

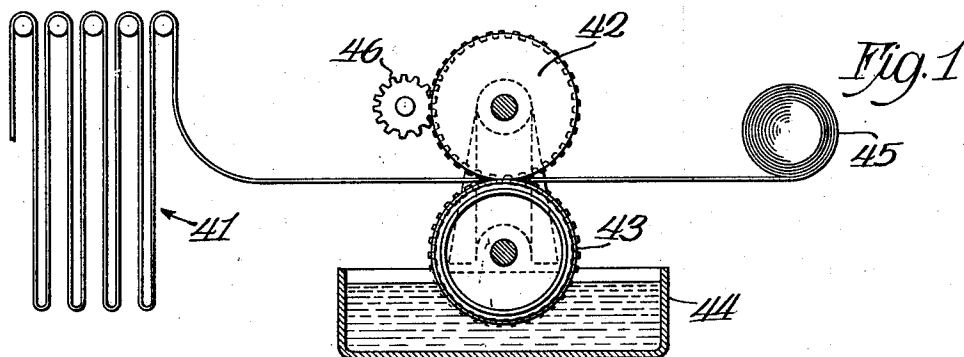
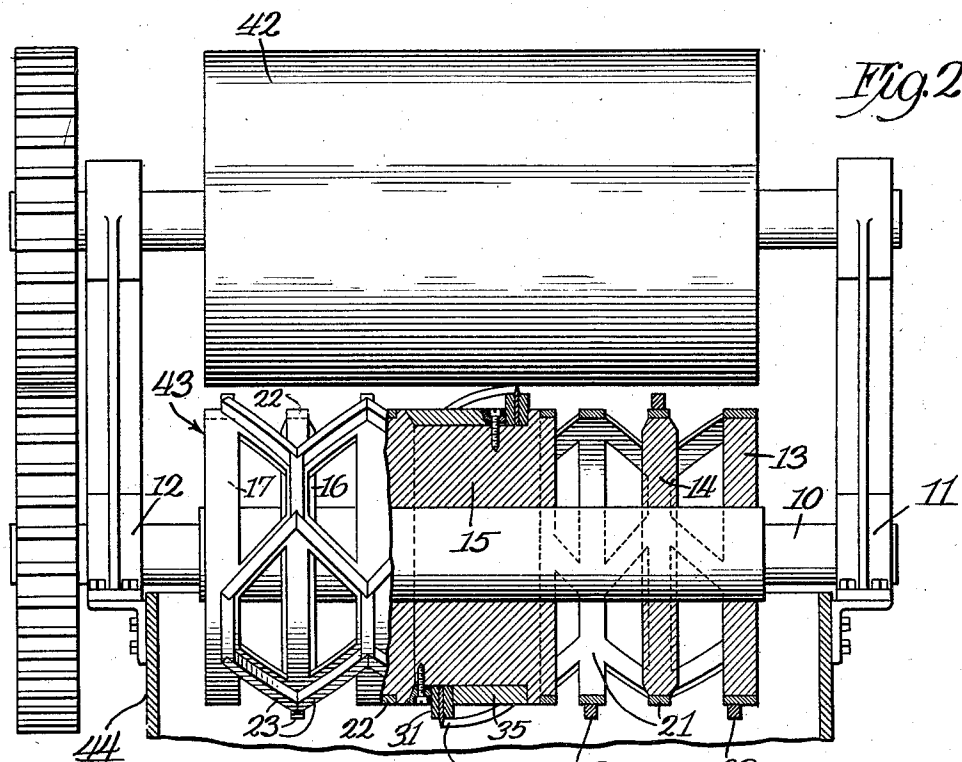
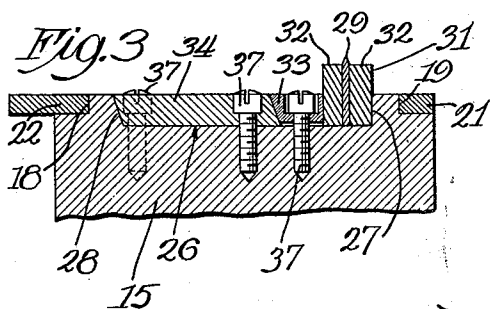
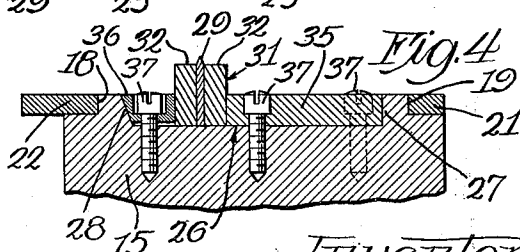
May 24, 1932.

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1,860,047

PRINTING AND SLITTING ROLLER

Original Filed May 6, 1930 2 Sheets-Sheet 1



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Fig. 5

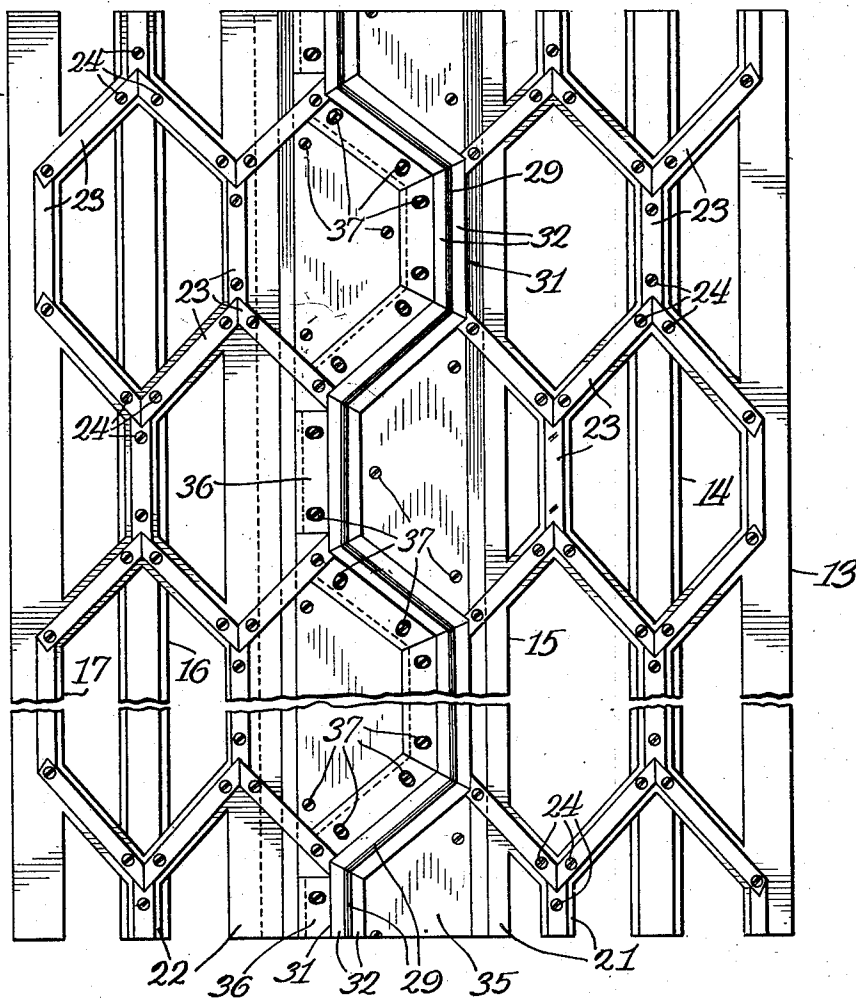
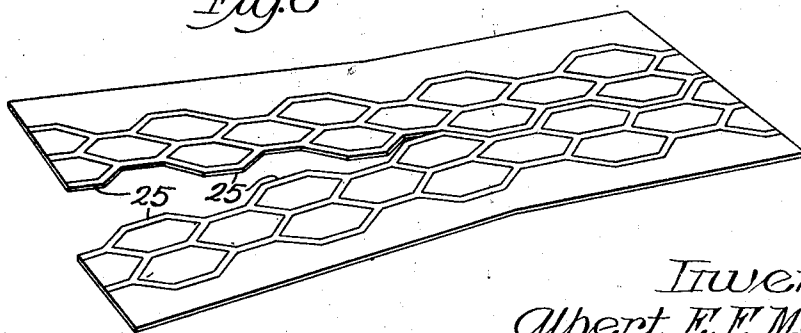


Fig. 6



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UNITED STATES PATENT OFFICE

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PRINTING AND SLITTING ROLLER

Application filed May 6, 1930, Serial No. 450,211. Renewed November 2, 1931.

This invention relates to the manufacture of prepared roofing and has for its principal object to provide a combined printing and slitting roller of simpler construction and greater adaptability than those in use.

Further and other objects and advantages will become apparent as the disclosure proceeds and the description is read in conjunction with the accompanying drawings, in which

Fig. 1 indicates diagrammatically the improved roller as installed in a printing and slitting machine;

Fig. 2 is a longitudinal view of my improved roller, partly in elevation and partly in section;

Fig. 3 is a detail of a portion of the center section of the roller showing the means for holding the printing bars and knife;

Fig. 4 is a similar view except that it shows the knife wedged against the opposite side of the slot;

Fig. 5 is a developed view of the printing and slitting roller; and

Fig. 6 indicates a roofing strip after having passed under the printing and slitting roller.

With reference to Fig. 2, 10 indicates a shaft journaled in boxes 11, 12 of a printing and slitting machine. Fixed upon the shaft are flanges 13, 14, 15, 16 and 17 which may be of cast iron or other suitable substance. The disks 13, 14, 16 and 17 are slightly smaller in diameter than the disk 15. The disk 15 is provided with shoulders 18 and 19 at either end, onto which cylindrical pieces of pipe 21, 22 are seated. The periphery of the disks 13, 14, 16 and 17 bears upon the inner surface of the pipe and forms a support and centering means therefor.

The pipe sections carry upon their face a series of bars 23 applied in the configuration which the pattern to be printed demands. These bars are held on the pipe by screws 24, as shown in Fig. 5, or by any other suitable manner.

In order to save weight and to assure the fact that the roller dipping into the tank of coloring compound will splash and stir the compound thoroughly, it is advantageous,

though not essential, that the pipe between the printing bars 23 should be cut away as indicated in Figs. 2 and 5.

The roller specifically illustrated is capable of producing roofing illustrated in Fig. 6. It will be noticed that this roofing is provided with a series of tabs 25, 25. Consequently, since the disk 15 bears the slitting knife, its width must be somewhat wider than the offsets demanded to produce the tabs shown. Therefore, the central disk 15 is made much wider than the other disks and is preferably, but not necessarily, of equal diameter with the pipe.

A channel 26, which is cut circumferentially around the disk 15, is made to have one wall, 27, perpendicular to the axis of the disk, while the other wall 28 forms a wedging angle to the axis. The slitting knife 29 is held in position by the split printing block 31 which clamps both sides of the blade.

As indicated on Fig. 6, a double width central border is printed on what will become a margin of the sheet when split and, therefore, the block 31 is an actual printing block at the same time that it is a knife holder. Its upper surface 32 deposits color upon the roofing strip. The knife and printing block assembly (29, 31) is held in position by wedge members 33, 34 (Fig. 3) and 35, 36 (Fig. 4). These members are held in the channel 26 by screws 37, or by other suitable means. The configuration of the wedging members 33, 34, 35, and 36 is that demanded by the design to be printed.

By reference to Figs. 3 and 5, it will be seen that the wedge member 34 forms in effect a spacing abutment for a second smaller wedge 33 which bears against the printing bar knife holder assembly; but that in the case of the wedging member 35, the sides thereof are horizontal and the wedging action holding the knife holder assembly in place is secured by the small wedge 36 working against the inclined surface 28.

The operation is diagrammatically indicated in Fig. 1. The roofing leaving the looper 41 is run between the printing and slitting roller 43 and a pressure roller 42. The rollers may be geared together, as shown,

which causes the roofing to be fed into the rollers, and if such is the case, the pressure roller may be driven by the motor pinion 46.

After printing and slitting, the roofing is wound up on the packaging roll 45.

Throughout the specification and claims the term "slitting" has been used in its generic sense, and is meant to include either a cutting operation which merely scores the roofing material or a cutting operation which actually severs the roll into two or more strips.

The illustration of a specific form of the invention and the correspondingly specific description are for the purpose of disclosure only, for it is realized that the invention may be embodied in various forms within the scope of the appended claims.

Reference is made to a copending application, filed August 6, 1928, Serial No. 297,880 for claims drawn to the broader aspects of this invention.

What I claim, therefore, is:

1. In a printing and slitting roller, in combination, an axle, a central cylindrical section mounted thereon provided with a circumferential channel, printing and slitting members maintained in the channel, extension end members comprising hollow cylindrical sections bearing zig-zag printing bars upon their surface, and spacer members mounted on the axle for maintaining and supporting the extension members in position.

2. In a printing and slitting roller, a shaft, a radial flange fixed upon the shaft, a pair of hollow cylindrical extensions fixed to the flange and extending in opposite directions therefrom, a radial flange mounted adjacent each end of the shaft and supporting the outer end of the extensions, printing bars extending circumferentially around the extensions, and a slitting knife encircling the first named radial flange.

3. In a printing and slitting roller, a shaft, a radial flange fixed to the shaft, a pair of hollow cylindrical extensions fixed to the periphery of the flange, print bars comprising in part broken annuli surrounding the extensions, a flange fixed on the shaft and supporting the outer end of each extension, and a knife carried by the central flange conforming in configuration to the broken annulus formed by one print bar.

4. In a printing and slitting roller, a shaft, a radial flange fixed upon the shaft, a pair of cylindrical extensions fixed to the flange and extending in opposite directions therefrom along the shaft, print bars comprising broken circumferential bands attached to the extensions, openings cut in the extensions between the print bars, and a pair of radial flanges adjacent each end of the shaft supporting the outer end of the extensions.

5. In a printing and slitting roller, a shaft,

a plurality of radial flanges fixed upon the shaft, one of the flanges being substantially centrally positioned and bearing a circumferential slitting knife fixed about its periphery, hollow cylindrical extension members fitting over the remainder of the flanges and maintained in concentric relation to the shaft thereby, and zig-zag printing bars fixed to the surface of the extension members.

6. In a printing and slitting roller, a shaft, a plurality of radial flanges fixed upon the shaft, one of the flanges being substantially centrally positioned and bearing a circumferential slitting knife fixed about its periphery, hollow cylindrical extension members fitting over the remainder of the flanges and maintained in concentric relation to the shaft thereby, and printing bars in part parallel to the vertical face of the flanges and in part at angles thereto, fixed to the surface of the extension members.

7. In a printing and slitting roller, a shaft, a radial flange fixed upon the shaft, a pair of hollow cylindrical extensions fixed to the flange and extending in opposite directions therefrom, printing bars comprising broken circumferential bands attached to the extensions, a pair of end flanges fixed to the shaft supporting the extremities of the extensions, intermediate spacing members also mounted on the shaft adapted to center and support the intermediate portions of the extensions, and a slitting knife encircling the first named radial flange.

8. In a device of the class described, a cylindrical roller having its periphery perforated to form a network of interconnecting strips, a plurality of radial flanges mounted on the shaft adapted to support the net work, and center it with respect to the shaft, printing bars mounted on the net work of strips, and a slitting knife encircling the midportion of the roller.

9. In a device of the class described, a cylindrical roller, a slitting knife encircling the mid-section of the roller, printing bars running parallel to and adjacent the slitting knife, and a plurality of other printing bars mounted on the periphery of the cylinder on opposite sides of the cutting knife, arranged to form a network of circumferential bands adapted to impress a given design on the material passing over the roll.

In testimony whereof I affix my signature.
ALBERT E. F. MOONE.