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WIPING DEVICE

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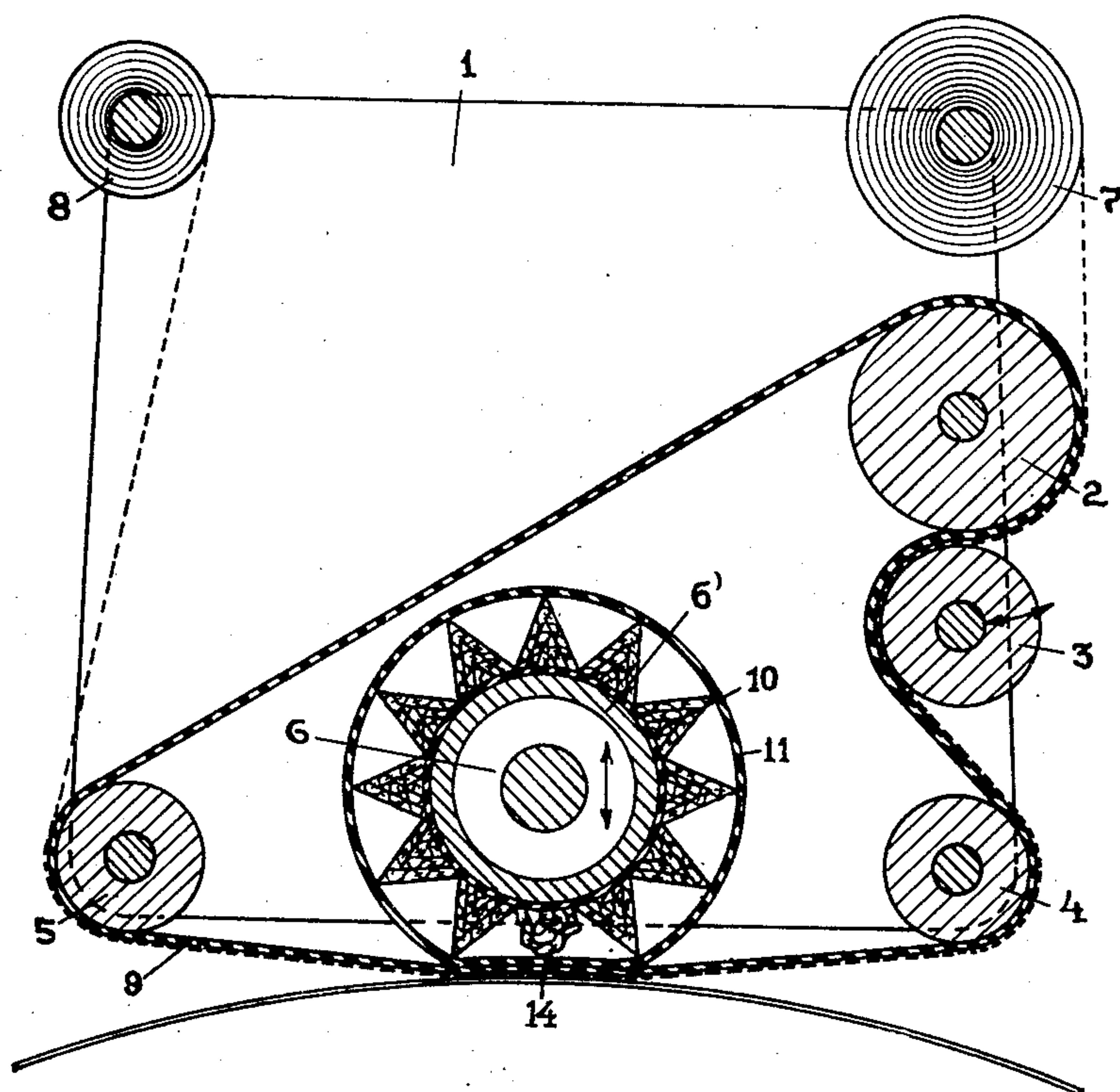


Fig. 1.

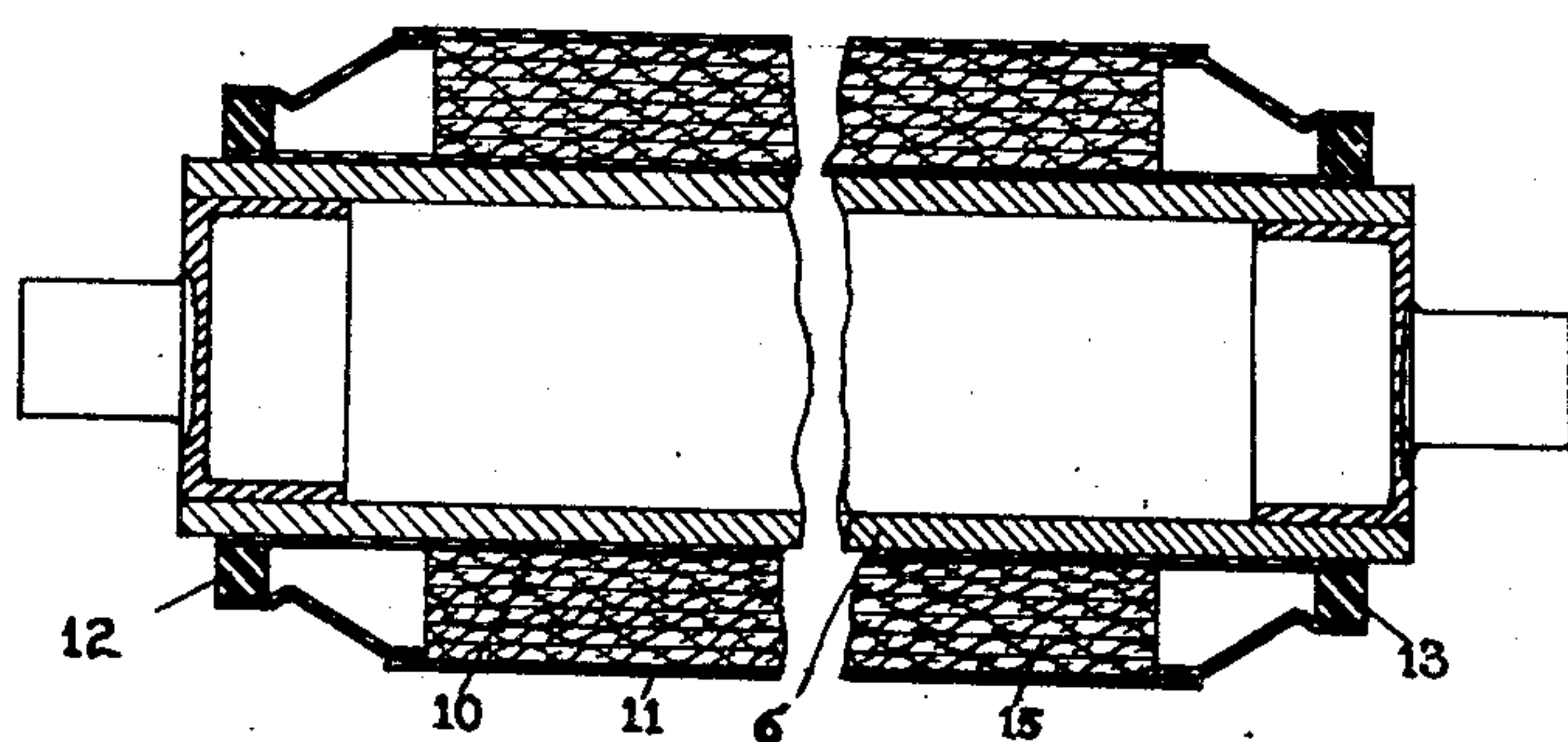


Fig. 2.

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## UNITED STATES PATENT OFFICE

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## WIPING DEVICE

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In Austria August 1, 1936

2 Claims. (Cl. 101—168)

The invention relates to copper plate presses in which an absorptive wiping band is moved along between the printing roll or printing plate of which the surface is to be wiped, and an elastic wiping member.

The invention aims to provide an elastic wiping member which by simple, reliable, and inexpensive means makes it possible to maintain the wiping pressure exerted on the wiped surface accurately uniform at all parts of said surface.

Elastic wiping members such as endless pneumatic bands, or rollers are already known, which accomplish the wiping action with their own surface per se or by means of an endless band, and which are used in lieu of the ordinary wiping pad commonly employed.

In the prior art pneumatic wiping rollers it was necessary to use a relatively high air pressure and to make the air sleeve of the roller relatively thick so that during wiping the roller would not be forced much out of the concentric position it occupies with respect to the shaft that carries the roller.

In accordance with the invention, the pneumatic roller is constituted as an airtight, cylindrical, double-sleeve fastened to a solid walled core, the two sleeves of the roller being interconnected by spoke-like textile fabric laminations fastened to the walls of the sleeves so as to permit the roller to be pressed against the wiped surface while maintaining the sleeve walls in their concentric position at the remaining points. Owing to the use of the spoke-like textile fabric laminations the walls of the double sleeve may be much thinner than the dimensions heretofore used. A lower air filling pressure may likewise be used because the pressure, which is ordinarily not high enough, will, during wiping with such a double sleeve structure, become raised to the desired degree, when the roller is pressed on the wiped part to any appreciable degree, due to preservation of the concentric position of the roller. The thinner wall of the wiping roller and the lower pressure prevailing in the filling apparatus connected with the double sleeve structure of the roller also make for appreciable cost economies. Due to the fact that the wiping roller maintains a concentric position, the wiping pressure is positively uniform at all points. The new wiping roller can be readily interchanged with the wiping members now used on existing presses. It is especially advantageously serviceable for such copper plate printing presses in which a color absorbing wiper band moved past beneath the pneumatic wiper roller and crosswise of the

moving printing surfaces is maintained in reciprocating motion in such a manner that the advance of the wiper band is effected in step with the reciprocating wiping motion in small uniform advance strokes and is suspended in the intervals between the printing plates. Thus, when areas between two printing plates come under the wiping band, the latter returns but does not advance while there is no printing surface present below the band.

The known resilient wiping rollers may according to the present invention be so constructed from two cylindrical sleeves of different diameters attached to a strong-walled core and disposed one within the other with an air space between them, that the said sleeves are sealed together in an air tight manner at both ends and are so connected together by means of spoke-like textile fabric laminations that pressing in of the surface of the outer sleeve at the part to be wiped is possible without the concentric position of the two sleeves being disturbed. Air is pumped in between the two sleeves which are sealed together at both ends in an air-tight manner and in this way the magnitude of the wiping pressure can be regulated very simply by altering the air pressure.

The wiping roller according to the present invention is represented diagrammatically in a constructional example in the accompanying drawing, in which

Fig. 1 is a cross section of the wiping apparatus and

Fig. 2 is a longitudinal section of the pneumatic roller.

In Figure 1 rollers 2, 3, 4, 5, 6, 7, 8 are journaled in and between the side walls 1. The roller 2 is driven at the side by a worm transmission drive not shown and moves the endless rubber band 9 which passes round the rollers 2 to 5, the tensioning roller 3 keeping the rubber band under a suitable tension. The rubber band 9 positively drags with it the colour absorbent wiping band shown in dotted lines which is fed from the braked magazine roller 7. After the wiping band has passed beneath the rubber band from the roller 4 to the roller 5, it is wound up by means of a frictionally driven roller 8 in proportion as it is fed out by the advance of the wiping band. The rigid-walled cylindrical core member 6' is disposed between the rollers 4 and 5 and above the rubber band and is freely mounted for rotation between the two side walls 1. The core 6' is essentially an ordinary tubular roller and exerts the wiping pressure from above upon the endless rubber band 9 by virtue of the fact that



a rubber covering 10 (Fig. 2) is applied over the tubular part of the roller over which is fitted concentrically a second rubber covering 11 with an intermediate air space.

5 The jackets 10, 11 constitute an air sleeve structure. The outer jacket 11 is connected at both ends with the inner jacket 10 by means of rubber end members 12 and 13 in such fashion that the air chamber located between the two sleeve walls is closed off airtight exteriorly and so that it does not prevent a deformation of the outer jacket 11 when compressed or flattened at point 14 by the wiping pressure as shown in Fig. 1. The jackets 10 and 11, as far as the air chamber is concerned, are held in concentric relation to each other by means of textile fabric laminations 15 arranged in spoke fashion. The flattening of the cylinders during the occurrence of wiping compression therefore encounters only the pneumatic pressure as resistance. The original relatively low pneumatic pressure becomes increased to the value necessary for wiping purposes due to the fact that the fabric lamina prevent outward deflection of the outer jacket 11 from its concentric position and hence the volume of air in the double sleeve remains practically uniform.

25 Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that what I claim is:—

1. An elastic roller for pressing a wiping band against the impression surface of a copper printing plate, said roller comprising a cylindrical core, a rubber sleeve on said core a second rubber sleeve concentric with and spaced from said first sleeve, spoke like textile fabric laminations between said sleeves and secured to the latter, whereby the wall of the outer sleeve can be deformed towards the inner sleeve, but is prevented from bulging beyond its normal position, and rubber end pieces between said two sleeves, to seal the space between said sleeves in an airtight manner.

2. A pneumatic wiping roller for copper plate printing presses in which a color absorptive wiper band passed along beneath the wiper roller is kept in a state of reciprocating motion crosswise of the moving printing surface in such a manner that the advance of the wiper band is effected in step with the reciprocating wiping movement in small uniform partial advance movements only during the wiping action per se, characterized by the use of an airtight cylindrical double sleeve fastened on a solid walled core member said sleeve having textile fabric laminations fastened to the walls of the double sleeve and adapted to effect compression of the roller onto the wiping point while maintaining the concentric position of the sleeve walls at other places.

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