MValve

A smart solution to replace the very old U-trap, conventionally used in air condition water drain application!

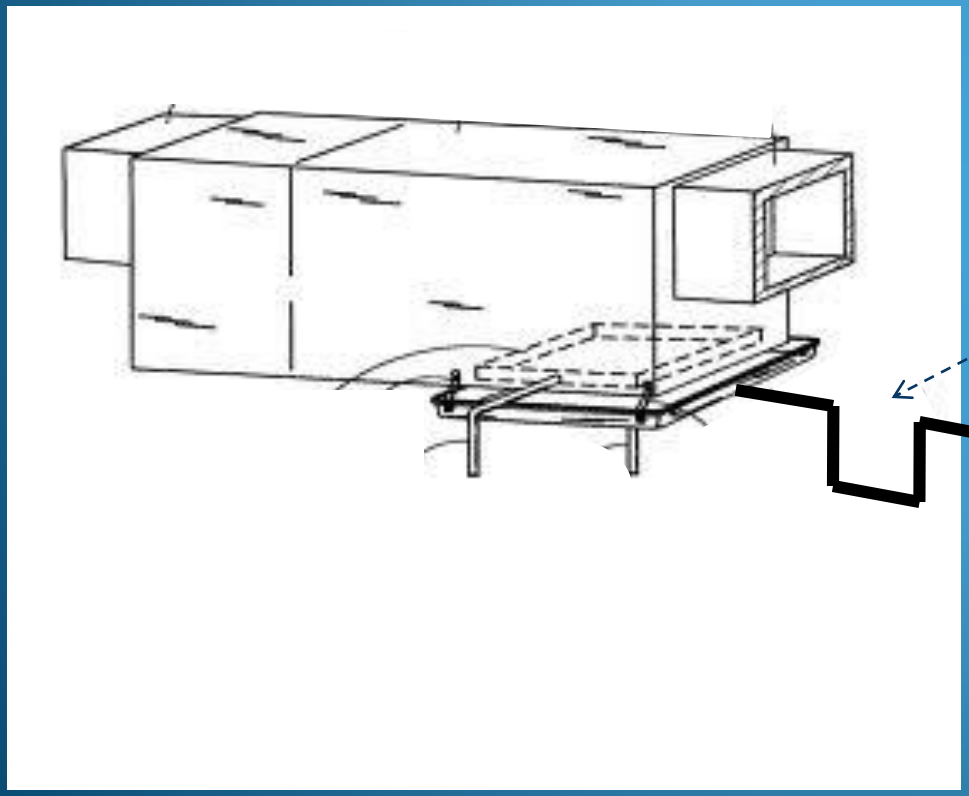
Thomas Crapper
1880

The U-trap main objective is to stop bad smell entering into the premises

Patent Application Number 61/578,884

The Actual U-trap Technique

Place a U-trap on the water condensation drain pipe, just after the AC unit drip tray



The Installation Difficulties

- Around 30 cm false ceiling height is required for U-trap fitting and drain pipe slope of approx. 10 degrees angle (c/o architects and designers)
- Three straight pipes and 4 elbows are glued to produce a U-trap (manual cut, no standard) or pre-designed /pre-built models at a higher cost
- The U-trap is placed very close to the drip tray due to false ceiling height and service requirements
- Because of thermal energy transfer and stagnant cold water in the U-trap, drain lines may sweat and insulation foam is required to counter the situation (extra cost, time and difficulty to remove/repair)
- A removable ceiling trap is placed close to the AC unit for regular access, service and repair

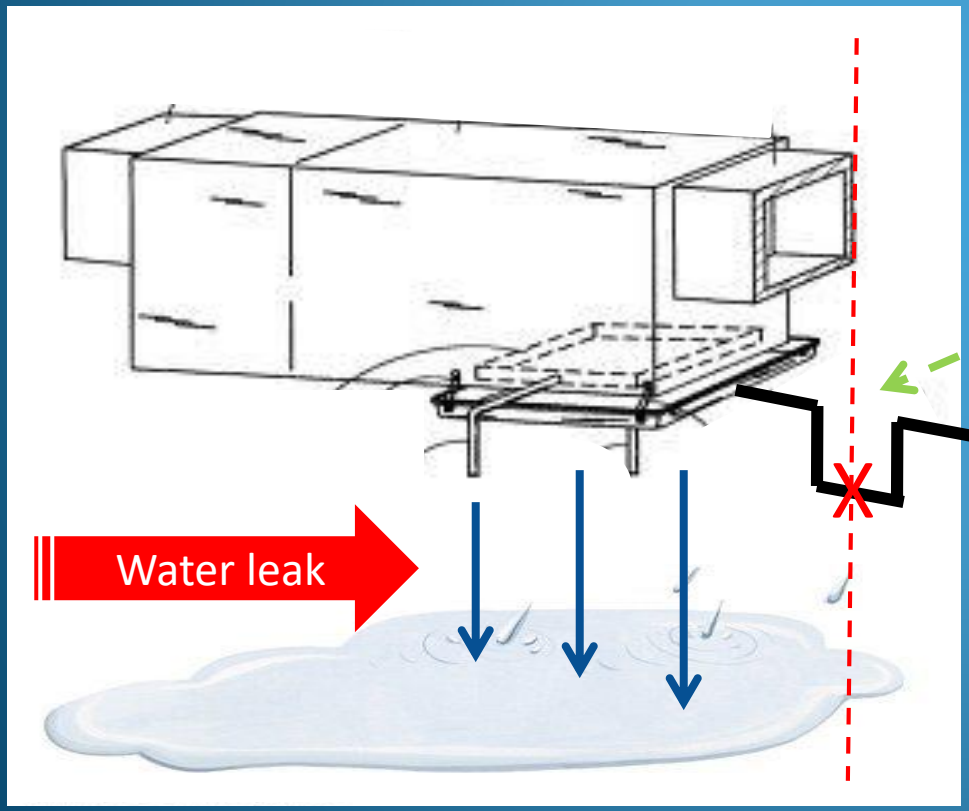
The Main Problems

- After few months of Air Condition operation, air particles, dust and fungus will accumulate in the drip tray and will find their way inside the drain pipe
- When they reach the U-trap, they cannot cross it and therefore, will block the water stream resulting in back flow and water leak inside the premise
- If the Air Condition is not used for some time, the water inside the U-trap will evaporate and the bad smell will emerge! Once the AC unit is operated for few minutes, the U-trap is filled with water and the bad smell disappears
- And the cycle continues indefinitely…

- *Indoor Air Quality (IAQ)*
- *Water accumulating in the drip tray affects dramatically the IAQ. This problem was never tackled and remain unresolved … until now!*
- *See MTray, the radical solution for all Air Condition Units*

Air Condition Draining

The U-trap Problem



The Actual Solutions

Option 1 – Preventive Maintenance

- Run periodic preventive maintenance service (quarterly in general) where a team of 1 or 2 technicians will:
  - Call for appointment (secretary needed)
  - Visit the premise on agreed day and time
  - Fix a ladder to reach and open the false ceiling
  - Use AC gas or water jet pipeline to flash the drain pipe hoping to clean the U-trap
  - No evidence or tangible facts on U-trap cleaning status (% ?)
  - Oblige a premise full cleaning after each visit
  - Make unhappy client – every visit !

The Actual Solutions

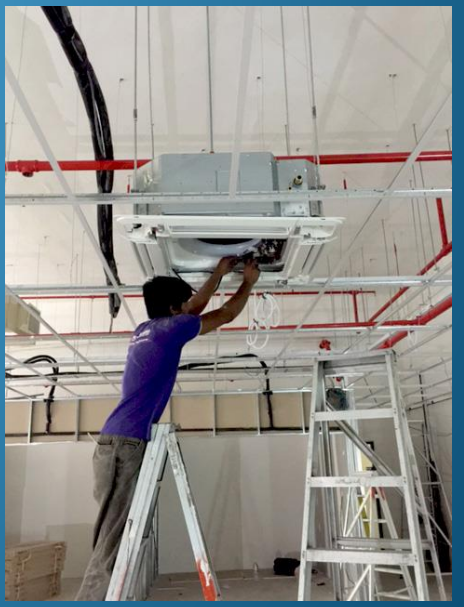
Option 2

- **Do nothing** and wait for the water leak to happen.

- Then what?
- Go back to Option 1
- and
- Suffer damages repairing cost that will occur to the facility (ceiling, furniture, documents, carpet,…)
- Precious operating time

The U-trap Cost Implications

- Actual running costs:
  - The U-trap price (handmade or ready product)
  - Manpower (in general a permanent team of 2x technicians)
  - Period of cleaning work: Daily, 8 hours per day min.
  - Location: Team is dedicated to one building
  - Consumables: AC Gas/cylinder, water pipeline, basket, sealant, cleaning material, …
  - Time of each FCU cleaning service: approx. 1 hour
  - Total number of FCUs cleaned per day: approx. 6 to 8
  - Number of teams required: Number of FCUs/8/day = Capacity and number of teams required (for large buildings/towers)
  - Unexpected repeated cleaning services (U-trap blind operation)



MValve The New Revolution

MValve The Smart Solution

MValve is a very new, simple and smart 25 cm full transparent PVC pipe with built-in one way air valve allowing water to drain freely and blocking bad smell from coming back into the premises!

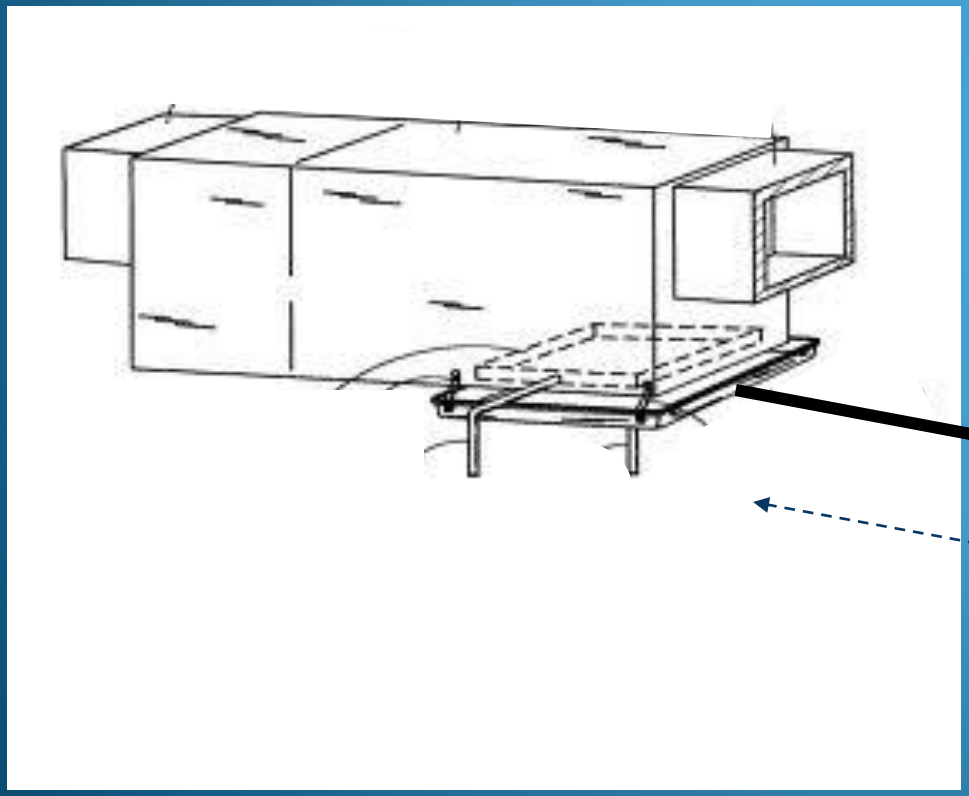
It replaces the very old **U-trap** used to drain water in air condition systems.

After installation, technicians can simply check the proper operation at all times - visually - without the need to "guess" the U-trap dirt and fungus accumulation status inside.

The Advantages

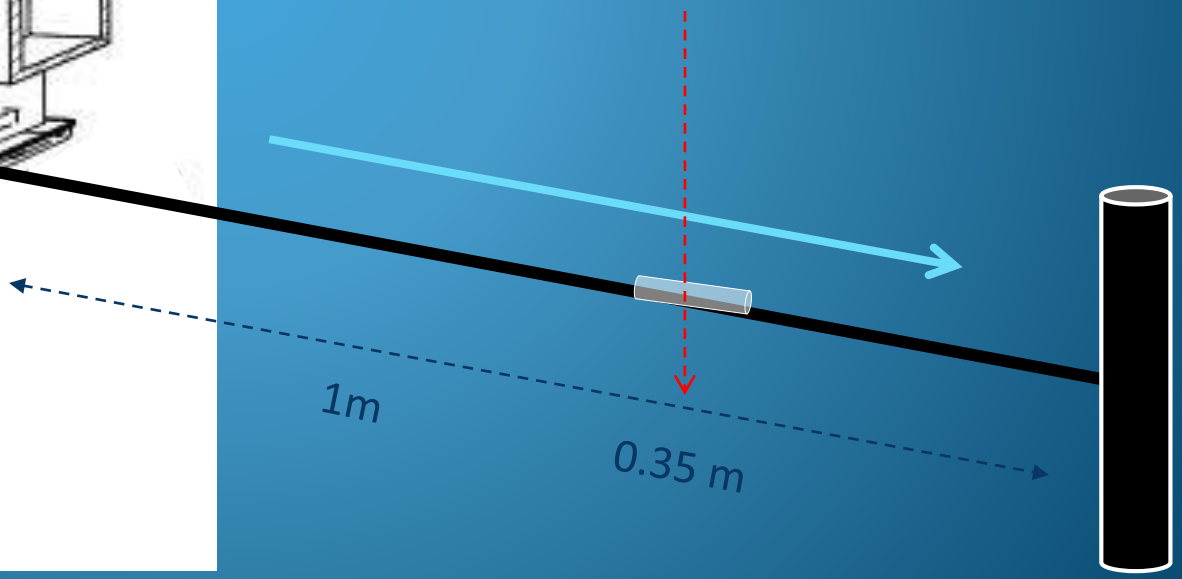
- 25 cm in length, standard 25 mm Outer Diameter
- Full transparent PVC material allowing visual check anytime
- Rust proof, water proof, stain proof
- Only two straight connecting pipes needed, no gluing
- Can be placed anywhere on the drain pipe *(recommended at 1/3 of pipe length),* even vertical
- Lowest height in false ceiling space
- **No more frequent water leakage**
- **No more bad smell**
- **Less frequent technician service visits**
- **No mechanical parts - Virtually maintenance free**
- **Very happy technicians and clients!**

MValve The New Solution



MValve position on pipe:

At 1/3rd of pipe length



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MValve Comparison

MValve | The Water Drain Revolution !

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MValve

Comparison

MValve Technical Specifications

• Material	PVC
• Color	Full Transparent
• Length	250 mm
• Outer Diameter	25 mm (ISO standard)
• Wall Thickness	2.0 mm (ISO standard)
• Water dispatch power	approx. 2 liters per minute
• Slope angle	Minimum 10 degrees
• Service	Virtually maintenance free
• Tools	None