

No. 847,913.

PATENTED MAR. 19, 1907.

P. F. COX.
PRINTING PRESS.
APPLICATION FILED JAN. 16, 1907.

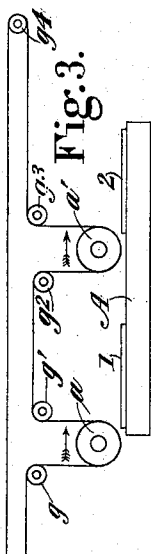
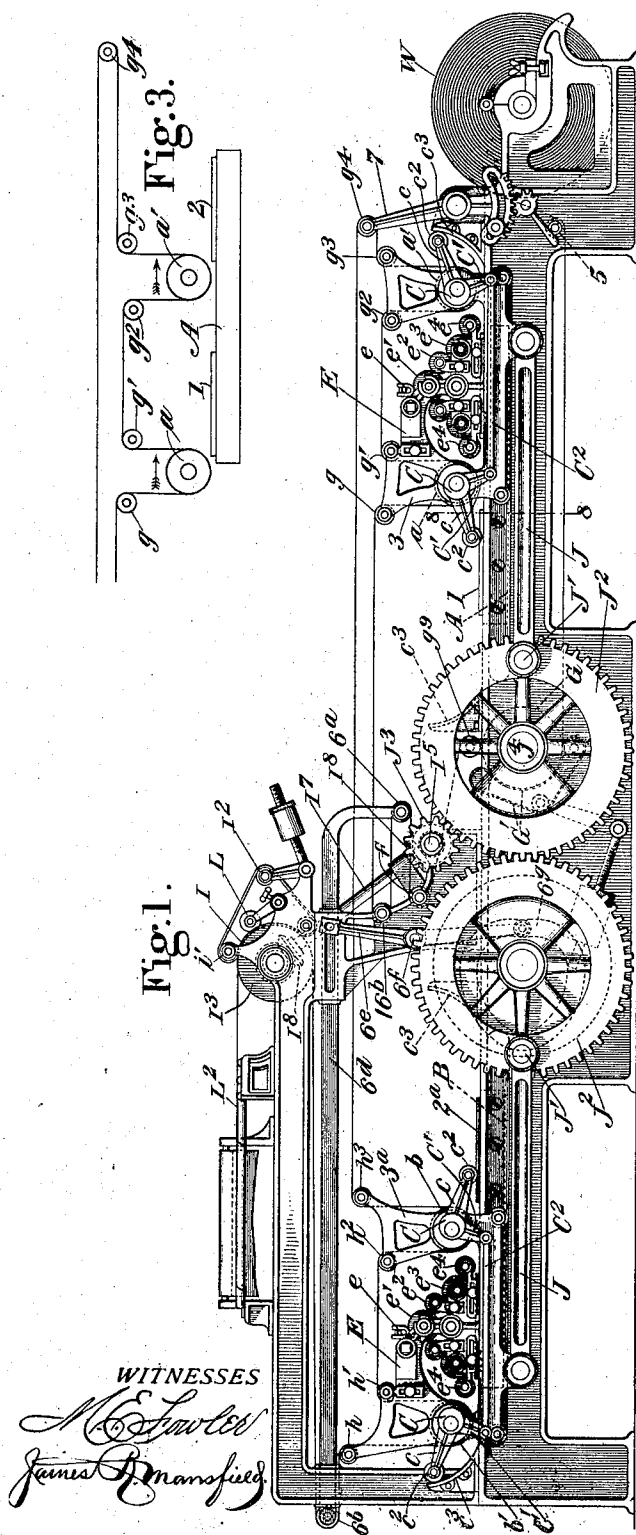


Fig. 6.

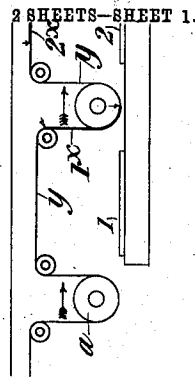


Fig. 5.

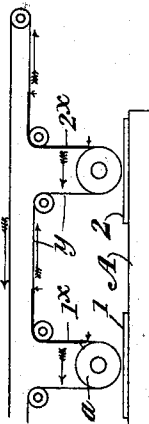
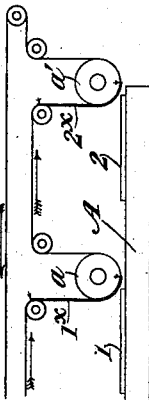


Fig. 4.



INVENTOR.

Paul F. Cox

By *Alexander D. Towell*
Attorneys

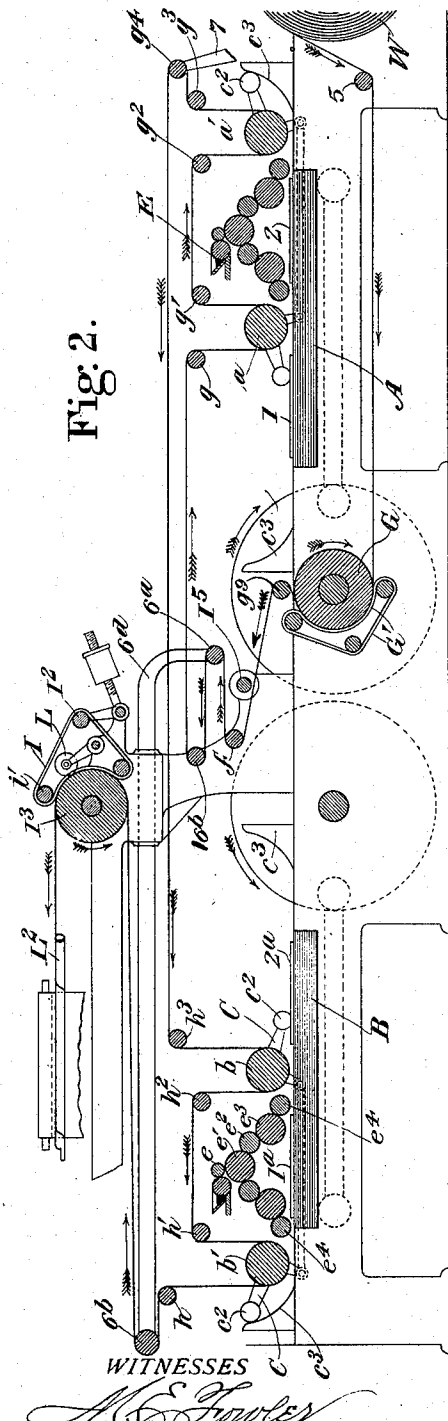
No. 847,913.

PATENTED MAR. 19, 1907.

P. F. COX.
PRINTING PRESS.
APPLICATION FILED JAN. 16, 1907.

2 SHEETS—SHEET 2.

Fig. 2.



WITNESSES
McEwen
James D. Mansfield

Fig. 8.

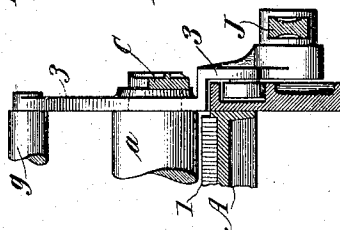


Fig. 7.

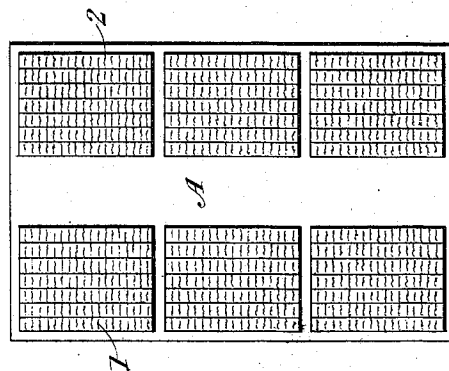
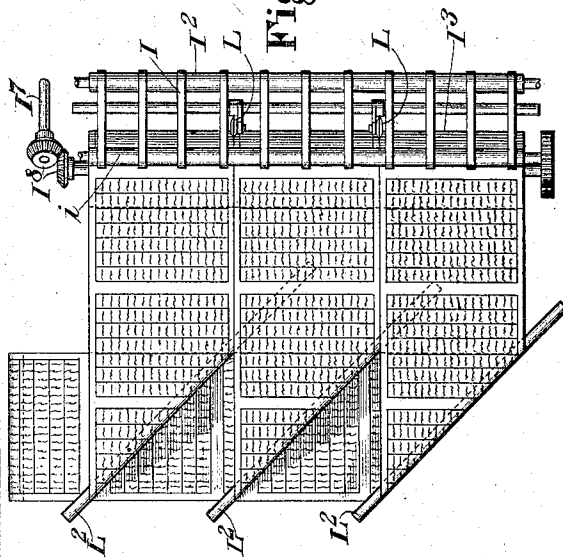


Fig. 9.



INVENTOR:

Paul F. Cox

By *Alexander S. Foxwell*
Attorneys

UNITED STATES PATENT OFFICE.

PAUL FLEMMING COX, OF BATTLE CREEK, MICHIGAN.

PRINTING-PRESS.

No. 847,913.

Specification of Letters Patent.

Patented March 19, 1907.

Application filed January 16, 1907. Serial No. 352,570.

To all whom it may concern:

Be it known that I, PAUL FLEMMING COX, of Battle Creek, in the county of Calhoun and State of Michigan, have invented certain new and useful Improvements in Printing-Presses; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form part of this specification.

This invention is an improvement in web-printing presses in which perfected impressions are produced upon the web from flat forms of type by moving impression-cylinders; and its principal object is to shorten the travel of the cylinders approximately half or less. In other words, where stationary beds are used and two sets of forms are arranged on each bed the cylinder will have to travel but the length or width of one form instead of the length or width of both forms as heretofore, and this is accomplished by providing two cylinders to operate upon each bed and by separating the forms on such beds into two parts and having each cylinder operate upon only one part or half of the forms on such bed, the cylinders operating, preferably, simultaneously upon the forms—one cylinder and its half-form printing parts of the web skipped by the other cylinder and its half-form. The two cylinders and their forms, however, make their impressions upon the web in close juxtaposition, so that the effect is the same as if both forms were printed by one cylinder traveling over both forms. By thus shortening the travel of the cylinders the speed of the press is proportionately increased.

Further objects of the invention are to make the press very low down, so that the beds and all parts will be within easy reach of the operator and the forms can be readily placed on or removed from the beds.

The present invention also enables such a press to produce papers of large size from a single web and dispenses with the necessity of using formers at the folder, as the web can be slitted longitudinally into page lengths and assembled before reaching the folder or cutting-cylinders.

The invention is illustrated in the accompanying drawings, which show one practical form of web-perfecting printing-press embodying the invention and is summarized in the claims following the description of such press.

In said drawings, Figure 1 is a side elevation of the complete press. Fig. 2 is a longitudinal section through such press. Figs. 3, 4, 5, and 6 are diagrammatical views illustrating the method of printing the web. Fig. 7 is a detail view showing the arrangement of forms on the bed. Fig. 8 is a detail section on line 8 8, Fig. 1. Fig. 9 is a detail plan view illustrating the method of splitting and assembling the webs.

In the drawings, A B represent two horizontal type-beds, arranged preferably in the same plane and securely bolted in the ordinary manner to the main frames of the press.

Above the bed A and adapted to cooperate with the forms thereon are impression-cylinders *a* and *a'*, which are respectively adapted to cooperate with the forms 1 and 2 lying upon the bed A. Similarly above bed B are journaled impression-cylinders *b* and *b'*, adapted to respectively cooperate with forms 1^a 2^a on bed B. The cylinders *a* *a'* are journaled in sliding cross-heads or carrier-frames 3, slidably mounted upon the side frames of the press, so that the cylinders, with their relative web-guides and inking-rollers, can be reciprocated back and forth over the bed, as hereinafter described. Similarly the cylinders *b* *b'*, with their related web-guides and inking-rollers, are mounted in sliding carriers 3^a, as shown.

The several impression-cylinders are preferably adapted to be thrown off impression during their non-printing strokes, and, as shown, the cylinders in each pair are journaled in eccentric-boxes C, which are provided with arms C', connected by a rod or bar C², extending alongside of the press, and each box also has an arm *c*, carrying a roller *c*², adapted to engage cams *c*³ on the main frames, as indicated, these parts being so constructed that the cylinders will be thrown off impression during their one stroke or travel of the cylinders and will be thrown on impression during the forward or printing stroke of the same. The cams *c*³ may be disconnectible or adjustable, so that the cylinders can be thrown off impression and the web-feeding devices put out of action, and then the cylinders run to ink up the forms without any printing taking place.

As indicated in Fig. 1, the cylinder-carriers 3 3^a are operated by pitman-rods J, pivotally connected at one end to studs on the cylinder-carriers and at the other end to crank-pins J' on main crank-gears J², which

intermesh, and one of these gears J^2 meshes with a small driving-gear J^3 on the shaft I^5 , to which power is applied in any known manner. Each bed A and B is adapted to carry forms for four or more pages. These forms are preferably placed on each bed in two rows, as shown at 1 and 2 on bed A and at 1^a 2^a on bed B. The cylinder a operates on the forms in row 1 and the cylinder a' operates on the forms in row 2 at each outward or printing stroke of the cylinders a a' . Thus two impressions are simultaneously made on the web. On the return stroke of cylinders a a' no impressions are made, as the impression is thrown off. The cylinders over each bed are spaced sufficiently far apart to enable the inking mechanism to be inserted therebetween. The forms on each bed are preferably inked from a common fountain and inking system arranged between and traveling with the impression-cylinders. Thus the forms on bed A may be supplied with ink from a fountain E by means of the ductor-roller e , drum e' , distributing-rollers e^2 e^3 , and form-rollers e^4 e^4 , all mounted on carriers 3. The form-rollers e^4 lie near the cylinders a a' , respectively, and each respectively supplies ink to one of the forms on bed A. The left-hand form-roller e^4 supplies ink to the left-hand form 1 and the right-hand roller e^4 supplies ink to the right-hand form 2. A similar inking mechanism is mounted on carriers 3^a between cylinders b b' to supply ink to the forms 1^a 2^a on bed B.

In order to prevent the form-rollers reversing while upon the forms, the cylinders and form-rollers e^4 are sufficiently far apart to allow the rollers to clear their related forms of type just as the cylinder-carriers come to the point of reverse, as indicated in Fig. 2 of the drawings, where the form-rollers are shown as clear of both forms 2 and 1^a , and at the completion of the innermost strokes of the pitmen the form-rollers would be in the same position between the forms 1 and 2^a that the forms 2 and 1^a are shown as occupying. The forms on each bed are also separated sufficiently to enable the forms to clear the inking-rollers and the cylinders at the time of reverse.

In order to shorten the stroke of the cylinder-carriers, the type-forms are preferably arranged transversely of the beds in two rows, as indicated in Fig. 7. If printing a twelve-page paper, each row of forms 1 2 and 1^a 2^a would contain three pages of matter arranged transversely of the press, and preferably, for reasons hereinafter explained, instead of arranging these forms with the columns running longitudinally of the press we arrange them with the columns running transversely of the press, so that instead of the column-forms being side by side they are end to end, as indicated in Fig. 7, and this enables us to materially shorten the

travel of the reciprocating impression-cylinders, as the forms are of course narrower than they are long. This arrangement of forms enables the web after being perfected to be slit longitudinally and the papers assembled at the folder with a simple quarter-turn of the split web, as indicated in Fig. 9. In this way the webs can be slit and the pages assembled at the folder without necessarily passing them over any former, which arrangement greatly simplifies the construction of the press and facilitates the assembling of the web.

The web is supplied from a roll W, which may be conveniently supported at one end of the press, as shown in the drawings. The web is led in under an idler 5, then between the continuously-running feeding-in mechanism, comprising a roll G, mounted upon and around the shaft J^4 of one set of gears J^2 , and a series of tapes G' , coacting with roll G in the usual manner, the tapes being guided over idlers and provided with suitable tensioning devices. The roll G is of such diameter that it will feed the desired length of web—say thirty-five inches—for each reciprocation of the cylinder-carriage. The web then passes over a guide-roller g^3 , then around a fixed guide-roller f , then is looped around a looping-roller 6^a and passed around a fixed guide 16^b , and thence passes to and over a guide g and down under cylinder a , then over guide g' and above the inking mechanism to a guide-roller g^2 , down under cylinder a' , up over guide g^3 , then under and over a guiding and coaxing roller g^4 . The guides g g' g^2 g^3 are mounted on the carriers 3 and travel with cylinders a a' , and guides h h' h^2 h^3 are mounted on carriers 3^a . The guides 16^b g^4 may be rotated by any suitable means (not shown) to coax the web forward. Guide g^4 is shown as mounted in the upper ends of pivoted levers 7, which can be adjusted to move the roller g^4 in or out. From guide g^4 the web passes back to and over a guide h^3 on carrier 3^a , then down under cylinder b , then up over guide h^2 , back above the second inking mechanism to a guide h' , down under cylinder b' , up over a guide h , thence around a second looping-roller 6^b , and then to a continuously-running delivery mechanism I^3 .

The delivery mechanism may be of any suitable construction, and, as shown, comprises a cylinder I^3 and coacting tapes I , running over guide-rollers I^2 . Cylinder I^3 can be driven in unison with cylinder G in any desired manner. As shown, it is driven by a counter-shaft I^7 and bevel-gears I^8 from driven shaft I^5 . The delivery devices are adapted to feed the web out of the press as fast as it is delivered thereinto by the feed-rolls.

The rollers g' or g^2 may be mounted in adjustable supports on the carriers to insure proper registration or sequence between the

impressions produced on the web from the forms 1 2 by cylinders $a a'$, and the rollers h or h^2 may be mounted in adjustable supports for a like purpose.

5 The looping-rollers $6^a 6^b$ may be, as shown, mounted on opposite ends of reciprocatory bars 6^d , which are operated by means of a lever 6^e , pivoted at 6^f on the frame and having rollers on their lower ends engaging race-cams 6^g on the shaft of one of the crank-gears J^2 , the cam and levers being so proportioned as to move the rollers in one direction during impressions and in the opposite direction between impressions, so that the roller 6^a takes up the web fed in by the feed mechanism during impressions, while roller 6^b gives up a like amount of web to the delivery mechanism. After impressions the reverse movements of the looping-rollers shifts part of the web through the press-roller 6^b taking up in its loop the web given out of its loop by rollers 6^a , the coaction of the looping-rollers with the delivery mechanism after impressions sufficing to shift the desired length of web through the press after impressions. Any other desired means for feeding and shifting the web may be employed.

After the web has been perfected it is divided longitudinally by slitters L , which may be conveniently located adjacent to the roller i' , the web being slitted longitudinally, as indicated in Fig. 9, and then the slitted portions of the web may be led to and over angle-bars L^2 , located above the second printing mechanism and given a quarter-turn thereby and then assembled and led to a folder, (not shown,) which may be located at the side of the press. By this arrangement of angle-bars different sized papers can be printed on one web and the pages slit and assembled before passing to the cutting-cylinders and folded without the employment of formers.

Operation: The operation may be summarized as follows: The web is fed in continually by the infeed-cylinder G and after being looped around roller 6^a is passed between cylinders $a a'$ and bed A , then is led over suitable guides to and between cylinders $b b'$ and bed B , and then led over suitable guides to and looped around a second looping-roller 6^b , and is continually delivered by roll P^3 . The web may be slit longitudinally and the slit portions given a quarter-turn over the angle-bars and assembled before reaching the folder. At each printing-stroke of the sets of cylinders two impressions are produced on the web by the coaction of cylinders $a a'$ with the forms 1 and 2 on bed A and a similar number of impressions are printed on the opposite side of the web in register with the first impressions by cylinders $b b'$ coacting with forms $1^a 2^a$ on bed B . By dividing the forms on each bed and using

two cylinders with each bed I am able to print thirty-five inches of web for each seven-teen and one-half inches of movement of the cylinders during the impression, or, in other words, print twice the length of web that could possibly be printed by a single cylinder and bed, as above explained, the web being fed as hereinafter described. The first cylinder (a or b') in each pair, however, skips every other page-width of web; but these skipped portions are printed by the second cylinder in each pair, which skips the previously-printed portions, the "skipping" occurring during the return stroke of the cylinders and while the impression is thrown off. The press, as shown in Fig. 1, has just completed a printing-stroke and the impression-cylinders have just been thrown off of impression and will at once commence their return "non-printing" stroke to their inner or central position, as the sets of cylinders are preferably arranged to move oppositely. While the cylinder-carriages are returning "off impression," the looping-roller 6^a will travel to the left, its loop being exhausted by the action of the other looping-roller 6^b , which travels in unison therewith, (both rollers being moved simultaneously in the same direction by bars 6^d ,) and the required amount of web will be transferred or spaced forward to bring the desired spaces of the web into proper position to be printed on the next printing-stroke of the impression-cylinders. Just as the cylinders impinge the web against the forms the looping-roller 6^a commences its travel to the right, taking up the amount of web fed in by roll G while the impression-cylinders are in impression, while the other spacing-roller 6^b recedes to the right at the same speed, supplying the demands of the delivery-roll P^3 during the printing operation, thus preserving the tension of the paper and having all the time of the return or non-printing-stroke of the cylinders to readjust the web in readiness for a repeated operation, the spacing-rollers transferring the regular amount of paper while the traveling cylinders are off impression and returning out of contact over the type-forms. This enables a very easy acting cam 6^e to be employed and insures a high speed with safety and without undue jerking of the web.

Figs. 3, 4, 5, and 6 are diagrams illustrating the method of printing the web by means of two cylinders operating on one bed.

Fig. 3 shows the cylinders just ready to begin the printing-stroke, no impressions having been made on the web, which is now stationary.

Fig. 4 shows the cylinders at the end of their printing stroke, cylinder a having taken an impression $1'$ on the web from form 1 and cylinder a' having taken an impression $2'$ on the web from form 2, the two impressions being separated by a blank portion γ in the

web and the web being now started to travel between the beds and cylinders, the impression being thrown off.

Fig. 5 shows the cylinders moving back while thrown off and the web moving forward between the beds and cylinders, shifting the impressions $1 \times 2 \times$ and blank space y , skipped by cylinder a , forward relatively to the bed and cylinders.

Fig. 6 shows the cylinders again at the beginning of their printing stroke and the web stopped, it having meanwhile been fed sufficiently forward to move the blank space y into position to be imprinted by cylinder a' and form 2, while sufficient unprinted web is advanced beyond cylinder a to permit an impression thereon from form 1 and leave a blank y between such impression and the preceding impression $1 \times$.

It will be seen that the cylinders a a' do not print upon the same part of the web, but upon alternate sections thereof, and the impressions $1 \times 2 \times$ from forms 1 and 2 are thus produced upon the web close together and in proper continuity, the impression from form 1 alternating with the impressions from form 2. The impressions from forms 1 and 2 on the web will be backed up and the web perfected by impressions from the forms 1^a 2^a , produced by the cylinders b b' in the same manner. Thus the web is fed between the beds and cylinders and thirty-five inches of web are printed at each forward stroke of the cylinders, although the cylinders only move seventeen and one-half inches during the taking of impressions on each printing stroke.

By feeding the web while the impressions are thrown off the stroke of the cylinders can be shortened, so that merely clearance is provided between the form-rollers and forms at time of reverse, and a very rapid reciprocation can be imparted to the cylinder-carriers without necessitating any particularly rapid shifting of the web. However, I would have it understood that the invention is applicable to double-acting web-perfecting presses also, as obviously all that is required is to gear up the feeding, delivering, and looping mechanisms so that they will operate twice for each reciprocation of the cylinders and the web will be shifted in the intervals between impressions while the cylinders are clear of the forms on both strokes.

The press shown is simpler and lessens the speed and complications in handling the web, and at the same time the shortness of travel of the cylinders compensates for the non-printing action of the cylinders on their return stroke, as compared with the presses heretofore made. Furthermore, it should be understood that the invention is applicable to movable-bed and movable-cylinder presses, in which case the stroke of the cylinder-carriers could be shortened proportionately to the travel of the bed—for example, it could

be shortened one-half if the bed and cylinder had approximately equal amounts of travel.

The in-feed cylinder G could be mounted on the shaft of the drive-gear in such manner that it could be rotated thereon by hand when making ready the press without necessitating the driving of the carriers and yet be positively locked to the shaft when the press is ready for operation.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a web-printing press, the combination of a bed, two traveling cylinders adapted to cooperate with different forms on the bed, the second cylinder and its form printing the parts of the web skipped by the first cylinder and its form; with means for reciprocating the cylinders over the bed, and means for feeding a web between the bed and cylinders.

2. The combination of a type-bed, and impression-cylinders adapted to simultaneously cooperate with different forms carried by the bed, and simultaneously print alternate spaces on the web; with means for reciprocating the cylinders, and means for feeding a web through the press and between the bed and cylinders after impressions.

3. In a printing-press, the combination of a bed, two reciprocating cylinders adapted to cooperate with different forms on the bed simultaneously, the second cylinder and its form printing the parts of the web skipped by the first cylinder and its form; and means for guiding a web successively between the cylinders and bed; with means for continuously feeding and delivering a web, and means for shifting the web forward between the bed and cylinders after impressions.

4. The combination of a stationary bed, two forms thereon, two reciprocating cylinders simultaneously and respectively cooperating only with the front and the rear forms, means for feeding a web between the bed and cylinders—after impressions—and means for guiding the web so that the unprinted parts of the web fed past the first cylinder and front form will be printed by the second cylinder and rear form.

5. The combination of a bed, two reciprocating impression-cylinders adapted to simultaneously cooperate with different forms on the bed, each cylinder coacting with but one form, means for directing a web between the bed and cylinders, means for continuously feeding and delivering the web, means for shifting the web between the bed and cylinders after impressions, and means for throwing off impressions during the return stroke of the cylinders.

6. In a printing-press, the combination of a stationary bed, two reciprocating cylinders respectively adapted to cooperate with one half of the forms on the bed and print the

same side of the web, means for feeding the web forward between the bed and cylinders after impressions, and means for guiding the web so that the part of the web fed past the first cylinder and its coacting forms will be printed by the second cylinder and its coacting forms.

7. The combination of a stationary type-bed adapted to carry two forms, two traveling impression-cylinders adapted to simultaneously operate on the related forms each cylinder coacting with but one form, means for reciprocating the cylinders over the forms, means for throwing off impression on one stroke of the cylinders, means for feeding a length of web forward between the bed and cylinders while the impression is thrown off.

8. In a printing-press the combination of a type-bed carrying two forms, two traveling cylinders simultaneously coöperating with the forms on the bed, each cylinder coacting with but one form, means for throwing off impressions during one stroke of the cylinders, and means for guiding a web successively between the bed and cylinders, and means for shifting the web between the bed and cylinders when the impression is thrown off, one cylinder printing the portions of the web skipped by the other cylinder.

9. In a printing-press, the combination of a type-bed carrying two forms, two traveling cylinders each coöperating with but one of the forms on the bed, one cylinder and form printing part of the web skipped by the other cylinder and form, means for guiding a web successively between the bed and cylinders, means for throwing off impressions during the return stroke of the cylinders, and means for moving the web forward between the bed and cylinders after impressions.

10. In a printing-press, the combination of a stationary bed adapted to carry two forms, two traveling cylinders adapted to simultaneously coöperate with forms on the bed, each cylinder coacting with but one form, and one cylinder printing parts of the web skipped by the other cylinder, an inking mechanism adapted to supply ink to both sets of forms on the bed, web-guides, means for continuously feeding and delivering the web, and means for shifting an intermediate portion thereof through the press and between the bed and cylinders after impressions.

11. In a printing-press, the combination of a stationary type-bed, two reciprocating cylinders adapted to coöperate with forms on the bed, each cylinder coacting with but one form, and an inking mechanism, arranged between and traveling with the cylinders, adapted to ink the forms for both cylinders; with web-guides and means for feeding a length of web through the press and between the bed and cylinders after impressions.

12. In a printing-press, the combination of

a bed carrying two transversely-arranged sets of forms, two reciprocating cylinders above the bed each adapted to coöperate with one set of forms on the bed, said cylinders operating simultaneously on their respective forms, and one cylinder printing parts of the web skipped by the other cylinder; with web-guides, and means for feeding the web forward between the bed and cylinders in the interval between impressions and during the back strokes of the cylinders.

13. In a printing-press, the combination of a bed carrying transversely-arranged sets of forms, cylinders above the bed each adapted to coöperate with one set of forms on the bed, said cylinders operating simultaneously on their respective forms, means for reciprocating the cylinders over the forms, web-guides, and means for continually feeding a web to and delivering it from the press, and means for shifting an intermediate portion of the web forward between the bed and cylinders between impressions; an ink-fountain above the bed and between the cylinders, and means for supplying ink from said fountain to the forms on the bed.

14. In a web-perfecting press, the combination of two type-beds, a pair of reciprocating cylinders coacting with each bed, one cylinder in each pair printing part of the web skipped by the other cylinder in such pair, guides for directing a web between the first bed and its pair of coacting reciprocating cylinders, and then between the second bed and its pair of coacting reciprocating cylinders; and means for moving the web forward between the bed and cylinders after impressions.

15. In a web-perfecting press, the combination of a pair of stationary type-beds, a pair of reciprocating impression-cylinders coacting with each bed, and guides for directing a web between one bed and its pair of cylinders, then between the second bed and its pair of cylinders; with means for continuously feeding and delivering the web, and mechanism for intermittently stopping the part of the web between the bed and cylinders during impressions and for moving such part forward after impression.

16. The combination of a stationary bed, a pair of reciprocating carriers, impression-cylinders respectively adapted to operate on different forms on the bed, means for reciprocating the cylinders, a continuously-operating feed-in mechanism, a continuously-operating feed-out mechanism, web-guides for directing a web from the feed mechanism to and between the bed and cylinders in succession and then to the delivery, and looping mechanism whereby the part of the web between the feed and delivery is stopped during impressions and moved forward after impressions.

17. The combination of a pair of stationary

type-beds, and a pair of reciprocating impression-cylinders coacting with each bed, means for reciprocating the pairs of cylinders, mechanism for feeding web to the press, 5 mechanism for delivering web therefrom, and fixed and movable web-guides whereby the web is conducted first between one bed and its pair of coacting cylinders, and then between the other bed and its pair of coacting 10 cylinders.

18. The combination of a pair of stationary type-beds, a pair of reciprocating impression-cylinders coacting with each bed, means for reciprocating the pairs of cylinders, and 15 means for throwing the cylinders off impression on one stroke; with means for feeding a web to the press, means for delivering the web therefrom, and stationary and movable web-guides whereby the web is led first between one bed and cylinder to be printed on 20 one side, and then between the other bed and its coacting pair of cylinders to be perfected, and mechanism whereby the web is fed between the beds and cylinders while the impression is thrown off. 25

19. The combination with a stationary bed, a pair of reciprocating carriers beside the bed, a pair of impression-cylinders journaled in said carriers, respectively adapted to operate on different forms on the bed, means for 30 reciprocating the carriers, and means for throwing the cylinders off impression on one stroke, with a continuously-operating feed-in mechanism, a continuously-operating feed-out mechanism, web-guides for directing a web from the feed mechanism to and between the bed and cylinders in succession 35 and then to the delivery, and mechanism whereby the part of the web between the feed and delivery is stopped during impressions and moved forward while the impression is thrown off. 40

20. The combination of a pair of stationary type-beds, a pair of reciprocating impression-cylinders coacting with forms on each bed, 45 means for reciprocating the pairs of cylinders simultaneously in opposite directions, mechanism for feeding web continuously to the press, mechanism for delivering web continuously therefrom, fixed and movable web-guides whereby the web is conducted first 50 between one bed and its pair of coacting cylinders, and then between the other bed and its pair of coacting cylinders, and mechanism whereby the portion of the web between the feed and delivery mechanisms is stopped 55 while being printed, and moved forward after impressions.

21. The combination of a pair of stationary type-beds, a pair of reciprocating impression-cylinders coacting with forms on each bed, 60 means for reciprocating the pairs of cylinders in opposite directions, means for throwing the cylinders off impression on one stroke; with means for feeding a web continuously 65 to the press, means for delivering the web continuously therefrom, stationary and movable web-guides whereby the web is led first between one bed and cylinder to be printed on one side, and then between the other bed 70 and its coacting pair of cylinders to be perfected, and mechanism whereby the portion of the web between the feed and delivery is stopped during printing and shifted forward while the impressions are thrown off. 75

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

PAUL FLEMMING COX.

Witnesses:

H. F. WINGATE,
F. H. WINGATE.