United States Patent

Brezosky

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[45] **Jan. 18, 1972**

[54] **FAUCET-COUPLING ASSEMBLY FOR A WASHING MACHINE**

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[73] Assignee: **General Electric Company**

[22] Filed: **Sept. 19, 1969**

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[52] **U.S. Cl.**.....**137/583**, 137/562, 251/289

[51] **Int. Cl.**.....**B05b 1/22**, F16k 13/00, E03b 7/07

[58] **Field of Search**.....251/148, 145, 149.9, 339, 303, 251/156; 137/562, 583; 222/509, 471, 475, 470, 469; 141/360, 335, 351, 353, 355, 357

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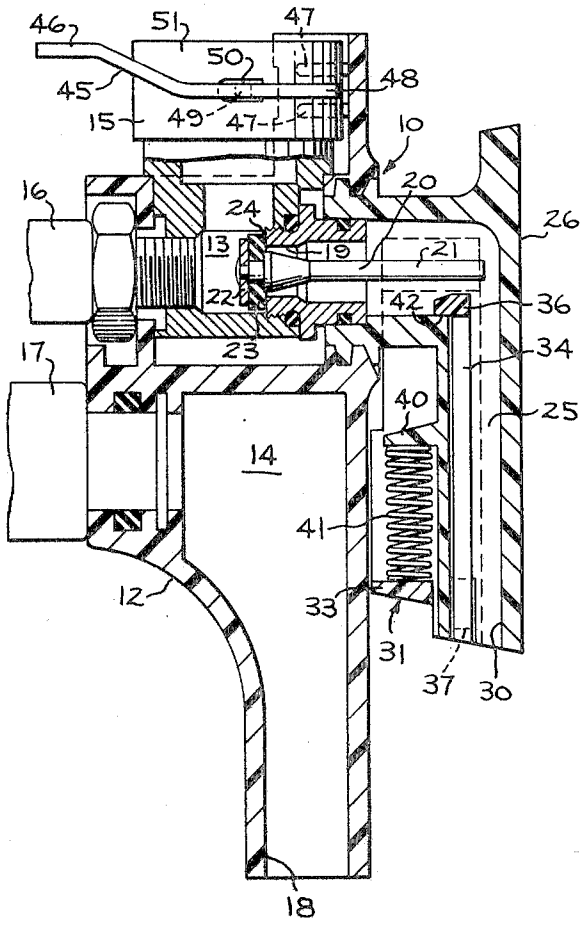
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[57] **ABSTRACT**

An improved coupling assembly for connecting a washing machine to a water faucet has a handle member protruding from its body portion that serves as a spout for dispensing water from the assembly. A slidable member disposed between the handle member and the body portion is adapted to be manually pushed from a first to a second position which action opens a shutoff valve to allow the water to be dispensed through the handle member. The slidable member is linked to a quick-release connector that fastens the assembly to the faucet so that manipulation of the connector to remove the assembly from the faucet slides the slidable member toward its second position and opens the valve, thereby bleeding off water pressure from the assembly and preventing hot water from the assembly from spurting from the connector.

4 Claims, 8 Drawing Figures



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SHEET 1 OF 2

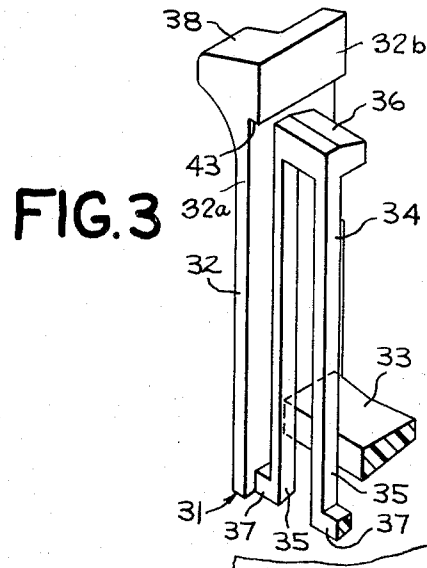


FIG. 3

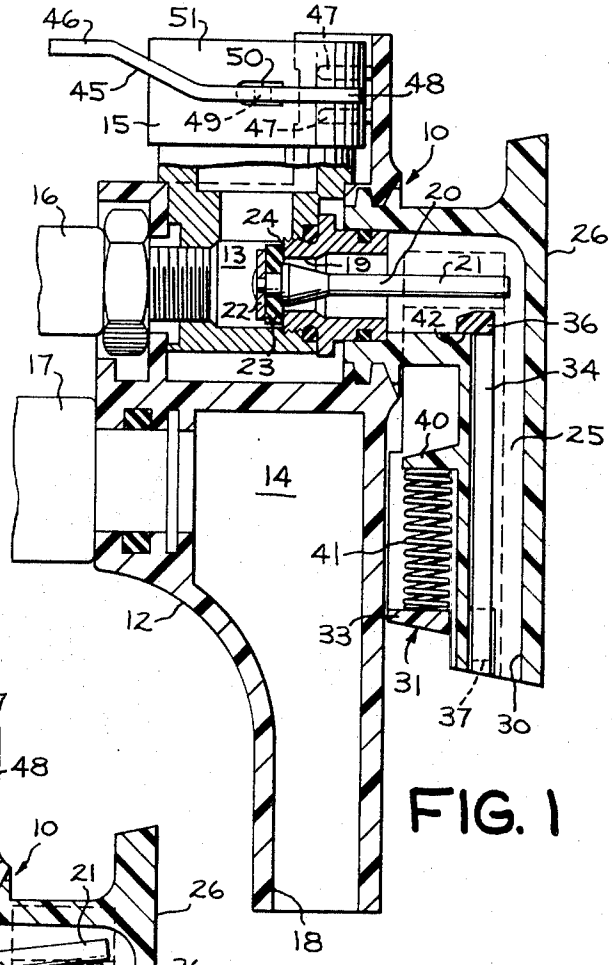


FIG. 1

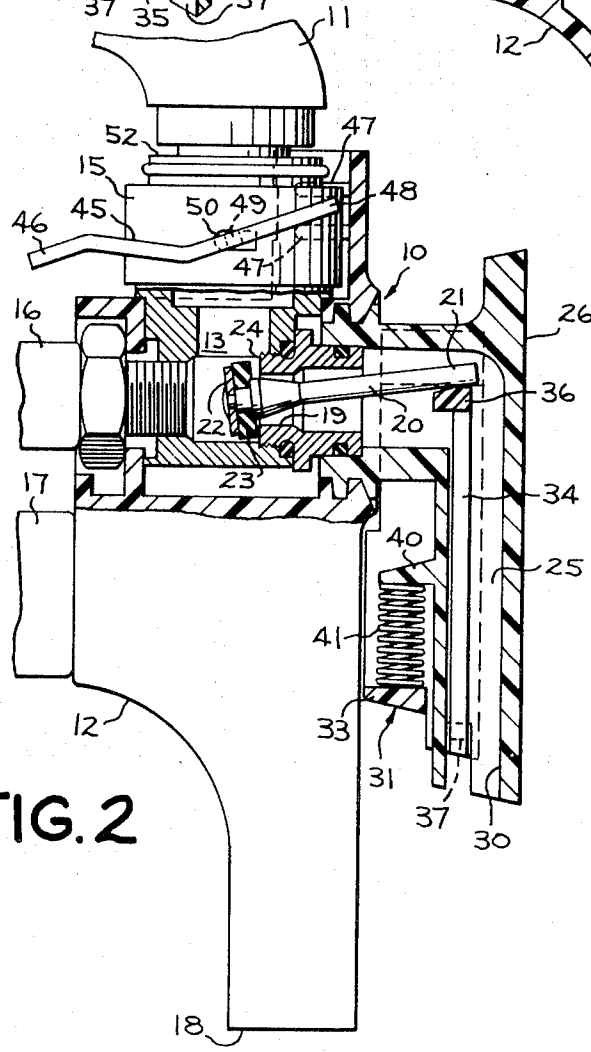
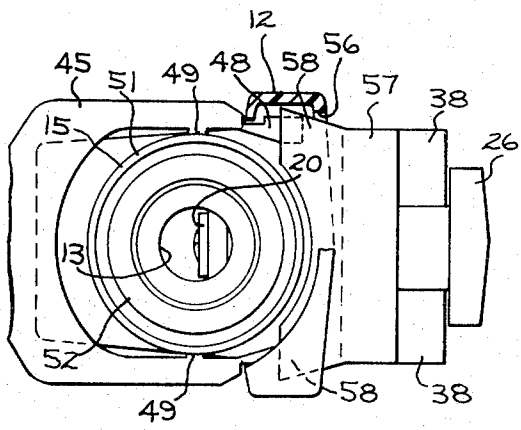


FIG. 2

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FIG. 5



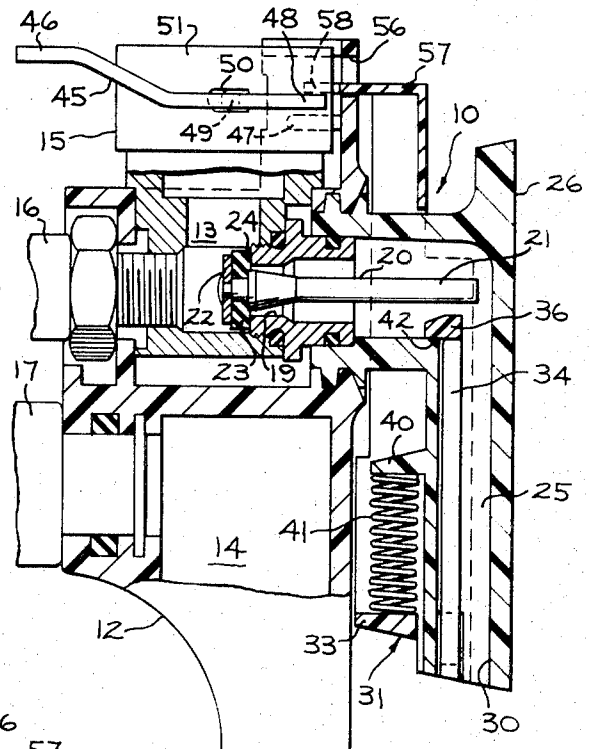


FIG. 4

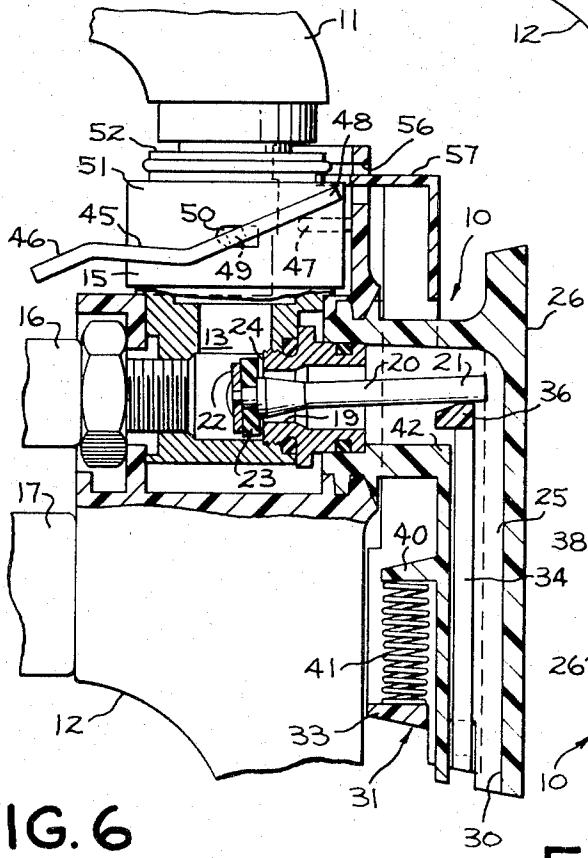


FIG. 6

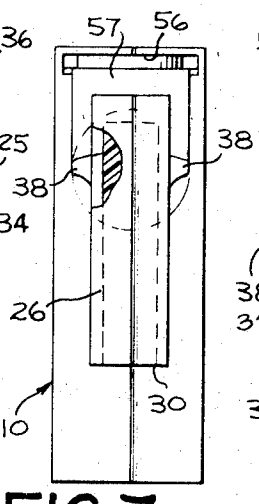


FIG. 7

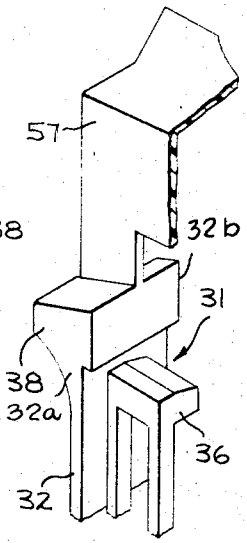


FIG. 8

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IMPROVED FAUCET-COUPLING ASSEMBLY FOR A WASHING MACHINE

BACKGROUND OF THE INVENTION

The aforementioned copending application of Guth presents an invention pertaining to a coupling assembly for removably connecting a washing machine to a faucet. Guth's coupling assembly includes a body portion having a lever-actuated mechanism for coupling it to the spout end of a water faucet. A passageway through the body portion transmits water received from the faucet to the inlet hose of a washing machine. A water-takeoff outlet including a shutoff valve is provided at an intermediate point along the passageway so that water may be selectively dispensed directly from the coupling assembly without requiring it to be disconnected from the faucet. A hollow handle member protrudes from the body portion of the assembly and is disposed in communication with the water-takeoff outlet and serves as a spout for the dispensed water. In Guth's assembly, the handle member is slidably mounted on the body portion and is adapted to open the valve at the water-takeoff outlet. This is accomplished by manually sliding the handle member a short distance relative to the body portion. Provision is made for linking the handle member to the lever of the coupling mechanism so that manipulation of the lever, in disconnecting the assembly from the faucet will automatically slide the handle member and open the valve to relieve internal water pressure within the body portion.

The present invention relates to a coupling assembly of this general type, that is, a coupling assembly wherein the same valve means is used both for dispensing water and for automatically relieving internal pressure when the assembly is disconnected from the faucet. It provides an improved assembly wherein the handle is fixed and has an independently slidable means thereon to actuate a shutoff valve within the assembly. This has constructional and appearance advantages and also provides easy valve actuation since the user may grasp the handle as a stationary base in moving the slidable means.

SUMMARY OF THE INVENTION

The present invention is an improved coupling assembly that supports the outer ends of inlet and discharge hoses from a washing machine beneath the spout end of a kitchen faucet, with the inlet hose in communication with the faucet and the discharge hose in communication with a passageway through the assembly that directs the discharge fluid from the hose downwardly toward the drain opening of a sink therebelow. The coupling assembly of this invention comprises a body portion defining a water passageway having an inlet end coupled by means of a quick-release connector to a water faucet spout, and an outlet in communication with a water delivery hose leading to a washing machine. A secondary opening which may be described as a water-takeoff outlet is provided along the water passageway and has valve means therewith that acts normally to close off the water-takeoff outlet and prevent water from flowing therethrough.

The valve means includes a valve seat circumjacent the water-takeoff outlet that cooperates with a movable valve member. The valve member has an elongated stem extending centrally through the outlet and across the path of movement of a manually operable sliding member. The sliding member is preferably mounted between the body portion and a substantially large stationary handle member protruding integrally from the body portion. Manipulation of the sliding member from a first to a second position serves to push against the stem of the valve member and unseat it and thereby allow water in the passageway to flow through the water-takeoff outlet of the body portion. The handle member of the assembly is substantially hollow, having a central bore therethrough that is in liquid receiving communication with the water-takeoff outlet. The end of the handle member disposed away from the inlet end of the assembly is open and serves as a discharge port for dispensing water selectively transmitted outwardly through the water-takeoff outlet and thence downwardly through the central bore of the handle member.

A connecting means removably fastens the assembly to a faucet and is a quick release mechanism having a manually depressable lever for facilitating its operation. In one embodiment of the present invention the sliding member for manually opening the valve means to dispense water from the assembly is linked to the connector mechanism's lever whereby movement of the lever is translated through the sliding member to the valve means. Thus, the lever may serve the dual purpose of disconnecting the assembly from the faucet, at the same time, relieving liquid pressure within the coupling assembly to obviate the possibility of hot water erupting from the inlet end of the assembly when it is disconnected from the faucet.

The manually operable means for unseating the valve member to dispense water from the coupling assembly may be a sliding member that includes both a ledge portion adjacent the assembly's discharge port and a portion that is located some distance from the discharge port and is shaped to facilitate manual operation. The latter portion may comprise one or more lateral projections or tabs which extend beyond the outer periphery of the handle portion. This enables a light lifting force to be applied thereto by the finger of the operator whereby water is dispersed without subjecting the hand of the operator to the water flow.

BRIEF DESCRIPTION OF THE DRAWING

In the accompanying drawing:

FIG. 1 is an elevational view, substantially cut away to show details, of the improved coupling assembly of the present invention;

FIG. 2 is an elevational view similar to FIG. 1 but showing certain components of the coupling assembly repositioned in accordance with the operation of the assembly;

FIG. 3 is a view in perspective of one preferred form of a slidable means utilized in the coupling assembly of the present invention;

FIG. 4 is an elevational view, partially cut away to show details, of a modified form and alternative embodiment of the present invention;

FIG. 5 is a plan view taken as though looking downwardly on the assembly shown in FIG. 4;

FIG. 6 is an elevational view similar to FIG. 4 but showing certain components of the alternative embodiment of FIG. 4 repositioned as they would appear during the connection or disconnection operation;

FIG. 7 is a scaled-down right side elevational view of the coupling assembly shown in FIG. 4, and

FIG. 8 is a perspective fragmentary view of a slidable means utilized in the alternative embodiment of the invention in FIG. 4.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

In FIGS. 1 and 2 there is illustrated a coupling assembly **10** for connecting a washing machine to the outlet end of a faucet **11**. The coupling assembly **10** has a body portion **12** defining a water passageway **13** and an effluent discharge passageway **14**. The body portion **12** is provided with connecting means **15** for coupling it to the faucet **11** whereby the inlet end of the water passageway **13** is in liquid-receiving relationship with the faucet **11**. The outlet end of the water passageway **13** has a hose **16** leading therefrom whereby water from the passageway **13** may be transmitted to a washing machine.

A washing machine effluent discharge hose **17** is coupled to the body portion **12** to deliver effluent from the dishwashing machine to the passageway **14**. The passageway **14** terminates in a discharge outlet **18** that directs the effluent toward a sink drain that would normally be disposed beneath the coupling assembly **10**. A secondary or water-takeoff outlet **19** leads off laterally from the water passageway **13** and has a valve member **20** disposed therein. The valve member **20** has an

elongated body portion or rodlike stem **21** with a buttonlike head portion **22** at one end thereof. The valve member **20** is preferably provided with an elastomeric sealing member **23** carried inwardly adjacent the head portion **22** for sealing against an annular valve seat **24** circumjacent the water-takeoff outlet **19**. It will be noted that the valve member **20** is fitted loosely in its installed position and is normally held in the closed position, as shown in FIG. **1**, by means of water pressure within the passageway **13** exerted against the head portion **22** and the sealing member **23**.

The stem **21** of the valve member **20** extends laterally from the body portion **12** into a hollow area discharge passageway or dispensing channel **25** provided through a substantially large stationary handle portion **26** that protrudes laterally from the body portion **12**. The channel **25**, at its upper end as shown in FIG. **1**, communicates with the water-takeoff outlet **19** to receive dispensed water therefrom. At its end most distant from the faucet the channel **25** through the handle portion **26** terminates in a discharge port **30** disposed such that water dispensed therefrom will pass downwardly toward the sink therebelow or into a utensil properly positioned thereunder.

The valve member **20** is arranged to be unseated by a tilting action applied thereto when a slidable member **31** is manually moved relative to the handle portion **26**. The sliding member **31** is illustrated separately in FIG. **3**, with portions thereof cut away for the purpose of clarity of presentation. The sliding member **31** has spaced apart side portions **32**, only one of which is shown in FIG. **3**. The side portion **32** not shown in FIG. **3** is formed with a configuration that is a mirror image of the side portion **32** shown. A transversely disposed ledge portion **33** interconnects the spaced-apart side portions **32** near the lower end of the sliding member **31**. Disposed between the side portions **32** is a semiflexible intermediate portion **34** having identical vertically oriented spaced apart parallel leg portions **35**. The intermediate portions **34** are interconnected at their upper ends by a shoulder portion **36**, and the lower ends of the legs **34** have respective laterally extending stub portions **37** which join the intermediate portion **34** integrally to the respective side portions **32**.

As illustrated in FIGS. **1** and **2**, the sliding member **31**, in its installed position on the handle portion **26**, is disposed on the inward side of the handle portion **26**, toward the body portion **12**, and has its intermediate portion **34** positioned within the discharge channel **25**. The side portions **32** of the sliding member **31** are respectively disposed laterally on the side surfaces of the handle portion **26**. The side portions **32** each have inside surfaces **32***a* and **32***b* that slidably contact the outer surface of the handle portion **26** during operation of the sliding member **31**. A laterally projecting finger tab portion **38** is provided on each of the side portions **32** (FIG. **3**) to facilitate manual movement of the sliding member **31** relative to the handle portion **26**. The disposition of the tab portions **38** relative to the handle portion **26** and the body portion **12** of the assembly may be more clearly understood by examination of FIG. **7**, these tab portions being also included in the embodiment of the invention to which FIG. **7** pertains.

The operation of the sliding member **31** on the handle portion **26** may be best understood by a comparison of FIG. **1** with FIG. **2**. When the coupling assembly **10** is in its installed operative position on the faucet **11** and the faucet valve (not shown) has been opened to permit water to flow from the faucet **11** and into the passageway **13**, water may be selectively dispensed outwardly through the channel **25** of the handle portion **26** typically by placing the thumb and forefinger under the respective tabs **38** (FIG. **7**) to thereby lift the sliding member **31** vertically upwardly relative to the handle portion **26**. It will be noted that a ledge portion **40** integral to the handle portion **26** protrudes rearwardly therefrom toward the body portion **12**. A biasing means in the form of a compressible coiled spring **41** is carried between the ledge portion **40** and the transversely disposed sliding member ledge portion **33** and serves the purpose of maintaining the sliding member **31** in its normal first portion as shown in FIG. **1**.

When the sliding member **31** is manually slid upwardly to its second position as shown in FIG. **2**, the shoulder **36** of the sliding member **31** moves upwardly against the valve stem **21** of the valve member **20**. The valve member **20** is thereby tilted and unseated. Water within the passageway **13** will then flow past the valve seat **24** through the water-takeoff outlet **19** and then downwardly through the channel **25** and out from the dispensing port **30**. When the operator's hand is removed from the sliding member **31**, it is automatically retracted to its first position by expansion of the spring **41**. The valve member **20** then responds to the pressure of the water within the passageway **13** and is reseated to its closed position.

It should be noted that the shoulder **36** of the sliding member **37** extends rearwardly within the channel **25** (FIG. **1**) and overhangs a ledge **42** within the handle portion member **26**. Also, a relatively small shoulder or ridge **43** is provided on the inside surface of each side portion **32** of the sliding member **31** (FIG. **3**) adjacent to each tab **38**. The ridges **43** and the shoulder **36** serve to prevent the sliding member **31**, by engagement over ledge portions formed in the handle portion **26**, from dropping downwardly outwardly out of its installed position in the handle portion **26**.

Disconnection of the assembly **10** shown in FIGS. **1** and **2** is accomplished by manipulation of a lever **45** that operates the connector **15** (constructed in accordance with well-known criteria). The outer end **46** of the lever **45** is manually depressed downwardly from the position shown in FIG. **1** to the position shown in FIG. **2**. The upper end of the body portion **12** has upper and lower integral finger portions **47** defining therebetween a pocket into which leg portions **48** extend. The lever **45**, which is a U-shaped member (such as shown in FIG. **5**), has an inwardly directed projection **49** intermediate the length of each leg **48** thereof that extends into a groove **50** provided therefor in the sidewall of an outer sleeve or collarlike member **51** of the connection **15**. Manually applying a force downwardly against the outer end **46** of the lever **45** pivots the lever **45** on a horizontal axis at the point of engagement of the legs **48** between the rigid fingerlike portions **47** of the body portion **12**. The downward pivotal movement of the lever **45** is thus translated to the collarlike member **51** at the point of engagement of the projections **49** with the grooves **50**. This action releases a plurality of small spherical balls (not shown) carried in circumferentially spaced apart openings through the collarlike member **52** whereby the connector **15** is released from the faucet **11**.

FIGS. **5** through **8** of the accompanying drawing illustrate an alternative embodiment of the present invention which is a modified form of the embodiment shown in FIGS. **1** through **3**. The numeral designations for the various parts of the alternative embodiment described hereafter are the same as utilized in reference to the first-described embodiment where such elements are similar or identical in both structures. Therefore, it will be seen with reference to FIG. **4** that the alternative embodiment of the coupling assembly of the present invention incorporates the structural elements heretofore described with reference to FIG. **1**. The major modification lies in linkage structure provided in the alternative embodiment as shown in FIG. **4** whereby the sliding member **31** is linked to be actuated by manipulation of the lever **45** when the coupling assembly is disconnected from the faucet.

It will be noted in FIG. **4** that only the lower body portion projections **47** are provided beneath the leg **48** of the lever **45**, and that the upper projections **47**, shown in the first described embodiment in FIG. **1**, are not present in the alternative embodiment of FIG. **4**. Instead, an opening **56** through the upper end of the body portion **12** is provided to facilitate the extension therethrough of rigid extension portions **57** of the sliding member **31**. The extension portions **57**, as shown in FIG. **8**, are respectively integral to the side portions **32** of the sliding member **31** and each projects upwardly therefrom to the level of the opening **56**. Each extension portion **57** has a rearward projected portion **58** that reaches through the opening **56** to a point above the extreme end of the leg **48** of the lever **45**.

Reference to FIG. 5 shows that each side portion 32 of the sliding member 31 is provided with the rigid extension portion 57 that has a rearward projection 58 overhanging the extreme end of the lever leg 48. When the lever 45 is manually pressed downwardly as in FIG. 6 to disconnect the coupling 10 from the faucet 11, not only is the collarlike portion 51 of the connector 15 caused to move downwardly, but the sliding member 31 is, by the same levering action, slid upwardly relative to the handle member 26. The inward projections 58 of the sliding member 31 serve initially as a fulcrum whereby the outer collar portion 51 of the connector 15 is moved downwardly by the lever action. Near the end of the lever's downward stroke, a point on the under surface of each leg 48, near the outer end thereof, contacts the end of a respective body portion projection 47. The extreme outer ends of the legs 48 are thereby pivoted upwardly. The upward force thus applied to the sliding member inward projections 58 results in the sliding member 31 being slid upwardly relative to the handle portion 26 so that the valve member 20 is unseated to relieve water pressure built up in the passageway 13. The disposition of the various movable parts of the coupling assembly, as they would appear at the culmination of the disconnection operation, but prior to release of manual pressure from the end 46 to the lever 45, is illustrated in FIG. 6.

Comparing FIG. 3 to FIG. 6, it will be seen that both the first and the alternative embodiments of the coupling assembly heretofore described have means therewith to permit dispensing of water from the assembly without requiring direct contact to the assembly by the hand of the operator. The rim of a fillable utensil such as a drinking glass or a sauce pan may be brought to bear against the under surface of the ledge 33 of the sliding member 31 whereby upward pressure of the utensil against the ledge 33 will slide the sliding member 31 upwardly. Such movement of the sliding member 31 acts to unseat the valve member 20 so that water from the passageway 13 is dispensed outwardly through the dispensing port 30 and directly into the utensil positioned therebelow.

It should be apparent to those skilled in the art that what has been heretofore described is considered to be the presently preferred embodiments of this invention and that changes may be made in the disclosed apparatus without actually departing from the true spirit and scope of this invention.

What I believe is new and desire to secure by Letters Patent of the United States is:

1. A coupling assembly to connect a washing machine to a water faucet outlet end comprising:
   a. a body portion defining a liquid passageway therein,
   b. said passageway having an inlet end, an outlet end for transmitting liquid toward the washing machine, and a liquid takeoff outlet at a point between said inlet and said outlet end,
   c. manually releasable means for connecting said inlet end in liquid-receiving relationship to the faucet outlet end whereby the assembly projects downwardly therefrom,
   d. normally closed valve means for opening and closing said takeoff outlet,
   e. a handle portion protruding from said body portion to facilitate manipulation and connection of the assembly to the faucet,
   f. manually operable means being disposed generally between said body portion and said handle portion and adapted to be movable between a first and a second position relative to said handle portion,
   g. means urging said manually operable means normally away from said faucet outlet end to said first position,
   h. said manually operable means being adapted to open said valve means when moved toward said faucet outlet end to said second position,
   i. a discharge port on the exterior of said assembly in liquid flow communication with said liquid takeoff outlet for dispensing the flow of liquid generally downward from the assembly, and
   j. said manually operable means being a slidable member and having at least one side portion thereof disposed away from said discharge port to thereby facilitate manual operation of said slidable member.

2. The invention of claim 1 wherein said manually releasable means includes an operating lever, and said slidable member has a portion thereof extending into the path movement of said operating lever.

3. A coupling assembly to connect a washing machine to a water faucet outlet end, comprising:
   a. a body portion defining a liquid passageway therein,
   b. said passageway having an inlet end, an outlet end for transmitting liquid toward said washing machine, and a liquid takeoff outlet at a point between said inlet end and said outlet end,
   c. manually releasable means for connecting said inlet end in liquid receiving relationship to the faucet outlet end whereby the assembly projects downwardly therefrom,
   d. normally closed valve means opening and closing said takeoff outlet,
   e. a handle portion protruding from said body portion to facilitate manipulation and connection of the assembly to the faucet,
   f. manually operable means being disposed generally between said body portion and said handle portion and adapted to be movable between a first and a second position relative to said handle portion,
   g. means urging said slidable means normally away from said faucet outlet and to said first position,
   h. said manually operable means being adapted to open said valve means when moved toward said faucet outlet end to said second position,
   i. a discharge port on the exterior of said assembly in liquid flow communication with said liquid takeoff outlet for dispensing a flow of liquid generally downward from the assembly, and
   j. linkage between said manually releasable means and said valve means whereby operation of said manually releasable means opens the valve means.

4. The invention of claim 3 wherein said linkage includes said manually operable means.

* * * * *