

(No Model.)

S. G. GOSS.

DELIVERY APPARATUS FOR PRINTING PRESSES.

No. 495,483.

Patented Apr. 18, 1893.

Fig. 3.

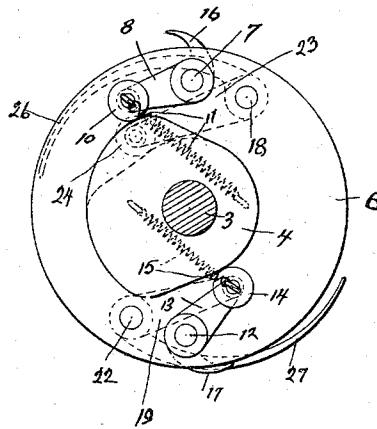


Fig. 2.

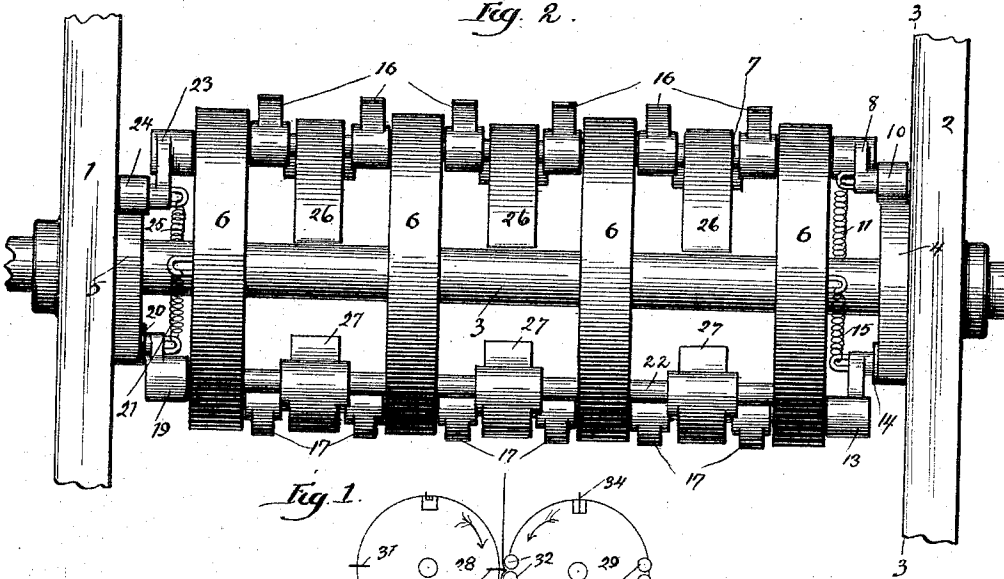
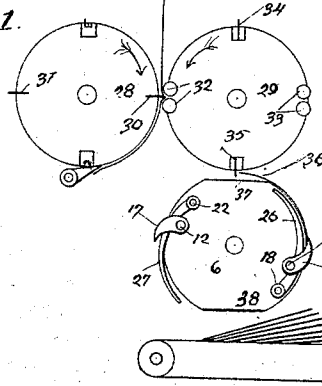


Fig. 1.



Witnesses:

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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. 495,483, dated April 18, 1893.

Application filed May 12, 1892. Serial No. 432,809. (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 a certain new and useful Improvement in Delivery Apparatus for Printing-Presses, of which the following is a specification, reference being had to the accompanying drawings, in which—

10 Figure 1 is a diagrammatic side elevation. Fig. 2 is a top or plan view; and Fig. 3 is a section on line 3, 3 of Fig. 2.

My invention relates to mechanism for delivering folded sheets from a printing press.

15 The object of my invention is to provide a new and improved device for delivering the sheets after they have been cut and folded, which object I accomplish as hereinafter specified, and as illustrated in the drawings.

20 That which I regard as new will be pointed out in the claims.

In the drawings,—1, 2 indicate parts of the stationary frame of a press, in which is mounted a shaft 3.

25 4, 5 indicate cams which are secured to the stationary pieces 1 and 2 at opposite ends of the shaft 3, as shown in Fig. 2. The cams 4 and 5 are similar to each other.

6 indicates rollers which are mounted upon the shaft 3, as shown in Fig. 2. Any desired number of the rollers 6 may be used.

7 indicates a shaft which is mounted in the rollers 6, as best shown in Fig. 2. One of the ends of the shaft 7 projects beyond one of the end rollers 6, upon which end is mounted a crank arm 8 carrying a roller 10, as best shown in Fig. 2. The roller 10 is adapted to run upon the outer surface of the cam 4, as best shown in Fig. 2.

40 11 indicates a spring, which at one end is connected to the crank arm 8, and at the other end is connected to the adjacent roller 6 at a point on the opposite side of the shaft 3. This spring 11 serves to hold the roller 10 constantly in contact with the cam 4.

45 12 indicates a shaft which is in all respects similar to the shaft 7, and is mounted in the rollers at a point diametrically opposite to the shaft 7. The shaft 12 is provided with a crank arm 13 carrying a roller 14, also adapted

to run upon the cam 4. The spring 15, similar to the spring 11, holds the roller 14 in contact with the cam 4. The position of the roller 14 is such that it is diametrically opposite to the roller 10.

55 16 indicates gripping fingers which are mounted upon the shaft 7, at points between the rollers 6 and are adapted to act upon a sheet to hold it in contact with the rollers when the shaft 7 is rotated in one direction, 60 and to release the sheet when the shaft is rotated in the opposite direction.

The arrangement of the gripping fingers 16 on the shaft 7 at points between the rollers 6 is advantageous in that it is unnecessary to 65 provide the rollers with recesses for the reception of the grippers. This reduces the cost of construction and renders it possible to so arrange the gripping fingers that they will not project beyond the surface of the rollers if 70 such arrangement is desired.

17 indicates fingers which are in all respects similar to the fingers 16, and are mounted upon the shaft 12. The cam 4 is so shaped as to operate the fingers at the proper time, 75 and as the rollers 10 and 14 are at opposite sides of the cam the fingers 16 and 17 will be operated oppositely at the same time.

18 indicates a shaft which is mounted in the rollers 6 at a point near the shaft 7. One 80 end of the shaft 18 projects beyond one of the end rollers 6, and is provided with a crank arm 23 which carries a roller 20 adapted to run on the cam 5. The spring 25, substantially similar to the springs 11 and 15, 85 holds the roller 24 in contact with the cam 5.

22 indicates a second shaft which is similar to the shaft 18, and is mounted in the rollers 6 diametrically opposite to the roller 18. The shaft 22 carries a crank arm 19, upon which 90 is mounted a roller 20, also adapted to run upon the cam 5. The rollers 20 and 24 are diametrically opposite to each other.

21 indicates a second spring, similar to the spring 21, which spring holds the roller 20 in 95 contact with the cam 5.

26 indicates a number of long curved fingers which are mounted upon the shaft 18, as best shown in Fig. 1.

27 indicates a number of fingers similar to 100

the fingers 26, which are mounted upon the shaft 22. The cam 5 is so shaped as to rotate the shafts 18 and 22 in such a manner as to alternately throw the fingers 26 and 27 out beyond the surface of the roller 6 and back below the surface of said roller. The object of the fingers 26 and 27 is to throw the folded sheets from the rollers 6 so that they will fall on the table or other device set to receive them.

In Fig. 1, I have shown my improved delivery apparatus as used in connection with a cutting and folding apparatus similar to that described in my application Serial No. 432,807, filed of even date herewith, but do not wish to limit myself to its use with that apparatus, as it may be used with any other suitable cutting and folding mechanism.

In Fig. 1, 28 and 29 indicate cutting and folding cylinders, 30 and 31 being folding blades carried by the cylinder 28, and operating in connection with folding rollers 32, 33 to give the sheet a single fold. 34 and 35 indicate cutting blades carried by the cylinder 29, which serve to sever the web transversely into sheets.

My improved delivery apparatus is located below the cylinder 29 in such position that as the folded sheet is carried by the gripping rollers 32 and 33 it will be delivered upon the rollers 6 in such manner that it will be in position to be gripped by one of the grippers 16 or 17. The cam 4, which operates the grippers, is so shaped as to cause the grippers to turn down at the proper time to grip the folded sheet. The rollers 6 rotate in the direction indicated by the arrow in Fig. 1, and as they rotate the sheet gripped will be carried around, as shown at 36 in Fig. 1. At this time the fingers 26 will be below the surface of the rollers 6 and under the folded sheet; when the rollers 6 have rotated about ninety degrees farther the cam 4 will rotate the shaft 7 in such manner as to throw the fingers 16 out from the rollers 6, thereby releasing the folded sheet; at the same time the cam 5 will throw the fingers 26 out beyond the surface of the rollers 6, thereby throwing the sheet away from the rollers 6, and permitting it to fall upon a table. The operation of the other grippers 17 and fingers 27 is substantially similar to that of those described.

I prefer to flatten the rollers 6 at the points 37 and 38 in Fig. 1 in order to avoid the cutting blades 34 and 35. Other devices may be provided for avoiding such blades.

Instead of providing two sets of gripping fingers 16 or 17, and two sets of fingers 26 or 27, a single set may be used, or any desired number, depending on the number of sheets

which are delivered by the cutting and folding apparatus.

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

1. The combination with a shaft, and rollers mounted thereon, of a shaft mounted in said rollers and provided with gripping fingers which are located between and out of contact with the rollers, so that when the grippers are turned in they will not project beyond the surface of the rollers, and mechanism for turning said fingers outward or inward, to cause them to release a sheet or to hold it upon said rollers, substantially as described.

2. The combination with a shaft, rollers mounted thereon, and devices for holding a sheet upon the rollers, of a shaft journaled in said rollers and provided with fingers 26 located between the rollers, and mechanism for throwing the fingers out beyond the surface of said rollers or in below the surface thereof, substantially as described.

3. The combination with a shaft, rollers mounted thereon, and devices carried by the rollers at one side of said shaft for holding a sheet upon the rollers, of a shaft journaled in said rollers at the opposite side of the shaft and provided with fingers 26 located at points between the rollers, and mechanism for throwing said fingers out beyond the surface of the rollers or in below the surface thereof, substantially as described.

4. The combination with a shaft, and rollers 6 mounted thereon, of a shaft 7 mounted in said rollers and provided with grippers 16 located at points between the rollers, a shaft 18 mounted in said rollers in juxtaposition to the gripper carrying shaft and provided with fingers 26 located at points between said rollers, and mechanism for rocking the gripper and finger carrying shafts, substantially as described.

5. The combination with the frame of a printing press, a shaft 3 mounted therein, rollers 6 on said shaft, and stationary cams 4 and 5 at opposite ends of the shaft, of a shaft 7 mounted in said rollers and provided with a crank 8 having a roller 10 adapted to travel on one of the cams, gripping fingers 16 mounted on the crank shaft at points between the rollers, a shaft 18 mounted in said rollers and provided with a crank 23 having a roller 24 adapted to travel upon the other cam, and fingers 26 mounted upon said shaft 18 at points between the rollers 6, substantially as described.

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