No. 658,773. Patented Oct. 2, 1900.

S. G. GOSS.

DELIVERY APPARATUS FOR PRINTING PRESSES.

(Application filed Jan. 24, 1900.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

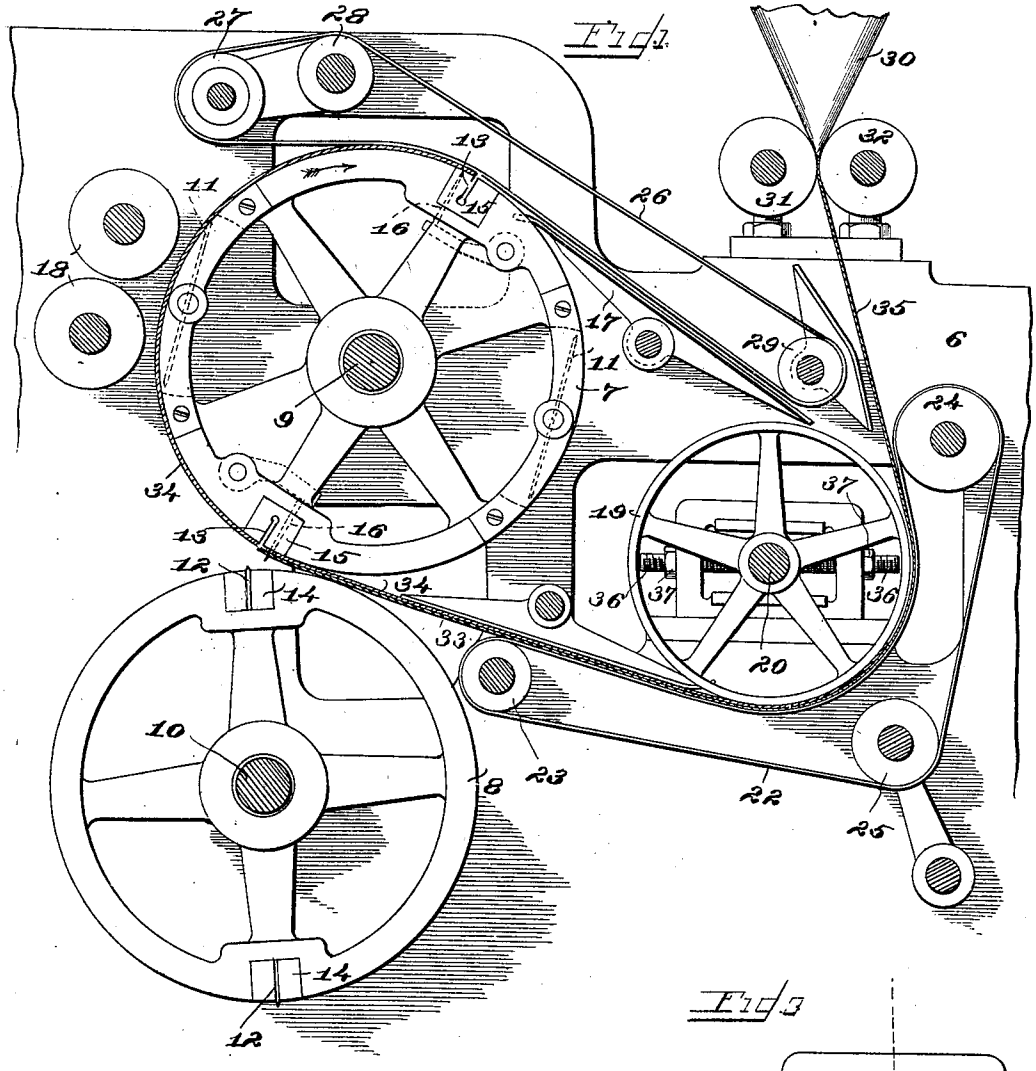


Fig. 3.

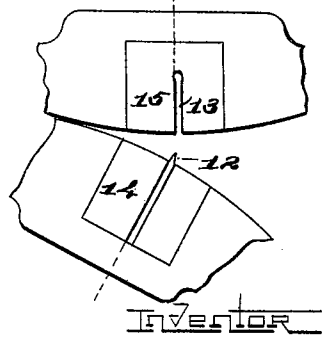
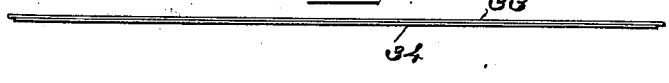


Fig. 4.



Witnesses

J. B. Weir

Ira D. Perry

Inventor

Samuel G. Goss,

by Bond Adams Pettus & Jackson,

his Attys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C

No. 658,773 Patented Oct. 2, 1900.

S. G. GOSS.

DELIVERY APPARATUS FOR PRINTING PRESSES.

(Application filed Jan. 24, 1900.)

(No Model.) 2 Sheets—Sheet 2.

Fig. 2.

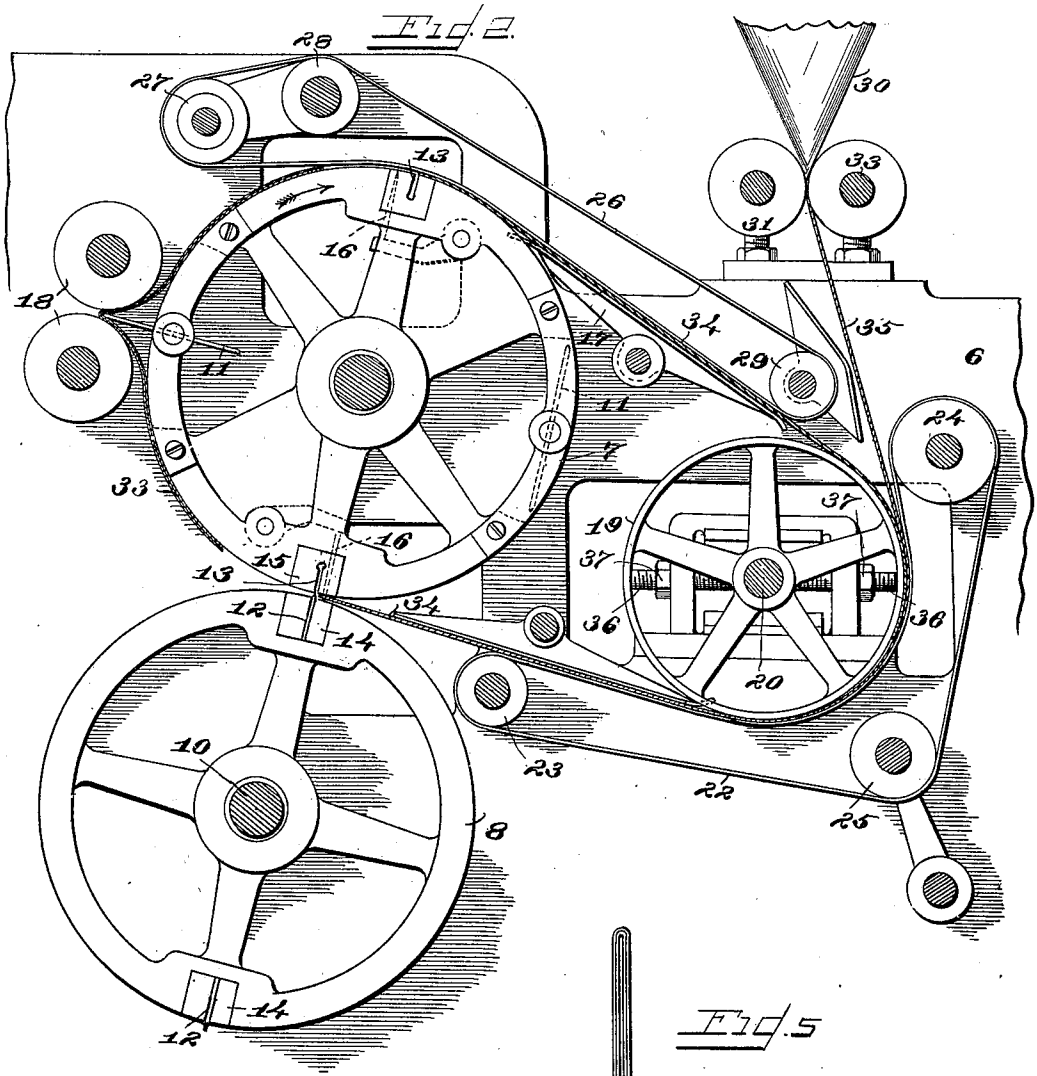
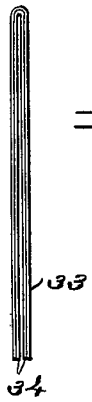


Fig. 5.



Witnesses

J. B. Weir

Ira D. Perry

Inventor

Samuel G. Goss,

by Bond Adams Pickens & Jackson,

his Attys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

SAMUEL G. GOSS, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE GOSS PRINTING PRESS COMPANY, OF SAME PLACE.

DELIVERY APPARATUS FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 658,773, dated October 2, 1900.

Application filed January 24, 1900. Serial No. 2,611. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL G. GOSS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Delivery Apparatus for Printing-Presses, of which the following is a specification.

My invention relates to printing-presses, and has particularly to do with the mechanism by which the web of a perfecting-press is delivered from the printing mechanism. Heretofore it has been the practice in printing newspapers and pamphlets to sever the web transversely at every other margin, such transverse cutting being effected either before or after the assembling of a plurality of webs, the different sheets so severed being of uniform length between the margins formed by the transverse cutting of the web. In cases where no collecting of sheets is necessary the present practice is satisfactory; but in "newspapers" (by which term I also include pamphlets and other similar products) of larger size produced by collecting a number of sheets and folding them together the greater thickness of the newspaper prevents the outer sheets from being creased as tightly at the fold as the inner sheets, consequently causing the ends of the inner sheets to project a considerable distance beyond the ends of the outer sheet or sheets, the amount of the projection varying with the thickness of the newspaper, which in consequence cannot be so easily handled and is also not so neat in appearance. A further objection to the present practice is that where collecting is done, as above described, with sheets of the same length a very slight variation in the position of the sheet first severed from the web causes it to project in the path of the cutting-blade, so that when the second or subsequent sheets are severed from the web a narrow shaving is also cut from the front or rear end of the sheet first severed. These shavings soon accumulate and, getting into the mechanism of the press, interfere with its proper operation.

The object of my present invention is to avoid these objections.

To this end my invention consists in a construction by which the sheet first severed from the web (which I will term the "first" sheet) is cut shorter than the sheet with which it is afterward assembled, (which I will term the "second" sheet,) it being understood that the first and second sheets may each consist of one or more sheets operated on as a single sheet.

My invention further consists in providing for conducting the first or short sheet to and assembling it with the end of the web before the second sheet is severed from it and for severing the second sheet from the web at a point slightly removed from the adjacent end of the first sheet.

My invention further consists in combining transverse cutting mechanism adapted to sever from the web sheets of different lengths, with mechanism for assembling and folding said sheets, so that the shorter sheet is folded inside the longer one.

It further consists in providing for the adjustment of the cutting mechanism, so that when desired sheets of uniform length may be severed from the web—as, for example, when no collecting is necessary.

That which I regard as new will be set forth in the claims.

In the accompanying drawings, Figure 1 is an end view of the delivery mechanism of a printing-press, the framework at one side being removed. Fig. 2 is a similar view showing another stage of the operation. Fig. 3 is an enlarged detail illustrating the cutting devices. Fig. 4 is a view illustrating the arrangement of the superposed sheets before folding, and Fig. 5 is a similar view showing the sheets folded.

Referring to the drawings, 6 indicates the frame of the machine, and 7 8 indicate coacting cutting-rolls, mounted upon shafts 9 10, respectively, the roll 7 being also provided with folding-blades 11, which are adapted to be operated by suitable cam mechanism or be silenced in the usual manner. The rolls 7 8 are of such diameter that the circumference of each roll is equal to two times the length of each page of the paper, with the necessary margins, and said rolls are provided with two transverse cutting devices placed slightly less than one hundred and eighty degrees apart, the roll 8 being provided with

cutting-blades 12 and the roll 7 with recesses 13, adapted to receive said cutting-blades. By placing the cutting devices less than one hundred and eighty degrees apart, as stated, it is evident that by each complete rotation of the rolls 7 8 two sheets of unequal lengths will be severed from the web, the difference between the length of the two sheets being equal to twice the distance from one of the cutting-blades to a point on the circumference of the roll diametrically opposite the other cutting-blade. For the purpose of securing the arrangement of the cutting devices above described and, nevertheless, permitting adjustment of the cutting devices to provide for cutting sheets of uniform length the cutting-blades 12 are mounted in blocks 14, as best shown in Fig. 3, said blocks being diametrically opposite each other on the roll, as shown in Fig. 1, the cutting-blades, however, being fitted in said blocks at one side of the center thereof, as indicated by dotted lines in Fig. 3. The blocks 14 are removably secured in the roll 8 in the usual way. When it is desired to cut sheets of uniform length, this may be accomplished by simply removing one of the blocks 14 and turning it end for end, which will bring the cutting-blades exactly one hundred and eighty degrees apart, so that the sheets cut will be uniform in length. The recesses 13 are also arranged in blocks 15 in substantially the same way as the blades 12 and register with said blades. The blocks 15 also are removable and adjustable in the same way as the blocks 14.

The roll 7 carries near each recess 13 a set of impaling-pins 16, which are adapted to impale the leading end of the web in the usual way, and suitable cam mechanism (not shown) is provided for operating the impaling-pins to impale the web and to release the sheets at the proper time. Such mechanism may be of any approved description.

17 indicates strippers arranged at the upper side of the apparatus, near the roll 7, for stripping the leading ends of the sheets from the roll 7 as they pass back to be associated with the web.

18 indicates small folding-rolls adapted to receive the doubled sheets from the roll 7 under the action of the blades in the usual way.

19 indicates a roll or cylinder suitably mounted in the frame of the press on a shaft 20, parallel with the shaft 9, upon which is mounted the roll 7. In order that the length of the path of the short sheets may be adjusted so that they will be properly associated with the web, the journal-boxes of the shaft 20 are held in place by adjusting-screws 36, as shown in Figs. 1 and 2. Nuts 37 on the screws 36 serve to hold the shaft 20 in place and permit its adjustment toward or from the cylinder 7, thereby shortening or lengthening the path of the short sheets.

22 indicates guide-tapes, which are mounted on suitable tape-rollers 23 24 25, arranged to conduct the web around the lower side of the roll 19.

26 indicates guide-tapes running around pulleys 27 28 29, which are arranged to guide the sheets around the upper portion of the roll 7, as shown in Figs. 1 and 2.

30 indicates a longitudinal folder, and 31 32 folding-rollers at the apex of said folder.

33 indicates a long sheet, and 34 a short sheet.

35 indicates the web.

The operation is as follows: If it be desired to deliver a series of sheets of uniform length, one of each of the blocks 14 15 is turned end for end from the position shown in Figs. 1, 2, and 3, so as to bring the cutting-blades 12 diametrically opposite each other and the recesses 13 also diametrically opposite each other, both folding-blades 11 being active. When the rolls 7 8 are rotated in the direction indicated by the arrow in Figs. 1 and 2, the web passes from the longitudinal folder 30 down around the roll 19 to the rolls 7 8, between which its leading end passes. At this point the leading end of the web is impaled by the pins 16 and carried up around the roll 7 to the upper side thereof until the transverse margin at which the fold is to be made arrives opposite the folding-rollers 18, when the appropriate folding-blade operates to carry the doubled edge of the web into the bite of said rollers 18. At this time the second cutting-blade severs the web a second time, releasing the leading sheet. At the next semirotation of the rolls 7 8 another sheet will be severed from the web and folded, as above described.

When collecting is to be done, the cutting-blades 12 and recesses 13 are arranged, as shown in Figs. 1, 2, and 3, so that the two cutting-blades 12 are slightly less than one hundred and eighty degrees apart, and the recesses 13 are similarly situated. By this arrangement one of the folding-blades lies slightly nearer the recesses 13 than the other, and the former is silenced. In operation the leading sheet 34, first severed from the web, is slightly shorter than the semicircumference of the roll 7, owing to the location of the cutting-blades 12, as already described. The second sheet cut from the web, however, is slightly longer than the semicircumference of the rolls 7 8 for the same reason, so that the sheets cut from the web are alternately short and long. As illustrated in Fig. 2, the short sheet, carried back to the roll 19 after being assembled with the second sheet, still a part of the web, is conducted back between the rolls 7 8, lying on the web, as shown in Fig. 1. The forward end of the short sheet 34 does not, however, extend quite to the forward edge of the web, owing to the adjustment of the pathway and the reduced length of said sheet. Neither does the rear edge of said short sheet extend back to the line at which the longer sheet is to be cut from the web, as illustrated in Fig. 2. The leading

end of the second sheet, before said sheet is severed from the web, is impaled by the pins 15 and carried around to the upper side of the roll 7, as illustrated in Fig. 2, when said sheet is severed from the web at a point slightly removed from the rear end of the short sheet. At this time the leading end of the long sheet is released by the impaling-pins, and the appropriate folding-blade acts to thrust said sheets into the bite of the folding-rollers 18, where they are folded in the manner illustrated in Fig. 5. The position of the short sheet with relation to the long sheet before the folding is illustrated in Fig. 4.

I do not herein claim the apparatus described for collecting the sheets, as that has heretofore been patented to me, my present invention consisting in providing means by which the web is severed alternately into long and short sheets and in providing for folding said sheets as described.

The advantages of the construction above described have already been pointed out.

I do not wish to be limited to the specific details of the construction described, as, so far as I am aware, I am the first to provide for varying the length of the sheets produced by a perfecting-press, and my invention includes, broadly, all equivalent devices. It will be understood, further, that my invention may be applied to delivery mechanism of other types than that illustrated and described.

That which I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of mechanism for cutting a web transversely into sheets, said cutting mechanism operating to cut certain sheets longer than others, and means for superposing long sheets and short sheets, substantially as described.

2. The combination of mechanism for cutting a web transversely into sheets, said cutting mechanism operating to cut certain sheets longer than others, and means for folding long and short sheets together, the long sheet being outermost, substantially as described.

3. The combination of mechanism for cutting a web transversely into sheets, said cutting mechanism operating to cut certain sheets longer than others, and means for assembling long and short sheets so that the ends of the long sheets project beyond the ends of the short sheet, substantially as described.

4. The combination of mechanism for cutting a web transversely into sheets, said cutting mechanism operating to cut certain sheets longer than others, means for assembling long and short sheets so that the ends of the long sheet project beyond the ends of the short sheet, and folding mechanism which operates to fold the assembled sheets with the short sheet folded inside the long sheet, substantially as described.

5. The combination of mechanism for cutting a web transversely into sheets, said cutting mechanism operating to cut certain sheets longer than others, and means for conducting the short sheets back to and superposing them upon the long sheets before they are cut from the web, in such manner that the rear margin of the long sheet before it is cut projects beyond the rear margin of the short sheet, substantially as described.

6. The combination of coacting cutting-rolls, and transverse cutting devices carried by each of said rolls at points slightly less than one hundred and eighty degrees apart, whereby alternate sheets will be cut of different lengths, substantially as described.

7. The combination of coacting cutting-rolls, transverse cutting devices carried by each of said rolls at points slightly less than one hundred and eighty degrees apart, whereby alternate sheets will be cut of different lengths, and folding devices for folding the severed sheets, substantially as described.

8. The combination of coacting cutting-rolls, and transverse cutting devices carried by each of said rolls at points slightly less than one hundred and eighty degrees apart, whereby alternate sheets will be cut of different lengths, one of the cutting devices carried by each roll being adjustable to a position one hundred and eighty degrees from the opposite cutting device carried by the same roll, substantially as described.

9. The combination of mechanism for cutting a web transversely into sheets, said cutting mechanism operating to cut certain sheets longer than others, means for conducting the short sheets back to and superposing them upon the long sheets before they are cut from the web, and means for varying the length of the path of said short sheets, substantially as described.

SAMUEL G. GOSS.

Witnesses:
JOHN L. JACKSON,
ALBERT H. ADAMS.