Jan. 21, 1941. L. M. SANDS 2,229,133

APPARATUS FOR PRINTING

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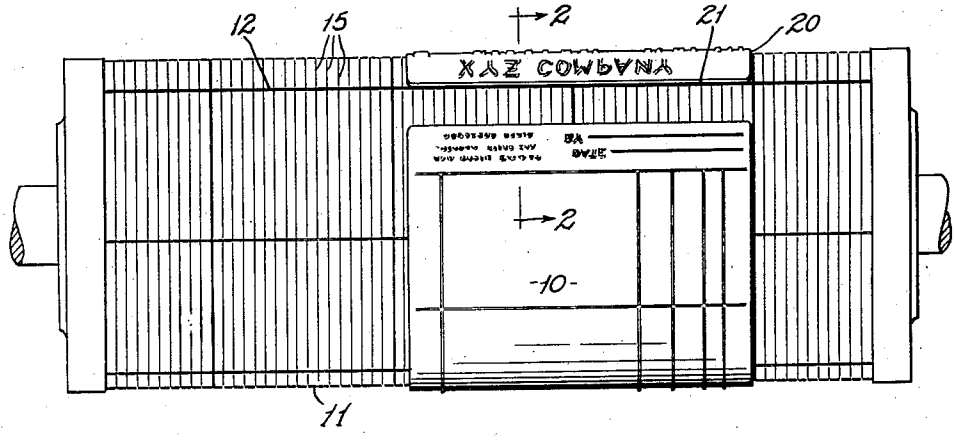


FIG. 1

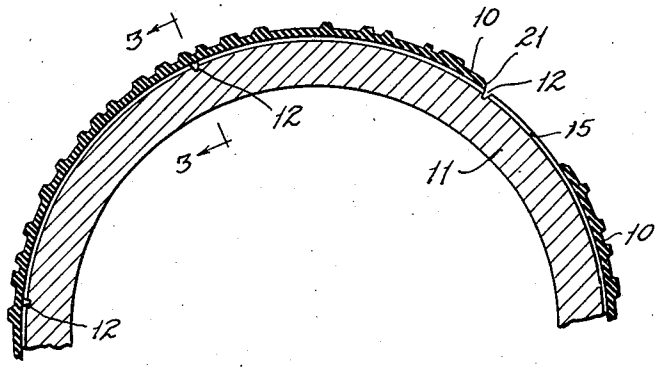


FIG. 2

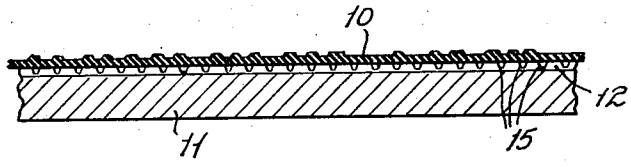


FIG. 3

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APPARATUS FOR PRINTING

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1 Claim. (Cl. 101—383)

This invention relates to printing apparatus and particularly to means for enabling the use of rubber plates in a simple and expeditious manner.

Heretofore printing has been accomplished by the use of metallic plates but where multiple fanfold forms are printed absolute alignment is necessary to assure registration of the forms at the completion of the fanfolding operation. The practice therefore has been to mount the plates upon a cylinder and then to align them as near as possible with the use of measuring instruments and then to run test sheets through the press. Any misalignment of the plates must then be adjusted before the actual printing is started. This procedure however entails considerable time for completion of a satisfactory job.

An effort has been made to improve the quality of the printing produced by metallic plates and to this end, rubber plates have been devised, but so far as I know no adequately satisfactory means has been available for aligning the rubber plates and for preventing slippage of them with respect to the cylinder. The problem of slippage is important, particularly in connection with the manufacture of printed forms that are numbered in numerical sequence.

To align the metallic plates the practice has been to use attachments known as saddles but it was found that these did not work satisfactorily with rubber plates. Accordingly, although rubber plates produced a better quality of printing nevertheless, due to the difficulty of obtaining satisfactory adjustment, the make-ready time was not shortened.

The present invention has for its objects the retention of the advantages of rubber plates, and at the same time the elimination of the objection to the excessive time required for make-ready work. The present invention accomplishes the desired results, therefore, without the need for saddles that have heretofore been used in this art and in addition has reduced the make-ready time to a great extent, in fact, in some cases to the extent of about ninety percent.

Referring now to the drawing, Fig. 1 is a view showing a printing cylinder made in accordance with my invention and having rubber plates thereon; Fig. 2 is a section taken on the line 2—2 in Fig. 1 on an enlarged scale and Fig. 3 is a section taken on the line 3—3 in Fig. 2.

My invention is shown in connection with rubber plates 10 which have a backing of adhesive material for attachment to the printing cylinder, designated in general at 11. The cylinder is provided with means for aligning the plates with respect to each other and for retaining them against movement with respect to to the cylinder after they have been positioned thereon. In the preferred arrangement the cylinder has parallel lines in the form of narrow grooves 12 extending in an axial direction along the plate receiving surface and has peripheral lines in the form of deep grooves 15, preferably at regularly spaced intervals extending peripherally of the cylinder and throughout the length thereof.

The peripheral grooves, by receiving some of the adhesive material, provides for greater adhesion between the plate and the surface of the cylinder and thereby operate to hold the plate against movement upon the cylinder. The grooves also serve to align a longitudinal edge 20 of the plate with respect to the cylinder while the axially extending markings or grooves 12 provide a means for aligning one end edge 21 of the plate.

The adhesive material which has been found to be satisfactory is what is known in the trade as a permanently tacky adhesive which will cause immediate adherence of the plate to the cylinder upon application of the plate thereto.

In practice the rubber plates are provided with a backing of adhesive material of such consistency that the plate can readily be removed at the completion of the printing operation. Thus to make the press ready, it is only necessary to align one end as at 21 upon an axially extending groove 12 and to align a longitudinal edge 20 with one of the peripheral grooves 15.

After the plates are aligned on the cylinder, they are pressed against the surface thereof and as a result, a rigid connection is made between the plates and the cylinder. As contact is made between the printing cylinder and the pressure rolls, the plates are more firmly pressed into engagement with the cylinder, and the force thus applied causes some of the adhesive to enter the grooves, thus more firmly holding the plates upon the cylinder. This effectively prevents shifting and enables numbered forms to be printed without the danger of shifting and without the resulting destruction of the desired sequence.

An important advantage of the present invention is the fact that the rubber plates can be put into accurate position the first time, thus reducing the make-ready time to a minimum. Additionally, by making the plates of uniform

thickness, it is possible to eliminate any packing or other make-ready work that heretofore has been required in connection with the use of metallic plates. A further advantage is the fact that solid steel can be used as an impression cylinder, thus giving better printing qualities.

I claim:

In combination, a plate receiving cylinder having parallel lines formed thereon and extending axially thereof and also having parallel lines extending peripherally thereof and at regular intervals thereon, some of said lines comprising grooves, and a soft rubber printing plate, having a backing of permanently tacky adhesive material, mounted on the cylinder in a position to bridge some of said grooves which thus receive some of the adhesive, whereby under rolling contact the adhesive material is forced into the grooves to prevent the plate from shifting with reference to the cylinder.

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