

No. 879,419.

R. C. SEYMOUR.

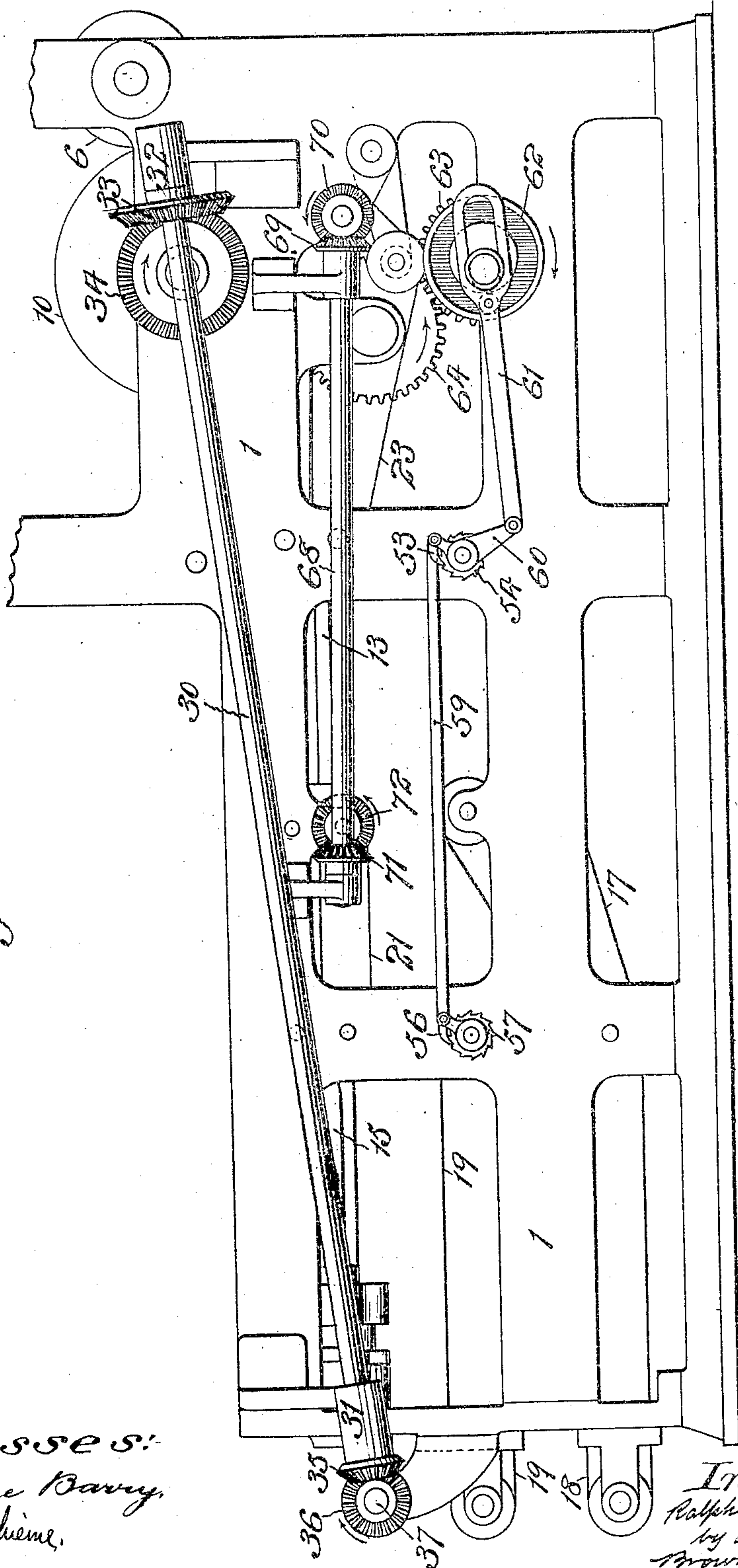
PATENTED FEB. 18, 1908.

SIGNATURE DELIVERY MECHANISM FOR PRINTING AND  
FOLDING MACHINERY.

APPLICATION FILED JULY 17, 1907.

2 SHEETS—SHEET 1.

Fig. 1.



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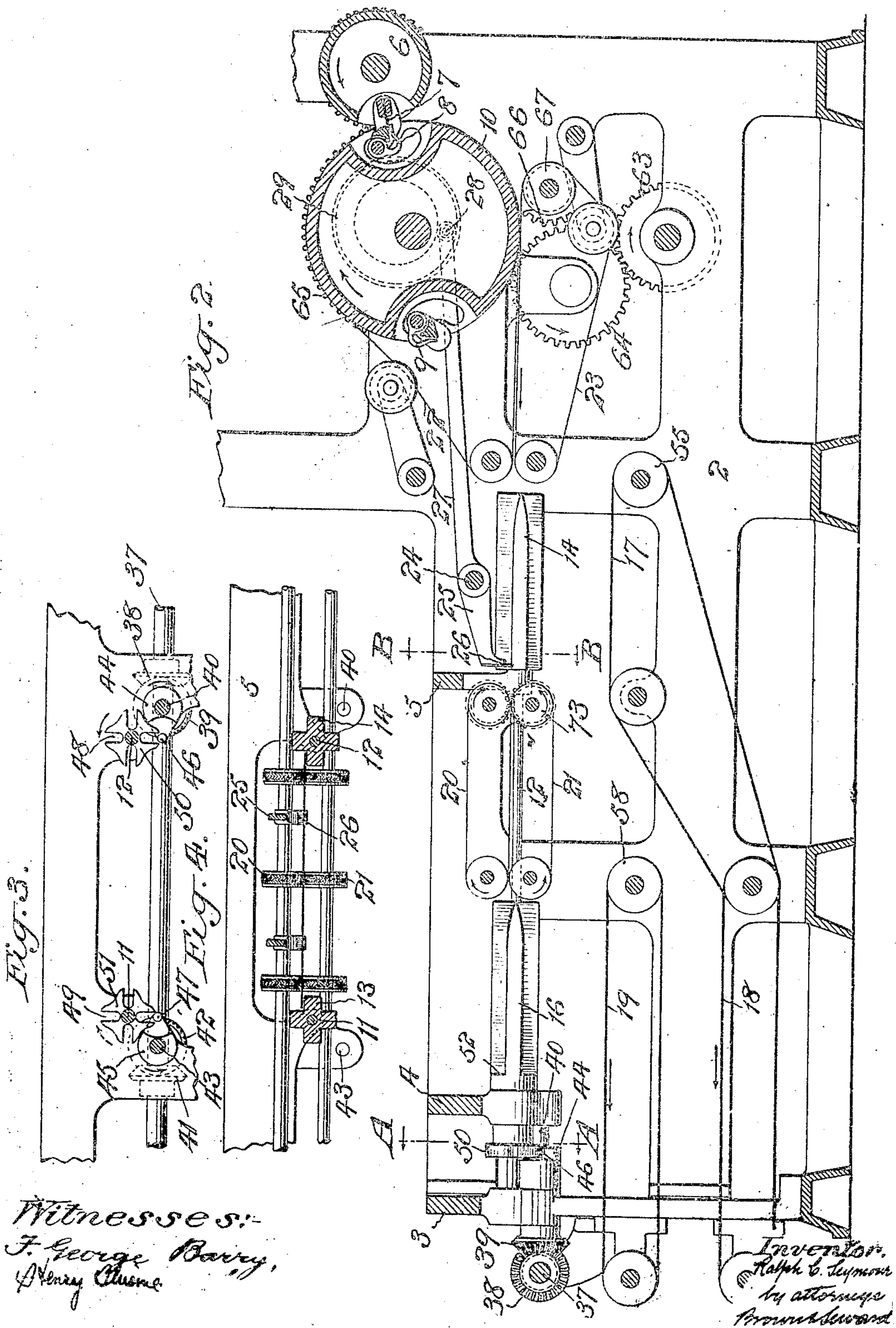
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# UNITED STATES PATENT OFFICE.

RALPH C. SEYMOUR, OF NEW YORK, N. Y., ASSIGNOR TO C. B. COTTRELL & SONS COMPANY  
OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

SIGNATURE-DELIVERY MECHANISM FOR PRINTING AND FOLDING MACHINERY.

No. 872,419.

Specification of Letters Patent.

Patented Feb. 18, 1908.

Application filed July 17, 1907. Serial No. 384,228.

To all whom it may concern:

Be it known that I, RALPH C. SEYMOUR, a citizen of the United States, and resident of the borough of Manhattan, in the city and State of New York, have invented a new and useful Improvement in Signature-Delivery Mechanism for Printing and Folding Machinery, of which the following is a specification.

10 This invention consists in certain improvements in signature delivery mechanism for printing and folding machinery in which the several parts of the mechanism are so constructed, arranged and operated  
15 that two products simultaneously printed on the same press may be delivered to two independent carriers.

A practical embodiment of this invention is represented in the accompanying drawings in which

20 Figure 1 is a view in side elevation of so much of a printing and folding machine as will give a clear understanding of this invention. Fig. 2 is a longitudinal vertical section through the signature delivery mechanism. Fig. 3 is a detail transverse section taken in the plane of the line A—A of Fig. 2, looking in the direction of the arrows, and  
25 Fig. 4 is a detail transverse section taken in the plane of the line B, B of Fig. 2, looking in the direction of the arrows, a signature being represented by a straight black line supported by the opposite arms of the first pair of droppers.

30 The side frames of the machine are denoted by 1 and 2 and certain of the transverse girders by 3, 4 and 5.

The tucking cylinder 6 is shown as mounted in the side frames 1 and 2, which cylinder  
35 is provided with a tucking blade 7 which is arranged to successively coact with folding jaws 8 and 9 carried by the folding cylinder 10 also mounted in the side frames 1 and 2.

Two longitudinally arranged rotary shafts  
40 11 and 12 are mounted in a substantially horizontal position in suitable bearings supported from the cross girders 4 and 5, which shafts are provided with a forward sheet dropper comprising two rotary members 13,  
45 14, of winged transverse section and a rearward sheet dropper comprising two rotary members 15, 16, of winged transverse section.

50 Endless tape carriers 17, 18, are arranged to deliver the folded sheets or signatures

which drop from the forward sheet dropper 13, 14, to any predetermined point. An endless tape carrier 19 is arranged to receive the folded sheets or signatures which drop from the sheet dropper 15, 16 and deliver  
55 them to any predetermined point. Tape carriers 20, 21, are interposed between the sheet droppers 13, 14 and 15, 16, for feeding the signatures from the dropper 13, 14, to the dropper 15, 16, which are intended to be  
60 delivered on to the tape carrier 19. Tape carriers 22, 23, are arranged to deliver the folded sheets or signatures from the folding cylinder 10 on to the forward sheet dropper 13, 14.

65 A lifting stop is arranged in position to engage the advance edge of the folded sheet or signature which is to be delivered from the forward sheet dropper 13, 14, on to the tape carrier 17, and is arranged to permit the  
70 folded sheet or signature which is to be fed to the rearward sheet dropper 15, 16, to pass over the sheet dropper 13, 14, into engagement with the tape carriers 20, 21. This  
75 lifting stop comprises a transverse rock shaft 24 to which are fixed rearwardly extended arms 25 having feet 26 arranged in position to be brought into and out of the plane between  
80 the opposite arms of the two rotary members of the forward sheet dropper 13, 14. A forwardly extended arm 27 is fixed to the rock shaft 24 and has its free end provided with a  
85 stud 28 engaged by a box cam 29 fixed to rotate with the folding cylinder 10, the said cam being so arranged that the stop will be  
90 raised and lowered at predetermined intervals in the operation of the machine.

An intermittent rotary movement of the longitudinally arranged shafts 11, 12 and their forward and rearward sheet droppers is  
95 provided for as follows. A shaft 30 is mounted in suitable bearings 31, 32, in the side frame 1 of the machine, which shaft has a bevel gear connection 33, 34, with the folding cylinder 10 and a bevel gear connection 35, 36, with a cross shaft 37 mounted at  
100 the rear end of the machine. This cross shaft 37 is provided with a miter gear connection 38, 39, with a longitudinally arranged stud shaft 40 and a miter gear connection 41, 42 with a longitudinally arranged  
105 stud shaft 43. The stud shafts 40 and 43 are provided with disks 44, 45, having eccentrically arranged pins 46, 47, which are arranged to successively enter radial open-  
110



ended slots 48, 49 in the disk wheels 50, 51, respectively, carried by the longitudinally arranged shafts 11 and 12 of the forward and rearward sheet droppers. The proportions and arrangements of the parts are such that the sheet droppers are rotated one step for each half revolution of the folding cylinder 10. It will be understood that the two rotary members of each sheet dropper are arranged to rotate in opposite directions so that their several wings are successively brought into positions opposite each other for supporting the edges of the folded sheets or signatures as they are delivered from the tape carriers 22, 23.

A permanent sheet stop is provided for the rearward sheet dropper, in the present instance, by providing each of the rotary members 15, 16, with a shoulder 52 at the rear end of the said member.

An intermittent movement is imparted to the tape carriers 17, 18 and the tape carrier 19 for feeding the folded sheets or signatures to the desired point. This is accomplished in the present instance by providing a pawl and ratchet connection 53, 54, with the driving pulleys 55 of the tape carrier 17 and a pawl and ratchet connection 56, 57, with the driving pulleys 58 of the tape carrier 19. These pawl and ratchet connections are arranged to move together through a connecting rod 59 and are driven through a crank arm 60 and connecting rod 61 from a cam 62 driven from the folding cylinder 10 through a train of gears 63, 64, 65. The tape carrier 23 is driven from the gear 65 by a gear 66 on the shaft of the driving pulleys 67. The tape carriers 20, 21, are geared together and are driven from the shaft of the driving pulleys 67 through a longitudinally arranged shaft 68 having a miter gear connection 69, 70, with the shaft of the said pulleys 67 and a miter gear connection 71, 72 with the shaft of the driving pulleys 73 of the tape carrier 21.

In operation, the sheet or signature folded by the coaction of the tucking blade 7 with the folding jaws 8 will be delivered between the tape carriers 22, 23, by the opening of the grippers at the proper time. This folded sheet or signature will be delivered by the tape carriers 22, 23, on to the opposite wings of the two rotary members 13, 14, of the forward sheet dropper. The lifting stop will be in its raised position, thus permitting the folded sheet or signature to be delivered to the tape carriers 20, 21, which carriers will feed the folded sheet or signature on to the opposed wings of the rotary members 15, 16, of the rearward sheet droppers. The next folded sheet or signature arising from the coaction of the tucking blade 7 with the folding jaws 9 will be delivered to the tape carriers 22, 23. These carriers will deliver the folded sheet or signature on to the opposed wings of the two rotary members 14, 15, of

the forward sheet dropper and because the lifting stop is in its lowered position, this folded sheet or signature will be held against further movement on the said forward sheet dropper. The sheet droppers are then rotated one step, thus causing the folded sheets or signatures on the forward and rearward sheet droppers to be deposited on to the tape carriers 17 and 19. It will thus be seen that successive folded sheets or signatures from a single press may be deposited on to two separate carriers either for use in a single product or for use in two different products, in a very simple and effective manner. This arrangement will permit the delivery of a certain number of folded sheets or signatures with a lesser speed of the delivery mechanism of the machine than heretofore and a consequent reduction in friction.

While the members of the sheet droppers are herein shown cruciform in section, it is to be understood that they may be made with a various number of wings to suit different requirements.

What I claim is:

1. A folding mechanism, two intermittently rotating longitudinally arranged parallel shafts having forward and rearward sheet droppers and devices for directing all of the folded sheets or signatures on to the forward sheet dropper and certain of the folded sheets or signatures on to the rearward sheet dropper.

2. A folding mechanism, two intermittently rotating longitudinally arranged parallel shafts having forward and rearward sheet droppers, a carrier for feeding all of the folded sheets or signatures from the folding mechanism on to the forward sheet dropper and a carrier for feeding certain of the folded sheets or signatures to the rearward sheet dropper.

3. A folding mechanism, two intermittently rotating longitudinally arranged parallel shafts having forward and rearward sheet droppers, a carrier for feeding the folded sheets or signatures from the feeding mechanism on to the forward sheet dropper, a carrier for feeding certain of the folded sheets or signatures from the forward sheet dropper on to the rearward sheet dropper and an intermittently rotating lifting stop for the forward sheet dropper.

4. A folding mechanism, two intermittently rotating longitudinally arranged parallel shafts having forward and rearward sheet droppers, a carrier for feeding the folded sheets or signatures from the folding mechanism on to the forward sheet dropper, a carrier for feeding certain of the folded sheets or signatures from the forward sheet dropper to the rearward sheet dropper, an intermittently rotating lifting stop for the forward sheet dropper and a permanent stop for the rearward sheet dropper.



5. A folding mechanism, two intermit-  
tently rotating longitudinally arranged par-  
allel shafts having forward and rearward  
sheet droppers each comprising a pair of op-  
5 positely rotating members of winged trans-  
verse section, means for directing all of the  
folded sheets or signatures from the folding  
mechanism on to the opposed wings of the  
members of the forward sheet dropper and  
10 for directing certain of the folded sheets or  
signatures on to the opposed wings of the  
rearward sheet dropper, an endless carrier  
for receiving the folded sheets or signatures

as they are dropped from the forward sheet  
dropper and an endless carrier arranged to  
receive the folded sheets or signatures as they  
are dropped from the rearward sheet dropper.

In testimony, that I claim the foregoing as  
my invention, I have signed my name in  
presence of two witnesses, this 15th day of 20  
July, 1907.

RALPH C. SEYMOUR.

Witnesses:

F. GEORGE BARRY,  
HENRY THIEME.