

Nov. 29, 1938.

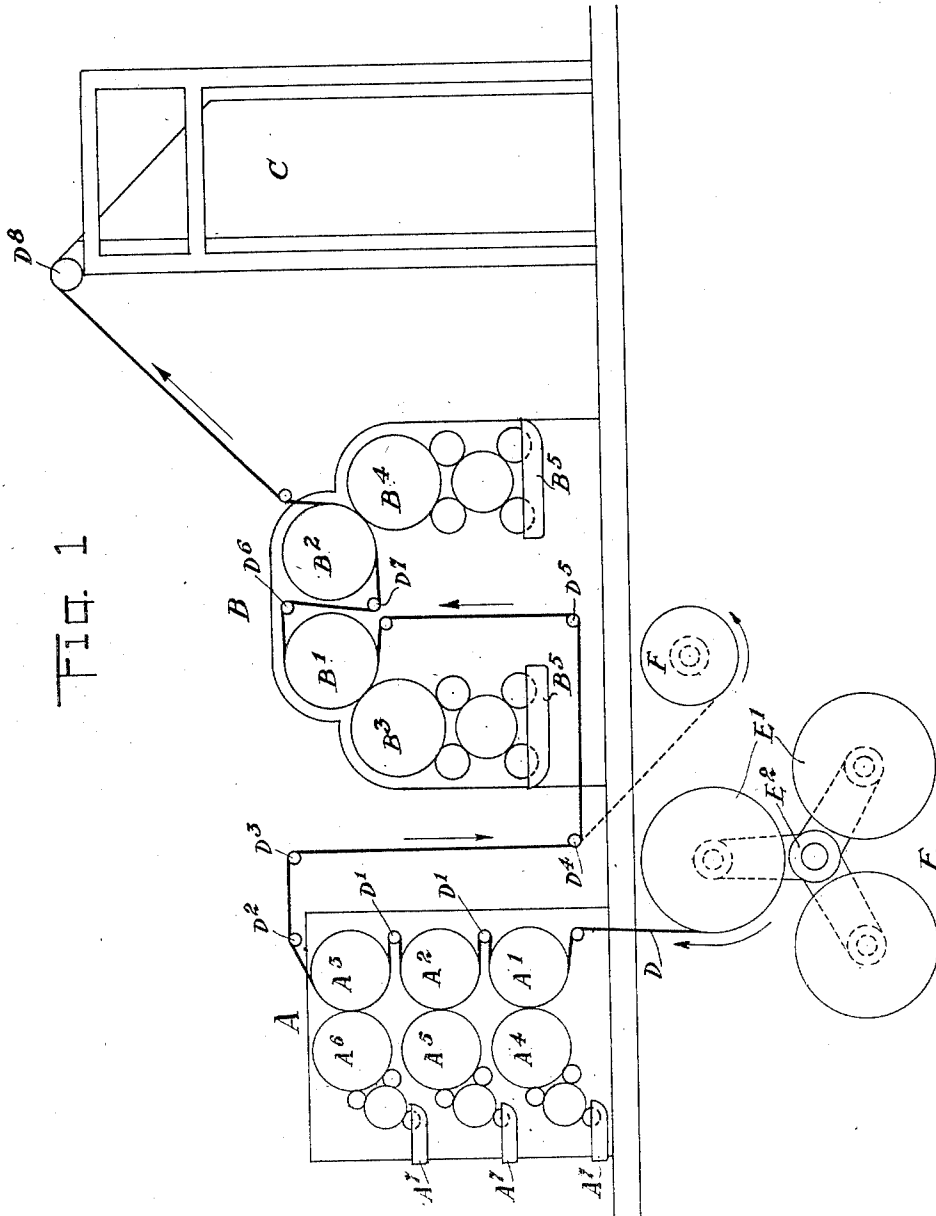
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2,138,704

METHOD OF PREPARING A PRESS FOR PRINTING AND PRINTING PRESS

Filed Oct. 12, 1936

3 Sheets-Sheet 1



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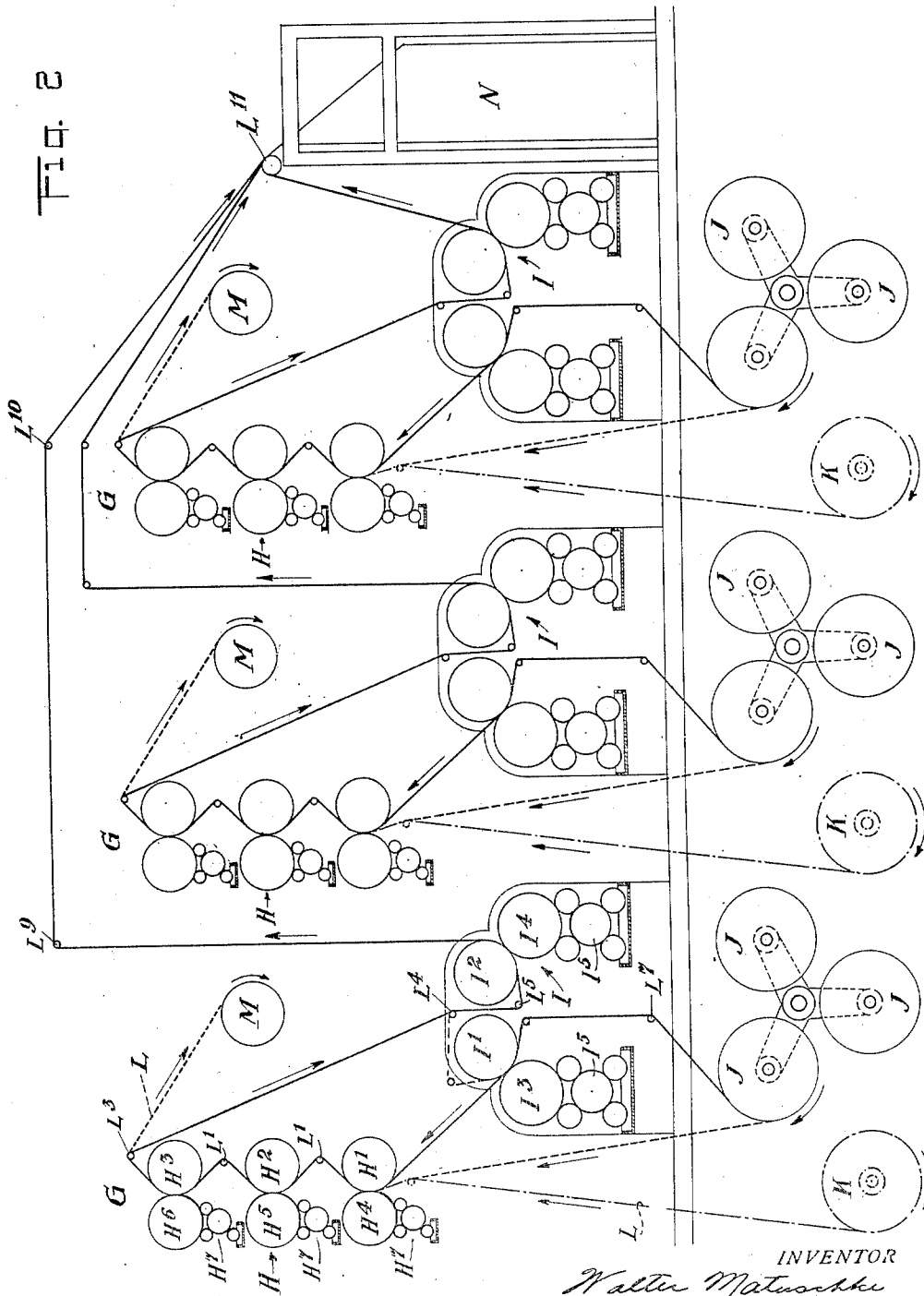
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Filed Oct. 12, 1936

3 Sheets-Sheet 2



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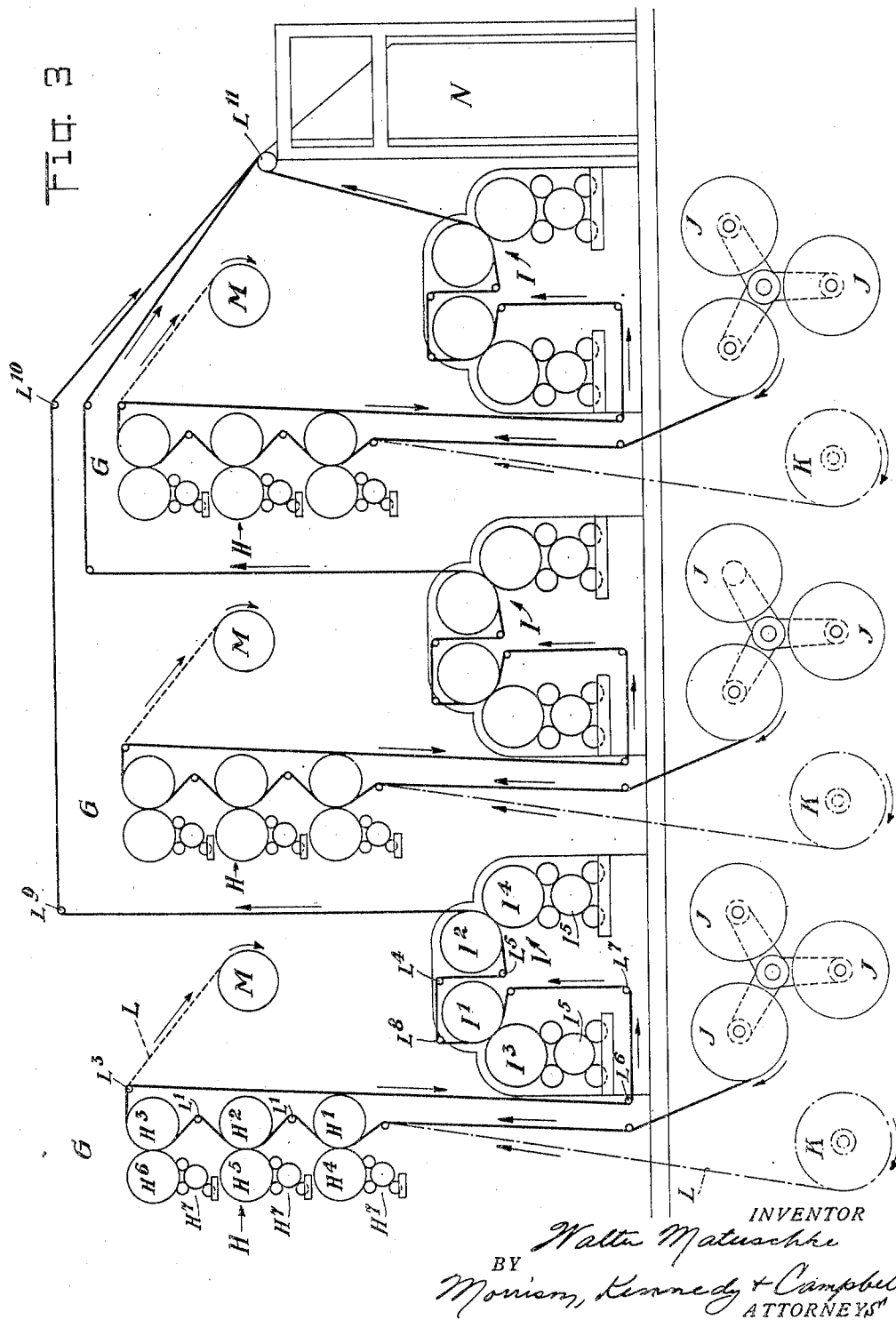
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3 Sheets-Sheet 3



UNITED STATES PATENT OFFICE

2,138,704

METHOD OF PREPARING A PRESS FOR
PRINTING AND PRINTING PRESS

Walter Matuschke, Berlin, Germany

Application October 12, 1936, Serial No. 105,249

9 Claims. (Cl. 270-5)

This invention relates to printing presses of the rotary web type arranged for simultaneously printing multi-color work and single color letter press work and to a method of preparing the presses for printing.

I am aware that it has been the practice in printing newspapers, consisting of some pages of multi-color illustration work and other pages of single color letter press work, to print the multi-color work on one press and the single color work on another press, and to lead the printed webs from the respective presses to a common device for proper arrangement and folding.

It has also been the practice, where it is desired to print simultaneously, matter containing multi-color inserts and single color letter press work, to use a single press provided with a bank of color printing units and also with a printing unit for the single color letter press work. In such a press, the paper web passes through the color printing units and the single color printing unit in series, and thence to the folding mechanism, and this is true regardless of whether the web is being run for proof purposes or for regular printing. In preparing the single color letter press unit of the press for printing, the only time consuming factor is the work of "make-ready". With regard to the multi-color bank however, additional factors are involved, which, combined, consume far more actual time than that required for preparing the letter press unit. For instance, there is the time required for effecting proper registration of the different colors and for effecting proper color control, so that when the colors are superimposed, the proper color effect will be obtained.

As a consequence of these and other time consuming factors, color forms must be made up considerably in advance of printing time, so that the necessary proof runs can be made to insure proper printing of the color work. It follows therefore, that in the preparation of a press for the simultaneous printing of multi-color work and single color letter press work, as heretofore carried out, the printing forms for the single color letter press work were completed at the same time as the color forms, since the entire press had to be set up before the first proof runs could be made. As a result, the use of multi-color inserts on pages bearing single color letter press work has practically been precluded in, for example, newspaper work, since the necessary time for preparation is not available between editions. Then, too, there is a considerable item of expense

involved in work of this character, resulting from wastage of paper and power. Obviously, since the proofs required of the letter press work are not near so numerous as those for the color work, the extent to which excess letter press proofs are run, a corresponding loss is sustained.

In accordance with the present invention, it is proposed to proof run the multi-color work separately from the single color letter press work, using for this purpose only the multi-color bank. After the color bank is ready for the regular run, the paper web is threaded through the color bank and the single color letter press unit in the desired sequence, the unit for the letter press work having been prepared for printing in the meanwhile. With this method of preparing the press for printing, the printing of the single color letter press work is not delayed by the preparation for the multi-color work, since the forms for printing the colored work can be made sufficiently far in advance of the forms for the letter press work, as to enable the color bank properly to be prepared for printing by the time the later made single color forms are ready to be run. In addition to being a time saver, this method permits proof runs of the multi-color work to be made at normal press speeds, because of its economy as far as paper wastage is concerned, and consequently will give a truer reflection of the final copy than if the press were run at slower speeds during proof-taking, a practice which is now followed.

In carrying out the method of the invention, it is proposed to provide the color bank, which includes the necessary number of printing units required for the multi-color work, with a wind-up roll adjacent the last color printing unit therein, means also being provided for driving the multi-color printing units independently or in synchronism with the letter press unit.

According to this arrangement, the operator can prepare the printing units in the color bank for printing independently, allowing sufficient time for the work of "make-ready", securing proper color control and effecting proper color registration, while leaving the single color letter press free for other work, or for the later preparation for printing of the single color letter press work. Also in accordance with the invention, it is proposed to employ an auxiliary feed roll with the bank of color units in order to facilitate the running of color proofs, while leaving the main feed rolls free for use with the latter press units, if it is desired to run the latter in-

dependently while the color bank is being prepared for printing.

Referring to the drawings:

Fig. 1 is a diagrammatic view of a single unit rotary web press equipped with the present improvements, and in which the improved method can be practiced;

Fig. 2 is a diagrammatic view of a multiple unit rotary web press likewise equipped with the present improvements, and in which the improved method can be practiced; and

Fig. 3 is a diagrammatic view similar to Fig. 2, but illustrating a different order of printing the multi-color and single color work.

In Fig. 1, there is illustrated a rotary press, including a bank A of color printing units arranged in tandem with a single color letter press unit B and a folding unit C, all of which may be of usual construction. The color bank, as shown, includes by way of example, three printing units (although more could be employed if desired), consisting of the impression rolls A¹, A² and A³ with their respective printing rolls A⁴, A⁵ and A⁶, the latter being provided each with inking devices A⁷ of the usual character and from which the different colored inks are supplied to the respective printing forms. The single color letter press unit includes a pair of impression rolls B¹ and B² with their respective printing rolls B³ and B⁴, the latter being provided each with a suitable inking mechanism B⁵. Below the color bank, there is located the paper source E, which includes a plurality of paper rolls E¹ mounted on a spider E² rotatably arranged to bring one or another of the rolls into use. During the proof runs, as well as the regular printing runs, a paper web D passes through the color printing units in series, between the respective printing forms A⁴, A⁵, A⁶ and impression rolls A¹, A², A³, the web being guided in its travel by intermediate guide rolls D¹. Upon leaving the color bank A, the web passes over guide rolls D² and D³, and thence down past another guide roll D⁴. During the preparation of the multi-color units for printing, i. e., during the proof runs, the web D passes from the guide roll D⁴ directly to a wind-up roll F, the multi-color bank at this time being operated entirely independent of the letter press unit B.

After the color units have been fully prepared for printing, i. e., when the work of "make-ready" has been completed, the proper color control obtained and the color impressions brought into proper registry, the web D is severed from the wind-up roll F and guided by means of the rolls D⁵, D⁶ and D⁷, first between the impression roll B¹ and the printing roll B³ of the single color letter press unit to print on one side of the web (the side previously printed in color), and thence between the impression roll B² and the printing roll B⁴ to print on the other side of the web. Upon leaving the letter press unit, the web passes over a guide roll D⁸ to the folding apparatus C, previously alluded to.

In Fig. 2, there is illustrated a multiple unit rotary printing press designed for the simultaneous printing of three paper webs each in multi-color work and in single color letter press work.

Each of the press units G (only one of which will be described, since all are identical in construction, see Figs. 2 and 3) consists of a multi-color bank H and a single color letter press unit I. The color bank H is arranged above the letter press stage and includes three impression rolls H¹, H² and H³ with their respective printing

rolls H⁴, H⁵ and H⁶, the latter being provided each with a suitable inking mechanism H⁷. The single color letter press unit I includes two impression rolls I¹ and I² with their respective printing rolls I³ and I⁴, the latter likewise being provided each with a suitable inking mechanism I⁵. Then, too, there are arranged below the press units, the paper feed rolls J supported by an arrangement similar to that described in connection with Fig. 1. In addition to the usual paper feed arrangement, however, there is provided with each unit G, an auxiliary paper feed roll K which may be used during the proof running of the color work, in order that the feed rolls J may be used if desired with the single color letter press unit I, in the event the latter is desired to be run separately while the color bank is being prepared for printing.

In preparing the color bank for printing, the paper web L is fed from the roll K (or in the alternative from the main feed roll J, as shown in dotted lines in Fig. 2) directly to the color bank H, as shown in dot-and-dash lines, passing in series between the impression rolls H¹, H², H³ and their respective associated printing rolls H⁴, H⁵, H⁶, through which they are properly directed by the intermediate guide rolls L¹. Upon leaving the last printing unit of the color bank, the web is guided by guide rolls L² and L³ to a wind-up roll M solely for proof purposes, as in the case of the wind-up roll F in the embodiment previously described.

After the preparation of the color bank for printing has been completed, the paper web is taken from the main paper feed rolls J and, if it is desired to print on one side of the web the single color work before the multi-color work, the web is threaded between the impression and printing rolls I¹ and I³ of the single color letter press unit, through the color bank thence by means of additional guide rolls L⁴ and L⁵ between the impression roll I² and the printing roll I⁴ to print on the reverse side of the web as shown in Fig. 2. If it is desired to print on one side of the web, the multi-color work before the single color work, the web is threaded first through the color bank, thence via guide rolls L⁶ and L⁷ between the impression and printing rolls I¹ and I³, and thereafter via a guide roll L⁸ and the guide rolls L⁴ and L⁵ between the impression and printing rolls I² and I⁴ to print the reverse side of the work, as shown in Fig. 3. From the last printing and impression rolls, the web travels over guide rolls L⁹, L¹⁰ and L¹¹ to a multiple web folding device N, which is common to all the printing units G.

Since with the present improvements, proof running of the multi-color work does not involve the operation of the letter press stages, the latter may be used independently for other work, in which case the paper web may be threaded from the feed rolls J, past the guide roll L⁷, between the impression and printing rolls I¹ and I³, to print one side of the web in single color, and thence via the guide rolls L⁸, L⁴ and L⁵, directly between the impression and printing rolls I² and I⁴ to print the other side of the web. After the last printing impression, the web will travel to the folding device N, as before.

It is assumed, of course, that the multi-color banks and single color units of the respective press units G will have each a separate drive to facilitate their independent operation, with means for synchronizing said drives, along with the drives of the other printing units for the regular printing runs.

In the accompanying drawings, the invention has been shown merely by way of example and in preferred form, and obviously many variations and modifications may be made therein which will still be comprised within its spirit. It is to be understood, therefore, that the invention is not limited to any specific form, embodiment or sequence of operation, except insofar as such limitations are specified in the appended claims.

Having thus described my invention, what I claim is:

1. The method of proof printing in a rotary web press equipped with a plurality of printing units arranged in series and adapted, during a regular printing run, simultaneously to print on the web, which method includes passing the web during proof taking through part only of the printing units to be used during said run so as to obtain an indication of the readiness for printing of one portion of the work independently of another portion thereof while leaving the remainder of the printing units free for use in another regular printing run.

2. The method of proof printing in a rotary web press equipped with a plurality of printing units arranged in series and adapted, during a regular printing run, to print a plurality of colors simultaneously on the web, which method includes passing the web during proof taking through part only of the units to be used during said run so as to obtain an indication of the readiness for printing of one portion of the work independently of another portion thereof while leaving the remainder of the printing units free for use in another regular printing run.

3. The method of proof printing in a rotary web press equipped with a bank of multi-color printing units and a single color printing unit arranged in series and adapted, during a regular printing run, simultaneously to print all the colors on the web, which method includes passing the web during proof taking through only the bank of multi-color units to be used during said run so as to obtain an indication of the readiness of the multi-color work for printing independently of the single color work while leaving the single color printing unit free for use in another regular printing run.

4. The method of proof printing in a rotary web press equipped with a plurality of printing units arranged in series and adapted, during a regular printing run, some to print in superposed registry, and the remainder simultaneously therewith but not in superposed registry, which method includes passing the web during proof taking only through those printing units that print in superposed registry so as to obtain an indication of the readiness for printing of the work requiring superposed registration independently of the remainder of the work while leaving the remainder of the printing units free for use in another regular printing run.

5. The method of proof printing in a rotary

web press equipped with a bank of multi-color printing units and a single color unit arranged in series and adapted, during a regular printing run, to print the multi-color work in superposed registry and the single color work simultaneously therewith but not in superposed registry, which method includes passing the web during proof taking only through the bank of multi-color units so as to obtain an indication of the readiness for printing of the multi-color work independently of the single color work while leaving the single color printing unit free for use in another regular printing run.

6. A rotary web printing press including, in combination, a plurality of printing units arranged in series and adapted for simultaneous printing on the web during a regular printing run, means for receiving the work of a regular printing run, and an auxiliary wind-up roll associated with one printing unit of the series to facilitate taking a proof print of the work to be printed by such unit while leaving the remainder of the printing units and the work receiving means free for use in another regular printing run.

7. A rotary web printing press including, in combination, a bank of multi-color printing units and a single color printing unit arranged in series and adapted for simultaneous printing on the web during a regular printing run, means for receiving the work of a regular printing run, and an auxiliary wind-up roll to facilitate taking a proof print of the multi-color work independently of the single color work while leaving the single color printing unit and the work receiving means free for use in another regular printing run.

8. A rotary web printing press including, in combination, a plurality of printing units arranged in series and adapted for simultaneous printing on the web during a regular printing run, a main paper feed supply and means for receiving the printed work of a regular printing run, and a wind-up roll and an auxiliary paper feed supply to facilitate taking a proof print of the work coming from one of said units while leaving the remainder of said units, the main paper feed supply and the work receiving means free for use in another regular printing run.

9. A rotary web printing press including, in combination, a bank of multi-color printing units and a single color printing unit arranged in series and adapted for simultaneous printing on the web during a regular printing run, a main paper feed supply and means for receiving the printed work of a regular printing run, and a wind-up roll and an auxiliary paper feed supply to facilitate taking a proof print of the multi-color work independently of the single color work, while leaving the single color printing unit, the main paper feed supply and the work receiving means free for use in another regular printing run.

WALTER MATUSCHKE.

4

CERTIFICATE OF CORRECTION.

Patent No. 2,138,704.

November 29, 1938.

WALTER MATUSCHKE.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 3, second column, line 44, claim 8, for the word "poor" read proof; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 10th day of January, A. D. 1939.

Henry Van Arsdale

Acting Commissioner of Patents.

(Seal)