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A. L. WELLS

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PAINT STRIPING APPARATUS

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2 Sheets-Sheet 1

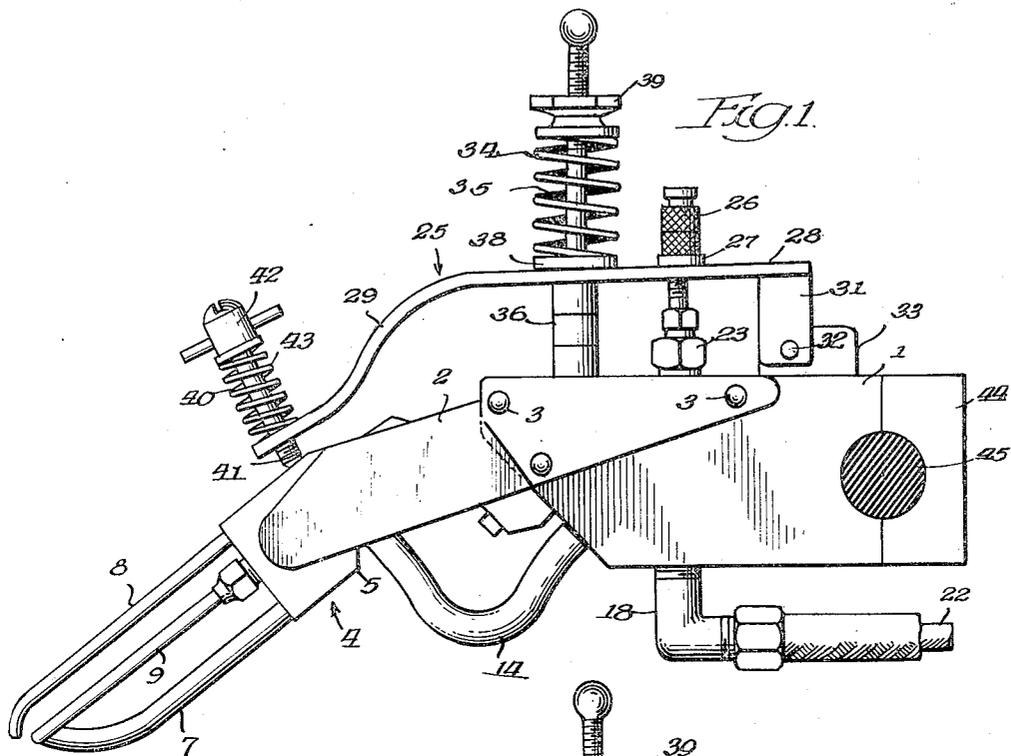


Fig. 1.

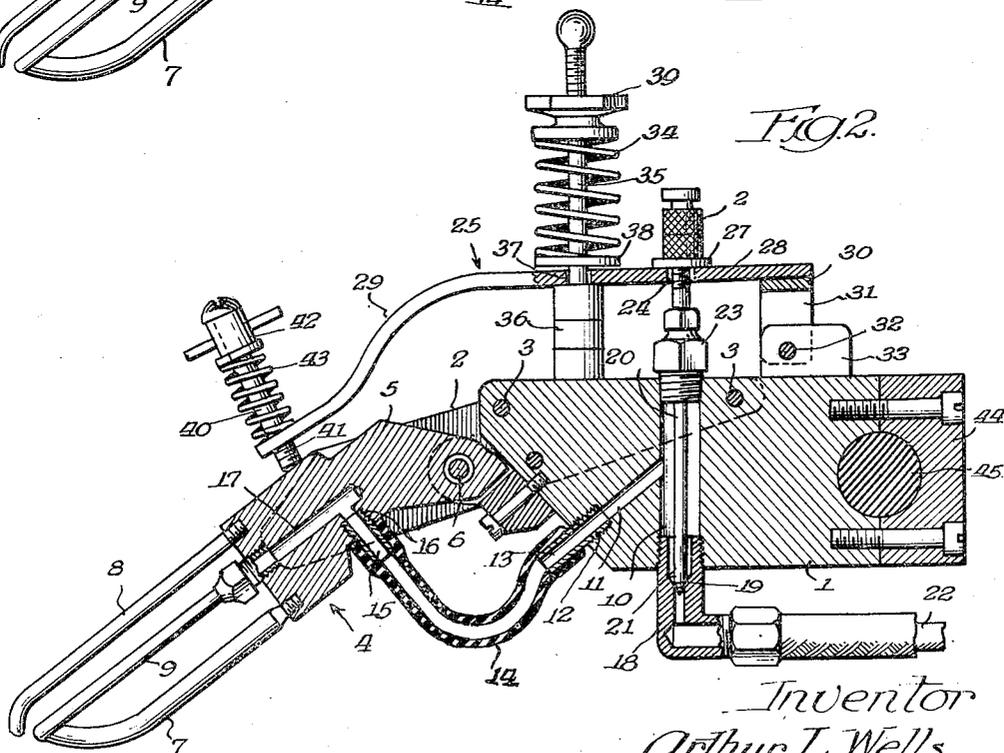


Fig. 2.

Inventor  
Arthur L. Wells

By Spencer, Marshall, Johnston & Cook  
Attys.

April 10, 1951

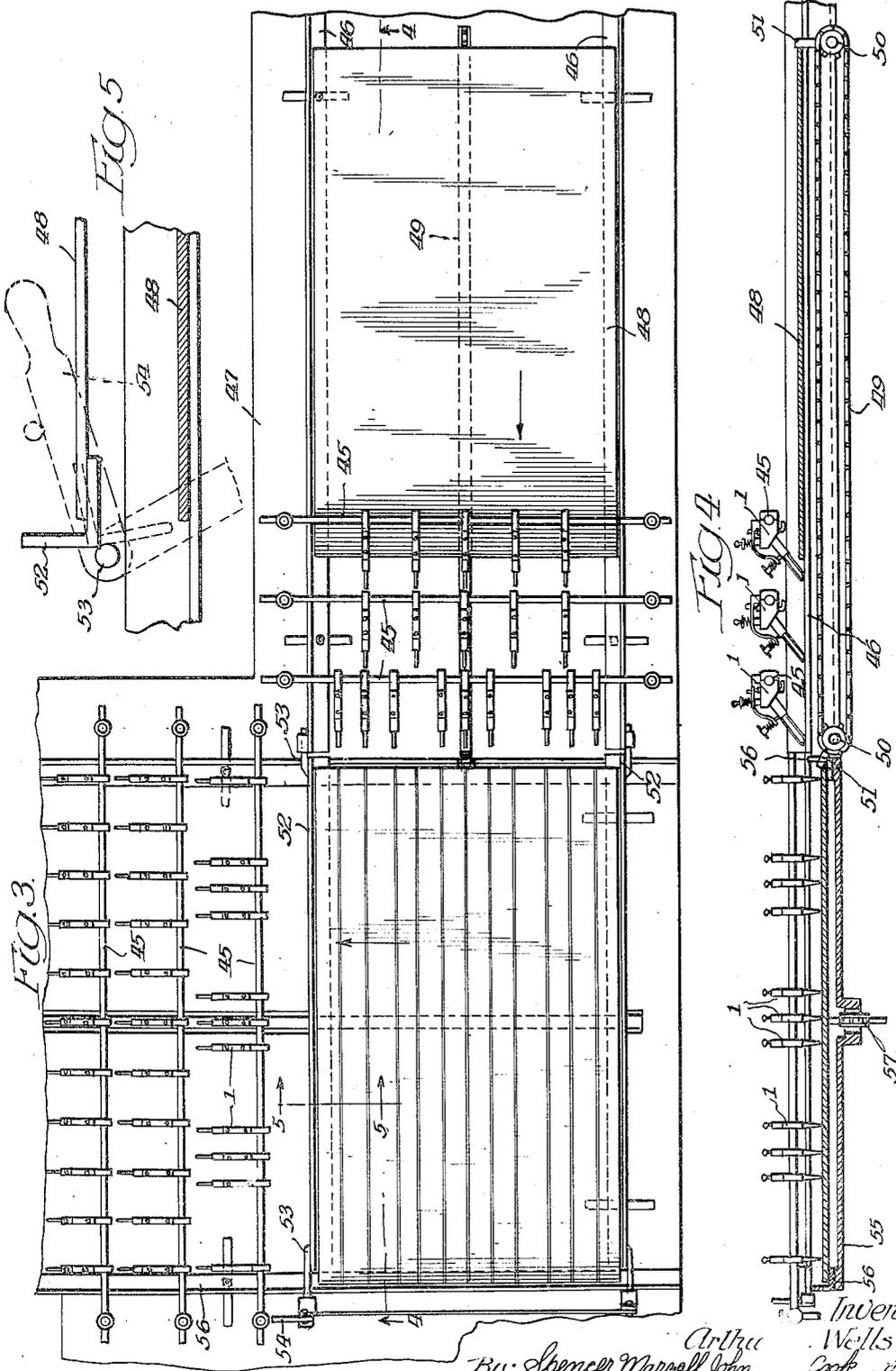
A. L. WELLS

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2 Sheets-Sheet 2



Inventor  
 Arthur Wells  
 By: Spencer Margall, form  
 Cook, illus

# UNITED STATES PATENT OFFICE

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## PAINT STRIPING APPARATUS

Arthur L. Wells, Des Plaines, Ill.

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6 Claims. (Cl. 91—12)

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This invention relates in general to striping devices particularly adapted for use in applying painted stripes to wall boards for the purpose of simulating tile.

In recent years it has become increasingly popular to manufacture wall board wherein squares are painted thereon and then applied to the walls of kitchens and bathrooms to make the walls appear like tile. Wall board, when used in this manner, is considerably less expensive than the actual tile; and for this reason, it has become quite popular. Still more recently, various other types of designs of wall board having stripes painted thereon have come into use wherein the stripes may be all vertical or all horizontal.

Providing this wall board with painted stripes has been an expensive consideration in the manufacture thereof; and it is, therefore, one of the principal objects of the present invention to provide an apparatus for applying painted stripes to wall board for the purposes above outlined.

Another object of the invention is to provide a new and improved form of paint dispensing device for applying the paint and striping wall board or other similar types of material.

A further object of the invention is to provide an improved type of striping device which is automatically operated to dispense paint and stripe the board at the proper time and to automatically stop supplying paint when an individual board has been fully striped.

Still another object of the invention is to provide an apparatus which is adapted to have mounted thereon a plurality of the individual striping devices in a plurality of banks or batteries wherein each of the banks or batteries of devices may be supplied with a different colored paint.

Another object of the invention is to provide an apparatus wherein a plurality of banks of striping devices may be mounted thereon, and wherein each bank of devices may be differently operated as among themselves whereby different designs and different sized squares can be produced automatically.

A further and more specific object of the invention is to provide an improved type of striping device per se which is mounted on the apparatus to ride over a board being moved thereunder, and wherein the contact of the striping device with the board will automatically cause paint to flow and will also automatically stop the flow of paint after the device is out of contact with the board.

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Other objects of the invention will appear more fully upon a reading of the following description taken in conjunction with the accompanying drawings wherein:

Fig. 1 is an elevational view of a striping device embodying the features of the present invention; Fig. 2 is a vertical sectional view through the device illustrated in Fig. 1;

Fig. 3 is a fragmentary and somewhat diagrammatic plan view of an apparatus employing a plurality of the devices shown in Figs. 1 and 2;

Fig. 4 is a vertical sectional view taken along the plane of line 4—4 of Fig. 3; and

Fig. 5 is a fragmentary vertical sectional view taken along the plane of line 5—5 of Fig. 3.

Briefly described, the invention embodies a novel type of striping device which is adapted to dispense paint onto wall board or the like as the board is moved under the device which itself remains stationary. In manufacturing wall board for the purpose of simulating tile, it is customary to provide grooves in one surface of the board, which grooves are painted one color to set off the simulated tile squares, and the squares themselves are painted a different color. The device of this invention is to apply the stripes for setting off the squares and to supply paint to the elongated grooves already present in the board. Each separate device is automatic in its operation so that it will start and stop the flow of the paint at the proper time.

Referring now more particularly to the drawings and more specifically to Figs. 1 and 2, the device per se comprises a main body portion 1 which has a pair of side members 2 extending forwardly from each side thereof. These side members are preferably formed of thin sheet metal and may be secured to the body 1 by means such as screws or rivets 3.

The paint dispensing portion of the device is positioned at the forward end thereof and is generally indicated by the number 4. The paint dispensing portion includes a body 5 positioned between the side members 2 and mounted for pivotal movement on a pin or rod 6 extending through the body 5 and between the side members 2. The body is thus permitted a limited pivotal movement in a substantially vertical plane.

The forward end of the body 5 is directed downwardly at an angle and is provided with an elongated guide rod 7. One end of this guide rod 7 is secured to the forward end of the body 5, and the other end is curved so as to fit snugly in a groove provided in the surface of a piece of wall board. A spreader arm 8 extends forwardly from

the front end of the body 5 and has its forward end bent downwardly and rounded so that it will spread the paint evenly within the groove, the paint having previously been supplied thereto by means of the dispensing tube 9. The tube 9 is removably mounted at the forward end of the body 5 between the guide rod 7 and the spreader arm 8 thereby insuring that the device will be guided properly in the groove and that the paint supplied through the tube 9 will be spread evenly within the groove by the spreader arm 8.

The main body 1 has a substantially vertically disposed opening 10 therethrough. A smaller opening or passageway 11 communicates at one end with the opening 10 and is inclined downwardly and forwardly toward the forward end of the body 1. A tubular member 12 threadedly engages an enlarged portion of the passageway 11 at the forward end thereof so that the opening 13 therethrough communicates directly with the passageway 11. A flexible tube 14 is secured at one end thereof to the tube 12 and communicates with the passage 13 therein, and its other end is fastened to another tubular member 15 in the pivotally mounted body 5. The tube 15 has a passage therethrough communicating with a short passage 16 in the body 5 which in turn communicates with the longer passage 17 extending forwardly and downwardly through the body 5. The passage 17 communicates with the dispensing tube 9 so that paint within the opening 10 and under pressure will be forced through the passage 11, flexible tube 14, passage 17, and outwardly through the end of the dispensing tube 9.

A connecting member 18 threadedly engages the bottom of the opening 10 and has a valve seat 19 formed therein. A needle valve 20 is provided which has the bottom end thereof tapered to fit against the valve seat 19 to prevent the flow of paint therethrough. The paint may be supplied in any suitable manner through a tube 22 in communication with the connection 18 from a suitable source of supply not shown.

The needle valve 20 is normally in its lower position as shown in Fig. 2 bearing against the valve seat 19 so as to prevent the flow of paint therethrough.

The upper end of the opening or passage 10 is closed by means of the sealing gland 23, but the valve 20 extends through the gland 23 and upwardly through an opening 24 in an arm 25. That portion of the needle valve 20 above the gland 23 may be threaded to receive the adjusting nuts 26. A collar 27 is positioned between the adjusting nuts 26 and the upper surface of the arm 25 to form a bearing surface so that the amount of movement or the distance through which the valve 20 is permitted to move with respect to the valve seat 19 may be adjusted to suit different types of paints and to control the flow of paint by adjusting the nuts 26.

The arm 25 is formed so as to have a substantially flat and horizontally positioned rear portion 28 and a downwardly curved front portion 29. The rear end of arm 25 has a bracket 30 secured thereto having downwardly extending arms 31 at each end thereof adapted to receive a pivot pin 32 which is supported by a pivot block 33 mounted on the upper surface of the main body 1. At this point, it will be clear that the arm 25 will have a pivotal movement about the pin 32 in a vertical plane so that when the arm 25 is in a lowered position, the valve 20 will be closed; but when the arm is elevated above its pivotal point, it will carry the collar 27 upwardly with it and

the valve stem connected thereto so as to open the valve and permit the flow of paint.

The arm 25 is maintained in a normally lowered position by means of a coil compression spring 34 surrounding a vertically disposed rod 35. The lower end of the rod 35 is connected to a stop member 36 and passes through an opening 37 through the arm 25. A collar 38 surrounds the rod 35 and provides a bearing surface between the lower end of the spring 34 and the upper surface of arm 25. The upper end of the rod 35 is threaded to receive an adjusting nut 39 whereby the compression of spring 34 can be adjusted to determine the amount of pressure necessary to elevate the arm 25 and thereby open the valve 20.

The forward end of the arm 25 has another rod 40 secured thereto, the lower end of rod 40 being threaded as at 41 for engagement with a suitable opening through the forward end of arm 25. The upper end of rod 40 has an enlargement or head 42 thereon, and a coil compression spring 43 surrounds the rod, bearing upwardly at one end against the head 42 and downwardly at its other end against the arm 25. The lower end of rod 40 is adjusted to bear against the upper surface of the body 5 whereby an upward pivotal movement of this body will cause a similar upward movement of the arm 25 to thereby open the valve and permit the flow of paint. The threaded engagement of the rod 40 with the arm 25 will permit a certain amount of adjustment to be made, and the spring 43 acts to maintain the rod 40 in any position to which it has been adjusted.

It is contemplated that a plurality of these devices may be mounted in spaced relation along the length of a supporting rod so that a grooved wall board may be moved under these batteries of paint dispensers to thereby paint a plurality of stripes simultaneously in one direction along the length or width of such wall board. The rear end of the main body 1 may have a semi-circular recess therein so that a recessed cap 44 may be secured thereto in order to fasten or mount the device on a rod 45.

Some or all of these devices may be elevated and held out of contact with a board passing thereunder if so desired. They may also be easily adjusted to adequately take care of boards having different thicknesses. In any event, the grooved board is caused to move in a longitudinal path beneath a plurality of the dispensing devices all of which are so adjusted that when the board first starts its movement, the forward edge thereof will come against the guide members 7 of each device and force the dispensing portion of the device, including the body 5, in an upward direction. When this part of the device is thus moved upwardly, it will contact the lower end of rod 40 and carry it upwardly, which in turn will also elevate the arm 25 against the force of the spring 34. This upward movement of arm 25 will also carry with it the needle valve 20 thus lifting it off of its seat 19 to thereby permit the flow of paint through the various passages above described. The paint will thus be dispensed through the outer end of the dispensing tube 9 and will be deposited in the groove in the board. The lower curved end of the guide rod 7 will ride in the groove in the board, and the spreader arm 8 will also ride in the groove to spread the paint along the sides of the groove which has just been placed there by the dispensing tube 9. After the board has completed its passage through the apparatus

and has been striped in one direction and after the rear end thereof has passed beyond the dispensing part of the device, there will be no further support for this part of the device; and it will, therefore, drop downwardly. When this occurs, the spring 34 will force the arm 25 downwardly also and permit the valve to be closed thereupon preventing any further flow of paint.

Figs. 3, 4, and 5 illustrate a preferred manner in which the striping device may be used. In the present instance, it is anticipated that the wall board has both vertical and horizontal grooves therein to simulate tile. It is, therefore, necessary to paint these grooves in both the horizontal and vertical directions. For the horizontal grooves and stripes, any suitable form of support may be utilized for moving the wall board beneath the various banks of paint dispensers. In the present instance, there is illustrated a pair of horizontally spaced angle members 46 mounted on a suitable framework 47. The wall board 48 usually is manufactured in standard widths so that the supporting angles 46 can be located a definite and predetermined distance apart. The wall board 48 may then be placed on these supporting angles 46 and may be caused to move beneath the paint dispensers by any suitable mechanism. The particular mechanism shown herein includes a drive chain 49 adapted to be driven by the sprockets 50 which in turn may be connected to any suitable drive means not shown. One or two pusher devices in the form of fingers 51 may be secured to the drive chain 49 and may be so located to come against the rear edge of the board 48 and force the board forwardly along its supporting angles. The chain 49 will be caused to move so that the upper run thereof will move toward the left as viewed in Figs. 3 and 4. Thus, when the board 48 is in place on its supports and the machine is set in operation, one of the fingers 51 will come against the rear edge of the board 48 and move it toward the left beneath the paint dispensers.

One or a plurality of banks of striping devices may be mounted on the framework of the apparatus above the board. In the present instance, three such banks have been shown; but this is not intended in any way to be a limitation either upon the number of banks or upon the number of individual devices included in any one bank. Each bank of devices may include a different colored paint for all the devices in the same bank. This is preferable and the usual manner of use. However, if it should be desired that different stripes extending in the same direction be different colors, then there could be different colored paint in each of the devices in the same bank. These devices may be spaced in any desired manner along the supporting rods 45. It will not usually be desirable to use all banks in a single operation so that those devices not in use can be elevated and secured in elevated position so that they will not contact the board as it passes through.

In order to speed the operation, it is preferable to provide pivotally mounted angle members 52 in horizontal alignment with the first supports 46 beyond one end thereof. Each of the angle supports 52 should be mounted for rotative movement so that at the time the board has been completely striped in one direction it may immediately drop downwardly onto a second support for movement in another direction so that stripes can be applied thereto in such other direction.

It is preferable to handle the board in this way by either dropping it downwardly or elevating it out of the path of the next succeeding board coming through the machine. Otherwise, a next succeeding board could not begin its run until the preceding board had been completely striped and out of the way.

Any suitable form of mechanism can be utilized for removing a board which is striped from the path of a succeeding board. In the present case, the supporting angles 52 have been shown as being mounted upon pivot rods 53 suitably journaled in bearings on the apparatus and provided with an operating handle 54. Suitable connections can be had between the opposing angles 52 so that when the handle 54 is operated to rotate one angle, then the other angle will rotate also. Fig. 5 illustrates on a somewhat enlarged scale the manner in which this part of the invention operates. The first board 48 will come to rest on the angles 52 after it has been completely striped in one direction. The handle 54 will then be operated to rotate the angles 52 through substantially 90° thus allowing the board to drop downwardly onto a support or table 55 positioned therebelow. The angles 52 are then returned to their normal position and are ready to receive the next succeeding board being striped.

The bottom table or support 55 may also be provided with angles 56 or the board may drop downwardly directly on the table. In any event, a similar motivating means in the form of a drive chain and sprocket arrangement 57 may be utilized for also driving the board in the other direction. Other banks of striping devices may be normally provided in this lower level and are operated in the same manner previously described to stripe the board in the other direction so that when the two striping operations are completed, the result will be a wall board simulating tile.

It will be clear that if it is desired to apply stripes in one direction only, then one of the parts of the apparatus will be dispensed with. It is believed clear from the foregoing description that the invention provides a novel form of paint dispenser used for striping purposes which will operate automatically to start and stop the flow of paint at predetermined and proper times. The plurality of banks of devices provides for quick change over from one color to another thus providing an economical way for applying stripes to wall board.

Changes may be made in the form, construction, and arrangements of parts from that disclosed herein without in any way departing from the spirit of the invention or sacrificing any of the attendant advantages thereof provided, however, that such changes fall within the scope of the claims appended hereto.

I claim:

1. A striping apparatus comprising a frame, a plurality of striping devices mounted transversely of said frame in substantially a horizontal plane and in spaced relation, a support for a sheet of material to be striped, means for moving the sheet on the support below said striping devices and in contact therewith, each striping device in its inoperative position having a leading portion normally resting in a plane below that of the surface of said sheet and adapted to be raised by contact with said moving sheet and means associated with each striping device operative to start the flow of striping liquid therethrough and onto the sheet when said forward portion is raised by

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contact with the sheet and operative to stop the flow when said forward portion is lowered after the moving sheet has moved away from beneath said forward portion.

2. A striping apparatus comprising a frame, a plurality of striping devices mounted in spaced relation transversely of said frame each of said devices comprising a main body member having fluid passages therethrough, valve means in said body member operable to start and stop the flow of fluid, fluid dispensing means movable with respect to said main body member and means operable in response to movement of said dispensing means to actuate said valve means, means below said devices for moving a sheet to be striped in contact with said devices and means operatively associated with each said device to automatically start the flow of striping liquid onto the sheet when the sheet is contacted by said devices, said last named means also operating to stop the flow of striping liquid after the sheet has passed said devices and the devices are out of contact therewith.

3. A striping apparatus comprising a frame, a set of striping devices mounted in spaced relation transversely of said frame, a second set of striping devices arranged at an angle with respect to the first said set of devices each of said devices comprising a main body member having fluid passages therethrough, valve means in said body member operable to start and stop the flow of fluid, fluid dispensing means movable with respect to said main body member and means operable in response to movement of said dispensing means to actuate said valve means, means for moving a sheet to be striped below said first set of devices and in contact therewith thereby to apply stripes to the sheet in one direction, and means for moving the same sheet in a different direction below said second set of devices and in contact therewith after the sheet has passed said first set of devices, thereby to apply stripes to the sheet in another direction.

4. A striping apparatus comprising a frame, a set of striping devices mounted in spaced relation transversely of said frame, a second set of striping devices arranged at an angle with respect to the first said set of devices each of said devices comprising a main body member having fluid passages therethrough, valve means in said body member operable to start and stop the flow of fluid, fluid dispensing means movable with respect to said main body member and means operable in response to movement of said dispensing means to actuate said valve means, means for moving a sheet to be striped below said first set of devices and in contact therewith, thereby to apply stripes to the sheet in one direction, means for moving the sheet to a different level after it has passed said first set of devices to remove it from the path of movement of the next succeeding sheet, and means for moving the sheet in a

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different direction below said second set of devices and in contact therewith at the said different level, thereby to apply stripes to the sheet in another direction.

5. A striping apparatus comprising a frame, a set of striping devices mounted in spaced relation transversely of said frame, a second set of striping devices arranged at an angle with respect to the first said set of devices each of said devices comprising a main body member having fluid passages therethrough, valve means in said body member operable to start and stop the flow of fluid, fluid dispensing means movable with respect to said main body member and means operable in response to movement of said dispensing means to actuate said valve means, means for moving a sheet to be striped below said first set of devices and in contact therewith, thereby to apply stripes to the sheet in one direction, means for dropping the sheet downwardly to a lower level after it has passed said first set of devices to remove it from the path of movement of the next succeeding sheet, and means for moving the sheet in a different direction below said second set of devices and in contact therewith at said lower level, thereby to apply stripes to the sheet in another direction.

6. A striping apparatus comprising a frame, a striping device mounted on said frame, a leading edge of said striping device being disposed in the path of an article to be striped and adapted to be raised when the article to be striped is moved into contact therewith, means for moving the article to be striped into contact with said leading edge of said striping device, and means associated with said striping device operative to start the flow of striping liquid therethrough and onto the article to be striped in response to the raising of said leading edge of the striping device by contact with the article to be striped and operative to stop the flow of the striping liquid in response to the lowering of said leading edge when the article to be striped passes out of contact therewith.

ARTHUR L. WELLS.

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