July 20, 1954 G. J. KIRCHNER 2,684,027

STENCILING MACHINE

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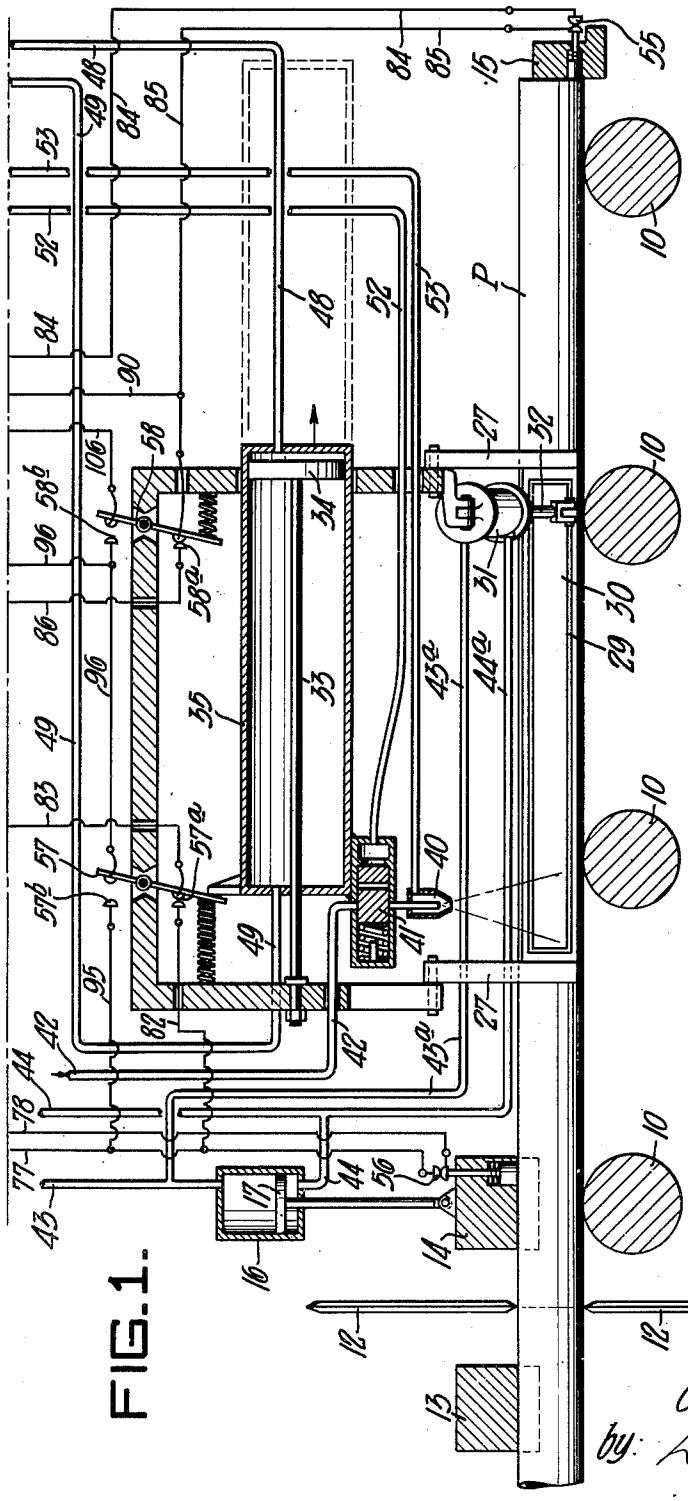


FIG. 1.

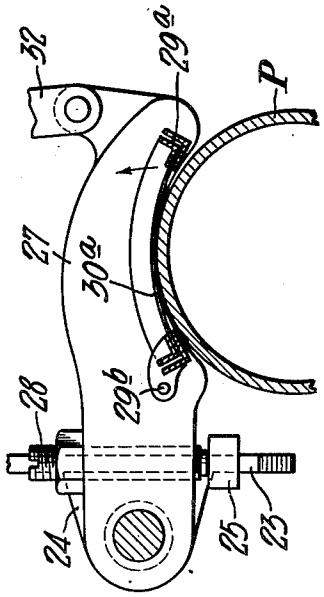


FIG. 6.

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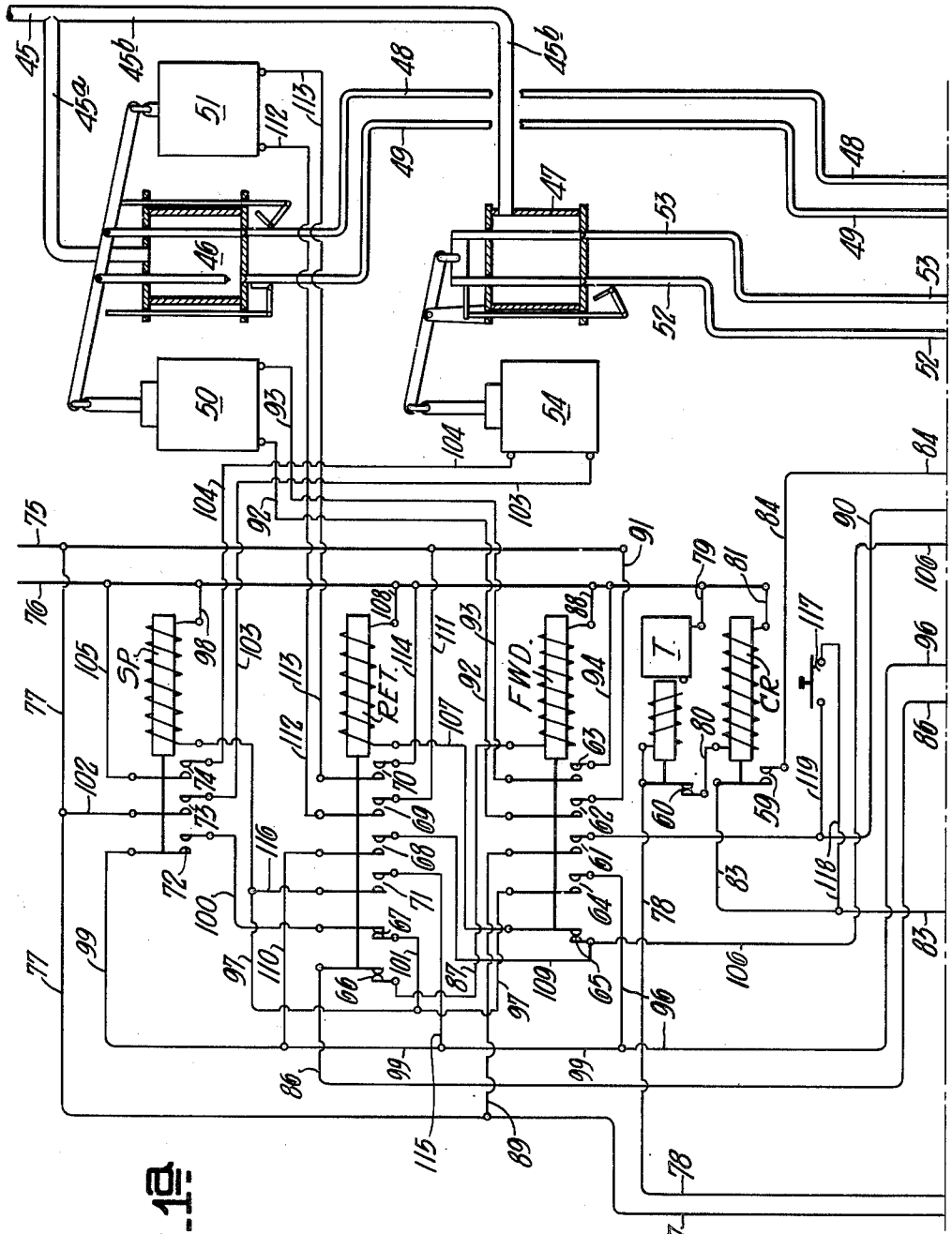


FIG. 1B

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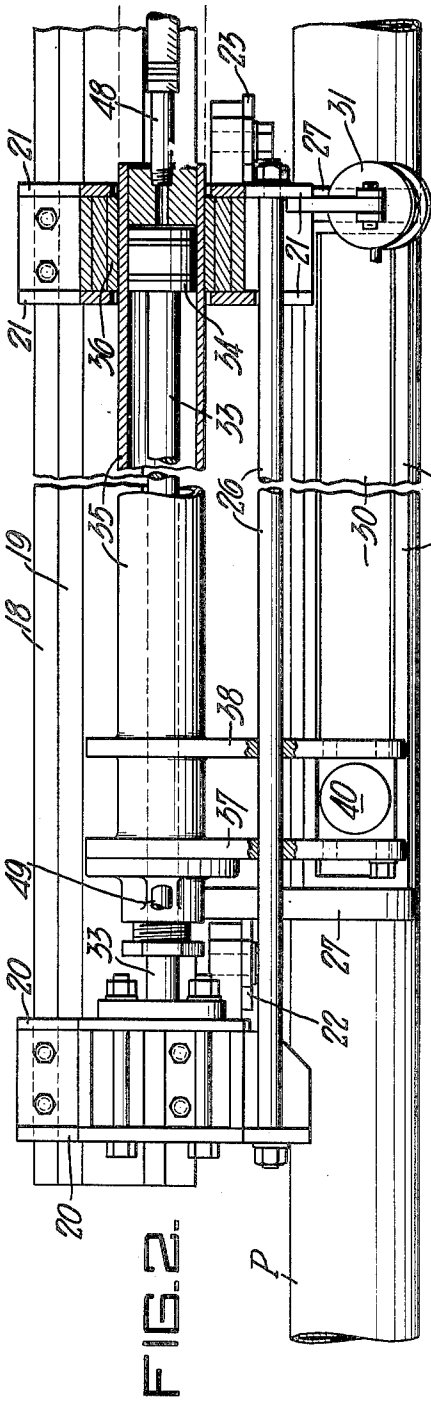


FIG. 2.

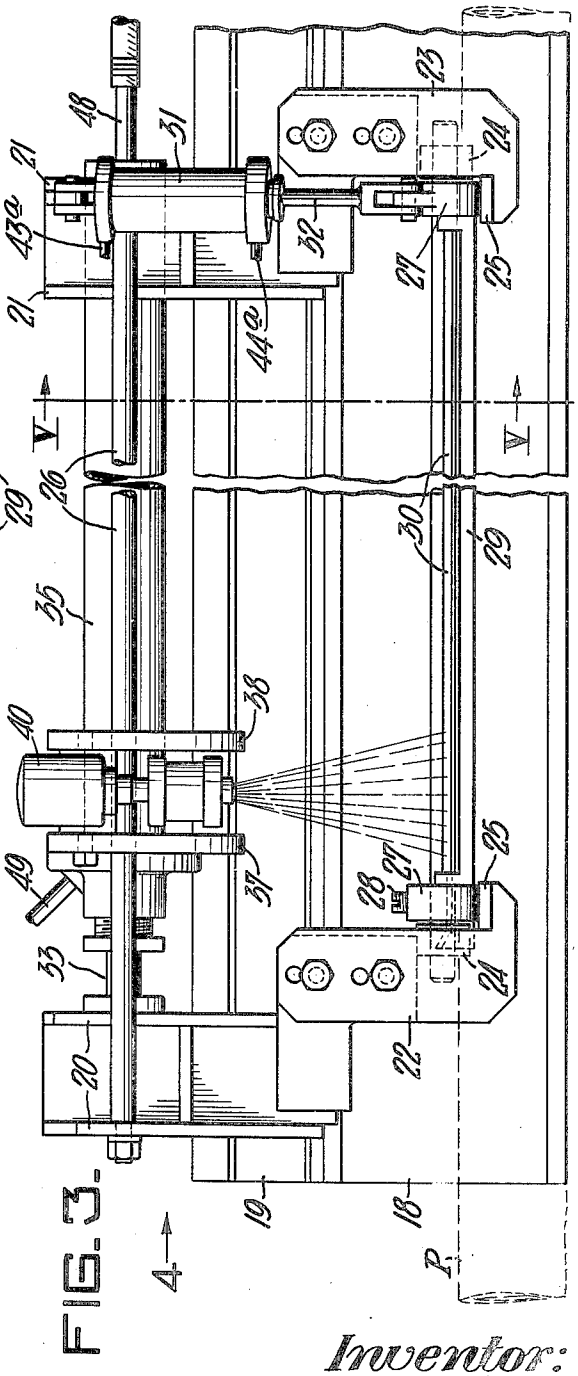


FIG. 3.

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STENCILING MACHINE

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FIG. 5.

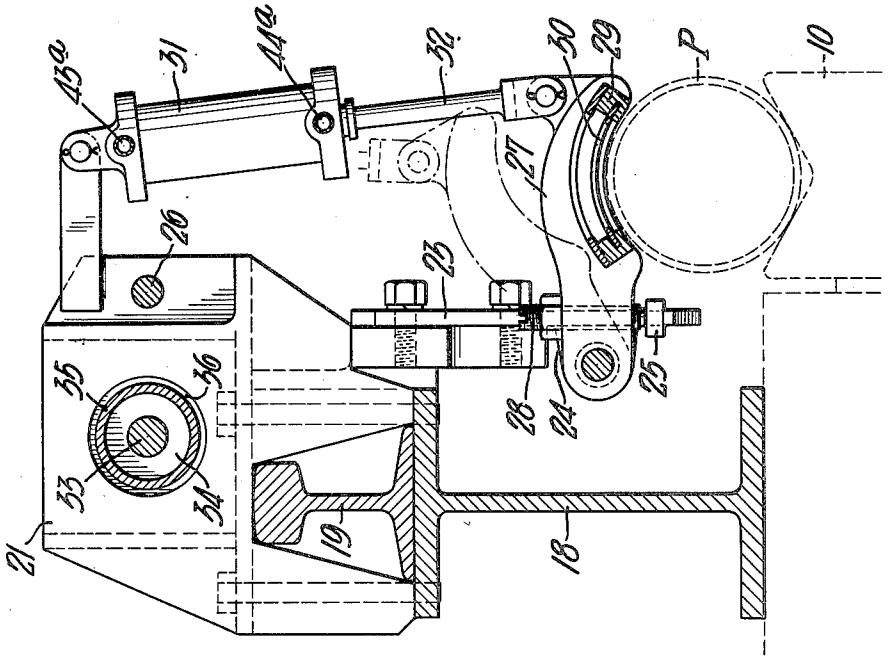
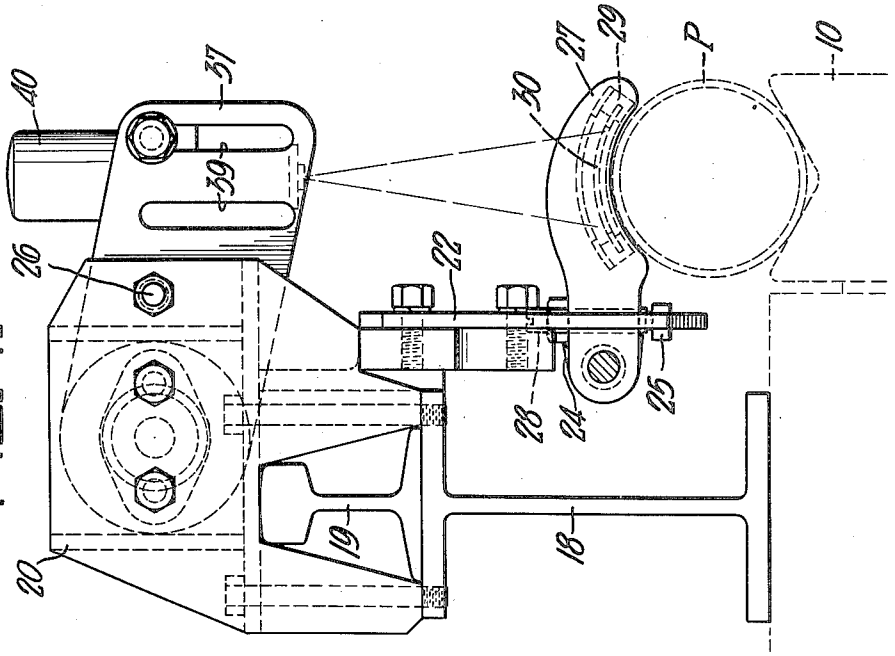


FIG. 4.



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Patented July 20, 1954

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UNITED STATES PATENT OFFICE

2,684,027

STENCILING MACHINE

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Application December 22, 1950, Serial No. 202,180

10 Claims. (Cl. 101—123)

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This invention relates to improved machines for stenciling articles in a production line, such as pipe or the like during its manufacture.

An object of the invention is to provide improved stenciling machines which are readily interlocked with other equipment in a production line, such as a cut-off machine in a pipe mill, for automatically marking each article as it is delivered thereto.

A further object of the invention is to provide improved machines for stenciling articles in a production line, which machines include a stencil adapted to overlie each article as it arrives in the machine, a traveling spray gun, and means for automatically propelling the spray gun along the stencil after the arrival of each article and thus applying marking fluid thereto.

A further object of the invention is to provide improved stenciling machines which are fluid pressure operated and electrically controlled for automatically moving their stencil into a position overlying with each article as it arrives and then automatically moving their spray gun along the stencil and thus applying marking fluid thereto.

In accomplishing these and other objects of the invention, I have provided improved details of structure, preferred forms of which are shown in the accompanying drawings, in which:

Figures 1 and 1*a* taken together are a schematic view of a stenciling machine which embodies features of the present invention, and showing the fluid pressure operating circuit and electric control circuit;

Figures 2 and 3 are respectively a top plan view and a side elevational view of the stenciling machine;

Figure 4 is an end elevational view from the direction indicated by the arrow 4 of Figure 3;

Figure 5 is a vertical sectional view taken substantially on line V—V of Figure 3; and

Figure 6 is a vertical sectional view of a modified construction of stencil holder.

The drawings show the stenciling machine of the present invention in conjunction with a cut-off machine in a pipe mill. The articles which it marks are the cut lengths of pipe from this cut-off machine. However, it is apparent that similarly constructed stenciling machines could be used in conjunction with other production line equipment and for marking other articles. Therefore the specific environmental structure and the specific articles are to be considered as exemplary only and in no sense limiting.

As shown schematically in Figure 1, the cut-off machine includes outlet conveyor rolls 10, ro-

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tatable cutter wheels 12, inlet and outlet chucks 13 and 14 respectively and a vertically movable pipe stop 15. The outlet chucks have an operating cylinder 16 and piston 17 and the inlet chucks and pipe stop have appropriate operating mechanism not shown. A pipe P traveling in the production line enters the machine from the left as viewed in Figure 1 and passes over conveyor rolls 10. While the pipe is traveling, both chucks are opened and the stop 15 is lowered. When the pipe engages this stop, its movement ceases, the chucks are closed to clamp it in position, and the cutter wheels commence to sever a measured length therefrom. After severance is completed, the stop is raised and the cut length moves out of the machine and the operations just described are repeated. The cut-off machine can be of any standard or desired construction and therefore is not shown nor described in detail. As hereinafter fully explained, the stenciling machine of the present invention marks each measured length of pipe during the cessation of its travel in the line while it is resting on the outlet conveyor rolls and while the cutter wheels are severing this length.

The stenciling machine comprises a fixed framework which can be mounted on any suitable supporting structure, such as the frame which carries conveyor rolls 10. As shown in Figures 2, 3, 4 and 5, said fixed framework includes a longitudinal beam 18, the upper face of which carries a longitudinal rail 19, which in turn carries a pair of upstanding twin-legged brackets 20 and 21. Said brackets carry downwardly depending plates 22 and 23, which are bolted thereto so that they can be adjusted vertically (Figure 3). Plates 22 and 23 have lugs 24 extending back toward beam 18 and stops 25 extending inwardly toward each other. The framework also includes a guide rod 26 which extends the length thereof between the upper forward portions of brackets 20 and 21. However, it is apparent that the exact construction of the framework could be varied without departing from the invention.

A stencil holder 27 is hinged with respect to the brackets on lugs 24 and has vertically adjustable legs 28 (Figure 3) which rest on stops 25 when the holder is lowered. The lowered position of the stencil holder is adjustable for the purpose of accommodating different diameters of pipe. In the construction illustrated this adjustment is accomplished by adjustment of the position of plates 22 and 23 on brackets 20 and 21 and further by adjustment of legs 28. However, it is to be understood that this adjusting means

is exemplary only and that other forms of adjusting means can be used. The stencil holder includes an open frame 29 of arcuate cross-section which carries a removable stencil 30. The latter ordinarily is made of heavy paper and slides into the holder. When the machine is adjusted properly, the stencil overlies the article with but slight clearance. The stencil can bear any markings it is desired to place on the article, such as a manufacturer's trade mark.

Figure 6 shows a modified stencil holder in which the stencil frame 29*a* is hinged to the holder 27 on pins 29*b*. This arrangement facilitates insertion and removal of the stencil 30*a*.

The stencil holder 27 can be hinged freely to the lugs, in which event it merely yields to permit irregularities in the article to pass underneath. However, in the construction illustrated a cylinder 31 and a piston 32 are connected between the stencil holder and bracket 21. When the pipe is moving, the cylinder and piston lift the stencil holder sufficiently so that the stencil clears the pipe and any irregularities therein, and, when the pipe stops, they lower the stencil holder until legs 28 rest on stops 25. The control mechanism for effecting this motion is described hereinafter.

As best shown in the schematic view of Figure 1, the machine comprises a piston rod 33 which is fixed at one end to bracket 20 and carries a piston 34 at its other end. A movable fluid pressure cylinder 35 is mounted for reciprocable movement over said piston. Bracket 21 has a guide bushing 36 through which said cylinder movably extends (Figure 2). This cylinder carries a pair of outwardly projecting plates 37 and 38 which are apertured for receiving guide rod 26. These plates have slots 39 within which a pneumatically actuated spray gun 40 is mounted for vertical adjustment (Figures 2, 3 and 4). The gun has an operating valve 41 and a supply line 42 for feeding marking fluid thereto (Figure 1). The gun itself can be of any standard or desirable construction which sprays marking fluid when an air stream is applied and hence is not shown in detail. The gun is spaced above the stencil and is adjusted to the proper spacing for the best spraying effect. After the arrival of each pipe length, the cylinder propels the gun forward and then returns it, while the gun sprays marking fluid on the stencil and the pipe beneath.

The pneumatic circuit

Figures 1 and 1*a* together show schematically both the fluid pressure circuit for operating cylinders 31 and 35 and spray gun 40 and also the electric control circuit. The machine is illustrated as pneumatically operated, although it is apparent that hydraulic operation would be equivalent in many respects. It would be possible also to move the spray gun electrically on a forward and reversing screw driven by an electric motor. Cylinder 16, which operates the outlet chucks 14, has air conduits 43 and 44 which respectively admit compressed air for closing and for opening the outlet chucks. The control means for thus admitting air to this cylinder is part of the cut-off machine and not of the present invention and therefore is not shown.

Air conduits 43*a* and 44*a* connect conduits 43 and 44 with cylinder 31, which raises and lowers the stencil holder. Thus when air is admitted to cylinder 16 via conduit 43 to lower piston 17 and clamp the outlet chucks on the pipe, air also is admitted to cylinder 31 via conduit 43*a* to lower the stencil. When air is admitted to cylinder 16 via conduit 44 to release these chucks, air also is admitted to cylinder 31 via conduit 44*a* to lift the stencil.

The stenciling machine is connected to a main source of fluid pressure, in this instance an air supply line 45, which has a branch 45*a* extending to a double solenoid operated, four-way valve 46, and a branch 45*b* extending to another solenoid operated valve 47. Cylinder 35 is double acting and flexible air conduits 48 and 49 connect valve 46 with the right and left ends respectively of this cylinder. Valve 46 has forward and return operating solenoids 50 and 51. When solenoid 50 is energized, valve 46 admits air from line 45 to conduit 48 and relieves conduit 49. Therefore cylinder 35 and spray gun 40 travel to the right or "forward." When solenoid 51 is energized, the valve admits air from line 45 to conduit 49 and relieves conduit 48. Therefore the cylinder and gun move to the left or "return." Normally the valve occupies this latter position. Flexible air conduits 52 and 53 connect valve 47 with the operating valve 41 and the spray gun 40 respectively. Valve 47 has an operating solenoid 54 which, when energized, operates this valve for admitting air to both valve 41 and gun 40.

The electric circuit

The electric control circuit includes an actuating switch 55 on the pipe stop 15, an actuating switch 56 on the outlet chuck 14, a two-pole limit switch 57 at the left on bracket 20 and another two-pole limit switch 58 at the right on bracket 21. Switches 55 and 56 are normally open, but close respectively when a pipe P contacts stop 15 and when outlet chucks 14 close on the pipe. Limit switch 57 has two sets of contacts 57*a* and 57*b*, the first of which are normally open and the second of which are normally closed. However, cylinder 35 in its retracted position holds contact 57*a* closed and contacts 57*b* open. Limit switch 58 has two sets of contacts 58*a* and 58*b*, the first of which are normally closed and the second of which are normally open. Cylinder 35 in its extended position, after traveling forward, opens contacts 58*a* and closes contacts 58*b*.

The circuit includes a control relay CR, a time delay relay T, a forward relay FWD, a return relay RET and a spray relay SP. Relay CR has one set of normally open contacts 59. Relay T has one set of normally closed contacts 60. Relay FWD has four sets of normally open contacts 61, 62, 63 and 64 and one set of normally closed contacts 65. Relay RET has two sets of normally closed contacts 66 and 67 and four sets of normally open contacts 68, 69, 70 and 71. Relay SP has three sets of normally open contacts 72, 73 and 74.

The circuit has power lines 75 and 76 connected to any suitable outside power source. A conductor 77 connects line 75 with one side of switch 56. A conductor 78 connects the other side of switch 56 with one end of the coil of time delay relay T and with one contact of the normally closed set 60 of this relay. A conductor 79 connects the other end of the coil of relay T with line 76. A conductor 80 connects the other contact of set 60 with one end of the coil of control relay CR. A conductor 81 connects the other end of said coil with line 76. Therefore, when the outlet chucks are lowered on the pipe and close switch 56, time delay relay T and control relay CR both are energized. The current paths are from line 75 via conductor 77, switch 56, conductor 78, the coil of relay T and conductor 79 to line 76 and via contacts 60, conductor 80, the coil of relay CR and conductor 81 to line 76. Thereupon the time

delay relay commences timing and the control relay closes its normally open contacts 59.

A conductor 82 connects conductor 77 with one contact of the normally open set 57a (now closed) of switch 57. A conductor 83 connects the other contact of set 57a with one contact of the normally open set 59 of control relay CR. A conductor 84 connects the other contact of set 59 with one side of switch 55 in pipe stop 15. A conductor 85 connects the other side of switch 55 with one contact of the normally closed set 58a (now closed) of switch 58. A conductor 86 connects the other contact of set 58a with one contact of the normally closed set 66 of return relay RET. A conductor 87 connects the other contact of set 66 with one end of the coil of forward relay FWD. A conductor 88 connects the other end of said coil with line 76. When the end of the pipe contacts pipe stop 15, it closes switch 55 and conditions the current path to said coil, and, when contacts 59 of control relay CR close, they complete this current path and energize said coil. The current path is from line 75 via conductors 77 and 82, contacts 57a, conductor 83, contacts 59, conductor 84, switch 55, conductor 85, contacts 58a, conductor 86, contacts 66, conductor 87, the coil of the forward relay and conductor 88, to line 76. Thereupon the normally open contacts 61, 62, 63 and 64 of the forward relay close and the normally closed contacts 65 open.

A conductor 89 connects conductor 77 with one contact of the normally open set 61 of forward relay FWD. A conductor 90 connects the other contact of set 61 with conductor 85. Closing of contacts 61 thus seals in the forward relay around switch 57. The current path is from line 75, via conductors 77 and 89, contacts 61, conductors 90 and 85, contacts 58a, conductor 86, contacts 66, conductor 87, the forward relay coil, and conductor 88 to line 76.

A conductor 91 connects line 75 with one contact of the normally open set 62 of forward relay FWD. A conductor 92 connects the other contact of set 62 with one end of the forward operating solenoid 50 of valve 46. A conductor 93 connects the other end of this solenoid with one contact of the normally open set 63 of the forward relay. A conductor 94 connects the other contact of set 63 with line 76. Therefore closing of contacts 62 and 63 energizes the forward operating solenoid. The current path is from line 75 via conductor 91, contacts 62, conductor 92, the solenoid, conductor 93, contacts 63 and conductor 94, to line 76. Thereupon valve 46 admits compressed air from the main supply line 45 and branch 45a to conduit 48 and the right end of cylinder 35 and at the same time relieves conduit 49 and the left end of cylinder 35. Cylinder 35 and spray gun 40 commence moving to the right.

A conductor 95 connects conductor 77 with one contact of the normally closed set 57b (now open) of limit switch 57. A conductor 96 connects the other contact of set 57b with one contact of the normally open set 64 of forward relay FWD. A conductor 97 connects the other contact of set 64 with one end of the coil of spray relay SP. A conductor 98 connects the other end of this coil with line 76. Closing of contacts 64 of the forward relay conditions the current path to the spray relay coil. As cylinder 35 moves away from limit switch 57, this switch returns to its normal position; that is, its contacts 57a open and its contacts 57b close. Closing of the latter completes the current path to the spray relay coil and energizes this relay. The current path is from line 75, via conductors 77 and 95, contacts 57b, conductor 96, contacts 64, conductor 97, the spray relay coil, and conductor 98, to line 76. Thereupon contacts 72, 73 and 74 all close.

A conductor 99 connects conductor 96 with one contact of the normally open set 72 of the spray relay. A conductor 100 connects the other contact of set 72 with one contact of the normally closed set 67 of return relay RET. A conductor 101 connects the other contact of set 67 with conductor 97. Closing of contacts 72 seals in the spray relay around the forward relay. The current path is from line 75 via conductors 77 and 95, contacts 57b, conductors 96 and 99, contacts 72, conductor 100, contacts 67, conductors 101 and 97, the spray relay coil and conductor 98 to line 76.

A conductor 102 connects conductor 77 with one contact of the normally open set 73 of the spray relay. A conductor 103 connects the other contact of set 73 with one end of the operating solenoid 54 for valve 47. A conductor 104 connects the other end of this solenoid with one contact of the normally open set 74 of the spray relay. A conductor 105 connects the other contact of set 74 with line 76. Closing of contacts 73 and 74 thus energizes solenoid 54. The current path is from line 75 via conductors 77 and 102, contacts 73, conductor 103, the solenoid, conductor 104, contacts 74 and conductor 105, to line 76. Solenoid 54 operates valve 47 to admit air from the main supply line 45 and branch 45b to conduits 52 and 53 and to the spray gun 40 and its valve 41, whereupon the spray gun, now traveling to the right, sprays marking fluid on the stencil.

At this point in the operation, switches 55 and 58 are closed, contacts 57a of limit switch 57 are open and contacts 57b closed, control relay CR is energized, time delay relay T is energized and timing, and forward relay FWD and spray relay SP both are energized and sealed in. Return relay RET and limit switch 58 have not yet acted and are in their normal positions shown in Figures 1a and 1 respectively. Solenoid 50 of valve 46 and solenoid 54 of valve 47 both are energized. Solenoid 51 of valve 46 has not yet acted and is de-energized.

When cylinder 35 has moved fully to the right, it engages limit switch 58 and opens its contacts 58a and closes its contacts 58b. Opening the former contacts breaks the current path to the forward relay FWD and thus de-energizes this relay, whereupon its contacts return to their normal positions. Opening of contacts 62 and 63 of said relay breaks the current path to the forward operating solenoid 50 of valve 46. However, opening of contacts 64 of said relay does not break the current path to spray relay SP since this relay is sealed in.

Conductor 96 hereinbefore referred to, is also connected to one contact of set 58b of limit switch 58. A conductor 106 connects the other contact of set 58b with one contact of the normally closed set 65 of forward relay FWD. A conductor 107 connects the other contact of set 65 with one end of the coil of return relay RET. A conductor 108 connects the other end of said coil with line 76. Closing of both contacts 58b and contacts 65 (when forward relay FWD is de-energized) completes a current path through the coil of the return relay and thus energizes this latter relay. The current path is from line 75, via conductors 77 and 95, contacts 57b, conductor 96, contacts 58b, conductor 106, contacts 65, conductor 107, the return relay coil, and conductor 108, to line 76. Thereupon the normally closed contacts of

said relay open and the normally open contacts close.

A conductor 109 connects conductor 106 with one contact of the normally open set 68 of return relay RET. A conductor 110 connects the other contact of set 68 with conductor 99. Closing of contacts 68 seals in the return relay. The current path is from line 75 via conductors 77 and 95, contacts 57b, conductors 96, 99 and 110, contacts 68, conductors 109 and 106, contacts 65, conductor 107, the return relay coil, and conductor 108, to line 76.

A conductor 111 connects line 75 with one contact of the normally open set 69 of return relay RET. A conductor 112 connects the other contact of set 69 with one end of the return operating solenoid 51 of valve 46. A conductor 113 connects the other end of this coil with one contact of the normally open set 70 of said return relay. A conductor 114 connects the other contact of set 70 with line 76. Closing of contacts 69 and 70 thus energizes solenoid 51. The current path is from line 75, via conductor 111, contacts 69, conductor 112, the solenoid, conductor 113, contacts 70, and conductor 114, to line 76. Thereupon valve 46 admits compressed air from the main supply line 45 and branch 45a to conduit 49 and the left end of cylinder 35 and at the same time relieves conduit 48 and the right end of the cylinder. Cylinder 35 and spray gun 40 commence moving to the left.

A conductor 115 connects conductor 99 with one contact of the normally open set 71 of return relay RET. A conductor 116 connects the other contact of set 71 with conductor 97. Opening of contacts 67 would break the current path to the coil of spray relay SP, except the spring adjustments of contacts 67 and 71 are such that contacts 71 close momentarily before contacts 67 open. Closing of contacts 71 completes a new current path to this coil and thus keeps this relay energized without interruption. The new current path is from line 75 via conductors 77 and 95, contacts 57b, conductors 96, 99 and 115, contacts 71, conductors 116 and 97, the coil of the spray relay, and conductor 98, to line 76. Thus the spray gun 40 continues to spray marking fluid on the return movement of cylinder 35 in the same fashion as on its forward movement.

As cylinder 35 moves to the left, limit switch 58 returns to its normal position, resetting itself for the next cycle. Ultimately cylinder 35 reengages limit switch 57 and opens its contacts 57b and closes its contacts 57a. Opening the former breaks the current path to the return relay RET and returns its contacts to their normal position, whereupon solenoid 51 and spray relay SP are de-energized. The contacts of the latter relay return to their normal position, whereupon solenoid 54 is de-energized. This solenoid has a spring return which closes valve 47 and thus the spray from gun 40 ceases. Closing of contacts 57a resets the circuit for the next cycle.

In the meantime timer relay T times out and its contacts 60 open. This timer relay can be set to time out at any point after the forward relay FWD seals in, but before cylinder 35 reengages limit switch 57. Opening of its contacts 60 breaks the curernt path to the control relay CR and thus prevents the operating cycle just described from repeating itself on the same pipe length. When the outlet chucks 14 subsequently are lifited after completion of the cutting operation, switch 56 opens. Thereupon the time delay relay is de-energized and its contacts 60 close for the start of the next cycle.

Preferably a manual operating switch 117 is connected across conductors 83 and 90 via a conductor 118 connected to conductor 83 and a conductor 119 connected to conductor 90. Closing switch 117 energizes the forward relay FWD, provided cylinder 35 is retracted and engaging limit switch 57. The current path is from line 75, via conductors 77 and 82, contacts 57a, conductors 83 and 118, switch 117, conductors 119, 90 and 85, contacts 58a, conductor 86, contacts 66, conductor 87, the coil of the forward relay and conductor 88, to line 76. The circuit then operates in the same fashion as before to propel the spray gun 40 along its path and back and to cause the gun to spray.

Operation

Summarizing the operation, a pipe P moving from left to right on conveyor rolls 10 of the cut-off machine contacts stop 15, whereupon chucks 13 and 14 are closed on the pipe and the cutter wheels 12 start making a cut. At the same time stencil holder 27 is lowered. Switches 55 and 56 close and energize control relay CR and time delay relay T. Energizing the former relay in turn energizes the forward relay FWD, which seals in, energizes the forward operating solenoid 50 of valve 46, and energizes spray relay SP. Energizing solenoid 50 causes valve 46 to admit fluid under pressure to the right end of cylinder 35 and to relieve the left end, thus propelling this cylinder and spray gun 40 to the right or forward across stencil 30. Energizing spray relay SP energizes solenoid 54 and causes valve 47 to operate spray gun 40 which sprays marking fluid on the stencil and the pipe underneath. When cylinder 35 moves away from limit switch 57, it conditions the current path to the return relay RET and when the cylinder engages limit switch 58 it completes this current path and breaks the current path to the forward relay. The return relay is energized and seals in, energizes the return operating solenoid 51 of valve 46, and again energizes spray relay SP. Energizing solenoid 51 causes valve 46 to admit fluid under pressure to the left end of cylinder 35 and to relieve the right end, thus propelling this cylinder and the spray gun to the left or returning them. Spray gun 40 sprays marking fluid as before.

It is seen that several obvious variations in the operation are possible. For example the spray gun could spray marking fluid on only one stroke of the cylinder 35, and this could be either the forward stroke or the return stroke. Another possibility would be for the cylinder to make only one stroke for each pipe, that is a forward stroke for one pipe and a return stroke for the next.

In referring to the stencil as "overlying" the article, I do not necessarily mean that the stencil is above the article, but only that it is placed in proximity to the surface of the article anywhere around the periphery thereof.

The stenciling machine of the present invention furnishes an entirely automatic means for marking each article passing through a production line. It is readily interlocked with associated equipment in the line so that it marks each article as it arrives. At the same time it involves only simple mechanical structure, fluid pressure operating mechanism and electric control mechanism.

While I have shown and described only cer-

tain preferred embodiments of the invention, it is apparent that modifications may arise. Therefore, I do not wish to be limited to the disclosure set forth but only by the scope of the appended claims.

I claim:

1. The combination with a pipe cut-off machine, of a stenciling machine comprising a stencil adapted to overlie a pipe which is supported by said cut-off machine, a spray gun spaced from said stencil and adapted to travel therealong and to spray marking fluid thereon, fluid pressure means for propelling and operating said spray gun, and electric control means actuated by each pipe as it comes to rest for cutting in said cut-off machine, said control means being connected to said fluid pressure means for operating the latter and thus marking each pipe as it is being cut.

2. The combination with a pipe cut-off machine, of a stenciling machine comprising a framework, a stencil device hinged to said framework and adapted to overlie a pipe which is supported by said cut-off machine and to move away from the pipe to allow irregularities therein to pass freely, a spray gun spaced from said stencil device and adapted to travel therealong and spray marking fluid thereon, fluid pressure means for propelling and operating said spray gun, electric control means actuated by each pipe as it comes to rest for cutting in said cut-off machine, said control means being connected to said fluid pressure means for operating the latter and thus marking each pipe as it is being cut, and means interlocked with said cut-off machine for moving said stencil device into its overlying position when the pipe comes to rest for cutting and to its position away from the pipe while the latter is traveling.

3. The combination with a production line machine adapted to perform an operation on articles after they enter and come to rest therein, of a stenciling machine for simultaneously marking the articles comprising a framework, a stencil carried by said framework to overlie each article in the line as it comes to rest in said production line machine, a spray gun supported by said framework and spaced from said stencil to travel therealong and to spray marking fluid thereon, propulsion means supported by said framework for moving said spray gun, and control means actuated by each article as it comes to rest in said production line machine for operating said spray gun and said propulsion means.

4. A combination as defined in claim 3 in which said propulsion means includes a double-acting pneumatic cylinder and piston, and said control means includes a first valve connected to said cylinder and piston and an additional valve connected to said spray gun, and an electric circuit for operating said valves.

5. A combination as defined in claim 3 in which said stencil is hinged to said framework to move away from articles when they are traveling to allow irregularities in articles to pass the stencil.

6. A combination as defined in claim 5 including a mechanism for moving said stencil about its hinged connection on said framework, and additional control means for automatically operating said mechanism to move said stencil to its overlying position when the article comes to rest and to its position away from the article when the article is traveling.

7. The combination with a production line machine adapted to perform an operation on articles as they enter and come to rest therein, of a stenciling machine for simultaneously marking the articles comprising a framework, a stencil hinged to said framework to overlie each article in the line as it comes to rest in said production line machine and to move away therefrom when the article is traveling to allow irregularities in the article to pass, a double-acting fluid pressure cylinder and piston carried by said framework above said stencil, a spray gun carried by said cylinder and piston to be propelled thereby along said stencil and to spray marking fluid on the latter, electrically operated valve means for controlling the admission of fluid under pressure to said cylinder and piston, additional valve means for operating said spray gun, and electrical control means actuated by each article as it comes to rest in said production line machine for operating both of said valve means and thereby spraying marking fluid along said stencil.

8. A combination as defined in claim 7 including a mechanism for moving said stencil about its hinged connection on said framework, and control means for automatically operating said mechanism to move said stencil to its overlying position when the article comes to rest and to its position away from the article when the article is traveling.

9. The combination with a production line machine adapted to perform an operation on articles as they come to rest therein, of a stenciling machine for simultaneously marking the articles comprising a framework, a stencil supported on said framework to overlie each article in the line as it comes to rest in said production line machine, a double-acting pneumatic cylinder and piston carried by said framework, a pneumatically actuated spray gun carried by said cylinder and piston to be propelled thereby along said stencil and to spray marking fluid on the latter, a solenoid operated valve for controlling the admission of air under pressure to said cylinder and piston, a second solenoid operated valve for controlling the admission of air to said spray gun, an electric circuit having relays for operating said valves for admitting air under pressure to said cylinder and piston and to said spray gun and thus propelling said spray gun and spraying marking fluid therefrom, and limit switches mounted on said production line machine and connected in said circuit for actuation by each article as it comes to rest in said production line machine.

10. A combination as defined in claim 9 in which said stencil is hinged to said framework to move away from articles when they are traveling to allow irregularities in articles to pass the stencil and including a mechanism for moving said stencil about its hinged connection, and additional control means for automatically operating said mechanism to move said stencil to its overlying position when the article comes to rest and to its position away from the article when the article is traveling.

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2,383,947	Wensel et al.	Sept. 4, 1945