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DAMPENING FOUNTAIN FOR PRINTING PRESSES

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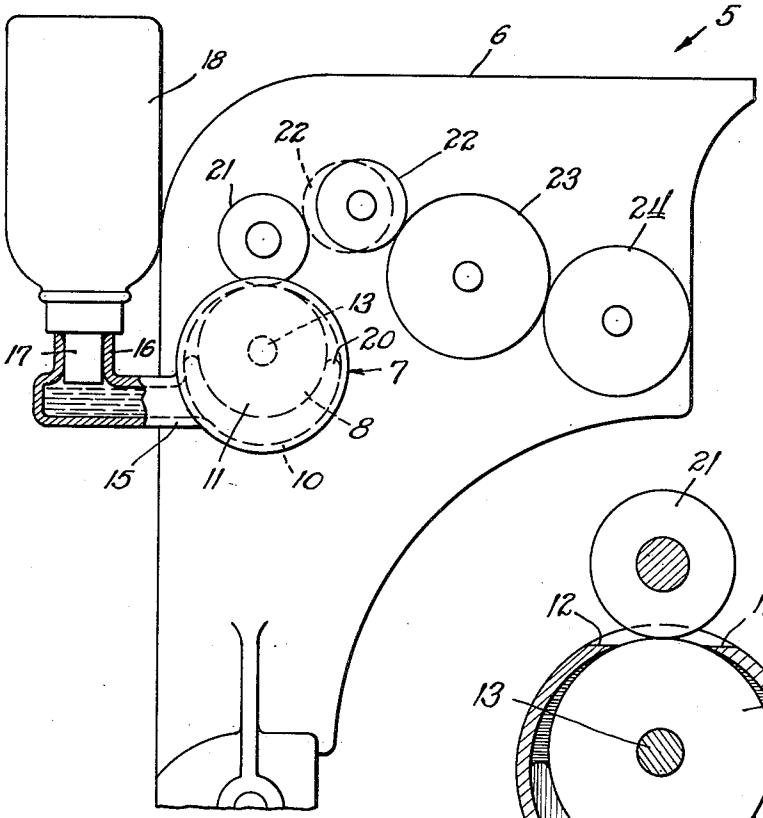


Fig. 1.

Fig. 3.

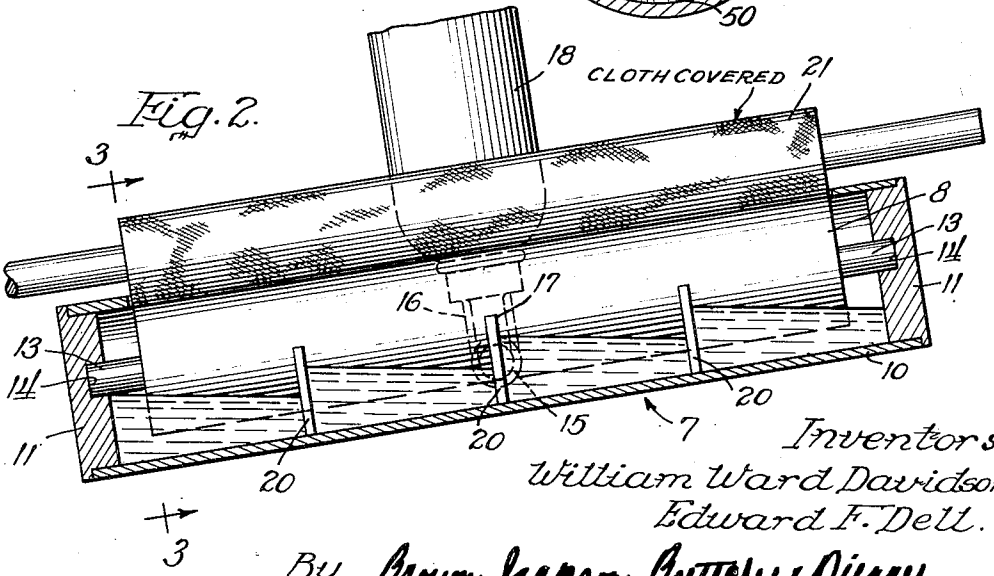


Fig. 2.

Inventors
William Ward Davidson
Edward F. Dell.

By Brown, Jackson, Boettcher & Dienner
Attys.

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DAMPENING FOUNTAIN FOR PRINTING PRESSES

William Ward Davidson, Evanston, and Edward F. Dell, Chicago, Ill., assignors to Davidson Manufacturing Corporation, Chicago, Ill., a corporation of Illinois

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3 Claims. (Cl. 91—50)

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This invention relates, generally, to improvements in dampening units for offset printing presses and it has particular relation to improvements in dampening fountains for use in such units whereby they may be used in connection with printing presses carried on an unsteady platform, such as the deck of a ship, without loss of the fountain solution by splashing or spilling.

Offset printing presses are well-known and extensively used. These machines include dampening units whereby the water receptive areas of the printing plate may be repeatedly moistened with the fountain solution.

Known dampening units have not been suitable for use in connection with printing presses which are mounted on unsteady platforms, such as the decks of ships. Except when periods of unusually calm weather prevail, the pitch and roll of a ship are such that the fountain solution splashes out of the conventional dampening fountain which forms a part of the known types of dampening units.

The object of the present invention, generally stated, is the provision of new and improved dampening units adapted to be associated with printing presses mounted on unsteady platforms, such as the decks of ships, with the dampening units being so constructed that the moistening solution is retained in dampening fountains of novel construction, which are almost completely enclosed, whereby the dampening units may be subjected to considerable tilting in different directions without the moistening solution being spilled or splashed out of the fountains.

Certain other objects of the invention will, in part, be obvious and will, in part, appear hereinafter.

For a more complete understanding of the nature and scope of our invention, reference may now be had to the following detailed description of a preferred embodiment thereof, taken in connection with the accompanying drawings, wherein:

Figure 1 is a partly diagrammatic, side-elevational view of a dampening unit for an offset printing press and made in accordance with the present invention;

Figure 2 is a fragmentary, elevational view, partly in section, showing the manner in which the moistening solution is prevented from spilling or splashing when the dampening unit of Figure 1 is tilted to one side; and

Figure 3 is an enlarged, sectional view taken on line 3—3 of Figure 2.

In Figure 1 of the drawings, a dampening unit

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is indicated generally at 5, which is adapted to be mounted for operation on an offset printing press. The reference character 6 designates the frame or body of the dampening unit 5, and is so shaped as to be readily mounted on a printing press, such as shown and described in Patent No. 2,387,750, issued October 30, 1945.

A dampening fountain 7 is supported by the frame 6. The dampening fountain 7 comprises a liquid tight cylindrical housing in which a tank roll 8 is disposed. The housing is formed by a cylindrical section 10 (Figure 2), the opposite ends of which are closed by end walls or members 11, 11. A slot extends across the top of the housing and is formed by cutting away part of the cylinder 10, as indicated at 12, 12 in Figure 3.

A tank roll 8 is provided with stub shafts 13, 13 on the opposite ends thereof which project into sockets 14, 14 in the end walls 11, 11. It will be noted that the tank roll 8 is mounted so that the axis of rotation thereof which extends through stub shafts 13 is somewhat above the axis of the housing in which it is mounted. The uppermost portion of the surface of the tank roll 8 projects through the opening formed in the top of the housing and, except for a narrow clearance to permit free rotation thereof, otherwise closes off this slot opening, as shown in Figures 2 and 3.

The dampening fountain 7 is supplied with moistening solution through the inlet connection 15 adjacent the bottom thereof, as shown in Figures 1 and 2. A well 16 is provided on the top of the inlet connection 15 and serves to receive the outlet projection 17 of a bottle 18 of a fountain solution. This arrangement maintains the level of the moistening solution within the dampening fountain 7 at approximately the top level of the inlet connection 15. The arrangement of the bottle 18 in the manner described provides for maintaining the liquid level in the fountain at a substantially predetermined level above the inlet connection 15. The pressure of atmosphere acting on the surface area of the liquid in the fountain serves to maintain the supply liquid in the inverted bottle 18, and upon lowering of the level in the fountain, as upon depletion of the liquid in the fountain by printing operations, below the inlet connection 15 air enters the bottle 18 displacing liquid therein and replenishing the fountain so that the predetermined level of the liquid is maintained in the latter. The arrangement of the above described liquid feed is a well known expedient in various arts and are adaptations or variations of the well known Torricelli principle. The moistening solution occupies the

space underneath the lower portion of the tank roll 8 and the bottom of the housing, as indicated in Figures 1 and 2.

In order to reduce splashing of the moistening solution within the fountain housing 7, as the dampening unit is tilted from side-to-side, as it would be on board ship, a plurality of baffles 29 are provided underneath the tank roll 8. The baffles 29 are parallel to each other and extend crosswise of the enclosed housing or dampening fountain 7. It will be observed that mechanical clearance is provided between the upper arcuate edges of the baffles 29 and the cylindrical surface of the tank roll 8 through which the moistening or dampening solution may pass so that the liquid levels in the several compartments defined by the baffles 29 and the tank housing are maintained substantially the same. Should this clearance be insufficient further opening means, such as shown at 50 in Figure 3, may be formed in the baffles to facilitate passage of the dampening fluid between the several sections in the tank housing to maintain the liquid in the several sections at substantially the same level. The opening 50 may be of suitable size to serve the aforementioned purpose without destroying the utility of the baffles for preventing sloshing of the dampening solution in the tank. The action of the baffles 29 in reducing the splashing and transfer of the moistening solution is illustrated in Figure 2, where the baffles 29 are shown to partition the space underneath the tank roll 8.

A fountain roll 21 is supported in the frame 6 in such manner that it engages the uppermost portion of the tank roll 8 which projects through the opening in the top of the enclosed dampening fountain 7. The fountain roll 21 may be provided with a muslin cover so as to increase the frictional engagement between it and the tank roll 8. Suitable driving means (not shown) drive the fountain roll 21, which in turn drives the tank roll 8. In this manner, moistening solution is transferred from the tank roll 8 to the surface of the fountain roll 21.

A ductor roll 22 (Figure 1) is provided which is rotatable and shifts between engagement with the fountain roll 21 and a distributor roll 23. In Figure 1, ductor roll 22 is shown in engagement with the distributor roll 23, and in broken outline is shown to be in engagement with the fountain roll 21.

Moisture is transferred from the distributor roll 23 to the form roller 24. The fountain roll 21, and the associated ductor roll 22, distributor roll 23 and form roller 24 are all driven by known mechanism, such as described in Patent No. 2,387,750.

The dampening unit 5 should be so designed that it may be tilted from side-to-side, in the manner illustrated in Figure 2, at least 10° without the moistening solution being spilled or splashed out of the dampening fountain, and with the dampening unit 5 performing its function satisfactorily during such tilting from side-to-side. The roll of a ship will not usually exceed 10° and a printing press carried thereon should be disposed so that the dampening fountain is parallel to the beam of the ship.

The dampening fountain 7 is so designed that it may be substituted for the conventional trough type fountain of a dampening unit, such as unit 5. Thus, it is possible to make use of existing dampening units by making this substitution.

If desired, the dampening fountain 7 may be so designed that the baffles 29 and the end closures

11 are readily removable, thereby facilitating the cleaning of the fountain from time to time. The details of several arrangements for making these parts removable will be apparent to those skilled in the art.

It will be understood that certain modifications may be made in the construction of the dampening unit 5 and that the invention may be embodied in other forms of dampening units suitable for attachment to offset printing presses, without departing from the spirit and scope of this invention.

What is claimed as new is:

1. In a dampening unit for an offset printing press, an enclosed dampening fountain which comprises, in combination, a cylindrical housing having a narrow opening extending lengthwise in the top thereof, a tank roll disposed in said housing and having a diameter somewhat less than that of said housing, bearing support means for said tank roll whereby the longitudinal axis about which it rotates is parallel to and above that of said housing and the uppermost segment of the surface of said roll is exposed through said narrow opening, a plurality of baffles extending crosswise of said housing between the latter and said tank roll, and said baffles having arcuate upper edges disposed closely adjacent the outer cylindrical surface of said tank roll.

2. In a dampening unit for an offset printing press, an enclosed dampening fountain which comprises, in combination, an elongated housing for containing a dampening medium, said housing having an upper portion substantially in a form of a cylindrical segment with there being a narrow elongated opening extending lengthwise therein, a tank roll disposed in said housing and having a diameter less than the depth of said housing, bearing support means for said tank roll for supporting the latter with its longitudinal axis extending parallel to and disposed between the elongated opening and longitudinal axis of said housing with the uppermost segment of the cylindrical surface of said roll exposed through said elongated opening, a plurality of baffles extending crosswise of said housing between the latter and said tank roll, and said baffles having arcuate upper edges disposed closely adjacent the cylindrical surface of the tank roll.

3. The combination as called for in claim 2 wherein the uppermost segment of the surface of said tank roll fits in said narrow opening in juxtaposition of the edges defining the opening so as to substantially close the same.

WILLIAM WARD DAVIDSON.
EDWARD F. DELL

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