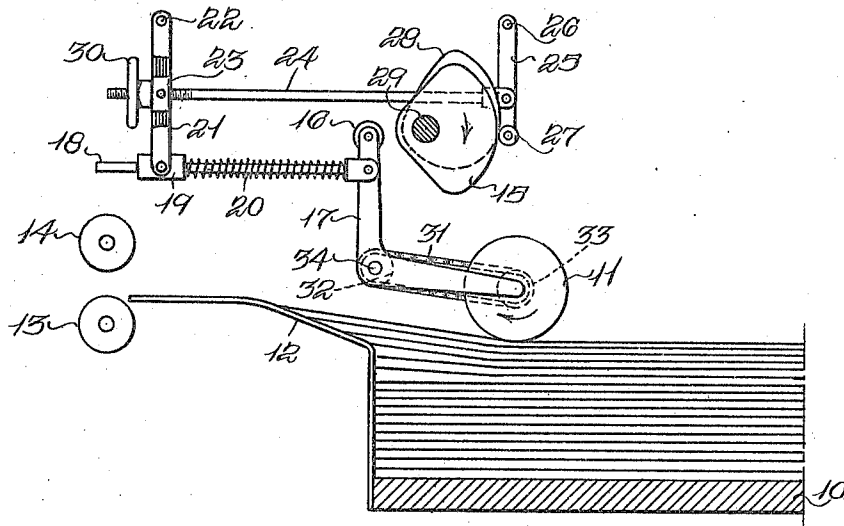


V. GARNER.  
SHEET COMBING MECHANISM.  
APPLICATION FILED APR. 6, 1914.

1,264,053.

Patented Apr. 23, 1918.



Witnesses:  
*J. M. Pizzetti*  
*E. O. Brannen*

Inventor:  
*Vernon Garner*  
by *Henry Brannen & May*  
Attorneys

# UNITED STATES PATENT OFFICE.

VERNON GARNER, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO UNITED PRINTING MACHINERY COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MAINE.

## SHEET-COMBING MECHANISM.

1,264,053.

Specification of Letters Patent.

Patented Apr. 23, 1918.

Application filed April 6, 1914. Serial No. 829,805.

*To all whom it may concern:*

Be it known that I, VERNON GARNER, a citizen of the United States, and resident of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Sheet-Combing Mechanism, of which the following is a specification.

This invention relates to combing mechanism used for separating and feeding paper sheets, and comprises broadly the provision of means for acting upon the combing device for varying the combing effect thereof while the combing device is in operation.

The accompanying figure of drawing represents an elevation, partly in vertical section, of combing mechanism embodying my invention and including means for automatically varying the pressure of the combing device upon the sheets while said device is combing.

The same reference characters indicate the same parts wherever they occur.

It is to be understood that the drawing is conventional, that no effort has been made to illustrate a complete paper-feeding machine, and that the drawing includes only such elements as are necessary to give a clear understanding of my invention as embodied in a paper-feeding machine.

On the drawing a pile elevator is indicated at 10, a combing wheel is indicated at 11, a ridge-plate at 12, a feeding-out roll at 13, and a drop roll at 14. Although I have shown only one combing wheel, it is to be understood that the intention is to employ at least two and to arrange them side by side in accordance with the usual practice and to provide sheet-controlled trip mechanism for lifting them when the front edge of the top sheet has been advanced to a predetermined position. The usual lifting cam is indicated at 15, the same being arranged to coact with a roll 16 carried by the lever 17 in which the combing wheel is mounted. The fulcrum for the lever 17 is indicated at 34, the same being a driving shaft from which rotation is transmitted to the combing wheel by a chain 31 and sprocket wheels 32 and 33. The shaft 34 is driven continuously at a uniform rate of speed by any suitable mechanism (not shown). When the combing wheel is performing its combing operation there is sufficient clearance be-

tween the roll 16 and the lifting cam 15 to enable the combing wheel to rise and fall as much as may be necessary to compensate for slight variations in the level of the top sheet. I have provided automatic means for gradually increasing the pressure of the combing wheel upon the sheet during the combing interval. A rod 18 is pivotally connected to the lever 17 and is arranged to slide in a sleeve 19. A compression spring 20 is arranged upon the rod to exert its force against the lever 17 so as to press the combing wheel upon the sheets. The effective force of the spring 20 is automatically varied by moving the sleeve 19 toward and from the lever 17. For this purpose the sleeve is pivotally mounted in a lever 21 whose fulcrum is indicated at 22. A block 23 swiveled in the lever 21 affords a sliding bearing for a screw-rod 24. This rod is pivotally connected to a cam lever 25 whose fulcrum is indicated at 26. A roll 27 mounted on lever 25 is arranged to coact with a cam 28 which is rotated in unison with cam 15, the two cams as shown being affixed upon a cam shaft 29. A nut having a hand-wheel 30 is threaded upon the rod 24 and arranged to abut against the swiveled block 23. The cam 28 forces the lever 25, rod 24, lever 21 and sleeve 19 to the right, thus compressing the spring 20. The spring-compressing cam is so timed as to begin its compressing movement while the combing wheel is combing and to gradually increase the effective force of the spring throughout the combing interval. When the high point of the cam 28 passes the roll 27, the spring 20 reacts to move the sleeve 19, lever 20, rod 24 and lever 25 to the left, and the roll 27 is thus kept in engagement with the cam 28.

By adjusting the hand-wheel 30 to different positions the spring 20 may be caused to exert its force coincidently with the beginning of the combing operation, or the spring need not be brought into use until a substantial proportion of the combing interval has elapsed. This will depend upon the position to which the hand-wheel is adjusted.

I claim:

1. Sheet-feeding mechanism comprising combing means for feathering a plurality of sheets, means for causing said combing means to move to and from contact with the

pile of sheets, and means arranged to act upon said combing means during the combing interval to increase the pressure of said combing means upon the sheets.

5 2. Sheet-feeding mechanism comprising combing means for feathering a plurality of sheets, means for causing said combing means to move to and from contact with the pile of sheets, and means arranged to exert  
10 a gradually increasing pressure upon said combing means during the combing interval, to vary the pressure of said combing means upon the sheets.

15 3. Sheet-feeding mechanism comprising combing means for feathering a plurality of sheets, means for causing said combing means to move to and from contact with the pile of sheets, and means arranged to act continuously upon said combing means during the combing interval to vary gradually  
20 the combing action of said combing means upon the sheets.

25 4. Sheet-feeding mechanism comprising combing means for feathering a plurality of sheets, means for causing said combing means to move to and from contact with the pile of sheets, and means arranged to cause a gradual increase of pressure of said comb-

ing means upon the sheets through a substantial portion of the combing interval. 30

5. Sheet-feeding mechanism comprising combing means for feathering a plurality of sheets, means for causing said combing means to move to and from contact with the sheets, a spring, and means arranged to  
35 cause said spring to act with gradually increasing force upon said combing means during the combing interval to increase the pressure of said combing means upon the sheets. 40

6. Sheet-feeding mechanism comprising combing means for feathering a plurality of sheets, means for causing said combing means to move to and from contact with the pile of sheets, a spring arranged to increase  
45 the pressure of said combing means upon the sheets, and means arranged to alternately increase and decrease the applied force of said spring.

In testimony whereof I have affixed my  
signature, in presence of two witnesses. 50

VERNON GARNER.

Witnesses:

WALTER P. ABELL,  
P. W. PEZZETTI.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."