May 27, 1941. E. K. STEWART 2,243,175

METHOD OF PRINTING BLEEDER SHEETS

Filed Dec. 1, 1939

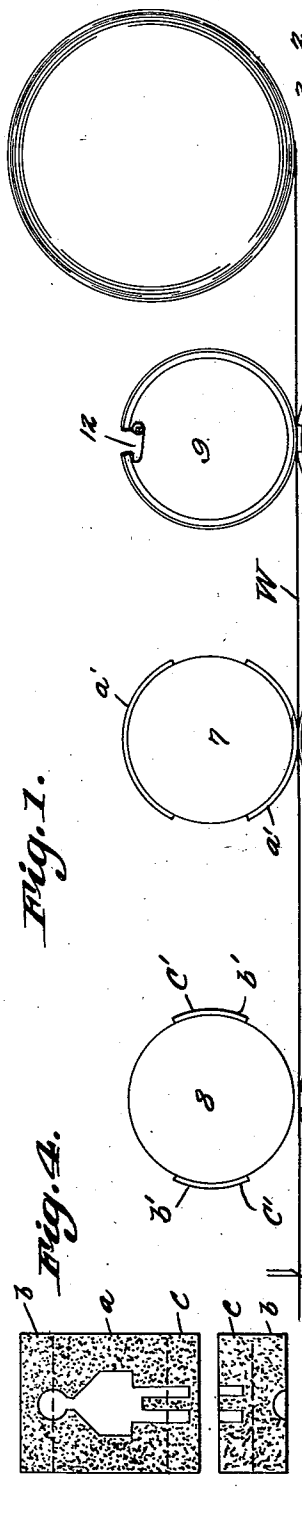


Fig. 1.

Fig. 3.

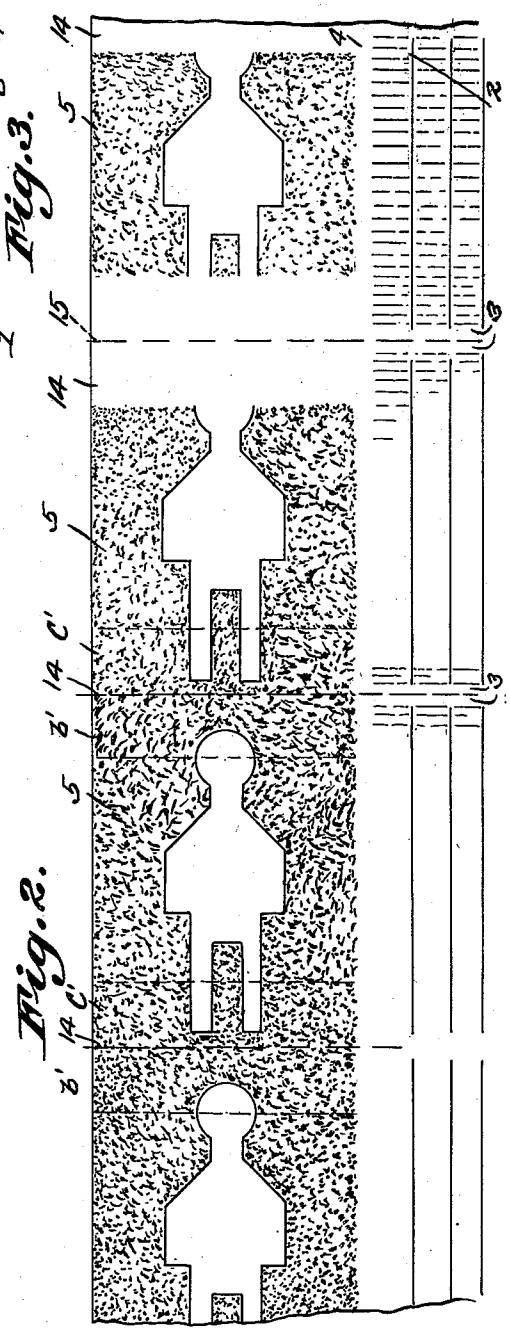


Fig. 2.

Fig. 4.

Fig. 5.

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Patented May 27, 1941 2,243,175

UNITED STATES PATENT OFFICE

2,243,175

METHOD OF PRINTING BLEEDER SHEETS

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Application December 1, 1939, Serial No. 307,171

5 Claims. (Cl. 101—216)

This invention relates to a method of printing whereby it is possible to print on a rotary press, publications including bleeder sheets, which are sheets on which the printed matter is extended to the edges of the sheets.

While publications having bleeder sheets have been produced on flat presses, it has not heretofore been possible to print sheets of this type on rotary presses because top and bottom margins have necessarily been provided due to the fact that gaps must be left in the blanket cylinders to permit fastening of the blankets to the cylinders. Obviously the unused space at the margins of a newspaper sheet or the like represents a loss which might otherwise be covered should it be possible to sell this space for advertising purposes. In recognition of this fact attempts have been made to reduce the border space and, in some instances, attachments have been employed whereby the side margins have been filled with printed matter. In every case, however, it has been necessary to leave top and bottom margins and, consequently it has not been possible to extend the printed matter up to the top and bottom edges as well as to the side edges of a page.

An object of the present invention is to provide a method whereby, without any changes in the construction of a rotary press and without the addition of any attachment, the press can be utilized, during an ordinary newspaper run, to produce one or more bleeder sheets without in any way disarranging the printed matter appearing on other pages of the publication or interfering with the usual cutting and folding operations.

With the foregoing and other objects in view the invention resides in certain novel steps in the method hereinafter pointed out and in certain novel details of construction whereby the method can be followed, it being understood that changes may be made in the method and in the mechanism used without departing from the spirit of the invention as claimed.

In the accompanying drawing

Figure 1 is a view in diagram showing some of the printing units of a rotary press having impression means disposed thereon so as to produce a single bleeder page during the production of the other printed pages of the publication.

Figure 2 is a plan view of a portion of the paper web showing the preliminary and final printing stages in the production of a bleeder page.

Figure 3 is a view on a reduced scale showing one sheet of a newspaper having a bleeder page and a news page, the latter being provided with the usual margins.

Figure 4 is a plan view on a reduced scale of a negative from which stereotypes are to be cast.

Figure 5 is a similar view showing the top and bottom portions of the negatives cut from the intermediate portion and assembled for use in the production of the second set of stereotypes used in this method.

Referring to the figures by characters of reference. 1 designates a section of a paper web which has been cut after printing so as to form four pages two of which are shown in said figure. One of these pages, indicated at 2, is provided with the usual top and bottom margins 3 and side margins 4. The other illustrated page has its printed matter extended to all four edges of the page and comprises what is known as a "bleeder" page which is a page without margins. This bleeder page has been indicated at 5 in Figure 3.

Rotary presses include printing units each of which comprises an impression cylinder and a blanket cylinder between which the web W of news print is adapted to move. Each impression cylinder is usually provided with opposed duplicate stereotypes so that during each rotation of the cylinder each stereotype, which usually contains eight pages, will make an impression and two duplicate impressions of eight pages each will be produced. Any desired number of impression and blanket cylinders can be located in the press and the paper web can be fed thereto in proper succession in order to print the desired number of pages during a run. The opposed plates or stereotypes on each cylinder are of necessity spaced apart in order to provide clearances opposite those points where the ends of the blankets are attached to the blanket cylinders.

In Figure 1 impression cylinders have been indicated at 6, 7 and 8 and associated with each impression cylinder is a blanket cylinder 9, 10 and 11 respectively, the gaps between the ends of the blankets being indicated at 12 where said ends are attached to the cylinders.

For the purpose of producing a bleeder sheet as a part of the publication, it is necessary to provide two impression cylinders for printing the one sheet or page. The printing of the bleeder page is effected after the opposed side of the web W has received impressions from cylinder 6 on which the opposed spaced electrotypes are mounted in the usual or any preferred manner and have been indicated at 13. The arrange-

ment of the parts at 6, 9 and 13 is the same as provided in ordinary newspaper printing.

As before stated a bleeder page is produced by using two impression cylinders, these being indicated at 7 and 8. A negative is first made of such size as to enable the production of a stereotype therefrom which will print up to all margins of the page to be produced. This negative, which is shown in Figure 4, is then cut transversely into three parts, namely, a main section *a*, a top section *b* and a bottom section *c*. Stereotypes are cast from the main section *a* and are placed on diametrically opposed portions of cylinder 7 as shown in Figure 1 at *a'*, these stereotypes being equally spaced and each being located where it will print the middle portion only of one page of the series of pages being produced during the rotation of the cylinder 7. In other words these stereotypes *a'* will produce on the web an impression such as shown at 5 in Figure 2 while other stereotypes on the same cylinder are producing pages of text matter, etc., with the usual borders, a portion of one of which has been indicated at 2 in Figure 2. As the web W travels through the press the successive impressions 5 on the web will leave gaps 14 between them, each gap being intersected by the imaginary line 15 along which the web is to be cut transversely to divide the web into transverse series of sheets.

Following the formation of the stereotype from the main portion *a* of the plate, the top and bottom portions of the plate are assembled with the bottom portion *c* above and against the top portion *b* as shown in Figure 5. Stereotypes cast from these joined sections *b* and *c* are placed on the impression cylinder 8 at diametrically opposed points and are so located that as the web W on which the impressions 5 have been made passes between cylinders 8 and 11, the impressions from the stereotypes *c'*—*b'* will be imparted to the web W in the gaps 14 so that the portion *b'* of each stereotype will complete the upper portion of the bleeder page while the portion *c'* of the stereotype will complete the lower portion of the next adjoining bleeder page. Thus when the web is cut along the lines 14 by the usual means and the publication folded and otherwise cut, following the usual practice, the completed publication will contain one page the printed matter on which will extend to all four edges of the page.

For the purpose of extending the printed matter of the bleeder page to the side margins of the page, any of the means heretofore employed for that purpose can be used.

Importance is attached to the fact that by following the method and utilizing the arrangement herein disclosed, a bleeder page can be printed by means of a rotary press without requiring any unusual readjustments of the press or the addition of any attachment.

Obviously if it is desired to utilize reading matter at the marginal portions of the printed bleeder page, the procedure already described will be followed with the exception that, instead of producing a negative plate, the bottom rows of set type will be placed above the top rows and a stereotype will be cast from the joined top and bottom rows and another stereotype cast from the remaining or intermediate rows.

In Figure 1 a means for cutting the web into separate transverse sheets has been indicated generaly at *x*.

What is claimed is:

1. In a rotary web press the combination with separate printing units each including a blanket cylinder having a gap and an impression cylinder, of a printing plate secured to one of the impression cylinders and proportioned to print on a traveling web the middle section only of each of a series of duplicate pages, said plate being positioned to leave on the web between the printed portions and across the ends of the connected pages an unprinted space which bridges the gap in the blanket cylinder of the unit, and a printing plate secured to the other impression cylinder and positioned to print in each of the unprinted spaces on the web the top and bottom portions of the respective pages bordering the gap.

2. In a rotary press a means for printing bleeder sheets on a continuously moving web comprising separate pairs of rolls each including an impression cylinder, a blanket cylinder, and a blanket fastened at its ends in the blanket cylinder, a main printing plate on the impression cylinder of one pair for printing regularly spaced areas on one surface of the web thereby to provide gaps on the printed surface where the web is engaged by the fastened end portions of the blanket cooperating with the plate, a printing plate on the other impression cylinder positioned to print in the said gaps successively thereby to produce a continuous printed area extending longitudinally of the web, and means for severing the web along lines bisecting the impressions in the gaps thereby to provide bleeder sheets each having its central area printed from one of the main plates and its top and bottom areas produced respectively by successive impressions from the other plate in successive gaps.

3. The method of printing bleeder sheets on a continuously moving paper web, which includes the step of moving the web past a continuously rotating pair of circumferentially spaced main plates to produce main printed impressions on one surface of the web with gaps therebetween, moving the printed portion of the web past a rotating pair of circumferentially spaced filler plates positioned to produce printed impressions in said gaps on the webs extending to and registering with the ends of the previously produced main impressions, and then severing the web transversely to bisect the impressions in the gaps thereby to produce bleeder sheets each having one end portion of its printed matter impressed by one end of one of the filler plates, the other end portion of its printed matter impressed by the other end portion of the other filler plate, and the intermediate portion of its printed matter impressed by one of the main plates.

4. The method of printing bleeder sheets on a web while moving continuously between separate pairs of cylinders, each pair including an impression cylinder and a blanket cylinder, which includes the steps of transferring from the impression cylinder of one pair to one side of the web regularly spaced duplicate impressions each forming a part of a completed whole, thereby to provide unprinted gap portions of the web for engagement by the end portions of the blanket on the blanket cylinder of said pair, thereafter printing from the impression cylinder of the other pair in all of the gaps to fill the gaps and join the previously printed area to produce a continuous unbroken printed surface on the web, and finally cutting the web transversely through the impressions in the gaps thereby to produce duplicate bleeder sheets each including an intermediate

printed area formed by the first named impression, and printed top and bottom continuations of said intermediate area consisting of portions of separate gap-filling impressions, the edges of the cuts through the gap-filling areas forming edges of the bleeder sheets and of the printed matter thereon.

5. The method of printing bleeder sheets on one face of a web while moving continuously between separate pairs of cylinders, each pair including an impression cylinder and a blanket cylinder, which includes the steps of printing regularly spaced duplicate impressions on one surface of the web while passing between the cylinders of one pair, thereby to provide unprinted duplicate gaps between the impressions, thereafter printing regularly spaced duplicate impressions in the gaps to produce a continuous unbroken impression on one surface of the web, and finally cutting transversely through the impressions in the gaps to divide the web into duplicate bleeder sheets each having an impression extending to all of its edges.

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