June 3, 1930. C. O. BROWNELL 1,761,771

PAPER FEEDING AND CUT-OFF MECHANISM

Original Filed Feb. 21, 1925 6 Sheets-Sheet 1

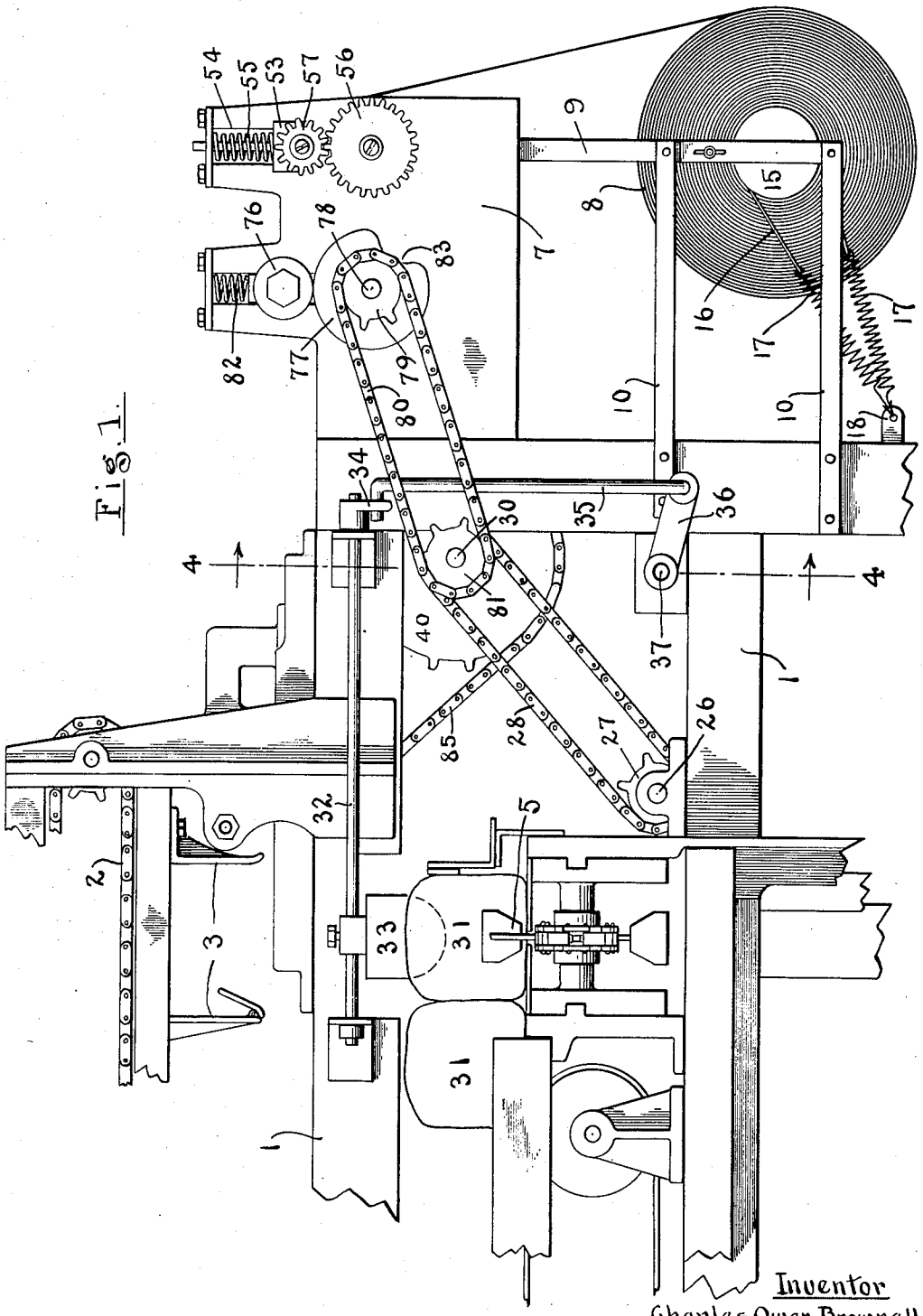


Fig. 1.

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Original Filed Feb. 21, 1925 6 Sheets-Sheet 2

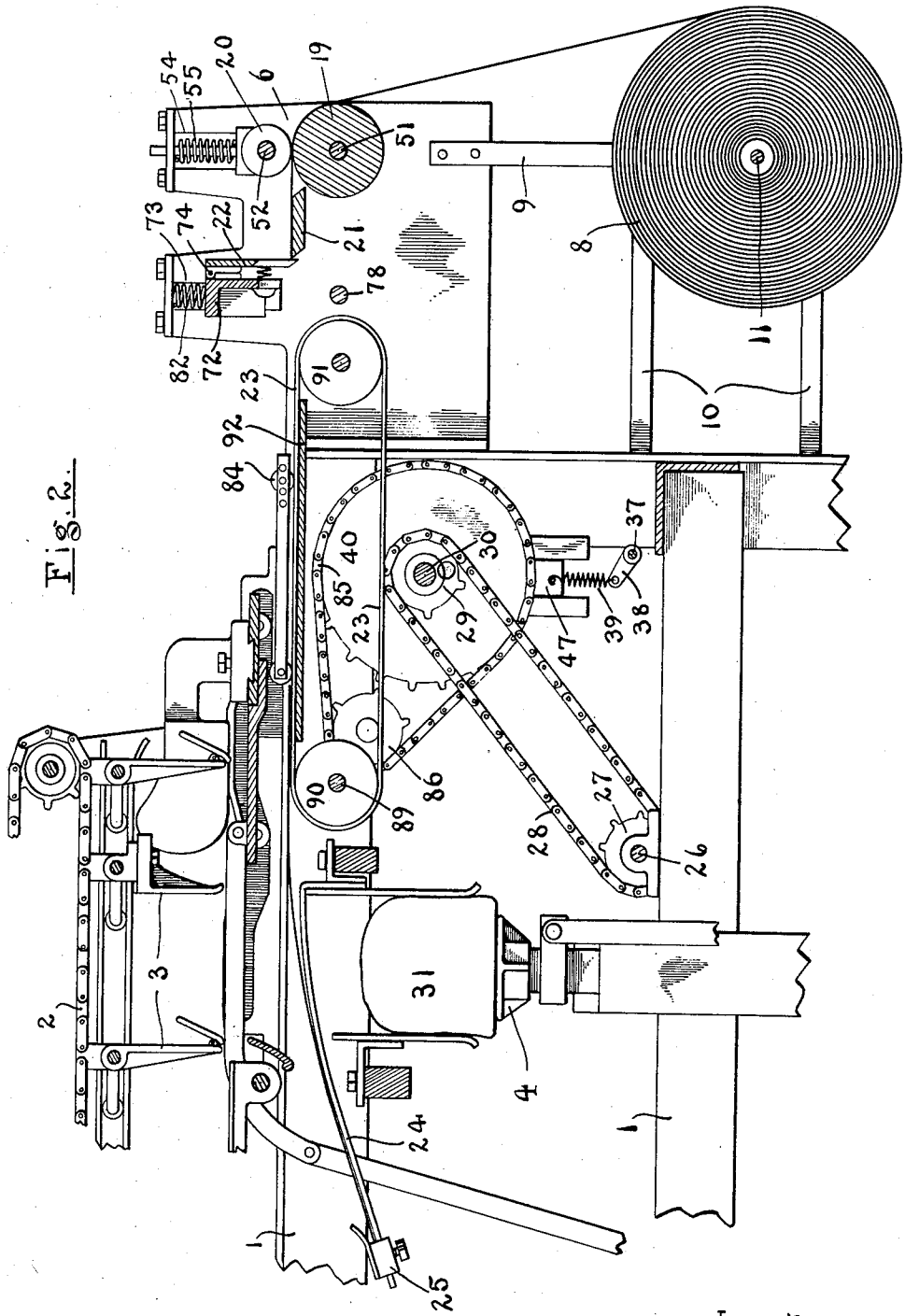


Fig. 2.

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PAPER FEEDING AND CUT-OFF MECHANISM

Original Filed Feb. 21, 1925 6 Sheets-Sheet 3

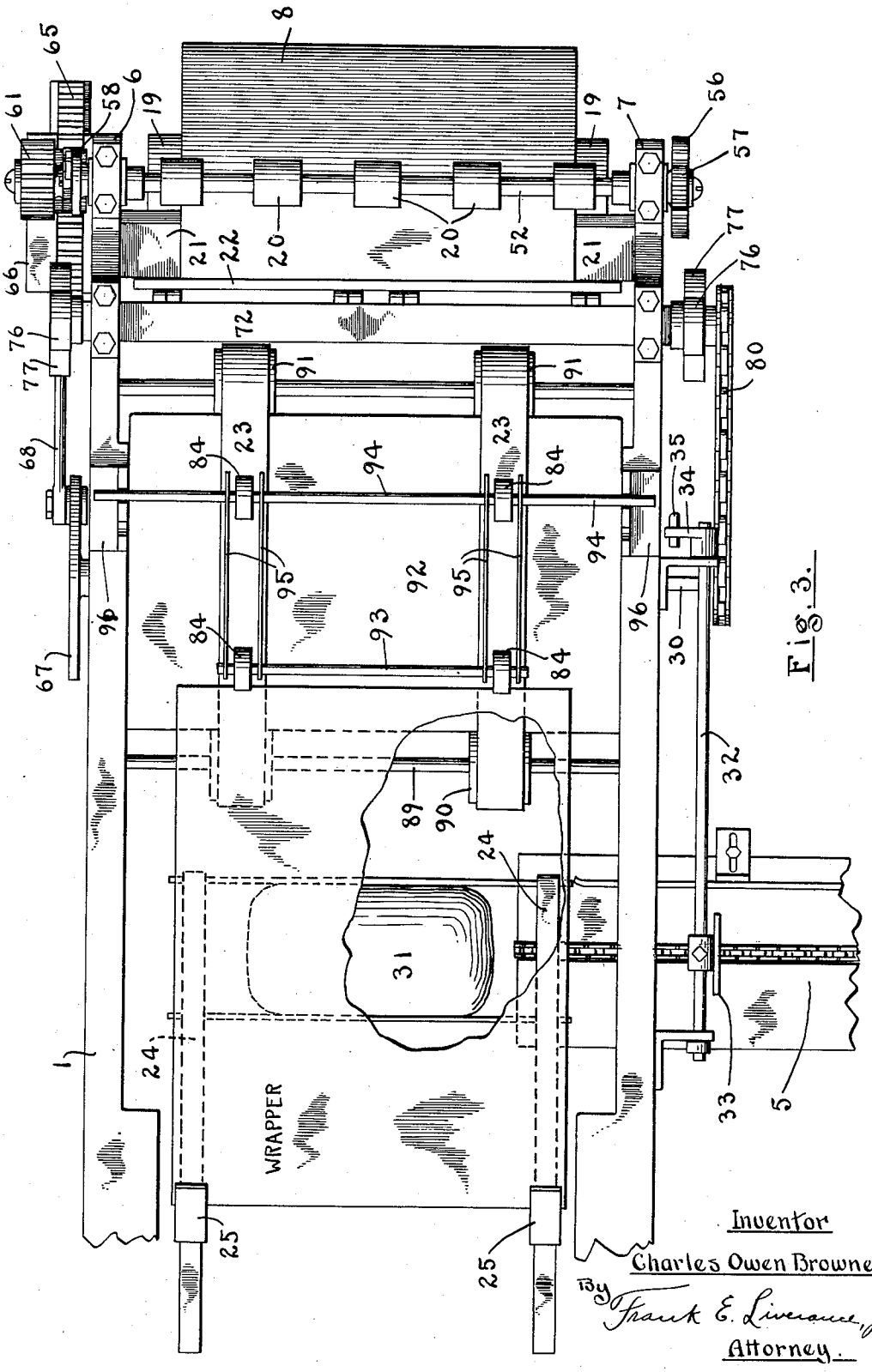


Fig. 3.

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PAPER FEEDING AND CUT-OFF MECHANISM

Original Filed Feb. 21, 1925 6 Sheets-Sheet 4

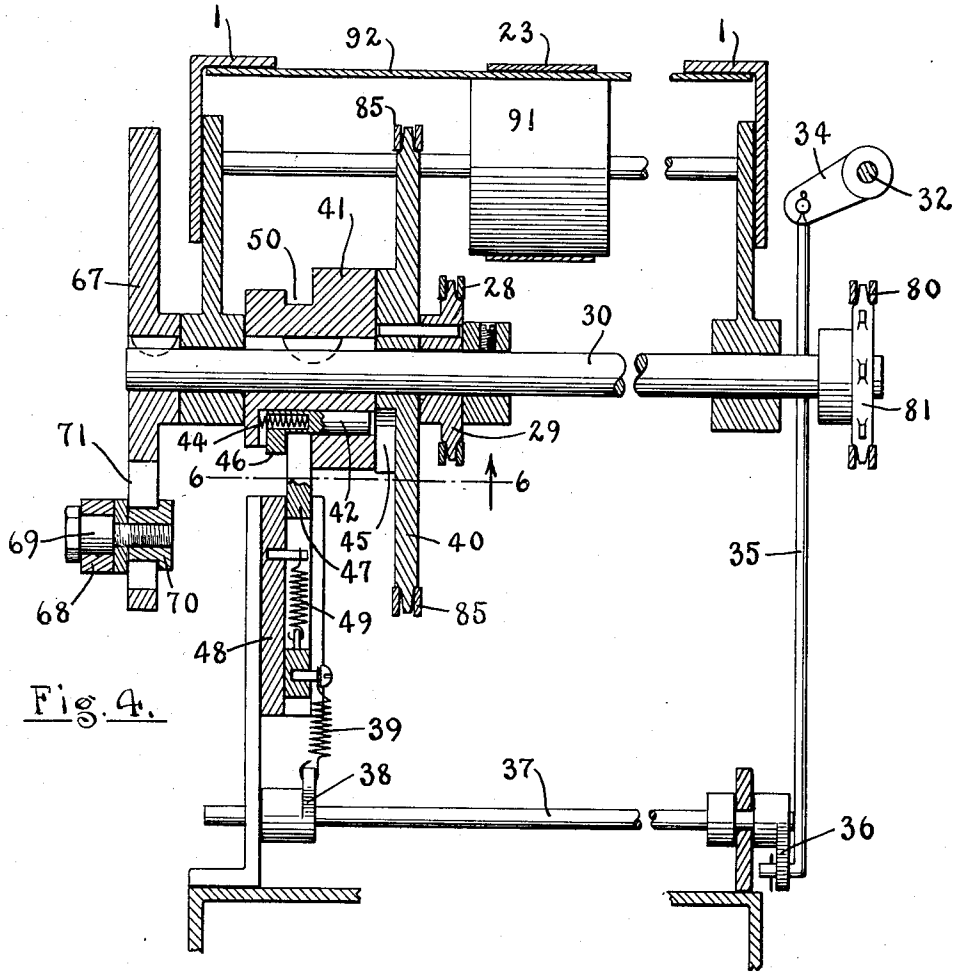


Fig. 4.

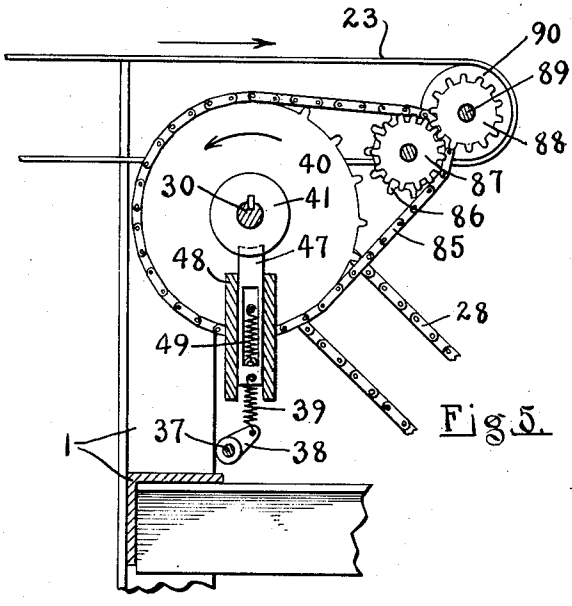


Fig. 5.

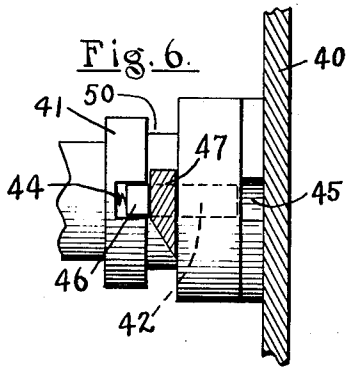


Fig. 6.

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PAPER FEEDING AND CUT-OFF MECHANISM

Original Filed Feb. 21, 1925 6 Sheets-Sheet 5

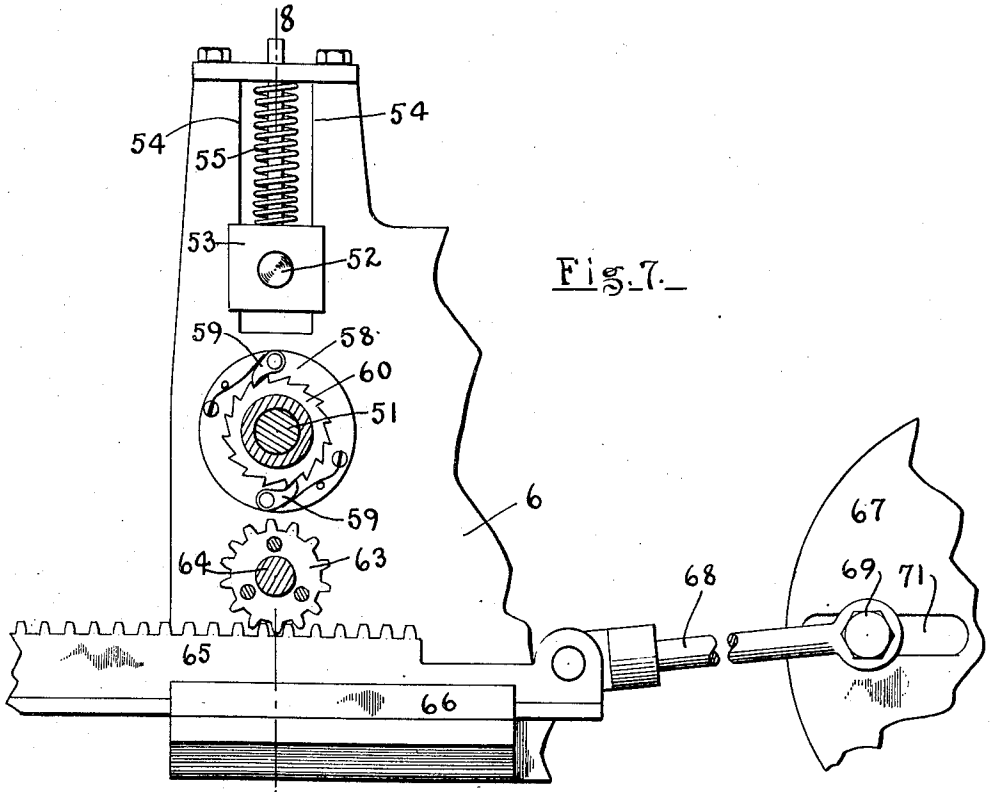


Fig. 7.

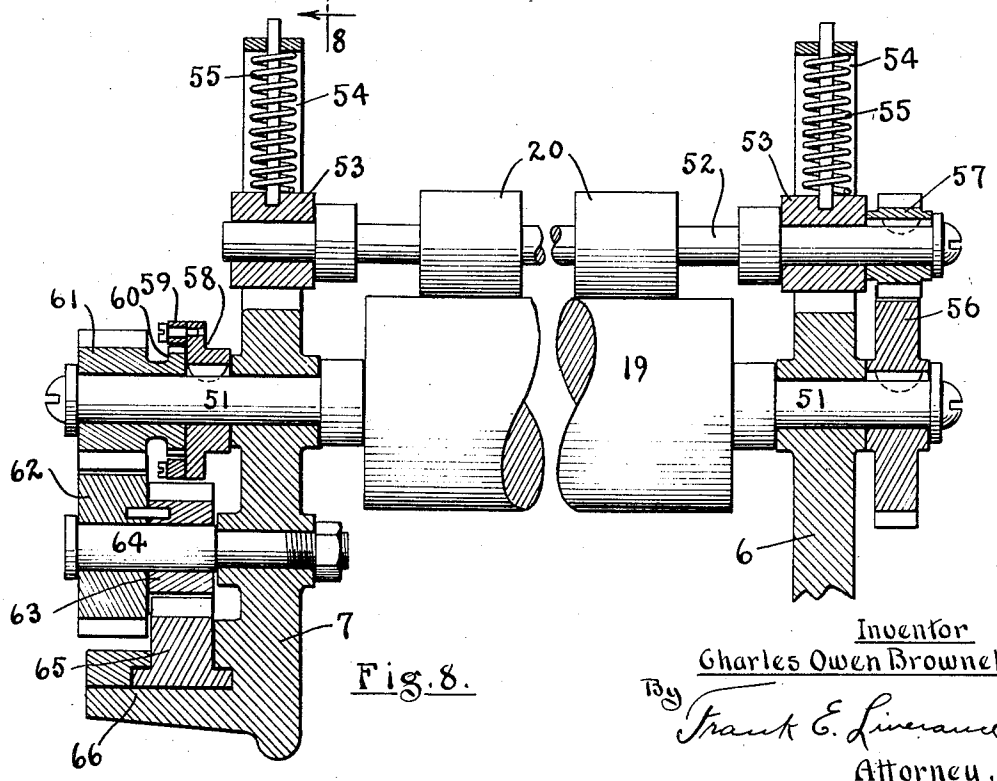


Fig. 8.

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PAPER FEEDING AND CUT-OFF MECHANISM

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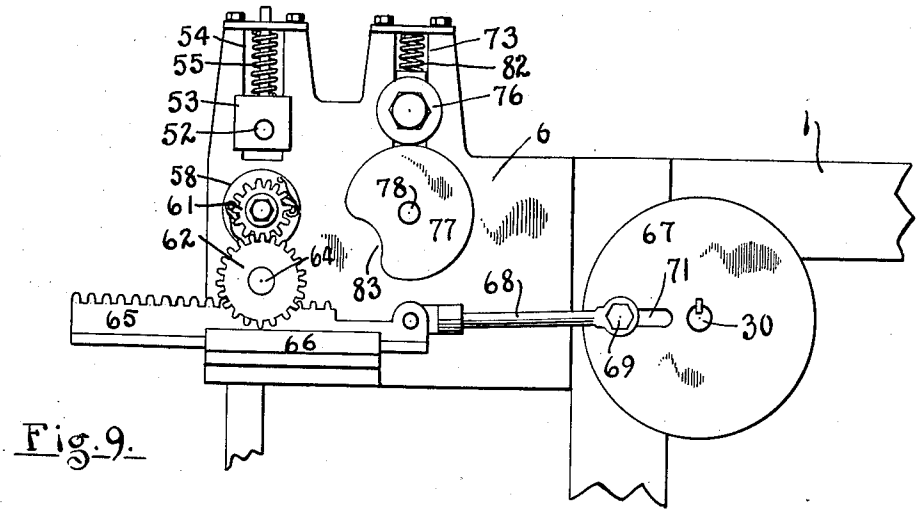


Fig. 9.

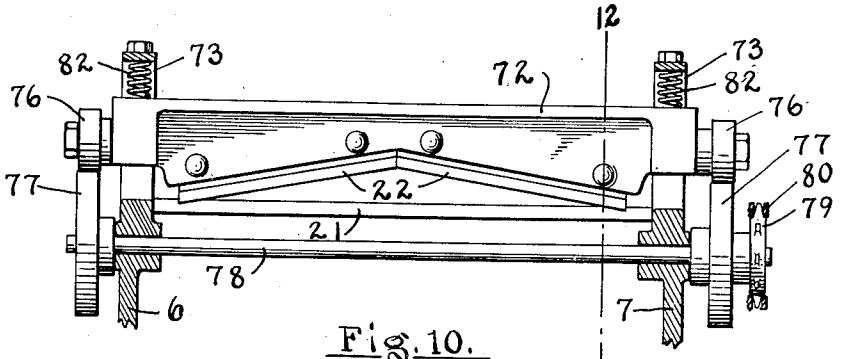


Fig. 10.

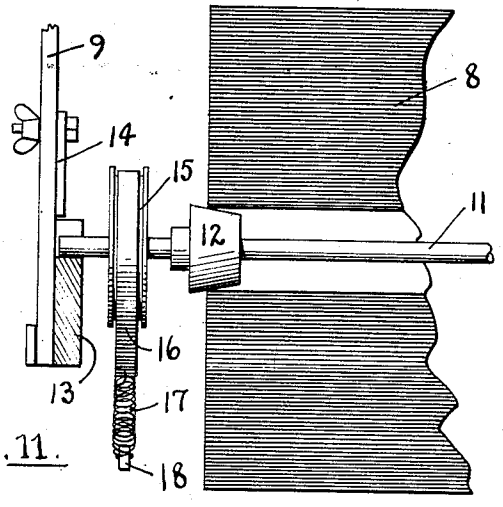


Fig. 11.

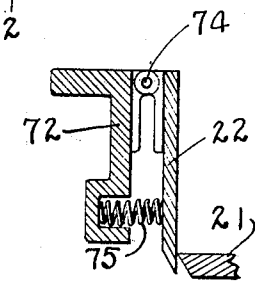


Fig. 12.

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Patented June 3, 1930 1,761,771

UNITED STATES PATENT OFFICE

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PAPER-FEEDING AND CUT-OFF MECHANISM

Original application filed February 21, 1925, Serial No. 10,826. Divided and this application filed November 8, 1926. Serial No. 146,958.

This invention relates to paper feed and cutoff mechanism particularly adapted for bread wrapping machines and is a division from my copending application filed February 21, 1925, Serial Number 10,826.

The particular objects of this invention are to provide a paper feed and cutoff mechanism which will positively and accurately remove paper from a roll and cut it off to the desired length and feed it into the machine and properly locate it where it will be operated upon by the machine to be folded about an article such as a loaf of bread, and to provide means for varying the length of piece cut off and delivered, to provide means for keeping an even tension upon the paper between the roll and feeding rollers whereby it will be unrolled smoothly without tearing, to provide an improved cutting mechanism, to provide an improved starting and stopping clutch thrown into engagement by the passage of a loaf into the machine and to provide various other novel features of construction and arrangement of parts as hereinafter more fully described and particularly pointed out in the claims, reference being had to the accompanying drawings, in which—

Fig. 1 is a side elevation of a part of a bread wrapping machine showing the paper feed and cutoff mechanism embodying this invention applied thereto.

Fig. 2 is a section elevation of the same taken substantially through the longitudinal center of the machine.

Fig. 3 is a plan view of the same with the parts above the main frame of the bread wrapping machine removed.

Fig. 4 is a transverse section with parts broken away taken substantially on the line 4—4 of Fig. 1.

Fig. 5 is a fragmentary elevation with parts broken away, of the clutch used for driving the paper feed and cutoff mechanism.

Fig. 6 is an inverted sectional plan on the line 6—6 of Fig. 4.

Fig. 7 is a fragmentary section with parts broken away, of the paper feed driving mechanism.

Fig. 8 is a sectional elevation on the line 8—8 of Fig. 7 showing the paper feed rolls and a part of the driving mechanism therefor.

Fig. 9 is a fragmentary elevation of the opposite side of the device from that shown in Fig. 1.

Fig. 10 is a sectional elevation of the paper cutting knives and part of the actuating mechanism therefor.

Fig. 11 is a fragmentary sectional elevation showing a part of the paper roll and shaft and the tension device therefor, and

Fig. 12 is a fragmentary section on the line 12—12 of Fig. 10 of the paper cutting knives.

Like reference characters refer to like parts in the different figures of the drawings.

The paper feed and cutoff mechanism embodying this invention is particularly arranged and adapted to be used in conjunction with the bread wrapping machine disclosed in my copending application filed August 9, 1926, Serial Number 127,979. The portion of the bread wrapping machine shown in the drawing corresponds substantially to the construction of either of these machines and includes a frame 1 above which is mounted a conveyor 2 which has loaf gripping means 3 fixed thereto and movable therewith. An elevator 4 is mounted for vertical reciprocatory movement in the frame 1 of the machine and below the conveyor and gripping means, this elevator receiving a loaf of bread at its lowermost position from a cross feed conveyor 5 which carries the loaves consecutively into the machine and deposits them on the elevator.

The paper used in wrapping the loaves of bread is preferably a wax or paraffin coated paper supplied in rolls and the object of this invention is to unroll the paper and cut into uniform lengths of the proper size to wrap a loaf of bread and carry such cut off lengths into proper position over the loaf

of bread on the elevator so that it will be engaged and folded over the respective sides of the loaf as the loaf is moved upwardly into the gripping means 3. Such unrolling and cutting off of the wrapper and locating it in position over the loaf being carried out in synchronism with the operation of the wrapping mechanism and particularly the vertical reciprocations of the elevator.

The frame of the paper feed and cutoff mechanism which comprises the respective side plates 6 and 7 is fixed to the frame 1 of the wrapping machine and the paper roll 8 is supported below the plates 6 and 7 by depending bars 9 supported by braces 10. A shaft 11 is extended through the axis of the roll 8 and the roll is fixed to the shaft by pressing cones 12 into the respective ends of its central opening. The shaft 11 is rotatably supported at its respective ends in any suitable manner, notched blocks 13 fixed to the bars 9 being shown and retaining blocks 14 are located over the notches in the blocks 13 to prevent inadvertent removal of the shaft.

A tension device which maintains an even tension on the paper is provided which comprises a flanged pulley or drum 15 fixed to the shaft 11 near one of its ends and a belt 16 is passed around said pulley, its respective ends being attached to tension springs 17, the opposite ends of each of which are hooked to an eye 18 fixed to the frame of the machine. The specific action and advantage of this tension device will be hereafter explained.

The paper which is unrolled from the roll 8 is passed upward and extends between the feed roller 19 and the pressure rollers 20 and thence extends in a horizontal plane over the stationary knife 21 and under the movable knife 22 which is arranged for vertical reciprocation to cut the paper into wrapper lengths. After being cut between knives the wrapper length which has passed onto the continuously moving conveyor belts 23 is carried thereby into the wrapping machine and deposited upon supports 24 located over the elevator 4 and provided with adjustable stops 25 which are engaged by the wrapper to properly locate it on the supports.

The paper feed and cutoff mechanism is preferably actuated by power derived from the mechanism of the wrapping machine, this mechanism including a rotating shaft 26. A sprocket 27 is fixed to the shaft 26 and a chain 28 is passed around this sprocket and also around a sprocket 29 mounted on a shaft 30 and the shaft 30 constitutes the main power shaft of the paper feed and cutoff mechanism. It is necessary that the paper feed and cutoff mechanism operate in synchronism with the wrapping mechanism and furthermore it is desirable that the periodic feeding of a wrapper into the wrapping mechanism occur only when a loaf of bread is fed into the machine to be wrapped, thus eliminating the possibility of feeding several wrappers into the machine during the absence of loaves on the conveyor mechanism all of which would be picked up and wrapped about the first loaf to enter after the intermission or the carrying of a plurality of wrappers onto the supports 24 might result in their wrinkling or clogging in the machine or in some other unnormal operation.

The feed and pressure rollers 19 and 20 and the knife 22 are caused to act periodically by engagement of a clutch mounted on the shaft 30 and designed to automatically release at the completion of a single rotation of said shaft, this single rotation performing a complete cycle of feeding and cutting operations. The clutch is tripped into engagement upon entry of a loaf of bread 31 into the machine on the cross feed conveyor 5, a shaft 32 being mounted for oscillation upon the frame 1 of the wrapping machine and located over the cross feed conveyor 5 and having an arm 33 fixed thereto, the lower end of which extends into the path of the loaves as they enter the machine. The shaft 32 is provided with an arm 34 which is connected by a link 35 to a lever 36 fixed to a rock shaft 37 which extends into the machine below the shaft 30, its inner end being provided with a lever 38 which is connected by a spring 39 to the mechanism which trips the clutch into engagement.

The clutch mounted on the shaft 30 includes the sprocket 29 driven by the chain 28 and also the sprocket 40 which is fixed to the sprocket 29, both of which are mounted for free rotation on the shaft 30. The clutch member 41 is located on and keyed to the shaft 30 adjacent the sprocket 40 and is provided with a clutch dog 42 slidably mounted therein to be moved by the spring 44 toward the sprocket 40 and into a recess 45 provided in the face thereof. A lug 46 on the clutch dog 42 provides a means engaged by the cam 47 for retracting the clutch dog 42 and disengaging it from the sprocket 40. The cam 47 is mounted in a guide 48 for vertical sliding movement, the spring 49 normally raising it and moving its upper end into the annular groove 50 in the clutch member 41 where it will engage the lug 46 to retract the dog 42 as the clutch rotates. The spring 39 is connected to the lower end of the cam 47 and, being stiffer than the spring 49, will move the cam 47 downward when the lever 38 on the shaft 37 is moved through the various connecting members heretofore described upon entrance of a loaf of bread into the machine on the cross feed conveyor 5.

To review this part of the operation it

will be seen that the normal position of the parts is that in which the cam 47 is elevated so that its upper end engages the lug 46 on the dog 42 holding the dog in retracted position and out of engagement with the sprocket 40. In this position the sprocket 40 and the sprocket 29 connected therewith continuously rotate on the shaft 30 being driven by the chain 28 but the shaft 30 is stationary. As a loaf of bread enters the machine it engages and moves the arm 33 on the shaft 32 rocking the shaft and causing, by the intermediate connecting members 34, 35 and 36, the shaft 37 to rock, this motion lowering the cam 47 by means of the spring 39 connected to the lever 38 and when the cam 47 is thus lowered the dog 42 is released and thrust forward by the spring 44 to enter the recess 45 in the sprocket 40 as it rotates and thus cause the shaft 30 to rotate. Before the shaft 30 has completed a single rotation the loaf has passed under and beyond the arm 33 which is released and the parts including the cam 47 return to normal position in which the upper end of the cam 47 enters the annular groove 50 in the clutch member 41 and as the clutch continues to rotate and completes a single rotation the lug 46 rides upon the inclined surface of the cam 47 and disengages the dog 42 from the sprocket 40 whereupon the shaft ceases to rotate. As before stated a single rotation of the shaft 30 causes the feed and pressure rollers and knife 22 to perform a complete cycle of operations.

The paper feed roller 19 is mounted on the shaft 51 which is journaled in the side plates 6 and 7 and the pressure rollers 20 are located above the feed roller 19 and mounted on the shaft 52. The shaft 52 is journaled at its respective ends in bearing blocks 53 which are mounted for vertical movement in the guides 54 on the side plates 6 and 7 and springs 55 exert a downward pressure upon the bearing blocks causing the pressure rollers 20 to bear against the feed rollers 19 or upon the paper which is interposed between them. The shaft 51 is driven as hereafter described and rotation of this shaft is transmitted to the shaft 52 by the intermeshing gears 56 and 57 which are mounted on and fixed to the shafts 51 and 52, respectively. Inasmuch as the thickness of the paper which is passed between the respective rollers is very little and the variation of the thicknesses of different papers is very slight the intermeshing of the teeth of the gears 56 and 57 is not materially disturbed or interfered with.

The shaft 51 is caused to rotate periodically in a direction to feed the paper toward the cutting knives by the following mechanism. A disc 58 having pawls 59 is keyed to the shaft 51 at the outside of the side plate 7 and a ratchet 60 is loosely mounted upon the shaft 51 adjacent the disc 58 with its teeth in position to be engaged by the pawls 59. A gear 61 is either formed integrally with or is attached to the ratchet 60. The two diameter gear comprising the gears 62 and 63 which are either formed integrally or attached together, is journaled upon a stud 64 projecting from the side plate 7, the larger gear 62 meshing with the gear 61 and the smaller gear 63 meshing with a rack 65 located adjacent thereto and mounted to reciprocate in a horizontal plane in a guideway 66 on the side plate 7. Reciprocation of the rack 65 is caused by rotation of the shaft 30 which is provided at one of its outer ends with a disc 67 and a connecting rod 68 is connected at one end to the rack bar 65 and at its other end is eccentrically connected to the disc 67. The eccentric connection of the connecting rod 68 with the disc 67 is by means of a threaded stud 69 which passes through one end of the connecting rod 68 and is provided with a threaded clamping member 70 on its threaded end, this clamping member extending through a radial slot 71 in the disc 67. Movement of the clamping member in the slot toward or away from the shaft 30 or the axis of the disc decreases or increases the movement thereof and likewise varies the stroke of the rack 65 resulting in a corresponding variation of the rotation of the feed roller 19. By this means the length of paper fed at each period of rotation may be adjusted.

From the foregoing it will be understood that during one half of the rotation of the shaft 30 the rack bar 65 is moved in one direction and during the other half of the rotation the rack bar is moved in the opposite direction. The various parts are so arranged that the first movement of the rack bar rotates the gears 61, 62, and 63 and the ratchet 60 in a direction to engage the pawls 59 with the teeth of the ratchet and rotate the feed roller 19 to feed a length of paper between the cutting knives while the final movement of rack bar during each cycle reverses the rotation of said gears and ratchet and the pawls 59 ride freely over the ratchet teeth and permit the feed roller and paper to remain stationary. It is during the last movement of the rack bar and gears and ratchet and while the feed roller and paper are stationary that the knife 22 is lowered to cut the paper.

The knife 22 is mounted on the vertical slide 72 which is guided at its respective ends in the guides 73 on the respective side plates 6 and 7. The connection of the knife 22 with the slide 72 is preferably by means of a hinge joint 74 at their respective upper edges and springs 75 are interposed between the slide 72 and the knife 22 to thrust its lower or cutting edge into positive engagement with the stationary horizontal knife

21. The lower or cutting edge of the knife 22 is preferably inclined upward from its respective ends to the center so that in elevated position the lower points of the knife are in engagement with the stationary knife 21 thus always maintaining a bearing to retain the knife against displacement by the thrust of the springs 75.

The respective outer ends of the slide 72 are each provided, outside of the side plates 6 and 7, with cam rollers 76 which bear against cams 77 mounted on the respective ends of a cam shaft 78 which is journaled for rotation in the plates 6 and 7, the end of said shaft on the opposite side of the machine from which the feed roller actuating mechanism is located being provided with a sprocket 79. A chain 80 passes over this sprocket and also a sprocket 81 on one end of the shaft 30. The sprockets 79 and 81 are of the same diameter and by this driving connection the shaft 78 is rotated simultaneously with the shaft 30 and turns one complete rotation during each cycle of operations. The slide 72 is thrust downwardly by means of springs 82 located at its respective ends and the slide is supported by the cam rollers 76 bearing against the cam 77. The greater portion of the periphery of each cam 77 is concentric and of a diameter such as to hold the slide elevated in a position so that the paper may be fed under the knife 22. The cams are each provided with a depression 83 at a proper location to permit the cam rollers together with the slide and knife 22 to be lowered after the paper has been fed forward the proper length and stopped, this lowering of the knife 22 causing it to act as a shear against the knife 21 to cut the paper and the cams are rotated before the completion of the cycle to again elevate the slide and knife before the mechanism stops.

The wrapper length of paper having been fed through the knives and cut off passes upon the conveying belts 23 and under the rollers 84 located above them. The conveying belts 23 are continuously rotated, being driven by a chain 85 which passes around the sprocket 40 and around a sprocket 86 to which is connected a gear 87 meshing with the gear 88 fixed to the shaft 89 on which the pulleys 90 are mounted. The belts 23 pass over the pulleys 90 and also over the idler pulleys 91. A shelf or support 92 is arranged in a horizontal plane between the pulleys 90 and 91 to support the upper stretch of the belts between them and the idler rollers 84 are mounted to bear upon the belts over the shelf 92.

When the wrapper length of paper is released by being cut by the knives as before described, it is immediately carried forward by the conveyor belts 23, its frictional contact therewith being increased by pressure of the idler rollers 84 above it, and it is deposited upon the supports 24, its forward edge coming into engagement with the stops 25. The stops are adjustable so that the wrapper may be properly centered over the elevator 4 and the idler rollers 84 may be moved forward or backward so that the wrapper will disengage from them at the end of its movement. The idler rollers 84 are loosely mounted for rotation upon shafts 93 and 94, the shaft 93 being connected with the shaft 94 by links 95 and the shaft 94 being retained in position by notched bracket 96 fixed to the frame of the machine, the shaft resting in the right notches to properly locate the rollers 84.

The tensioning device for the purpose of obtaining and maintaining an even tension on the paper between the paper roller and the feed roller comprises, as before stated, the flanged pulley or drum 15, the belt 16, passed around it and the tension springs 17 connected to the respective ends of the belt and to the eye 18 on the frame of the machine. The function of this device is fundamentally to produce a frictional resistance to rotation of the feed roller by virtue of the frictional engagement of the belts 16 with the drum 15. An additional action other than mere frictional resistance is obtained by this structure which is as follows: When the paper is started to unroll from the rest position the belt 16 will traverse the drum stretching the lower spring 17 and allowing the upper spring 17 to contract until the tension of the lower spring is increased to a point where it will overcome the friction of the belt upon the drum after which the drum will slip upon the belt and the friction between them will offer sufficient resistance to rotation of the paper roll to maintain a proper tension on the stretch of paper between the roll and the feed roller. When the feed roller stops at the completion of its operation the paper roll will have attained sufficient momentum to cause it to continue to rotate a short distance before it is stopped by friction of the belt 16 upon the pulley 15 but as soon as this momentum is overcome the lower spring 17 having been stretched and put under greater tension than the upper spring 17 the paper roll will be rotated backward by said roller spring until the slack in the stretch of paper between the paper roll and the feed roller is taken up which will stop the backward rotation of the paper roll and hold the said stretch of paper under a slight tension and without any looseness or slack therein. The result of this is that upon the beginning of the next movement of the feed roller the stretch of paper between it and the paper roll will exert an immediate pull upon the paper roll to start its rotation but such rotation is not ma-

terially impeded at its beginning because of the yielding of the lower spring 17 allowing the belt 16 to traverse the drum 15. The greater resistance to rotation does not occur until the lower spring 17 has been stretched sufficiently to cause the belt to slip upon the drum and by the time this has occurred the paper roll has attained sufficient velocity of rotation to overcome such resistance without undue strain upon the stretch of paper between it and the feed roller.

A resumé of the operation of the machine is as follows: Loaves of bread to be wrapped are fed consecutively into the machine by the cross feed conveyor 5 onto the periodically reciprocating elevator 4 and as they enter the machine and pass under the arm 33, said arm is oscillated to rock the shaft 32 which by means of the connecting members 34, 35 and 36, rocks the shaft 37 and the lever 38 thereon lowers the cam 47 by its connection therewith by the spring 39. The sprockets 29 and 40 are continuously rotated by the chain 28 and when the cam 47 is lowered the lug 46 is released and the dog 42 is thrust forward by the spring 44 into the recess 45 of the sprocket 40. This causes a connection between the clutch member 41 which is fixed to the shaft 30 and the rotating sprocket 40 whereby the shaft 30 is rotated.

At the beginning of the rotation of the shaft 30 the rack bar 65 is moved, by its connecting rod 68 connected eccentrically to the disc 67, in a direction to rotate the gears 61, 62 and 63 and the ratchet 60 to cause the pawls 59 to engage with said ratchet and rotate the feeding roller 19 and pressure rollers 20 to move said paper from the paper roll 8 forward between the knives. The stretch of paper between said roller 19 and paper roll 8 has been tensioned so that the paper roll immediately rotates upon the first movement of the paper and the lower tension spring 17 stretches until the belt 16 begins to slip upon the drum 15, thereby exerting frictional resistance to the paper roll and retaining a tension in the stretch of paper between the paper roll and the feed roller. The feed roller continues to rotate during half of the rotation of the shaft 30 after which the movement of the rack is reversed and the rotation of the ratchet 60 likewise reversed causing the pawls 59 to ride freely thereover and the movement of the feed roller and feeding of the paper is stopped. Upon stopping of the movement of the paper the momentum of the paper roll 8 causes it to rotate a slight distance until overcome by friction of the belt 16 upon the drum 15 after which it is returned by tension of the lower spring 17 until stopped by the stretch of paper between it and the feed roller.

During the paper feeding operation the cam shaft 78 has been rotated with the cam rollers 76 riding upon the concentric portions of the peripheries of the cams 77 and holding the slide 72 and knife 22 in elevated position. After the cessation of the feeding operation and while the rack bar is traversing its return stroke, the cam rollers 76 are lowered into the depressions 83 in the cams 77 lowering the knife 22 and severing the paper, the cam shaft and cams continuing to rotate thereafter to again raise the cam rollers 76 onto the concentric portions of the peripheries of the cams and hold the knife 22 in elevated position. As soon as the wrapper length of paper has been severed it is carried forward by the conveyor belts 23 and under the idler rollers 84 and deposited upon the supports 24, being stopped in proper position by the stops 25. This feeding, cutting and delivering of the wrapper occurs during the time that the loaf is moving inward on the cross feed conveyor and being deposited upon the elevator 4 and before it is elevated by said elevator. Before the shaft 30 has completed a single revolution the loaf has passed under the arm 33 and released it allowing it to return to normal position which likewise permits the shaft 37 to rock back to normal position and the cam 47 to be raised by the spring 49 so that its upper cam end will enter the annular groove 50 in the clutch member 41 and as the shaft 30 completes its revolution the lug 46 will ride upon the inclined surface of the cam 47 and withdraw the dog 42 from the recess 45 in the sprocket disconnecting the clutch member 41 from the sprocket and permitting the shaft 30 to stop its rotation and the sprockets 40 and 29 to continue their free rotation. It is necessary that the sprocket 40 which drives the conveyor belts 23, be rotated after the rotation of the shaft 30 has stopped because it is after the feeding and cutting action which is actuated by the shaft 30 that the conveyor belts function to deliver the wrapper over the loaf.

After the wrapper has been delivered over the loaf the elevator operates to raise the loaf into engagement with the wrapper and carry it upward into the gripping means 3 and again lowers to receive the next consecutive loaf which enters the machine in the same way and repeats the operation of the paper feed and cutoff mechanism as above described.

Owing to the variety of sizes of loaves which may be wrapped by the machine it is necessary that the length of wrapper cut off and delivered may be varied accordingly. This is conveniently and quickly done by simply loosening the stud 69 to release the clamping member 70 and the clamping member then moved along the slot 71, to-

ward the axis of the disc 67 to decrease the length of the wrapper or away from said axis to increase its length. The proper length of the wrapper may be obtained by experiment or graduating marks may be provided on the face of the disc to indicate the proper setting for different lengths.

The tension device heretofore described is of extreme value although simple in nature. It has been found that without a proper tensioning device a great deal of difficulty is experienced in unrolling the paper from the roll without its tearing. The paper rolls are usually of considerable size and quite heavy. Their resistance to rotation by reason of inertia is considerable and their tendency to continue to rotate by momentum is pronounced. Furthermore the waxed paper used has a tendency to adhere together especially if the roll has not been kept under the proper climatic conditions. This adherence of the layers has offered a great deal of annoyance and in fact it has some times been found necessary to throw aside entire rolls of such paper which have an aggravated tendency to adherence. The jerking of the stretch of paper between the feed roll and paper roll which had become slack at the end of a feeding operation would invariably tear the paper unless its layers separate very freely and unless the paper were of strong and even texture. It has been found that use of the present tensioning device will permit the use of paper which could not be used without it and that the machine will operate successfully with grades of paper much inferior to that which was necessarily used without such tensioning device.

Although this paper feed and cutoff mechanism has been described as applied to a bread wrapping machine it may readily be used in other places and especially in connection with other wrapping machines, and in fact is adaptable for use wherever it is desired to unroll and cut off uniform lengths of paper.

I claim:

1. A paper feed and cutoff device comprising a cutoff mechanism, a feed roller, a pressure roller, pawl and ratchet driving means mounted on the shaft of the feed roller, a reciprocable rack bar, a pinion meshing with said rack bar and actuating said pawl and ratchet means, an intermittently operating clutch-controlled shaft, a connecting rod eccentrically connected at one end to said shaft and connected at its other end to said rack bar to reciprocate the same, and means operated by said shaft for actuating said cutoff mechanism while the feed roller is inactive.

2. A paper feed and cutoff device comprising cutoff mechanism, a feed roller, a pressure roller, pawl and ratchet driving means mounted on the shaft of the feed roller, a reciprocable rack bar, a pinion meshing with said rack bar and actuating said pawl and ratchet means, an intermittently operating clutch-controlled shaft, a connecting rod connected at one end to said rack bar and at the other end connected eccentrically to said shaft, means for varying the degree of such eccentric connection, and means operated by said shaft for actuating said cutoff mechanism while the feed roller is inoperative.

3. A paper feed and cutoff device comprising paper feed rollers, a pawl carrying member fixed to the shaft of one of said rollers, a ratchet rotatably mounted on said shaft and engaged by said pawl, a pinion fixed to said ratchet, a double pinion journalled adjacent said roller shaft, one pinion of which meshes with the pinion attached to the ratchet, a reciprocable rack meshing with the other pinion of the double pinion, an intermittently operating, clutch-controlled shaft, a connecting rod eccentrically connected to said power shaft and connected to said rack whereby the rack is reciprocated upon rotation of the power shaft, means for varying the degree of eccentricity of the connection of said connecting rod with said power shaft, cutoff mechanism adjacent said feed rollers, and means driven by said shaft to actuate said cutoff mechanism.

4. A paper feed and cutoff mechanism comprising paper feed rollers, a cutoff mechanism, means for intermittently actuating said feed rollers and cutoff mechanism, a rotatable support for a roll of paper, the paper from which passes between said feed rollers, and means acting to resist the rotation of said paper roll support, such resistance being less at the beginning of rotation than during the greater part of such rotation.

5. A paper feed and cutoff mechanism comprising paper feed rollers, a cutoff mechanism, means for intermittently actuating said feed rollers and cutoff mechanism, a rotatable support for a roll of paper, the paper from which passes between said feed rollers, means acting to resist rotation of said paper roll support, and means acting to reverse the rotation of the paper roll support after the stopping of the feed rollers to take up the slack in the paper between the paper roll and the feed rollers caused by rotation of the paper roll due to momentum after the feed rollers have stopped.

6. A paper feed and cutoff device comprising paper feed rollers, cutoff mechanism, means for intermittently actuating the feed rollers and cutoff mechanism, a rotatable support for a paper roll, the paper unrolled from which passes between said feed rollers, means for resisting rotation of said paper roll support, such resistance being less

at the beginning of the rotation than during the greater portion thereof, and means to reverse the rotation of the paper roll support after the stopping of the feed rollers to take up the slack in the paper between the paper roll and the feed rollers due to rotation of the paper roll by momentum after the feed rollers have stopped.

7. In a paper feeder and cutter, cooperating knives, feed rolls for advancing the paper web to the knives, a clutch-controlled actuating shaft having a radially adjustable crank pin, a rack connected to and reciprocated by said crank pin, pawl and ratchet means actuated by said rack for advancing the feed rolls during the forward movement of the rack, and means actuated by said shaft for operating the cutting knife during the return movement of the rack, substantially as described.

8. In a paper feeder and cutter, shearing knives, feed rollers for withdrawing a paper web from a roll and advancing it to the knives, an actuating shaft, automatic clutch controlled means for imparting a single revolution to said shaft at each operation, a radially adjustable crank pin on said shaft, a rack connected to and reciprocated by said crank pin, pawl and ratchet means actuated by said rack for advancing the feed rollers during the forward movement of the rack, and means actuated by said shaft for operating the cutting knife during the return movement of the rack and while the web is gripped and held stationary by the feed rollers, substantially as described.

9. In a paper feeder and cutter for wrapping machines, paper web feed rolls, shearing knives for severing separate wrappers from the web, a supplemental feeder for delivering the severed wrappers to the wrapping machine comprising an endless conveyor and a superposed feed roll, means for continuously operating said supplemental feeding conveyor and means for intermittently and successively operating said main feed rolls and the cutting knife, and including an intermittently operating shaft having a radially adjustable crank pin for varying the movement of the main feed rolls and the length of the severed wrappers, said supplemental feed roll being independently adjustable to and from the wrapping machine to deliver wrappers of different lengths, substantially as described.

10. In a paper feeder and cutter for wrapping machines, intermittently and successively operating main feed rolls and shearing knives for advancing a web and severing separate wrappers therefrom, a continuously operating supplemental feeding conveyor and a superposed, independently adjustable feed roll for advancing the severed wrappers, guides having downwardly inclined forward end portions for receiving the wrappers and adjustable stop devices upon the forward ends of said guides, substantially as described.

In testimony whereof I affix my signature.

CHARLES OWEN BROWNELL.