April 20, 1965 A. A. KLEEBAUER 3,178,745

MACHINE FOR WASHING PLASTIC SHIELDS FOR FLUORESCENT LIGHTS

Filed Feb. 11, 1963 3 Sheets-Sheet 1

Fig. 1

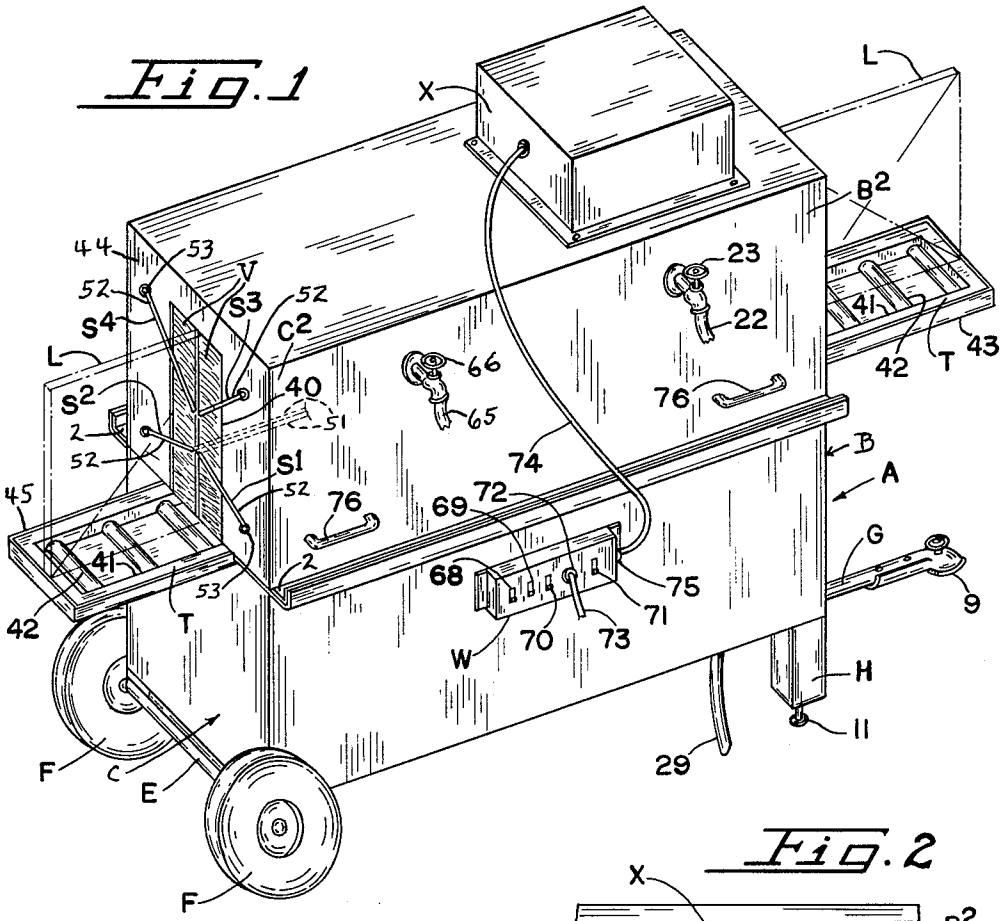


Fig. 2

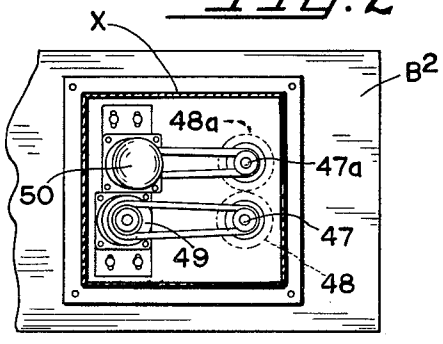
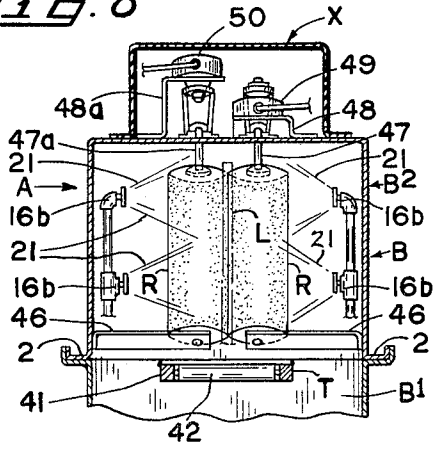


Fig. 8



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MACHINE FOR WASHING PLASTIC SHIELDS FOR FLUORESCENT LIGHTS

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Fig. 3

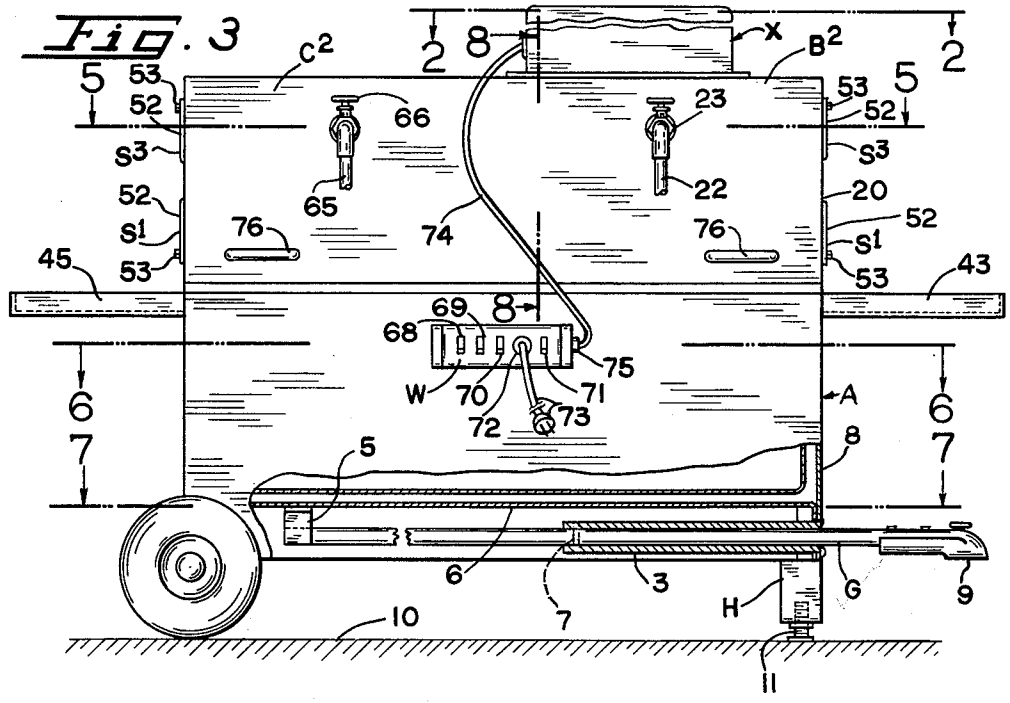
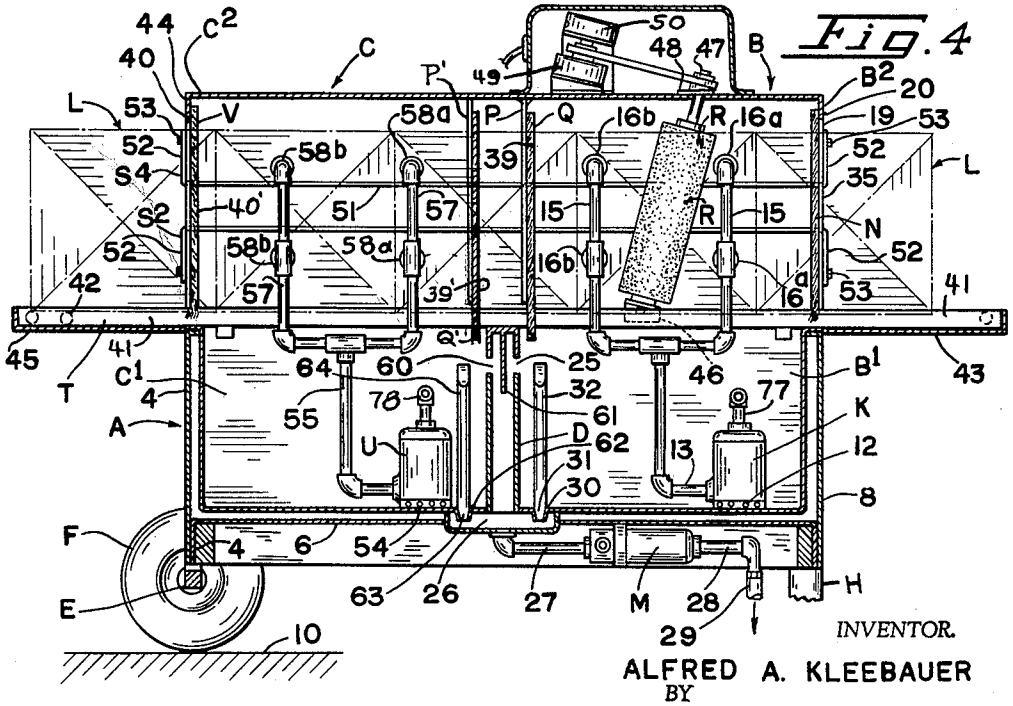


Fig. 4



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MACHINE FOR WASHING PLASTIC SHIELDS FOR FLUORESCENT LIGHTS

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Fig. 5

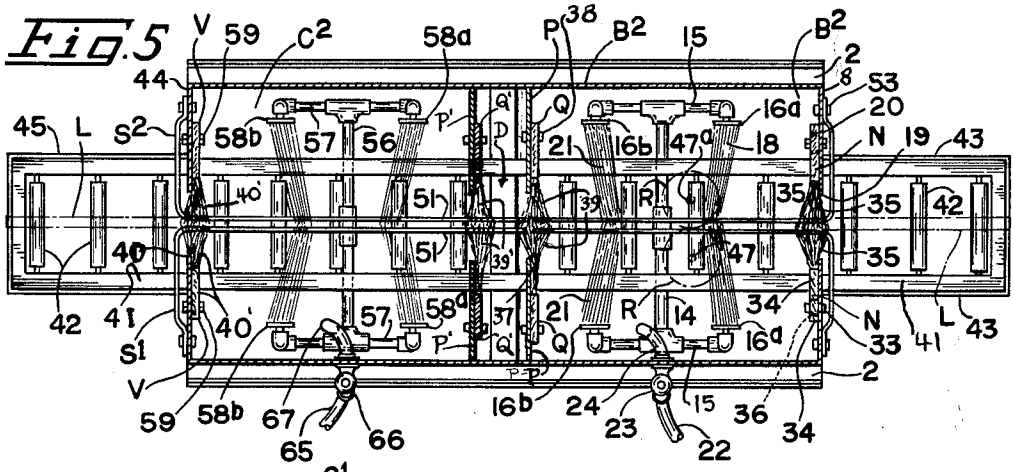


Fig. 6

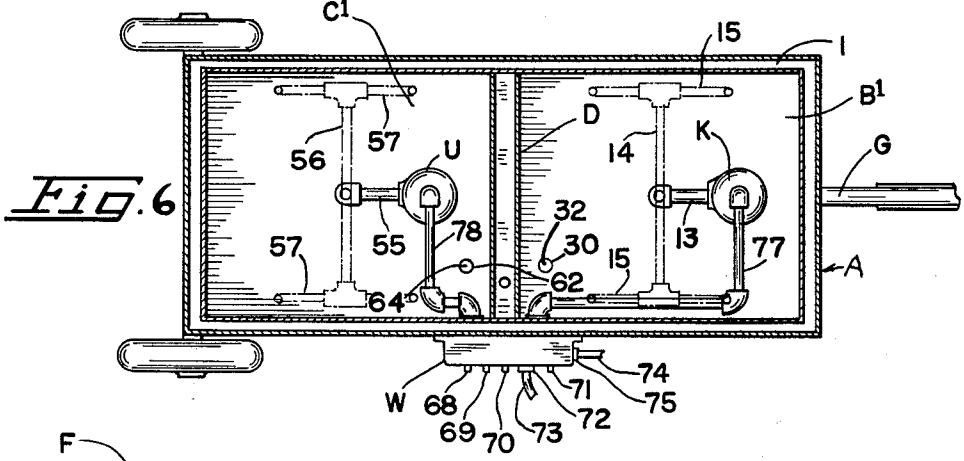
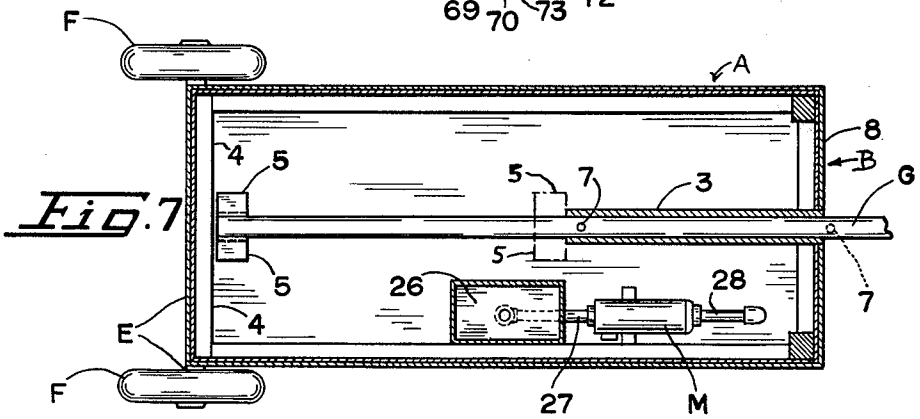


Fig. 7



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3,178,745

MACHINE FOR WASHING PLASTIC SHIELDS FOR FLUORESCENT LIGHTS

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Filed Feb. 11, 1963, Ser. No. 257,523
4 Claims. (Cl. 15—77)

The present invention relates to a machine for washing plastic shields for fluorescent lights and it consists in the construction, operation and advantages hereinafter described and claimed.

An object of my invention is to provide a machine for washing plastic shields for fluorescent lights which has a washing compartment and a rinsing compartment arranged in the same housing, the washing compartment having an entrance opening for receiving the plastic shields when arranged in a vertical position and the rinsing compartment having an exit opening through which the plastic shields can pass while still maintained in a vertical position. A pair of stationary brushes are placed on the inside of the entrance opening and the bristles face each other so as to engage opposite sides of the plastic shields for aiding in washing them. The brushes serve the additional function of acting as a curtain for preventing wash water, sprayed onto the opposite sides of the plastic shields from passing through the entrance opening.

A second pair of stationary brushes are placed on the inside of the exit opening and the bristles engage with the opposite sides of the plastic shields for aiding in rinsing them. The brushes serve the additional function of acting as a curtain for preventing rinse water, sprayed onto the opposite sides of the plastic shields from passing through the exit opening. A third pair of stationary brushes are placed in the washing compartment and near the rinsing compartment for preventing washing water from entering the rinsing compartment and vice versa.

A further object of my invention is to provide a device of the type described in which rotating bristles are mounted in the washing compartment for having their bristles engage with opposite sides of the plastic shields. The rotating bristles have their axes lying in parallel vertical spaced apart planes and the tops of the axes are inclined toward the entrance opening. The rotating brushes are rotated so that the bristles that contact with opposite sides of the plastic shields will tend to move the shields toward the exit opening. The inclination of the axes of the rotating brushes will cause the rotating bristles to tend to lift the plastic shields and there will be relative movement between the rotating bristles and the plastic shields which will aid in washing the shields.

A further object of my invention is to provide a device of the type described which has a roller conveyor extending through both the washing and rinsing compartments and projecting beyond the entrance opening and also the exit opening. I provide novel adjustable guide means for the plastic shields that extend through both the washing and rinsing compartments and contact with opposite sides of the plastic shields for maintaining them in a vertical position while the shields are movably supported by the roller conveyor. Plastic shields of different widths can be accommodated and guided.

Still a further object of my invention is to provide a device of the type described in which the washing compartment has a reservoir for holding wash water and a rinsing compartment has a reservoir for holding rinse water. A common hollow wall separates the two reservoirs and it is provided with an overflow slot in one side for receiving excess water from the wash water reservoir. The hollow wall is provided with an overflow slot in the other side for receiving excess water from the rinse reservoir. A partition is centrally mounted in the hollow wall to prevent excess water from either reservoir from flowing into the overflow slit associated with the reservoir and passing on through the other overflow slot and into the other reservoir. A common outlet sump communicates with the bottom of the hollow wall.

Other objects and advantages will appear as the specification continues. The novel features of the invention will be set forth in the appended claims.

Drawings

For a better understanding of my invention, reference should be made to the accompanying drawings, forming part of this specification, in which:

FIGURE 1 is a perspective view of the device;

FIGURE 2 is a horizontal section through the housing that encloses the brush rotating motors and is taken along the line 2—2 of FIGURE 3;

FIGURE 3 is a side elevation with a portion broken away to illustrate the draw tongue retracted;

FIGURE 4 is a vertical longitudinal section through the device;

FIGURE 5 is a horizontal section taken along the line 5—5 of FIGURE 3;

FIGURE 6 is a horizontal section taken along the line 6—6 of FIGURE 3, and shows the wash water retaining reservoir and the rinse water retaining reservoir with a combined pump and electric motor mounted in each reservoir;

FIGURE 7 is a horizontal section taken along the line 7—7 of FIGURE 3, and shows the draw tongue and also the combined pump and electric motor for removing overflow water from the machine and for emptying the wash and rinse reservoirs; and

FIGURE 8 is a transverse section through a portion of the machine and it is taken along the line 8—8 of FIGURE 3.

While I have shown only the preferred form of my invention, it should be understood that various changes, or modifications, may be made within the scope of the annexed claims without departing from the spirit thereof.

Detailed description

In carrying out my invention, I provide a frame indicated generally at A and this frame has a washing compartment B and a rinsing compartment C. The washing compartment B has a reservoir B^1 for holding wash water. In like manner the rinsing compartment C has a reservoir C^1 for holding rinse water. The two reservoirs B^1 and C^1 are separated by a common hollow wall D.

Above the wash water reservoir B^1 I mount a wash housing B^2 and above the rinse water reservoir C^1, I mount a rinsing housing C^2. The two housings are in reality one continuous housing that is removably mounted on the top of the two combined reservoirs B^1 and C^1. FIGURE 6 shows a top plan view of the two reservoirs B^1 and C^1 and shows them separated by the common hollow wall D, and provided with a rectangular groove 1 that surrounds the two reservoirs. The combined housings B^2 and C^2 have channels 2—2 extending along the two sides of the composite housing, see FIGURE 5, and these channels are removably received in the two longitudinal portions of the rectangular groove 1 shown in FIGURE 6. In this way the composite housing B^2 and C^2 is removably mounted on the tops of the two reservoirs B^1 and C^1.

Before describing the mechanism in the washing compartment B and in the rinsing compartment C, it is best to state that the device is made portable and FIGURE 4 shows a cross axle E mounted at the rear of the rinsing compartment C and this axle has two wheels F rotatably

mounted on its ends. The wheels are preferably provided with pneumatic tires so that the device can be readily moved quietly over a supporting surface.

In FIGURE 7, I show the rear axle E and the supporting wheels F. I further show a tubualr guide member **3** slidably receiving a tow tongue G. This tongue extends from the front of the device which is at the front end of the washing compartment B and FIGURES 3 and 7 show the tow tongue moved inwardly with FIGURE 7 illustrating how the inner end of the tongue can strike the rear wall **4** of the device when the tongue is in its innermost position. The inner end of the tow tongue G has angle members **5—5** secured thereto and the tops of these members will bear against the under surface of the bottom wall **6** of the device so that the tongue G cannot rotate about its longitudinal axis.

The tongue can be moved forwardly in the tubular guide member **3** into towing position and this movement is terminated when the angle members **5—5** strike the inner end of the tubular guide **3**. The tongue has a bolt hole **7**, see FIGURE 7, and this hole will be aligned with the outer surface of the front wall **8** of the device, when the tongue is fully extended. A bolt, not shown, may be inserted into the bolt hole **7** and this bolt will prevent the accidental retraction of the tongue. The outer end of the tongue G is provided with a socket **9** that is designed to receive a spherical member of the towing vehicle, not shown. When the tongue is connected to the towing vehicle it will raise the front end of the device so as to lift supporting legs H above the supporting surface **10**, see FIGURE 1. The legs are provided with adjustable threaded extensions **11** that will permit the front end of the device to be raised or lowered so that the reservoirs B^1 and C^1 will be held in a horizontal plane.

I will now describe the wash mechanism in the washing compartment B. A combined motor and water pump K is submerged in the washing water in the reservoir B^1 and is secured to the bottom of the wash reservoir. The combined motor and pump has water inlet openings **12** near its base and these openings will receive wash water from the reservoir B^1. A water outlet pipe **13** leads from the combined motor and water pump to a transverse pipe **14**, see FIGURE 5, and this latter pipe in turn is connected to pairs of vertically extending water outlet pipes **15** that are provided with pairs of water ejecting nozzles **16***a* and **16***b*. The forward pairs of nozzles **16***a* are arranged on opposite sides of the washing housing B^2 and near the front of the housing. The nozzles **16***a* have vertical slots and these slots will direct the wash water at an angle as shown at **18** against the plastic shield L so that the water will not flow through an entrance opening **19** provided in the front wall **20** of the washing housing B^2. The water from the vertical slots will not only be angled inwardly toward the center of the washing housing B^2 but the slots will spread the wash water vertically so that the plastic shield L moved into the housing through the entrance opening **19** will be washed on both surfaces by the vertically spread and inwardly inclined water sprays **18**, see FIGURE 8.

The rear pairs of wash water nozzles **16***b* are also provided with vertical slots and these will direct apron-like streams of water **21** toward the center of the washing housing B^2. The pairs of sprays **21** from each nozzle **16***b* are spread vertically so as to wash both sides of the plastic shield L from top to bottom as the shield is moved through the washing housing in a manner hereinafter described. A detergent can be added to the washing water in the reservoir B^1 so as to provide a proper washing solution. The water from the front pairs of nozzles **16***a* and rear pairs of nozzles **16***b* in the wash housing will strike both surfaces of the plastic shield L and then will drop into the reservoir B^1 where it will again be picked up by the combined motor and water pump K and reconveyed back through the pipes **13**, **14** and **15** to complete the water circuit.

The hot water may be initially fed to the wash compartment B^1 through a hot water inlet hose **22**, see FIGURE 3. This hose leads from a source of hot water under pressure, not shown, and communicates with the valve **23** mounted on the housing B^2. The valve **23** is shown in top plan view in FIGURE 5 and this valve controls the flow of hot water through a faucet **24** that will drop the water into the top of the reservoir B^1. It is customary to open the valve **23** and permit hot water to enter the reservoir B^1 until the reservoir water level in FIGURE 4 reaches an overflow horizontal slot **25** in the hollow wall D. The hot water then can be turned off and a detergent can be added, after which the combined motor and water pump K can be started for drawing the washing water from the reservoir B^1 and ejecting it through the nozzles **16***a* and **16***b* for washing both surfaces of the plastic shields L. Any excess water in the reservoir B^1 will flow out through the overflow slot **25** in the hollow wall D, see FIGURE 4, and this water will be received in a common water sump **26**. A water outlet pipe **27** leads from the sump to a combined motor and water pump M that will force the water out through an outlet pipe **28** that is connected to a hose **29** and which leads to a sink or other water outlet that in turn communicates with the sewer.

It should be noted at this point that the wash water reservoir B^1 has a water outlet opening **30** that is normally closed by a stopper **31** that has a long handle **32** which projects above the water level in the wash reservoir B^1. When the operator wishes to empty the reservoir of washing water, he can grasp the top of the handle **32** which projects above the water and lift the stopper **31**. The water from the reservoir B^1 will enter the sump **26** and then will be withdrawn from the sump through the pipe **27** by the combined motor and water pump M and then will be delivered to the outlet pipe **28** and the outlet hose **29**.

It is possible in certain instances to do away with the combined motor and water pump K and to connect the hot water inlet hose **22** directly to the transverse pipe **14** so that the water will flow through the spray nozzles **16***a* and **14***b*. The water entering through the hose **22** may have a detergent mixed therewith and then the washing water after it has been used will flow directly into the reservoir B^1 and will fill it. When the wash water reaches a certain level, it will flow out through the outlet slot **25** and be conveyed away by the pipe **27** which may be directly connected to the hose **29**. The combined motor and water pump M may be eliminated and the hose **29** will convey the water to a sink or the like by gravity. This will make a much simpler and cheaper washing mechanism because the motors K and M with their water pumps will not be used.

I provide novel means for preventing water from the nozzles **16***a* and **16***b* from passing through the entrance opening **19** in the washing housing B^2. This means consists of stationary elongated brushes N that have their body portions secured to the inner surface of the front wall **20** of the housing by bolts **33**, see FIGURE 5. The brushes N have base portions **34** and these carry long bristles **35**. the bristles from the two brushes N, extend toward each other. The bristles are preferably three to four inches long so that they will yieldingly contact with the opposite faces of the plastic shields L as they are moved through the housing B. The base portions **34** have slots **36** therein for receiving the bolts **33** that adjustably secure the brushes in place. The slots permit the brushes to be moved toward or away from each other and then to be secured in position by tightening the bolts. The brushes N extend the full height of the entrance opening **19**, see FIGURE 4, and the bristles **35** will act as a curtain for preventing water from the spray nozzles **16***a* and **16***b* from passing through the entrance opening.

Between the washing housing B^2 and the rinsing housing C^2, I provide an inwardly extending split partition P,

see FIGURE 5. This partition is in two parts that are spaced from each other so as to provide an opening 37 through which the plastic shields L can pass. A pair of stationary brushes Q are secured to the partition members P and these brushes are similar to the brushes N except they are longer as shown in FIGURE 4 and have their lower ends extending partly into the washing reservoir B^1, as clearly shown in FIGURE 4. The brushes Q are adjustably secured to the spaced apart partition members P by bolts 38 and these brushes may be adjusted toward and away from each other so as to position the bristles 39 at the desired distance from each other. The brushes Q will not only act as washing members for the plastic shield L, but they will also act as curtains for preventing the washing water in the housing B^2 from entering the rinsing housing C^2. The rinse compartment C^2 can have a partition P', placed near the hollow wall D and disposed above the top of the wall, see FIGURE 4. Stationary brushes Q' may be adjustably supported by the two portions of the partition P'. These will aid in washing the plastic shields L and prevent rinse water from spray nozzles 58*a* passing into the wash compartment B^2.

Before describing the rinsing mechanism in the rinsing compartment C, it might be well to set forth the rotating washing brushes R which are mounted in the washing compartment and to also mention the roller track for supporting the plastic shields L and the guiding members S.

The rotation washing brushes R, are mounted in the wash housing B^2, see FIGURE 4. There are two rotating brushes R, and they are disposed on each side of a roller track T, that in turn extends entirely through the dual housing portions B^2 and C^2, and projects a predetermined distance in front of the entrance opening 19, and projects a predetermined distance beyond the exit opening 40 in the rinse housing C^2. The roller track T, consists of a rectangular frame 41, see FIGURE 5, that rotatably carries a plurality of transversely-extending and spaced apart rollers 42. The front wall of the washing compartment has a trough-shaped member 43, that projects beyond the entrance opening 19 and is secured to the front wall 8. FIGURES 4 and 5 illustrate the trough-shaped member 43, as receiving the exposed front end of the rectangular frame 41. Any water received by the trough-shaped member or tray 43, will be delivered through the entrance opening 19, and will drop into the wash reservoir B^1.

The rear wall 44 of the rinsing housing C^2, has a trough-shaped member 45, similar to the member 43, and the member or tray 45, projects beyond the rear exit opening 40 in the wall 44, and is secured to the lower wall portion 4. FIGURES 4 and 5 show the trough-shaped member 45, as receiving the exposed rear end of the rectangular frame 41. Any water received by the trough-shaped member or tray 45, will be delivered through the rear exit opening 40, and will drop into the rinse reservoir C^1. The two members 43 and 45 have upwardly extending flanges that will engage with the ends and adjacent side portions of the rectangular frame 41, and will hold the roller track T, from longitudinal or lateral movement with respect to the wash and rinse housings B^2 and C^2. It is possible to lift the roller track T, out from the trays 43 and 45 and to remove it from the aligned housings B^2 and C^2, if it is desired to inspect the track or to clean it or to gain better access to the wash and rinse reservoirs B^1 and C^1, respectively.

The two rotary brushes R, are supported at their lower ends by brackets 46, that project over the roller track T, and are secured to the side walls of the wash housing B^2. If necessary, the sides of the rectangular frame T, where they come close to the inner ends of the brackets 46, these side portions could be recessed inwardly to make room for the brackets. The upper ends of the rotary brushes R, are tilted toward the front wall 20 of the wash housing B^2, as clearly shown in FIGURE 4, and the shafts 47 and 47*a* for the two brushes project above the top wall of the wash housing, see FIGURES 2 and 8. Brackets 48 and 48*a* are secured to the top wall of the wash housing B^2, and rotatably support the upper ends of the rotary brush shafts 47 and 47*a*. An electric motor 49 has a belt drive connection with the shaft 47, and a second electric motor 50 has a belt drive connection with the shaft 47*a*. The arrangement is such that the shaft 47 will be rotated counterclockwise when looking at FIGURE 5, and the shaft 47*a* will be rotated clockwise.

The rotating bristles of the two brushes R will contact with opposite faces of the plastic shields L, that are moved through the aligned housings B^2 and C^2 and will aid in moving the shields from the entrance opening 19 to the exit opening 40. The inclination of the rotary brushes R, will cause the revolving bristles to tend to lift the plastic shields L, as the shields move through the wash housing B^2. This tendency for the bristles of the brushes to lift the plastic shields L will cause the bristles to move over the opposite surfaces of the shields more rapidly than the shields are moved along the roller track T, and this will cause the bristles to give a washing effect to both faces of the shields. A more efficient washing of the shields L will be the result. The motors 49 and 50 may be operated at different speeds to obtain the best washing action for the rotary brushes R.

The operator places the plastic shield L in a vertical position on the portion of the roller track that extends in front of the front wall 8. The transverse rollers 42 will support the lower edge of the tray while the operator manually moves the shield into the entrance opening 19 and between the stationary brushes N. If the plastic shield L needs more cleaning time than when it is moved into the wash housing B^2, the operator may maintain his hold on the vertical edge of the shield that will be the last to pass through the entrance opening 19, and can reciprocate the shield back and forth in the direction of the plane of the shield and this will cause the bristles of the stationary brushes N, to give a scrubbing effect to both faces of the shield. Also the inner end of the shield may pass between the rotating brushes R, and these will aid in the washing operation as the shield is moved back and forth. Another plastic shield L can be placed on the roller track T, and the operator can guide the front vertical edge of this shield into contact with the first shield with the result that the second shield will move the first one. In this way a line of shields L can be moved through the wash and rinse housings B^2 and C^2 respectively for washing and rinsing purposes.

I provide novel means for guiding and holding the plastic shields L in a vertical position as they are moved through the machine. In FIGURES 4 and 5, I show a lower pair of adjustable guides S^1 and S^2 and an upper pair of adjustable guides S^3 and S^4. The plastic shield guides S^1 to S^4 inclusive are each in the shape of an elongated rod portion 51, with ends 52 bent at right angles and pivotally secured at 53 to the front wall 8 and rear wall 40 of the machine, see also FIGURE 1. The pivots 53 for the ends 52 of all four guide members S^1 to S^4 inclusive will hold the guide members in the positions into which they have been manually swung. The swinging of the members will move the guide rod portions 51 toward or away from each other so that these can accommodate plastic shields L of varying thicknesses.

I will now describe the rinsing mechanism that is mounted in the rinse compartment C. This rinsing mechanism is practically identical to the washing mechanism in the washing compartment. A combined electric motor and water pump U, is mounted in the rinse water reservoir C^1 and it has intake opening 54, see FIGURE 4. The rinse water is drawn into the pump U, through the openings 54 and is forced out through an outlet pipe 55. This pipe 55 communicates with a transverse pipe 56 that in turn connects with a pair of rinse spray pipes 57, see also FIGURE 6. The rinse spray pipes 57 have upstanding portions each provided with a pair of rinse spray nozzles. The front spray nozzles 58*a* are arranged in

pairs with one pair disposed on one side of the roller track T, and the other pair being disposed on the opposite side of the track. Both pairs of rinse nozzles 58*a* are arranged near the central partition P that separates the washing housing B^2 from the rinsing housing C^2. Each rinse nozzle 58*a* has two vertical slots with inclined side walls for directing two flat streams of rinse water against opposite faces of the plastic shields L. The water streams will spread vertically so as to cover the opposite faces of the shields from top to bottom for rinsing them. The rinse water after use will drop into the rinse reservoir C^1 and be reused.

The rinse pipes 57 also have pairs of rear rinse spray nozzles 58*b* that are placed closer to the exit opening 40, and have vertical slots for directing rinse water at a slight angle toward the mid portion of the rinsing housing C^2 so as to rinse opposite faces of the plastic shields L as they are moved through the rinse housing C^2. The rinse sprays from the nozzles 58*b* will extend from the top to the bottom of the shield. The used rinse water will drop back into the rinse reservoir C^1 where the water may be reused. Stationary brushes V, similar to the brushes N, are placed adjacent to the exit opening 40 and bolted to the inner surface of the rear wall 44 by bolts 59, see FIGURE 5. The bristles 40′ of the pair of stationary brushes V, extend toward each other for contacting with opposite faces of the shields L, and for preventing passage of rinse water through the exit opening. The rinse water could have a liquid drying agent added thereto for causing the rinse water to flow immediately off from the shield and leave it dry. The trough-shaped member or tray 45 will catch any water draining from the shields and will return it through the exit opening 40 where it may drop back into the rinse reservoir C^1. The split partition P′ and its stationary brushes Q′ prevent rinse water from flowing into the wash compartment B^2.

The common hollow wall D, separating the two reservoirs B^1 and C^1, has an overflow slot 60 for receiving rinse water from the rinse reservoir when the water level reaches the slot. A central partition 61 extends downwardly from the top of the hollow wall D and terminates below the overflow slots 25 and 60 so as to stop wash water passing through the slot 25 from entering the rinse reservoir C^1 by means of the slot 60, and so as to stop rinse water passing through the slot 60 from entering the wash water by means of the slot 25. Any overflowing rinse water entering the slot 60 will be directed by the partition 61, downwardly and into the sump 26. From here the overflow rinse water will be drawn into the pipe 27 and forced into the pipe 28 and exhaust hose 29 by the combined motor and water pump M. The rinse reservoir C^1 has an outlet 62, similar to the outlet 30 for the wash reservoir B^1. The outlet 62 is normally closed by a stopper 63 that has a vertical handle 64 projecting above the overflow slot 60 so that the handle will extend above the water level in the rinse reservoir that is determined by the overflow slot 60.

Hot rinse water can be delivered to the rinse reservoir C^1 by a hose 65, see FIGURE 3, that is connected to a source of hot water under pressure, not shown, and the other end of the hose is connected to a hot water rinse valve 66. The valve 66 controls the flow of hot rinse water through a faucet 67 that directs the hot water downwardly and into the rinse reservoir C^1, see FIGURE 5. The operator opens the valve 66 when filling the rinse compartment with hot rinse water and closes the valve when the water level reaches the overflow slot 60. It is possible to have a steady flow of a predetermined amount of hot rinse water from the source of supply to be delivered to the rinse reservoir C^1 during the entire operation of the machine in washing plastic shields. A pair of rotary brushes similar to the brushes R, could be mounted in the rinse housing C^2, but these are not illustrated. It is also possible to have the hot rinse water from the faucet 67, communicate directly with the transverse pipe 56, if it is desired to eliminate the combined motor and water pump U. This is not shown.

I provide a switch box W in FIGURE 3 and this has four electric switches 68, 69, 70 and 71, therein. The switch box W has an electric outlet 72 that is in electrical connection with all four switches. An electric cable 73 has one end removably connected to the electric outlet 72 and has its other end connectible to a source of electricity, not shown. When the electric cable 73 is connected to an electric source, the switch 68 can be closed for starting the electric motor and water pump K in the washing compartment B. The switch 69 can also be closed for closing an electric circuit to the electric motor and water pump U, in the rinse compartment C. Also the switch 70 may be closed for connecting the electric motor and water pump M with the source of current. And finally the switch 71 may be closed for connecting the brush rotating motors 49 and 50 with the source of current through an electric cord 74 that is connected with the two motors and has an electric plug for removable connection with an electric outlet 75 in the electric box W. A housing X encloses the motors 49 and 50, see FIGURES 3 and 4.

The purpose of the electric cord 74, removably connected to the electric outlet 75 is to permit the combined washing and rinsing housings B^2 and C^2 to be lifted from the combined wash and rinse reservoirs B^1 and C^1 by means of the handles 76, secured to the combined housings when it is desired to inspect or clean the washing mechanism and the rinsing mechanism. The housing X for the electric motors 49 and 50 will be moved with the combined housings B^2 and C^2 and this will first require the electric cord 74 being removed from the outlet box W.

Operation

From the foregoing description of the various parts of the device, the operation will be readily understood. The operator closes all four electric switches 68, 69, 70 and 71, after filling the wash tank or reservoir B^1 with hot water from the hose 22 and after filling the rinse tank or reservoir C^1 with hot water from the hose 65. The guiding members S^1, S^2, S^3 and S^4, for the plastic shields L are adjusted to take care of the thickness of the shields and to hold the shields vertically and in line as they are moved through the machine.

The operator places the plastic shields L that are to be cleaned on the portion of the roller track T that projects beyond the entrance opening 19. The plastic shields are placed on the track one at a time and are fed into the machine. The first plastic shield is held in a vertical position by the guide members S^1 to S^4 inclusive and this shield is moved into the machine by the successive shields L that have an edge to edge contact with the shield there ahead.

I have already explained the washing operation of the shields L as they are moved through the washing compartment B and the rinsing operation of the shields as they are moved through the rinsing compartment C. The washed and rinsed shields L pass through the exit opening 40 and they may be removed from that portion of the roller track T that extends beyond the exit opening.

The device is portable and is made narrow enough so that it may be moved through the doorway for an office room. This permits the device to be used in an office building and be moved into the room where the plastic shields are that form a part of the fluorescent lighting. The hoses 22 and 65 can be made long enough to connect with a source of hot water supply under pressure that may not be in the room where the machine is placed. The drain hose 29 may also be long and connected to a drain for carrying away the overflow water or when emptying the wash and rinse reservoirs B^1 and C^1.

The stationary brushes N and V will prevent the wash water from passing through the entrance opening 19 and the rinse water from passing through the exit opening

40. The device can therefore be used in a furnished office room and will not damage the furniture, rugs, or other articles. The draw bar or tongue G, permits the device to be moved from room to room or attached to a power vehicle for transportation on a street.

In FIGURE 6, I indicate a hollow conduit 77 for conveying the electric wires, not shown, from the motor K to the switch box W, these wires being connected to the switch 68. I also show a conduit 78 for housing the electric wires, not shown, that connect the motor U to the switch 69. The conduits 77 and 78 keep the wires from being submerged in the wash water in the reservoir B^1 and the rinse water in the reservoir C^1, respectively.

The split partition P with its stationary brushes Q, prevent wash water in the wash housing B^2 from entering the rinse housing C^2. In like manner the split partition P' with its stationary brushes Q', prevent rinse water in the rinse housing C^2 from entering the wash housing B^2. In fact the bristles 35 and 39 confine the wash water to the wash housing B^2, and the bristles 39' and 40' confine the rinse water to the rinse housing C^2.

I claim:

1. A device of the type described comprising:

(*a*) a washing compartment for plastic shields used in fluorescent lights and having a lower reservoir for holding wash water and an upper housing with an entrance opening at one end for receiving the shields;

(*b*) a rinsing compartment having a lower reservoir for holding rinse water and an upper housing with an exit opening at one end for permitting the rinsed shields to pass therethrough;

(*c*) means for supporting the shields as they are moved through the washing and rinsing compartment;

(*d*) means in the washing compartment for washing the shields;

(*e*) means in the rinsing compartment for rinsing the shields;

(*f*) a pair of stationary brushes at the entrance opening;

(*g*) a pair of stationary brushes at the exit opening;

(*h*) a common hollow wall having spaced apart sides for separating the washing compartment lower reservoir from the rinsing compartment lower reservoir and having a closed top and a depending central partition extending downwardly into the hollow wall a predetermined distance and being spaced from the two sides;

(*i*) the two sides of said hollow wall having water overflow outlets communicating with the washing compartment lower reservoir and with the rinsing compartment lower reservoir, said overflow outlets being disposed above the bottom of said depending central partition for preventing any wash water from flowing from the wash water reservoir into the rinse water reservoir and vice versa;

(*j*) means for draining any water entering the interior of said hollow wall;

(*k*) a first inner partition in the housing for the washing compartment and being positioned substantially directly above the side of said hollow wall whose overflow outlet receives excess water from the washing compartment lower reservoir, said first inner partition having a slot for permitting the shields to pass from the washing compartment;

(*l*) a second inner partition in the housing for the rinsing compartment and being spaced from said first inner partition and being positioned substantially directly above the other side of said hollow wall whose overflow outlet receives excess water from the rinsing compartment lower reservoir, said second inner partition having a slot for permitting the shields to pass into the rinsing compartment; and

(*m*) stationary brushes extending across the slots in said first and second inner partitions and cooperating with said partitions for preventing wash and rinse water issuing from said washing and rinsing means in the washing and rinsing compartments from entering the space between said first and second inner partitions and flowing into the water-receiving reservoir of the other compartment.

2. The combination as set forth in claim 1: and in which

(*a*) said means in the washing compartment includes a pair of rotatable brushes mounted in the upper housing of said washing compartment and adapted to contact opposite sides of the shields moving through the housing; and

(*b*) means for rotating said brushes for causing them to aid in washing both sides of the shield.

3. In a device of the type described: a wash reservoir and a rinse reservoir; a common hollow wall separating the two reservoirs; said common hollow wall having an overflow slot in one side communicating with the wash reservoir and having an overflow slot in the other side communicating with the rinse reservoir; said common hollow wall having a top and a central partition extending downwardly from the top to a point below the two overflow slots; whereby overflow water from either reservoir when passing through its overflow slot will strike the central partition and be prevented from flowing on through the other slot and into the other reservoir; and a water outlet communicating with the bottom of the hollow wall.

4. The combination as set forth in claim 3: and in which the two reservoirs each have an outlet opening communicating with the water outlet; and a stopper for each outlet and having an upright handle that extends above the overflow slots in the hollow wall; whereby the handles will project above the water levels in the two reservoirs and permit the ready removal of the stoppers when it is desired to drain the reservoirs.

References Cited by the Examiner

UNITED STATES PATENTS

1,664,637	4/28	Merseles et al.	134—72
1,817,332	8/31	Worrall	15—77
2,010,195	8/35	Meehan	134—72 X
2,282,628	5/42	Whann et al.	15—77 X
2,439,305	4/48	Johnson	15—77
2,835,909	5/58	Carlstrom	15—77
3,035,539	5/62	Jennings	15—77 X
3,098,250	7/63	Creech	15—77

FOREIGN PATENTS

166,613	3/59	Sweden.

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