carry the used water to the sewer, is located in panel **52** at the bottom of opening **54**.

Wash basin **61** is made from material having sufficient strength to support a quantity of water in the bowl portion **61***a* and the flanges **61***b* and **61***c* should have sufficient rigidity to support the bowl full of water between the front and rear portions of bracket **50**.

A spigot **64** and water valves **65** and **66** are located in panel **52** in position to fill the wash basin with water when desired. After the user has finished with the sink, he pushes release button **67** in the side of panel **52**, which energizes solenoid **57** and moves detent **58** out of slot **59**, allowing spring **56** to pull bracket **50** toward its retracted position.

Means are provided to dispose of wash basin **61** when the bracket reaches its retracted position. In this embodiment, as was the case in the embodiment described above, this is accomplished by removing the support of the bracket from the basin when the bracket is retracted. In this embodiment, front portion **50***a* of bracket **50** is connected to side portions **50***c* and **50***d* in the manner shown in FIG. 6, where the connection between front portion **50***a* and side portion **50***d* is shown. Thus, pin **70** extends through front portion **50***a* and through front plate **72** into a hollow section **71** in the front end of side portion **50***d*. The pin extends through coil spring **73** which is arranged to exert a force on end plate **72** and spring stop plate **74** connected to pin **70**. In this manner, spring **73** and its counterpart in side portion **50***c* exert a force tending to hold front end portion **50***a* against the ends of side portions **50***c* and **50***d*. Thus, when the bracket is in its extended position, supporting surface **63** on front end portion **50***a* will be the proper distance from rear portion **50***b* to engage flange **61***b* and support the basin. However, by arranging stop **55***a* at a distance from the front of panel **52** such that side portions **50***c* and **50***d* will be pulled away from front portion **50***a* when the bracket is retracted in the manner shown in FIG. 6, the support for the basin is removed when the bracket is retracted.

In operation, then, with the cavity **61***d* in flange **61***c* on the wash basin in engagement with protrusion **62** on rear piece **50***b* of the support member **50**, the wash basin will continue to move rearward with the rear portion **50***b* of the bracket thereby pulling flange **61***b* of the wash basin, off of support surface **63** on front portion **50***a*. This will allow wash basin **61** to fall through opening **51** in the manner shown in FIG. 6, dumping both it and the water therein into opening **54**. In this way, each time bracket **50** is returned to its retarded position, it will automatically dump the wash basin and its contents therefrom, thus readying the bracket for use by the next occupant of the wash room.

From the foregoing, it will be seen that this invention is one well adapted to attain all of the ends and objects hereinabove set forth, together with other advantages which are obvious and which are inherent to the apparatus and structure.

It will be understood that certain features and subcombinations are of utility and may be employed without reference to other features and subcombinations. This is contemplated by and is within the scope of the claims.

As many possible embodiments may be made of the invention without departing from the scope thereof, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

The invention having been described, what is claimed is:

1. A wall mounted retractable support for a wash basin, comprising a wall having a recess with a receptacle below the recess, a basin supporting bracket having an opening therein to receive a wash basin; a plurality of basin supporting surfaces on the bracket adjacent the opening and on opposite sides thereof to support a basin in the opening; means for mounting the bracket in the wall for movement between an extended basin supporting position generally perpendicular to the wall and a retracted generally vertical non-basin supporting position in the recess to allow a wash basin located in the opening in the bracket to fall by gravity out of the bracket into the receptacle.

2. A wall mounted, retractable sink comprising, a bracket having an opening, a plurality of basin supporting surface on the bracket adjacent the opening; a wash basin having a bowl portion for holding a quantity of water adapted to extend through the opening in the bracket and laterally extending flanges attached to the bowl portion for engaging the basin supporting surfaces on the bracket to at least partially support the bowl within the opening; means movably mounting the bracket in a wall for movement between an extended basin supporting position with the supporting surfaces generally horizontal and a retracted position with the supporting surfaces generally vertical to allow the basin to fall by gravity from the bracket.

3. A wall mounted, retractable sink comprising, a bracket having an opening therein, a plurality of basin supporting surfaces on the bracket adjacent the opening; a wash basin having a bowl portion for holding a quantity of water adapted to extend through the opening in the bracket and laterally extending the flanges attached to the bowl portion for engaging the basin supporting surfaces on the bracket to support the bowl within the opening; means movably mounting the bracket in a wall for movement between an extended basin supporting position and a retracted position, and means for moving at least one of the supporting surfaces on the bracket out of engagement with the flanges on the basin when the bracket is retracted to allow the basin to fall through the opening in the bracket.

4. A retractable sink for mounting in a wall, comprising, a wash basin having a bowl with laterally extending flanges attached thereto; a U-shaped bracket to at least partially encircle the bowl and engage the laterally extending flanges to at least partially support the basin; means for pivotally attaching the bracket to a wall for movement from a generally horizontal position for supporting the basin to a generally vertical position to allow the basin to fall from the bracket.

5. The retractable sink of claim **4** further provided with resilient means urging the bracket toward the retracted position and holding means for releasably holding the bracket in the extended basin supporting position.

6. The retractable sink of claim **5** further provided with a second U-shaped bracket pivotally attached to

the wall and positioned to be engaged by the first mentioned bracket and urged toward the retracted position, said second bracket being free to pivot toward the retraced position to tilt the basin sufficiently to pump the water therefrom without requiring the release of the first mentioned bracket.

7. A wall mounted, retractable support for a disposable wash basin comprising, a first U-shaped bracket, means pivotally attaching the bracket to a wall for movement between an extended substantially horizontal basin supporting position and a retracted substantially vertical position; a second U-shaped bracket, means pivotally attaching the second bracket to a wall to pivot around the same axis as the first bracket, said second bracket being arranged to engage the first bracket and to be supported thereby; stop means for supporting the first bracket in its extended position; resilient means urging the first bracket toward its retracted position, and means for releasably holding the first bracket in its extended position.

8. A retractable sink for mounting in a wall, comprising, a bracket having an opening therein and a plurality of basin supporting surfaces adjacent the opening, means for slidably mounting the bracket in a wall to reciprocate between an extended position and a retracted position; a wash basin having a bowl for holding a quantity of water and laterally extending flanges attached thereto, said basin being arranged to be supported by the bracket with the bowl extending into the opening and the flanges engaging the basin supporting surfaces; and means for moving at least one of the basin supporting surfaces out of engagement with the flanges on the basin when the bracket is in its retracted position to allow the basin to fall through the opening therein.

9. The sink of claim 8 in which the bracket is rectangular having a front, a back and two side members, with the front and back members being arranged to support the basin and resiliently connected together to allow one to move away from the other, and stop means are provided to stop the movement of the front member before the back member reaches the end of its movement toward the retracted position to thereby move at least one supporting surface out of engagement with the basin.

10. A retractable sink for mounting in a wall, comprising, a bracket having an opening therein and a plurality of basin supporting surfaces adjacent the opening, means for slidably mounting the bracket in a wall to reciprocate between an extended position and a retracted position; a wash basin having a bowl for holding a quantity of water and a laterally extending flange attached thereto, said basin being arranged to be supported by the bracket with the bowl extending into the opening and the flange engaging a basin supporting surface; and means for moving the basin supporting surface out of engagement with the flange on the basin when the bracket is in its retracted position to allow the basin to fall through the opening therein.

11. A retractable sink for mounting in a wall, comprising, a bracket having a front, a back and two side members arranged to define an opening therein, said front member being resiliently connected to and biased toward the back member through the two side members; means for slidably mounting the bracket in a wall to reciprocate between an extended position and a retracted position; a wash basin having a bowl for holding a quantity of water and laterally extending flanges attached to the bowl, said basin being arranged for the bowl to extend through the opening in the bracket with the flanges engaging the front and back members when the bracket is in its extended position; reslient means urging the bracket toward its retracted position; holding means for releasably holding the bracket in its extended position; and stop means for stopping the movement of the front member before the back member reaches its retracted position to move the front and back members apart sufficiently to allow the basin to fall through the opening in the bracket.

12. A wall-mounted, retractable, support for a disposable wash basin, comprising, a bracket having a front, a back, and two side members arranged to define an opening; means resiliently connecting the front member to the back member; means for slidably mounting the bracket in a wall to reciprocate between a position extending outwardly from the wall and a retracted position substantially within the wall; resilient means urging the bracket toward its retracted position; holding means for releasably holding the bracket in its extended position; and means for moving the front member away from the back member as the bracket moves into its retracted position.

13. As an article of manufacture, a disposable wash basin having a bowl portion for holding a quantity of water and a laterally extending flange attached to the bowl having sufficient rigidity and strength to engage supporting surfaces on a wall mounted retractable support bracket to support the bowl, said bowl portion having a back side which makes a relatively small angle with the plane of the flanges to provide a low-pitched sloping surface to allow the basin to slide easily out of a support bracket.

14. A wall mounted retractable support for a wash basin comprising a basin supporting bracket having an opening therein to receive a wash basin, a plurality of basin supporting surfaces on the bracket adjacent the opening and on opposite sides thereof to support such basin in the opening, means for mounting the bracket in a wall for movement between an extended basin supporting position generally perpendicular to such wall and a retracted non-basin supporting position and means for moving at least one of the basin supporting surfaces out of basin supporting position to allow such basin to fall through the opening in the bracket when the bracket is in its retracted position.

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LEWIS J. LENNY, *Primary Examiner.*

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