March 30, 1926. 1,579,182

L. THAYER

LITHOGRAPHING PRESS

Original Filed June 1, 1922

Fig. 1.

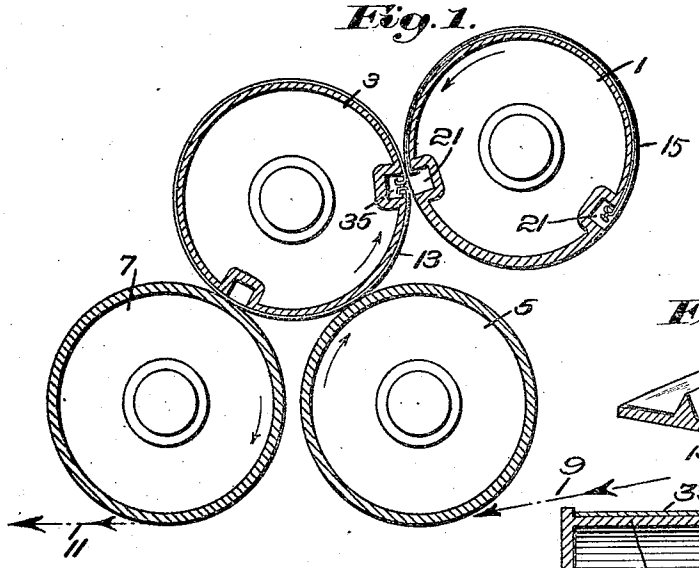


Fig. 2.

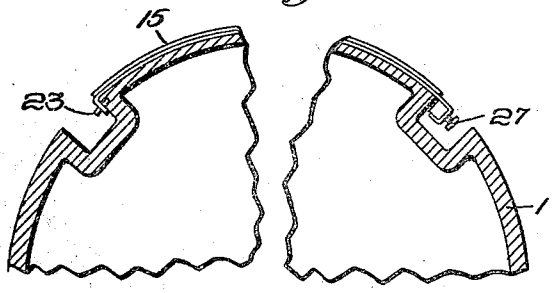


Fig. 3

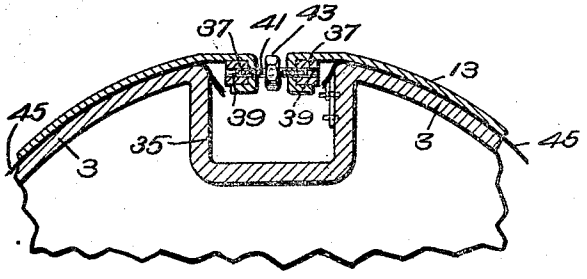


Fig. 4.

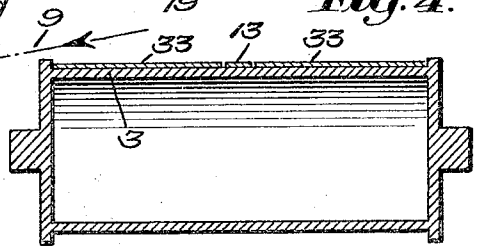


Fig. 5

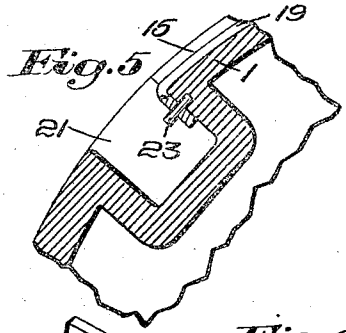
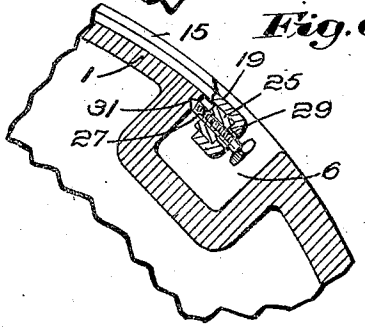


Fig. 6.



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Attys

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UNITED STATES PATENT OFFICE.

LESTER THAYER, OF WINTHROP, MASSACHUSETTS, ASSIGNOR TO FORBES LITHOGRAPH MANUFACTURING COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

LITHOGRAPHING PRESS.

Original application filed June 1, 1922, Serial No. 565,215. Divided and this application filed July 18, 1923, Serial No. 652,336. Renewed January 16, 1926.

To all whom it may concern:

Be it known that I, LESTER THAYER, a citizen of the United States, and a resident of Winthrop, county of Suffolk, State of Massachusetts, have invented an Improvement in a Lithographing Press, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This application is a division of my prior application Serial No. 565,215, filed June 1, 1922.

My invention relates to lithographing and particularly but not exclusively to presses for lithographing on sheets the impressions for a plurality of cartons.

In the manufacture of cartons having printed or lithographed exteriors it is usual to print or lithograph a number of cartons at a time on sheets of greater size than can be handled in the cutting and scoring machine which necessitates the sheet being divided into smaller sheets before subjecting it to the operation of the cutting and scoring machine. For fine classes of work it has been found that it is essential that the lithographed matter must be in exact relation to the gage lines in the cutting and scoring machine. My invention relates to apparatus for securing this result.

According to my invention the sheets are split into smaller sheets in the lithographing press simultaneously with the applying of the color in such manner that an exact relation is preserved between the edges on which the sheet is divided and the lithographed matter.

My invention will be best understood from the following description when read in light of the accompanying drawings showing one embodiment of my invention, while the scope of my invention will be more particularly pointed out in the appended claims.

In the drawings:—

Fig. 1 shows more or less diagrammatically my invention applied to a form of rotary press;

Fig. 2 shows a detail of the plate cylinder;

Fig. 3 shows a detail of the impression cylinder;

Fig. 4 is a longitudinal section of the impression cylinder with parts broken away;

Figs. 5 and 6 show details on an enlarged scale of the ends of the knife shown in Fig. 2; and

Fig. 7 is a perspective of a fragment of the knife.

Referring to the drawings I have shown a press in which 1 is a plate cylinder, 3 an impression cylinder, 5 a feed cylinder for feeding the sheets to the impression cylinder, and 7 a delivery cylinder or a transfer cylinder to another impression cylinder.

As will be understood by those skilled in the art the sheets are fed to the feed cylinder in the direction of the arrow 9 which carries them to the impression cylinder, the latter carrying the sheets to the transfer or delivery cylinder 7 which discharges the sheets in the direction of the arrow 11, the sheets when passing between the impression and plate cylinders being lithographed.

Referring particularly to Figs. 3 and 4 the impression cylinder intermediate its length is provided with a band 13 which serves as a platen for a knife 15 carried by the plate cylinder which results in the sheet being split by the knife into two narrower sheets as the sheet is lithographed, and although I have shown but one knife it will be obvious that two or more may be employed so as to split the sheet into as many narrower strips as desired. Preferably the sheets are fed so as to be split transversely to the grain so as to make the grain on the narrower sheets run across the width of the sheets. Expansion and contraction of the sheet due to atmospheric conditions are greatest along the grain and consequently not only are the sheets split before expansion can occur but the effect of expansion on the split sheets is eliminated.

The knife 15 as is clearly illustrated in Fig. 7 is wedge shaped so as to provide a cutting or splitting edge 17 and is formed integrally with a wide flexible band 19 which is carried on the portion of the plate cylinder doing the lithographing. For securing the band to the plate cylinder one end portion of the band is bent as is indicated in Fig. 5 at right angles to the portion of the band lying on the exterior of the plate cylinder so as to hook over the edge of the recess 21 in the plate cylinder, this portion of the band being perforated and the perforation receiving the pin 23 carried by the plate cylinder and projecting into the recess. As

illustrated in Fig. 6 at its opposite end the band 19 terminates at a second recess 21 in the plate cylinder and is bent around a block 25, which block has a screw threaded perforation receiving the screw 27, the band also being perforated at 29 to permit the screw 27 to pass through it. I have shown the screw with a pointed end 31 which enters a "spot" in the wall of the recess. It will be noted that the screw 27 enables the knife to be placed under tension so as to firmly hold it in position.

Referring particularly to Figs. 3 and 4 I have indicated the packing for the impression cylinder at 33, the packing being split into two portions with the band between and the outer surface of the band being substantially flush with the outer surface of the packing. For holding the band in position its end portions are located opposite a recess 35 in the impression cylinder, these portions being bent around blocks 37, each block having a screw threaded perforation 39 which receives the ends of a turnbuckle 41, the bands also being perforated to permit the turnbuckle to pass through the bands, and the turnbuckle being provided with a portion 43 for receiving a wrench or other tool for causing the turnbuckle to be operated.

For adjusting the band 13 radially relatively to the impression cylinder I place between the band and the impression cylinder shims 45 which preferably are of yielding material, and I have found for this purpose that a number of sheets of paper operate satisfactorily.

Although I have described for purposes of illustration one specific embodiment of my invention it is to be understood that I am not limited thereby, but that within the scope of my invention wide deviations may be made therefrom without departing from the spirit of my invention.

Claims.

1. A rotary lithographing press having in combination an impression cylinder, a plate cylinder, a band on said impression cylinder transversely disposed thereto intermediate its length, shims for adjusting said band radially of said impression cylinder, means for tensioning said band, packing on said impression cylinder at each side of said band, the outer surface of said packing being substantially flush with the outer surface of said band, a band on said plate cylinder intermediate its length, said band on said plate cylinder having intermediate its width a knife edge which cooperates with said band on said impression cylinder, and means for tensioning the said band which is on said plate cylinder.

2. A rotary lithographing press having in combination an impression cylinder, a plate cylinder, said plate cylinder having spaced recesses on its outside surface, a flexible band having a knife intermediate its width and having its ends terminating at said recesses, means in one of said recesses for holding the adjacent end of said band, means in the other of said recesses for tensioning said band, and a band on said impression cylinder serving as a platen for said knife.

3. A rotary lithographing press having in combination an impression cylinder, a plate cylinder, a band on said plate cylinder having a knife intermediate its width, said band being set up among the plates on said plate cylinder, a band on said impression cylinder serving as a platen for said knife, tensioning means for said bands, and means for adjusting said bands relatively to each other along their length.

4. A rotary lithographing press having in combination an impression cylinder, a plate cylinder, a band on said plate cylinder having a knife intermediate its width, said band being set up among the plates on said plate cylinder, a band on said impression cylinder serving as a platen for said knife, tensioning means for said bands, and shims for adjusting one of said bands relatively to its cylinder.

5. A rotary lithographing press having in combination an impression cylinder, a plate cylinder, said plate cylinder having spaced recesses on its outside surface, a flexible band having one end bent into one of said recesses and its other end bent into another of said recesses, means in one of said recesses engaging the end of said band for holding it in position, means in the other of said recesses for tensioning said band, a knife on the arcuate portion of said band positioned intermediate the width of said band, and a platen for said knife on said impression cylinder.

6. A rotary lithographing press having in combination an impression cylinder, a plate cylinder, said plate cylinder having spaced recesses on its outside surface, a flexible band having one end bent into one of said recesses and its other end bent into another of said recesses, the end of said band in one of said recesses having an opening, a pin or the like in one of said recesses extending into said opening of said band, tensioning means for said band in the other of said recesses, said band having a portion forming a knife edge radially disposed to said plate cylinder, and means on said impression cylinder serving as a platen for said knife.

7. A rotary lithographing press having in combination an impression cylinder, a plate cylinder, a band on said plate cylinder having a portion forming a knife radially positioned relatively to said plate cylinder, means on said plate cylinder for holding one end of said band, a recess in said plate cylinder, means in said recess engaging said

band for placing said band under tension, and a platen for said knife on said impression cylinder.

8. A rotary lithographing press having in combination an impression cylinder, a plate cylinder, a flexible strip on said plate cylinder having a portion forming a knife radially positioned relatively to said plate cylinder, means for placing said strip under tension, and a platen for said knife on said impression cylinder.

9. A rotary lithographing press having in combination an impression cylinder, a plate cylinder, a flexible strip on one of said cylinders having a portion forming a knife radially positioned relatively to said plate cylinder, means for placing said strip under tension, and a platen for said knife on said impression cylinder.

10. A rotary lithographing press having in combination an impression cylinder, a plate cylinder, a flexible strip on one of said cylinders having a portion forming a knife radially positioned relatively to said plate cylinder, means for placing said strip under tension, and a radially adjustable platen for said knife on said impression cylinder.

11. A rotary lithographing press having in combination an impression cylinder, a plate cylinder, a band on said plate cylinder having a knife intermediate its width, said band being set up among the plates on said plate cylinder, a band on said impression cylinder serving as a platen for said knife, tensioning means for said bands, and shims of yielding material for adjusting one of said bands relatively to its cylinder.

12. A rotary lithographing press having in combination an impression cylinder, a plate cylinder, a flexible strip on said plate cylinder having a portion forming a knife radially positioned relatively to said plate cylinder, means for placing said strip under tension, and a yieldingly mounted platen for said knife on said impression cylinder.

13. A rotary lithographing press having in combination an impression cylinder, a plate cylinder, a flexible strip on one of said cylinders having a portion forming a knife radially positioned relatively to said plate cylinder, means for placing said strip under tension, a strip on the other of said cylinders serving as a platen for said knife, and a yielding backing for said last mentioned strip.

In testimony whereof, I have signed my name to this specification.

LESTER THAYER.