

Sept. 2, 1930.

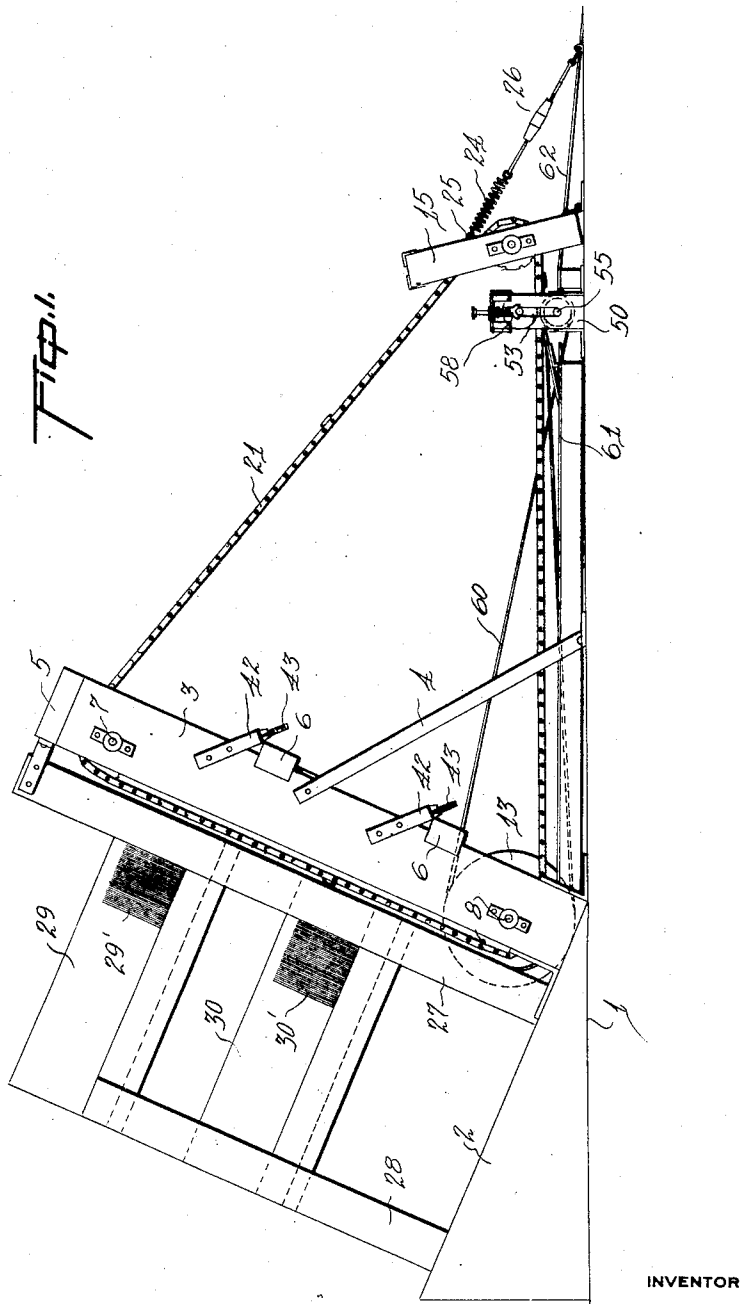
H. J. WICH

1,774,580

NEWSPAPER INSERTING MACHINE

Filed Dec. 26, 1928

4 Sheets-Sheet 1



INVENTOR

Henry J. Wich

BY

*Bartholomew Butcher*

ATTORNEYS

**Sept. 2, 1930.**

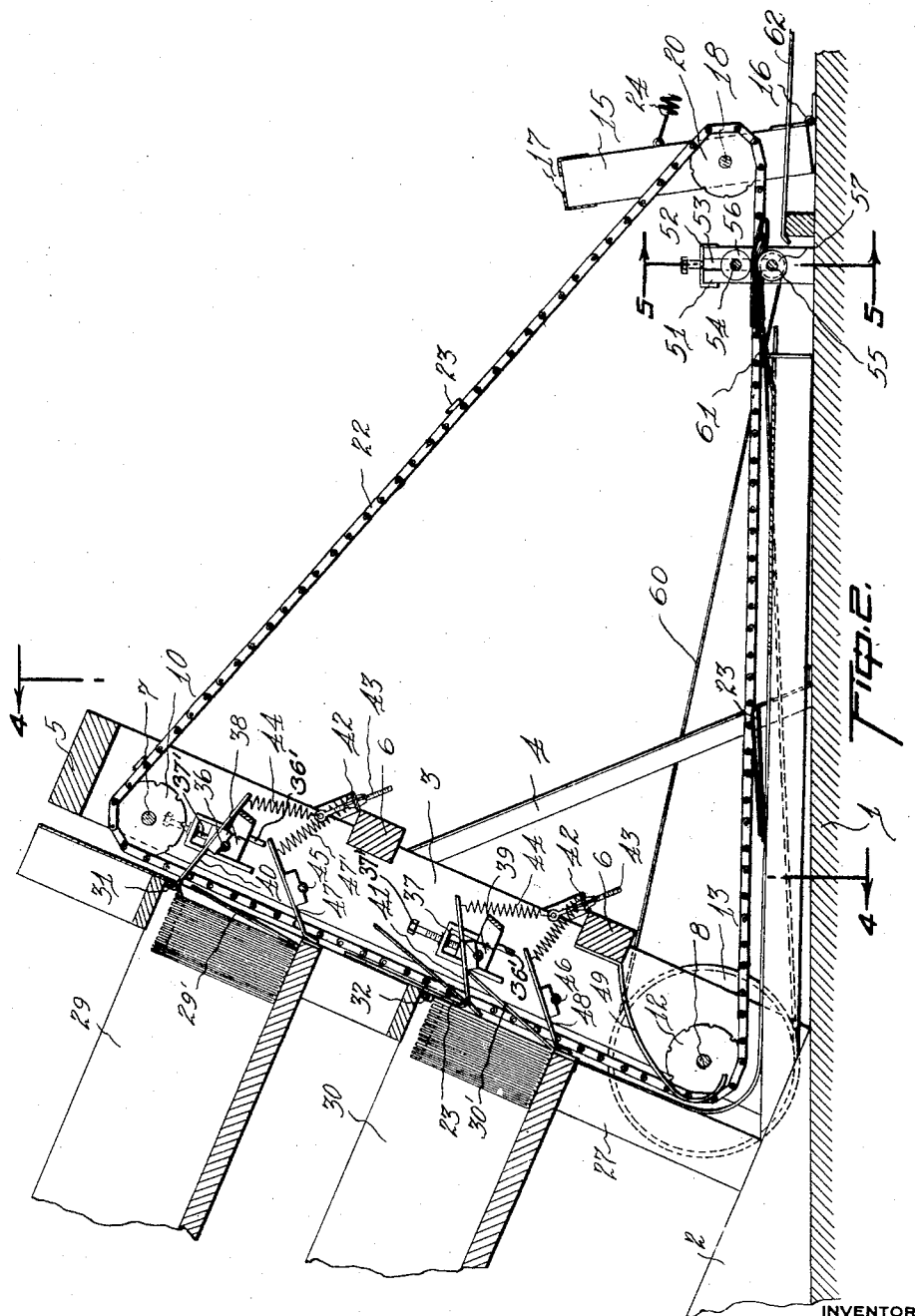
H. J. WICH

**1,774,580**

NEWSPAPER INSERTING MACHINE

Filed Dec. 26, 1928

4 Sheets-Sheet 2



INVENTOR

*Henry J. Wich*

BY

Barthelme Kaufman

**ATTORNEYS**

Sept. 2, 1930.

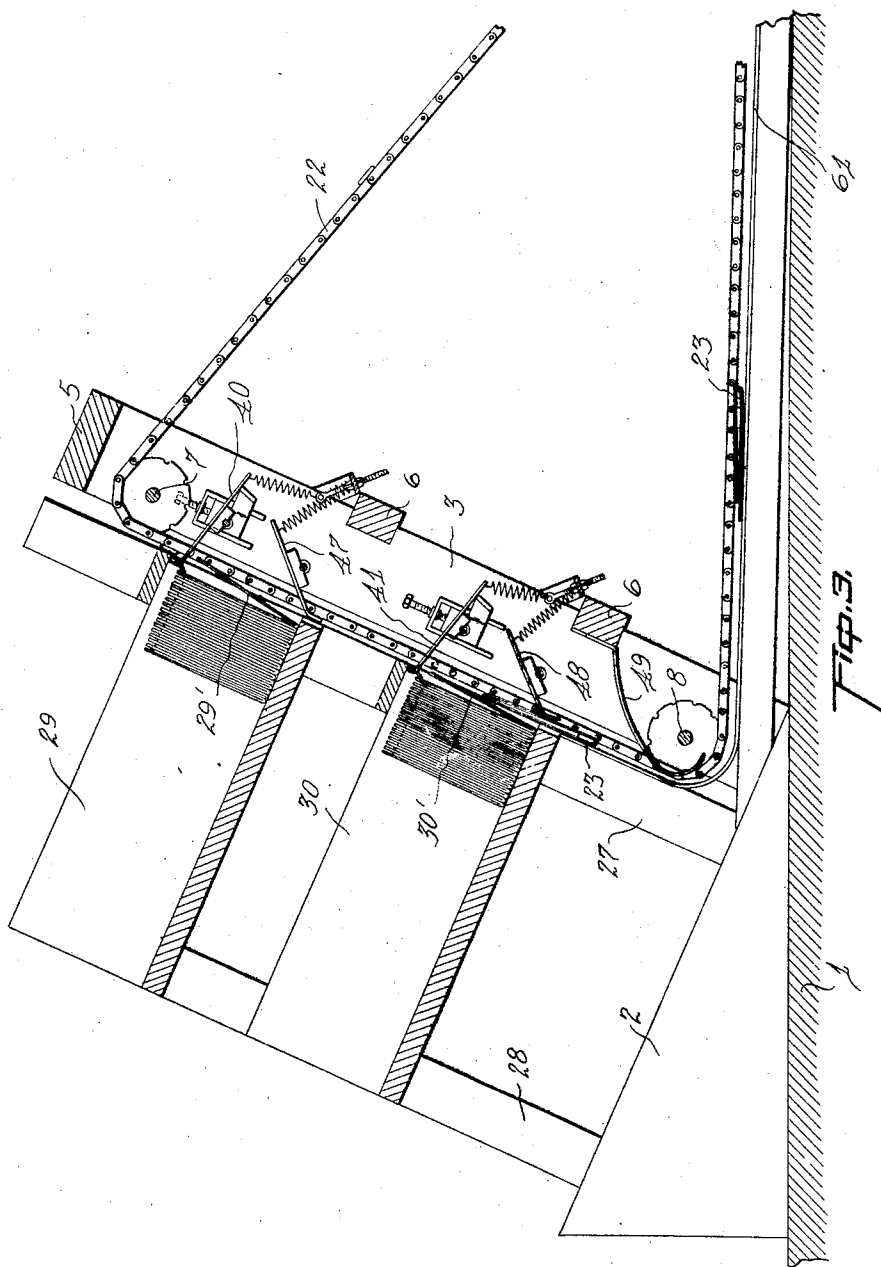
H. J. WICH

1,774,580

NEWSPAPER INSERTING MACHINE

Filed Dec. 26, 1928

4 Sheets-Sheet 3



INVENTOR

*Henry J. Wich*

BY

*Connel & Connel*

ATTORNEYS

**Sept. 2, 1930.**

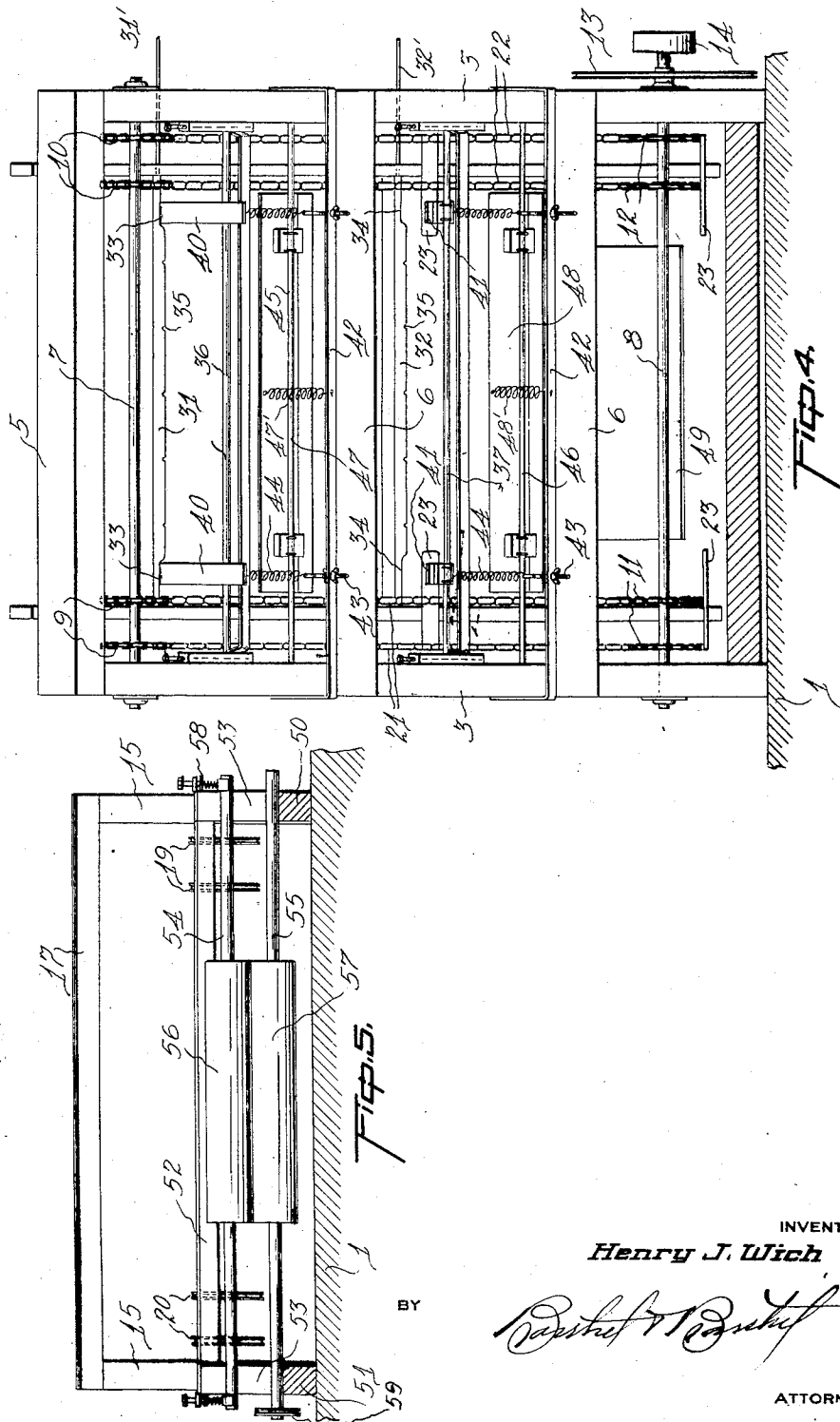
H. J. WICH

**1,774,580**

NEWSPAPER INSERTING MACHINE

Filed Dec. 26, 1928

4 Sheets-Sheet 4



## UNITED STATES PATENT OFFICE

HENRY J. WICH, OF DETROIT, MICHIGAN

## NEWSPAPER-INSERTING MACHINE

Application filed December 26, 1928. Serial No. 323,352.

The present invention pertains to a novel paper inserting machine having special reference to the class of machines employed for inserting the several sections of a newspaper within each other.

The primary object of the present invention is to provide a device which will eliminate the use of conventional inserting means employing pins for moving the sheets and sections and by the elimination of such conventional means to increase the speed and efficiency of the mechanism. The conventional means heretofore employed is commonly known to give unsatisfactory results by tearing the papers and clogging the machine which necessitates that the machine be stopped while the torn paper is removed and thereby lowers the efficiency by decreasing the number of papers turned out in a given period of time.

A further object of the present invention is to provide an inserting machine which may be employed in conjunction with a newspaper printing press for inserting any number of sections of the newspapers within each other. The device is adapted to turn out the papers at a high rate of speed without danger or likelihood of their tearing or otherwise delaying the number of output, the delay being very undesirable in the output of newspapers where the speed of the run after the paper goes to press is of the utmost importance.

With these objects in view and others which are subsidiary thereto and resultant therefrom and which will become apparent, in the detailed description of the device, my invention is fully disclosed by way of example in the following description with reference to the accompanying drawings, in which

Figure 1 is a side elevation of the device;

Figure 2 is a longitudinal cross sectional view through the device;

Figure 3 is a cross sectional view corresponding to Figure 2, illustrating a further stage of operation;

Figure 4 is a transverse cross sectional view on the line 4—4 of Figure 2, and

Figure 5 is a transverse cross sectional view on the line 5—5 of Figure 2.

The numeral 1 indicates any suitable base having an inclined platform 2 formed thereon and supporting frame members 3 secured thereto and reinforced by the brace members 4, the two frame members being secured together by cross members 5 and 6. Shafts 7 and 8 are journaled at their ends in the upper and lower portions respectively of the members 3. The shaft 7 has mounted thereon a pair of sprockets 9 and a pair of sprockets 10 in spaced relation at each end of the shaft, the shaft 8 having similar pairs of sprockets 11 and 12 located in line with the pairs 9 and 10. The shaft 8 is provided with grooved wheel 13 of comparatively large diameter for a purpose which will become apparent as the description continues, and is further provided with a driving pulley 14 which is connected to any suitable driving source for the purpose of operating the device.

Members 15 are secured to the base 1 in line with the frame members 3 by means of the hinges 16 and are secured together and in line with each other by means of the reinforcing metal members 17 which are in form of an inverted L. The members 15 support the shaft 18 upon which are mounted the pairs of sprockets 19 and 20 in line with the above mentioned sprockets. A double chain 21 is trained over the sprockets 9, 11 and 19 and a double chain 22 is trained over the sprockets 10, 12 and 20, each chain 21 and 22 having fingers 23 secured thereto at regular corresponding intervals and extending inwardly as clearly illustrated in Figure 4 of the drawings. For the purpose of maintaining the chains 21 and 22 taut there is provided tensile springs 24 secured to the members 15 as at 25 and having the opposite ends connected to the base 1 by means of the adjustable turn-buckle arrangements 26.

Frame members 27 and 28 are secured to the inclined platform 2 and support inclined pockets 29 and 30 in which are placed the sections 29' and 30' of the newspapers. The sections are specially folded so that one fold extends beyond the other fold and they are

placed in the pockets with the shorter edge on the side facing the machine and when placed in the pockets the sections slide forwardly due to the inclination. The members 27 further support the air tubes 31 and 32 which are provided with indentations 33 and 34 respectively at each end, each tube having a series of perforations 35, the tubes being connected by the pipe lines 31' and 32' to any suitable air pressure generator.

Shafts 36 and 37 are mounted in adjustable bearings 38 and 39 respectively, the bearings being mounted in a bracket 36' secured to the frame members 3 in a manner which permits adjustment by rotation of the set screw 37' to compensate for variation in the size of the folded sections of paper. The shafts support fingers 40 and 41 respectively, which are permitted to pivot by rotating the shafts, the fingers having the ends thereof bent at an angle and adapted to engage the longer fold of the paper sections contained in the pockets 29 and 30. The ends of the fingers nestle in the indentations 33 and 34 in the air tubes so as to allow the smaller of the two folds of the paper sections to pass under the fingers as is clearly illustrated in Figures 2 and 3 of the drawings. Strap members 42 are secured to the frame members 3 and support set screws 43 connected by springs 44 to the ends of the fingers 40 and 41, exerting pressure whereby the fingers normally remain nestled in the recesses 33 and 34.

Shafts 45 and 46 are mounted between the frame members 3 and carry plates 47 and 48 respectively. The plates 47 and 48 are bent angularly at their forward end and are adapted to abut against the bottom members of the pockets 29 and 30 and prevent the paper section from falling through the open end of the pockets. A resilient plate 49 is secured to the lower cross member 6 and engages the papers in a manner which will later become apparent.

Upright members 50 and 51 are attached to the base member 1 and are secured together by the inverted L irons 52. Each member is slotted as at 53 and a pair of shafts 54 and 55 are retained in the slots, each shaft being provided with rollers 56 and 57 respectively which are adapted to be held together by the spring adjustment mechanism 58 which permits resilient movement of the upper shaft 54 and the roller 56. A small wheel 59 is secured to the outer end of the shaft 55 and is connected by the belt 60 to the large wheel 13 so that the shaft 55 revolves at a greater rate of speed than the shaft 8. A base guide 61 is provided, having an extension leading to the rollers 56 and 57 and a take off member 62 is also provided.

In operation the sections of the papers are placed in the pockets 29 and 30 and they slide forward until the upper end of the longer fold is engaged by the fingers 40 and

41 in which position the shorter fold is permitted to sag slightly forward as illustrated in Figures 2 and 3. Air is forced through the tubes 31 and 32 and emitted through the perforations 35 and thereby assures the parting of the two folds.

The shaft 8 is caused to rotate which imparts movement to the chains 21 and 22 through the sprockets 11 and 12. The chain in rotating moves the fingers 23 into engagement with the fingers 40 and forces the end of the finger 40 downwardly and forcibly parts the two folds of the paper section 29' in the pocket 29 so that the fingers 23 are guided between the folds of the paper section. Continued movement carries the paper section on the fingers 23 and engages the fingers 41 which forcibly spread the fold of the section of the paper 30' in the pocket 30 and in this manner the first mentioned section is inserted in the second mentioned section.

The plate members 47, 48 and 49 are adapted to engage the paper and exert slight pressure thereon whereby to prevent the paper from falling off the fingers 23. For the purpose of creating the pressure springs 47' and 48' are connected to the outer end of the plates 47 and 48 and to the strap members 42, if the friction caused thereby is found to be too great it is obvious that the ends of the plates which engage the paper sections could be quite easily provided with rollers.

In continued operation the paper sections which are now in inserted form are carried by the fingers 23 to a position where the paper is engaged by the rollers 56 and 57 which are revolving at a high rate of speed and thereby throw the papers off the fingers 23 and on to the take off member 62.

The invention is illustrated and described as handling only two sections but it is obvious that any number of sections may be handled by increasing the number of pockets and units of fingers and plates, and although a specific embodiment has been illustrated and described it is understood that the above and various other alterations may be made in the details of construction without departing from the spirit of the invention as depicted in the following claims.

What I claim is:

1. In an inserting machine, the combination with a plurality of inclined pockets arranged one above the other and adapted to hold sections of folded paper, of pivoted fingers adapted to bear against said sections of paper in a manner to hold one fold against movement and thus permit the other fold thereof to sag forward, moving members, fingers attached at intervals to said moving members and adapted to engage said pivoted fingers whereby said pivoted fingers forcibly open the folds of said folded paper.

2. In an inserting machine, the combination with a plurality of inclined pockets ar-

5 ranged one above the other and adapted to hold sections of folded paper, of pivoted fingers adapted to bear against said sections of paper in a manner to hold one fold against movement and thus permit the other fold thereof to sag forward, moving members, fingers attached at intervals to said moving members and adapted to engage said pivoted fingers whereby said pivoted fingers forcibly

10 open the folds of said folded paper, said fingers on said moving members engaging said open fold of said paper section and transferring it to a position between the similarly opened folds of a section of paper in a lower pocket and removing said sections from said pocket. 70

3. In an inserting machine, the combination with a plurality of inclined pockets arranged one above the other and adapted to 20 hold sections of folded paper, of pivoted fingers adapted to bear against said sections of paper in a manner to hold one fold against movement and thus permit the other fold thereof to sag forward, moving members, 25 fingers attached to said moving members and adapted to engage said pivoted fingers whereby said pivoted fingers forcibly open the folds of said folded paper, said fingers on said moving members engaging said open fold of 30 said paper section and transferring it to a position between the similarly opened folds of a section of paper in a lower pocket and removing said sections from said pocket, and means operated in conjunction with said moving members for removing said sections of folded paper from said fingers. 35

4. In an inserting machine, the combination with a plurality of inclined pockets arranged one above the other and adapted to 40 hold sections of folded paper, of pivoted fingers adapted to bear against said section of paper in a manner to hold one fold against movement and thus permit the other fold thereof to sag forward, air tubes mounted in 45 proximity to said pivoted fingers for expelling air whereby to force a sagging of said fold, moving members, fingers attached at regular intervals to said moving members and adapted to engage said pivoted fingers where- 50 by said pivoted fingers forcibly open the folds of said folded paper. 100

5. In an inserting machine, the combination with a plurality of pockets arranged one above the other and adapted to hold sections 55 of folded paper, of pivoted fingers adapted to bear against said section of paper in a manner to hold one fold against movement and thus permit the other fold thereof to sag forward, air tubes mounted in proximity to 60 said pivoted fingers for expelling air whereby to force a sagging of said fold, moving members, fingers attached at intervals to said moving members and adapted to engage said pivoted fingers whereby said pivoted fin- 110

65 gers forcibly open the folds of said folded paper, said fingers on said moving members engaging said open fold of said paper section and transferring it to a position between the similarly opened folds of a section of paper in a lower pocket and removing said sections from said lower pocket, and means operated in conjunction with said moving members for removing said sections of folded paper from said fingers. 115

6. In an inserting machine, the combination with a plurality of pockets arranged one above the other and adapted to hold sections of folded paper, of pivoted fingers adapted to bear against said sections of paper in a manner to hold one fold against movement and thus permit the other fold thereof to sag forward, air tubes mounted in proximity to said pivoted fingers for expelling air whereby to force a sagging of said fold, moving members, fingers attached at regular intervals to said moving members, and adapted to engage said pivoted fingers whereby said pivoted fingers forcibly open the folds of said folded paper, said fingers on said moving members engaging said open fold of said paper section and transferring it to a position between the similarly opened folds of a section of paper in a lower pocket and removing said sections from said lower pocket, and means operated in conjunction with said moving members for removing said sections of folded paper from said fingers. 120

7. In an inserting machine, the combination with a plurality of inclined pockets having openings arranged one above the other and adapted to contain folded sheets of paper having one lap of greater length than the other lap, of pivoted fingers adapted to engage the upper edges of the longer laps of the sheets in each pocket whereby to permit the shorter laps to sag forward, and movable means adapted to pass across the openings of said pockets and engage between the laps of said sheets, whereby a sheet is carried from an upper pocket and placed between the laps of a sheet in a lower pocket. 125

8. In an inserting machine, the combination with a plurality of pockets having openings arranged one above the other and adapted to contain folded sheets of paper having one lap of greater length than the other lap, of pivoted fingers adapted to engage the upper edges of the longer laps of the sheets in each pocket whereby to permit the shorter lap to be free to sag forward, air tubes adapted to expel air upon said shorter laps at the pocket openings to cause them to sag and extend through the pocket openings, and movable means adapted to pass across the openings of said pockets and engage between the laps of said sheets, whereby a sheet is carried from an upper pocket and inserted between the laps of a sheet in a lower pocket. 130

9. In an inserting machine the combination with a plurality of pockets having openings arranged one above the other and adapted to contain folded sheets of paper having one lap of greater length than the other, of

pivoted means for engaging the longer of the two laps, means for causing the shorter lap to extend through the openings in said pockets and moving members adapted to pass  
5 across the openings of said pockets and engage said pivoted means and cause the latter to pivot and forcibly separate the folds whereby the moving members may engage between the laps of the sheets and carry a  
10 folded sheet in an upper pocket to insert it between the laps of a sheet in a lower pocket.

10. In an inserting machine the combination with a plurality of pockets having openings arranged one above the other and adapted  
15 ed to contain folded sheets of paper having one lap of greater length than the other, of pivoted means for engaging the longer of the two laps, means for causing the shorter lap to extend through the openings in said  
20 pockets and moving members adapted to pass across the openings of said pockets and engage said pivoted means and cause the latter to pivot and forcibly separate the folds whereby the moving members may engage be-  
25 tween the laps of the sheets and carry a folded sheet in an upper pocket to insert it between the folds of a sheet in a lower pocket, and means operated in conjunction with said moving members for removing said sheets  
30 from the latter.

In testimony whereof I affix my signature.  
HENRY J. WICH.

35

40

45

50

55

60

65