

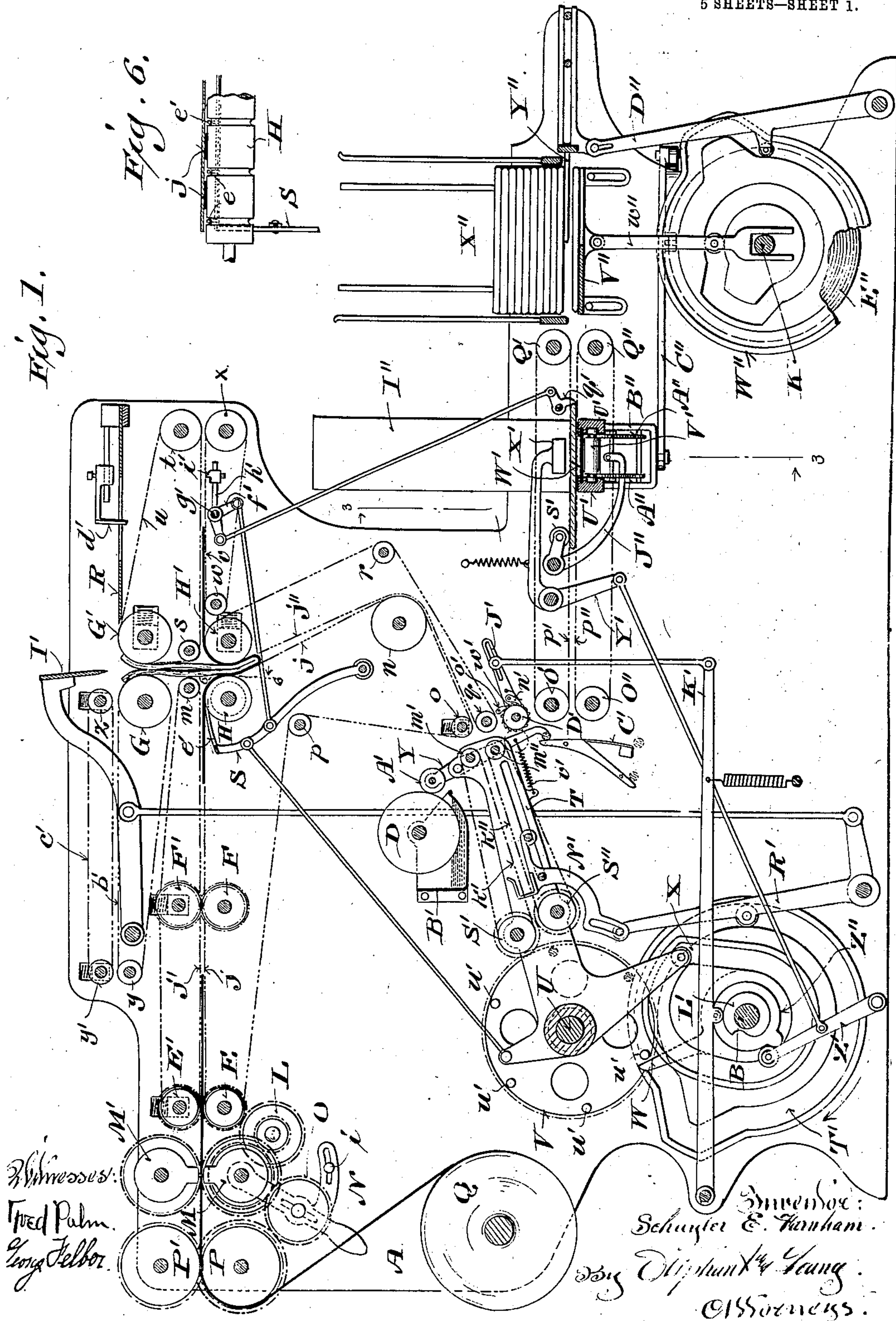
No. 868,258.

PATENTED OCT. 15, 1907.

S. E. FARNHAM.  
WRAPPING AND ADDRESSING MACHINE.

APPLICATION FILED JAN. 19, 1906.

5 SHEETS—SHEET 1.



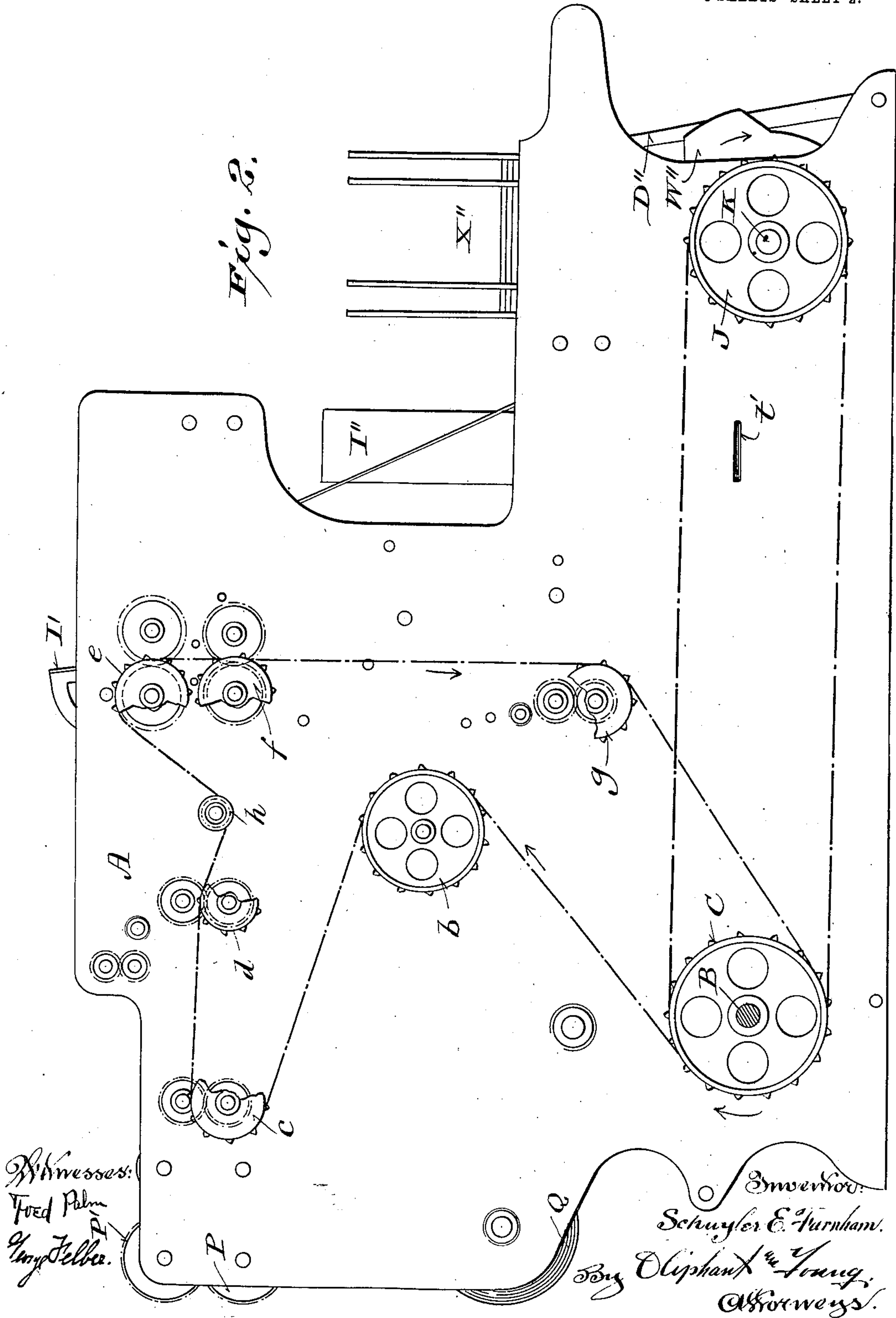
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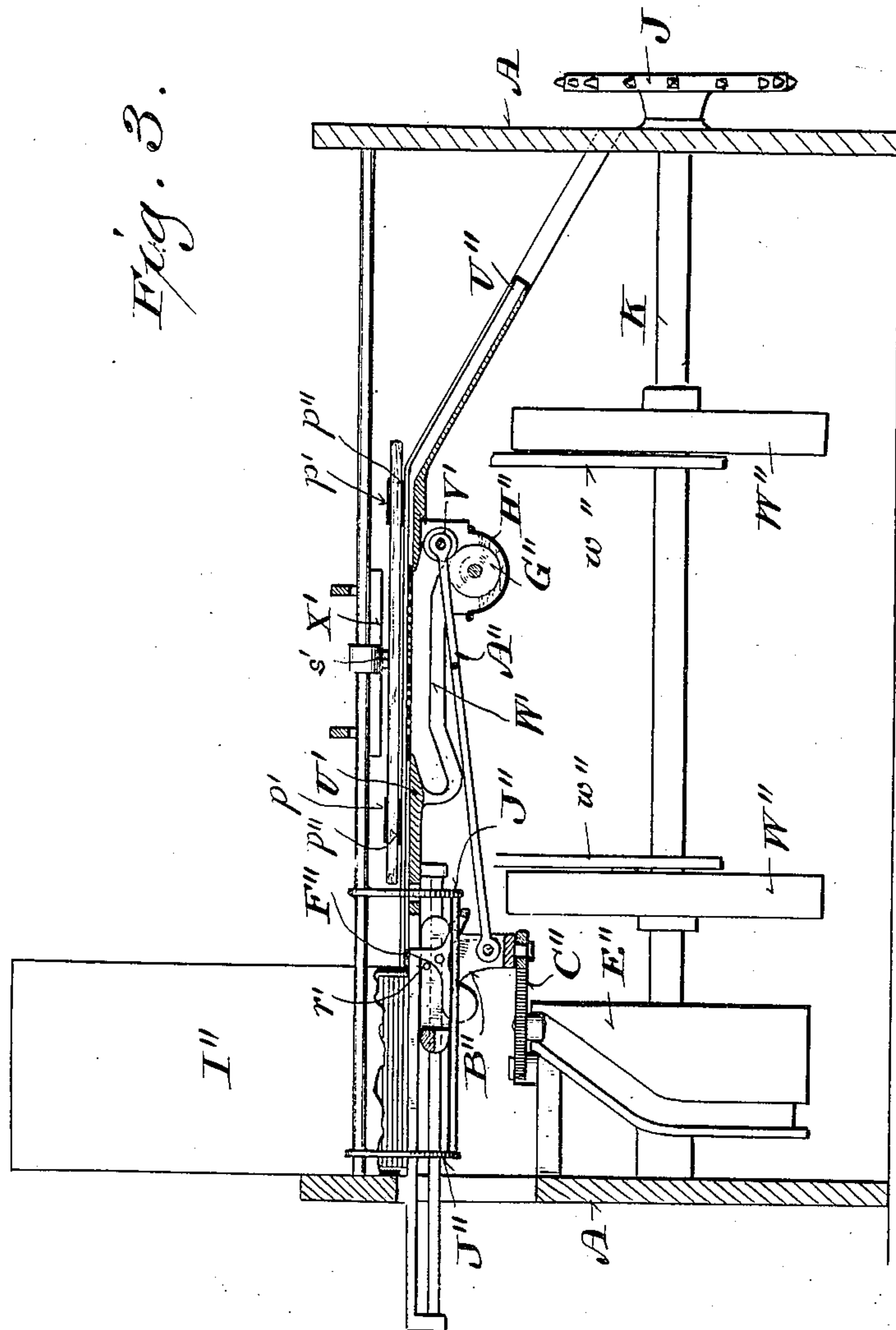
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5 SHEETS—SHEET 3.



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5 SHEETS—SHEET 4

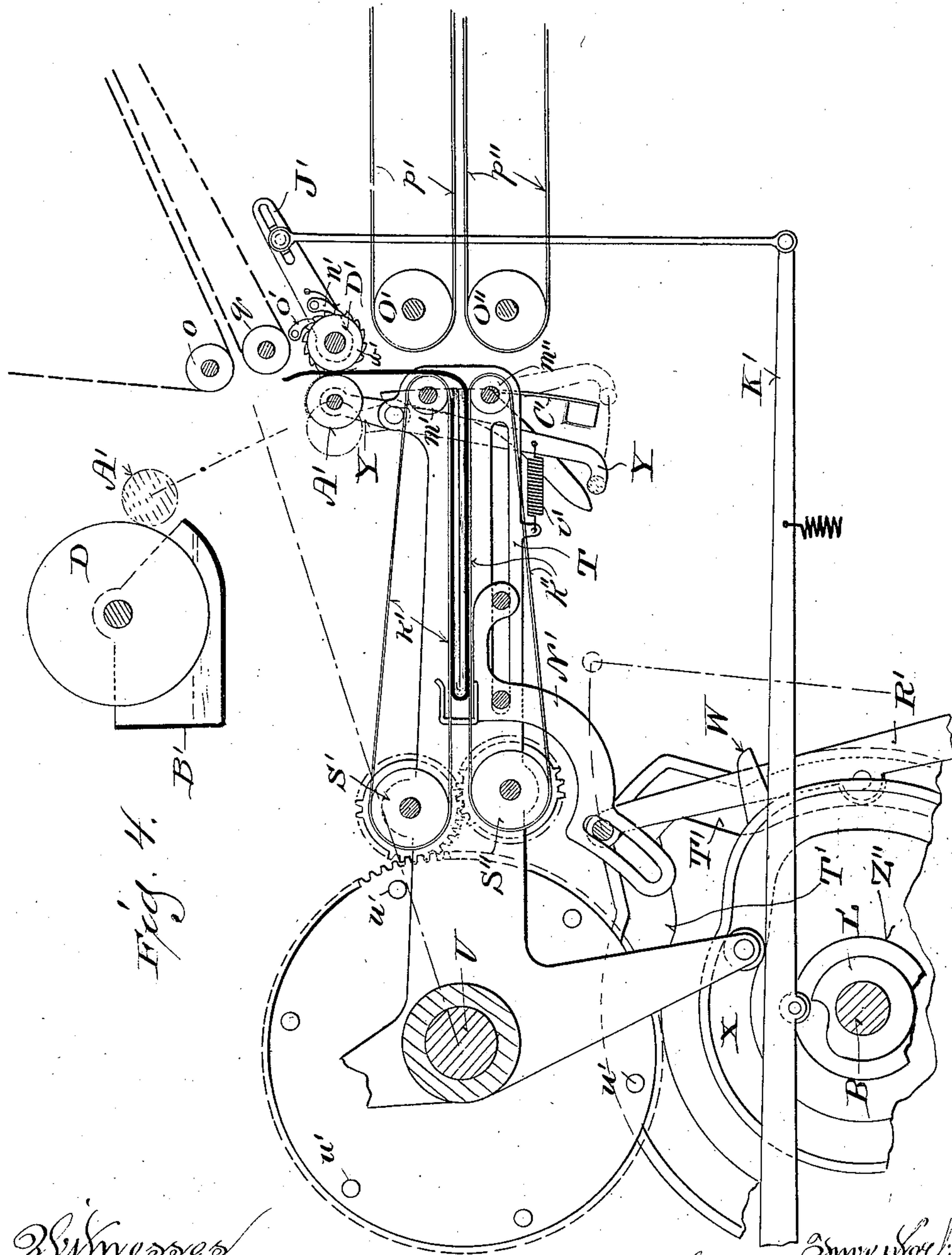


Fig. 4.

Witnesses  
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George Helber.

Inventor,  
S. E. Farnham.  
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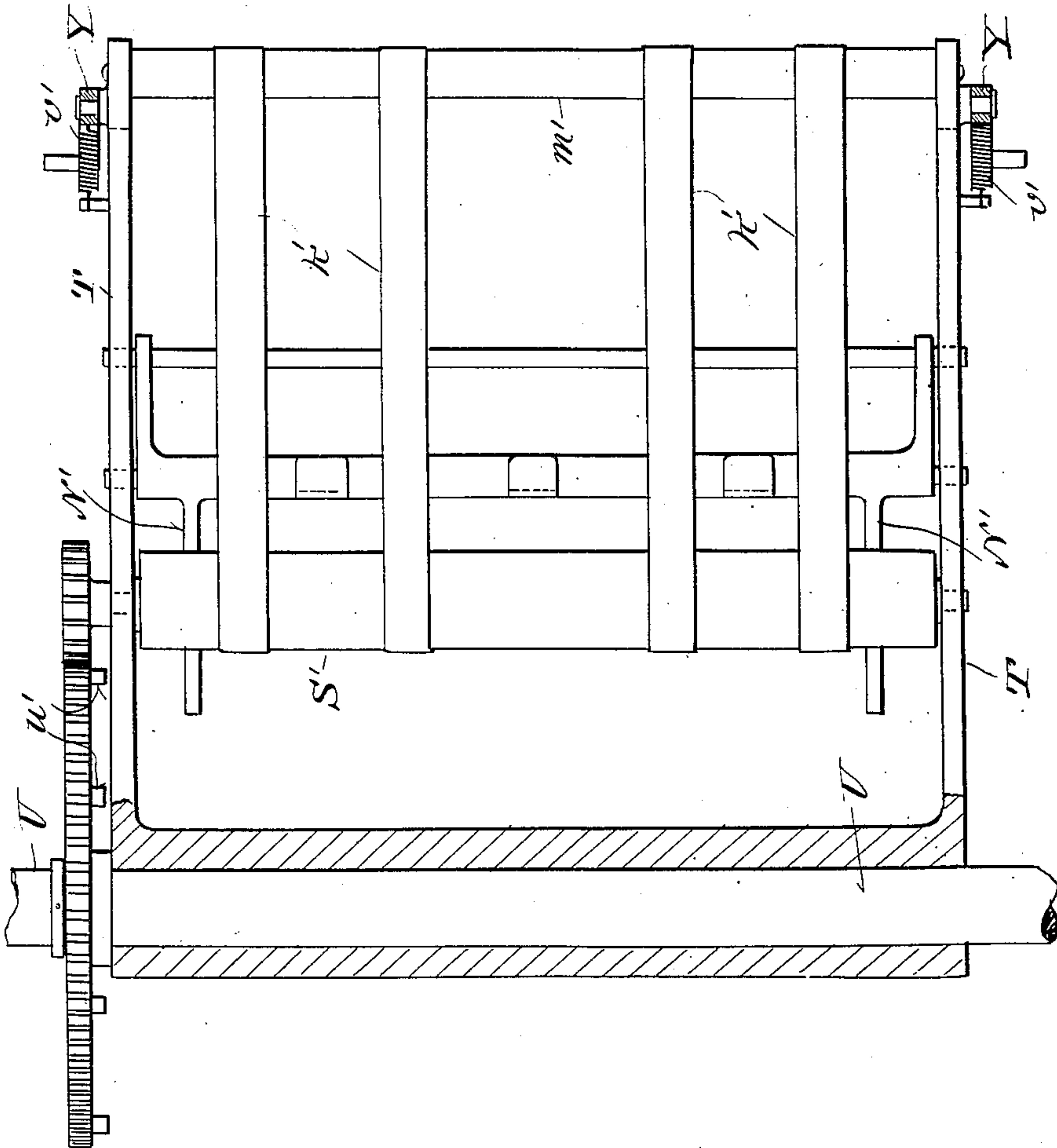
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5 SHEETS—SHEET 5.

pag. 5.



Business!  
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# UNITED STATES PATENT OFFICE

SCHUYLER E. FARNHAM, OF RACINE, WISCONSIN, ASSIGNOR, BY MESNE ASSIGNMENTS, TO  
NATIONAL MFG. & MAILING CO., OF RACINE, WISCONSIN; A CORPORATION OF WISCONSIN.

## WRAPPING AND ADDRESSING MACHINE.

No. 868,258.

Specification of Letters Patent.

Patented Oct. 15, 1907.

Application filed January 19, 1906. Serial No. 296,772.

*To all whom it may concern:*

Be it known that I, SCHUYLER E. FARNHAM, a citizen of the United States, and a resident of Racine, in the county of Racine and State of Wisconsin, have invented certain new and useful Improvements in Wrapping and Addressing Machines; and I do hereby declare that the following is a full, clear, and exact description thereof.

Certain features of my invention were originally shown, described and claimed in my pending application for patent filed July 18, 1904, Serial No. 217,007, of which the present application is a substitution and continuation, in so far as said features of the previous application are concerned and said invention consists in certain peculiarities of construction and combination of parts hereinafter particularly set forth with reference to the accompanying drawings and subsequently claimed, the ultimate object of said invention being to provide simple, economical and efficient machines for wrapping, addressing and stacking newspapers or other periodicals preparatory to mailing the same.

Figure 1 of the drawings represents an elevation of a wrapping, addressing and stacking machine in accordance with my invention, a side standard of its frame being removed and parts of the machine broken away and in section; Fig. 2, an elevation of the gear-side of the machine; Fig. 3, a transverse sectional view of the machine indicated by lines 3—3 in Fig. 1, parts being omitted from the showing to avoid confusion; Fig. 4, a view similar to Fig. 1, of a fragment of the machine on a larger scale; Fig. 5, a plan view of a fragment of the machine partly in horizontal section, and Fig. 6, a partly sectional view of a detail of the machine, the same being indicated by line 6—6 in Fig. 1.

Referring by letter to the drawings, A indicates each of a pair of parallel standards suitably braced apart to constitute the frame of the herein described machine. The frame is provided with bearings for a main shaft, counter-shafts, arbors and journals of a variety of rollers. The journals of other rollers have their bearings in boxes that play in slots of the aforesaid standards, and springs are arranged in the slots under tension against the boxes, although other means may be employed to exert yielding pressure on some or all of said boxes. Any suitable means may be employed for driving the main-shaft B, and fast on the same is a series of cams and a double sprocket-wheel hereinafter specifically indicated. The sprocket-wheel C is connected, by a link-belt, with similar wheels *b, c, d, e, f, g*, respectively in rigid connection with journals of a paste-feed roller D, and journals of other rollers E, F, G, H, O'', said belt being turned on an idler *h*, as is shown in Fig. 2. Another link-belt connects the sprocket-wheel C with a similar wheel J fast on a counter-shaft K of the machine.

The roller E is spur-gearred to a similar device E' and to an idler L that has a pinion-hub that meshes with a spur-wheel provided in connection with one of a pair of perforating-rollers M, M', that are of themselves in spur-gear connection, and hung on a journal of the roller M is a swing-arm N carrying an idler O by which to transmit motion from the gear in mesh with said hub of the idler L to spur-gearred parallel paper-feed rollers P, P', said arm being adjustable to permit the employment of interchangeable idlers in connection therewith. A set-screw *i* engages a segmental slot of the arm N and serves to hold the same in adjusted position, and said arm is also slotted to permit the proper setting of the idler O with respect to the gear-wheel of the perforating-roller M that is driven by the pinion-hub of the other idler L aforesaid. In practice, the disposition of the gear-wheels of the rollers M, P, is such that the idler O may be of one face common to both of said wheels, whereby the feed and perforating rollers have the same speed, or of two faces one in mesh with the gear-wheel of roller M and the other with the gear-wheel of roller P to vary the speed of said feed-rollers with respect to that of said perforating-rollers, idlers of different forms aforesaid being interchangeable in proper connection with the swing-arm N and this arm correspondingly adjusted.

Wrapping-paper from a rolled web Q of same is trained between the feed-rollers P, P', perforating-rollers M, M', and parallel stretches of endless traveling tapes *j, j'*, these tapes being run on the rollers E, E', F, F'. The rollers F, F', are parallel and in spur-gear connection to run at a higher speed than the rollers E, E'. The rollers E', F', are preferably yielding, as herein shown, and because of the difference of speed between the paired rollers E, E, and F, F', the perforated web of paper is separated into sheets of uniform size that are hereinafter termed "wrappers," the length of each being determined by the speed of the feed-rollers with respect to that of the perforating-rollers aforesaid. Perforating the web of paper, transversely of the same and a separation therefrom of a wrapper occurs during the time of one full revolution of the main shaft above specified.

Each tape *j'* of the machine turns on the roller E' and another roller *m*, and each tape *j* is trained on the roller H and other rollers *n, o, p*, in addition to the rollers E and F, aforesaid, the roller *o* being yielding.

An endless traveling tape *j''* turns with each tape *j* of the machine on the roller *n*, and is turned on other rollers *q, r*, and H', the latter roller being yielding opposite the roller H aforesaid to which it is spur-gearred. A yielding roller G' is spur-gearred to the roller G parallel to the same, and run on said yielding roller and other rollers *s, t*, are endless traveling tapes, one *u* of which is herein shown. A lower horizontal stretch of



tape *u* is parallel to an upper horizontal stretch of an endless slipping tape *v* trained on rollers *w*, *x*, and said parallel stretches of the latter tapes are in line with similar stretches of the tapes *j*, *j'*, aforesaid.

- 5 Trained on the fixed roller *G* and a similar roller *y*, and on yielding rollers *y'*, *z*, are opposing endless traveling tapes *b'*, *c'*, the rollers *y*, *y'*, being in spur-gear connection. All the tapes above specified and those hereinafter described are preferably flush with the
- 10 peripheries of the rollers on which they are trained.

- The wrappers are fed one by one to cross the rollers *H*, *H'*, each wrapper being stopped for a time over these rollers by mechanism hereinafter described, and publications are successively fed between the tapes *b'*, *c'*, to cross the rollers *G*, *G'*, and have partial support for a time on a slab *R*, an adjustable stop *d'* being arranged in connection with the slab. To prevent wrappers from being prematurely carried down between the tapes *j*, *j'*, an oscillative gate *S* is arranged and timed
- 20 to have slats *e'* thereof slide in annular grooves of the opposing rollers *H*, *H'* and bridge said rollers under a wrapper during the time said wrapper is crossing said rollers. The gate is in link-rod connection with an arm of a bell-crank *f'* fast on a rocking arbor *g'* provided
- 25 with lateral fingers, one *h'* of which is herein shown, and a wrapper-stop *i'* has sliding adjustment on the finger. From the foregoing it will be understood that if there is a miss of feed of a publication to the machine the temporarily arrested wrapper will feed on clear of
- 30 said machine as soon as there is clearance of its stop.

- An oscillative folding-blade *I'* is arranged to operate upon a publication when the latter is stopped over the rollers *G*, *G'*, and these rollers feed the publication to a wrapper stopped over the rollers *H*, *H'*, said publication and wrapper being then fed together between the
- 35 tapes *j*, *j'*. Owing to the fact that the rollers *G*, *G'*, are of greater diameter than the rollers *H*, *H'*, the feed of the publication is faster between the former rollers than between those of the lesser diameter, the result
- 40 being a bulging of a publication to obtain an initial draw of its wrapper thereon as both are fed between the latter rollers.

- The partly enveloped publication passes from between the tapes *j*, *j'*, to come between parallel stretches of endless tapes *k*, *k''*, trained on paired rollers *S*, *S''*, and *m'*, *m''*, journaled in a carrier *T*, herein shown as a rocker attachment of a counter-shaft *U* of the machine. Loose on this counter-shaft is a wheel *V* spur-
- 50 geared to the roller *S'* that is similarly geared to the roller *S''*, and said wheel is provided with lateral studs *u'* at regular intervals circumferentially of the same. A striker *W* fast on the main shaft of the machine, operates upon a stud of the wheel *V* at each revolution of said shaft to thus impart intermittent movement to said
- 55 wheel and through it and the rollers *S'*, *S''*, to the tapes *k'*, *k''*, aforesaid.

- An arm of the carrier engages a cam *X* fast on the main shaft, and the time of this cam is such that said carrier has predetermined automatic rock from its inclined normal position shown in Fig. 1, to the horizontal position shown in Fig. 4, and back to said normal position, it being stationary for a time in each position.
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- In pivotal connection with the carrier is a yoke *Y* for a pasting-roller *A'* that abuts the paste-feed roller *D*
- 65 aforesaid, when said carrier is in normal position, and

this paste-feed roller turns in a suitably arranged paste-receptacle *B'*. The yoke *Y* has an offset lower end that normally abuts a latch-cam *C'* against resistance of a spring *v'* connecting said yoke and the carrier. When the carrier is swung to horizontal position, the yoke *Y* clears the latch-cam and, by contraction of the spring *v'*, is swung to the position shown in Fig. 4, a flap of the aforesaid wrapper being caught between the pasting-roller and a roller *D'* that has intermittent rotary motion reverse to the direction of travel of said flap.

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To provide for this motion a ratchet-wheel *w'* is made fast on a journal of the roller *D'* and engaged by a spring-controlled pawl *n'* carried by a lever *J'* loose on said journal and having adjustable link-rod connection with another spring-controlled lever *K'* that engages a cam *L'* fast on the main shaft. A suitably arranged detent *o'* engages the ratchet-wheel aforesaid, and it will be understood that there is reciprocative movement of said lever once in the time of a full revolution of the cam *L'* aforesaid. By means of the roller *D'*, a final

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draw of the wrapper is had on the publication, the extent of this draw being in proportion to the throw of the pawl-carrying lever aforesaid.

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A reciprocative pusher *N'*, operates to discharge the partly enveloped publication from the carrier *T* to a package-feed comprising parallel endless traveling tapes *p'*, *p''*, and paired rollers *O'*, *O''*, *Q'*, *Q''*, on which said tapes are trained, the first pair of these rollers being in spur-gear connection. The pusher *N'* is actuated by a bell-crank lever *R'* engaging a cam *T'* fast on the main shaft, there being play of a lateral stud of one arm of the lever in a slot of said pusher, and the other arm of the same lever has link-rod connection with an arm of the folding blade above specified. During the time the package is being discharged from the carrier, there is pull of the flap of the wrapper-component of the package between the rollers *A'*, *D'*, the roller *A'* being rotated to apply paste to said flap. As the package is run between the rollers *O'*, *O''*, the flap of the wrapper is folded over and caused to adhere to the remainder of said wrapper, the package being then complete. Each package is arrested for a time between the tapes *p'*, *p''*, over a stencil-table *U'* and an inking-roller *V'* is traveled in contact with an addressing-stencil *W'* that covers an aperture in said table, the package being then under pressure of an oscillative spring-controlled platen *X'* having a lever *Y'* in link-rod connection with another lever *Z'* that engages a cam *Z''* fast on the main shaft. The package arresting device is a dog *q'* in link-rod connection with an arm of the bell-crank *f'* above specified, and the inking roller *V'* is journaled in a yoke *A''*, a shank of which is coupled to a slide *B''* in connection with a lever *C''* engaging a cam *E''* fast on the counter-shaft *K* of the machine. In pivotal connection with the slide is a weighted picker *F''* that engages a slot in the stencil-table, suitable guides being provided for said slide and the yoke that carries the inking-roller. This inking-roller has frictional contact with an ink-feed roller *G''* in a suspended ink-receptacle *H''*. Pliable stencils similar to the one

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The package on feed between the tapes  $p'$ ,  $p''$  runs under an anti-friction roller  $s'$  carried by an arm of a pivotal tripper  $J''$  that operates to tilt and normally hold the picker  $F''$  out of working position to prevent stencil-feed when there is no package to be addressed. The stencils move from the table  $U'$  into a chute  $U''$  and discharge through a slot  $t'$  in a side standard of the machine.

The addressed package is discharged from the package-feed to a vertically reciprocative table  $V''$ , the legs  $w''$  of which are forked at their lower ends and straddle the counter-shaft  $K$ , these legs being engaged with cam-wheels  $W''$  fast on said shaft. A package inclosure  $X''$  is arranged above the reciprocative table and a horizontal package-support  $Y''$  has reciprocation under said inclosure. The table is provided with clearance-space for the package-support, and this support is actuated by levers that engage the cam-wheels  $W''$  aforesaid, one of these levers being shown at  $D''$  in Fig. 1. The package-support is moved in one direction to clear the inclosure  $X''$  and the table  $V''$  is then lifted with a package or packages thereon. The support then moves back under the lowermost package and, on the descent of the table, the package or packages are caught on said support, these operations serving to automatically stack the addressed packages.

For some publications a folder will not be necessary and in such a case there will be direct vertical feed of the publications in successive order to arrested wrappers, and it is also to be understood that the various mechanical details of said machine may be indefinitely varied without departure from the scope of my invention. The provision for a draw of the wrapper just previous to pasting the flap of same to the remainder thereof is an important feature of the machine, as thereby the retention of the publication in said wrapper is insured.

I claim:—

1. A machine comprising means for feeding paper from a roll of same and separating it into wrappers while in travel, means for arresting travel of the wrappers in successive order, means by which a publication is fed to an arrested wrapper, a timed rocker carrier normally in position to receive the publication and its wrapper, the latter being folded on the former; a pasting-mechanism, a device between which and the pasting-mechanism a flap of the wrapper is engaged when the carrier has a rocking movement out of position aforesaid, means for clearing the carrier of the partially enveloped publication, and means for causing adhesion of the pasted flap upon the remainder of the wrapper coincident with ejection from the carrier of the package of which said publication and wrapper are components.

2. A machine comprising means for feeding paper from a roll of same and separating it into wrappers while in travel, means for arresting travel of the wrappers in successive order, means by which a publication is fed to an arrested wrapper, a timed rocker carrier normally in position to receive the publication and its wrapper, the latter being folded on the former; a pasting mechanism in connection with the carrier, a device between which and the pasting mechanism a flap of the wrapper is engaged when the carrier has a rocking movement out of the position aforesaid, means for clearing the carrier of the partially enveloped publication, and means for causing adhesion of the pasted flap upon the remainder of the wrapper coincident with ejection from the carrier of the package of which said publication and wrapper are components.

3. A machine comprising means for feeding paper from a roll of same and separating it into wrappers while in travel, means for arresting travel of the wrappers in successive order, means by which a publication is fed to an

arrested wrapper, and therewith traveled for a time at different speeds, whereby said publication is caused to draw the wrapper tight thereon, a timed rocker carrier normally in position to receive the publication and its wrapper, the latter being folded on the former; a pasting mechanism, a device between which and the pasting-mechanism a flap of the wrapper is engaged when the carrier has a rocking movement out of the position aforesaid, means for clearing the carrier of the partially enveloped publication, and means for causing adhesion of the pasted flap upon the remainder of the wrapper coincident with ejection from the carrier of the package of which said publication and wrapper are components.

4. A machine comprising means for feeding paper from a roll of same and separating it into wrappers while in travel, means for arresting travel of the wrappers in successive order, means for feeding publications in successive order and arresting the same singly parallel to a wrapper, driven rollers in pairs arranged to be under the arrested publication and wrapper respectively, a folder timed to double the publication between the underlying rollers, whereby it is fed by the same to the wrapper and caught therein between the succeeding pair of rollers; a timed rocker carrier normally in position to receive the publication and its wrapper, the latter being folded on the former; a pasting-mechanism, a device between which and the pasting-mechanism a flap of the wrapper is engaged when the carrier has a rocking movement out of the position aforesaid, means for clearing the carrier of the partially enveloped publication, and means for causing adhesion of the pasted flap upon the remainder of the wrapper coincident with ejection from the carrier of the package of which said publication and wrapper are components.

5. A machine comprising means for feeding paper from a roll of same and separating it into wrappers while in travel, means for arresting travel of the wrappers in successive order, means by which a publication is fed to an arrested wrapper, a timed rocker carrier normally in position to receive the publication and its wrapper, the latter being folded on the former; a pasting-mechanism, a device between which and the pasting-mechanism a flap of the wrapper is engaged when the carrier has a rocking movement out of the position aforesaid, means for clearing the carrier of the partially enveloped publication, and a pair of driven rollers between which the package composed of the publication and wrapper has travel to cause adhesion of the pasted flap to the remainder of said wrapper.

6. A machine comprising driven perforating rollers, a paper-feed comprising rollers forward of those aforesaid and run at a higher speed, a publication-feed, a folder timed to double an arrested publication between underlying rollers by which it is fed to an arrested wrapper and caught therein between succeeding rollers, a timed rocker carrier normally in position to receive the publication and its wrapper, the latter being folded on the former; a pasting-mechanism, means by which the flap of the wrapper is put into contact with the pasting-mechanism when the carrier has a rocking movement out of normal position, means for clearing the carrier of the partially enveloped publication, and means for causing adhesion of the pasted flap upon the remainder of the wrapper coincident with the ejection from the carrier of the package of which said publication and wrapper are components.

7. A machine comprising means for feeding paper from a roll of same and separating it into wrappers, means for arresting travel of the wrappers in successive order, means for engaging a publication and an arrested wrapper, a timed carrier comprising endless movable tapes and normally in position to receive a publication and wrapper fed thereto, timed ejector-mechanism in connection with the carrier, a pair of driven rollers between which the package composed of the publication and wrapper is ejected from the carrier, a pasting-mechanism, and a device between which and the pasting-mechanism a flap of the wrapper is engaged when said carrier has movement to align with the rollers aforesaid.

8. A machine comprising means for feeding a publication to a wrapper, a timed rocker carrier normally in position to receive the publication and its wrapper, said wrapper being folded on said publication; a pasting-mechanism,



- a device between which and the pasting-mechanism a flap of the wrapper is engaged when said carrier is rocked out of normal position, means for clearing the carrier of the partly enveloped publication, and means for causing adhesion of the pasted flap to the remainder of the wrapper coincident with ejection from said carrier of the package of which said publication and wrapper are components.
9. A machine comprising means for feeding a publication to a wrapper and causing a fold and draw of the wrapper on the publication, a timed carrier normally in position to receive the partially enveloped publication, a pasting-mechanism, a device between which and the pasting-mechanism a flap of the wrapper is engaged when the carrier is moved out of normal position, means for clearing the carrier of the partially enveloped publication, and means for causing adhesion of the pasted flap to the remainder of the wrapper coincident with ejection from said carrier of the package of which said publication and wrapper are components.
10. A machine comprising means for feeding a publication to a wrapper and simultaneously causing initial draw of the wrapper thereon, means for effecting a final positive back draw of the wrapper on the publication and simultaneously applying paste to a flap of said wrapper, and means for causing adhesion of the pasted flap to the remainder of the aforesaid wrapper.
11. A machine for enveloping a publication in a wrapper and which comprises rollers between which a flap of the wrapper is finally gripped preliminary to securing the same to the remainder of said wrapper.
12. A machine for enveloping a publication in a wrapper and which comprises rollers between which a flap of the wrapper is gripped preliminary to securing the same to the remainder of said wrapper, and means for imparting rotary motion to one of said rollers reverse to the travel of said flap.
13. A machine for enveloping a publication in a wrapper, comprising rollers between which a flap of the wrapper is gripped preliminary to securing the same to the remainder of said wrapper, and adjustable means for imparting rotary motion to one of said rollers reverse to the travel of said flap.
14. A machine for enveloping a publication in a wrapper and which comprises a wrapper and publication carrier, a pasting-roller in connection with the carrier, another roller arranged to be at a predetermined time in opposition to the pasting-roller against an interposed flap of the wrapper, and means for imparting rotary motion to one of said rollers reverse to the travel of said flap.
15. A machine for enveloping a publication in a wrapper and which comprises rollers between which a flap of the wrapper is gripped preliminary to securing the same to the

remainder of said wrapper, a pawl-and-ratchet mechanism for imparting rotary motion to one roller reverse to the travel of said flap, and a timed mechanism controlling the operation of the former mechanism.

16. A machine for enveloping a publication in a wrapper and which comprises rollers over which wrappers are successively fed and arrested, a gate operative to bridge said rollers under a wrapper moving into position over the same, and means for actuating the gate.

17. A machine comprising a variable feed-mechanism for a web of paper from a roll of same, means for separating the fed paper into wrappers of uniform size and feeding the same, means for enveloping a publication in each wrapper, means for tightening the wrapper on the publication and for simultaneously applying paste to a flap of said wrapper, and means for ejecting the package of which the wrapper and publication are components, adhesion of said flap to the remainder of the wrapper being coincident with the ejection of said package from the machine.

18. A machine comprising means for enveloping a publication in a wrapper, a feed upon which the package consisting of the publication and its wrapper is discharged, means for temporarily arresting the package, means controlled by the feed of said package for feeding an address-stencil to a support opposite the same, a platen, means for exerting pressure of the platen on said package, and means for inking through the stencil.

19. A machine for completely enveloping a publication in a wrapper, a continuously traveling feed upon which the package consisting of the publication and its wrapper is discharged, a vertically reciprocative table onto which the package is delivered, an inclosure above the table, and a horizontally reciprocative support that is alternately below and above said table, the latter being provided with clearance space for the support.

20. A machine comprising means for feeding a publication to a wrapper, means causing the wrapper to fold and draw tight on the publication, means having the double function of applying paste to a flap of the wrapper and causing a final positive back draw of said wrapper, and means for ejecting the package of which the wrapper and publication are components, adhesion of said flap to the remainder of the wrapper being coincident with the ejection of said package from the machine.

In testimony that I claim the foregoing I have hereunto set my hand at Milwaukee in the county of Milwaukee and State of Wisconsin in the presence of two witnesses.

S. E. FARNHAM.

Witnesses:

LOUIS E. HALL,  
H. E. OLIPHANT.