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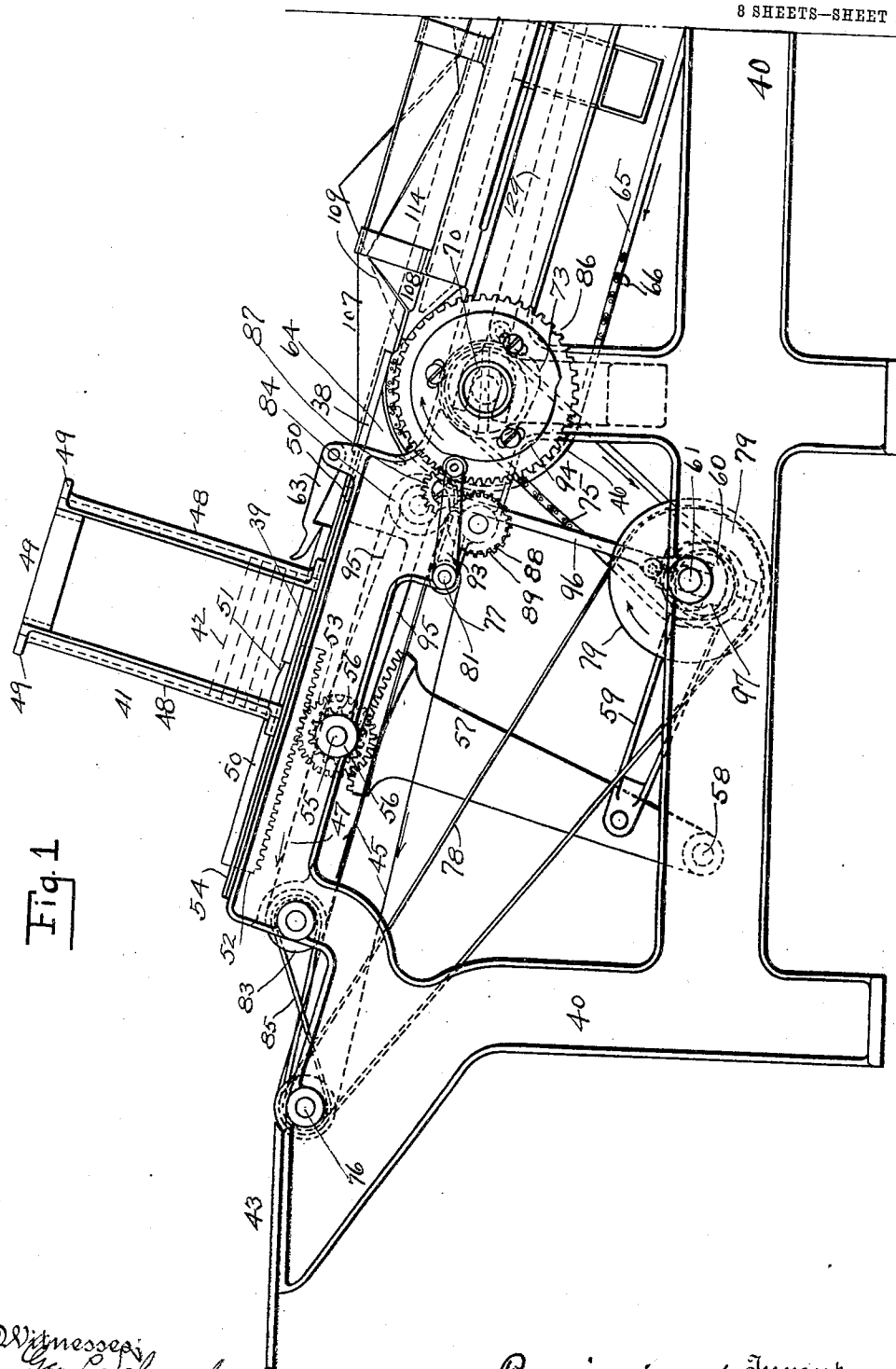
PATENTED JAN. 2, 1906.

B. W. TUCKER.

MACHINE FOR APPLYING WRAPPERS TO MAGAZINES, BOOKS, AND THE LIKE.

APPLICATION FILED AUG. 23, 1905.

8 SHEETS—SHEET 1.



Witnesses:
Geo. L. Schuck
L. R. Compton

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By his Attorney Chas. C. Gill

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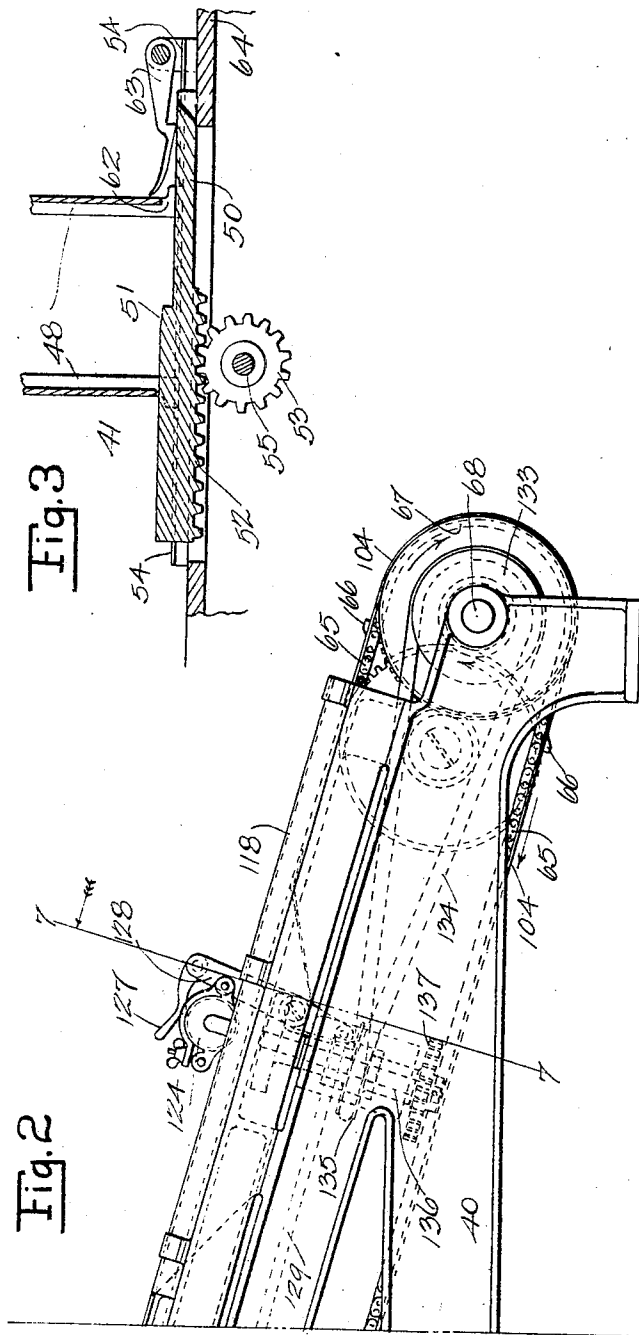
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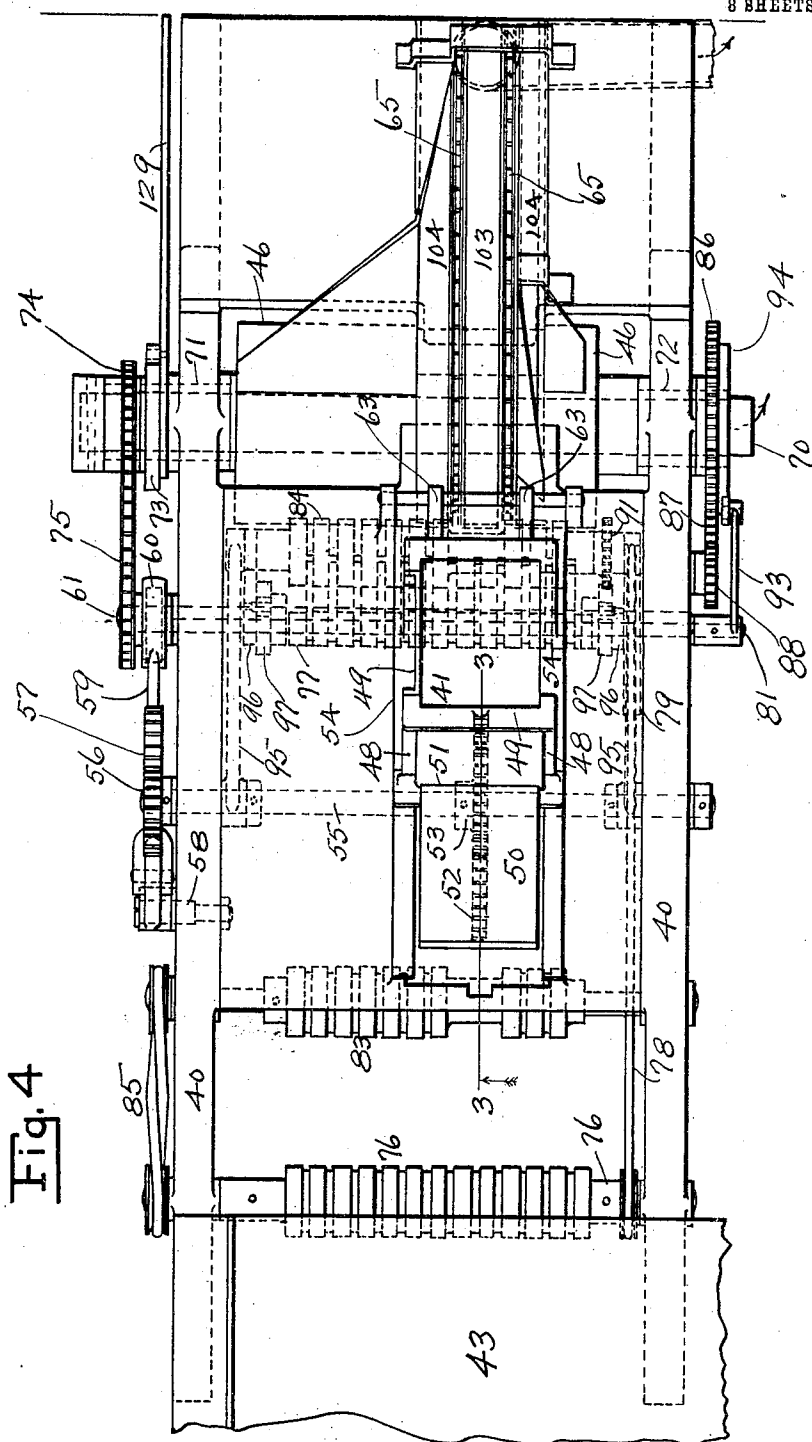


Fig. 4

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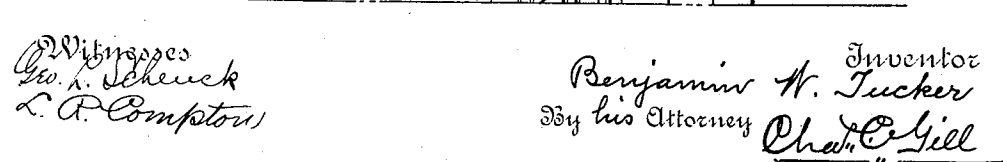
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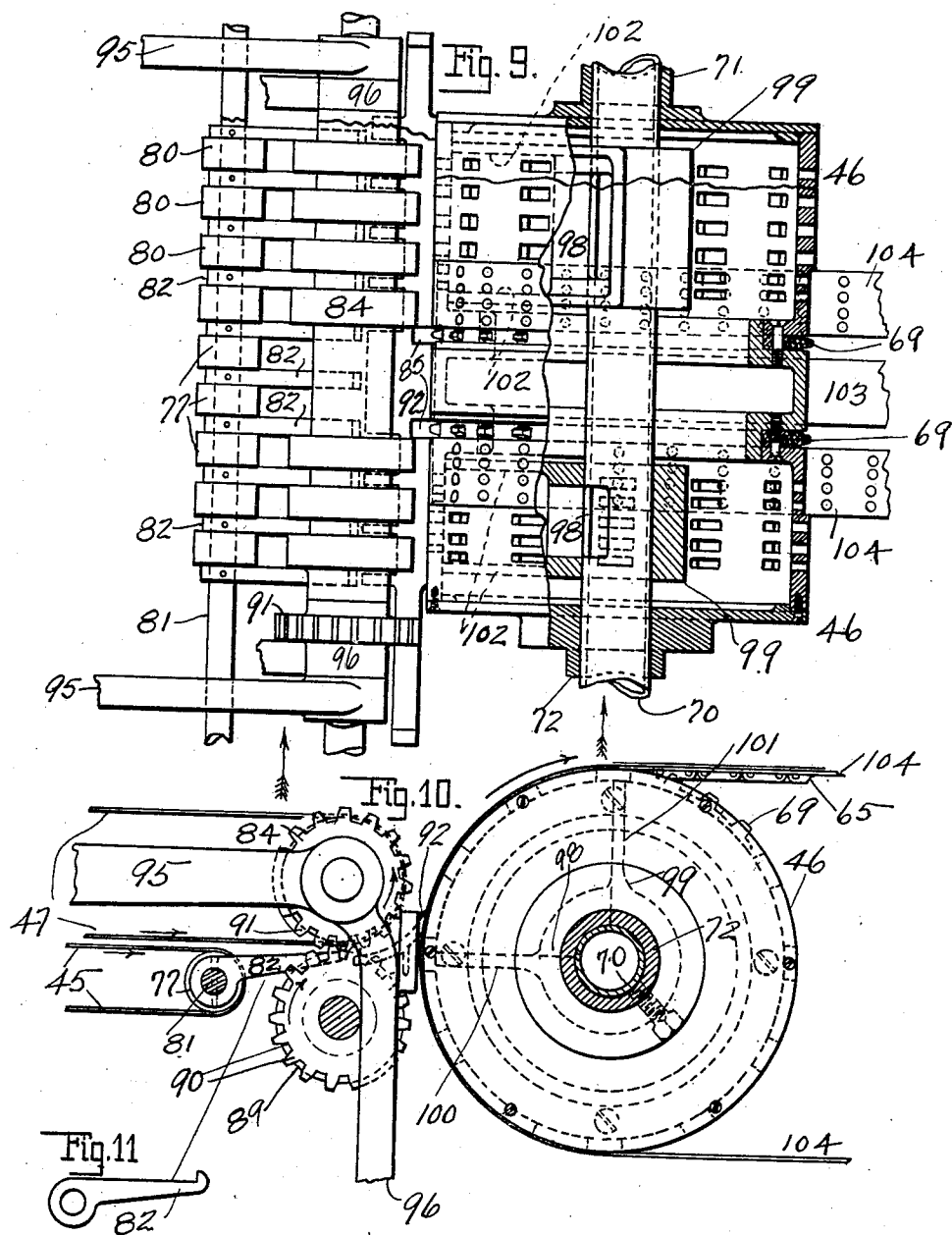
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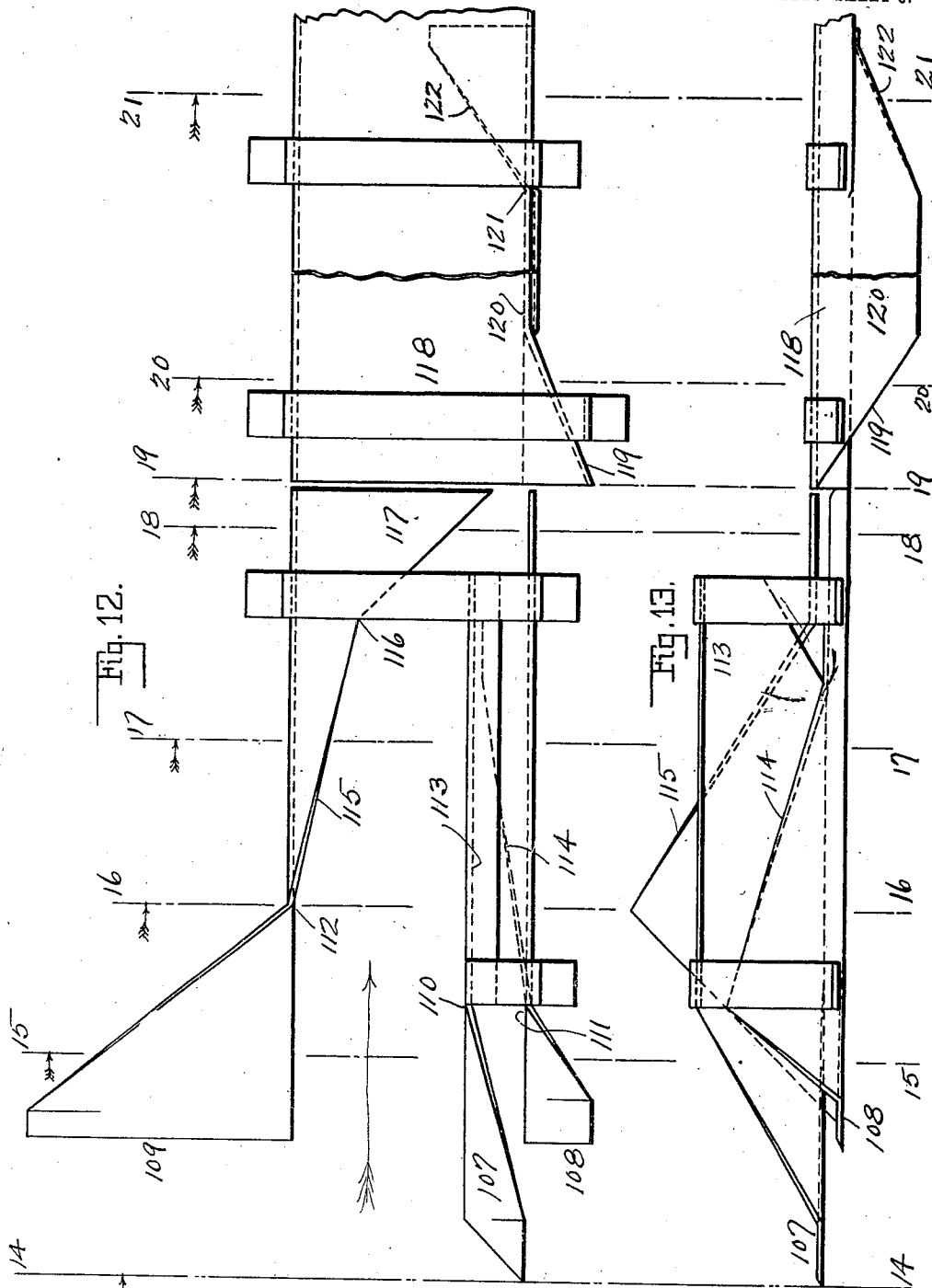
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8 SHEETS—SHEET 6.



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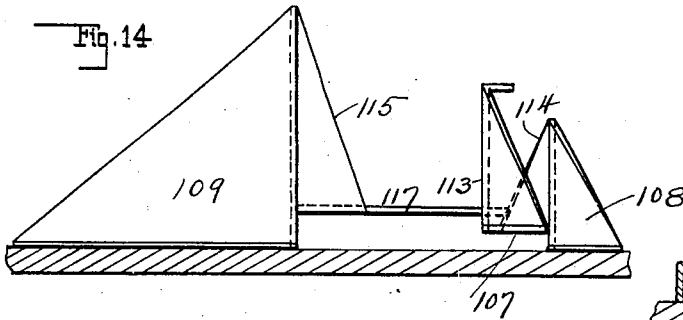
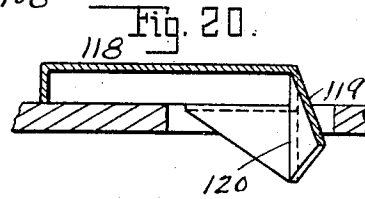
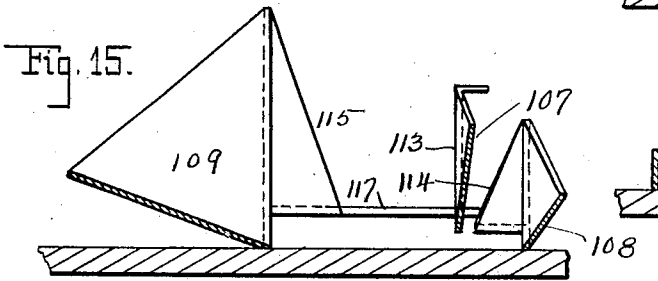
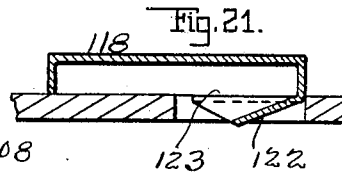
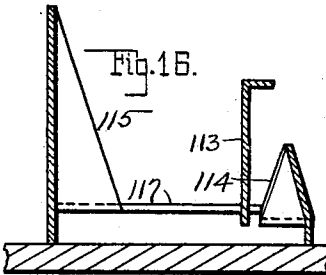
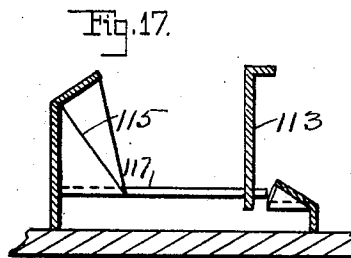
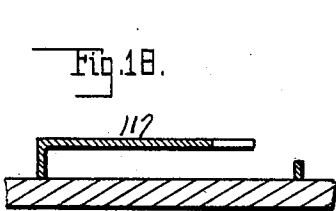
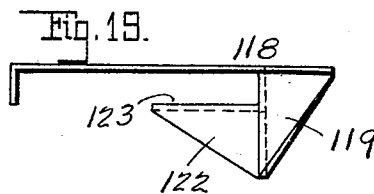
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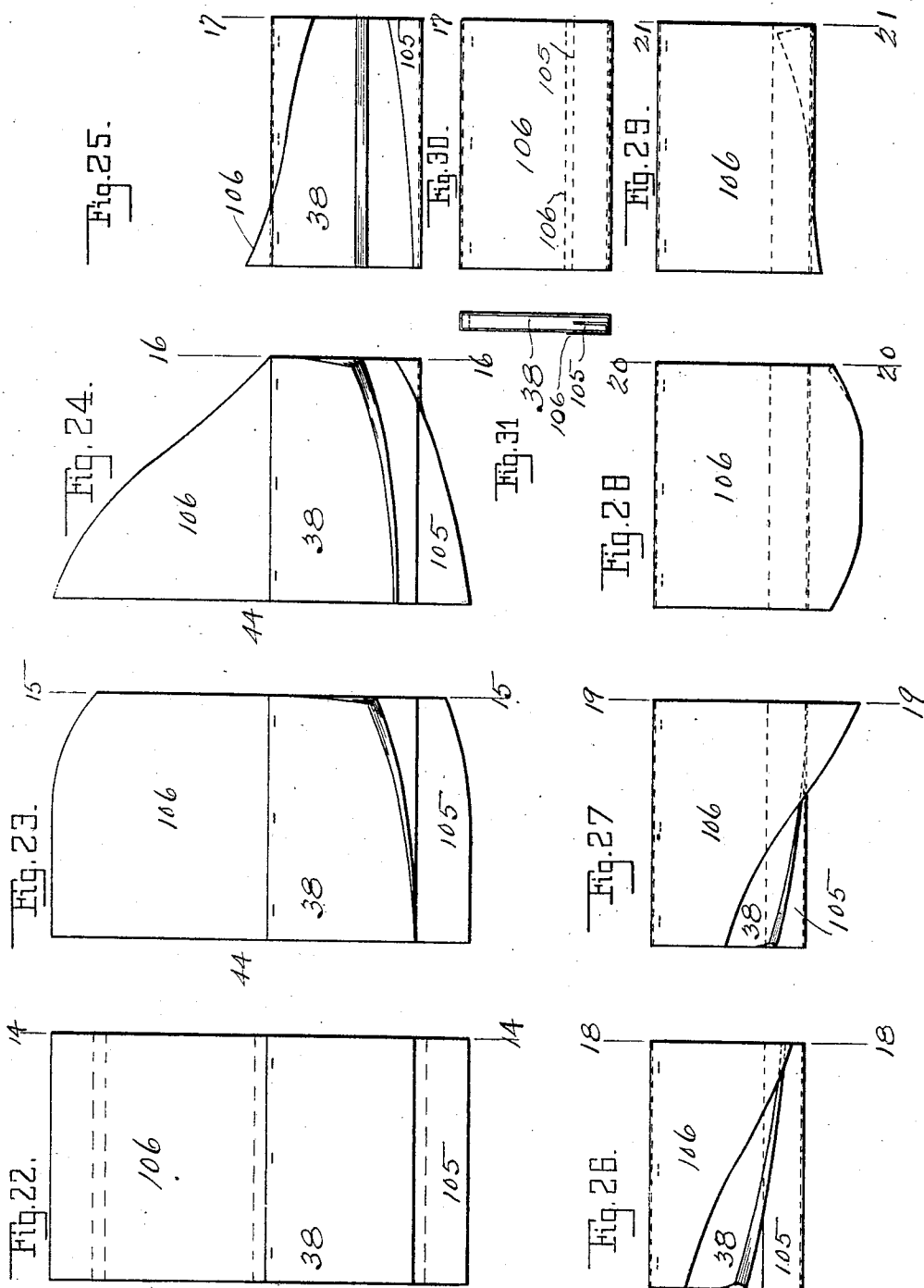
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UNITED STATES PATENT OFFICE.

BENJAMIN W. TUCKER, OF NEWARK, NEW JERSEY.

MACHINE FOR APPLYING WRAPPERS TO MAGAZINES, BOOKS, AND THE LIKE.

No. 808,956.

Specification of Letters Patent.

Patented Jan. 2, 1906.

Application filed August 23, 1905. Serial No. 275,352.

To all whom it may concern:

Be it known that I, BENJAMIN W. TUCKER, a citizen of the United States, and a resident of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Machines for Applying Wrappers to Magazines, Books, and the Like, of which the following is a specification.

The invention relates to improvements in machines for applying wrappers to periodicals, books, and the like, such as monthly magazines, preparatory to the mailing of the same; and it consists in the novel features, arrangements, and combinations of parts hereinafter described, and particularly pointed out in the claims.

A great deal of time is consumed in publishing-houses in applying mailing-wrappers to printed publications—such as magazines, books, and the like—preparatory to the mailing of the same, this work being performed by hand-labor at considerable expense and loss of time to the publisher; and the object of my invention is to provide a machine whereby the wrappers may be applied to the magazines or books automatically and rapidly, the wrapper-blanks and the books being supplied to the machine and the wrappers being applied to the books during the passage of the same through the machine, the books upon leaving the machine being ready to be addressed and mailed, or to be at once mailed if the wrappers have been previously addressed.

I have presented my invention herein as embodied in a machine comprising a set of folders to which the magazines and wrappers are fed and which effect the folding of the wrapper about the magazine, the feeding mechanism being so timed that the magazines and wrappers derived from different sources come together in perfect registry at a definite point, whence they, with the magazine resting upon the wrapper, are forced through the folding devices, one edge of the wrapper intermediate the several folding steps having paste applied thereto, so that the wrapper when completely folded will be firmly secured around the magazine.

The invention will be fully understood from the detailed description hereinafter presented, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of the front portion of a machine constructed in accordance

with and embodying my invention. Fig. 2 is a side elevation of the rear or delivery end of the machine. Fig. 3 is a detached vertical section through a portion of the machine, taken on the dotted line 3 3 of Fig. 4. Fig. 4 is a top view, partly broken away, of the front portion of the machine. Fig. 5 is a top view of the rear portion of the machine. Fig. 6 is a top view of a portion of the machine and is presented to illustrate more particularly the means for applying paste to one edge of the wrappers as the same and the magazines are carried through the machine. Fig. 7 is a vertical sectional view of same, taken on the dotted line 7 7 of Fig. 2 or 7 7 of Fig. 5. Fig. 8 is a detached end view looking at the right-hand end of Fig. 7 of the pasting mechanism. Fig. 9 is an enlarged detached view, partly in horizontal section, of the mechanism for feeding the wrappers to the point at which they may pass below the magazines, this feeding mechanism comprising a perforated suction-drum which receives the wrappers from belts and conveys the same in perfect registry to the means by which the wrappers and books or magazines are carried through the folders. Fig. 10 is a side elevation, partly in section, of same. Fig. 11 is a detached side elevation of one dog or stop, a series of which form a part of the wrapper mechanism shown in Fig. 10. Fig. 12 is an enlarged detached top view, partly broken away, of a portion of the delivery end of the machine and is presented to illustrate the folders which receive the wrapper and magazine and fold the former around the latter. Fig. 13 is a side elevation of same. Fig. 14 is a transverse section through the bed-plate of the machine and illustrates in front elevation the folders shown in Figs. 12 and 13, the section on which Fig. 14 is taken being represented by the broken line 14 14 on Sheet 6 of the drawings. Fig. 15 is a transverse section of same on the dotted line 15 15 of Figs. 12 and 13. Fig. 16 is a transverse section of same on the dotted lines 16 16 of Figs. 12 and 13. Fig. 17 is a transverse section of same on the dotted lines 17 17 of Figs. 12 and 13. Fig. 18 is a transverse section of same on the dotted lines 18 18 of Figs. 12 and 13. Fig. 19 is a transverse section of same on the dotted lines 19 19 of Figs. 12 and 13. Fig. 20 is a transverse section of same on the dotted lines 20 20 of Figs. 12 and 13. Fig. 21 is a transverse section of same on the dotted lines 21 21 of Figs. 12 and 13. Fig. 22 is a top view

of a magazine and a wrapper shown in their relation to each other as they appear when brought together, with the magazine upon the wrapper, the dotted lines indicating the lines on which the folders will fold the wrapper. Fig. 23 is a top view of same and illustrates the condition and relation of the magazine and wrapper at the time when the same have reached a position corresponding with the dotted line 15 15 of Figs. 12 and 13, the opposite edges of the wrapper being turned partly upwardly and the magazine having been slightly opened preparatory to the folding of the short end of the wrapper in between the leaves of the magazine. Fig. 24 is a like view of same, showing the condition of the magazine and wrapper when the same have reached a position corresponding with the dotted line 16 16 of Figs. 12 and 13, the longer side of the wrapper having reached a more nearly vertical position and the shorter side of the wrapper being partly turned in between the leaves of the magazine. Fig. 25 is a like view of same, showing the condition and relation of the magazine and wrapper when the same have reached a position corresponding with the dotted line 17 17 of Figs. 12 and 13, the longer side of the wrapper having been turned partly over the magazine and the shorter side of the wrapper having been more completely turned in between the leaves of the magazine. Fig. 26 is a like view of same, illustrating the condition and relation of the magazine and wrapper when the same have reached a position corresponding with the dotted line 18 18 of Figs. 12 and 13, the short edge of the wrapper having been turned in between the leaves of the magazine and the latter partly closing upon the same. Fig. 27 is a like view of same, showing the condition and relation of the magazine and wrapper when the same have reached a position corresponding with the dotted line 19 19 of Figs. 12 and 13, the leaves of the magazine having nearly closed upon the short end of the wrapper and the long end of the wrapper having been nearly folded across the top of the magazine. Fig. 28 is a like view of same, showing the condition and relation of the magazine and wrapper when the same have reached a position corresponding with the dotted line 20 20 of Figs. 12 and 13, the longer end of the wrapper being shown as having been folded across the top of the magazine and as having at its outer edge been partly turned downwardly to pass under the magazine. Fig. 29 is a like view of same, showing the condition and relation of the wrapper and magazine when they have reached a position corresponding with the dotted line 21 21 of Figs. 12 and 13, the outer edge of the longer end of the wrapper being shown as partly turned under the magazine. Fig. 30 is a like view of same, with the outer edge of the longer end of the wrapper shown as having

been completely folded under the magazine; and Fig. 31 is an end view of same, showing the relation of the wrapper and magazine after the latter has been completely wrapped.

In the drawings, 40 designates suitable side frames properly supporting the operative mechanism of the machine; 41, a receptacle for containing a stack of magazines (indicated by dotted lines) 42 to be wrapped; 43, an ordinary feed-table at the front end of the machine and at which an operator will stand to feed inwardly the wrappers 44, Fig. 22, to be applied upon and around the magazines; 45, a series of lower belts upon which the wrappers 44 are fed from the feed-table 43 to a suction-drum 46, which takes them and delivers them in proper registry to the magazines as the latter, one after another, reach the point for receiving the same; and 47, an upper series of belts coöperating with the belts 45 in feeding the wrappers inwardly.

The receptacle 41 is simply an open rectangular frame adapted to the size of the magazines and composed, preferably, of corner-standards 48, secured to the bed of the machine and, at three sides of the receptacle, connected together at their upper ends by bars 49. The magazines within the receptacle 41 are indicated by dotted lines, and in Fig. 1 I illustrate two of said magazines (numbered 38 39, respectively, for identification) by solid lines in a position representing them as being pushed rearwardly toward the folders, by which the wrappers will be applied to them, the magazine 38 being pushed by the rear end of the sliding bottom 50 of said receptacle and the magazine 39 by a shoulder 51, provided on said bottom to engage the edges of the magazines in pushing the latter from the receptacle. The bottom 50 is formed on its lower side with a rack 52 to be engaged by a pinion-wheel 53 for effecting the sliding movement of said bottom 50. The edges of the bottom 50 are held in guides 54. The pinion 53 is secured upon a transverse shaft 55, upon whose left-hand end is secured a pinion-wheel 56, which is engaged by a segment 57, Figs. 1 and 4, pivotally mounted at its lower end upon a stud 58 and receiving its motion through an eccentric-rod 59 from an eccentric 60, secured upon a transverse shaft 61. The segment 57 has simply a timed oscillatory motion and its sole purpose is through the shaft 55, pinion-wheel 53, and rack 52 to impart a timed reciprocating sliding movement to the bottom 50 of the magazine-receptacle 41. When the bottom 50 is driven inwardly or toward the rear, as is taking place in the position of parts shown in Figs. 1 and 3, the shoulder 51 on said bottom will engage the edge of the lower magazine and push the same along from below the stack and through the opening 62 at the rear edge of the bottom of the receptacle, this opening 62 being just about sufficient to

permit one magazine to slide through it. The bottom 50 at each operation will continue its inward or rearward movement until the shoulder 51 pushes the bottom magazine entirely from the receptacle, and thereupon the bottom 50 will return to its initial position and become arrested, when the shoulder 51 passes entirely to the front edge of the receptacle 41, (this being the left-hand edge looking at Figs. 1 and 3,) thus allowing the magazines to settle down in the receptacle in position for the lower one thereof to be caught by the shoulder 51 during the succeeding inward or rearward motion of the bottom 50. A magazine pushed from the receptacle 41 by the shoulder 51 is carried upon the inner or rear portion of the bottom 50, which is on a lower plane than the front portion thereof, and when the magazine has fully left the receptacle 41 and the bottom 50 starts to return to its initial position the front edges of the magazine will be caught by the pivoted dogs 63, and said magazine will be thereby held stationary while the bottom 50 is returning to its initial position, the magazine being thus stripped off from the bottom 50. The shoulder 51 is tapered off at its upper corner, so that it may only push against the lower magazine of the stack and also so that the dogs 63 may readily engage the edge of the magazine when the latter has passed from the receptacle 41 and the bottom 50 is to return frontwardly to its initial position. The shoulder 51 of the bottom 50 moves the magazines or books rearwardly to a point where upon the return to its initial position of said bottom they may fall upon a table 64, which leads to the folders and suction-drum 46. The shoulder 51 of the bottom 50 does not move a magazine inwardly far enough for said magazine to either reach the folders or a wrapper fed upwardly by the suction-drum 46, since said shoulder leaves the magazine just beyond the rear side of the receptacle 41; but when the bottom 50 returns to its initial position its rear end (shown at the right-hand side of Fig. 3) passes to the front of such magazine, and then when the bottom 50 again moves rearwardly said rear end will push said magazine (numbered 38 in Fig. 1) rearwardly along said table 64 to the folders and to a point at which it will meet and register with its wrapper, while at the same time the shoulder 51 of said bottom will push the lower magazine (numbered 39 in Fig. 1) from the receptacle 41 into position for it to be caught by the dogs 63 upon the return frontward movement of said bottom. Thus at each rearward movement of the bottom 50 after the first movement the rear end of said bottom will push one magazine 38 to the folders and to a position to meet its wrapper, and the shoulder 51 will push a magazine 39 from the receptacle 41 and into such position that it may be acted on by the rear end

of said bottom on the next following rearward movement of said bottom. It may be said here that the magazines or books are not acted upon by the drum 46, but are one, after another, pushed or delivered by the bottom 50 into the entrance to the folders, hereinafter described, through which they are moved and finally delivered from the rear end of the machine by means of two sprocket-chains 65, having at suitable intervals toes or lugs 66 to engage the books and compel their passage through the folders, while the wrappers 44 are delivered by the belts 45 47 to the drum 46, and the latter, firmly holding the same by air-suction, carries the same in perfect registry to the magazines or books. The chains 65 are driven by sprocket-wheels 67 from the main driving-shaft 68 at the rear end of the machine, Fig. 5, and said chains engage sprocket-wheels 69, secured on the suction-drum 46, and drive the latter. The special construction of the drum 46 will be hereinafter referred to; but at present I would state that the drum 46 is mounted upon a stationary suction-pipe 70 and is provided at its ends with transversely-extending hub or sleeve portions 71 72, the sleeve 71 extending through the left-hand side frame of the machine, as shown in Fig. 4, and carrying a cam 73 and sprocket-wheel 74, the latter being utilized in imparting motion through a sprocket-chain 75 to the shaft 61, upon which is secured the eccentric 60 for actuating the rod 59 and segment 57, from which the bottom of the receptacle for the magazines is actuated. The bottom 50 therefore receives its reciprocating motion from the driving-shaft 68 through the sprocket-chain 65, suction-drum 46, sprocket-wheel 74, sprocket-chain 75, eccentric 60, eccentric-rod 59, segment 57, shaft 55, pinion-wheel 53, and rack 52, and from what has been said above it will be understood that the magazines are delivered from the receptacle 41 by the bottom 50 to the entrance to the folders, hereinafter described, whence they are drawn through the machine with the wrappers by the toes 66 on the sprocket-chains 65.

The wrapper-feeding belts 45, there being a series of these belts, are mounted upon the rollers 76 77, Figs. 1, 4, and 9, and the roller 76 is driven by means of a belt 78 from a belt-wheel 79, secured upon the shaft 61, which, as heretofore described, receives its motion from the sprocket-chain 75. It will be observed on reference to Fig. 1 that the inner ends of the belts 45 do not extend entirely up to the suction-drum 46, in consequence of which I form the roller 77 of a series of independent rolls 80, properly spaced upon a shaft 81, as shown in Fig. 9, the belts 45 being mounted upon these rolls 80, which in their entirety comprise the roller 77. Between the several rolls 80 I provide index or wrapper registering dogs 82, which are secured at

one end to the shaft 81 and thence extend rearwardly toward the rotary suction-drum 46, these dogs 82 being provided to receive the wrappers as they leave the belts 45 and to sufficiently arrest them to insure their delivery in proper register to the suction-drum 46.

Above the belts 45 is provided a corresponding series of belts 47, which are mounted upon the rollers 83 84 and cooperate with the belts 45 in feeding the wrappers inwardly. The roller 83 is driven from the roller 76 by means of a belt 85, Figs. 1 and 4, and the roller 84 is driven from a gear-wheel 86 on the right-hand hub or sleeve 72 of the suction-drum 46, which gear-wheel engages an intermediate gear-wheel 87, which is in mesh with a gear-wheel 88 on the end of a roller 89, this roller being directly below and corresponding with the belt-roller 84 and having a pinion-wheel 90, which meshes with and drives a like pinion-wheel 91, Figs. 9 and 10, on the roller 84, whereby the latter is driven. The roller 89 is driven from its pinion-wheel 88, and between the rollers 84 89 the wrappers are carried upon and up an inclined table 92, leading directly to the suction-drum 46.

The roller 89 is formed with annular grooves to receive the outer or rear ends of the index-dogs 82, said ends of said dogs normally projecting slightly above the surface of said roller 89 to catch the wrappers and arrest the same until the roller 84 is lowered against the roller 89 to pinch the wrapper, and the dogs 82 are turned downwardly fully into the grooves of said roller 89, when they of course release the wrapper and the rollers 84 89 will feed the same up the table 92 to the drum 46, which will seize the same by its air suction and carry it up to the magazine. The dogs 82 are at the proper time allowed to turn downwardly fully into the grooves of the roller 89 by means of an arm 93, Figs. 1 and 4, on the end of the shaft 81, carrying said dogs, and a cam 94 on the right-hand hub 72 of the suction-drum 46, this cam, due to its form, controlling the position of said dogs.

The roller 84 is capable of being raised and lowered or moved relatively to the roller 89, and said roller 84 is carried in the rear ends of arms 95, pivotally mounted on the shaft 55, Figs. 1, 4, 9, and 10, and having at their said rear ends downwardly-extending rods 96, which are forked, Fig. 1, and engage cams 97 on the shaft 61, said cams controlling the elevation and depression of the roller 84 with relation to the roller 89. The roller 84 has only a slight rising and falling movement, and it only descends to pinch a wrapper against the roller 89 after said wrapper has been arrested by the dogs 82 and it is desired to deliver the same in accurate registry to the suction-drum 46.

The suction-drum 46 is mounted on the stationary hollow shaft or pipe 70, to which

air-suction apparatus, such as a suction-blower, will be connected and which contains openings 98, leading from the interior chamber of said drum, whose circular walls are slotted or perforated, so that the air suction may act through said walls against the wrappers fed to the drum. Within the drum 46 frames 99 are secured upon the pipe 70 to confine the air-suction action to the upper front quarter portion of the drum, this being the portion of the drum utilized for conveying the wrappers from the inclined table 92 to the magazines. The frames 99, Figs. 9 and 10, comprise a hub fastened on the pipe 70, horizontal and vertical wings 100 and 101 standing at a right angle to each other, Fig. 10, and side walls 102, connecting these wings, whereby within said frames 99 are formed suction-chambers from which the openings 98 lead into the pipe 70, and whereby also the action of the suction is excluded from the rear and lower sides of the suction-drum. The air suction will draw the wrappers as they pass up the table 92 against the drum and firmly hold the same until they pass by the upper ends of the wings 101, where said wrappers will gradually become released from the air suction and, with the magazines, be caught by the toes 66 of the chains 65 and carried through the folders. The upper ends of the wings 101 may be considered as forming the dead-line of the drum 46, since the surfaces of the wrappers passing beyond the line of said wings become released from the air suction. The wrappers are indexed or brought into perfect registry on the dogs 82, and the purpose of the suction-drum 46 is to take the wrappers and deliver them in perfect registry to the magazines, so that the relation of the wrappers and magazines to each other will be that shown in Fig. 22.

The drum 46 is driven by the sprocket-chains 65, as hereinbefore described, and upon said drum and suitable wheels on the driving-shaft 68 are belts 103 104, the latter being perforated, so that the air suction may act through them against the wrappers during their travel over the suction-chambers of the drum, and the belt 103 not being perforated since it travels upon a non-perforated portion of said drum. The belts 103 104 afford traveling supports for the magazines and wrappers after the same leave the upper line of the drum 46 and while the chains 65 are forcing said magazines and wrappers through the machine, the movement of said belts also facilitating the passage of the magazines and wrappers through the machine.

The belts 103 104 and chains 65 draw the magazines and wrappers from a point over the drum 46 through the folders (shown in Figs. 12 and 13) until finally the magazine and wrapper, starting in substantially the condition in which they are shown in Fig. 22,

emerge from the rear end of the machine in the condition in which they are shown in Fig. 31.

In Fig. 22 I have numbered the magazine there shown as 38 correspondingly with the magazine shown in Fig. 1 as being pushed over the drum 46 and into the folders. The wrapper 44 in width corresponds with the length of the magazine 38, and when the magazine 38 is properly upon the wrapper 44, as shown in Fig. 22, there are exposed a short end or flap 105 and a long end or flap 106 of said wrapper. The purpose of the folders is to open the magazine 38 and fold the short end 105 of the wrapper into it and fold the long end 106 of the wrapper across over upon and down under the magazine, so that the latter may be completely wrapped, paste being applied to the edge portion of the long end 106 during the travel through the machine, so that said end when folded under the magazine may become attached to that portion of the wrapper which in Fig. 22 is shown as below the magazine.

The end of the bottom 50 of the receptacle 41 pushes the magazine 38 upon the belts 103 104 and drum 46, and said drum and said belts carry the wrapper 44 up, so that it passes below the magazine and that magazine and wrapper may travel together. When the rear edges of the magazine and wrapper come together at about the top on dead-line of the drum 46, said edges are engaged by toes 66 on the chains 65, which then force them through the machine. The end of the bottom 50 forces the magazine to a position at which the toes 66 may engage the rear edge of the magazine and in doing so drives the magazine into the entrance to the folders, said magazine first being forced against the dagger-point of the blade 107, Figs. 12, 13, and 14, which enters in between the leaves of the book and gradually opens the latter, Fig. 23, following which the short and long flaps 105 106 of the wrapper meet the folder-blades 108 and 109 and gradually become turned upwardly thereby, Figs. 23 and 24. The chains 65 take hold of the book and wrapper when they are about in the conditions shown in Fig. 23. The folder-blades 107 and 108 flare outwardly and upwardly from the opposite edges of the book or the path thereof and also incline upwardly and rearwardly, and their purpose is to gradually turn or fold the flaps 105 106 upwardly along the edges of the book. The blade 107 also inclines outwardly and upwardly and also rearwardly, so as to be enabled to gradually open the book, as shown in Figs. 23, 24, and 25. The outward and upward inclination of the book-opening blade 107 and folder-blades 108 109 becomes more and more steep until at the points 110, 111, and 112, respectively, said blades stand upright. The blade 107 is continued rearwardly by a vertical sec-

tion 113, which maintains the book in its open condition during a suitable period of its travel. The flaps 105 106 gradually assume a vertical position as they reach the points 111 and 112, at which the blades 107 108 terminate. From the points 111 112 the folders are continued rearwardly by blades 114 and 115, respectively, which, longitudinally considered, incline downwardly and rearwardly and laterally considered extend inwardly and downwardly, said blades 114 115 gradually increasing in width toward their rear ends. The blade 114 terminates at the end of the vertical section 113 of the blade 107. The inclined portion of the blade 115 terminates at the point 116, whence said blade is continued rearwardly by a horizontal section 117, which gradually increases in width, as shown in Fig. 12. The inturned blade 114 gradually folds the short flap 105 into the open book, Fig. 25, and the inturned blade 115 gradually folds the upturned long flap 106 inwardly against the top of the book, and finally as the book and wrapper reach the section 117 the book becomes closed upon the short flap 105 and the long flap 106 becomes folded down flat upon the closed book, with its outer end projecting beyond the same. The book and wrapper in the condition just described are thence carried into a folder 118, which snugly receives the book and wrapper and whose duty is to fold the projecting end of the long flap 106 downwardly and then under the book. At one side of its entrance the folder 118 is provided with a downwardly and inwardly and also rearwardly and inwardly inclined blade 119, leading to a vertical section or blade 120. The blade 119 gradually folds the outwardly-projecting portion of the long flap 106 downwardly, and the vertical section 120 maintains said flap extended downwardly for a sufficient period for paste to be applied thereto in the manner hereinafter described. The vertical section 120 terminates at the point 121 where the folder 118 is provided with an inwardly-extended and upwardly and rearwardly inclined blade 122, Fig. 19, terminating in a horizontal section 123. The blade 122 folds the downwardly-projecting end of the long flap (then having paste upon it) up against the wrapper on the under side of the book, and the horizontal section 123 presses such pasted portion of said end of the long flap upwardly against the body of the wrapper, so as to insure the adhesion of said parts to each other. The folder 118 continues beyond the blade 122 in the form of a housing, as shown in Fig. 5, allowing the paste on the wrappers time to set, and finally the completely-wrapped book or magazine is discharged from the rear end of this housing at the rear end of the machine.

The paste mechanism is more clearly shown in Figs. 5, 6, 7, and 8. The paste is held with-

in a well-known form of cylinder 124, containing a piston carried by a threaded piston-rod 125, which is operable by a usual ratchet-wheel 126 and pawl 127, the latter being carried by the upper end of a rocking lever 128, which receives its motion from the cam 73 and connecting-rod 129. The cylinder 124 and the means for operating its piston to discharge the paste therefrom into a conduit-tube 130 are well-known mechanical appliances. In this instance the tube 130 discharges into a small opening in a frame 131, which encompasses a part of the edge of a paste-wheel 132 and serves as a scraper therefor. The paste becomes applied to the wheel 132, and the latter carries the same against the downwardly-turned outer portion of the long flap 106 while said portion is traveling along against the vertical section 120 of the folder 118, as represented in Fig. 7. The paste-wheel 132 has a rotary motion imparted to it from the driving-shaft 68 through a belt-wheel 133 on said shaft, a belt 134 leading inwardly therefrom to a belt-wheel 135 on a vertical shaft 136, Figs. 2 and 5, a pinion-wheel 137 on the lower end of said shaft, and a corresponding pinion-wheel 138 on the lower end of the shaft 139, which carries upon its upper end said paste-wheel 132.

The operation of the machine will be understood from the description hereinafter presented without further detailed explanation. The magazines or books are moved from the receptacle 41 and to the point at which they are to meet the wrappers by the reciprocating bottom 50, and the wrappers are fed to the belts 45 47, by which they are kept flat, and fed inwardly to the dogs 82, which temporarily arrest the wrappers, so as to index or register them preparatory to their delivery by the suction-drum 46 to the magazines or books. Upon the registry of a wrapper upon the dogs 82 the upper roller 84 descends to pinch the same against the lower roller 89, thereby maintaining such registry, and the dogs 82 descend into the grooves of the roller 89, so as to permit the passage of the wrapper over them by the action of said rollers 84 89, whence the wrapper is moved upwardly over the inclined table 92 and flatwise reaches the suction-drum 46, which by pneumatic pressure seizes the wrapper and while maintaining its accurate registry carries it upwardly to the magazine or book and upon the upper reach of the belts 103 104. At the moment when the magazine or book and wrapper get together in the relation in which they are represented in Fig. 22 a pair of toes 66 on the chains 65 will engage their rear edges and said chains will draw them through the folder-blades, whereby the book is opened, the short flap 105 folded in between the leaves of the book, the book closed, the long flap 106 of the wrapper folded over the top of the book, and the projecting end of

this long flap turned downwardly and pasted and then folded up against the body of the wrapper on the lower side of the book, after which the wrapped book is carried on to the rear end of the machine, allowing the paste time to set, and is finally delivered from the machine.

I do not confine the invention solely to the wrapping of magazines and books.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a machine of the character described, means for feeding the books, and means for feeding the wrappers thereto, combined with a set of folders in the path of the book and wrapper, means for moving the book and wrapper along said path and against said folders, and means for applying paste to one edge of the wrapper during such passage, said folders comprising means for opening the book, means for folding the short flap of the wrapper into the open book, means for folding the long flap of the wrapper across the book, and means for folding the projecting end of said long flap around under and up against the book; substantially as set forth.

2. In a machine of the character described, a receptacle holding a stack of the books, a sliding bottom therefor for pushing the books one after another from the bottom of the stack, means for feeding the wrappers to the books pushed from the stack, and means for insuring the registry of the wrappers with relation to the books, combined with a set of folders in the path of the book and wrapper, means for moving the book and wrapper along said path and against said folders, and means for applying paste to one edge of the wrapper during such passage, said folders comprising means for opening the book, means for folding the short flap of the wrapper into the open book, means for folding the long flap of the wrapper across the book, and means for folding the projecting end of said flap around under and up against the book; substantially as set forth.

3. In a machine of the character described, a receptacle for holding a stack of the books, a sliding bottom therefor having a shoulder on its upper surface to engage and push a book from the bottom of the stack, means for stripping such book from said bottom on the return of the latter, a table for supporting such book after leaving said bottom and along which the book may be pushed by the end of said bottom on its next succeeding outward movement, and means for feeding the wrappers to the books pushed to position by the end of said bottom, combined with a set of folders in the path of the book and wrapper, means for moving the book and wrapper along said path and against said folders, and means for applying paste to one edge of the wrapper during such passage, said folders comprising means for opening the book,

means for folding the short flap of the wrapper into the open book, means for folding the long flap of the wrapper across the book, and means for folding the projecting end of said long flap around under and up against the book; substantially as set forth.

4. In a machine of the character described, a receptacle for holding a stack of the books, a sliding bottom therefor having a shoulder on its upper surface to engage and push a book from the bottom of the stack, a pair of pivoted dogs for engaging the book at said shoulder and stripping the same from said bottom on the return of the latter, a table for supporting such book after leaving said bottom and along which the book may be pushed by the end of said bottom on its next succeeding outward movement, and means for feeding the wrappers to the books pushed to position by the end of said bottom, combined with a set of folders in the path of the book and wrapper, means for moving the book and wrapper along said path and against said folders, and means for applying paste to one edge of the wrapper during such passage, said folders comprising means for opening the book, means for folding the short flap of the wrapper into the open book, means for folding the long flap of the wrapper across the book, and means for folding the projecting end of said long flap around under and up against the book; substantially as set forth.

5. In a machine of the character described, means for feeding the books, means for feeding the wrappers to a registry position, a suction-drum for conveying the wrappers as registered to said books, and means for delivering the wrappers as registered to said drum, combined with a set of folders in the path of the book and wrapper, means for moving the book and wrapper along said path and against said folders, and means for applying paste to one edge of the wrapper during such passage, said folders comprising means for opening the book, means for folding the short flap of the wrapper into the open book, means for folding the long flap of the wrapper across the book, and means for folding the projecting end of said long flap around under and up against the book; substantially as set forth.

6. In a machine of the character described, means for feeding the books, the upper and lower series of belts for feeding the wrappers, the registry-dogs upon which the wrappers are fed, a pair of rollers for closing against the wrappers on said dogs, means for moving said dogs to release the wrappers when said rollers act, an inclined table upon which said rollers move the wrappers as registered, and a suction-drum which takes the wrappers from said table and conveys them to said books, combined with a set of folders in the path of the book and wrapper, means for moving the book and wrapper along said path and against said folders, and means for

applying paste to one edge of the wrapper during such passage, said folders comprising means for opening the book, means for folding the short flap of the wrapper into the open book, means for folding the long flap of the wrapper across the book, and means for folding the projecting end of said long flap around under and up against the book; substantially as set forth.

7. In a machine of the character described, means for feeding the books, and a suction-drum for conveying the wrappers in accurate registry to said books, combined with a set of folders in the path of the book and wrapper, means for moving the book and wrapper along said path and against said folders, and means for applying paste to one edge of the wrapper during such passage, said folders comprising means for opening the book, means for folding the short flap of the wrapper into the open book, means for folding the long flap of the wrapper across the book, and means for folding the projecting end of said long flap around under and up against the book; substantially as set forth.

8. In a machine of the character described, a suction-drum for conveying the wrappers to the books as the latter are positioned, said drum having means for cutting off the air suction from the wrapper as the latter reaches a certain point, combined with a set of folders in the path of the book and wrapper, means for moving the book and wrapper along said path and against said folders, and means for applying paste to one edge of the wrapper during such passage, said folders comprising means for opening the book, means for folding the short flap of the wrapper into the open book, means for folding the long flap of the wrapper across the book, and means for folding the projecting end of said long flap around under and up against the book; substantially as set forth.

9. In a machine of the character described, a suction-drum for conveying the wrappers to the books as the latter are positioned, said drum containing the partitions which confine the air suction to a limited section of said drum represented by the travel of the wrappers, combined with a set of folders in the path of the book and wrapper, means for moving the book and wrapper along said path and against said folders, and means for applying paste to one edge of the wrapper during such passage, said folders comprising means for opening the book, means for folding the short flap of the wrapper into the open book, means for folding the long flap of the wrapper across the book, and means for folding the projecting end of said long flap around under and up against the book; substantially as set forth.

10. In a machine of the character described, a suction-drum for conveying the wrappers to the books as the latter are posi-

tioned, and sprocket - chains mounted to travel on said drum and having toes to engage the rear edge of the book and wrapper and effect the passage of the same together through the machine, combined with a set of folders in the path of the book and wrapper, and means for applying paste to one edge of the wrapper during such passage, said folders comprising means for opening the book, means for folding the short flap of the wrapper into the open book, means for folding the long flap of the wrapper across the book, and means for folding the projecting end of said long flap around under and up against the book; substantially as set forth.

11. In a machine of the character described, a suction-drum for conveying the wrappers to the books as the latter are positioned, sprocket-chains mounted to travel on said drum and having toes to engage the rear edge of the book and wrapper and effect the passage of the same together through the machine, and belts also mounted to travel on said drum and adapted to support the wrapper and book while the same are traveling through the machine, combined with a set of folders in the path of the book and wrapper, and means for applying paste to one edge of the wrapper during such passage, said folders comprising means for opening the book, means for folding the short flap of the wrapper into the open book, means for folding the long flap of the wrapper across the book, and means for folding the projecting end of said long flap around under and up against the book; substantially as set forth.

12. In a machine of the character described, means for receiving a wrapper with a book thereon and adapted to effect the passage of the same together through the machine, combined with a set of folders in the path of the book and wrapper, and means for applying paste to one edge of the wrapper during such passage, said folders comprising means for opening the book, means for folding the short flap of the wrapper into the open book, means for folding the long flap of the wrapper across the book, and means for folding the projecting end of said long flap around under and up against the book; substantially as set forth.

13. In a machine of the character described, means for receiving a wrapper with a book thereon and adapted to effect the passage of the same together through the machine, combined with a set of folders in the path of the book and wrapper and comprising means for opening the book, means for folding the short flap of the wrapper into the open book, means for folding the long flap of the wrapper across the book, and means for folding the projecting end of said long flap around under and up against the book; substantially as set forth.

14. In a machine of the character described, means for receiving a wrapper with a book thereon and adapted to effect the passage of the same together through the machine, combined with a set of folders in the path of the book and wrapper and comprising an advance inclined blade 107 for opening the book and a succeeding section 113 for holding the book open during a certain period, an inclined blade 108 for turning the short flap of the wrapper upwardly and a blade 114 for folding said flap inwardly and down into the open book, an inclined blade 109 for turning the long flap of the wrapper upwardly and a blade 115 for turning the same inwardly and downwardly across the book, a blade 119 for turning the projecting end of said long flap downwardly, and a blade 122 for then turning said end upwardly and inwardly below the book; substantially as set forth.

15. In a machine of the character described, a receptacle for holding a stack of the books or other articles, a sliding bottom therefor having a shoulder on its upper surface to engage and push an article from the bottom of the stack, means for stripping such article from said bottom on the return of the latter, a table for supporting such article after leaving said bottom and along which the article may be pushed by the end of said bottom on its next succeeding outward movement, and means for feeding the wrappers to the articles pushed to position by the end of said bottom, combined with a set of folders in the path of the article and wrapper, and means for moving the article and wrapper along said path and against said folders, said folders comprising means for folding the wrapper upon the article; substantially as set forth.

16. In a machine of the character described, means for feeding the articles to be wrapped, means for feeding the wrappers to a registry position, a suction-drum for conveying the wrappers as registered to said articles, and means for delivering the wrappers as registered to said drum, combined with a set of folders in the path of the article and wrapper, and means for moving the article and wrapper along said path and against said folders, said folders comprising means for folding the wrapper upon the article; substantially as set forth.

17. In a machine of the character described, means for feeding the articles to be wrapped, the upper and lower series of belts for feeding the wrappers, the registry-dogs upon which the wrappers are fed, a pair of rollers for closing against the wrappers on said dogs, means for moving said dogs to release the wrappers when said rollers act, an inclined table upon which said rollers move the wrappers as registered, and a suction-

drum which takes the wrappers from said table and conveys them to said articles, combined with a set of folders in the path of the article and wrapper, and means for moving the article and wrapper along said path and against said folders, said folders comprising means for folding the wrapper upon the article; substantially as set forth.

18. In a machine of the character described, means for feeding the articles to be wrapped, and a suction-drum for conveying the wrappers in accurate registry to said articles, combined with a set of folders in the path of the article and wrapper, and means for moving the article and wrapper along said path and against said folders, said folders comprising means for folding the wrapper upon the article; substantially as set forth.

19. In a machine of the character described, a suction-drum for conveying the wrappers to the articles to be wrapped as the latter are positioned, said drum having means for cutting off the air suction from the wrapper as the latter reaches a certain point, combined with a set of folders in the path of the article and wrapper, and means for moving the article and wrapper along said path and against said folders, said folders comprising means for folding the wrapper upon the article; substantially as set forth.

20. In a machine of the character described, a suction-drum for conveying the wrappers to the articles to be wrapped as the latter are positioned, said drum containing the partitions which confine the air suction to a limited section of said drum represented by the travel of the wrappers, combined with a set of folders in the path of the article and wrapper, and means for moving the article and wrapper along said path and against said folders, said folders comprising means for

folding the wrapper upon the article; substantially as set forth.

21. In a machine of the character described, a suction-drum for conveying the wrappers to the articles to be wrapped as the latter are positioned, and sprocket-chains mounted to travel on said drum and having toes to engage the rear edge of the article and wrapper and effect the passage of the same together through the machine, combined with a set of folders in the path of the article and wrapper, and means for applying paste to one edge of the wrapper during such passage, said folders comprising means for folding the wrapper upon the article; substantially as set forth.

22. In a machine of the character described, a suction-drum for conveying the wrappers to the articles to be wrapped as the latter are positioned, sprocket-chains mounted to travel on said drum and having toes to engage the rear edge of the article and wrapper and effect the passage of the same together through the machine, and belts also mounted to travel on said drum and adapted to support the wrapper and article while the same are traveling through the machine, combined with a set of folders in the path of the article and wrapper, and means for applying paste to one edge of the wrapper during such passage, said folders comprising means for folding the wrapper upon the article; substantially as set forth.

Signed at New York city, in the county of New York and State of New York, this 21st day of August, A. D. 1905.

BENJAMIN W. TUCKER.

Witnesses:

CHAS. C. GILL,
ARTHUR MARION.