April 17, 1934. P. SCHWARTZ 1,955,442

DAMPENING ROLLER

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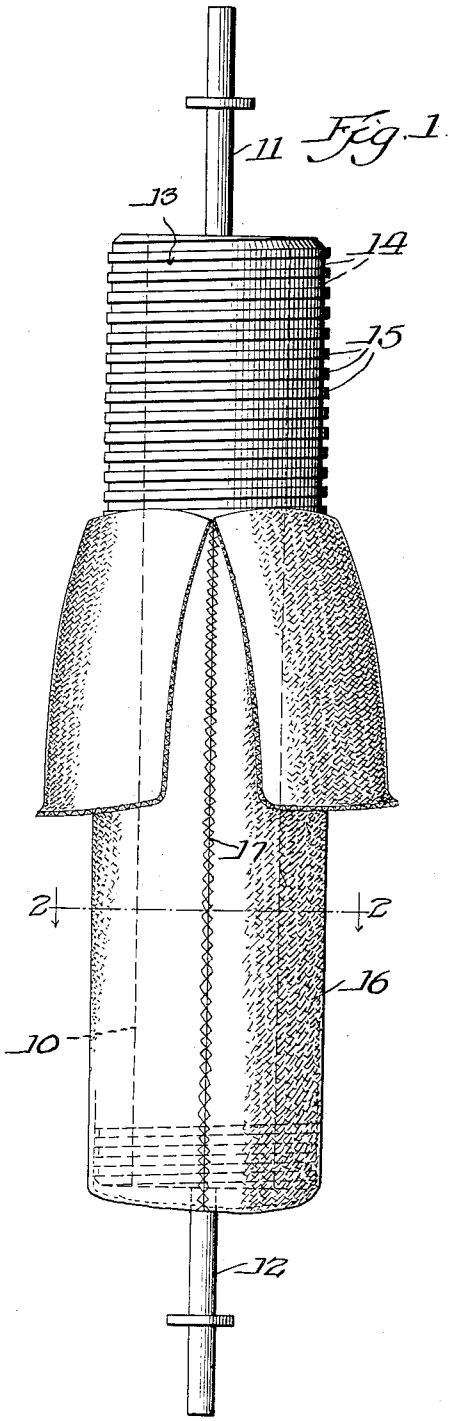


Fig. 1.

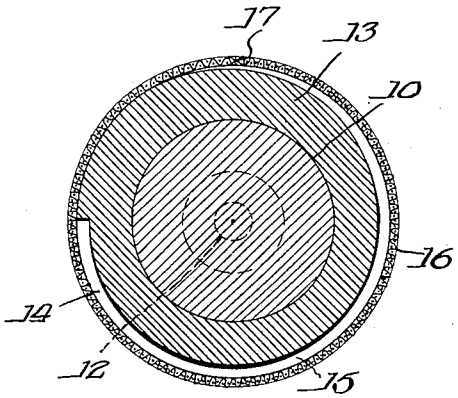


Fig. 2.

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DAMPENING ROLLER

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3 Claims. (Cl. 91—67.8)

My invention relates to dampening rollers, and particularly to the base portion of such rollers for use in lithographic press work, and has for one of its objects the provision of a dampening roller which is rigid and strong with a material increase in the resiliency of the rollers over the forms now in use, and also an added feature of a roller which will retain water longer than the usual type of roller and which is more satisfactory in service.

Another and further object of my invention is the provision of a base for dampening roller which presents a true and firm surface when the roller is new and which will remain in this condition throughout its period of service or until the covering is worn to such extent that it requires renewal.

Another and further object of my invention is the provision of a base for a dampening roller which does not require renewal as often as the rollers now in common use, and avoids the necessity of removing and renewing the felt base which is ordinarily used in dampening rollers of this type.

Another and further object of my invention is that it enables the pressman to supply varying amounts of water to the lithographing plate by changing the dimension of the groove, without danger of flooding the plate.

Another and further object is that a roller of this type gives the pressman more service than the usual dampening roller because the roller remains more uniform in service than the dampening rollers used at the present time, and therefore does not develop the low spots common to these rollers so that the surface of the roller always comes in contact with the lithographing plate in the proper manner.

In the ordinary types of dampening rollers used for lithographic work, it has been the practice heretofore to employ a roller having a steel core upon which a water-resisting elastic composition in circular form is placed, made of oils, resins, rubber and the like, and upon which a layer of felt is superimposed, this layer of felt forming the reservoir for holding the water necessary for dampening the lithographic plates. Over the felt is placed a layer of heavy cloth commonly termed "molleton" cloth, which forms a wearing surface for the roller, this molleton cloth being sometimes pre-formed in tubes for varying sizes of rollers, and then placed in position over the felt, or may be secured directly over the roller. It is difficult to keep the felt base uniform in thickness because portions of it take up larger quantities of water than other portions, and pressure on the surface of the roller, even though it may be slight, and the constant soaking up of the water, causes the felt to become hard and uneven so that the rollers do not perform satisfactorily and become so closely packed through service and the constant soaking of the water into the felt pads that the resiliency of the felt is lost, so that the rollers must be removed constantly.

In my improved roller I omit the felt base which is so common, and employ a roller made of the usual composition, in which a recess, preferably in the form of a spiral groove, is formed which extends from one end of the roller to the other and over which the usual molleton cloth is used which serves to retain the necessary water for dampening the plate, and in which a helical rib is formed which supports the molleton cover.

These and other objects of my invention will be more fully and better understood by reference to the accompanying sheet of drawing, and in which—

Figure 1 is an elevational view showing my improved dampening roller with the usual molleton cover thereon which is shown opened and turned back from one end of the roller; and

Figure 2 is a cross sectional view showing the construction of the inner roll.

Referring particularly to the drawing and in which like reference characters refer to like parts throughout, a steel core 10 is shown in the usual form, and which has projecting shaft portions 11 and 12 respectively which form the mountings within the journals on the press for the operation of the roller. Over the core 10, I place the usual composition covering or base 13 which is made up of any usual water-resisting material and may vary according to the degree of hardness or resiliency that is required.

In the outer surface of the base 13 I provide a helical groove 14 which extends from one end of the roller to the other, with a helical rib 15 in a thread-like form, the groove for the average roller being cut approximately ⅛ inch wide and of ¼ inch pitch, the entire length of the roller. The depth, width and pitch of this groove will vary according to the amount of water desired for varying classes of work, the dimensions given being for the average sized roller used in lithographic work. The projecting thread 15 which is formed corresponds generally in height and width to the helical groove 14 and which extends from one end of the roller to the other in the form of a square thread so that a flat base is formed for the molleton cover 16 which is placed over the composition 13. The molleton cover is usually

applied to the roller by the printer by being sewn thereon, but may be made and applied by the roller manufacturer. It has a row of stitching 17 extending throughout its length and has its ends carried down and sewed around the shaft portions 11 and 12 in any approved manner.

The roller is mounted in a press and used in the usual manner of lithographing rollers adjacent the water fountain of the press by means of which the quantity of water supplied to the roller in any given area is controlled.

It will thus be understood that the threads or projecting portions 15 form the base and supporting members for the molleton covering 16 and that these projecting portions or threads being highly resilient give the roller a much more resilient effect than if the solid base were provided. In addition the channel or groove provides means within which the water may be carried as it soaks through the molleton covering so that a larger quantity of water can be supplied to these rollers than with the usual felt base under the molleton cloth, and in addition thereto, the composition roller remains elastic a greater period of time than is common with the felt covering.

It is preferable, of course, to have the groove extend in a spiral direction so that as the roller passes over the surface of the lithographing plate the molleton covering is uniformly supported, which would not be true if grooves were provided in the roller which were concentric, because then the ribs extending around the roller in a right angle direction to the longitudinal plane of the roller would form a track across the plate and would not give the uniform surface that the spiral groove secures as the roller passes over the lithographing plate, although grooves may be provided in the roller extending in any direction, or even in a longitudinal direction, or a combination of both may be used if desired.

I prefer to form the composition cover in flat form and then cut the groove afterward, but the composition may be molded in such manner that the narrow rib is formed thereon and the pitch may be varied if desired. The rib may also vary in width and height, it being understood that the rib is originally more elastic than the solid composition and will remain so much longer than the usual felt which soon becomes "dead" or inelastic in service.

While I have described more or less precisely the details of construction, I do not wish to be understood as limiting myself thereto, as I contemplate changes in form and the proportion of parts and the substitution of equivalents as circumstances may suggest or render expedient without departing from the spirit or scope of my invention.

I claim:

1. A dampening roller, comprising a metallic core, an elastic composition having a helically extending rib thereon and integral therewith of relatively small pitch and having a flat top surface, and a fabric cover therefor contacting the said top surface.

2. A dampening roller, comprising a metallic core, an elastic composition having a helically extending rib thereon and integral therewith of relatively small pitch and of square cross section presenting a flat top surface, and a fabric cover therefor contacting said top surface.

3. A dampening roller comprising, in combination, a metallic core, an elastic composition having a helically extending rib thereon and integral therewith throughout the length of the roller of relatively small patch and of square cross section presenting a flat top surface, and a fabric cover therefor contacting said top surface.

PHILIP SCHWARTZ.