

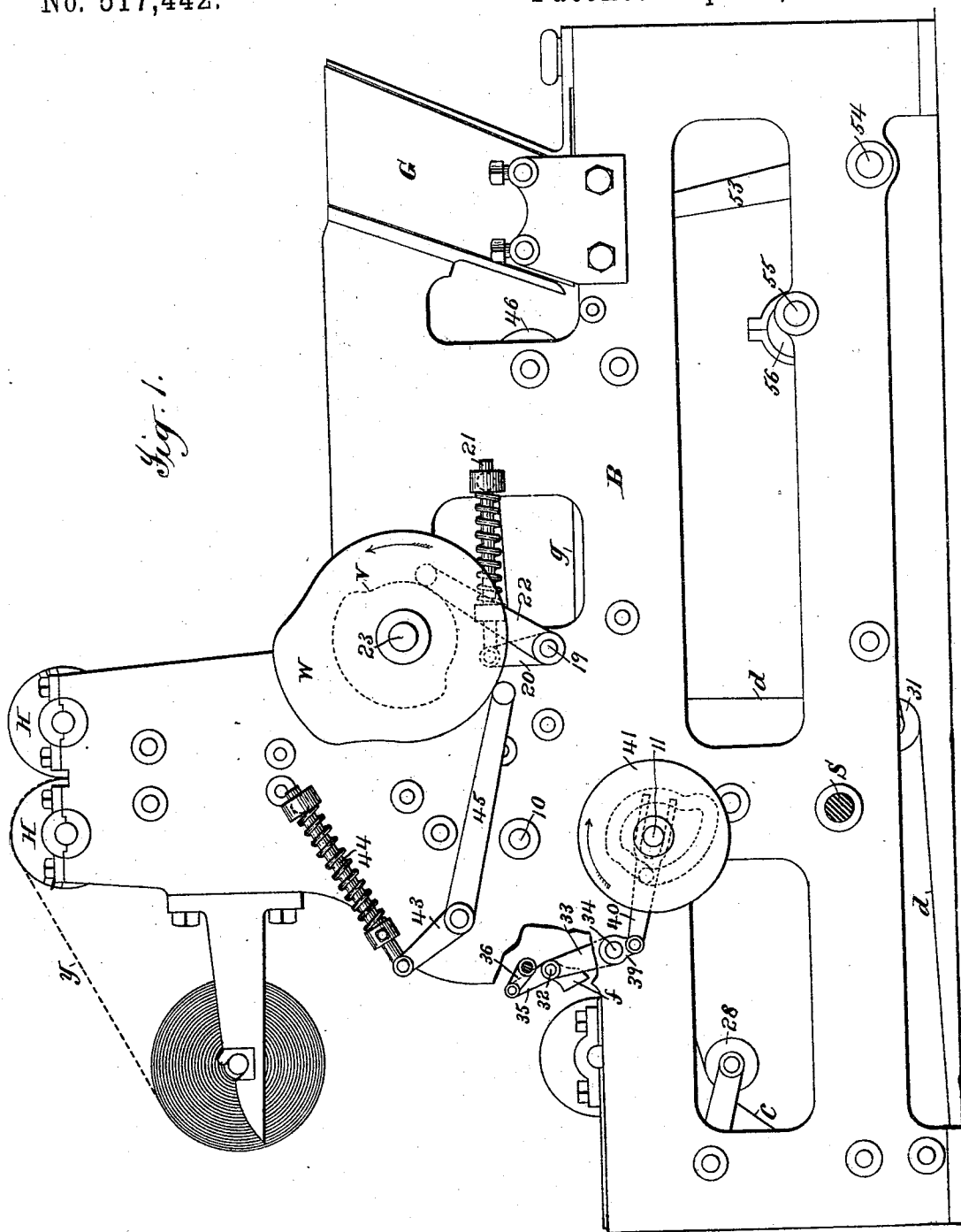
(No Model.)

4 Sheets—Sheet 1.

L. C. CROWELL.  
NEWSPAPER WRAPPING MACHINE.

No. 517,442.

Patented Apr. 3, 1894.



Attest:  
Geo. H. Potts.  
C. J. Sawyer

Inventor:  
Luther B. Crowell  
by Philip M. Mumford, Atty.

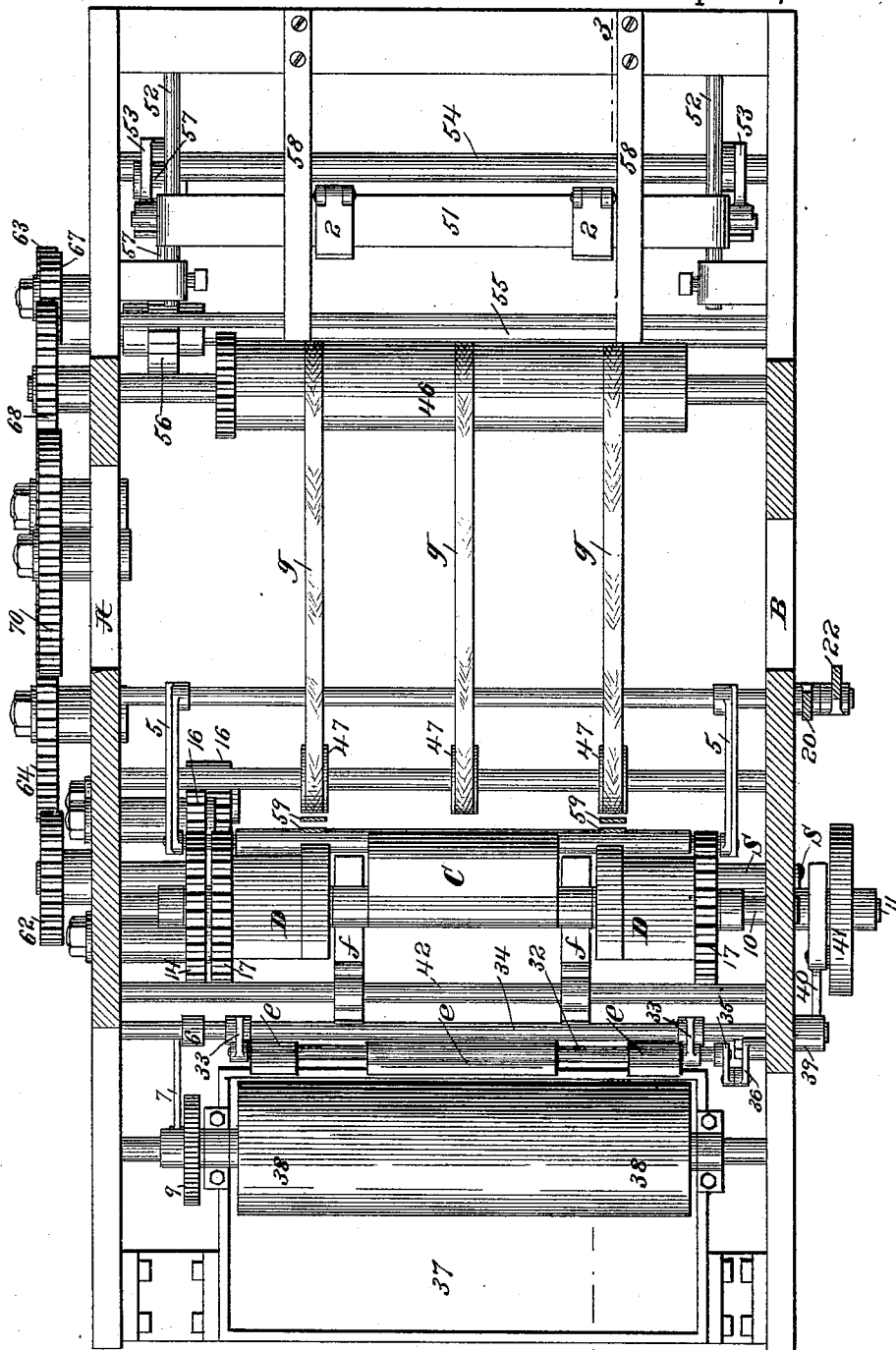
Attys

L. C. CROWELL.  
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Fig. 2.



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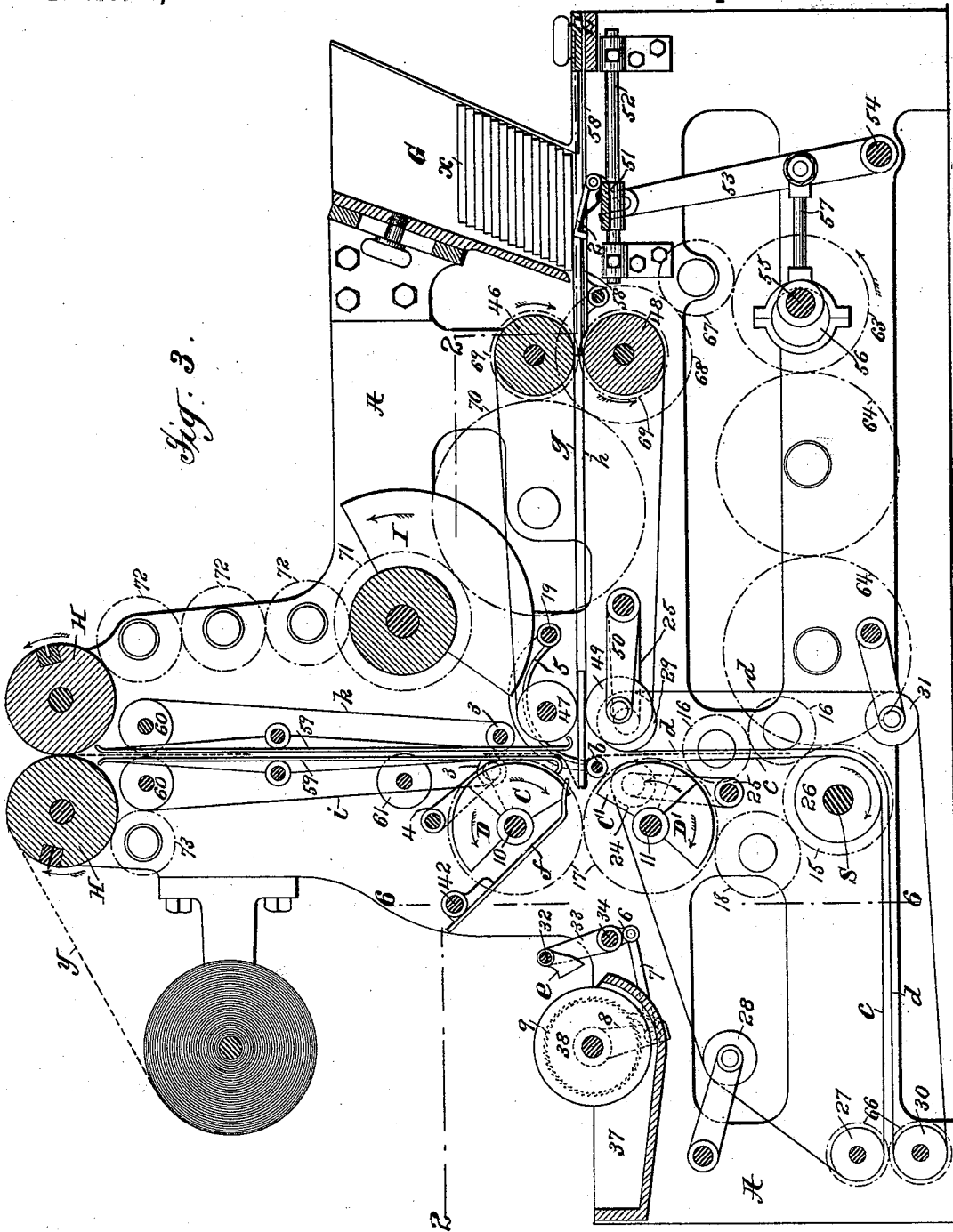
(No Model.)

4 Sheets--Sheet 3.

L. C. CROWELL.  
NEWSPAPER WRAPPING MACHINE.

No. 517,442.

Patented Apr. 3, 1894.



Attest:  
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C. J. Sawyer

Inventor:  
Lucius K. Crowell  
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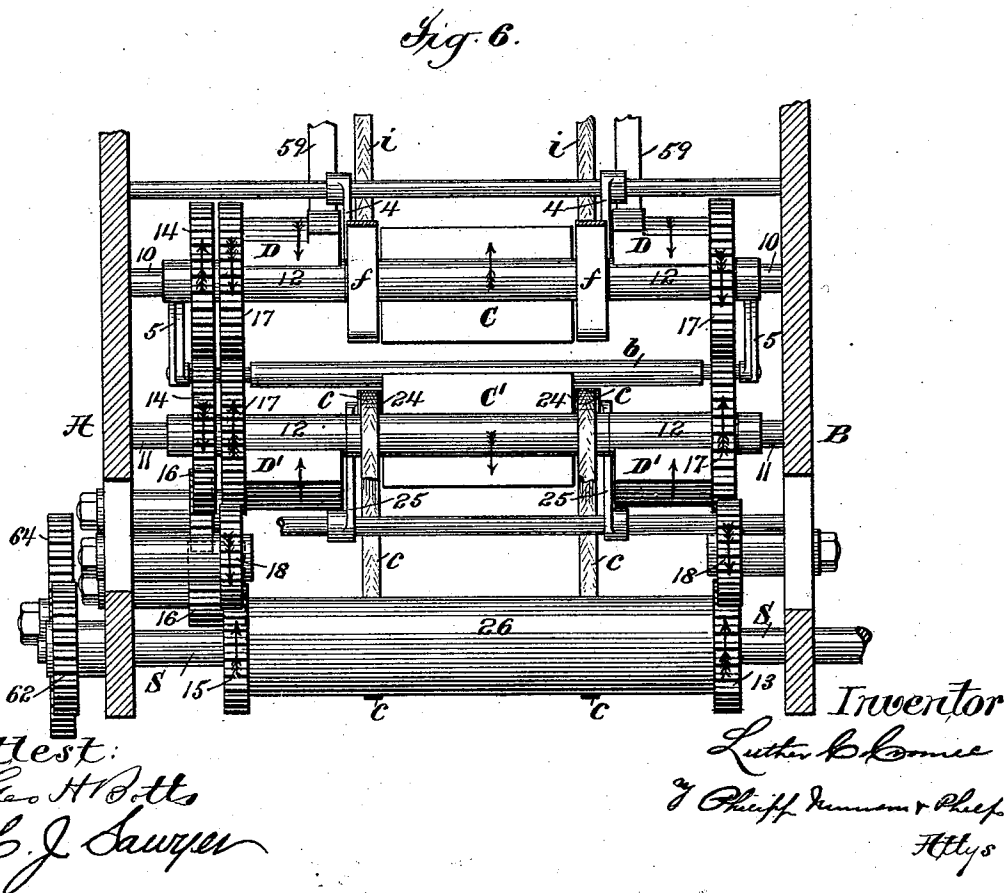
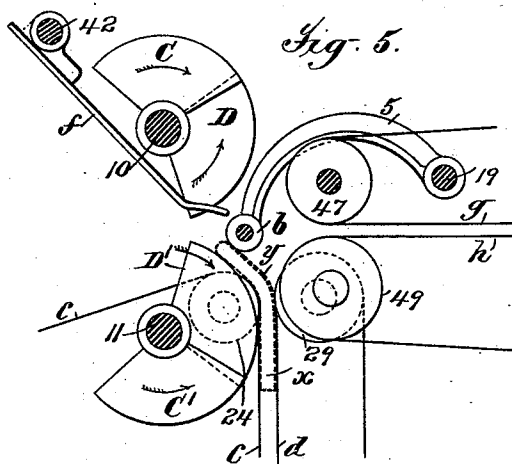
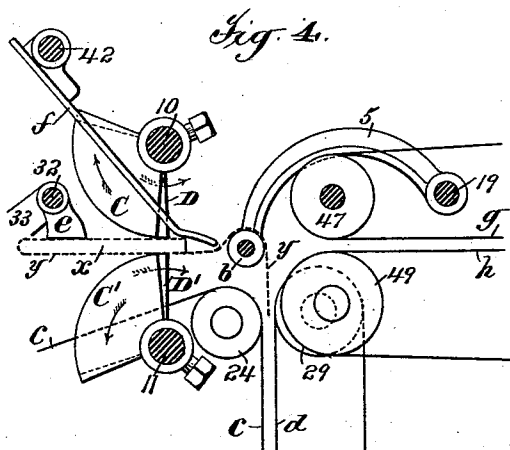
(No Model.)

4 Sheets—Sheet 4.

L. C. CROWELL.  
NEWSPAPER WRAPPING MACHINE.

No. 517,442.

Patented Apr. 3, 1894.



# UNITED STATES PATENT OFFICE.

LUTHER C. CROWELL, OF BROOKLYN, ASSIGNOR TO ROBERT HOE, THEODORE H. MEAD, AND CHARLES W. CARPENTER, OF NEW YORK, N. Y.

## NEWSPAPER-WRAPPING MACHINE.

SPECIFICATION forming part of Letters Patent No. 517,442, dated April 3, 1894.

Original application filed April 13, 1893, Serial No. 470,167. Divided and this application filed October 7, 1893. Serial No. 487,504. (No model.)

*To all whom it may concern:*

Be it known that I, LUTHER C. CROWELL, a citizen of the United States, residing at Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Newspaper-Wrapping Machines, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

The object of the present invention is to provide an improved wrapping machine, and especially to provide a simple and rapid machine of that class used in wrapping newspapers and other publications for mailing, and generally known as newspaper wrapping machines.

The principle upon which the machine embodying the present invention operates is that of first advancing the paper or other article to be wrapped to the required point with the wrapper overlapping its leading end, and with the flap projecting behind the paper sufficiently to overlap upon the layer of wrapper on the paper for pasting, and then reversing the direction of movement of the paper and turning over and pressing down the flap of the wrapper so as to secure the overlapping and pasting of the flap upon the layer of wrapper upon the paper as the reversed paper is advanced.

In another application Serial No. 470,167, filed April 13, 1893, there is described and claimed broadly a machine constructed to operate upon this principle, employing means of any suitable form for advancing and reversing a paper and wrapper in combination with a flap turner for turning over the flap of the wrapper, this flap turner preferably consisting of a roll past which the reversed paper is fed, and upon opposite sides of which the paper passes during its movements in opposite directions.

The present invention relates especially to a machine of this general construction in which feeding devices moving in opposite directions and acting on the paper successively are used for advancing and reversing the paper these feeding devices preferably consisting of two pairs of feeding segments having their axes in the same line rotating in oppo-

site directions, and arranged so that one pair of segments advance the paper to the desired point and then pass out of engagement therewith, and the other pair of segments then come into action to reverse the paper, these feeding segments preferably being mounted upon the same shaft for simplicity and convenience of construction.

It is obvious that many different constructions may be devised embodying the invention, that the flap turner and parts co-operating therewith may be of widely different forms, and that different means may be used to secure their proper action. The flap turner combined with the feeding segments may consist of a simple rod or bar, or of a series of guides suitable for the purpose, but there is preferably used a roll which secures ease and smoothness of movement, and which preferably co-acts with one of the feeding segments to form a feeding device for the reversed paper, so that a feed of the paper independent of the grip between the feeding segments is secured almost immediately upon the reversal of the paper, and this roll forming the flap turner may be arranged to co-act with one of the other pair of feeding segments, and aid in advancing the paper as it is received by the wrapping mechanism. The roll forming the flap turner may be positively driven, but a roll frictionally driven from the feeding segments with which it co-acts forms an efficient construction, and is preferable in some respects to a positively driven roll, as it secures a slight drag upon the flap of the wrapper which draws the wrapper tight and insures a closely wrapped product. When the roll co-acts with both feeding segments so as to advance the paper in both directions, however, a positively driven roll is preferable. The flap turner may be of any suitable form and size, and may be stationary, but it may be found preferable to use a small roll or bar and shift its position for the passage of the paper on opposite sides of the same, as it is thus possible to place the flap turner closer to the feeding segments, and secure a more compact construction and better feed of the paper. When a roll co-acting with both the feeding segments is used, however, a larger

stationary roll will probably be found preferable.

It is preferable, although not essential in all constructions, that guides should be used for guiding the end of the reversed paper to the opposite side of the flap turner. These guides may be of any suitable form, and any suitable means be used for withdrawing them from the path of the paper as it is advanced to the feeding devices, but it is preferable to use a series of fingers so constructed as to form spring fingers exerting a yielding pressure upon the paper only sufficient to secure the movement of the reversed paper in the proper path, and withdrawn positively from the path of the next advancing paper.

The wrapped paper may be delivered directly from the feeding segments and flap turner forming the wrapping mechanism, this being especially efficient when a roll is used as the flap turner, the flap turner and feeding segment with which it coacts then operating to positively advance the paper and press down and secure the wrapper after the paper has passed out of the control of the feeding segments, but I prefer to combine with this wrapping mechanism pressing and delivery devices of any suitable construction, such as feeding rolls or tapes by which the paper is received from the wrapping mechanism, and the wrapper held pressed down for some time before final delivery, so as to allow time for the paste to set, the secure pasting of the wrapper thus being secured with machines operating at very high rates of speed. In cases in which the flap turner consists of a bar or plate past which the reversed paper is forced by the feeding segments, these pressing and delivery devices are important, and will probably be found practically essential, as otherwise the proper pressure upon the wrapper to secure it cannot be obtained with certainty in the movement of the paper at high rates of speed. The papers and wrappers, or either of them, may be fed to this wrapping mechanism by hand, or any suitable feeding devices for automatically advancing the papers and wrappers to the wrapping mechanism in proper time, together or separately, may be combined therewith, and the papers may be previously folded to the size desired or folded, either partially or wholly, by mechanism embodied in and forming a part of the machine. The wrapping mechanism may be combined with any of the ordinary forms of folding and delivery mechanisms now in use in folding machines, or combined printing and folding machines, so that the papers may be printed, folded, wrapped and delivered by a single machine, the wrapping mechanism herein shown being of sufficient capacity to be applicable to modern web printing machines.

The delivery of the papers and wrappers to the wrapping mechanism in proper position may be secured in any suitable manner, but it is preferable to feed the wrapper down-

ward in the line of movement of and in front of the papers as they are advanced to the wrapping mechanism, so that each advancing paper will engage the wrapper upon the desired line and carry it with it to the wrapping mechanism. The wrappers may previously be cut to the desired size and fed to the wrapping mechanism as sheets, but it is preferable to feed the wrappers from the web and sever them in the machine.

Pasting devices for the wrapper are preferably added, and the paste may be applied to the first layer of wrapper upon the paper, or to the loose end of the wrapper prior to or at any desired time during the operation of wrapping, but it is preferable to apply the paste to the first layer of wrapper upon the paper, the movement of the wrapper with the paste thus being reduced.

In the accompanying drawings forming a part of this specification, there is shown for the purpose of illustration a complete, independent newspaper or pamphlet wrapping machine of the general construction above described, which will be found a convenient and efficient embodiment of the present invention, the previously folded papers or pamphlets being fed from a pile and the wrappers from a web, and a detailed description of the same will now be given, and the features forming the invention specifically pointed out in the claims.

In the drawings:—Figure 1 is a side elevation of the machine broken away to show the pasting mechanism. Fig. 2 is a horizontal section on the line 2 of Fig. 3. Fig. 3 is a vertical longitudinal section of the machine on the line 3 of Fig. 2. Figs. 4 and 5 are partial views similar to Fig. 3 showing the wrapping mechanism in different positions during the operation of wrapping. Fig. 6 is a vertical section on line 6—6 of Fig. 3.

Referring to said drawings, the frame of the machine may be of any suitable construction for supporting the operating parts. As shown, it consists simply of two side frames A, B in which all the parts are mounted. At the rear or delivery end of the machine are mounted two pairs of feeding segments C, C' and D, D', these segments being carried by a single pair of shafts 10, 11, the central pair of segments C, C' being fixed on these shafts, and the other pair of segments D, D' which preferably are made in two parts, placed at opposite ends of the central segments C, C', are carried by sleeves loose on the shafts so that the two pairs of segments may be rotated in opposite directions. The segments C, C', D, D' are preferably rubber-faced, milled or otherwise roughened so as to give a good grip upon the paper. Any suitable means may be used for driving these two pairs of segments in opposite directions. As shown, they are driven from the main driving shaft S below the segments by the following means:—The shafts 10, 11 carrying the central segments C, C' are geared together at one end.

by gears 14 and driven from shaft S by gear 15 thereon, and intermediates 16 and the sleeves 12 at each end of the shafts carrying the end segments D, D', are geared together by gears 17 and driven from the shaft S at one end, as shown in Fig. 6, by gear 13 and intermediate 18 and at the opposite end by gear 15 and intermediate 18. The two pairs of segments C, C' and D, D' are thus rotated in opposite directions at the same rate of speed. In front of the segments C, C', D, D' and on the side at which the paper is fed thereto, the flap turner *b* is placed, this flap turner consisting in the form shown of a roll mounted to rotate freely in arms 5 on a rock shaft 19, spring pressed in one direction by means of a crank arm 20 and spring pressed rod 21 mounted on the outside of the frame B and actuated in the opposite direction against the spring pressure by crank arm 22 carrying a bowl which runs upon a cam *v* carried by the shaft 23. The flap turner is thus held normally by the spring in the position shown in Figs. 1, 2 and 3, so as to allow the paper to pass above it to the segments, and as the paper is reversed by the feeding segments it is raised by the action of the cam *v* into the position shown in Figs. 4 and 5, in which the end of the reversed paper passes below it. By this construction, also, the flap turner engages the paper under spring pressure so as to yield to irregularities in the paper, and accommodate papers of different thicknesses which is desirable, although not essential. It is evident that this result may be secured in the case of a stationary flap turner by the use of spring bearings. It will be seen that this flap turner *b*, in the position shown in Fig. 5, coacts with the end feeding segments D' as a frictionally driven feeding roll, and thus aids the segments D, D' in advancing the reversed paper, and will operate to advance the paper after it has left the grip of said segments, while the roll *b* presses down the flap of the wrapper against segments D' with sufficient pressure to secure the wrapper by pasting.

The feeding segments C, C', D, D', and the flap turning roll *b* form a complete wrapping mechanism, and the wrapped paper may be finally delivered directly therefrom. In a high speed machine, however, it is evident that the pasted portion of the wrapper is pressed between the roll *b* and segments D' but a short time, and it is preferable that means should be provided by which the wrapper should be held pressed down a longer time so as to insure the setting of the paste to properly secure the wrapper. It is preferable, therefore, to combine with this wrapping mechanism pressing and delivery devices to which the paper passes from the roll *b*, and by which the wrapper is held pressed down until the paste has set, and the paper then finally delivered. These pressing and feeding devices may be of any suitable construction, and the segments D' may be used as a

part of said pressing and delivery devices, but in the construction now being described devices separate from and independent of these segments are used, and feeding rolls or tapes are preferably used by which the flap of the wrapper is held pressed down for some time so as to secure the setting of the paste before final delivery in a machine operating at a high rate of speed.

In the construction shown the following means are used:—A series of belts *c* are led about the belt rolls or pulleys 24 mounted below the flap turner *b* and carried by adjustable arms 25 so as to be adjustable to vary the position of the belts, and secure the proper grip upon papers of different thicknesses. The belts *c* are led from belt rolls or pulleys 24 around pressing roll 26 on shaft S by which they are driven, thence around roll 27 and returned to the belt rolls or pulleys 24 over adjustable tension pulleys 28. The series of belts *d* are led about belt rolls or pulleys 29 opposite pulleys 24 and mounted in the same manner on adjustable arms 25, then downward with the belts *c* around belt rolls 26, then around roll 30 opposite to and driven from roll 27 returning around adjustable tension pulleys 31. The feeding belts *c, d* as shown are arranged so as to deliver the wrapped papers at the end of the machine, as this is convenient and gives a long run, although it will be understood that they may be arranged so as to deliver at any other desired point. As above stated, the paste is preferably applied upon the layer of wrapper upon the paper. For this purpose a paster *e* is used, this paster being cut away to accommodate the upper feeding segments D' and guides *f*, and being carried by a rod 32 mounted in arms 33 on a rock shaft 34, this rod 32 being mounted to rotate in the arms 33, and being provided with an arm 35 pivotally connected to an arm 36 swinging on a fixed pivot in the frame. At the rear end of the machine are mounted a paste fountain 37 and a paste roll 38, and the rock shaft 34 is actuated to carry the paster between the roll 38 and the paper by means of a crank arm 39 on the shaft connected to a pitman 40 carrying a bowl running in a cam groove in cam 41 on shaft 11. By this construction the pasting surface of the paster *e* is raised from and lowered to the surface of the wrapper vertically, so that the dragging of paste upon the wrapper is avoided. The shaft 34 carries also an arm 6 which is connected by a link 7 to a pawl lever 8 on the shaft of fountain roll 38, which is provided with the usual ratchet wheel 9 engaged by the pawl, so that the fountain roll is thus rotated intermittently by the movement of shaft 34.

It will be found that the construction thus far described is efficient, and that the papers, when reversed, will generally be carried under the flap turner *b* properly, especially if the papers be of such thickness as to bend readily, and the flap turner lies close to the

segments D, D' in its upper position. In order to assure certainty of action, however, there is preferably used, especially with thick rigid papers, a series of guides which operate to positively guide the rear end of the paper downward and below the flap turner *b*. These guides may be constructed in any suitable manner, but as shown consist of a series of spring fingers *f* which are carried by a rock shaft 42 actuated to raise the guides out of the path of the paper as it passes to the segments by a crank arm 43 carried by the shaft outside the frame B, and spring pressed by a spring pressed rod 44 mounted on the frame, the shaft being rocked in the opposite direction to press the guides downward at the proper time to act on the leading end of the reversed paper by a crank arm 45 on the shaft 43 carrying a bowl which runs on a cam *w* carried by the shaft outside frame B. As above stated, the paper and wrapper may be fed to this wrapping mechanism by hand, or may be advanced thereto by any suitable means, and the proper relative positions of the paper and wrapper secured in any manner desired. In the machine shown, however, which is especially adapted for wrapping papers previously folded to wrapping size, or magazines, the papers or magazines are piled within a holder G mounted on the front end of the machine, and the bottom paper advanced from the holder to feeding belts *g, h* by which they are carried to the wrapping mechanism. The upper series of belts *g* are led from driven feeding roll 46 forward about belt rolls or pulleys 47 just in the rear of the wrapping mechanism, returning directly to roll 46 and the lower series of belts *h* are led from driven feeding roll 48 forward around belt rolls 49 and returned directly to roll 48, the rolls or pulleys 49 however, being carried by arms 50 adjustable so as to vary the distance and pressure between the two series of belts.

Any suitable feeding devices may be used for advancing the bottom paper from the holder to the rolls 46, 48 and belts *g, h*. As shown, a series of pivoted fingers 2 are used, these feeding fingers being carried by a slide 51 moving on rods 52 mounted in the frame of the machine, and being pressed upward so as to engage the bottom paper when withdrawn, by means of springs mounted on the slide under the fingers. This slide 51 is reciprocated upon the rods 52 to advance the papers in proper time by means of slotted levers 53 carried by rock shaft 54 mounted in the side frames A, B, and operated from shaft 55 by an eccentric 56 on said shaft and an eccentric rod 57 connecting the said eccentric with one of the arms 53. The holder G is shown as adjustable so as to hold and feed papers of different thicknesses and the rear plate of the box is made adjustable so as to act as a stop to all the papers except the lowest, and permit the passage of papers of different thicknesses, the holder being open at

the bottom and papers fed out by the fingers 2 over guides 58 extending from the box to the rolls 46, 48.

The wrappers are cut and advanced to the warpping mechanism by the following means:—At the top of the machine are mounted two cutting and feeding rolls H to which the wrapper web *y* is advanced from the web roll, and by which it is partially severed on the proper line to form a single wrapper. From the cutting and feeding rolls the partially severed web is fed downward between guides 59 by feeding belts *i, k*, extending downward nearly to the wrapping mechanism, these belts being carried and driven by rolls 60 at their upper ends and carried by rolls 3 at their lower ends, one of the rolls 3 being mounted on arms 4 adjustable so as to secure the requisite pressure between the two series of belts. For the purpose of entirely severing the wrapper at the proper time a breaking segment I is used co-acting with the roll 61 on the opposite side of the guides 59, the segment I operating to permit the wrapper to be fed downward to the wrapping mechanism, and then to positively grip the wrapper and wholly sever it, the segment I rotating at a higher rate of speed than that at which the wrapper is moved, as usual in such constructions.

The operating parts of the machine with the exception of the segments and paster already described, are driven from the main driving shaft S by the following means:—The shaft S carries outside the frame A a gear 62 which drives the shaft 55 through a gear 63 and a series of intermediates 64. The belts *c* are driven directly by the shaft S, being carried by roll 62 thereon, and the other series of belts *d* are driven by gearing together the shafts of belt rolls 27, 30, by gears 66. The gear 63 on shaft 55 drives the lower feeding roll 48 through intermediate 67 and gear 68 on the shaft of the feeding roll, and the two rolls 46, 48 are geared together by gears 69. The gear 68 drives the segment I through intermediate 70 and gear 71 on the segment shaft, and the feeding and cutting rolls H are driven from the shaft of the segments through a series of intermediates 72, the feeding and cutting rolls being geared together, and the rolls 60 being driven from the shaft of one of the cutting rolls by an intermediate 73. The parts are so timed, as will be seen from the drawings, that the segments C, C', D, D' and the belts *c, d* are run at a higher rate of speed than the paper and wrapper feeding mechanism, so as to secure the wrapping of the paper and its quick removal from the path of the next paper and wrapper as the latter advance.

The operation of the machine is as follows:—With the parts in the position shown in Figs. 1, 2, end 3, the wrapper has been fed down into the path of the paper and the paper advanced so as to engage the wrapper upon the proper line, so that the latter is just reaching



the position to be seized by the segments C, C' the flap turner *b* being in its lowest position and the paper and wrapper passing over it to the feeding segments. In the position shown in Fig. 4, the feeding segments C, C' have been rotated to carry the paper and wrapper into their extreme rearward position, the paster *e* is just depositing paste upon the layer of wrapper upon the paper, the paster being shown as constructed to deposit paste over practically the whole width of the wrapper, the pressing and delivery devices securing the pressing down of that part of the wrapper not in line with the lower segments D', the roll *b* has just been raised by the action of the cam *v*, and the guides *f* thrown down to press against the rear end of the paper by the cam *w*, and the parts are in position for the commencement of the reverse movement of the paper, the flap of the wrapper to be overlapped and pressed down for pasting lying upon the top of the roll *b*. The segments C, C' now pass out of engagement with the paper, and the segments D, D' rotating in the opposite direction engage the paper and the rear end of the paper becomes the leading end and returns below the roll *b* so that the flap of the wrapper is turned down upon the paper and pressed down upon the layer of wrapper thereon, first by pressure between the roll *b* and the lower segments D', as the paper is fed onward thereby, and then by the belt pulleys 24, 29 and belts *c*, *d* as the wrapped paper is advanced and delivered. In the position shown in Fig. 5, the paper has been received by the belts *c*, *d* and is being advanced for delivery, the rear end of the paper being still opposite and in contact with roll *b*, the flap of the wrapper having been turned over and pressed down for pasting. Another paper has meanwhile been delivered from the holder G, and is being advanced by the belts *g*, *h* to the wrapping mechanism, while the wrapper *y* has been fed downward and its leading end is now about opposite the roll *b*. As the operation of the machine continues, the wrapped paper is rapidly carried away by the belts *c*, *d*, which, as above stated, preferably are run at a higher rate of speed than the paper and wrapper feeding mechanism so as to carry the paper out of the path of the latter in time for the advance of the wrapper, and the segments C, C' come into proper position to seize the next paper and wrapper and the roll *b* and guides *f* are returned to the position shown in Fig. 3 for the advance of the paper to the segments C, C', the wrapper meanwhile having been fed downward between belts *c*, *d* below the path of the paper *x*, so that the paper will strike the wrapper on the proper line to secure the proper overlapping of the wrapper upon the leading and rear ends of the paper as shown in Fig. 3.

In the construction above described, the roll forming the flap turner *b* co-acts with the segments D' to feed the reversed paper and

press down the wrapper, only as it is driven by friction from the segments D', but it is evident that this roll may be positively driven if desired, as stated above. It is preferable to shift the flap turner to opposite sides of the path of the paper in machines in which the paper is advanced to the wrapping mechanism in the plane of the feeding action of the segments as the wrapping mechanism is thus made more compact, and the roll *b* brought closer to the segments, but this is not essential, and the flap turner may be stationary and placed farther away from the line of action between the segments so as to permit the paper *x* to pass above it from the rolls 47, 49 to the segments. It is not essential, moreover, that the paper should be advanced to the wrapping mechanism as shown, that is, in the plane of the feeding action of the segments, but the paper may be fed to the wrapping mechanism in any way so as to secure its proper reception by the segments. By placing the roll *b* in such a position as to co-act with the segment C in advancing the paper, and feeding in the paper from above at the suitable angle, a very simple and efficient construction may be provided in which the paper is positively fed by two sets of feeding devices during the entire operation of wrapping, except just at the point of reversal when the end of the paper is passing roll *b*. In such a construction it is preferable to make the roll *b* much larger than in the construction previously described, and while this roll may be driven by friction from the segments C, D, as before, it is preferably driven positively by making the roll *b* of a considerable size, as not only is a better feeding action secured, but the path of the wrapped paper in delivering is brought inside the path of the wrapper, so that the wrapper is free to be fed downward to the desired point at any time after the flap of the preceding wrapper has been turned in by the wrapping mechanism, thus enabling a machine of high capacity to be made without excessive speed of any of the parts.

It is obvious that other modifications may be made in the construction shown without departing from the invention, and the latter is not to be limited to the special form or arrangement of the devices shown.

This application forms a division of my application Serial No. 470,167 above referred to.

What is claimed is—

1. The combination with oppositely moving feeding devices for advancing and reversing a paper and wrapper, of a flap turner, substantially as described.

2. The combination with oppositely moving feeding devices for advancing and reversing a paper and wrapper, of a roll forming a flap turner, substantially as described.

3. The combination with oppositely moving feeding devices for advancing and reversing a paper and wrapper, of a flap turner and means for moving said flap turner to oppo-

site sides of the path of the advanced and reversed paper, substantially as described.

4. The combination with oppositely moving feeding devices for advancing and reversing a paper and wrapper, of a flap turner and guides co-acting with the flap turner to control the reversed paper, substantially as described.

5. The combination with oppositely moving feeding devices for advancing and reversing a paper and wrapper, of a flap turner and pressing and delivery devices, substantially as described.

6. The combination with oppositely moving feeding devices for advancing and reversing a paper and wrapper, of a flap turner, guides co-acting with the flap turner to control the reversed paper, and pressing and delivery devices, substantially as described.

7. The combination with oppositely moving feeding devices for advancing and reversing a paper and wrapper, of a flap turner, pressing and delivery devices, and means for moving the flap turner to opposite sides of the path of the advanced and reversed paper, substantially as described.

8. The combination with oppositely moving feeding devices for advancing and reversing a paper and wrapper, of a flap turner, guides co-acting with the flap turner to control the reversed paper, and means for moving said guides into and out of position to engage the paper, substantially as described.

9. The combination with oppositely rotating feeding segments for advancing and reversing a paper and wrapper, of a flap turner, substantially as described.

10. The combination with oppositely rotating feeding segments for advancing and reversing a paper and wrapper, of a roll forming a flap turner, substantially as described.

11. The combination with oppositely rotating feeding segments for advancing and reversing a paper and wrapper, of a roll co-acting therewith to feed the reversed paper and forming a flap turner, substantially as described.

12. The combination with oppositely rotating feeding segments for advancing and reversing a paper and wrapper, of a frictionally driven roll co-acting therewith to feed the reversed paper and forming a flap turner, substantially as described.

13. The combination with oppositely rotating feeding segments for advancing and reversing a paper and wrapper, of a flap turner, and means for moving said flap turner to opposite sides of the path of the advanced and reversed paper, substantially as described.

14. The combination with oppositely rotating feeding segments for advancing and reversing a paper and wrapper, of a flap turner, and guides co-acting with the flap turner to control the reversed paper, substantially as described.

15. The combination with oppositely rotating feeding segments for advancing and re-

versing a paper and wrapper, of a flap turner, and pressing and delivery devices, substantially as described.

16. The combination with oppositely rotating feeding segments for advancing and reversing a paper and wrapper, of a flap turner, guides co-acting with the flap turner to control the reversed paper, and pressing and delivery devices, substantially as described.

17. The combination with oppositely rotating feeding segments for advancing and reversing a paper and wrapper, of a flap turner, pressing and delivery devices, and means for moving the flap turner to opposite sides of the path of the advanced and reversed paper, substantially as described.

18. The combination with oppositely rotating feeding segments for advancing and reversing a paper and wrapper, of a flap turner, guides co-acting with the flap turner to control the reversed paper, and means for moving the flap turner to opposite sides of the path of the advanced and reversed paper, substantially as described.

19. The combination with oppositely rotating feeding segments for advancing and reversing a paper and wrapper, of a flap turner, guides co-acting with the flap turner to control the reversed paper, pressing and delivery devices, and means for moving the flap turner to opposite sides of the path of the advanced and reversed paper, substantially as described.

20. The combination with oppositely rotating feeding segments for advancing and reversing a paper and wrapper, of a roll forming a flap turner and co-acting therewith to feed the reversed paper, and means for moving said roll to opposite sides of the path of the advanced and reversed paper, substantially as described.

21. The combination with oppositely rotating feeding segments for advancing and reversing a paper and wrapper, of a roll forming a flap turner, guides co-acting with the flap turner to control the reversed paper, and means for moving said guides into and out of position to engage the paper, substantially as described.

22. The combination with oppositely rotating feeding segments for advancing and reversing a paper and wrapper, of a roll forming a flap turner and co-acting therewith to feed the reversed paper, means for moving said roll to opposite sides of the path of the advanced and reversed paper, guides co-acting with said flap turner to control the reversed paper, and means for moving said guides into and out of position to engage the paper, substantially as described.

23. The combination with paper and wrapper feeding mechanism and wrapper pasting devices, of oppositely rotating feeding segments for advancing and reversing the paper received from the feeding mechanism, and a flap turner, substantially as described.

24. The combination with paper and wrap-

per feeding mechanism and wrapper pasting devices, of oppositely rotating feeding segments for advancing and reversing the paper received from the feeding mechanism, a flap 5 turner, and guides co-acting with the flap turner to control the reversed paper, substantially as described.

25. The combination with paper and wrapper feeding mechanism and wrapper pasting 10 devices, of oppositely rotating feeding segments for advancing and reversing the paper received from the feeding mechanism, a flap turner, guides co-acting with the flap turner to control the reversed paper, and means for 15 moving said guides into and out of position to engage the paper, substantially as described.

26. The combination with paper and wrapper feeding mechanism and wrapper pasting 20 devices, of oppositely rotating feeding segments for advancing and reversing the paper received from the feeding mechanism, a flap turner, and pressing and delivery devices, substantially as described.

27. The combination with paper and wrapper feeding mechanism and wrapper pasting 25 devices, of oppositely rotating feeding segments for advancing and reversing the paper received from the feeding mechanism, a flap turner, guides co-acting with the flap turner to 30 control the reversed paper, and pressing and delivery devices, substantially as described.

28. The combination with paper feeding mechanism, of wrapper feeding mechanism 35 advancing a paper transversely to and into the path of movement of the paper, wrapper pasting devices, oppositely rotating feeding segments for advancing and reversing the 40 paper received from the feeding mechanism, and a flap turner, substantially as described.

29. The combination with paper feeding mechanism, of wrapper feeding mechanism 45 advancing a paper transversely to and into the path of movement of the paper, wrapper pasting devices, oppositely rotating feeding segments for advancing and reversing the 50 paper received from the feeding mechanism, a flap turner, and guides co-acting with the flap turner to control the reversed paper, substantially as described.

30. The combination with paper feeding mechanism, of wrapper feeding mechanism 55 advancing a paper transversely to and into the path of movement of the paper, wrapper pasting devices, oppositely rotating feeding segments for advancing and reversing the 60 paper received from the feeding mechanism, a flap turner, guides co-acting with the flap turner to control the reversed paper, and means for moving said guides into and out of position for engaging the paper, substantially as described.

31. The combination with paper feeding mechanism, of wrapper feeding mechanism 65 advancing a paper transversely to and into the path of movement of the paper, wrapper pasting devices, oppositely rotating feeding

segments for advancing and reversing the paper received from the feeding mechanism, a flap turner, and pressing and delivery de- 70 vices, substantially as described.

32. The combination with feeding segments C, C' and D, D' and means for rotating said segments in opposite directions, of flap turning roll *b* co-acting with segment D', sub- 75 stantially as described.

33. The combination with feeding segments C, C' and D, D' having their axes in line, and means for rotating said segments in opposite directions, of flap turning roll *b* co-acting with 80 the segment D', substantially as described.

34. The combination with feeding segments C, C' and D, D' having their axes in line, and means for rotating said segments in opposite directions, of flap turning roll *b* co-acting with 85 the segment D' and driven by friction therefrom, substantially as described.

35. The combination with feeding segments C, C' and D, D' having their axes in line, and means for rotating said segments in opposite 90 directions, of flap turning roll *b* co-acting with the segment D' and means for moving said roll to opposite sides of the path of the paper, substantially as described.

36. The combination with feeding segments 95 C, C' and D, D' having their axes in line, and means for rotating said segments in opposite directions, of flap turning roll *b* co-acting with the segment D', and pressing and delivery 100 belts *c*, *d*, substantially as described.

37. The combination with feeding segments C, C' and D, D' having their axes in line, and means for rotating said segments in opposite directions, of a flap turner, guides *f*, and 105 means for moving said guides into and out of position to engage the paper, substantially as described.

38. The combination with feeding segments C, C' and D, D' having their axes in line, and means for rotating said segments in opposite 110 directions, of a flap turner, means for moving the flap turner to opposite sides of the path of the paper, guides *f*, and means for moving said guides into and out of position to engage 115 the paper, substantially as described.

39. The combination with feeding segments C, C' and D, D' having their axes in line, and means for rotating said segments in opposite directions, of a flap turner, feeding mechanism advancing a paper and wrapper to the 120 segments, and pasting mechanism for the wrapper on the opposite side of the segments to the feeding mechanism, substantially as described.

40. The combination with the shafts 10, 11, 125 segments C, C' mounted rigidly on said shafts, segments D, D' carried by sleeves on said shafts, means for rotating said shafts and sleeves in opposite directions, and a flap turner, substantially as described.

41. The combination with the shafts 10, 11, 130 segments C, C' mounted rigidly on said shafts, segments D, D' carried by sleeves on said shafts, means for rotating said shafts and

sleeves in opposite directions, flap turning roll *b* carried by arms 18, and cam *v* and connections for moving said flap turner, substantially as described.

5 42. The combination with the shafts 10, 11, segments *C*, *C'* mounted rigidly on said shafts, segments *D*, *D'* carried by sleeves on said shafts, means for rotating said shafts and sleeves in opposite directions, flap turning  
10 roll *b* carried by arms 18, cam *v* and connec-

tions for moving said flap turner, guide *f* and cam *w* and connections for moving said guides, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

LUTHER C. CROWELL.

Witnesses:

C. J. SAWYER,

T. F. KEHOE.