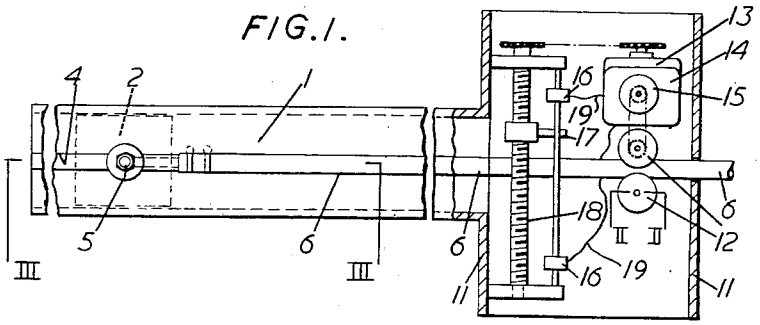
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LIQUID SPRAY ARRANGEMENTS

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FIG. 1.



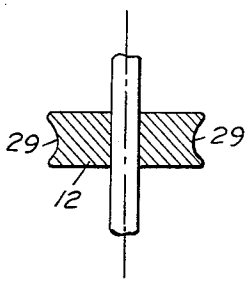
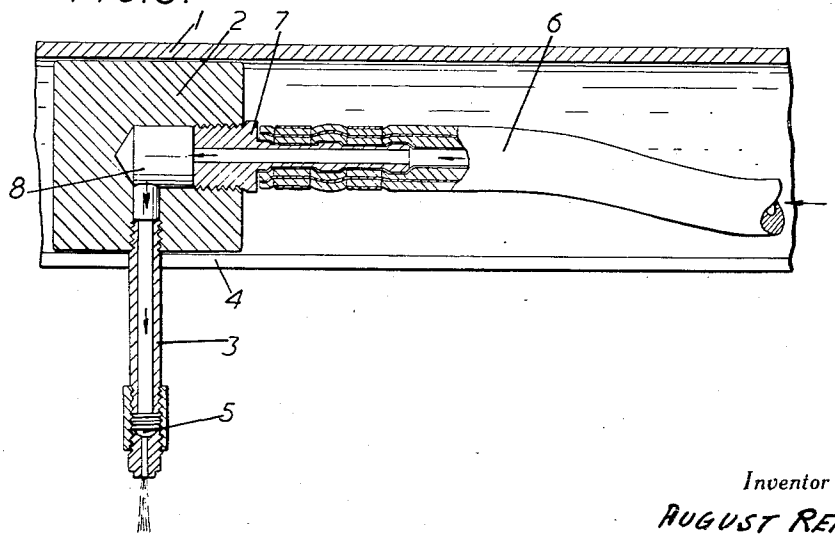


FIG. 2.

FIG. 3.



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FIG. 5.

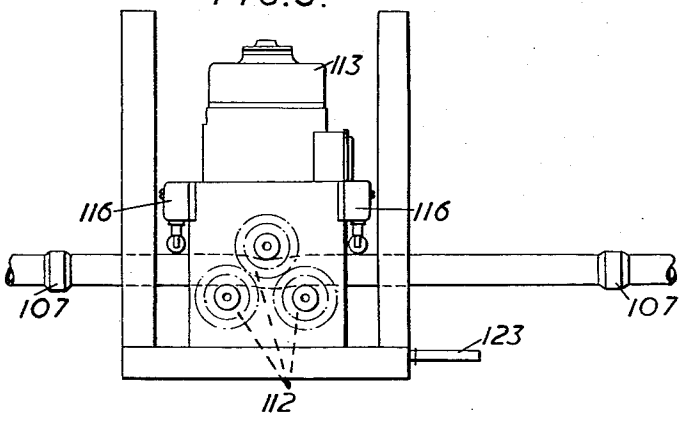
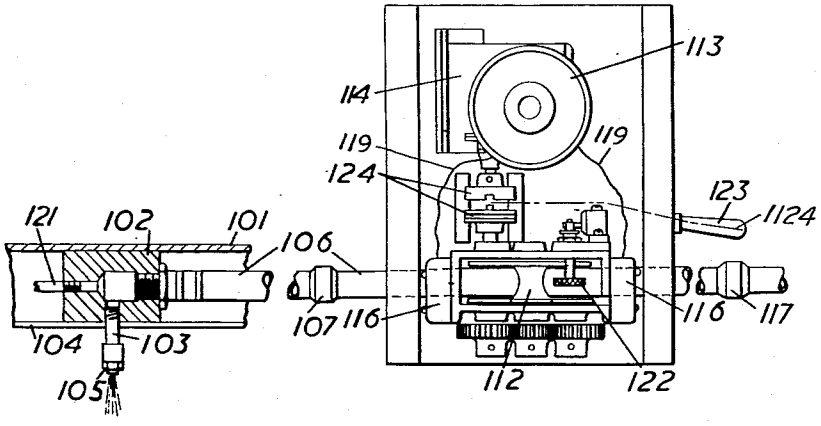


FIG. 4.



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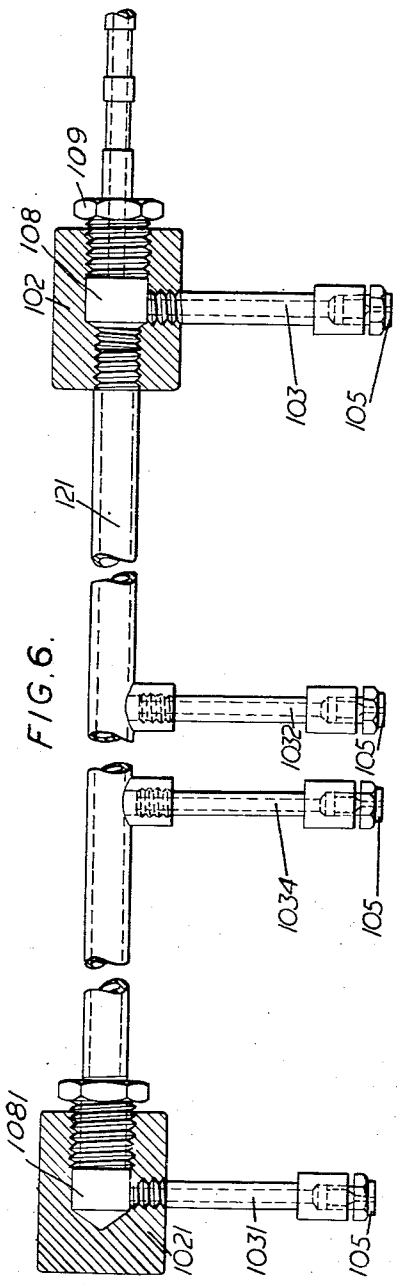


FIG. 6.

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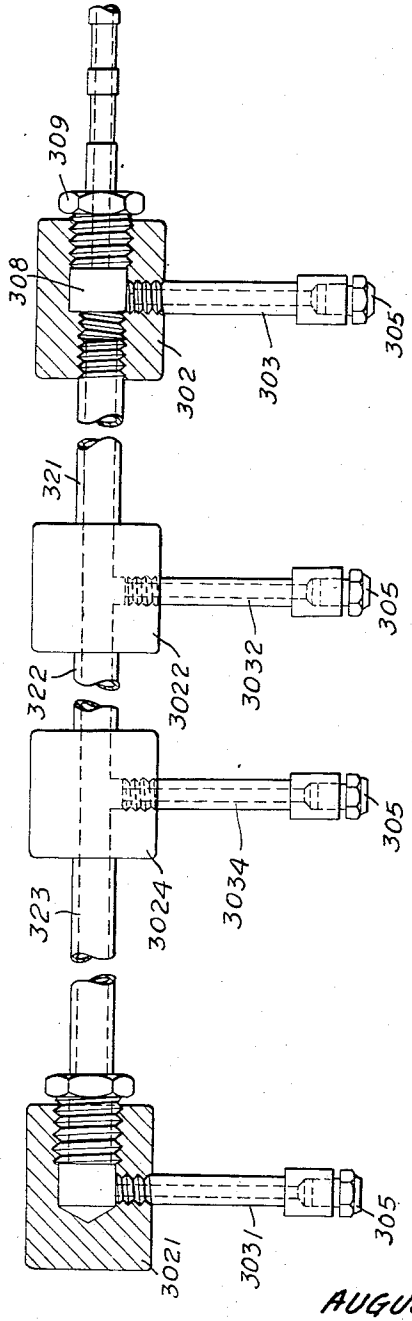


FIG. 7.

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LIQUID SPRAY ARRANGEMENTS

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Claims priority, application Great Britain Feb. 27, 1957

2 Claims. (Cl. 239—184)

The invention relates to liquid spray arrangements.

It is an object of the invention to provide an improved liquid spray arrangement for use, for example, in connection with paper and board making equipment, such as moving wires, drums, strainers, felts.

It is a further object of the invention to provide such a liquid spray arrangement in which moving spray means are provided.

It is a still further object of the invention to provide a movable liquid spray arrangement which operates automatically.

These and other objects and advantages of the invention will become apparent to those skilled in the art from the following description when read in conjunction with the accompanying drawings which by way of example illustrate specific embodiments of the invention and in which:

Fig. 1 is a fragmentary view, somewhat diagrammatical of an arrangement of the invention;

Fig. 2 is a sectional view of a friction drive roller of the arrangement of Fig. 1, the view being taken on the line II—II of Fig. 1;

Fig. 3 is a sectional view of part of the arrangement of Fig. 1, but to a larger scale than Fig. 1, the view being taken on the line III—III of Fig. 1;

Fig. 4 is a plan view, partly in section and partly broken away, of a modified arrangement;

Fig. 5 is an elevational view of part of the arrangement of Fig. 4;

Fig. 6 illustrates a detail of the arrangement of Figs. 4 and 5 partly in section and partly broken away, to a larger scale than Figs. 4 and 5; and

Fig. 7 illustrates a modification of the detail of Fig. 6.

The arrangement illustrated in Figs. 1 and 2 comprises a guide tube **1** within which a cylindrical block **2** constituting a spray head is slidably arranged. A spray nozzle adaptor **3** in the form of a length of tube, is connected to the block **2**, the adaptor **3** passing through a slot **4** in the guide tube **1**. The free end of the spray nozzle adaptor **3** is provided with a suitable spray nozzle **5**. A supply hose **6**, part of which is arranged within the slotted guide tube **1**, is connected by a hose adaptor **7** to the block **2** which has a passage **8** machined therein which enables the supply hose **6** to communicate with the spray nozzle adaptor **3**.

At one end of the slotted guide tube **1** a housing **11** is provided in which friction drive rollers **12** are arranged, which have concave co-operating faces **29** between which the supply hose **6** extends. Conventional spring means (not shown) are provided to press the friction drive rollers **12** against the supply hose **6**. An electric motor **13** is connected through a reduction gear **14** and a drive member **15** to one of the rollers **12**. Two adjustable reversing switches **16** which are connected to the motor **13** by connecting wires **19**, and which are operable by a stop **17** riding on a screw threaded spindle **18** rotatable by the electric motor **13** serve to cause reversal of the direction of rotation of the motor **13** when the stop **17** reaches one or the other of the reversing switches **16**.

The arrangement operates as follows:

When water under pressure is supplied to the supply hose **6** a spray of water is created by and emerges from the spray nozzle **5**. Rotation of the electric motor **13** causes the friction drive roller **12** which is driven by the electric motor **13** to rotate, whereby the supply hose **6** is continuously moved in the longitudinal direction of the slotted guide tube **1**, the spray head block **2**, the nozzle adaptor **3**, which extends through the slot **4** of the tube **1**, and the spray nozzle **5** being moved together with the supply hose **6**.

When the spray nozzle **5** has thus been caused to move by a certain amount, one of the reversing switches **16** is operated by the stop **17**, whereby the electric motor **13** is reversed, with the result that the direction of movement of the spray nozzle **5** is reversed. After reverse movement of the spray nozzle **5** by a certain amount, the other reversing switch **16** is operated by the stop **17** and the electric motor **13** is again reversed, and so on. Thereby, the spray nozzle **5** is caused to move to and fro with respect to the slotted guide tube **1** in which the block **2** is guided, the extent of the to and fro movement depending on the positions to which the reversing switches **16** have been set.

In the modified arrangement of Figs. 4 to 6, more spray nozzles than one are provided and fed from the same supply hose and guided by the cooperation of a spray head with the slotted guide tube. The arrangement comprises a guide tube **101** having a slot **104**. Two spray heads in the shape of cylindrical blocks **102** and **1021** are slidably arranged in the guide tube **101**, each block carrying a spray nozzle adaptor **103** and **1031** respectively. The block **102** has a T-shaped passage **108** communicating with a supply hose adaptor **109**, the spray nozzle adaptor **103** and a pipe **121**, which leads to the spray nozzle adaptor **1031** and communicates through a passage **1081** in the block **1021** with the spray nozzle adaptor **1031**. Two further adaptors **1032** and **1034** branch off from the pipe **121**. Each adaptor extends through the slot **104** in the tube **101** and carries at its free end a spray nozzle **105**. All the adaptors are parallel to one another and perpendicular to the axis of the pipe **121**. The blocks **102** and **1021** are slidable in the tube **101** and are guided thereby. The supply hose **106** passes between three friction drive rollers **112** operated by an electric motor **113** through a reduction gear box **114** and a clutch **124**. Two reversing switches **116** are provided which are connected to the motor **113** by connecting wires **119**, and which cooperate with stops **117** provided on the hose **106**. A roller **122** bears against the hose **106** and is rotatable thereby. A lever **123** serves to actuate the clutch **124**, by means of a linkage shown diagrammatically by the dash dotted line **1124**.

It is believed that the operation of the modified arrangement needs no further explanation. When the arrangement is used, for example, for cleaning a wire or felt, say of a Fourdrinier paper making machine, which has the width W, then the distance between adjacent nozzles **105** (see Fig. 6) should not be smaller than W/4.

In the modification of Fig. 7, all the spray nozzle adaptors **3031**, **3034**, **3032**, and **303** are provided on guide blocks **3021**, **3024**, **3022** and **302**. Each spray nozzle adaptor carries at its free end a spray nozzle **305**. All the adaptors are parallel to each other, and extend perpendicular to the axes of pipes **321**, **322** and **323** which respectively interconnect the blocks **302** and **3022**; **3022** and **3024**; **3024** and **3021**. The block **302** has a T-shaped passage **308** communicating with a sup-

ply hose adaptor **309**, the spray nozzle adaptor **303** and the pipe **321**.

It should be clearly understood that the embodiments described and illustrated are given by way of example only. Many modifications, omissions and additions are possible without departing from the spirit of the invention.

I claim:

1. A liquid spray arrangement comprising a flexible supply hose for delivering a liquid under pressure, a block having a liquid passage therethrough and being connected to said supply hose with one end of said passage communicating with said hose at the delivery end thereof, elongated spray means connected to said block at another end of said passage and communicating through said passage with said supply hose to receive liquid therefrom, said spray means being arranged substantially perpendicularly to the axis of the delivery end of said supply hose, an elongated guide tube having a slot extending in the longitudinal direction thereof, said guide tube accommodating snugly said block, said block being movable without substantial play within said guide tube in the longitudinal direction thereof, said supply hose entering said guide tube at one end and said spray means protruding from said guide tube through said slot, and drive means arranged outside said guide tube and immediately adjacent said one end of said guide tube and adapted to act on said supply hose for frictionally reciprocating the same in the longitudinal direction of said tube.

2. A liquid spray arrangement as claimed in claim 1,

and comprising a pipe within said tube, said pipe being substantially co-axial with the delivery end of said supply hose, one end of said pipe being connected to said block and communicating with the passage therein and through said passage with the delivery end of said supply tube, at least two additional elongated spray means both arranged substantially perpendicularly to said pipe and protruding from said guide tube through said slot, one of said spray means being connected to said pipe to communicate directly therewith, and an additional block snugly accommodated within said guide tube, said additional block having a liquid passage therethrough and being connected to the other end of said pipe with one end of the passage of the auxiliary block communicating with the interior of said pipe, the other additional spray means being connected to said additional block at another end of the passage therein and communicating through said passage with said pipe, said additional block being movable without substantial play within said guide tube in the longitudinal direction thereof.

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