April 3, 1956 H. E. WIMPFHEIMER 2,740,355

APRON BLANKET FOR MULTICOLOR PRINTING PRESSES

Filed June 12, 1953

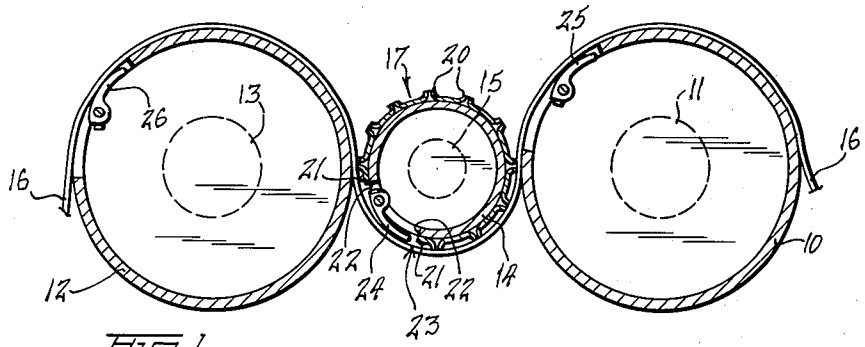


FIG. 1.

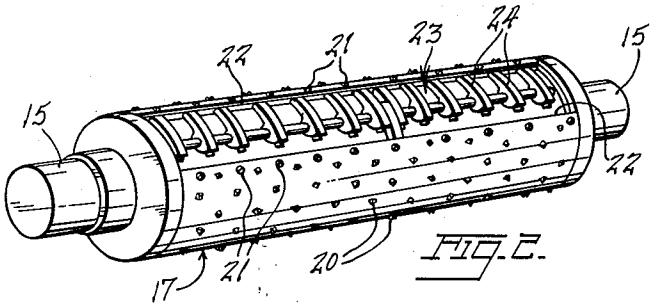


FIG. 2.

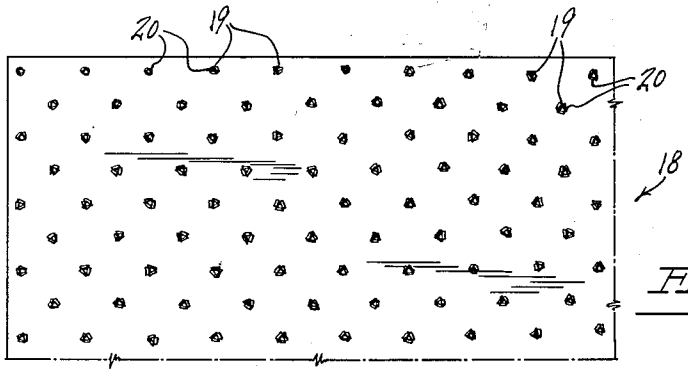


FIG. 3.

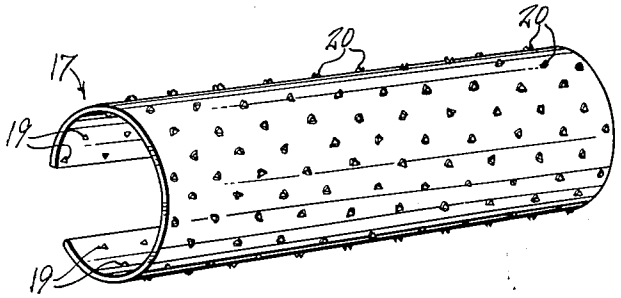


FIG. 4.

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United States Patent Office 2,740,355 Patented Apr. 3, 1956

2,740,355

APRON BLANKET FOR MULTICOLOR PRINTING PRESSES

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Application June 12, 1953, Serial No. 361,295

1 Claim. (Cl. 101—420)

This invention relates generally to multicolor printing presses and, more particularly, to a new and useful improvement in an apron for use on a transfer cylinder to prevent injury to the printed matter on a printed sheet passing over the cylinder.

In multicolor printing, a sheet or cardboard to be printed upon is transferred from a printing cylinder of one color ink to another printing cylinder of a different color ink by a transfer cylinder contiguous to both printing cylinders. It is absolutely necessary that the partially and freshly printed surface of the sheet or carboard being run does not touch the bare surface of any of said cylinders otherwise the printed matter will become smeared, smudged, wiped, marked, blurred or otherwise injured.

Heretofore in order to prevent the printed matter on a freshly printed sheet of paper or cardboard from touching the bare surface of a cylinder of a multicolor printing press, it has been the practice to cover the surface of the cylinder with a cloth or paper sheet coated with garnet crystals or with granular particles. This is objectionable as the crystals and particles gradually become separated or break away from the cloth or paper sheet and fall into the bed of the press and finally reach the surface of the paper to be printed causing the half-tone plates to become speckled.

Furthermore, in ordinary granularly coated paper, the grain is distributed in a haphazard fashion so that the flat sides of the abrasive grain are found on the rough surface in a large proportion of the granules instead of the sharper points.

It is the principal object of the present invention to eliminate such objections and disadvantages by providing an apron for a transfer cylinder which effectively prevents the printed matter on a printed sheet or cardboard from touching the bare surface of the transfer cylinder, thereby preventing smearing, blurring or other injury to the printed matter.

Another object of the invention is to provide an apron for a printing press transfer cylinder which is adapted to contact directly and to support the printed sheet or cardboard off of the surface of the cylinder.

A further object of the invention is to provide an apron for a printing press transfer cylinder which is capable of being made in various sizes to fit various sizes of conventional cylinders and which is adapted to be readily mounted on the cylinder.

It is further proposed to produce an apron for a multicolor printing press transfer cylinder which is simple and durable in construction and which can be manufactured and sold at a reasonable cost.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appened claim in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:

Fig. 1 is a transverse sectional view through the contiguous cylinders of a multicolor printing press embodying the invention.

Fig. 2 is a perspective view of the transfer cylinder.

Fig. 3 is a plan view of a metal sheet from which the apron embodying the invention is formed.

Fig. 4 is a perspective view of the improved apron.

Referring in detail to the drawings, in Fig. 1 horizontally arranged contiguous cylinders are used in a multicolor printing press as shown, an end or first printing cylinder **10** mounted on a shaft indicated at **11**, another end or second printing cylinder **12** mounted on a shaft **13** and an intermediate transfer cylinder **14** on shaft **15**. The transfer cylinder **14** is arranged to transfer a sheet of paper **16** which is to be printed from the first printing cylinder **10**, which prints in one color on the sheet, to the second printing cylinder **12** which prints in a different color. In color work, it is absolutely necessary that the printed matter on the sheet **16** does not touch the bare surface of the transfer cylinder.

According to the present invention, this is accomplished by placing an apron **17** of novel construction directly on the surface of the transfer cylinder **14**. The apron **17** is formed of a thin sheet of metal **18** punched through its surface area with holes **19**, equally distributed thereover, leaving the sharp edges **20** of the holes projecting from one surface of the metal sheet. The punched sheet of metal is wrapped around the entire surface of the cylinder, with the projections **20** outermost. The long edges of the punched sheet are fastened to the cylinder by the sheet supporting screws **21** along the edges **22** of the slot **23** which provides the clearance for the paper grippers **24** so that the apron is uniformly supported and the stresses in printing evenly distributed over the entire surface of the apron.

In the process of printing, the sheet of paper **16** is carried by the grippers **25** around the first printing cylinder **10** where it is partially printed with an ink of a certain color. The sheet then passes between said cylinder **10** and the transfer cylinder **14**, the latter cylinder transferring it by means of the grippers **24** to the second cylinder **12** where it is carried around by the grippers **26** and is further printed in a different color. During this printing process and travel of the sheet over the transfer cylinder **14**, the side of the sheet which was printed upon is supported on a large number of projections **20** which project from the surface of the apron on said cylinder. The projections support the sheet off of the surface of the cylinder and apron and prevent the freshly printed surface of the side of the sheet from slipping and therefore tend to prevent the smearing and blurring which is likely to occur. The projections furthermore provide considerable storage space for ink which becomes detached from the freshly printed surface of the sheet and runs down the sides of the projections. The apron can therefore be used for a comparatively long time before cleaning is necessary.

While I have illustrated and described the preferred embodiment of my invention, it is to be understood that I do not limit myself to the precise construction herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claim.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent is:

In a printing press, the combination of a first printing cylinder for printing one face of a sheet in colored ink, a second cylinder spaced from said first cylinder for printing said face with a different colored ink, a transfer cylinder operatively interposed in the space between and contiguous said first and second printing cylinders, sheet grippers on said transfer cylinder for transferring the printing sheet from the first to the second printing cylin-

der, and a split metal tubular sheet snugly wrapped around the outer surface of the transfer cylinder with its split edges secured thereto, said tubular sheet constituting an apron, said tubular sheet being formed with a plurality of holes promiscuously formed therein in staggered relation upon the entire area of said sheet, the material around said holes projecting outwardly of the outer surface of the tubular sheet for supporting the printed sheet in spaced relation to the surface of said transfer cylinder during its transfer from the first to the second printing cylinders.

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