

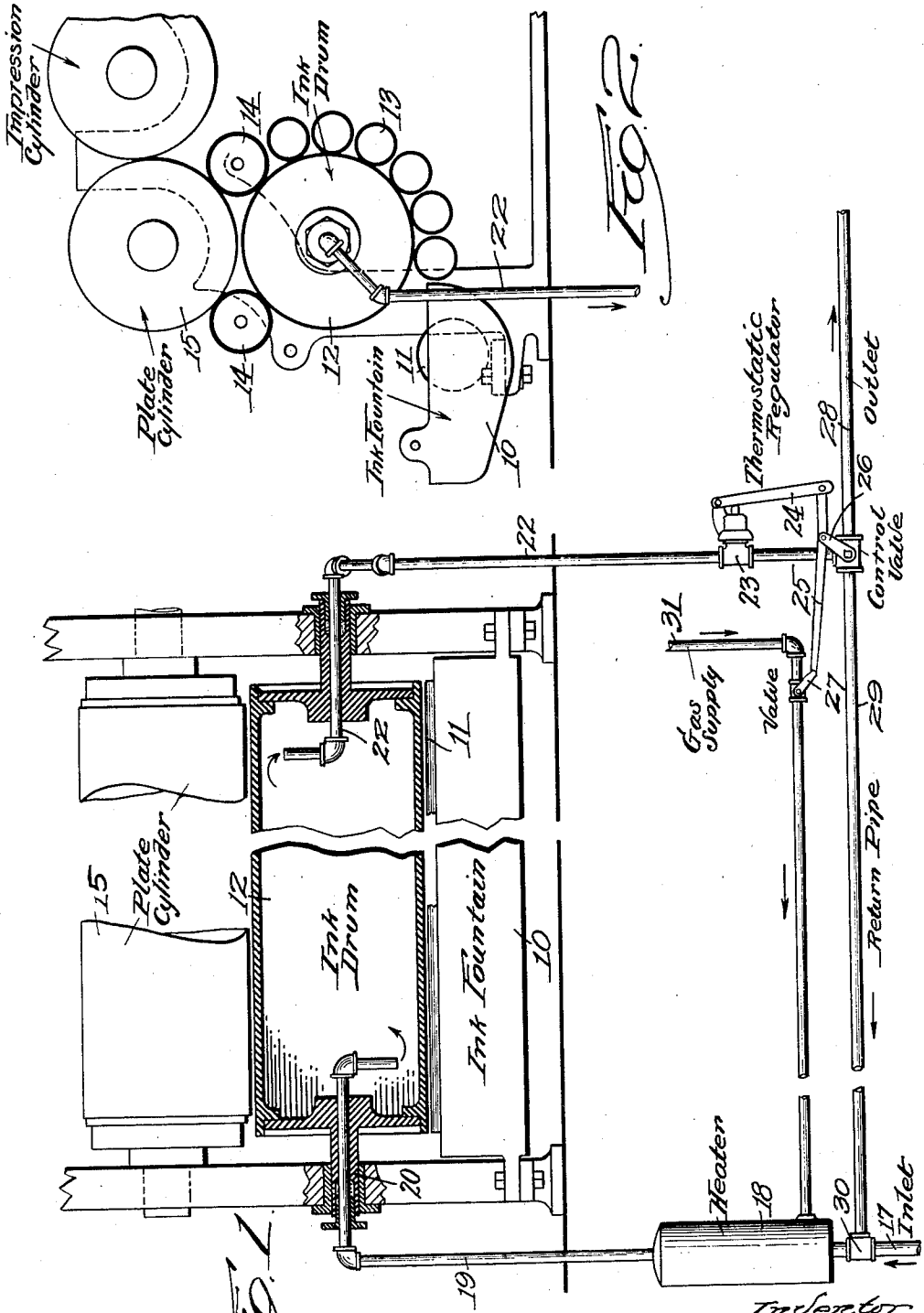
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INK SUPPLYING REGULATOR

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INK SUPPLYING REGULATOR

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This invention relates to means for controlling the temperature of ink in the inking mechanism of a printing press. It is well known that the temperature of the ink affects the consistency thereof and this in turn affects the printing.

The principal objects of this invention are to provide for heating ink in a part of the inking mechanism to keep the ink in a better condition for spreading and inking and also to provide for keeping it constantly at practically the same temperature so as to secure uniform results in printing.

Reference is to be had to the accompanying drawing in which

Fig. 1 is an elevation of a printing press with the ink drum and heating features shown in central sectional view; and

Fig. 2 is an end view thereof.

This invention can be employed obviously with various kinds of printing and inking mechanism. I have shown it as applied to a well-known type of printing press in which the ink is delivered from a fountain 10 through a fountain roll 11 and applied to an ink drum 12 surrounded in part by distributing rolls 13. The ink is applied by form rolls 14 to the plate cylinder 15.

For the purpose of heating the ink as it travels to the plate cylinder and the keeping it heated to a constant temperature I make one of the cylinders or rolls over which the ink passes hollow and supply it with heated water or other liquid. This heats the surface thereof and therefore it constantly applies the heat to the film of ink located on and passing from said surface. I find it preferable to use the ink drum 12 for this purpose as its surface is always provided with a comparatively long film of ink. Therefore there is time for the heated drum to heat the ink throughout a wide area. This, not only secures more uniform results than would be the case if the invention were applied to some other cylinder, but it also provides a sufficient heat supply.

I have shown the heating system as comprising an inlet water pipe 17 passing through a gas or oil heater 18 and supplying the heated water through a pipe 19. This pipe passes through one of the bearings 20

and drum journals into the hollow ink drum 12. This pipe discharges the heated water inside the ink drum and is allowed to operate constantly so as to fill the drum. The water is discharged through another pipe 22 which also passes through the opposite bearing and journal of the ink drum. This discharge pipe is provided with a thermostatic regulator 23 of any ordinary character which will regulate the water passing through it.

This regulator is provided with a lever 24 pivoted to swing back and forth with variations in the temperature of the water in the discharge pipe. This lever 24 is connected with a link 25 to which are pivoted two arms 26 and 27. The arm 26 operates a valve in a water outlet pipe 28, which valve connects the pipes 22, 28 and 29 which is a return pipe. This pipe 29 enters the pipe 17 through an ordinary T connection 30. The arm 27 is connected with a valve which controls the passage of gas or liquid fuel from a supply pipe 31 to the heater.

In operation the water is circulated through the drum normally and the thermostatic regulator is in such condition that part of the water from the pipe 22 will pass out through the outlet pipe 28 and part back to the heater through the return pipe 29. The valve in the gas supply pipe 31 will remain open far enough so that it will give a good flame but yet be capable of being opened further. Now if the water in the ink drum comes too cold, the thermostatic regulator will move the lever 24 so as to move the link 25 and turn the two arms 26 and 27. The effect of the latter is to turn on more heat and the effect of the former is to turn more of the water from the pipe 22 into the return pipe 29 and back into the heater. This water, being already heated to a much higher degree than the supply of water from the water supply system, will reenter the ink drum at a higher temperature than the outside water would.

If the ink drum becomes heated too high the thermostatic regulator will operate in the opposite direction and partly shut off the gas to the heater. At the same time through the arm 26 it will operate the control valve so

as to cause more of the discharge water from the pipe 22 to be diverted into the outlet pipe 28, thereby permitting cold water to enter the heater and immediately affect the temperature of the water supplied to the ink drum.

Thus the control is secured in two ways preferably, but I do not wish to be limited, except as expressed in the claims, to the use of both regulations. Although I have illustrated and described only a single form of the invention, I am aware of the fact that other modifications can be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims. Therefore I do not wish to be limited to the details of construction otherwise than as set forth in the claims, but what I do claim is:—

1. In an inking mechanism, the combination of the ink forwarding cylinders thereof, with means for supplying heat to one of said cylinders to soften the ink film thereon and means for automatically regulating the degree of such heat.

2. In an inking mechanism, the combination of the ink forwarding cylinders thereof, with means for supplying heat to one of said cylinders and means for automatically regulating the temperature of said cylinder to keep it substantially constant.

3. In an inking mechanism, the combination with a hollow ink drum and bearings by which its opposite journals are supported in the frame of the inking mechanism, of pipes extending through the centers of said journals, means to connect one of said pipes with a fluid supply, means for heating the fluid entering one of said pipes, and means for conducting part of the liquid from the other pipe into the supply pipe.

4. In an inking mechanism, the combination with an ink drum, pipes for introducing liquid into the drum and directing it away, means for connecting one of said pipes with a cooling liquid supply, a heater for heating the liquid in the supply pipe, and piping for directing the water from the other pipe away from the ink drum, of thermostatic means connected with said piping for controlling the supply of fuel to said heater.

5. In an inking mechanism, the combination with a hollow ink drum, hollow journals extending therefrom and supporting said drum in the frame of the inking mechanism, pipes extending through the centers of said journals, means for connecting one of said pipes with a water supply, a heater for heating the water in the last named pipe and piping for directing the water from the other pipe away from the ink drum, of thermostatic means connected with said piping for controlling the supply of fuel to said heater, a valve connecting said piping with an outlet pipe and with the inlet pipe to said heater, and means controlled by the thermostatic

means for operating said valve to regulate the amount of heated water from the ink drum that is returned to the inlet pipe and through the heater.

6. In an inking mechanism, the combination with an ink drum, an inlet pipe for introducing a cooling liquid into the drum and an outlet pipe for taking it away, means for connecting the inlet pipe with a liquid supply, a heater for heating the liquid in the inlet pipe, and a pipe for directing the liquid from the outlet pipe either away from the ink drum or back into the supply pipe, of thermostatic means connected with said outlet pipe for controlling the amount of heated liquid from the ink drum that is returned to the inlet pipe and through the heater.

7. In an inking mechanism, the combination of a hollow ink drum and the distributing rollers therefor, with a pair of pipes extending into said drum, one for delivering fluid into the drum and the other for taking it therefrom, a heater for heating the fluid before it enters one of said pipes, an inlet pipe to the heater, an outlet pipe connected with the second pipe discharging from the drum, a thermostatic regulator connected with said outlet pipe, a control valve in the outlet pipe for controlling the direction of the fluid from the outlet pipe either back into the inlet pipe or outside, and means connected with the thermostatic regulator for operating said controlling valve to divert more of the fluid from the outlet back through the heater when the ink drum is too cold.

8. In an inking mechanism for a printing press, the combination of a hollow ink drum and the distributing rollers therefor, with a pair of pipes extending into said drum, one for delivering liquid into the drum and the other for taking it therefrom, a heater for heating the liquid before it enters one of said pipes, an inlet pipe to the heater, an outlet pipe connected with the second pipe discharging from the drum, a thermostatic regulator connected with said outlet pipe, a control valve in the outlet pipe for controlling the direction of flow of the liquid from the outlet pipe either back into the inlet pipe or outside, means connected with the thermostatic regulator for operating said controlling valve to divert more of the liquid from the outlet back through the heater when the ink drum is too cold and less when it is too warm, a fuel supply pipe for supplying the heater having a valve therein, and means operated by the regulator for controlling the fuel pipe valve.

9. In an inking mechanism for a printing press, the combination of a hollow ink drum and the distributing rollers therefor, with a pair of pipes extending into said drum, one for delivering liquid into the drum and the other for taking it therefrom, a heater for heating the liquid before it enters one of

said pipes, an inlet pipe to the heater, an outlet pipe connected with the second pipe discharging from the drum, a thermostatic regulator connected with said outlet pipe, a fuel supply pipe for supplying the heater having a valve therein, and means operated by the regulator for controlling the fuel pipe valve.

In testimony whereof I have hereunto affixed my signature.

HENRY A. WISE WOOD.