

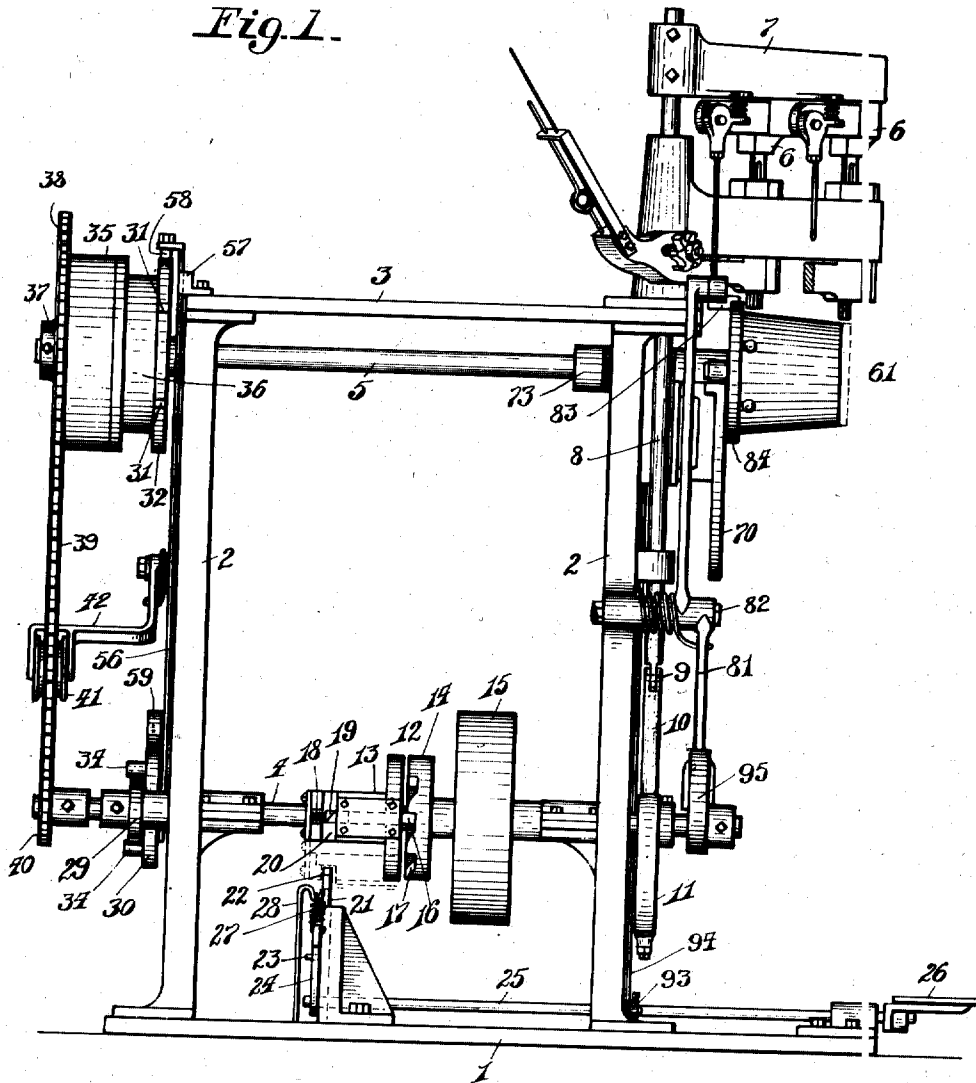
J. EKLUND.
BASKET MAKING MACHINERY.
APPLICATION FILED APR. 11, 1910.

1,008,455.

Patented Nov. 14, 1911.

4 SHEETS—SHEET 1.

Fig. 1.



Witnesses:
J. C. Dyerlin
F. T. Chapman.

John Eklund,
Inventor.
By C. A. Snow & Co.
Attorneys.

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4 SHEETS—SHEET 2.

Fig. 2.

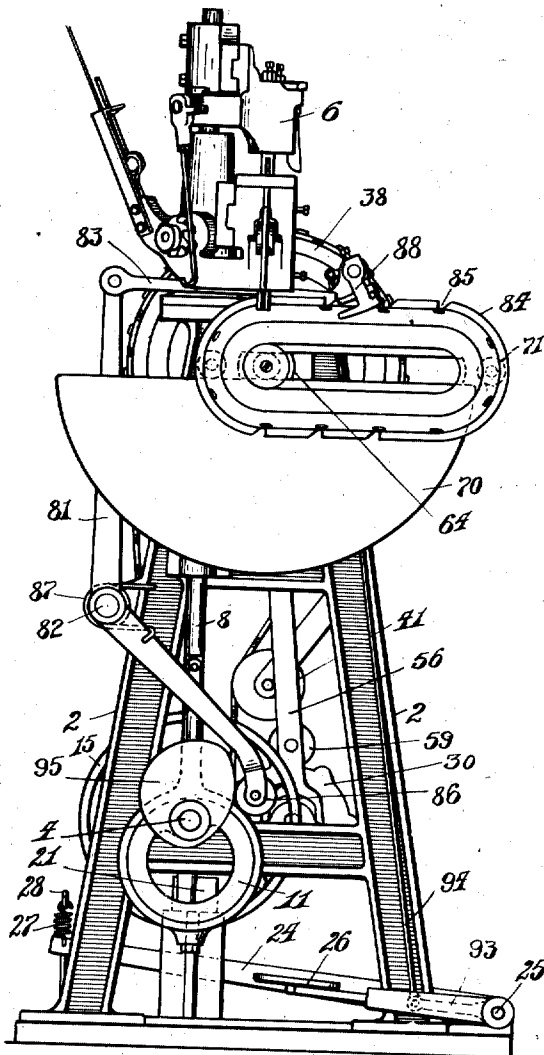
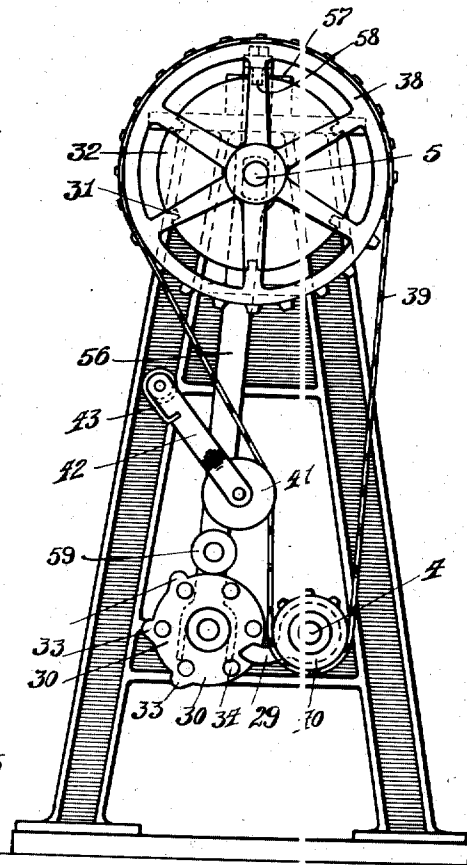


Fig. 3.



Witnesses:
J. R. Bonlin
F. T. Chapman.

John Eklund,
Inventor
By *Cashow & Co.*
Attorneys.

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4 SHEETS—SHEET 3.

Fig. 4.

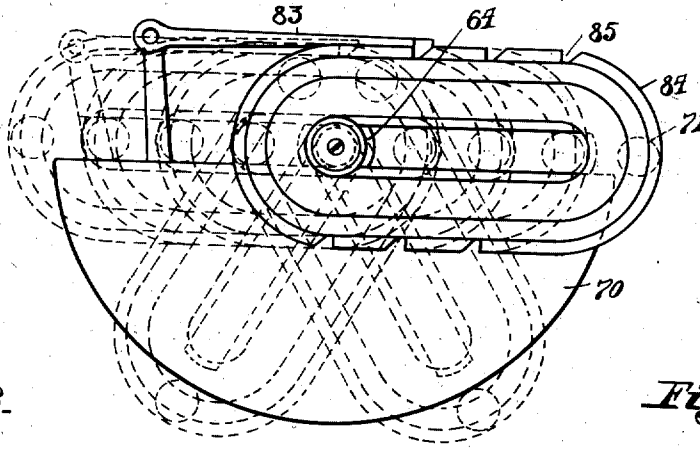


Fig. 6.

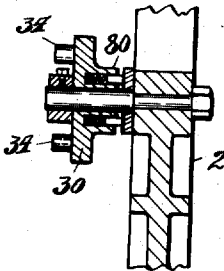


Fig. 7.

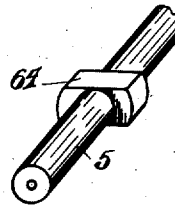
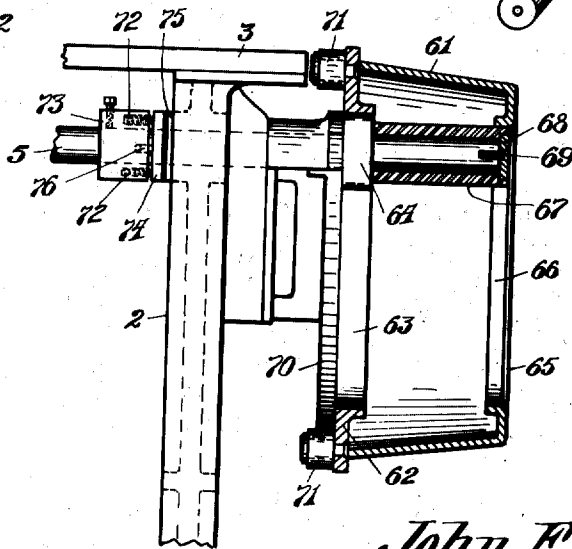


Fig. 5.



Witnesses:
J. T. Chapman
F. T. Chapman.

John Eklund,
Inventor.
By *C. A. Snow & Co.*
Attorneys.

J. EKLUND.
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4 SHEETS—SHEET 4.

Fig. 8.

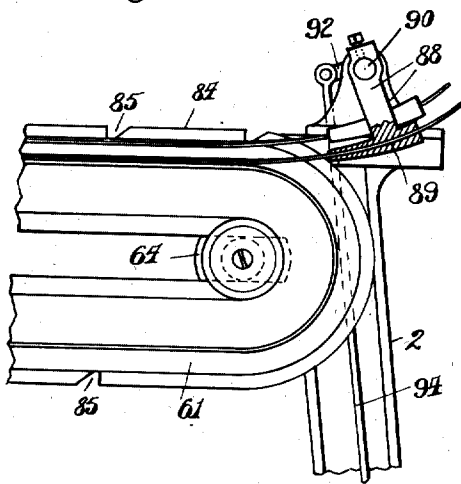


Fig. 9.

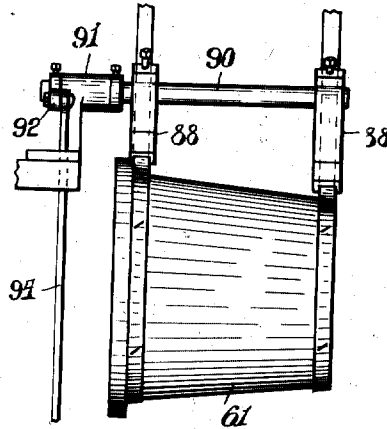


Fig. 10.

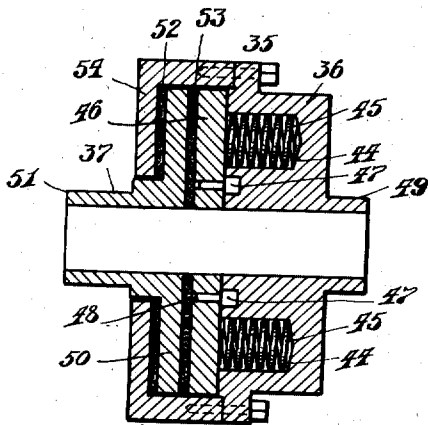
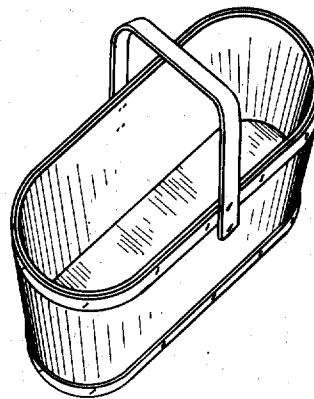


Fig. 11.



Witnesses:
J. B. Smith
F. J. Chapman

John Eklund,
Inventor.
By *C. A. Brown & Co.*
Attor. & Reps.

UNITED STATES PATENT OFFICE.

JOHN EKLUND, OF ST. JOSEPH, MICHIGAN, ASSIGNOR TO THE ST. JOSEPH IRON WORKS,
OF ST. JOSEPH, MICHIGAN, A CORPORATION OF MICHIGAN.

BASKET-MAKING MACHINERY.

1,008,455.

Specification of Letters Patent.

Patented Nov. 14, 1911.

Application filed April 11, 1910. Serial No. 554,816.

To all whom it may concern:

Be it known that I, JOHN EKLUND, a citizen of the United States, residing at St. Joseph, in the county of Berrien and State of Michigan, have invented certain new and useful Improvements in Basket-Making Machinery, of which the following is a specification.

This invention relates to basket making machinery, particularly the making of baskets of oblong form and having rounded ends and tapering sides, known to the trade as the "Climax" basket.

One object of the present invention is to provide a machine for making baskets which comprises a traveling form, upon which the sides, bottom and circumferential hoops are assembled, the said form being moved step by step with reference to stapling or stitching devices to secure the assembled parts together; the basket, when completed and removed from the form, having the requisite shape desired and requiring no further manipulation to give it an oblong form.

A further object resides in the provision of simplified means for operating the form, to the end that its movements will at all times be accurate and dependable and its step by step motion be performed with precision and without lost motion or vibration.

Another object is to provide improved means whereby the form is alternately rotated by, and shifted laterally with relation to its axis.

This specification is the disclosure of one form of my invention, while the claims define the actual scope of my invention.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of a basket-making machine constructed in accordance with my invention. Fig. 2 is a front elevation. Fig. 3 is a rear elevation, with so much of the mechanism omitted as is plainly shown in Fig. 2. Fig. 4 is a front view of the form showing the same in its different positions as it is alternately shifted upon and rotated by its axis. Fig. 5 is a fragmentary view of one end of the machine frame

and the form in longitudinal section. Fig. 6 is a fragmentary view, partly in section, of the machine frame and pin-tooth timing wheel. Fig. 7 is a perspective view of shaft end upon which the form is mounted. Fig. 8 is a fragmentary view of front end of machine, showing members for guiding the hoop strips or bands; and Fig. 9 is a similar view taken from the side. Fig. 10 is a sectional view of the friction feed. Fig. 11 is a perspective view of the finished basket, the handle being secured to the same.

1 represents the base of the machine, upon which are mounted the standards 2, supporting the table 3, which standards are provided with suitable boxes or shaft-bearings, in which are journaled shafts 4 and 5.

The staple forming and driving devices 6 may be of any suitable or approved construction, the reciprocating head 7, being mounted in the usual manner upon the upper end of a vertically-reciprocating rod 8, and its lower end pivotally mounted at 9 to the stem of the strap 10 of the eccentric 11, carried by the shaft 4.

The shaft 4 is provided with a clutch mechanism 12, of which the part 13 is locked to the shaft and the part 14 connected with the hub of the free-running drive pulley 15. Connection between the clutch parts is obtained by means of a bar 16, one end of which is normally projected into engagement with the notches 17 by a spring 18 disposed between its opposite end and the end of the clutch. The bar 16 is provided with a laterally projecting beveled head 19, with the point of the bevel pointed in the direction of the rotation of the shaft, and normally positioned in a transverse slot 20, when the clutch is closed.

Mounted so as the upper end thereof will be normally in the path of the slot 20, as the clutch rotates, is an endwise shiftable tripping bar 21, having a beveled upper end adapted to engage the beveled head 19 of the clutch-bar, and shift same so as to open the clutch. The tripping bar 21 has a pin projection 23, which engages a slot (not shown) in the lever 24, which latter is keyed to the rock shaft 25 and operable by the foot treadle 26. The lever 24, and owing to its connections the tripping-bar 21 and foot

treadle 26, are all normally held elevated by a spring 27, supported by the standard 28, attached to and drawing the free end of said lever upwardly. It follows, therefore, that as the clutch is normally open that the machine is normally at a standstill, the free-running drive-pulley and the clutch-section connected therewith being the only parts in motion; and that, in order to obtain a single or successive operation of the stapling-heads and corresponding movements of the other mechanism, it is necessary to hold the foot treadle 26 depressed.

Mounted upon the shaft 4 is a wiper cam 29, adapted to intermittently operate a pin-tooth wheel 30 mounted on one of the standards 2. The said wheel having six pin-teeth to correspond with a like number of notches 31 on the periphery of the stop or locking disk 32. The pin-tooth wheel 30 has three cams 33 formed on its periphery, half as many cams as there are pin-teeth 34 on the wheel and notches 31 on the stop or locking disk 32, the object of which will be presently explained.

The reference numeral 35 represents a friction device comprising a part 36 which is locked to the shaft 5, and to the hub of which the stop-disk 32 is locked, and a part 37 which is free upon said shaft and to the hub of which the sprocket wheel 38 is keyed. The sprocket wheel 38 is connected by a sprocket chain 39 with a smaller sprocket wheel 40 on the drive-shaft 4, and an idler 41 is mounted on a pivoted bracket 42 and engages the chain to steady the same; a helical spring 43 encircling the bracket hub, one end of which is connected to the machine frame and its opposite end embracing the bracket arm, and holding the idler in yielding engagement with the sprocket-chain. The friction device member 36 has sockets 44, formed therein to receive springs 45, adapted to press against a disk 46, which is held against rotation independently of the member 36, but capable of lateral movement upon the shaft, the pins 47 engaging corresponding sockets 48 in the disk to prevent independent rotation. The member 36 is locked to the shaft 5, and the stop or locking disk 32 is keyed to the hub portion 49 thereof, so that the intermittent rotation of the shaft 5 is controlled by the stop-disk. The member 37 of the friction device comprises a disk 50 having a hub portion 51, upon which the sprocket wheel 38 is mounted, wood fiber or other suitable friction disks 52 and 53 being interposed between the disks 46, 50 and a cap 54, which latter is bolted to the member 36, and removable so as to replace the fiber or other friction disks when worn. The action of the springs 45 serve to hold the free and keyed members of the friction device in strong frictional contact with each other, so as to transmit power from the

drive shaft 4 to the shaft 5, by means of the sprockets and chain heretofore described. However, the shaft 5 is only so driven when not held against rotation by the stop or locking disk, above referred to, the rotation of shaft 4 being constant when machine is in operation, and that of the shaft 5 intermittent. The stop or locking disk is controlled by the pin-tooth wheel 30 which is rotated once while the wiper-cam 29, which operates same, revolves six times, the operation of the stapling mechanism corresponding to the rotation of said cam, both being operated by the same shaft. As a staple is driven each time the wiper-cam revolves, and as it is necessary in the use of a form or work holder operated alternately with intermittent rotation and intermittent lateral shift, that the shaft which turns the form be held stationary during the shifting of the form, a trip-bar 56, forked at its lower end to straddle the hub of the pin-tooth wheel to hold same in proper relation therewith, and having its upper end passing through a guide bracket 57, and provided with a dog 58 to engage the notches of the stop or locking disk, is timed in its operation by the three cam members 33 on the pin-tooth wheel, which engage a cam wheel 59, carried by the trip-bar 56, and cause the said bar to be shifted and intermittently release and lock the stop-disk three times in succession, which causes the shaft 5 to operate correspondingly, and turn the form or work-holder mounted at the end thereof. The pin-tooth wheel is next given a sixth of a turn three times in succession by the wiper-cam, and as there are no cams on said wheel corresponding with the pin-teeth thus engaged to raise the trip-bar, the stop-disk remains locked and the shaft 5 stationary, during which time the form is shifted laterally, by means hereinafter described, in three successive steps, as plainly shown by dotted lines in Fig. 4. The form is always stationary as the staples are driven, and the rotation and shifting of the form occurs during the intervals between the driving of the staples, the stapling devices operating three times during each shift and rotation or twelve times in all for a complete revolution of the form.

The form or work-holder 61, upon which the basket material is assembled and held to be stapled together, has an exterior shape corresponding to the shape of the finished basket, and comprises slightly tapered parallel sides and rounded ends. The rear wall 62 is provided with a slot 63 adapted to receive the flat head 64 on the shaft 5, which head serves to turn the form and also permits same to be shifted thereon, said head having parallel guiding faces or elements upon which the form is mounted to slide in its shifting movement. The front wall 65 of the form is provided with a slot 66 some-

what larger than the slot 63, and a friction roller 67 is mounted on the end of shaft with its inner end bearing against the rear wall to hold the form against movement longitudinally of the shaft, the edges of the slot 66 riding thereon to support the form. The roller 67 is held against displacement by the washer 68 and the screw 69 which engages the end of shaft.

70 represents a semi-circular guide-plate, rollers 71 carried by the form riding the edges thereof to keep the same in proper position as it is shifted with relation to the shaft and to prevent play and wobbling as the form is turned by the shaft, see Fig. 4. To further steady and hold the form as it travels, the rear wall thereof is kept in frictional contact with the side of the guide-plate, by the use of expansion springs 72 carried in the sockets of the head 73 bearing against a friction disk 74 interposed between the head 73 and the shaft bearing 75, the action of the springs causing a steady pull or thrust of the shaft to draw the form against the guide-plate. The friction disk 74 carries a pin 76 fitting into a socket in the head 73, so that the disk will rotate with the head 73 which is locked to the shaft. Wood fiber or other suitable friction disks may be interposed between the disk 74 and the bearing 75, so as to prevent wear of metal parts, such fiber disks being easily replaceable when worn. A similar friction device 80 is used to hold the pin-tooth wheel 30, which is mounted for rotation upon a fixed shaft, against movement by vibration of the machine or otherwise. A lever 81 fulcrumed at 82 has a feed pawl 83 connected to its upper end, with the free end of the pawl riding upon the rim 84 and engaging the notches 85 of the form to shift the same, the lever carrying a cam roller 86 at its lower end which engages the cam 95. The cam roller is held in engagement with the cam 95 by a spring 87, and the lever is actuated upon each revolution of the shaft 4, but as the rim of the form is only provided with three notches on each flat side, the feed pawl is not in operative engagement with the form during the time the same is rotated by the shaft, but serves to shift the form only when in a horizontal position.

In order to properly guide the hoop strips or bands and hold same in proper position upon the veneer forming the sides as the form is actuated, guide-members 88 having a slot 89 through which the hoops or bands are drawn, are mounted upon a rock-shaft 90, supported by a bearing 91. The rock-shaft has a lever 92 mounted on one end, which is connected with a similar lever 93 on the treadle-shaft by a connecting rod 94 so that, when the treadle is depressed to operate the machine, the guide members will be automatically rocked so as to lower the

feed ends and hold down the hoops or bands in proper position upon the veneer forming the basket sides, to receive the staples which secure the parts together. When the treadle is released the guide-members are automatically raised to provide a clearance space to permit the basket to be withdrawn from the form. 70

In operating the machine, the veneer forming the basket sides is positioned upon the form, with the bottom board held against the form, either manually or by any suitable mechanical means employed for that purpose. The ends of the hoops are next inserted through the guides and properly positioned upon the veneer, and the first staples driven to secure the parts together. Upon depressing the foot-treadle the clutch mechanism will be closed and, assuming the starting point of the form to be the position shown in full lines in Fig. 4, the same will be shifted longitudinally in three successive steps, by the feed pawl, and staples driven after each shift. At this point the form has reached its extreme movement to the left, and the cams on the pin-tooth wheel now release the stop-disk three times in succession, thus causing the form to be turned by the shaft, and brought back to its original longitudinal position in three distinct moves. The form is provided with twelve clench-blocks properly spaced upon each edge, and the machine is timed so as to operate and bring the clench-blocks under the stapling devices by alternately shifting the form the proper distance three times and turning the form in three successive steps, a repetition of which gives the form a full turn, so as to present all sides thereof to the stapling devices, the complete turn being accomplished by twelve intermittent movements of the form. 75 80 85 90 95 100 105

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent is:— 110

1. In a basket making machine, the combination with intermittently operated stapling mechanism, of a revoluble head, a form mounted upon and carried by the head for linear movement in a path transverse to the axis thereof, means for periodically imparting revoluble movement to the head, and means including a reciprocating member for imparting step by step linear movement to the form. 115 120

2. In a basket making machine, the combination with intermittently operated stapling mechanism, of a revoluble head having guiding elements, a form mounted upon the head and having means engaging said guiding elements, whereby the form is adapted for linear movement in a path transverse the axis of the head, means for periodically imparting revoluble movement to the head, and means including a reciprocating member for imparting step by step linear movement to the form. 125 130

cating pawl for imparting step by step linear movement to the form.

3. In a basket making machine, the combination with intermittently operated stapling mechanism, of a revoluble head having parallel guiding faces, a form mounted upon the head and having means engaging said guiding faces, whereby the form is adapted for linear movement in a path transverse the axis of the head, a stationary segmental guide concentric with said head, means carried by the form for traversing the segmental guide during the revoluble movement of the head, means for periodically imparting revoluble movement to the head, and means for imparting step by step linear movement to the form.

4. In a basket making machine the combination with intermittently operated stapling mechanism, of a revoluble head having parallel guiding faces, a form mounted upon the head and having means engaging said guiding faces, whereby the form is adapted for linear movement in a path transverse to the axis of the head, a guiding plate having straight and curved guiding faces, the latter being concentric with the head, means carried by the form for traversing said guiding faces of the plate, means for periodically imparting revoluble movement to the head, and means for imparting step by step linear movement to the form.

5. In a basket making machine the combination with intermittently operated stapling mechanism, of a revoluble head, a form carried by and mounted upon the head for independent linear movement in a path transverse the axis of said head, means for imparting a step by step linear movement to the form, tappet mechanism for actuating the head, and connections between the tappet mechanism and said head, including a friction clutch, and stop mechanism for periodically locking the head against rotary movement.

6. In a basket making machine the combination with intermittently operated stapling mechanism, of a revoluble head, a form carried by and mounted upon the head for independent linear movement in a path transverse the axis of the head, means for imparting step by step linear movement to the form, tappet mechanism for communicating rotary motion to the head, and connections between the tappet mechanism and the head, including a friction clutch, and a stop mechanism, actuated by the tappet mechanism, for locking the head at intervals against rotary movement.

7. In a basket making machine the combination with intermittently operated stapling mechanism, of a revoluble head, a form carried by and mounted upon the head for independent linear movement in a path

transverse to the axis of the head, means for imparting step by step linear movement to the form, tappet mechanism including a pin-tooth wheel, and a wiper for actuating the same, and connections between the pin-tooth wheel and the head, for communicating rotary motion from the former to the latter, said connections including a friction clutch, and stop mechanism including a peripherally notched disk, and a stop tooth for engagement therewith actuated by said pin-tooth wheel.

8. A stapling machine comprising a form mounted upon an intermittently driven member, a pawl operated by a cam actuated lever and engaging notches on the rim of the form to shift the same with relation to the driven member, and means operating to automatically interrupt the rotation of said member during the shifting of the form.

9. A stapling machine comprising an intermittently operated form, a guide plate disposed adjacent the form, said form having guide rollers adapted to ride upon the edge of the guide-plate, and means operating to draw said form into frictional contact with the guide-plate.

10. A stapling machine comprising an intermittently operated form with a slot therein, a drive shaft having a flattened portion adapted to enter the slot in the form whereby said form will be turned by the shaft upon rotation thereof and permit the form to shift laterally thereon, means for automatically and periodically rotating the shaft, and means for automatically shifting the form upon the shaft during its stationary period.

11. A stapling machine comprising an intermittently operated form with a slot in the rear wall and a larger slot in the front wall, a drive shaft with a head adapted to the first named slot, a friction roller mounted upon the end of the said shaft and projecting into the second named slot and against the inner side of the rear wall of the form, a fixed member disposed adjacent the rear wall of the form, and means operating to draw the form into frictional contact therewith.

12. A stapling machine comprising an intermittently operated form, a driven member, a yielding and continuously acting friction connection between said driven member and said form, and a stop device operative to automatically and periodically interrupt the rotary motion imparted to said form through said connection from said driven member, and means controlling the action of the stop-device to interrupt the rotation of the form for a predetermined period, and means operating to automatically shift said form with relation to its axis during such interruption.

13. A stapling machine comprising a rotary and shifting form with a slot in the rear wall thereof and a larger slot in the front wall thereof, a driving member adapted to the first named slot, a friction roller
5 mounted upon said driving member and extending into the second named slot and abutting against the rear wall of the form,

and means for automatically and alternately rotating and shifting said form.

10

In testimony whereof I affix my signature, in presence of two witnesses.

JOHN EKLUND.

Witnesses:

G. M. COLE,

L. D. WAHLEN.