

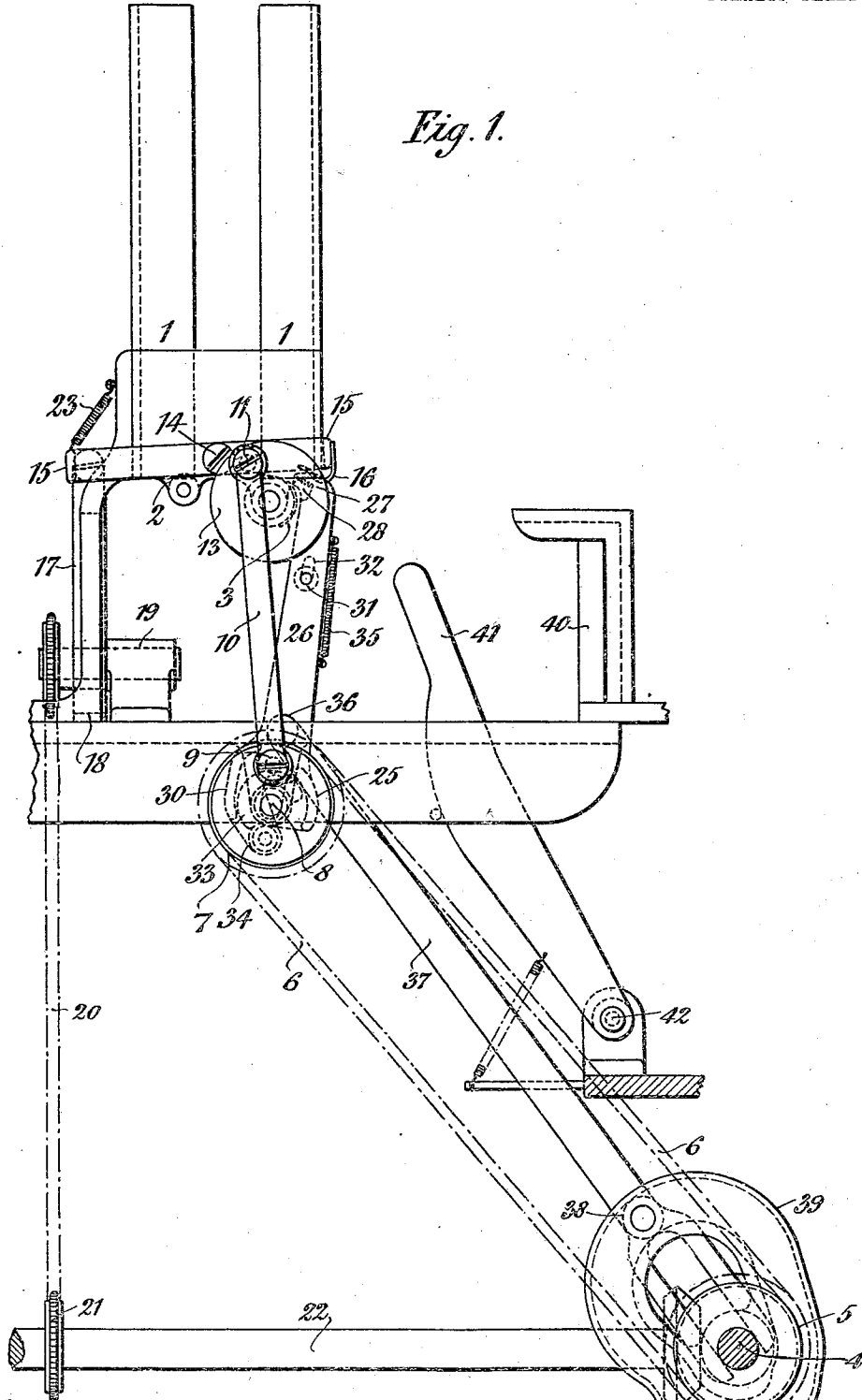
E. T. POLLARD.
 APPARATUS FOR DELIVERING SHEETS OF PAPER ONE BY ONE FROM A PILE.
 APPLICATION FILED DEC. 14, 1909.

958,764.

Patented May 24, 1910.

4 SHEETS—SHEET 1.

Fig. 1.



Witnesses
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 By his Attorneys
 Baldwin & Wright

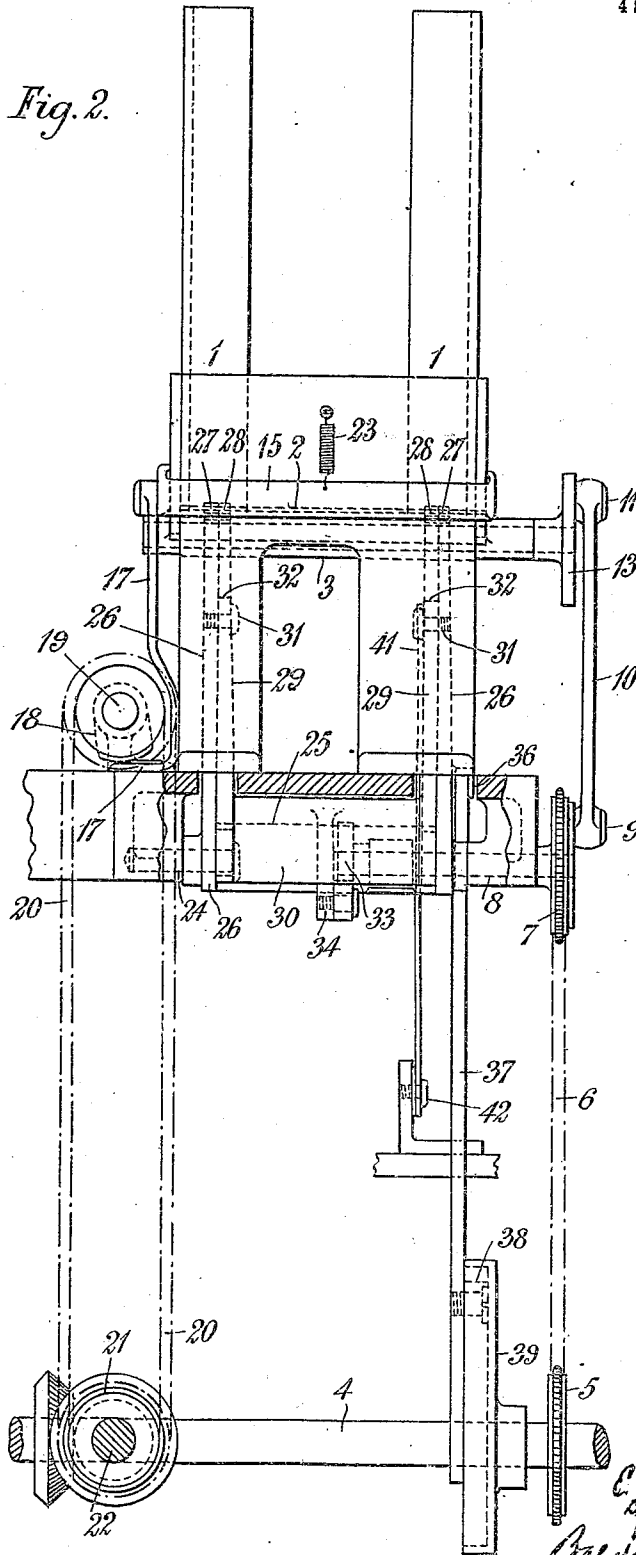
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4 SHEETS—SHEET 2.

Fig. 2.



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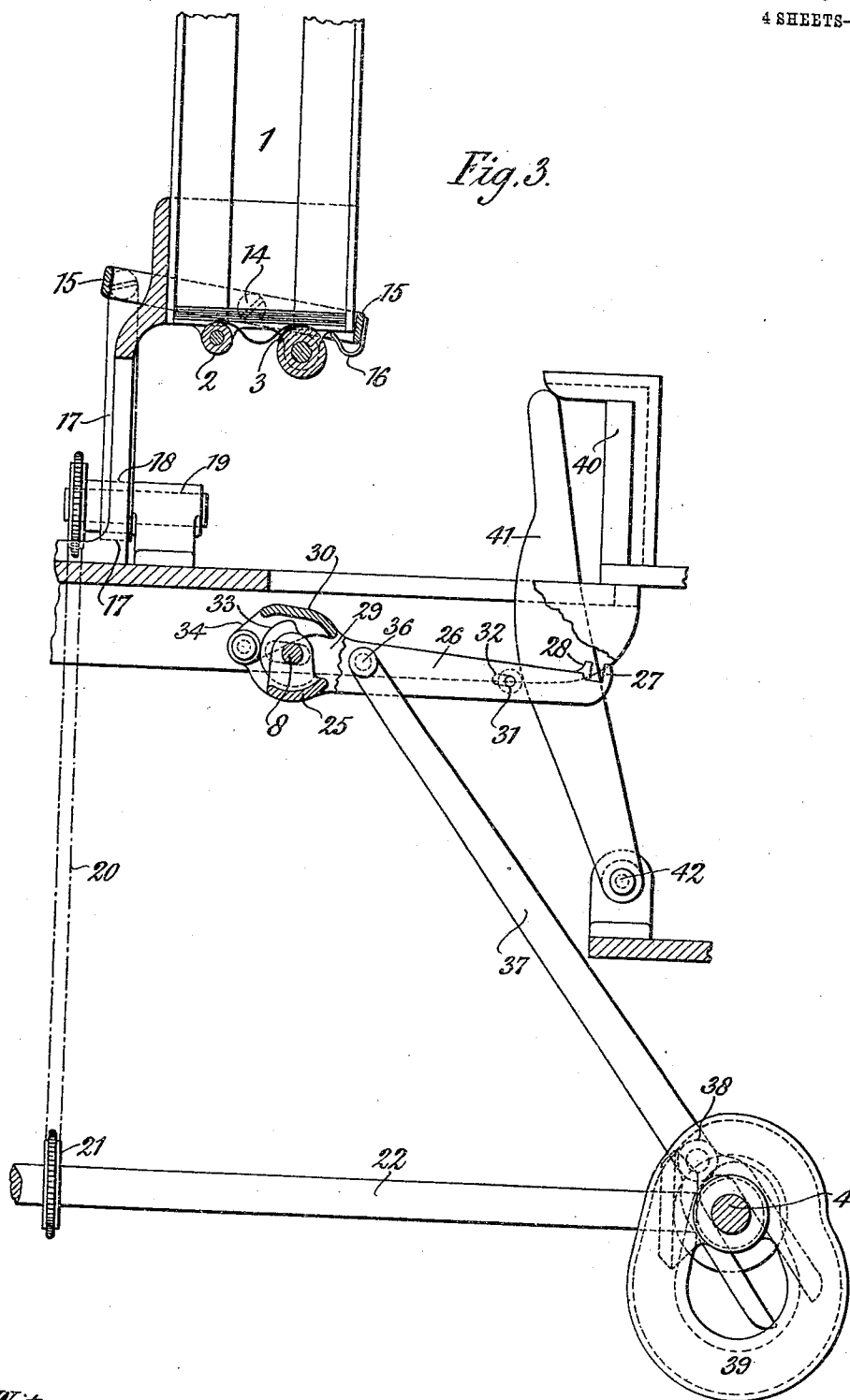
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4 SHEETS—SHEET 3.

Fig. 3.



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4 SHEETS—SHEET 4.

Fig. 4.

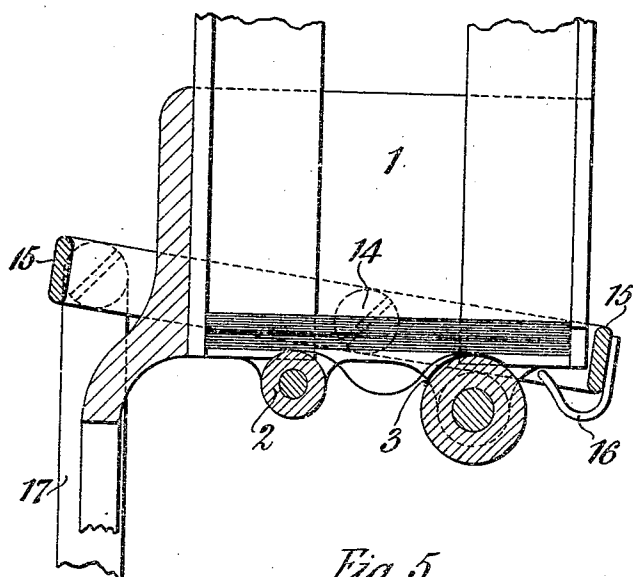
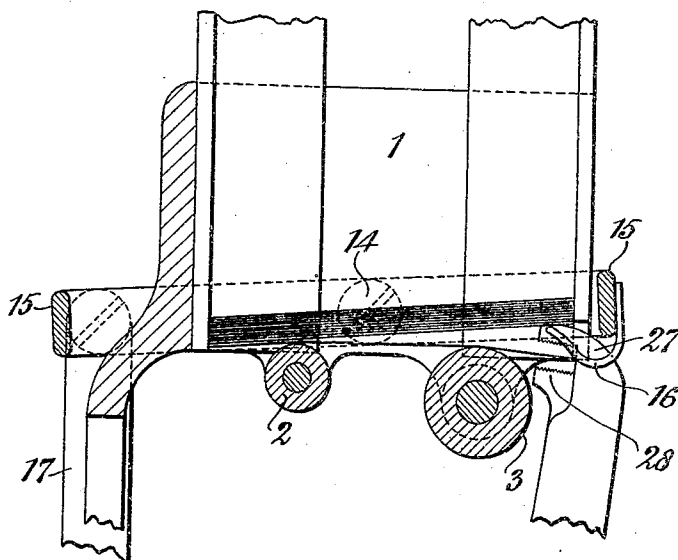


Fig. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR DELIVERING SHEETS OF PAPER ONE BY ONE FROM A PILE.

958,764.

Specification of Letters Patent. Patented May 24, 1910.

Application filed December 14, 1909. Serial No. 533,040.

To all whom it may concern:

Be it known that I, EDWARD THOMAS POLLARD, a citizen of the United States, residing at 7th Hyde Park Mansions, London, England, have invented new and useful improvements in Apparatus for Delivering Sheets of Paper One by One from a Pile, of which the following is a specification.

The object of this invention is to provide improved apparatus for delivering sheets of paper one by one from a pile, the apparatus being specially designed for use in packeting or wrapping machines such for instance as that described in my application of even date herewith.

According to this invention the sheets are arranged in a pile in a box, the rear edge of the bottom sheet resting on a solid support while the front edge rests upon a spring finger or pair of fingers. Beneath the box is a rocking segment which is so rough that in its backward movement it draws the front edge of the bottom sheet rearward clear of the fingers and then on its forward movement brings that edge forward again but beneath the fingers. Two rocking gripper arms then grip the front edge and as the arms rock they pull the sheet forward and downward and hold it in a vertical position in which position it can be dealt with as required.

The accompanying drawings show an apparatus constructed in accordance with this invention Figure 1 being a side elevation, Fig. 2 a rear view and Fig. 3 a view similar to Fig. 1 but showing the parts in a different position while Figs. 4 and 5 show details.

1 is the box or hopper in which the sheets cut to the required size and printed if desired are piled. They rest upon a roller 2 supported by fixed bearings and upon a roughened segment 3. On the shaft 4 which may be rotated in any convenient way is a sprocket wheel 5, a chain 6 from which passes over a sprocket wheel 7 on a spindle 8 fast with which is a crank pin 9 linked by a link 10 to a pin 11 on a disk 13 fast with the roughened segment 3, the cranks being so proportioned that the segment is rocked backward and forward.

Pivoted at 14 is a strap 15 surrounding the box 1 and carrying at the front thereof fingers 16. From the rear of the strap depends a hook 17 engaged by a wiper 18 on

a spindle 19 driven by a chain 20 from a sprocket wheel 21 on a counter shaft 22 driven by bevel gear from the shaft 4. This method of driving the spindle 19 is only shown by way of illustration; the spindle may be driven in any way which is convenient and which will depend upon the machine to which the apparatus here illustrated is adapted. As the segment 3 rocks in an anti-clockwise direction as seen in Fig. 1 its roughened surface draws the front edge of the bottom sheet toward the left bending the sheet in a loop as seen in Fig. 4 but when the segment starts to rock in the opposite direction, the wiper 18 pressing on the hook 17 rocks the strap 15 against a spring 23 and thus causes the fingers 16 to lift the pile of sheets slightly so that the forward movement of the segment straightens out the lowest sheet and brings it forward with its front edge beneath the tips of the fingers which are suitably curved to direct this edge to two pairs of grippers see Fig. 5. These grippers are formed and operated as follows:—Turning loosely on the spindle 8 and on a pin 24 co-axial with it is a sleeve 25 having on it two arms 26 terminating in jaws 27 which coöperate with lower jaws 28 on arms 29 on a second sleeve 30. Pins 31 on the arms 26 enter slots 32 in the arms 29 and limit the relative movement of these arms which is caused by a cam 33 on the spindle 8 coming against a roller on a tailpiece 34 on the sleeve 30 while springs 35 tend to keep the jaws 28 up against the jaws 27. The jaws 28 thus receive a reciprocating motion at right angles to the axis of the spindle 8, the lower ends of the arms 29 being slotted for the purpose. On one of the arms 26 is a stud 36 linked by a rod 37 to the roller 38 operating in the groove of a cam 39 on the shaft 4 and both pairs of arms 26 and 29 are thus rocked about the spindle 8. The arrangement is such that when the segment 3 presents a wrapper to them the jaws 28 close against the wrapper and grip it and the arms are then rocked by the cam 39 so as to bring the wrapper into a vertical position against two vertical rollers 40. As the arms move down the head of one of the pins 31 comes against a blade 41 carried on a fixed pivot 42 and rocks it so that it follows up the wrapper and holds it in position against the rollers. Here again the rollers are shown for the sake of ex-

ample only; the position of the sheet when released by the grippers and the means of dealing with it will depend on the machine of which the apparatus forms part in any particular case. The grippers now open releasing the paper, move down a little lower out of the way and then return into position to receive the next sheet.

What I claim is:—

- 10 1. In apparatus for delivering sheets of paper, the combination of a hopper for containing a pile of sheets, a segment beneath the pile and on which the paper at times rests, means for oscillating the segment back
15 and forth to cause the segment to first move the front edge of the lowermost sheet in the pile rearward and to then while still engaging the under side of said sheet move it forward, lifting fingers held out of en-
20 gagement with the pile during the rearward movement of the lowermost sheet thereof and which are formed with inclined surfaces for guiding the front edge of the sheet during its forward movement, means
25 for operating the lifting fingers to raise the front portion of the pile after the lowermost sheet has been separated therefrom by the segment, and grippers which receive said
30 lowermost sheet during the forward movement of the segment.
2. In apparatus for delivering sheets of paper, the combination of a hopper for containing a pile of sheets, a roughened segment beneath the pile on which the paper at
35 times rests, means for oscillating the segment back and forth to cause it to first move the front edge of the lowermost sheet in the pile rearward and to then while still engaging the under side of the sheet move it
40 forward, lifting fingers having inclined surfaces and extending beneath the pile of sheets, grippers for withdrawing the separated sheets, means for moving the grippers into position to receive a separated sheet
45 during the forward movement thereof, and means for raising the lifting fingers into the path of the separated sheet as it moves forward and for simultaneously raising the front portion of the pile of sheets.
- 50 3. In apparatus for delivering sheets of

paper, the combination of a hopper containing a pile of sheets of paper, a strap pivoted to the sides of the hopper and surrounding the front thereof, fingers carried by the strap and adapted to support the front of
55 the pile, a roughened segment beneath the pile adapted to engage the front edge of the lowest sheet of the pile and move it rearward clear of the fingers and then to move such edge forward again, means for rock-
60 ing the strap on its pivot during the forward movement of the front of such sheet, and means for rocking the segment to and fro.

4. In apparatus for delivering sheets of
65 paper, the combination of a hopper containing a pile of sheets of paper, a strap pivoted to the sides of the hopper and surrounding the front thereof, fingers carried by the strap and adapted to support the
70 front of the pile, a roughened segment beneath the pile adapted to engage the front edge of the lowest sheet of the pile and move it rearward clear of the fingers and then to move such edge forward again,
75 means for rocking the strap on its pivot during the forward movement of the front of such sheet, means for rocking the segment to and fro, a pair of pivoted arms, grippers on the arms adapted to receive the front
80 edge of the sheet so brought forward, and means for rocking the arms.

5. In apparatus for delivering sheets of paper, the combination of a hopper, a
85 roughened segment beneath the hopper, means for rocking the segment backward and forward, means for lifting the front of the pile as the segment rocks forward, a sleeve beneath the hopper, a pair of arms fast with it, jaws on the arms, a second
90 sleeve, a pair of arms fast with it, jaws thereon adapted to cooperate with the first mentioned jaws, means for moving one pair of arms longitudinally with reference to the other pair, and means for rocking both
95 sleeves together.

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Witnesses:

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