Dec. 15, 1931. A. J. GRAF 1,836,023

LITHOGRAPHIC PRINTING MACHINE

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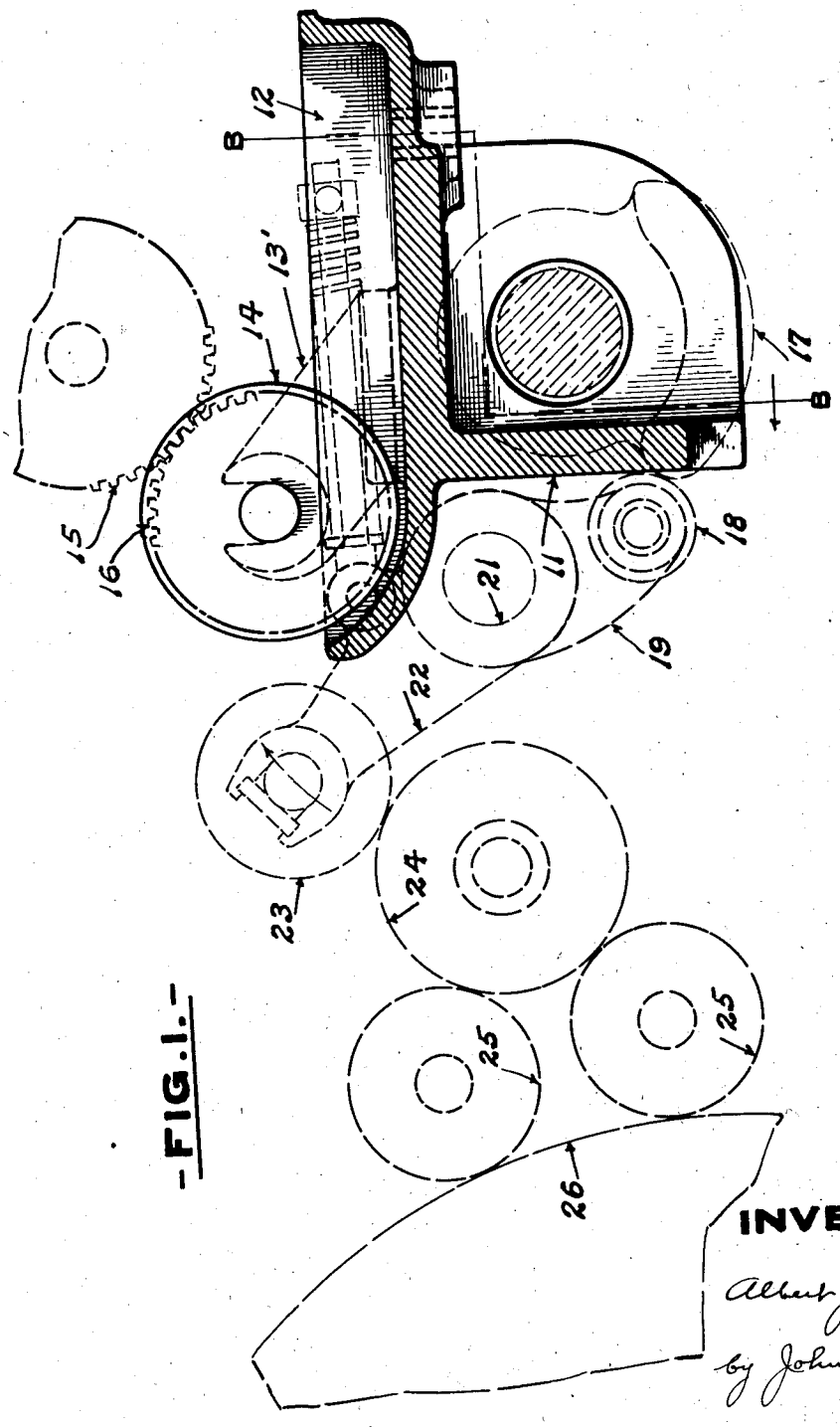


FIG. 1.

INVENTOR

Albert J. Graf

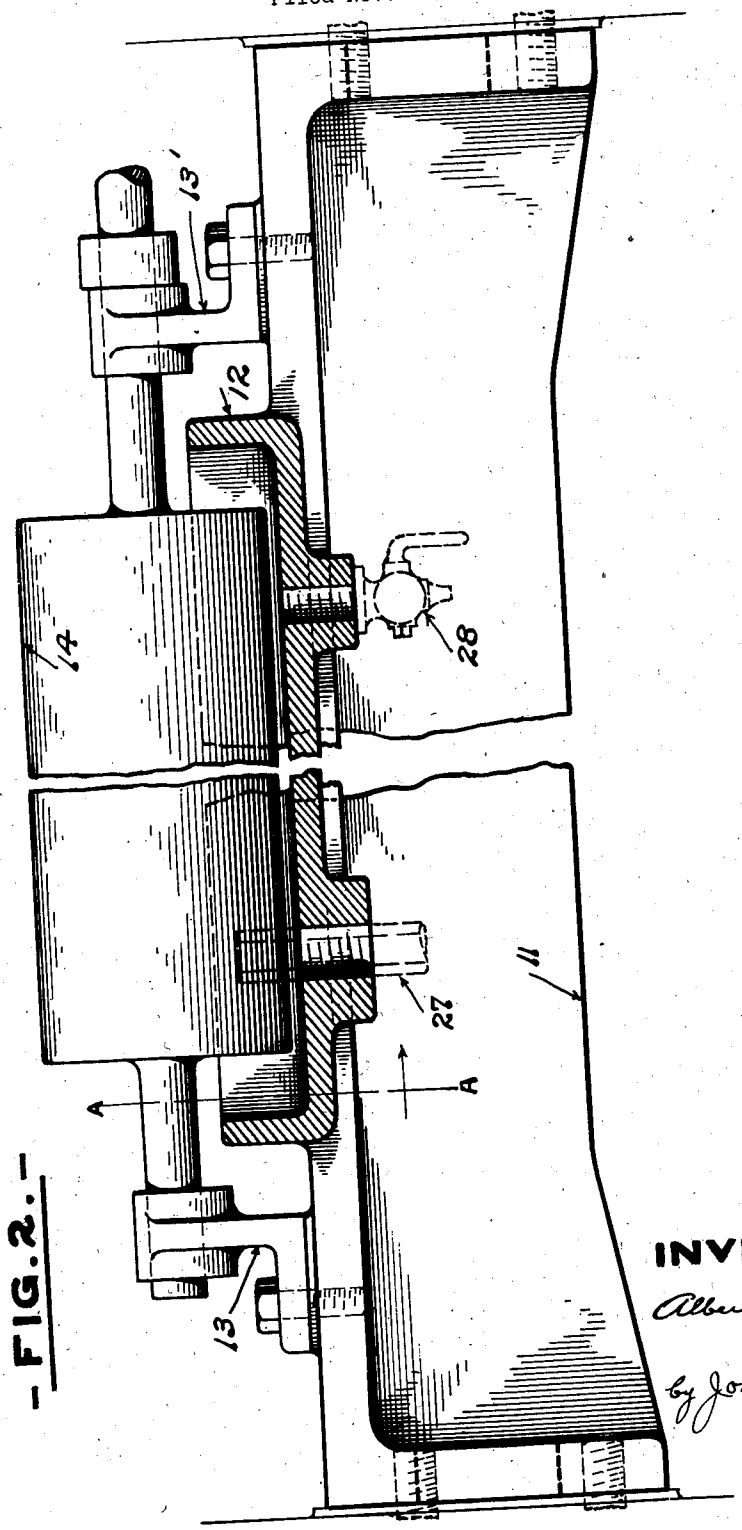
by John R. Tomlin

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-FIG. 2.-

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UNITED STATES PATENT OFFICE

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LITHOGRAPHIC PRINTING MACHINE

Application filed November 16, 1929. Serial No. 407,711.

This invention relates to lithographic printing machines in which moisture is applied to the printing plate by a dampening roller.

The mechanism for supplying the moisture to the plate is commonly called a water motion and includes a tray or fountain having a roller, rotatably supported so the lower side of its periphery is below the surface of the liquid in the fountain.

A ductor roller is rotatably supported on arms, whereby it may be swung alternately into contact with the fountain roller and into contact with one of a series of rollers that act to transfer the moisture from the ductor roller to the printing plate.

In water motions heretofore used, the fountain was made of sheet brass and secured to the frame of the machine, in operative relation to a fountain roller that was also usually made of brass. It is difficult to support a fountain so made, in proper alignment with the fountain roller without encroaching considerably on the space available for cross members necessary for bracing the frame. Furthermore, the brass roller rapidly becomes coated with ink and what is understood to be an oxide, resulting from chemical action, due to the presence of salts in the solution used in the fountain, and certain ingredients in the ink which are carried back to the fountain roller by the ductor roller. This coating causes the fountain roller to repel the solution, which interrupts the constant supply of moisture to the printing plate, and thus causes poor printing.

In the fountain that is the subject of this invention, the tray that holds the solution, is preferably made of cast iron formed integral with one of the cross braces that connect the side frames of the machine. The fountain roller is preferably made of aluminum and is rotatably supported in bearings formed in brackets secured to the fountain member. It has been found that this arrangement has the advantages of increased strength, rigidity and accessibility, that no coating is formed on the fountain roller, and thus a better quality of printing is obtained.

It is an object of the invention to provide an improved water fountain that is formed integral with a frame member of the machine.

Another object of the invention is to provide a water fountain having a roller, the surface of which will remain clean and free from deposits that ordinarily form on the fountain roller during the operation of the machine.

It is also an object of the invention to provide a water fountain of generally improved construction, whereby the device will be simple, durable and inexpensive in construction, as well as convenient, practical, serviceable and efficient in its use.

With the foregoing and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts, and in the details of construction hereinafter described and claimed, it being understood that various changes in the precise embodiment of the invention herein disclosed may be made within the scope of what is claimed without departing from the spirit of the invention.

The preferred embodiment of the invention is illustrated in the accompanying drawings, wherein:

Figure 1 is a diagrammatic view of a portion of a lithographic printing machine showing the improved water fountain in section, and the general arrangement of coacting parts of the machine, as they appear on the line A—A of Figure 2, and in the direction of the arrow; and

Figure 2 shows a sectional longitudinal view of the fountain, partly broken away, as it appears on the line B—B of Figure 1, and in the direction of the arrow.

Referring to the drawings, 11 indicates a brace or cross member of the machine frame, which serves with other members to hold the side frames of the machine, not shown, in proper alignment.

The water fountain, which is formed integral with the frame member, is indicated at 12.

Brackets 13 and 13′, are secured to the frame member 11 and are fitted with bearings adapted to rotatably support the foun-

tain roller 14, so that the lower side of its periphery will be immersed in the moistening fluid placed in the fountain.

Gears 15 and 16 serve to drive the fountain roller, and a rotating cam 17, acts on a roller 18, carried on an arm 19, that is secured to a shaft 21, to which arms, one of which is shown at 22, are also secured and support a ductor roller 23.

It will be understood that rotation of the cam 17, results in moving the ductor roller 23, alternately into engagement with the fountain roller 14 and the distributing roller 24. The fluid is thus transferred from the fountain roller to the distributing roller 24, and from it to the form rollers 25, by which the fluid is deposited on the plate carried by the cylinder 26.

The dampening fluid is usually supplied to the fountain by a circulating pump that draws it from a reservoir and delivers it to the fountain at a rate considerably in excess of the requirements. An overflow pipe 27, keeps the fluid at the proper level and allows the excess to flow back into the reservoir. The cock 28, is provided in order that the fountain may be drained for cleaning.

Grey cast iron is a suitable material for the member that forms the combined fountain and brace, and it is preferably galvanized to prevent corrosion. Aluminum is a suitable material for the fountain roller, as its oxide does not repel water and as its surface is kept wet, it does not take ink, furthermore, its place in the electro-chemical series makes it positive with respect to both the iron in the fountain and the zinc with which the fountain is galvanized.

Acid and alkaline ingredients are usually added to the water used in the fountain and they form an electrolyte in contact with both the fountain and the fountain roller. An electric circuit is completed through the bearings of the roller, and it is thought that a slight electrolytic action results, that aids in keeping the roller clean.

What I claim is:

1. In a dampening mechanism for a lithographic printing machine, an aluminum fountain roller and a water fountain formed of a metal that is electro-negative to the roller.

2. In a dampening mechanism for a lithographic printing machine, a galvanized iron water fountain and an aluminum fountain roller.

3. In a dampening mechanism for a lithographic printing machine, a galvanized water fountain integral with a frame member of the machine, and an aluminum fountain roller.

4. In a dampening mechanism for a lithographic printing machine, a water fountain having a fountain roller that is electro-positive to material in contact with the fluid in the fountain.

5. In a dampening mechanism for a lithographic printing machine, a water fountain having a fountain roller that is electro-positive to the metal of which the fountain is made.

6. In a dampening mechanism for a lithographic printing machine, a galvanized water fountain integral with a frame member of the machine, an aluminum fountain roller, and bearing brackets secured to the frame member and adapted to rotatably support the roller.

7. In a dampening mechanism for a lithographic printing machine, a water fountain formed of a ferrous material and having a fountain roller formed of a metal that is electro-positive to the material of which the fountain is formed.

8. In a dampening mechanism for a lithographic printing machine, a water fountain adapted to contain an electrolyte and having a fountain roller formed of a material that is electro-positive to the material of which the fountain is made, and an electrical connection between the fountain roller and the fountain whereby an electric circuit is completed through the fountain roller, the electrolyte, and the fountain.

In testimony whereof, I affix my signature.

ALBERT J. GRAF.