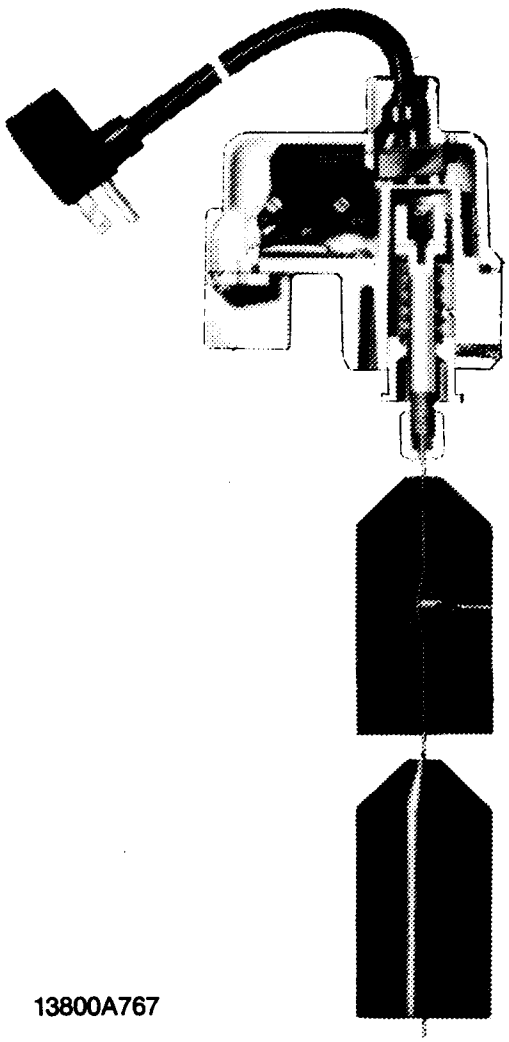
ALC Adjustable Level Control

INSTALLATION AND SERVICING INSTRUCTIONS FOR MYERS ALC ADJUSTABLE LEVEL SEALED SUMP LEVEL CONTROL



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The ALC control is made in 5 models.

1. ALC-8P is control with 8 ft. cord and plug for 115 volts.
2. ALC-8P2 is control with 8 ft. cord and plug for 230 volts.
3. ALC-18P is control with 18 ft. cord and plug for 115 volts.
4. ALC-18P2 is control with 18 ft. cord and plug for 230 volts.

All plugs are series piggy back type so that pump cord can be plugged into back.

PACKAGING — Each control is packaged separately and includes switch with cord and two adjustable level weights and 30 inches of nylon support cable.

The ALC-15 unit has 108 inches of cable. A plastic cable tie is supplied to mount switches to discharge pipe.

Each carton is marked with model number and ordering number.

DESCRIPTION OF SWITCH – The ALC control is a completely sealed level switch operated by a permanent magnet. Fig 1 shows section of switch with parts call out.

Any on-off level within the limits of the switch can be obtained by adjusting weights on the support cable.

The set screw that holds the weight is ¼" socket head stainless steel. Hex wrench is needed to adjust weights. See Fig 2.

Spring bushing shown in Fig 1 is set at factory and is not to be adjusted. Method of adjusting is given later under dismantling instructions.

Switch plug is of the series type and is for plugging directly into 115 or 230 volt grounded receptacle. The grounded type pump cord is plugged into the back end of the series control plug for automatic operation.

This switch can be used with any manual sump pump within the rating of the switch for automatic operation, or in pilot circuit using magnetic starter.

Switch is rated 1 HP – 115 volts or 2 HP – 230 volts A.C.

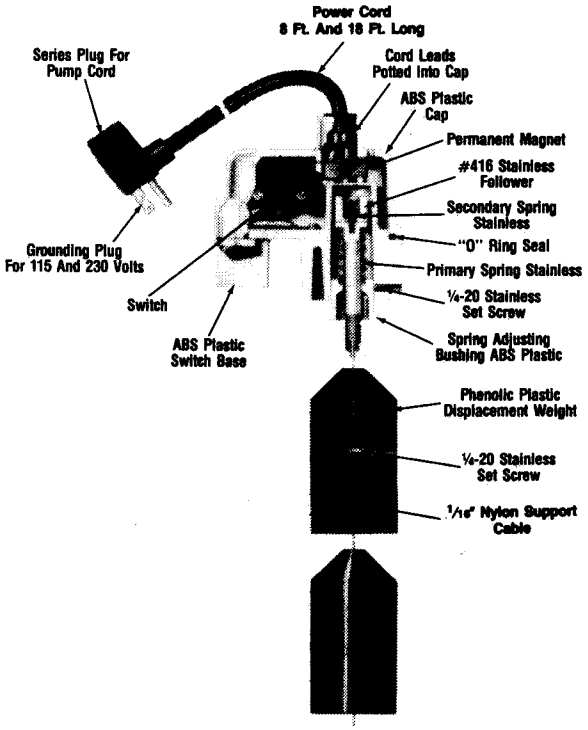


FIG. 1

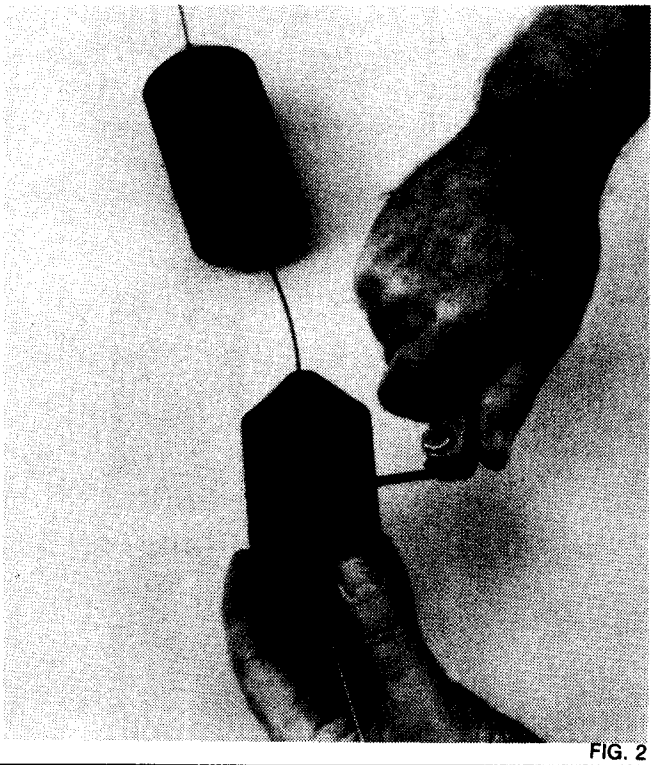


FIG. 2

MOUNTING– Switch can be mounted on the discharge pipe under the cover as shown in Fig 3 or can be mounted through flange on pump cover for sewage pump application as shown in Fig 4.

When switch is mounted on discharge pipe Fig 3, the switch must be positioned so that weights hang free without touching pump and are opposite inlet pipe as shown.

Weights must be secured on neoprene covered cable so that bottom of lower weight is at least 4 inches off sump bottom and top of upper weight is below bottom of inlet pipe.

Excess cable must be cut-off flush with bottom of lower weight Fig 5. After cutting cable, loosen set screw of lower weight and slide weight down ¼ inch so that end of cable will not be exposed. If cable is exposed, it may catch trash and cause faulty switch operation.

When switch is mounted through cover Fig 4, cable must be pre-cut and weights set on cable before installing.

Measure depth of sump basin from top of flange and cut cable so that bottom of lower weight will be about 4" off bottom. Again adjust lower weight so that end of cable will not be exposed. Adjust upper weight so that top of weight is below bottom of inlet pipe.

In either type installation, Fig 3 & Fig 4, be sure all excess pump and control cord is taken above basin and is coiled and taped as shown Fig 3 & Fig 4. Do not leave excess cable in basin as it may tangle with weights and cause switch to malfunction.

Where switch is installed through flange Fig 4, be sure sealing "O" ring is in place in flange so that switch body will seal when pushed into flange. When metal flange is supplied, adjust set screw in flange so that switch will be held in place.

SWITCH OPERATION– This switch is completely sealed and has no vent cords or operating floats.

The construction is as shown by Fig 1. The displacement weights for level adjustment are heavier than water but are lighter under water by the weight of water they displace.

As the weights do not float, splashing or turbulence in the sump does not cause erratic operation.

In operation when the water rises in the sump the lower weight is covered and loses some weight by the weight of water it displaces

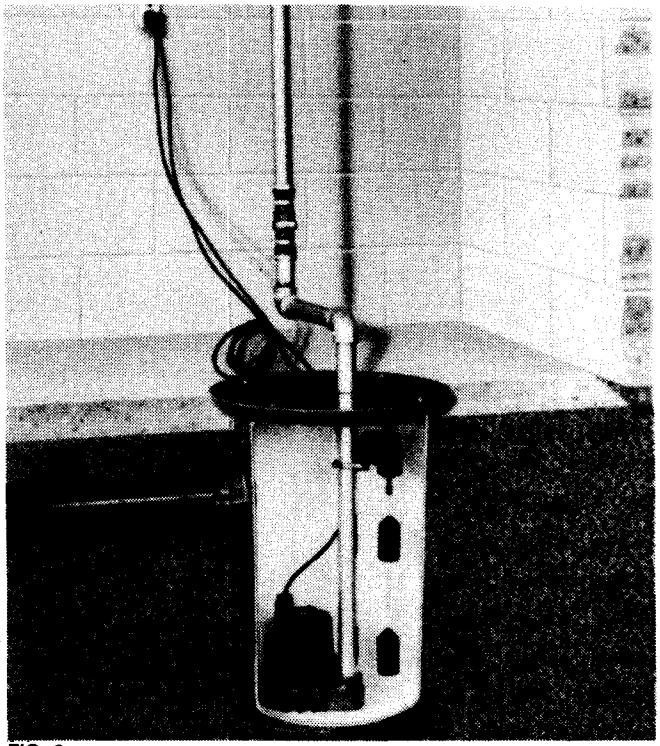


FIG. 3

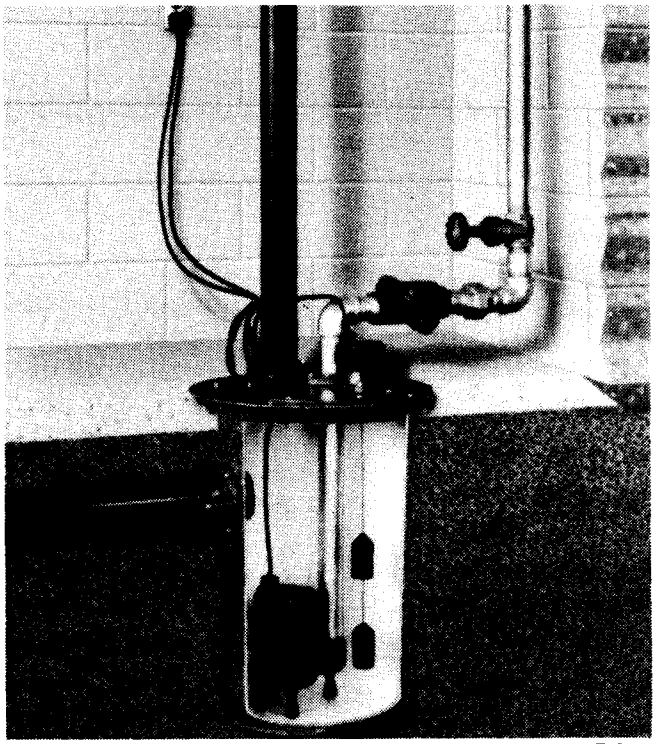


FIG. 4

which reduces some load on the primary spring. As the level continues to rise, the upper weight will be partially submerged and when about ½ of the upper weight is submerged the load on the primary spring will be further reduced and the magnetic follower will move up and attract the permanent magnet energizing the switch to start pump. The pump down operation is just the opposite. First, the upper weight is exposed and the weight increases on the spring, when the level drains down until about ½ the lower weight is out of water the load on the spring will increase further and the follower will be pulled from the magnet de-energizing the switch to stop pump.

As the position of the displacement weights on the cable does not change their weight, the spacing of the weights will give the draw off required.

STARTING PUMP AND CHECKING SWITCH OPERATION

1. Install pump and switch per previous instructions. On sewage pump installations, the pump cord comes through sump cover and is sealed with split rubber plug. A second opening is left in the cover and a solid plug is supplied to fill hole. This hole can be used if a separate alarm control is required.
2. Plug switch plug into grounded receptacle 115 or 230 volt as required.
3. Plug pump cord plug into back of switch plug. See Fig 6.
4. Run water into sump and when about ½ of upper weight is submerged, pump should start and pump sump level down until about ½ of lower weight is out of water at which point pump should stop. In sealed sewage sumps, one of the rubber plugs can be taken out of cover and a flashlight can be used to check switch operation through the hole.
5. If pump does not start as described, remove switch and pump plugs and plug pump cord directly into receptacle as shown by Fig 7. If pump starts and operates, it will indicate switch is not operating due to hanging up of the weights or other causes. If pump does not start, check for blown fuse or tripped circuit breaker or defective pump.
6. CAUTION – Never plug switch into ungrounded receptacle. Do not cut off grounding pin or use an adapter in ungrounded receptacle.

Further description of switch operation and checking for defects will be given in these instructions.

CHECK POINTS IF PUMP DOES NOT OPERATE

1. Be sure fuse is not blown or circuit breaker tripped.
2. Be sure weights hang free and do not touch pump or basin walls.
3. Be sure switch body is mounted vertical and is not turned or twisted on mounting pipe.
4. Be sure bottom of lower weight is at least 4 inches off sump bottom.
5. Be sure support cable does not extend below bottom of lower weight.

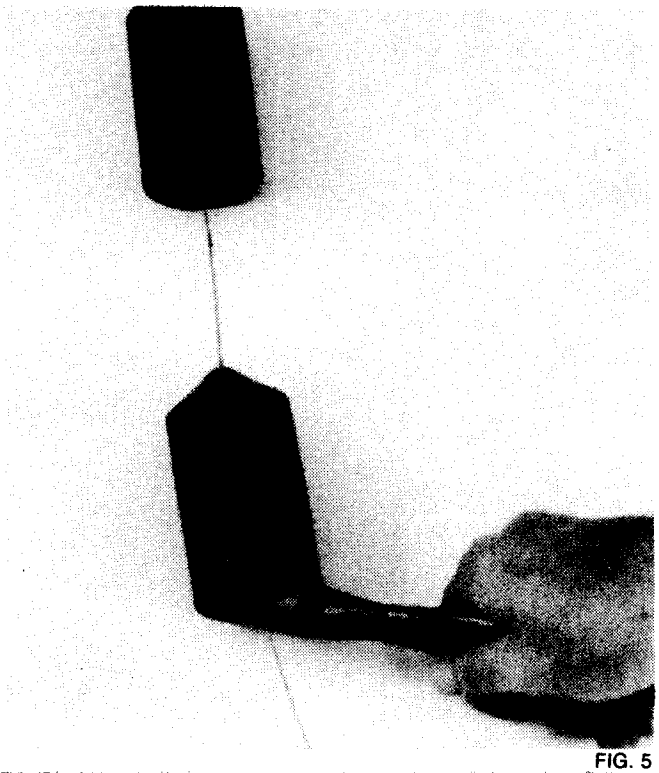


FIG. 5

6. Be sure excess pump and control cord is coiled and taped above sump cover. See Fig 3 & Fig 4.
7. Be sure pump and control cord plugs are firmly pressed together and into grounded receptacle.
8. Pump may run but not deliver water. Start and stop pump several times by plugging pump in and out. Air may be trapped in pump case, starting and stopping will release air.
9. CAUTION: Always unplug pump and switch before removing from sump.

DISMANTLING SWITCH FOR CLEANING OR REPLACING PARTS

1. Loosen set screw that holds spring adjusting bushing Fig 8. Set screw is socket head ¼ inch stainless steel.
2. Remove actuating assembly and clean all parts and hole in switch base Fig 9.
3. Remove assembly screws Fig 10.
4. Lift cap from body Fig 11.
5. To replace switch and magnet, remove holding screws Fig 12 and disconnect wires Fig 13.

   Connect wires to new switch and mount in place with screws. Be sure to use lock washers under nuts. The ground wire is connected for safety in case water should get into switch chamber. Plastic housing gives good protection against live wire grounding.

   To properly set switch, just snug up on bolts then push up on magnet end of switch body to take slack out of holes. Press up on switch body only, not on switch arm. Tighten bolts.

   When switch arm is pushed down, magnet face should lie flat against plastic face and switch should click on. Raise arm and switch should click off. If switch does not click on and off properly, loosen screws and move switch for best adjustment.

   Make this test before follower assembly is re-installed.
6. Replace switch cap.

   CAUTION – Be sure seal "O" ring is in place and that all wires are tucked behind switch mounting flange so that they cannot interfere with switch arm operation.
7. Replace follower assembly and set spring adjusting bushing. Inner face of bushing

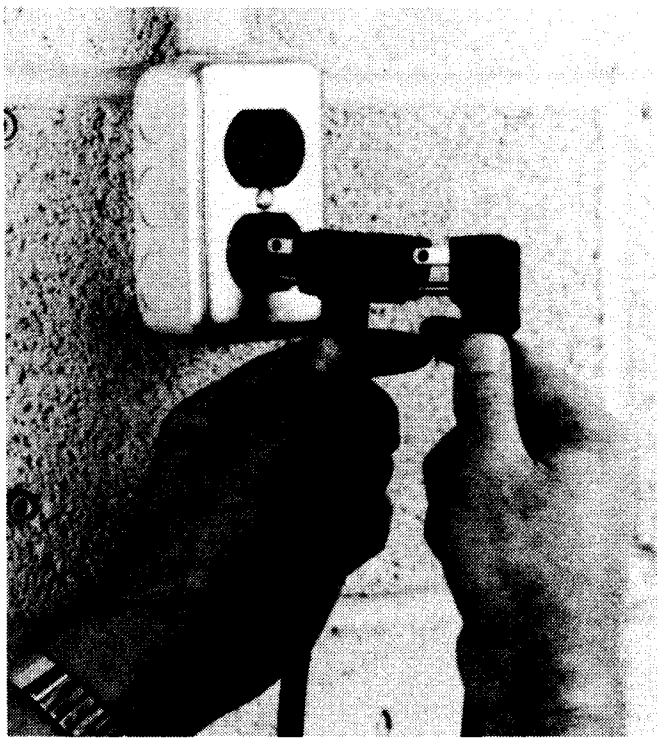


FIG. 6

FIG. 7

flange should be about ¼ inch from face of housing. Snug up on set screw to hold bushing in place. Fig 14.

8. To check switch operation use following steps:
   a. Plug switch cord into grounded receptacle or grounded extension cord 115 volts and plug night type light into back of plug.
   b. Set weights on cable about 2 inches apart.
   c. Hold switch vertically and lower until weights are submerged in bucket of water.
   d. When upper weight is about ½ out of water, test light should come on. Fig 15.
   e. Raise switch until about ½ of lower weight is out of water and light should go out. Fig 16.
   f. If light turns on when less than ½ of weight is out of water, loosen set screw in spring bushing and push bushing in about 1/32 to 3/64 inches. Turn bushing so that set screw point will not come back into same groove. Measure spacing before and after adjustment. Fig 14. If light turns on when more than ½ of upper weight is out of water, loosen bushing screw and pull bushing out about 1/32 to 3/64 inches and measure as above. Tighten set screw to hold bushing in place.

      It may take two adjustments to get proper setting.

      It may not be possible to get both upper and lower weights to operate at ½ height for on and off. If levels vary on either weight, the operation will be satisfactory as the ½ weight not used gives considerable safety factor. Be sure no cable extends below lower weight on these tests.
9. Re-set weights on cable for on-off levels required and install in sump.

230 VOLT SWITCHES

1. To test 230 volt switches use Neon tester in the blade openings of series plug. See Fig 17.
2. CAUTION – DO NOT USE 115 VOLT NITE LIGHT AS IT WILL BLOW OUT ON 230 VOLT CIRCUIT.

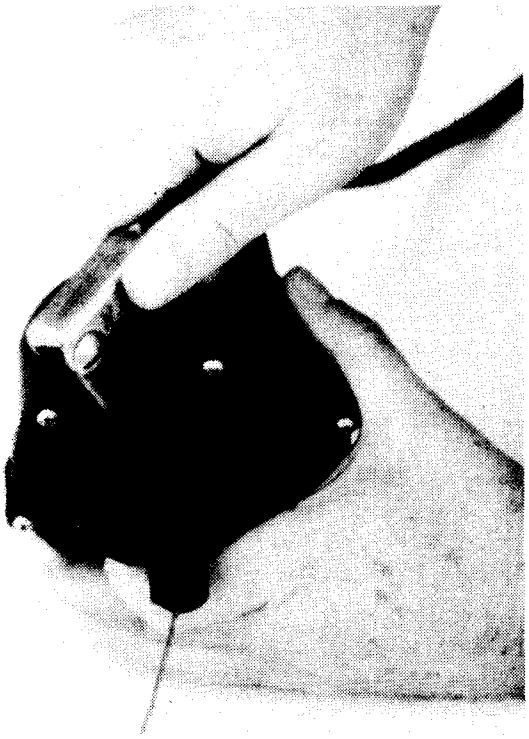


FIG. 8

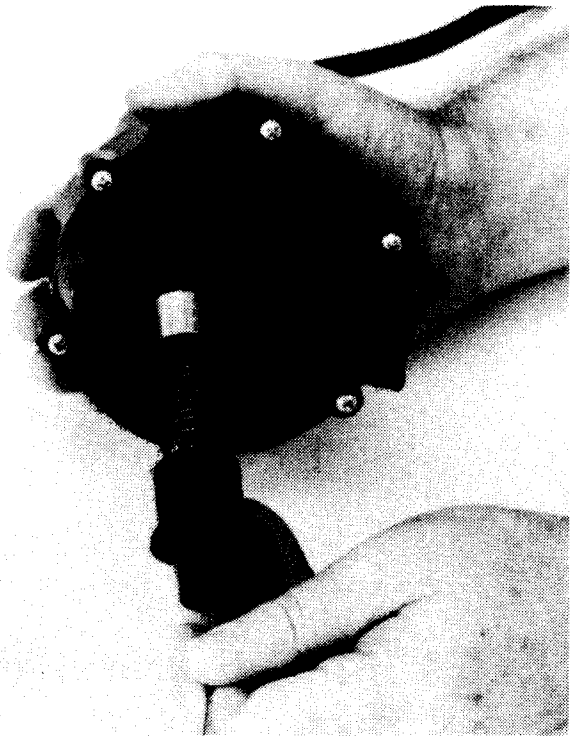


FIG. 9

FIG. 10

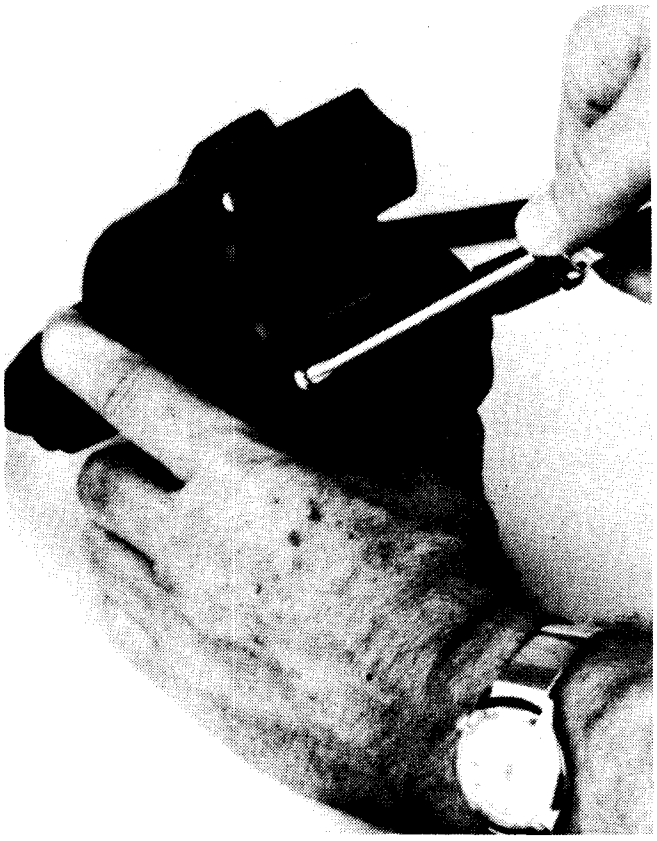


FIG. 11

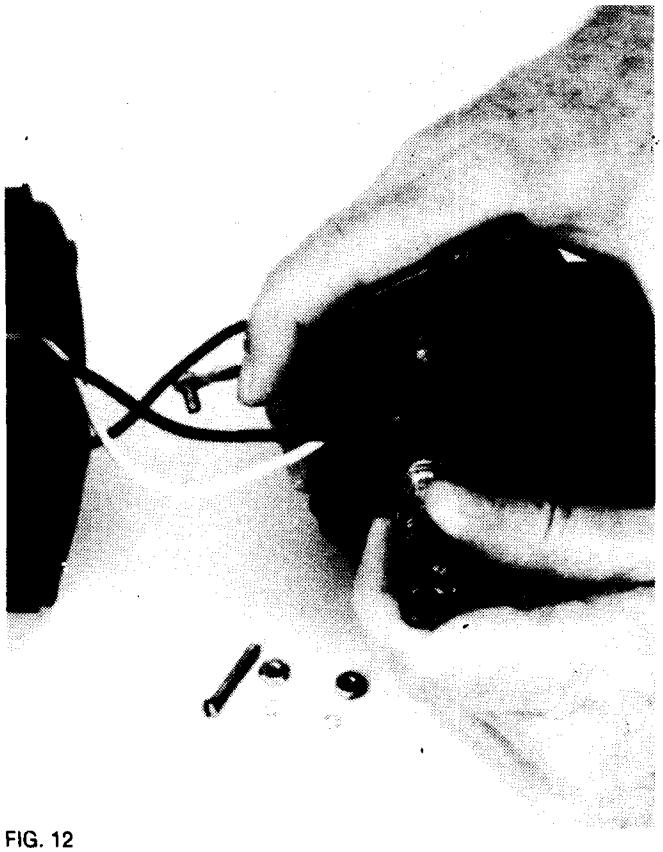


FIG. 12

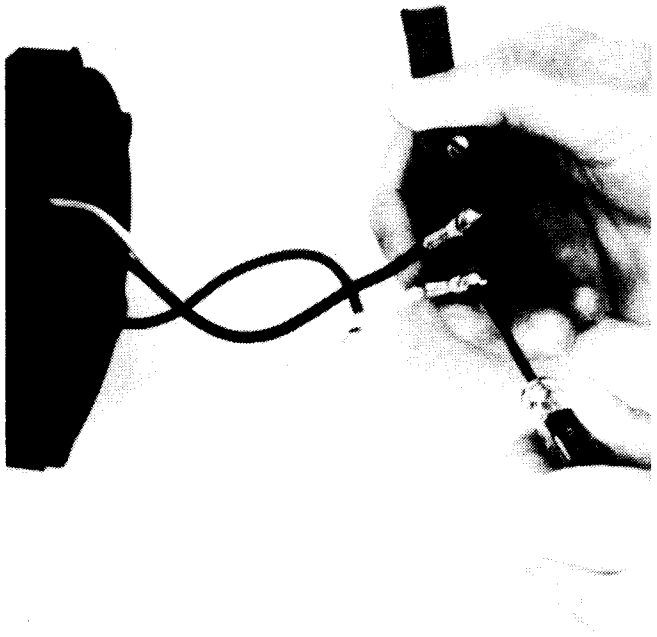
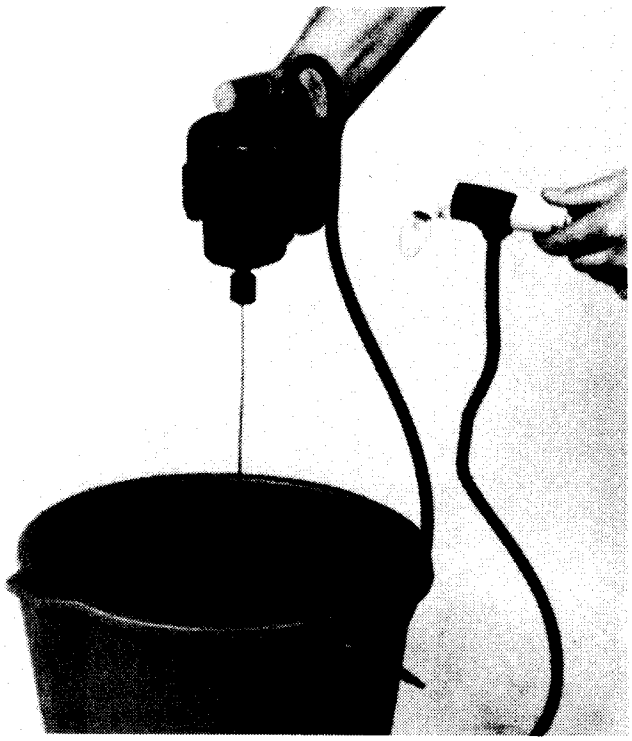


FIG. 13

FIG. 14

FIG. 15



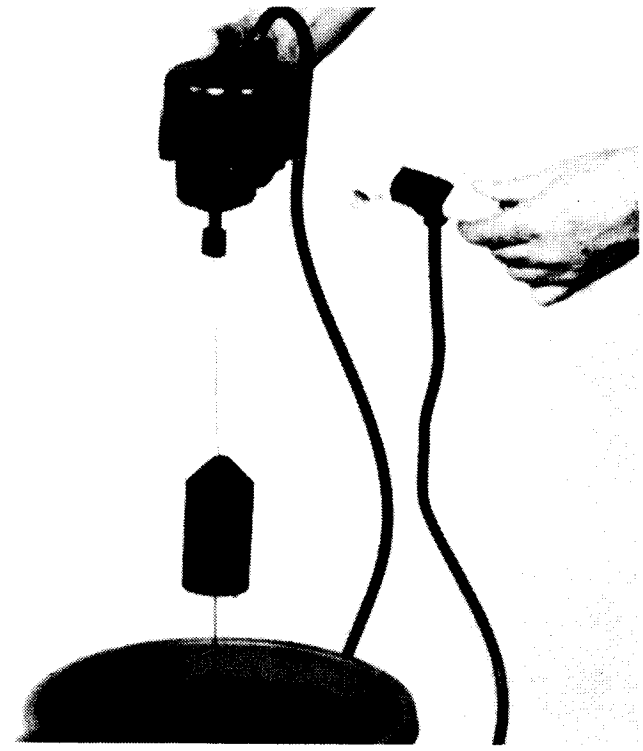


FIG. 16

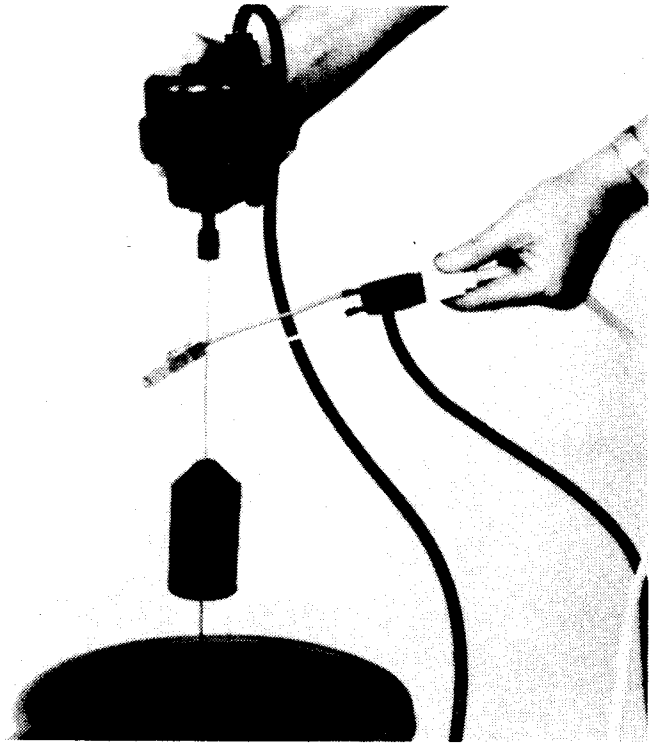


FIG. 17

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