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BREAD WRAPPING MACHINE

Original Filed March 8, 1937 2 Sheets-Sheet 1

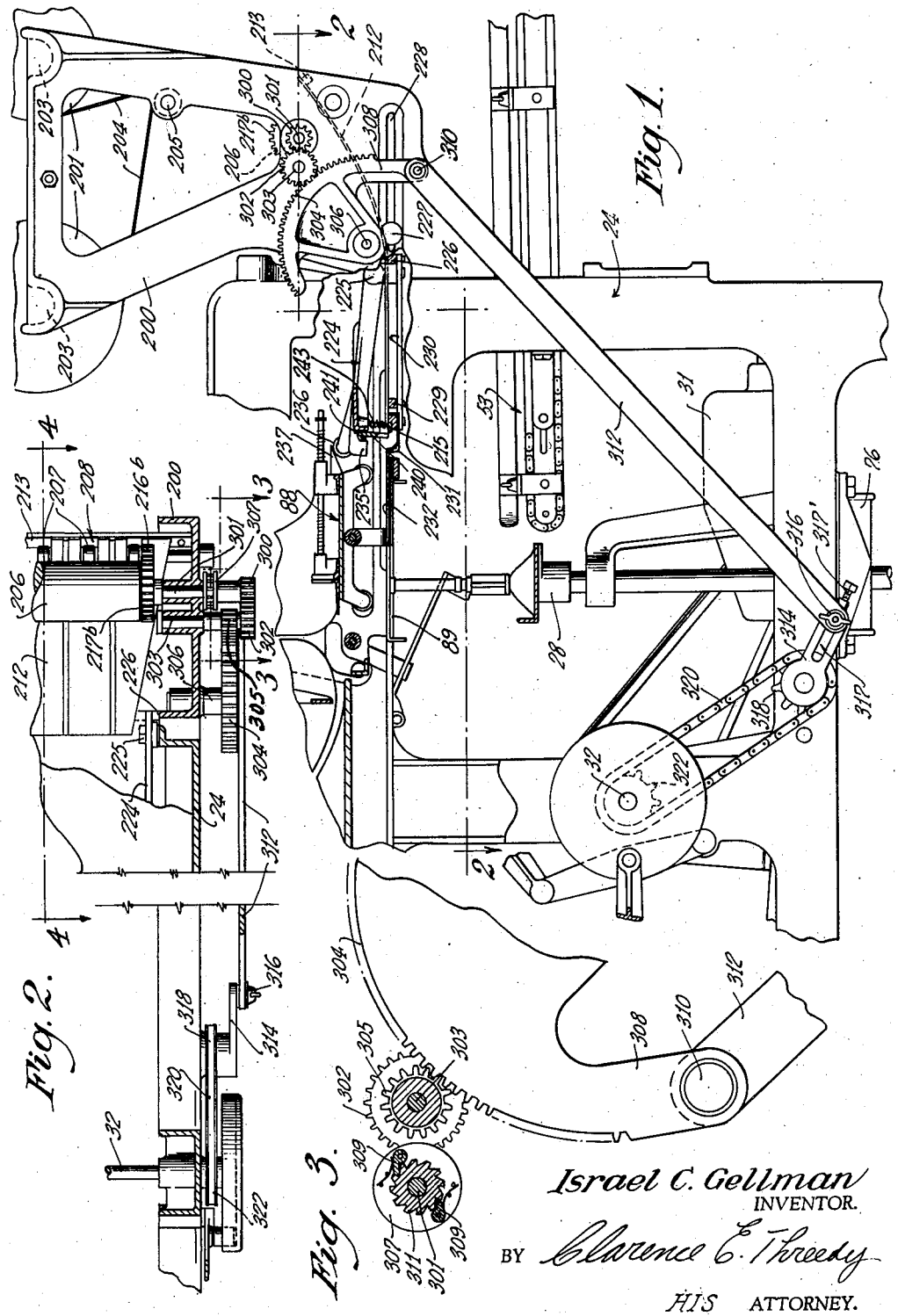


Fig. 1.

Fig. 2.

Fig. 3.

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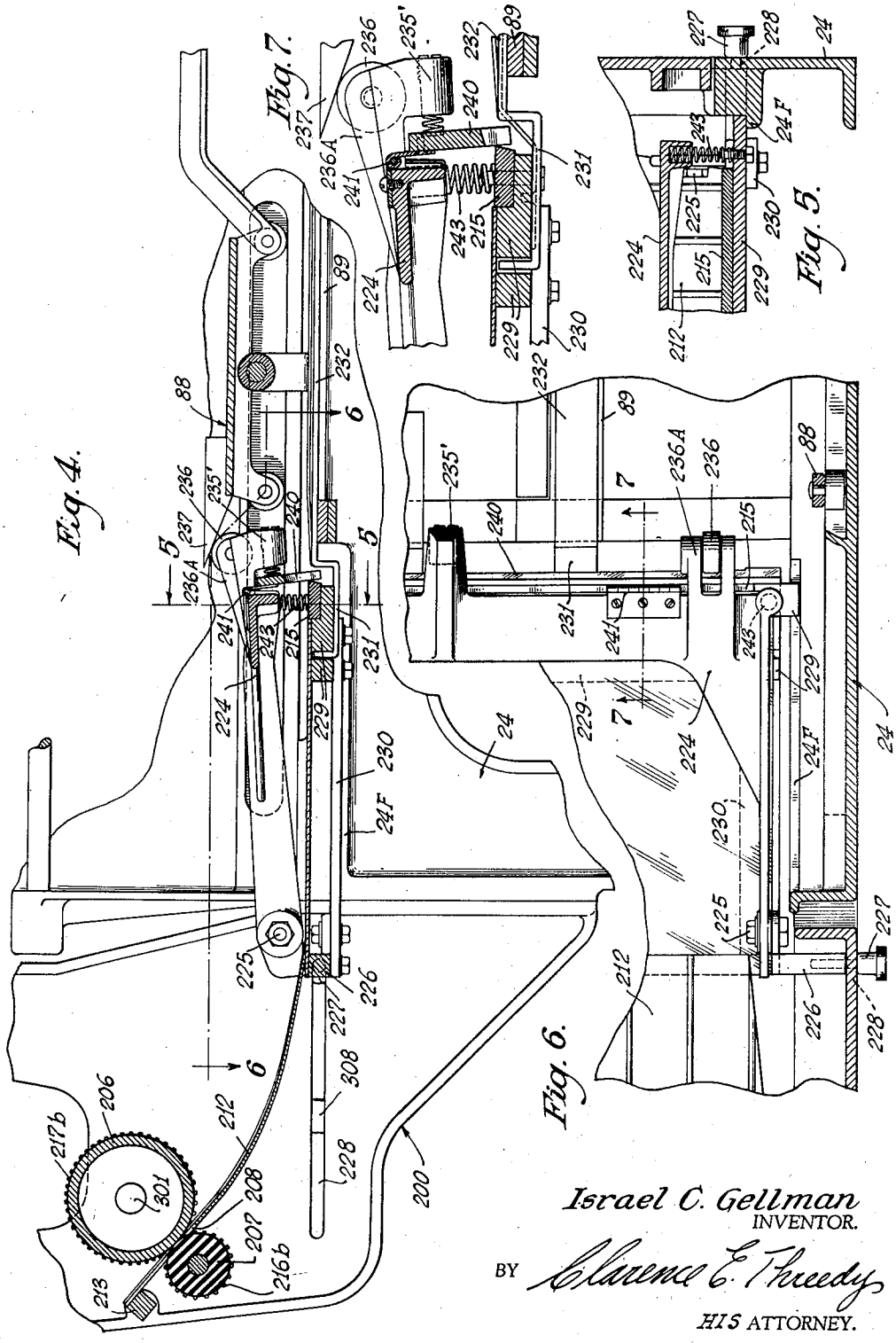
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2,229,287

BREAD WRAPPING MACHINE

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Original application March 8, 1937, Serial No. 129,561. Divided and this application October 29, 1937, Serial No. 171,755

10 Claims. (Cl. 93—2)

This invention relates to paper and web feeding mechanism for use with bread wrapping and similar machines, and is a division of my pending United States application Serial No. 129,561, filed March 8, 1937.

It is an object of the invention to provide an automatic paper feed for use with bread wrapping machines of the type having a central drive system and wrapping mechanism movable in timed strokes and including a paper shear operable periodically therewith.

It is a further object to provide a simple mechanism for feeding paper in predetermined lengths, and adapted for connection with the aforesaid central drive system.

It is another object to provide a simple adjusting mechanism for determining the length of web paid out at each feeding operation.

Yet another object is the provision of automatic paper feeding means including means for supporting a plurality of web rolls, roller means for unwinding the web from the rolls, a rocker gear having adjustable driving connection with the central drive system, and unidirectional clutch means interconnecting the rocker gear and roller or feeding means.

Yet another object is a cutting means for severing the web in timed relation to the feeding movement and the movement of the wrapping carriage, the invention providing particularly a rocking knife which is engaged by a reciprocable wrapping carriage, at a certain stage in the movement of the latter, to cause the knife to shear a web of wrapping paper.

Other objects and novel aspects of the invention both as to matters of construction and operation, will become evident from the following description taken in view of the drawings, in which:

Fig. 1 is a fragmentary side elevation of a wrapping machine and the automatic feed means;

Fig. 2 is a fragmentary top plan view, partly in section, of the paper feed roller and clutch drive means therefor;

Fig. 3 is an enlarged detail of the segmental rocker gear and ratchet means for the feed roller.

Fig. 4 is a fragmentary vertical section through the machine along lines 4—4 of Fig. 2 looking at the opposite side of the frame member shown in Fig. 1;

Fig. 5 is a cross section through the adjustable knife bearer support taken along lines 5—5 of Fig. 4;

Fig. 6 is a fragmentary top plan view similar to Fig. 2 but taken on the opposite side of the machine from the latter and looking down along line 6—6 of Fig. 4; and

Fig. 7 is a fragmentary cross sectional detail through the knife structure adjacent the knife blades as seen along lines 7--7 of Fig. 6.

As viewed in Fig. 1, the wrapping machine with which the present feed means is especially adapted to be used, includes a main frame 24, a central drive shaft 32 driven by motor means 31.

Mounted on frame 24 is a sprocket wheel 318 driven by a chain 320 from a sprocket gear 322 on shaft 32, and the driven sprocket 318 has a drive arm 314 provided with a radial slot 317 provided at its outer end with a radially movable adjusting bolt means 317', the purpose of which will later appear. This part of the mechanism constitutes the driving connection between the central power system and the feeding means.

Supported at an end of the main frame 24 are a pair of upright brackets 200 mounted in spaced relation and each having opposite cradle bearings 203 into which seat paper stock or web rolls 201. Lower down on the brackets is an idling cross roller 205 over which the twin paper webs 204 pass down between the feed means onto an apron 212.

This feed means includes presser rollers 207 (Figs. 2, 4 and 6) fitted into edgewise slots 208 in a ribbed feed apron 212. These rollers 207 are adjustable, as set forth in the co-pending parent application Serial No. 129,561. A master driven roller 206 having a shaft 301 journaled in and extended through the corresponding roll bracket 200, draws the paper webs 204 from the rolls and feeds it onto the apron 212 to be halted or positioned above a wrapping elevator 28; as described in my application Serial No. 129,561, the length of paper fed being determined by certain adjustments of the bolt 317'.

Unidirectional movement of the master feed roller 206 is effected by means of a segmental rocker gear 304, pivotally mounted as at 306 on bracket 200, and having a depending arm 308. The rocker gear is rocked by means of a link or drive arm 312 pivotally connected at one end 310 to the depending arm 308 on the rocker gear, and at its opposite end to the drive arm 314 by means of a wing bolt 316 slidable in the radial slot 317.

By adjusting the set screw 317', the stroke of the arm 312 can be adjusted to vary the travel of the rocker gear and also, ultimately, of the length of web fed by the master roller 206.

Referring to Fig. 2, it will be observed that

the master roller is driven through gear means including a ratchet clutch (Fig. 3 also) having a clutch plate **307** which floats on the roller shaft **301** and which is provided with ratchet pawls **309** engageable with a ratchet **311** fixed on roller shaft **301**. A gear **300** fixed to the clutch plate **307** is driven by an intermediate gear **302** on shaft **303** through gear **305** driven by sector **304**. Thus each time the rocker gear **304** moves downwardly (clockwise, Fig. 2), the master roller will be advanced, the presser rollers **207** being preferably driven also to assure positive advance of the web, this being effected by means of gear **216b** fixed on the same shaft with rollers **207**, and driven by a gear **217b** fixed on the master roller shaft.

Means for automatically severing the advanced web in timed relation to the operating of the rocker gear and associated feeding mechanism, includes a yoke-shaped knife frame **224** pivotally mounted at one end, as at **225**, on a cross bearer bracket **226**, which extends between the uprights **200**, and which is engaged at its opposite sides by adjustment bolts **227** slidable in horizontal slots **228** so that the knife may be slid back and forth toward and away from the carriage **88**.

A front bearer **229** is joined with the rear bearer **226** by longitudinally extensive straps **230**, and this front bearer slides on flanges **24F** (Figs. 4 to 6) in the frame **24** and engages the depressed or stepped ends **231** of rails **232** secured to the main rails **89** upon which the paper ultimately rests and up between which the elevator **28** moves.

The knife structure includes a fixed shear member **215** and a movable shear **240** hinged as at **241** on the knife frame or yoke, and this latter knife is urged toward the fixed knife or shear by spring means mounted in bosses **235'** extended from the knife frame (Fig. 7). Also mounted on the bosses **236A** are spaced rollers **236** engageable by cam fingers **237** on carriage **88**.

It will be recalled that the elevator **28** and the carriage **88** move in timed relation through the central drive system, and also that the automatic web feeding mechanism is likewise driven from the central drive. When the carriage **88** is returned to the extreme (right-hand) position in Fig. 1, the cams **237** thereon bear down on the rollers **236** on the knife or shear frame and pivot the knife structure **241** down against a section of webbing, previously advanced, and shear it against the stationary member **215**, so that when the carriage is ready to move forward again, the severed piece of paper is free to be pressed around the loaf of bread rising on elevator **28**, and as the elevator retracts, another section of paper will advance and be cut in a similar manner. Thus the severing and feeding means cooperate in timed relation to the movement of the wrapping mechanism.

The knife frame is normally moved up out of shearing position by means of springs **243** behind the knife **241**.

In accomplishing the several objects of the invention, only one form of arrangement has been detailed for illustrative purposes, and it will be understood that all changes and modifications which may be made to provide an equivalent mechanism, are included within the scope of the invention as defined in the appended claims.

Having thus described my invention, what I claim as new and desire to protect by Letters Patent is:

1. In a wrapping machine of the type including a reciprocable wrapping carriage and means for feeding a web of wrapping material beneath the carriage substantially parallel to the plane of reciprocation thereof, web shearing means comprising: coacting movable and stationary shears arranged adjacent one of the terminal reciprocal positions of said carriage, said movable shear being mounted for movement in a direction transverse to the line of reciprocation of said carriage, means normally disposing said movable shear out of engagement with said webbing, and coacting means on said carriage and movable shear for moving the latter against said webbing to shear the same when said carriage has moved a predetermined distance toward the aforesaid terminal position.

2. In a bread wrapping machine of the type including a horizontally reciprocable carriage and coacting folding instrumentalities, means for feeding a web of wrapping paper in the direction of reciprocation of the carriage into position beneath the latter, shearing means comprising coacting stationary and movable shear members extending transversely of said webbing near one of the reciprocal terminal positions of the carriage, said movable shear being yieldingly urged away from said webbing and the companion shear and means on said carriage moved by the latter into operative engagement with said movable shear once during each complete reciprocation of the carriage for moving said movable shear toward and into shearing engagement with said webbing.

3. In a device of the class described having a carriage arranged for reciprocation in cooperation with other wrapping instrumentalities to effect wrapping operations on an article, means for feeding paper webbing in the direction of reciprocation of the carriage and in a plane substantially parallel with said direction of reciprocation for use in said wrapping operations, and means for cutting said webbing at intervals in timed relation with the movements of said carriage, said means including a stationary shear extending transversely of said webbing near one of the terminal positions of reciprocation of the carriage, and a movable shear mounted to extend transversely of the webbing for cooperation with said stationary shear and also for movement toward and away from the latter into and out of shearing engagement with said webbing, means normally urging said movable shear away from the stationary shear, and means moved by said carriage into operative engagement with contact means on said movable shear when said carriage moves a predetermined distance toward said terminal position and effective to move the movable shear against said webbing to shear the latter cooperably with the stationary shear when said carriage moves an additional amount toward said terminal position.

4. In a bread wrapping machine, a reciprocable wrapping carriage, means for feeding paper webbing relative to said carriage for purposes of wrapping, and web cutting means including a movable shear yieldingly disposed in a non-shearing position relative to webbing fed as aforesaid, and cooperating cam means on said carriage and shear for effecting movement of the latter into shearing position relative to said webbing once during each reciprocation of the carriage.

5. In a bread wrapping machine, a reciprocably movable wrapping member, a pivoted shear, and means for feeding paper webbing past said shear toward said wrapping member for utilization by

the latter in wrapping operation, means yieldingly urging said shear into non-shearing position, and cam means on said wrapping member and movable with the latter into driving engagement with said shear to move the latter into shearing position when said wrapping member is moved into a predetermined position.

6. In a bread wrapping machine, a reciprocable wrapping member, means for feeding a wrapping web into position for wrapping action with said wrapping member, and shearing mechanism including a shear arranged transversely of said web, spring means normally urging said shear into non-cutting position, a cam member mounted on said wrapping member and arranged to operatively engage cooperating cam means forming a part of said shearing mechanism for moving the shear against said web to sever the latter when said wrapping member is moved to a predetermined position.

7. In a bread wrapping machine, a wrapping member arranged for periodic motion, means cooperably driven with said wrapping member for feeding paper webbing to the latter for utilization in the wrapping operations thereof, and shearing mechanism including shear means arranged for movement transversely toward and away from said webbing, means yieldingly positioning said shear means away from said webbing, and means movable by said wrapping member transiently engageable with cooperating means forming part of said shearing mechanism for moving said shear means toward said webbing to shear the latter once during each periodic movement of said wrapping member.

8. In a bread wrapping machine, a reciprocable wrapping carriage and cooperatively driven means for feeding paper webbing into position relative to said carriage for wrapping purposes, and shearing mechanism including shear means arranged to extend transversely of said webbing and mounted for movement toward and away from said webbing and also for pivotal movement about an axis transverse to said webbing, spring means normally urging said shear means in a direction away from said webbing out of the path of movement thereof, spring means normally pivoting said shear means in a direction toward said webbing, cam means arranged as an operative part of said shearing mechanism for moving said shear means toward said webbing to sever the latter, and cooperating cam means arranged for movement with said carriage for transient engagement with said first-mentioned cam means of the shearing mechanism to effect a shearing of said webbing once during each complete reciprocation of said carriage.

9. In a bread wrapping machine, a wrapping member arranged for movement back and forth and cooperating means for feeding paper webbing into wrapping position relative to said wrapping member, and shearing mechanism including a knife frame mounted for pivotal movement about an axis extending transversely of said webbing, for movement in a direction toward and away from the latter, spring means normally pivoting said frame away from said webbing, knife means pivotally mounted on said frame for movement about an axis transverse of said webbing and in a general direction toward and away from the latter, a stationary shear arranged transversely of said webbing, and spring means normally urging said knife means toward said stationary shear, a cam finger projected from said wrapping member, and cam engaging means on said knife frame and engaged by said cam finger to pivot said knife frame and knife means toward said webbing once during each cycle of movement of said wrapping member.

10. In a bread wrapping machine, a reciprocable wrapping carriage and cooperable means for feeding paper webbing in the direction of reciprocation of the carriage and into a position relative to the latter for wrapping purposes, and automatic shearing mechanism including a stationary shear arranged transversely below said webbing, a knife carrying frame pivoted for movement about an axis transverse to said webbing for movement toward and away from the latter on a side thereof opposite said stationary shear, movable knife means pivotally mounted on said knife frame for movement about an axis transverse of said webbing and in a general direction toward and away from said webbing and the stationary shear therebelow, spring means normally pivoting said knife means toward said stationary shear, and spring means normally pivoting said knife frame away from said shear to dispose said knife means out of the path of movement of said webbing, cam roller means arranged on said knife frame on the side thereof nearest said carriage, and a cam finger extending in the direction of movement of said carriage and on a side of the latter toward said knife frame for movement into engagement with said cam roller means during each reciprocation of the carriage, whereby to pivot said knife frame and said knife means toward and against said stationary shear to sever said webbing.

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