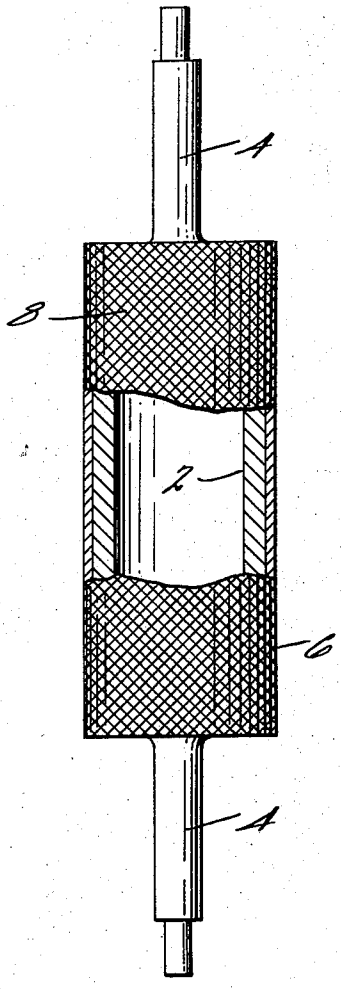
Oct. 13, 1959 H. BIEL ET AL 2,908,068

INKING ROLLER WITH POROUS CORROSION RESISTANT COATING

Filed Jan. 23, 1956



INVENTORS
Hans Biel
BY Walter Kugler
Harness, Dickey & Pierce
ATTORNEYS

United States Patent Office 2,908,068
Patented Oct. 13, 1959

2,908,068

INKING ROLLER WITH POROUS CORROSION RESISTANT COATING

Hans Biel and Walter Kugler, Wurttemberg, Germany, assignors to Hans Sickinger, Providence, R.I.

Application January 23, 1956, Serial No. 560,798

Claims priority, application Germany January 29, 1955

3 Claims. (Cl. 29—121)

This invention relates to improved printing apparatus and more particularly to improved inking rollers for such apparatus.

One object of the instant invention is to provide improved ink distribution rollers for use in printing presses and the like. Another object is to provide improved ink distribution rollers which are highly resistant to the corrosive effects of modern printing inks and which have porous surfaces to improve the ink transmission characteristics of the rollers.

These and other objects are accomplished by the instant invention which provides improved ink rollers for use in inking systems of printing presses and the like. Ink rollers according to the invention comprise cylindrical cores having porous yet hard surface coatings of a corrosion resistant metal such as stainless steel, tungsten or molybdenum.

The invention will be described in greater detail in connection with the accompanying drawing of which the single figure is an elevational view, partly in section, of an improved ink roller according to the invention.

An ink distribution roller according to the invention as shown in the drawing comprises a hollow cylindrical core 2 having axially extending shafts 4 which may be journalled in any suitable bearings (not shown) to mount the cylinder for rotational movement. The core 2 may be made of any desired material such as steel or cast iron having sufficient strength to withstand the stresses and strains that may be encountered in operation of the roller in an inking system. The core 2 bears a coating 6 on its outer surface of a relatively hard, corrosion resistant porous metal.

Porosity of the coating 6 is achieved by the method of applying it to the surface of the roller. The coating 6 is applied by metal spraying according to the well known Schoop method which produces a strongly adherent and uniform but porous coating. The coating is preferably made about one millimeter thick in order to provide fully effective anti-corrosion protection for the surface of the cylinder 2 upon which it is applied. The coating may be made thicker than one millimeter if desired, but, since this thickness has been found to provide fully adequate anti-corrosion protection, it is preferred to limit the coatings to about one millimeter in order to minimize the cost of the rollers. The porosity of the coating 6 increases the ink transmission efficiency of the roller, and the nature of the coating material insures a long service life with negligible wear or corrosion.

If desired, the coating 6 may be cut after it is applied to produce thereon an embossed pattern such as a fine screw thread to increase lateral ink distribution axially along the roller, or a diamond pattern 8 such as is shown in the drawing further to increase its ink handling capacity. Such a pattern may be produced by any known cutting method, such as by grinding or etching. Care must be taken, of course, not to cut completely through the coating 6. At least about 0.6 millimeter or more

thickness should be left in the coating at the points of deepest cut in order not to impair the effectiveness of the anti-corrosion protection. If desired, the entire roll may then be ground to reduce its outside dimensions to a true cylindrical shape and to remove any surface irregularities that may be produced by the cutting or etching operations.

For many purposes the roller may be used as an ink distribution roller in an inking system of a printing press without any cutting or etching operations subsequent to the application of the spray coating. The Schoop process produces a relatively rough and porous surface layer which is capable of relatively efficient ink transmission.

Rollers according to the invention are particularly useful as ink distribution rollers to transfer ink from a source such as an immersion roller onto a printing plate. Because of the porosity and roughness of the surface layer rollers according to the invention, they tend to take up more ink from the source than do smooth rollers. They also tend to distribute the ink over their own surfaces with an improved uniformity.

The materials suitable for use in coating rollers according to the invention are not critical. It is essential, however, to select a material that is relatively hard, corrosion resistant and susceptible to spraying by the Schoop method. It has been found that stainless steels such as 18–8 (SAE 30615) and 18–10 (SAE 30805) and pure metals such as tungsten and moylbdenum all give satisfactory results.

What is claimed is:

1. In an ink distributor roller, a rigid cylindrical core having a surface coating of a hard, porous, corrosion-resistant spray-deposited metal bonded to its outer surface, said coating having embossments forming a pattern to improve the ink transmission capabilities of the roller, the thickness of said coating being approximately one millimeter, the minimum thickness of said coating at said embossments being sufficient to provide anti-corrosion protection for said core.

2. The combination according to claim 1, said metal being selected from the group consisting of stainless steel, tungsten and molybdenum.

3. In an ink distributor roller, a rigid cylindrical core having a surface coating of a hard, porous, corrosion-resistant spray-deposited metal bonded to its outer surface, said coating having embossments forming a pattern to improve the ink transmission capabilities of the roller, the thickness of said coating being approximately one millimeter, the minimum thickness of said coating at said embossments being at least 0.6 millimeters.

References Cited in the file of this patent

UNITED STATES PATENTS

231,916	Leake	Sept. 7, 1880
1,810,636	Adler	June 16, 1931
1,823,869	Baur	Sept. 15, 1931
1,947,493	Rose	Feb. 20, 1934
2,000,518	Horton	May 7, 1935
2,032,770	Rowell	Mar. 3, 1936
2,181,111	Horn	Nov. 21, 1939
2,310,788	Hummelchin	Feb. 9, 1943
2,588,422	Shepard	Mar. 11, 1952
2,627,228	Bromley	Feb. 3, 1953
2,663,558	Ornitz	Dec. 22, 1953
2,698,810	Stauffer	Jan. 4, 1955
2,760,432	Wood	Aug. 28, 1956

OTHER REFERENCES

"Construction Methods," September 1942, page 53. (Copy in 117–105.)