

O. RICHTER & L. FREDERICK.

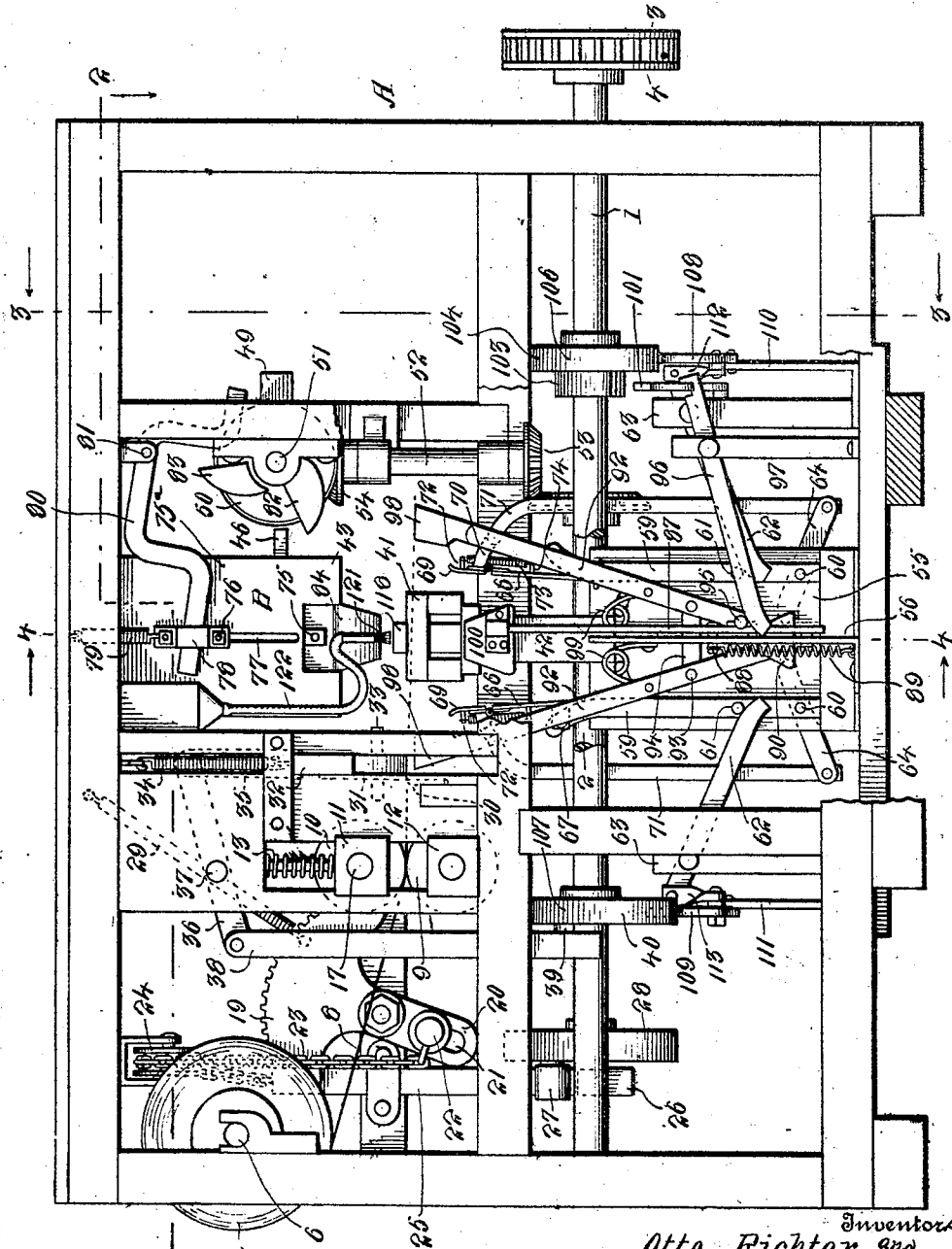
WRAPPING MACHINE.

APPLICATION FILED MAR. 14, 1911.

1,008,197.

Patented Nov. 7, 1911.

6 SHEETS-SHEET 1.



Witnesses

E. P. Ruppert

Wm. Bagger

Fig. 1.

Inventors
Otto Richter and
Louis Frederick

By Victor J. Evans

Attorney

O. RICHTER & L. FREDERICK.

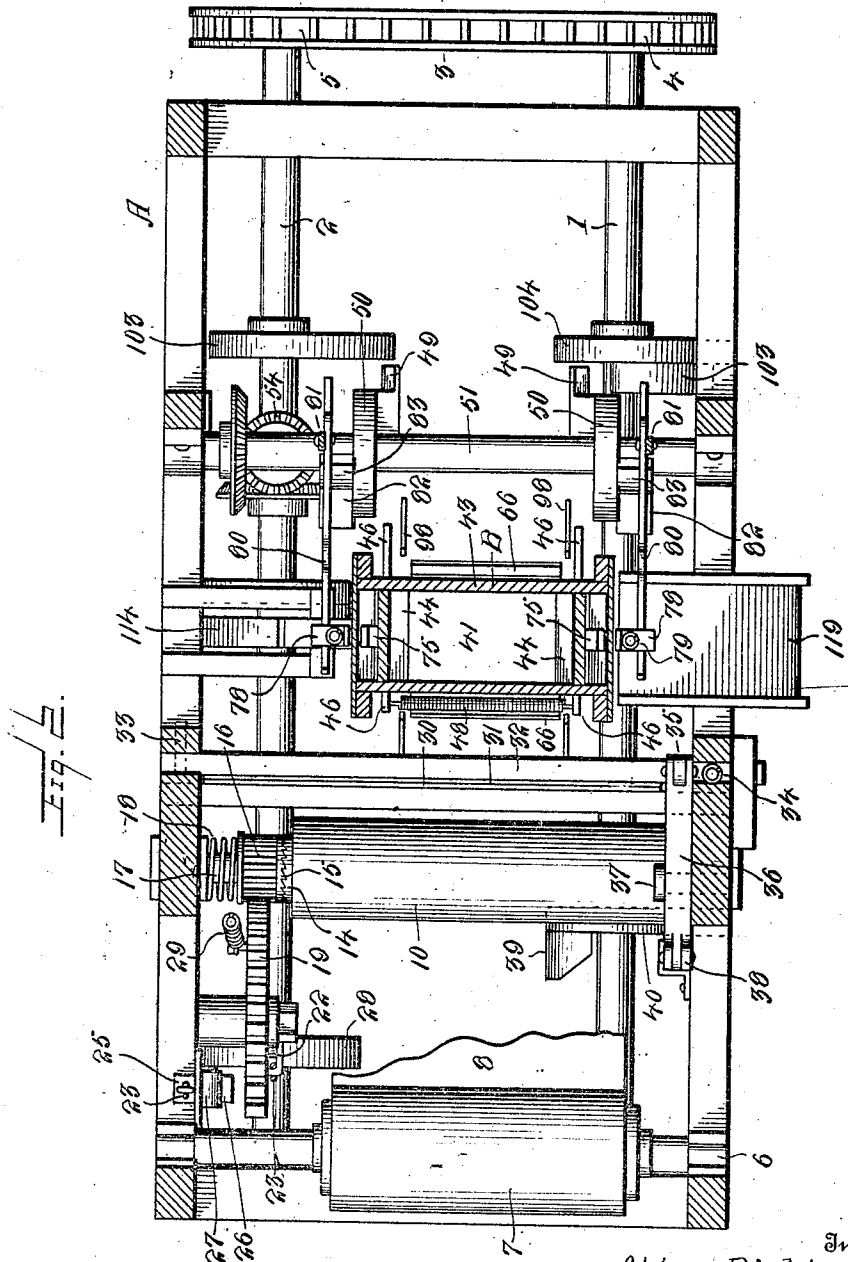
WRAPPING MACHINE.

APPLICATION FILED MAR. 14, 1911.

1,008,197.

Patented Nov. 7, 1911.

6 SHEETS-SHEET 2.



Witnesses
E. R. Ruppert
Wm. Bagger

Inventors
Otto Richter and
Louis Frederick
By Victor J. Evans
Attorney

O. RICHTER & L. FREDERICK.

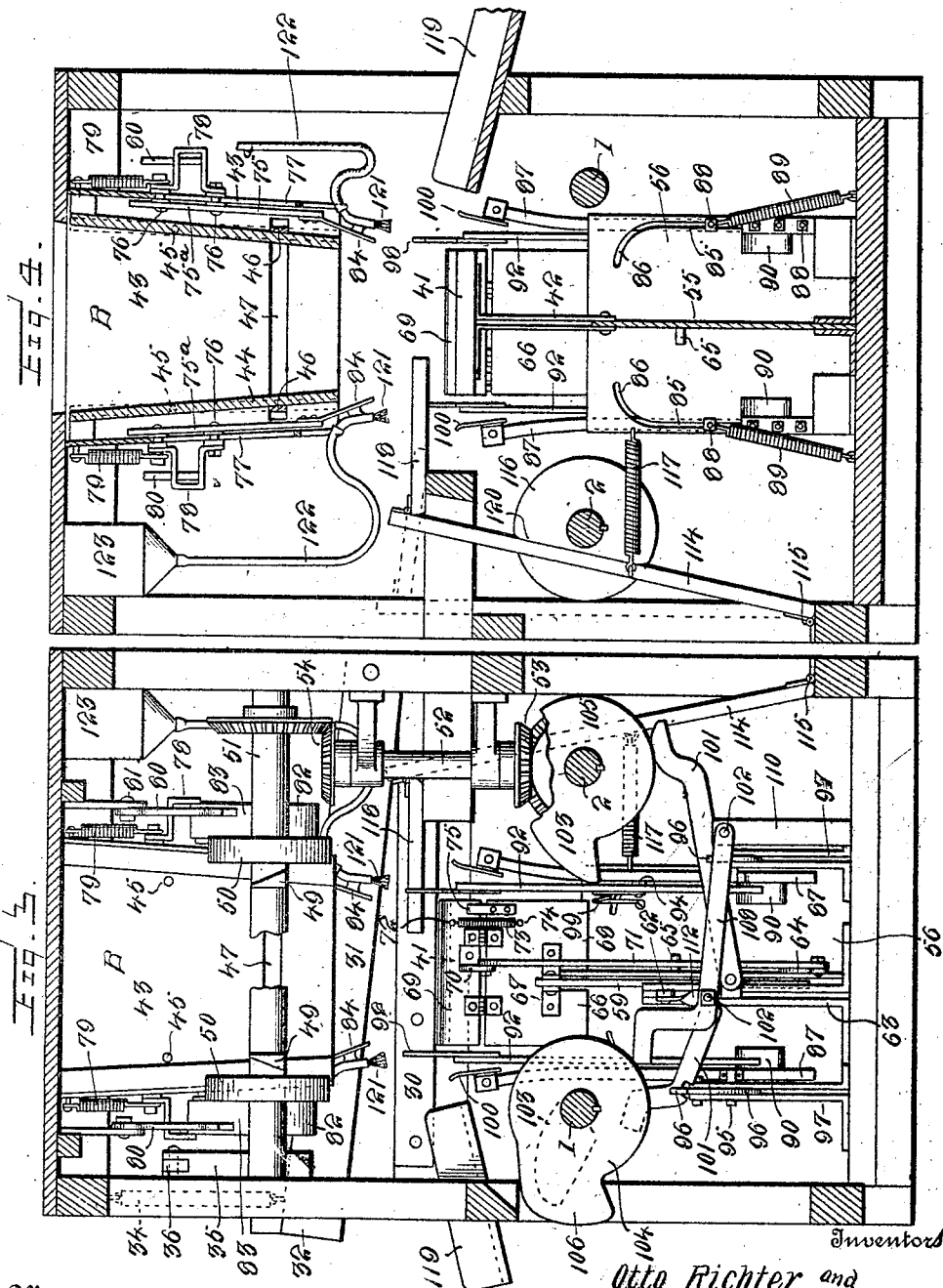
WRAPPING MACHINE.

APPLICATION FILED MAR. 14, 1911.

1,008,197.

Patented Nov. 7, 1911.

6 SHEETS-SHEET 3.



Witnesses
E. R. Ruppert
Wm. Bagger

Inventors
Otto Richter and
Louis Frederick
By Victor J. Evans
Attorney

O. RICHTER & L. FREDERICK.
WRAPPING MACHINE.
APPLICATION FILED MAR. 14, 1911.

1,008,197.

Patented Nov. 7, 1911.
6 SHEETS—SHEET 4.

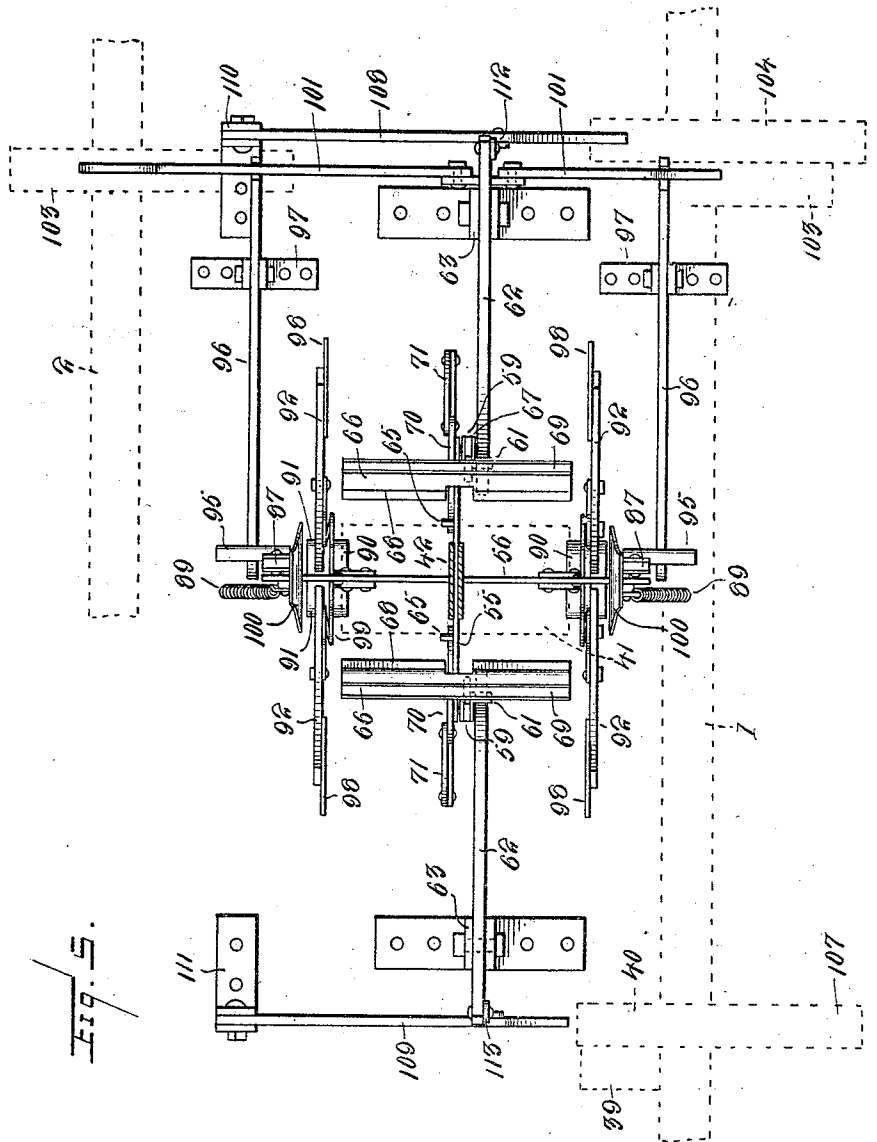


Fig. 5.

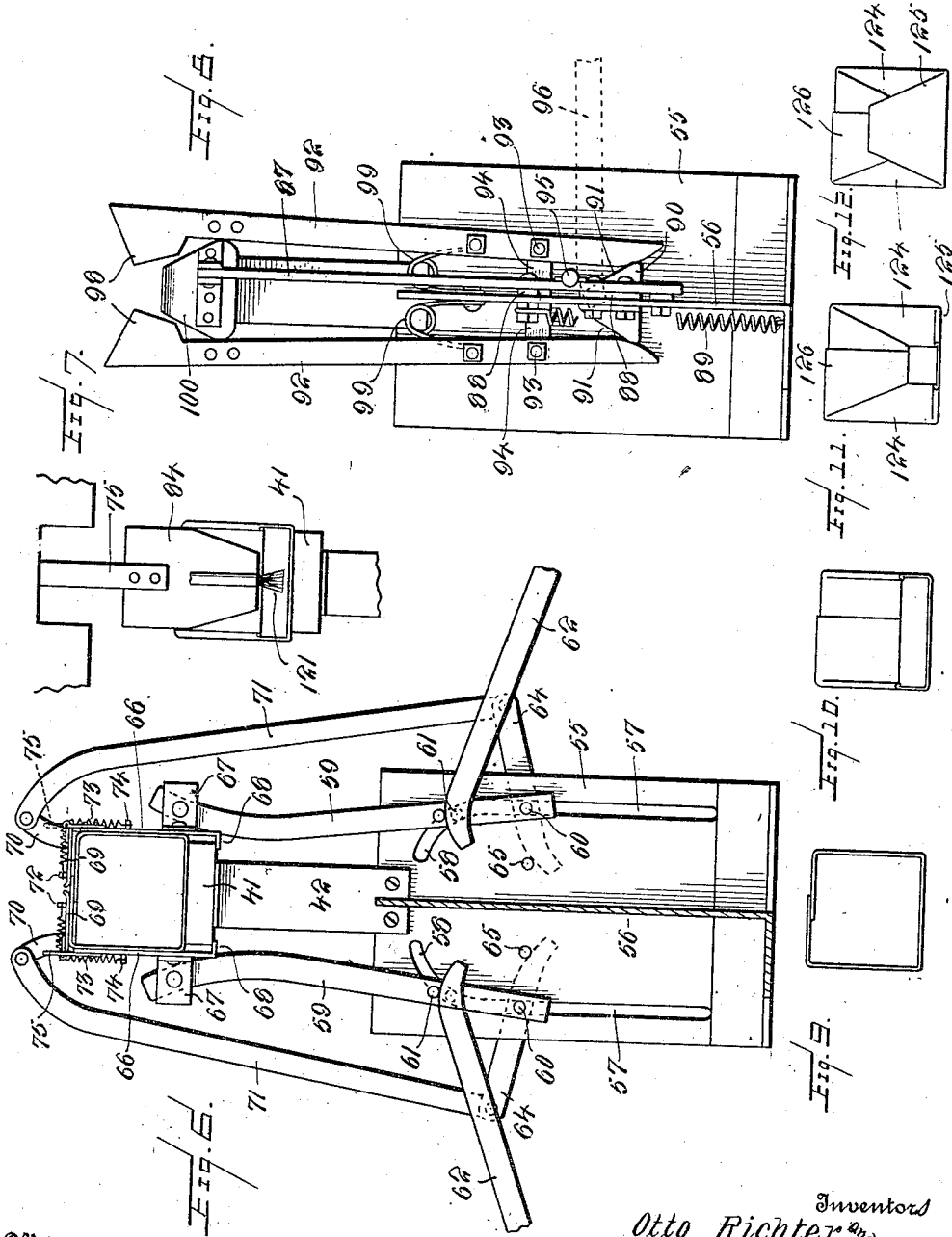
Witnesses
E. R. Ruppert.
Wm. Bagger.

Inventors
Otto Richter and
Louis Frederick
By Victor J. Evans
Attorney

O. RICHTER & L. FREDERICK.
WRAPPING MACHINE.
APPLICATION FILED MAR. 14, 1911.

1,008,197.

Patented Nov. 7, 1911.
6 SHEETS-SHEET 5.



Witnesses
E. R. Ruffert.
Wm. Bagger.

Inventors
Otto Richter and
Louis Frederick
By Victor J. Evans
Attorney

O. RICHTER & L. FREDERICK.
WRAPPING MACHINE.

APPLICATION FILED MAR. 14, 1911.

Patented Nov. 7, 1911.

6 SHEETS-SHEET 6.

1,008,197.

Fig. 17.

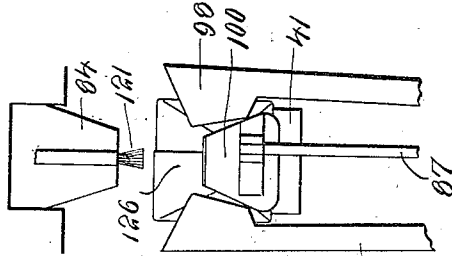


Fig. 15.

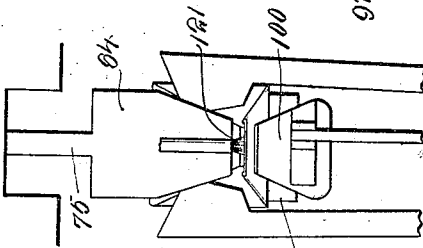


Fig. 13.

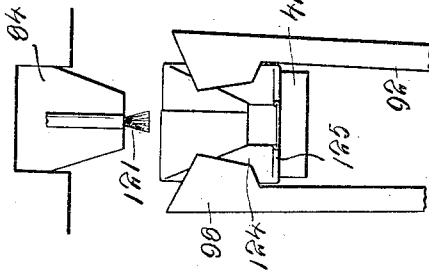


Fig. 12.

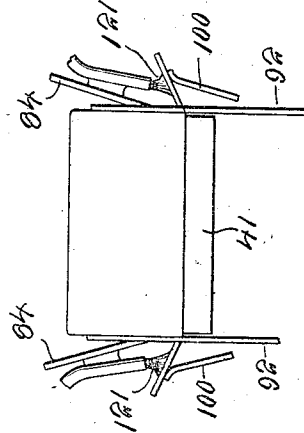
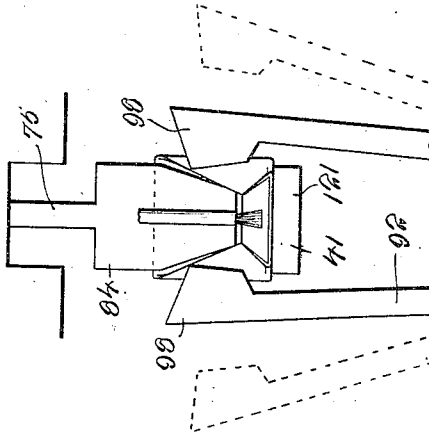


Fig. 15.

Witnesses

E. R. Ruppert

Wm. Bagger

Inventor
Otto Richter and
Louis Frederick

By Victor J. Evans

Attorney

UNITED STATES PATENT OFFICE.

OTTO RICHTER AND LOUIS FREDERICK, OF SALEM, OHIO.

WRAPPING-MACHINE.

1,008,197.

Specification of Letters Patent.

Patented Nov. 7, 1911.

Application filed March 14, 1911. Serial No. 614,329.

To all whom it may concern:

Be it known that we, OTTO RICHTER and LOUIS FREDERICK, citizens of the United States, residing at Salem, in the county of Columbiana and State of Ohio, have invented new and useful Improvements in Wrapping-Machines, of which the following is a specification.

This invention relates to wrapping machines, and it has particular reference to a machine for wrapping loaves of bread.

The invention has for its object to produce an organized machine including means for feeding paper from a roll to a loaf-receiving position, means for cutting the paper, means for supplying or depositing a loaf upon the paper, means for folding or wrapping the paper about the loaf, means for sealing or pasting the wrapper and means for ejecting the wrapped loaf, the several operations being performed in proper succession.

A further object of the invention is to simplify and improve the construction and operation of a machine of the character described.

With these and other ends in view which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts which will be hereinafter fully described and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations and modifications within the scope of the claims may be resorted to when desired.

In the drawings,—Figure 1 is a front elevation of a machine constructed in accordance with the invention. Fig. 2 is a horizontal sectional view taken on the line 2—2 in Fig. 1. Fig. 3 is a vertical transverse sectional view taken on the plane indicated by the line 3—3 in Fig. 1, and looking in the direction of the arrow. Fig. 4 is a vertical transverse sectional view taken on the line 4—4 in Fig. 1, and looking in the direction of the arrow. Fig. 5 is a top plan view of the bread wrapping devices, the frame structure being indicated in dotted lines only. Fig. 6 is a view in sectional elevation, showing the paper folding members in the act of folding the wrapper about a

loaf. Fig. 7 is a detail view in elevation showing one of the upper end-tucking members in position for operation. Fig. 8 is a detail view in elevation, showing one of the loaf end-tucking members and the side tuckers in position for operation. Fig. 9 is an end view of a loaf with the wrapper folded about it after the first step of the operation. Fig. 10 is an end view of a loaf with the wrapper folded about it after the second step of the operation. Fig. 11 is an end view of a loaf with the wrapper folded about it after the third step of the operation. Fig. 12 is an end view of a loaf with a wrapper folded about it after the completion of the operation. Figs. 13, 14, 15, 16 and 17 are diagrammatic views of the folding devices, showing the relative positions occupied during various steps of the operation.

Corresponding parts in the several figures are denoted by like characters of reference.

The frame structure A of the improved machine is provided with bearings in which the front and rear driving shafts 1, 2 are supported for rotation, said shafts being connected together by a chain or link belt 3 engaging sprocket wheels 4, 5 upon said shafts. The machine may be driven by power supplied in any convenient manner to either one of said shafts. Bearings are provided at one end of the frame structure for a shaft 6 carrying a roll of paper 7 which supplies the wrapping material. The paper web 8 is guided between feed rollers 9, 10, the bearings 11 of one of which are forced in the direction of the bearings 12 of its mate by means of springs 13, whereby the feed rollers are enabled to grip the web with a sufficient degree of tension to feed the same. One of the feed rollers is provided with a clutch member 14 engaging a mating clutch member 15 formed upon a pinion 16 which is loosely mounted upon the shaft 17 carrying the said roller, the clutch pinion being forced in the direction of the clutch member 14 by the action of a spring 18, whereby when the clutch pinion is rotated in one direction the feed roller will be rotated thereby to feed the paper, while when the clutch pinion is rotated in the opposite direction the feed roller will remain stationary. The clutch pinion 16 is engaged by a pivotally supported rack segment 19 having an arm provided with a slot 21 in which a pin or bolt 22 is adjustably mounted, said bolt be-

ing connected by a flexible element 23 which is suitably guided over a pulley 24 with a slide 25 which is supported upon the frame structure and which is provided with a projection 26 lying in the path of a tappet 27 upon a wheel or disk 28 mounted upon the drive shaft 2. A spring 29 serves to retract the rack segment 19. It will be seen that by the rotation of the shaft 2, the slide 25 is actuated in one direction by the tappet member 27, thus rocking the rack segment 19, the extent of the movement being gaged by the adjustment of the bolt 22 in the slot 21. When thus rocked the rack segment engages the clutch pinion 16, thereby imparting feed motion to the feed roller 10, the extent of the movement serving to regulate the quantity of paper fed at each operation. When the tappet member 27 passes out of engagement with the projection 26, the rack segment 19 and the slide 25 will be retracted by the action of the spring 28, causing the clutch collar to be rotated idly upon the shaft 18 while the feed roller remains stationary. The paper web is fed over a stationary blade 30 and beneath the movable cutter 31 which is carried by an arm 32 which is pivotally supported at one end, at 33, the opposite end of the cutter carrying arm being normally retracted in an upward direction by a spring 34. The spring retracted end of the cutter carrying arm 32 is connected by a link 35 (see Fig. 3) with one arm of a lever 36 fulcrumed at 37, (see Fig. 1) and the other arm of which is connected with the upper end of a suitably guided link 38, the lower end of which lies in the path of a cam or tappet 39 upon a disk 40 which is mounted upon the driving shaft 1. The disk 40 also constitutes a cam whereby other parts of the mechanism are actuated, as will be hereinafter described.

The loaf supporting table 41 is mounted upon a suitable support 42 below the feed chute B which includes a suitable casing 43 in which a pair of vertically disposed jaw members 44 are pivotally supported intermediate their ends, as shown at 45, said jaw members being provided with arms 46 that extend through slots 47 in opposite sides of the casing. The ends of the arms projecting at one side of the casing are connected together by a spring 48, whereby the lower ends of the jaw members are projected in the direction of each other, the movement being limited by contact of the upper ends of the jaw members with the framework of the casing, as will be best seen in Fig. 4. A stack of two or more loaves may be supported within the casing upon the converging lower ends of the jaws. When the lower ends of said jaws are moved apart to permit the lowermost loaf to drop upon the table 41, the next loaf will be clamped between the upper ends of the jaws which are now

projected toward each other, as indicated in dotted lines in Fig. 4, thereby temporarily retaining such loaf until upon the restoration of the jaw members to the initial position shown in full lines in Fig. 4 such loaf is permitted to drop and be supported upon the converging lower ends of the jaw members. It is obvious that the parts may be proportioned to permit a stack of any desired number of loaves to be supported within the chute, but in such a manner as to prevent the delivery of more than a single loaf at one operation. The manner of supplying the loaves to the feed chute is no part of the present invention.

The ends of the arms 46 which project through the opposite side of the casing are disposed in the path of beveled cams or tappet members 49, (see Figs. 2 and 3) associated with disks 50 upon a transversely disposed shaft 51 to which motion in the proper direction may be imparted from the driving shaft 2 by any suitable means, such, for instance, as a vertical shaft 52, the ends of which are connected by bevel gearing 53, 54 with the shafts 2 and 51, respectively. It will be understood that the paper web is to be projected by the feed mechanism beneath the movable cutter and above the supporting table 41, the actuation of the movable cutter to sever the wrapping material and that of the movable jaws to release a loaf and to deposit the same upon the wrapping material on the supporting table being properly timed and performed in proper sequence. The support 42 of the bread table 41 is mounted upon and extends upwardly from a base which is composed of two vertically disposed plates or members 55, 56 intersecting each other at right angles, as clearly seen in Fig. 5. The plate 55 is provided with vertical slots 57 having converging curved or arcuate upper ends 58, and supported adjacent to each of said slots is a slide 59 having guide pins 60, 61 engaging the slot and operating therein. The guide pins 61 are extended in the path of actuating arms or levers 62 which are fulcrumed on uprights 63 and the means for operating which will be presently described. Pivotally connected with the lower guide pins 60 are links or levers 64, the inner ends of which are extended so as to be engaged by the studs or stop members 65 upon the plate 55 when the slides 59 approach the upper limit of their movements, as indicated in Fig. 6. Pivotally connected with the upper ends of the slides 59 are the folding members which consist of plates 66, said plates being provided with lugs or brackets 67 upon which the links 59 are pivoted. The lower edges of the plates 66 are provided with intumed flanges 68 adapted to contact with the underside of the bread supporting table. Hingedly connected with the upper

edges of the plates 66 are flaps 69 having arms or brackets 70 which are pivotally connected with the upper ends of links or connecting rods 71, the lower ends of which are pivotally connected with the outer ends of the arms or levers 64. The flaps 69 are provided with lugs 72 which are connected by contractile springs 73 with lugs 74 that extend laterally from the plates 66, and the latter are provided with upwardly extending stop members 75. The springs 73 serve to keep the flaps 69 normally extended in alignment with the plates 66, the stop members 75 being arranged in the path of said flaps to limit their movement in an outward direction; but said flaps may be folded or bent from the plates 66 in an inward direction toward each other, against the tension of the springs 74 by the means provided for the purpose. When the slides 59 are moved upward from the initial position shown in Fig. 3 by the action of the levers 62 engaging the pins 61, the plates 66 carrying the flaps 69, which are extended in alignment therewith, will be moved upwardly adjacent to the sides of the bread supporting table. Assuming the wrapping material and the loaf to have been previously deposited upon said table, the side portions of the wrapping sheet will be carried upward adjacent to the sides of the loaf until the slides approach the upper limit of their movement. The inner ends of the links or levers 64 will now engage the stop members 75, thereby tilting the outer ends of said links upward as the upward movement of the slides 59 recedes. This upward movement of the slides will, however, be checked by the flanges 68 of the plates 66 engaging the underside of the table 41, at which time the guide pins 61 encounter the inwardly curved upper extremities 58 of the slots 59, whereby the upper ends of the slides 59 will be tilted inwardly, thereby pressing the side portions of the wrapping sheet tightly against the sides of the loaf. At the same time the tilting movement of the links or levers 64 will force the links or connecting members 71 in an upward direction, which results in folding the flaps 69 toward each other against the tension of the springs 74, thereby folding the edges of the wrapping sheet over the top of the loaf. The operation may be readily so timed that the movement of one of the flaps will slightly precede that of the other flap, so that one edge of the wrapping sheet will be placed above and upon the opposite edge to present the appearance indicated in Fig. 9.

Slidably supported between the end walls of the casing 43 of the bread chute and the interior jaw members 44 of said chute are slides 75^a, each provided with guide pins 76 extending through a slot 77, said guide pins being connected together by a keeper

78 which likewise projects through said slot. A retracting spring 79 is suitably connected with one of the pins 76. Each keeper 78 is engaged by one end or arm of a lever 80 fulcrumed at 81, and the other arm of which lies in the path of cam members 82, 83 upon the disks 50 which are mounted upon the shaft 51 hereinbefore described, it being understood that each disk carries two suitably disposed cam members 82, 83 which will successively engage one of the levers 80, so that the slide associated with such lever will be actuated twice to each rotation of the disk 50. It is also, of course, to be understood that the cam members 82, 83 are to be so disposed that the operation of the slides 75^a will be properly timed. The slides 75^a are equipped at their lower ends with tucking members or blades 84, as best seen in Fig. 4.

The plate 56 which intersects the plate 55 at right angles is provided adjacent to its edges and at opposite sides of the plate 55 with guide slots 85 the upper ends of which are curved inward in the direction of each other, as shown at 86.

Supported adjacent to each slot 85 is a slide 87 having pins or guide members 88 that extend into or through the slot, one of said guide members being connected with one end of a retracting spring 89, the opposite end of which is suitably connected with the framework of the machine to force the slide in a downward direction. Associated with each slide 87 and movable therewith is a triangular cam member 90 which projects at opposite sides of the plate 56, being provided with beveled faces 91 adapted to engage the beveled lower ends of levers 92 which are fulcrumed at 93 upon brackets 94 that project upon opposite sides of the plate 56. Each slide 87 is provided with a tappet stud 95 lying in the path of one arm of a lever 96 fulcrumed upon an upright 97. The upper ends of the levers 92 are equipped with tucking blades 98, and said upper ends are normally thrown outward from each other by the action of suitably arranged springs 99. The slides 87 are also equipped at their upper ends with folding blades 100, the operation of which will be presently described.

The levers 96, see Fig. 3, are extended in the path of levers 101 which are fulcrumed upon suitable supporting members, as indicated at 102, said levers being extended in the path of cam members 103 associated with disks 104, 105 which are mounted upon the shafts 1 and 2, respectively. It will be seen that when the levers 101 are actuated by the cams 103, the engaged ends of the levers 96 will be depressed, thus lifting the slides 87 against the tension of the springs 89 and causing the folding blades 100 to be moved upward past the ends of the loaf supporting table. At the same time, the lower ends

of the levers 92 will be forced apart by the action of the cams 91 against said levers and against the tension of the springs 99, thus forcing the opposed tucking blades 98 at each end of the loaf supporting table in the direction of each other. When the upper guide member 88 engages the curved upper end of the slot 85, the upper end of the slide 87 will be slightly tilted in the direction of the loaf supporting table, thus causing the folding blade 100 to be pressed in the direction of the end of the loaf. When the levers 101 are disengaged from the cam members 103, the parts will be retracted by the action of the springs 89.

The disk 104, in addition to the cam member 103, is provided with a cam projection 106 making a similar cam projection 107 upon the disk 40 which, as previously described, is mounted upon the driving shaft 1. Levers 108, 109, which are fulcrumed upon suitable uprights 110, 111, are extended in the path of the cam members 106, 107, and said levers are connected by links 112, 113 with the levers 62 which are thereby actuated to operate the sheet folding devices, as previously described.

An ejecting device is provided which consists of an arm 114 which is hingedly connected at 115 with the frame of the machine, and it is engaged by a suitably constructed cam wheel 116 upon the driving shaft 2, a spring 117 being provided to force the arm 114 in the direction of the cam wheel 116 to hold it in engagement therewith. Hingedly connected with the arm 114 adjacent to the upper end of the latter is a suitably guided plunger 118 which is adapted to be projected by the action of the spring 117 over the loaf supporting table in the direction of a discharge chute 119. During the greater portion of the rotation of the cam wheel 116, the ejecting device is held in retracted position against the tension of the spring 117, but the cam wheel has a flattened face 120 which permits the ejector arm 114 at one time during the rotation of the cam wheel to be quickly moved by the action of the spring 117 across the loaf supporting table for the purpose of projecting the wrapped loaf on to the chute 119, the ejector being quickly retracted against the tension of the spring 117 to a non-obstructing position with reference to the loaf supporting table and the feed chute. Suitably supported upon the slides 77 carrying the tucking members 84; and suitably connected with and spaced from said tucking blades are brush members 121 which are connected by flexible ducts 122 with suitably arranged reservoirs 123 containing liquid glue or cement of any description which may thus be applied to the wrappers.

It has in the foregoing been described how the wrapping paper is supplied and placed

upon the loaf supporting table, how the loaf is deposited upon the wrapping material and how the folding devices are actuated to fold the two sides of the sheet over the top of the loaf. This operation is followed by the rapid descent of the tucking members 84, whereby the ends of the wrapping material are folded downward upon the ends of the loaf, as indicated in Fig. 10. During this first operation of the blades or tucking members 84 the brush members 121 will not contact with any portion of the wrapping material. During, or immediately succeeding the first retracting movement of the blades 84, the slides 87 are moved upward, engaging and actuating the levers 92, whereby the tucking members 98 will fold the wrapping material from opposite sides of the loaf upon the ends of the latter, producing folds which are indicated at 124 in Figs. 11 and 12. While the tucking members 98 are thus engaged, the blades 84 descend a second time and are immediately followed by the upwardly moving blades 100 carried by the slides 87, and whereby the tongue 125 of the wrapping material at each end of the loaf is folded upward and in the direction of the end of the loaf, being at the same time wiped over the brushes which are moistened with adhesive material. The blades carrying the brushes are retracted before the blades 100 complete their upward and final tilting movement in the direction of the ends of the loaf, which results in the flaps or tongues 125 which are moistened with adhesive material being pressed firmly against the flaps 124 and the previously downturned ends 126 of the wrapping material, as clearly indicated in Fig. 12, thus completing the wrapping of the loaf, which latter is now discharged from the supporting table 41 on to the chute 119.

It is obvious that the various operating parts of the machine, including the cams, are to be so proportioned and arranged that the several operations will be performed in proper sequence and at the proper times. It is further evident that by each complete revolution of the driving shafts 1 and 2 a complete cycle of operations will be performed to produce the desired result.

Having thus described the invention, what is claimed as new, is:—

1. In a wrapping machine, a supporting table, a feed chute supported vertically above the same, means associated with the feed chute for depositing an object upon a sheet of wrapping material previously placed upon the supporting table, vertically movable devices for folding the sides of the sheet above the top of the object, vertically movable means slidably connected with the feed chute for folding the wrapping material downward upon the ends of the object,

laterally movable tucking members to fold flaps of the wrapping material upon the ends of the object, vertically movable members for folding flaps of the wrapping material upward upon the ends of the object, and means for actuating the several sheet folding and tucking members in proper sequence.

2. In a wrapping machine, a vertically disposed feed chute, clamping members pivotally supported in said chute intermediate their upper and lower ends, arms associated with the clamping jaws near their lower ends and extending through slots in opposite sides of the feed chute, a contractile spring connecting the arms extending from the two clamping jaws through one side of the feed chute to force the lower ends of said jaws toward each other, and cam means to intermittently engage the ends of the arms of the clamping members projecting through the opposite side of the feed chute to move said jaws apart against the tension of the spring.

3. In a wrapping machine, a supporting table, slides supported for vertical movement adjacent to the sides of the table, folding members carried by the slides, flaps hingedly connected with the folding members, means for tilting the flaps toward each other at the upper limit of the movement of the slides, means for advancing and for retracting the slides and related parts, and means for depositing an object to be wrapped upon a sheet of wrapping material previously placed upon the table.

4. In a wrapping machine, a supporting table, means for depositing an object to be wrapped upon a sheet of wrapping material previously placed upon the table, and means for folding the side portions of the wrapping material above the object, said means including vertically movable slides, folding members carried thereby, flaps hingedly connected with the folding members, a supporting plate having slots convergingly curved at their upper ends, upper and lower guide pins associated with the slides and operating in the slots, levers fulcrumed upon the lower guide pins, stop members located in the paths of the inner ends of said levers, and links connecting the outer ends of the levers with the hingedly supported flaps.

5. In a wrapping machine, vertically reciprocating slides, folding blades carried thereby, guide means for said slides whereby the blades at the upward limit of the movement of the slides will be tilted toward each other, advancing means for the slides, levers supported adjacent to opposite sides of each of said slides, tucking blades carried by said levers, spring means whereby the upper ends of the levers adjacent to each slide are forced apart and outward with reference to the slide, and cams asso-

ciated with the slides for engagement with the lower ends of said levers to force the latter against the tension of the actuating springs upon the upward movement of the slides.

6. In a wrapping machine, a pair of vertically disposed plates intersecting each other at right angles, a support rising from said plates, a table mounted upon said supporting means for depositing an object to be wrapped on a sheet of wrapping material previously placed upon the table, means slidably associated with the plates for folding the wrapping material upon the sides and above the top of the object, for tucking the ends upon the object and for folding the end flap in an upward direction, independently supported means for folding the ends of the wrapping material downward upon the object, means for applying adhesive material carried by the last mentioned folding devices, and means for actuating the several folding and tucking devices in proper sequence, including means for actuating the folding devices carrying the means for applying adhesive material twice and the remaining tucking and folding devices once during each cycle of operation.

7. In a wrapping machine, reciprocatory folding members, and means carried thereby for applying adhesive material, in combination with opposed reciprocatory folding members, and means for actuating the first mentioned folding members, means for actuating the last mentioned folding members, and means for again actuating the first mentioned folding members during one cycle of operation.

8. In a wrapping machine, a supporting table, means including a feed chute disposed vertically above the table for depositing an object to be wrapped upon a sheet of wrapping material previously placed upon the table, folding means for folding the side portions of the wrapping material above the top of the object, folding means associated with the feed chute for folding and tucking the upper end portions of the wrapping material downward upon the ends of the object, laterally movable tucking members for folding the side flaps of the wrapping material upon the ends of the object, means for folding the end flaps of the wrapping material upward upon the side flaps previously folded upon the ends of the object, means for applying adhesive material carried by the folding members associated with the feed chute, means for actuating the last mentioned folding members twice during each cycle of operation, and means for actuating the remaining folding and tucking devices once during each cycle of operation and in proper sequence.

9. In a wrapping machine, a supporting table, means including a feed chute sup-

ported above said table for depositing an
object to be wrapped upon a sheet of wrap-
ping material previously placed on the
table, movably supported folding and tuck-
5 ing members for folding the wrapping ma-
terial about the object and upon the ends
of the latter, means for applying adhesive
material to the end flaps, said means being
carried by some of the folding members,
10 and means including suitably supported

reservoirs and flexible ducts for supplying
adhesive material to the applying devices.
In testimony whereof we affix our signa-
tures in presence of two witnesses.

OTTO RICHTER.
LOUIS FREDERICK.

Witnesses:

P. V. BARCKHOFF,
MIKE HENNING.