

(No Model.)

7 Sheets—Sheet 1.

E. HORTON.
BASKET MAKING MACHINE.

No. 530,048.

Patented Nov. 27, 1894.

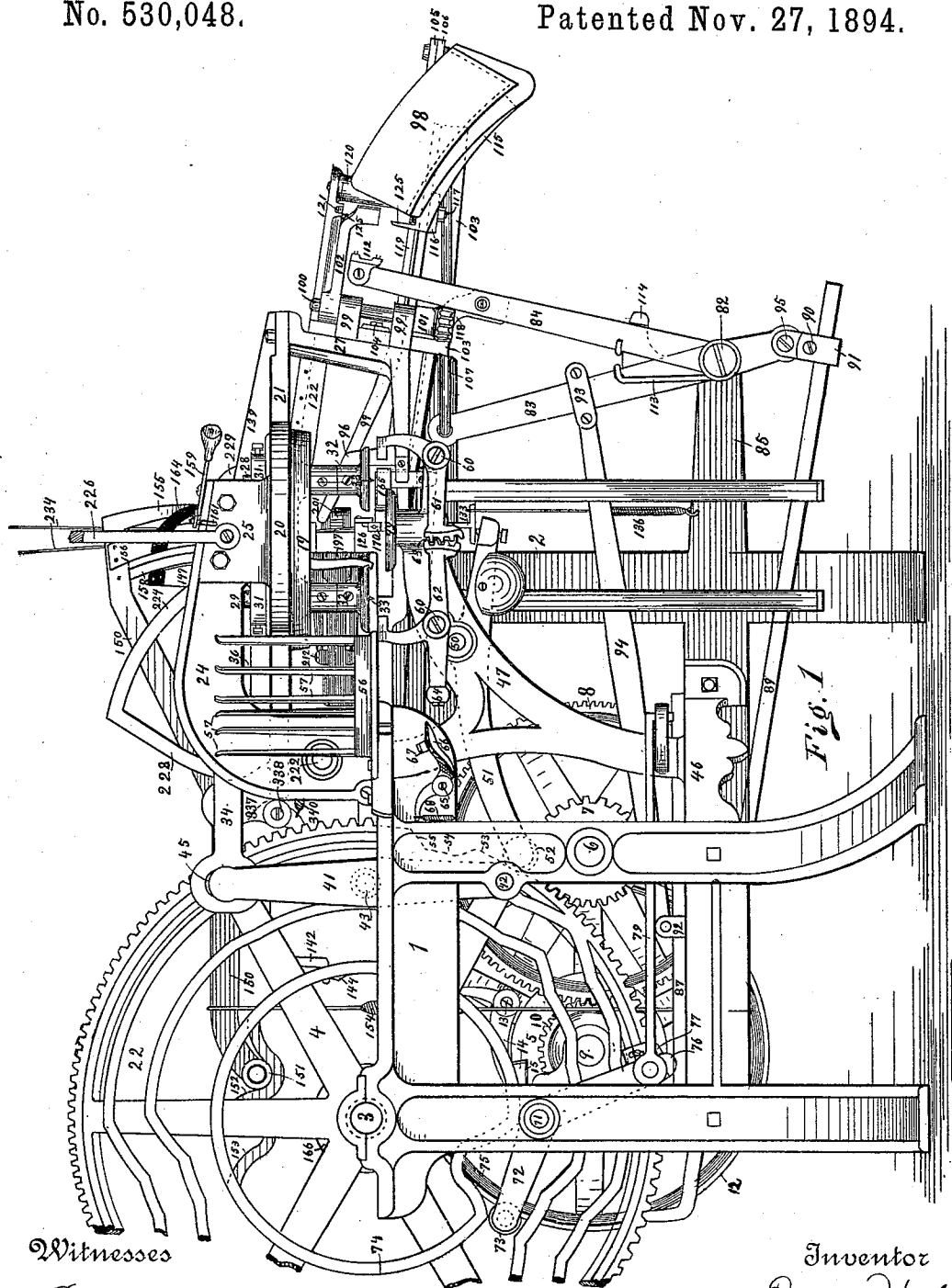


Fig. 1

Witnesses

Robertson

J. S. Owens

Inventor

Emmet Horton

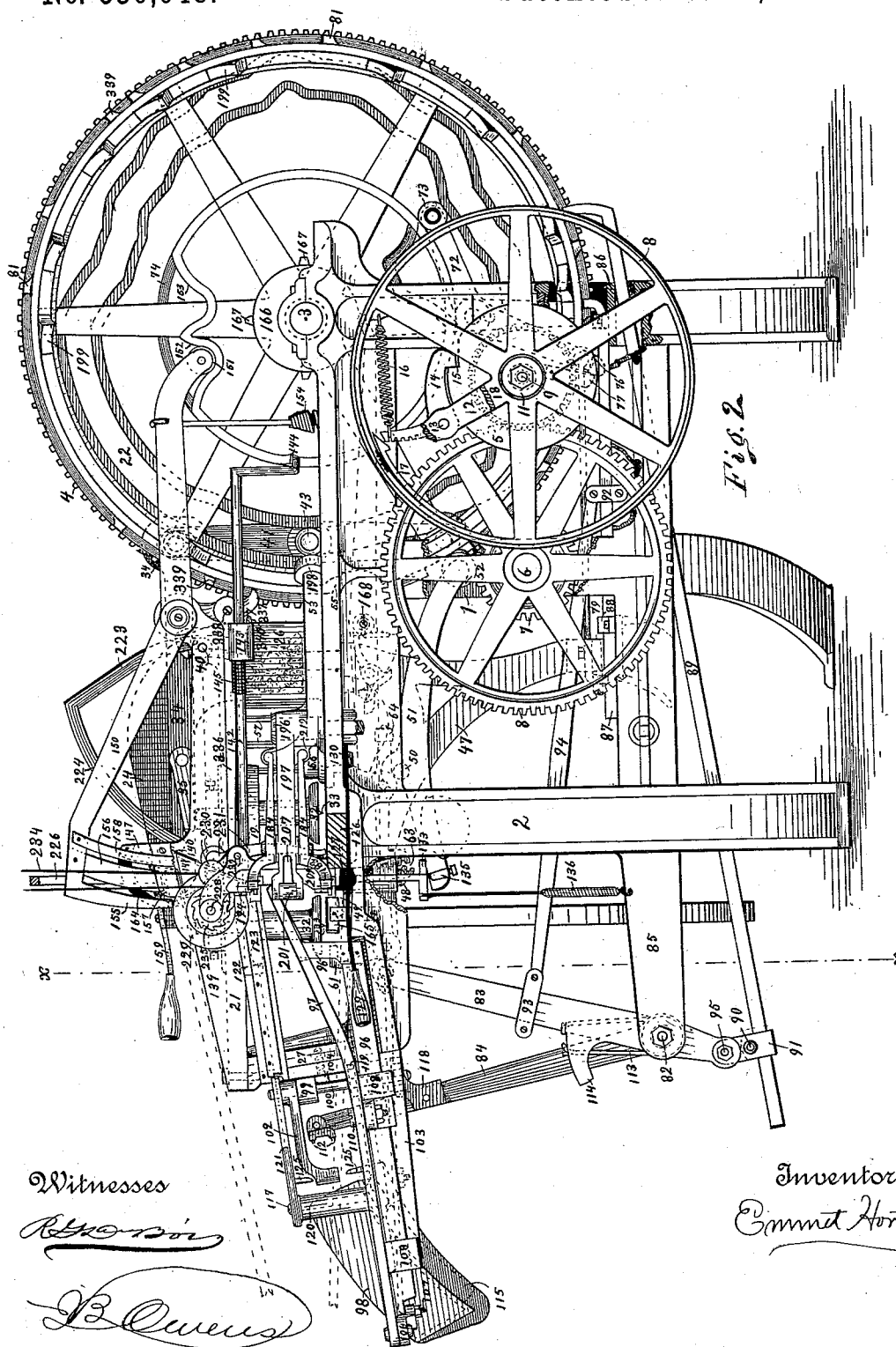
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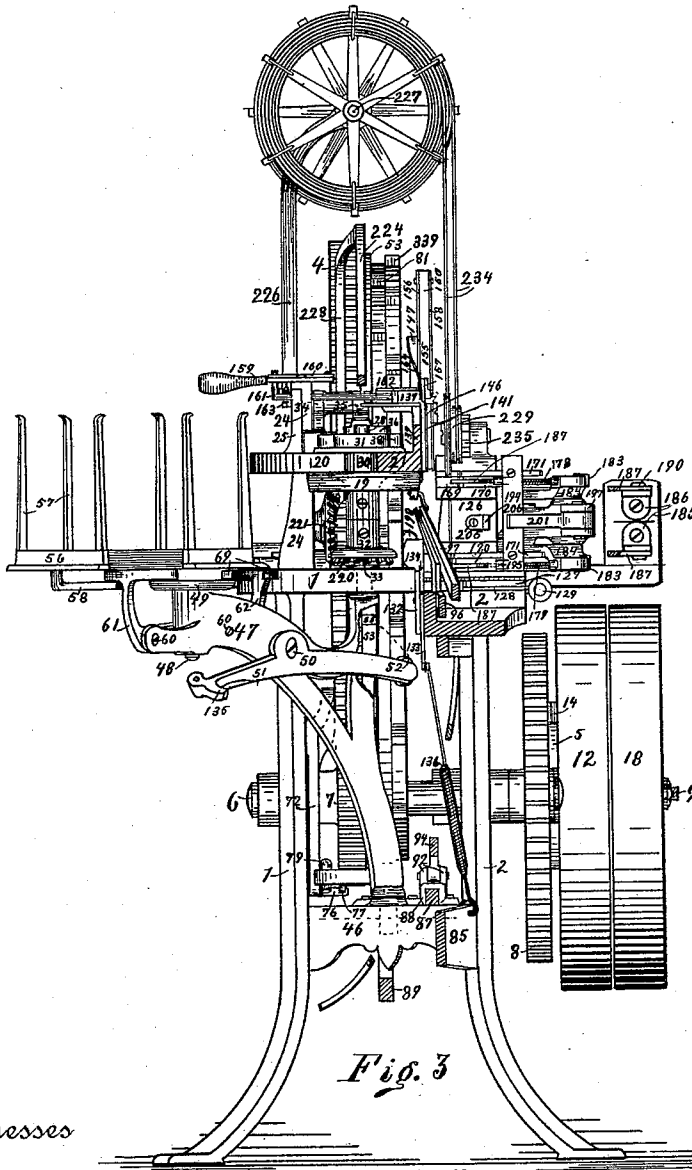


Fig. 3

Witnesses

Resonance
W. W. W.

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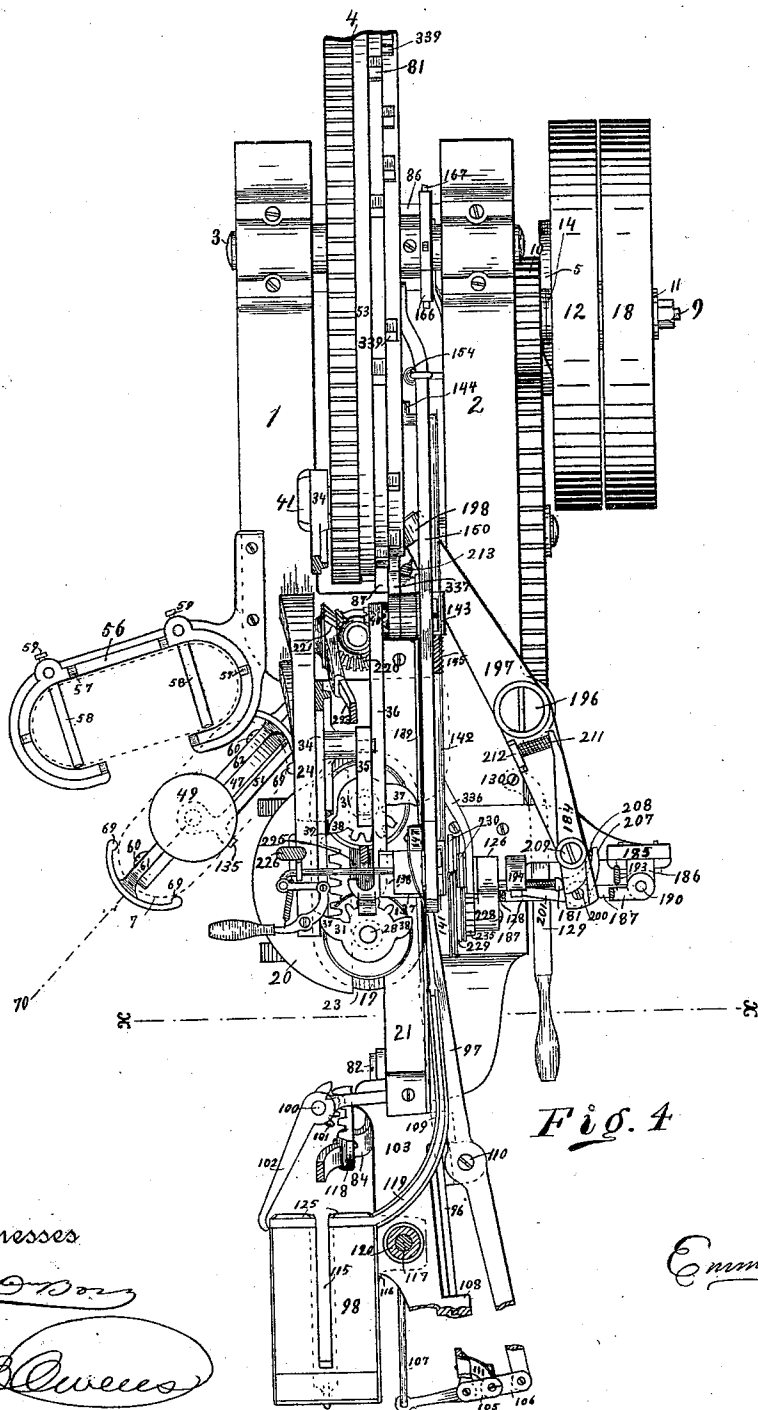
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Witnesses

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(No Model.)

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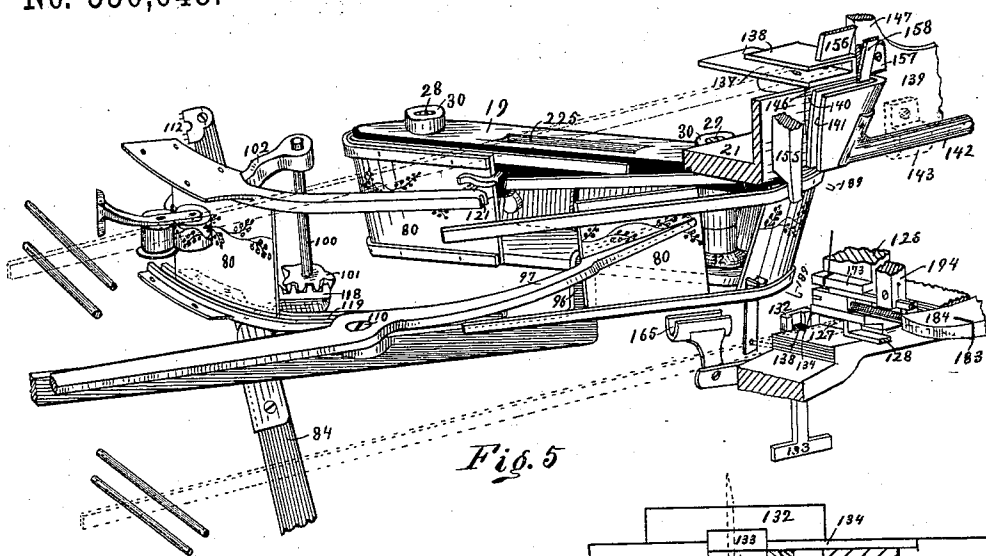


Fig. 5

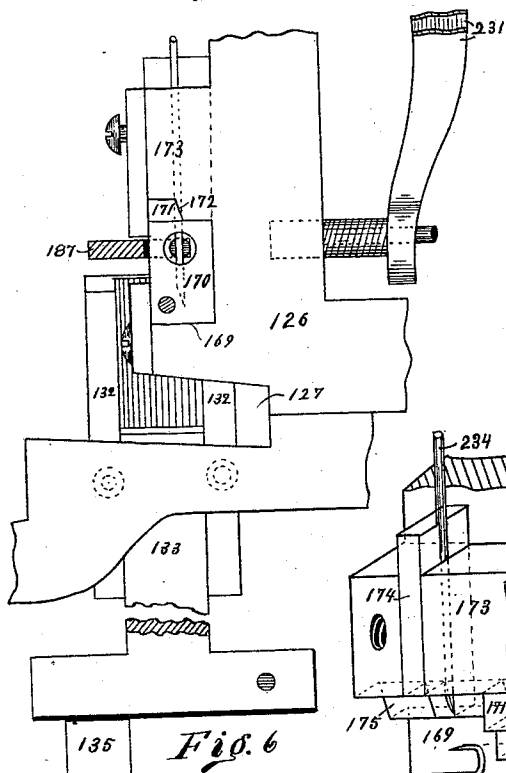


Fig. 6

Witnesses

R. J. Quinn

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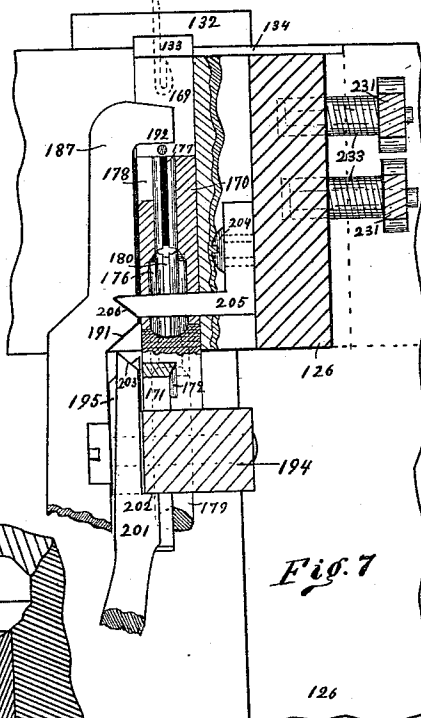


Fig. 7

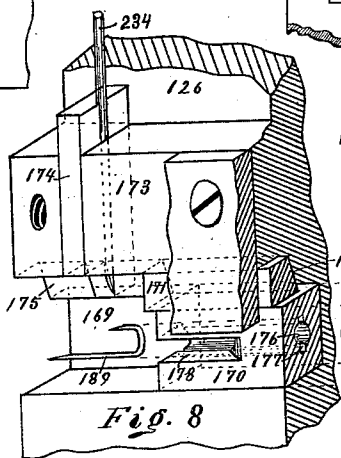
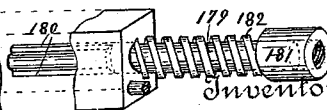


Fig. 8



Inventor

Emmet Horton

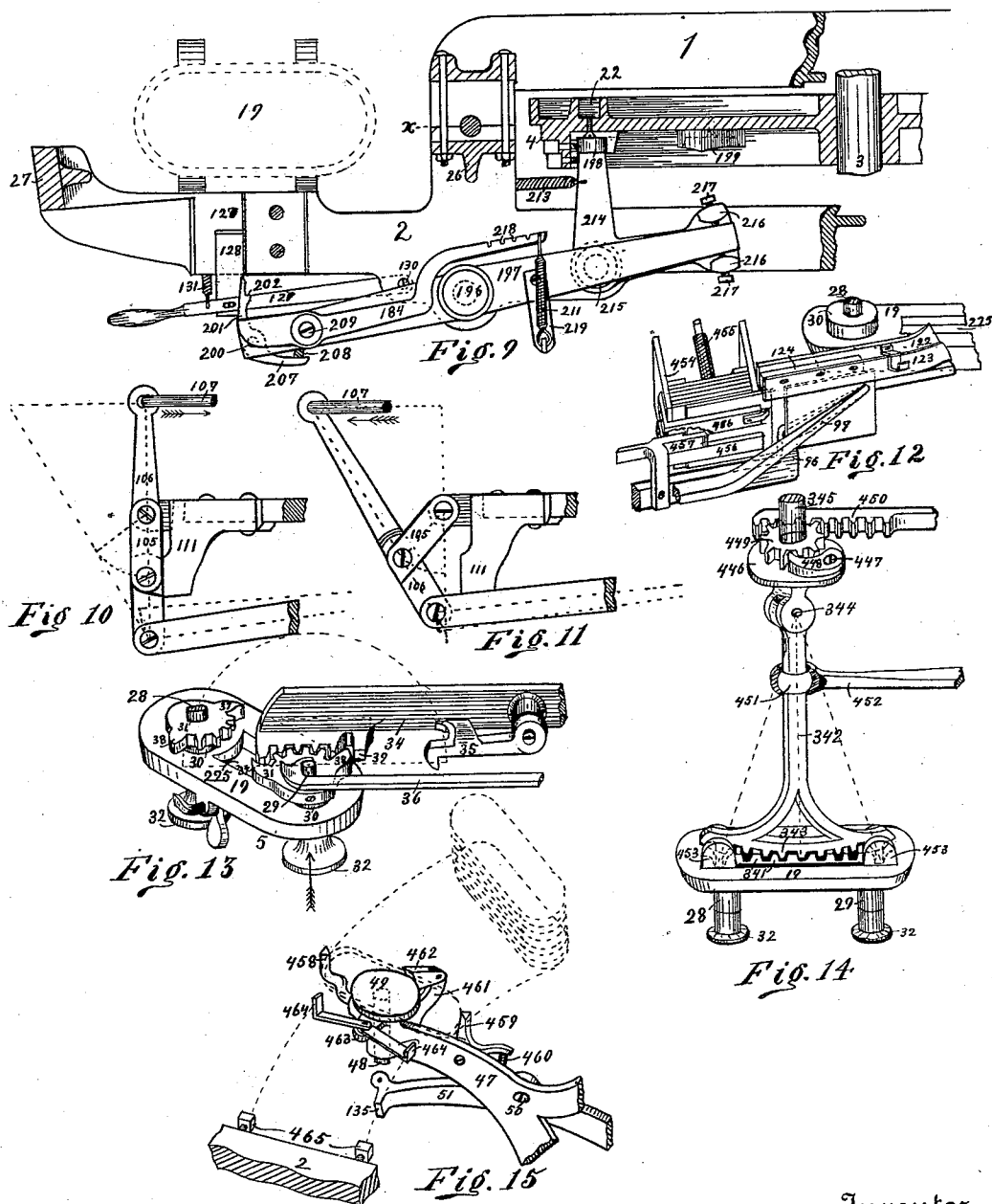
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Witnesses

Blowers
Blowers

Inventor
Emmet Horton

(No Model.)

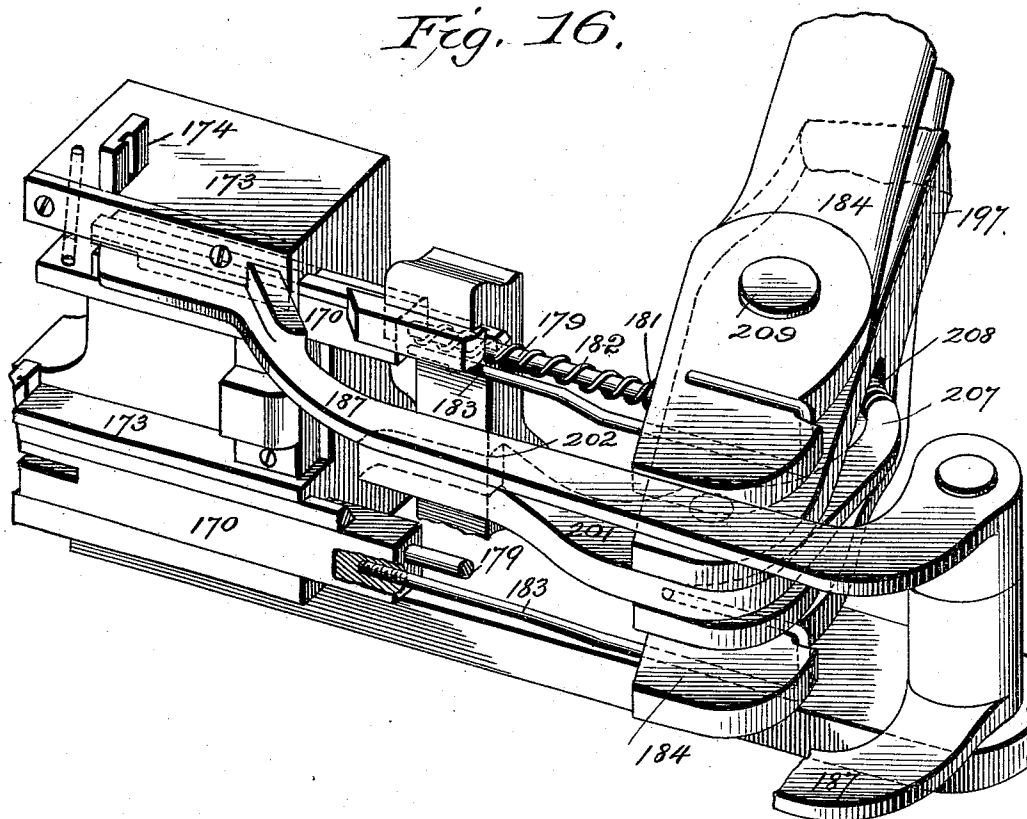
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Fig. 16.



Witnesses
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UNITED STATES PATENT OFFICE.

EMMET HORTON, OF DUNDEE, NEW YORK, ASSIGNOR OF ONE-HALF TO
RHESA G. DU BOIS, OF WASHINGTON, DISTRICT OF COLUMBIA.

BASKET-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 530,048, dated November 27, 1894.

Application filed September 14, 1893. Serial No. 485,528. (No model.)

To all whom it may concern:

Be it known that I, EMMET HORTON, a citizen of the United States, residing at Dundee, in the county of Yates and State of New York, have invented certain new and useful Improvements in Basket-Making Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to a machine for the manufacture, principally, of those baskets or receptacles constructed of wood veneer or similar material, my object being to provide an organism which will automatically feed, assemble, and unite the component parts of such a structure, and deliver it in a practically complete condition.

A further and particular object of my invention is to provide a band applying mechanism which will automatically fasten the binding strips or bands on the opposite sides of the edges of the receptacle body, or in other words, on the inside and outside thereof.

To this end my invention consists in the peculiar features, combinations, and sub-combinations more fully described hereinafter and pointed out in the claims.

In the accompanying drawings: Figure 1 represents a view of the left hand or basket delivery side of the machine; Fig. 2, a view of its right side and nailing side; Fig. 3, a front end sectional view on the line $x-x$, Fig. 4, Fig. 4, is a plan view showing the table part way out, and wire reel off same as Figs. 1 and 2. Fig. 5, shows the form and other parts of the mechanism in section and detail, in the act of assembling the material for a basket and also of applying pictures, figures, or letters in colors, to the outside of the basket. Fig. 6, is a section in elevation of the nail-making parts and the plunger which feeds upward the end of the lower band to a position in front of the nailing block. Fig. 7, is a part sectional plan view in detail more or less of the same as Fig. 6. Fig. 8, is a sectional elevation view, more or less of the same as shown

in Figs. 6 and 7. Fig. 9, is a view in detail designed to show the contour principally in plan of the frame, and the manner in which the nail making and driving levers have an adjustable stroke imparted to them from the operating wheel. The construction here differs, however, somewhat from that shown in the full views of the machine, an extra lever being made use of to permit adjustment in the stroke of the longer driving lever. Fig. 10, is a diagrammatical plan view of the levers operating to open and close, and also to drive with a reciprocating motion the pinchers which carry the blank sides to position in the basket for nailing. The position in this figure is taken when the pinchers are closed and driving forward in the direction of the arrow at the top of the figure. Fig. 11 is a similar view of the same parts as shown in Fig. 10 but in open and returning position. Fig. 12 is a view in perspective elevation of the pinchers delivering a side blank and having in connection a blank retaining and feeding device, the method differing from that shown in the full views of the machine, the blank being cut out, or slid off from the pile, in the one case, while in the other the blank is picked up from off the top of the pile, after which separation the delivery is practically the same in both contrivances. Fig. 13 is a detail perspective view of the form and the parts operating it, the dotted lines showing the line of travel alternately taken by the centers of the form. Fig. 14 is a detail presenting a principle and combination of parts that may be applied for reproducing the recapitulating movement of the form. Fig. 15 is a perspective view in detail of the crane and table which feeds and transports the bottoms from the pile to the form, and this also varies in construction from that shown in the full views, and Fig. 16 is a detail view of a part of the nailing mechanism.

The frame of the machine is designated by Figs. 1 and 2, and is separated on the line x (see Fig. 9) into two vertical halves, each half being provided with a long flat top part of irregular form assuming in their united connection very much the resemblance of the letter V, the two branches thereof extending rearwardly, and the one branch extending

alongside of the form and to the front of the machine. From this upper plate of the frame extending downward are the legs which support the structure, the same being properly braced and connected by ribs accommodating the location of the shafts and gearing and the other parts that will follow later on in the explanation. Journaled between the rear branches of the frame is the shaft 3, and upon this shaft is the large gear and cam wheel 4 revolving only in the direction of the front of the machine. From this wheel is transmitted motion for all the numerous operative parts, a single revolution only thereof being necessary from the beginning to the completion of a basket.

19 designates the basket form over which the basket is made, and is suspended forward of said wheel beyond the junction of the branches of the plate of the frame, thus being practically outside the frame, for the delivery downward of the basket off the form.

In the forward leg of the frame 1 and the central rib of the frame 2 is journaled the shaft 6 upon which, within the frame, is hung the pinion 7 which meshes with and imparts motion to wheel 4. Outside the frame and upon the same shaft is hung a gear 8 about three times larger than the pinion. Both these gears are made fast to their shafts. Projecting outward to the left side of the frame and rigidly from an arm secured to the leg in rear of the gear 8 is a stud 9. Upon this stud is hung to revolve loosely thereon, first the pinion 10, and following next to the pinion, are two pulleys independent of each other, but of the same size. The washer 11 and the nut against it confine these wheels upon the stud. The pinion 10 is provided with a flange at one side next the pulley 12, said flange extending diametrically beyond the face of the pinion and rigid with it. The pinion meshes with and imparts motion to the gear 8. To a spoke of the pulley adjoining said flanged pinion on the bolt, 13, is hung the hook or pawl 14, which engages with a notch 15 in the periphery of the flange of the pinion. The faces for this engagement of the hook and the flange are to be governed in their angle as may be radially imparted to the cut in the flange to carry the pinion with the pulley to the extent of a certain amount of resistance, by the gearing, beyond which the flange and the pawl will become disengaged, and to more minutely govern and regulate the force to overcome said engagement. The pawl is provided with an arm extending therefrom in such direction that when connected to and drawn upon by the coil spring 16, the pawl will be forced upon the flange to the extent of the tension applied by the spring in its location connecting said arm to or from its centre of movement. The other end of the spring is secured to the pulley within its rim.

When by any obstruction to the running mechanism the pawl is forced to disengage

and the machine stops, it is of course desirable and of importance, that said pawl should remain out and permit free revolution of the belt pulley carrying it. Therefore to accomplish this, to the interior of the rim of the same pulley is secured in any convenient manner, a spring hook 17, which catches upon the end of the arm as the latter is forced under it, and holds the pawl out against the action of its spring. The other and outer pulley 18 is added for the convenience of shipping the belt upon it to stop the machine, when such extra pulley is not provided on the countershaft.

The form 19 is given an intermittent and rectilinear motion through the medium of a groove or cam-way 22 on the side of the wheel 4, and to this movement is timed, very largely, the other operative parts. Hence I will now enter upon a further description of this leading movement and its associated parts.

Designated by the numerals 20 and 21 are two plates for the support and guidance of the form in its travels. The former of these plates is semi-circular in contour and the latter one is merely a straight bar. The two are arranged parallel and level with each other, and of the same thickness, and so there is a parallel groove or way 23 between them, and they are supported in a parallel and elevated position to that of the top plate of the frame. The support of the semi-circular plate is provided for by an inwardly curved and overhanging arm 24 arising from the forward end and top of the frame part 1, and to which is bolted a flattened and extended part 25 projecting from the central upper side of said plate 20. The support of the bar 21 is maintained by bolting its ends down to the frame part 2, which has arms 26 and 27 projecting upwardly for that purpose. (See Fig. 9.) By this construction it will be seen that the form is free to circulate in its movements underneath and adjoining said plates, and further said form chosen herein to illustrate, and over which the basket is to be made, is of oblong contour, its sides being straight and parallel, its ends being semi-circular, with equal vertical axes, which are represented by the shafts 28 and 29, which shafts are made to project parallel and vertically through the form on the center of its ends, and to continue into, and through the slot 23 between the plates, and to receive on each one of them a roller 30 to fit, and fill the slot on a level with the plates, and to receive on each one of them next to the rollers, a segmental pinion which rests on top of the plates above which the shafts project one-half inch or more. Said shafts are extended downward equal to the internal depth of the basket to be made, and are each provided with a level foot 32, which has projecting from its lower face one or more sharp points 33, to pierce the wooden bottom for the basket, and hold it from moving laterally, after it has been located truly under the form and pressed up to the foot of the

shafts, and with said bottom the full form is prepared for the reception of the sides to make the basket.

At a right line to the center of the semi-circular plate 20, on the right of the machine, is playing horizontally the nailing mechanism. It is essential that the periphery of the form shall move in one direction intermittently to receive the nails in the basket, across said line of nailing. To accomplish this a pitman 34 provided with a rack at its front and free end is made to reciprocate back and forth, and the rack thereof to alternately come in mesh with the segments of the form above the plates, giving each one a half revolution in its forward stroke, and at the time when the shaft of the form and its segment turning, is in midway of the slot, and the other shaft of the form is thereby drawn outward and around to the front of the slot, its roller traveling on the circular edge of the semi-circular plate. Coincident to this movement of the form which changes one end for the other, are the movements of the pawls 35 and 36, and the large teeth 37 and 38 of the segments, the latter one having its counterpart on the rack infitted to press thereon as it passes by it, giving home thrust to the half revolution of the form; the front of the rack passing on against the other tooth 38 at which time the rack and its driving pitman complete the forward movement of their stroke and the pawl 35 which is moved by and pivoted to the side of said pitman, must hook upon the end of the shaft which has been held in midway of the slot by the other pawl 36 during the half revolution of the form. As thus connected the shaft of the form which is in the rear is brought to the rear of the slot, with the rearward movement of the pitman, and the forward shaft of the form is brought to the middle of the slot and hooked upon by the pawl 36, pivoted to the bar plate at 40, and prevents this shaft from sliding in the slot to the front while under pressure of being turned, swinging the other shaft of the form out around to the front of the slot again. This movement of the form is intermittently continuous with the intermittent reciprocation of the pitman which is obtained by connecting its rearward end to the upper end of a vertically arranged lever 41, said lever having its lower end pivoted at 42 to the forward leg of the frame part 1 and extending upward alongside of the large operative wheel 4 and having a stud 43 about midway its length, provided with a roller and projecting into a groove 44 into the side of the said wheel, said groove being irregular and continuous, and pressing intermittently as the wheel revolves first one way and then the other upon the roller of the lever. The pitman where it connects the lever, is provided with a vertically elongated slot 45 into which another stud of the lever, covered with another roller, projects. This vertical play of the slot permits the pitman to lie level

while the lever reciprocates it without loss by friction or motion.

As the next step in the operation I will now describe the mechanism for transporting the bottoms beneath the form, and after that, the sides and the bands previous to nailing them up in the basket.

Pivoted upon, and into the lower front cross tie 46 of the frame parts, and again vertically over this, in the top plate of the frame, is a three armed casting 47 which I will call a crane. Two of the arms form its pivots as above described. The other arm reaches over forward and has journaled vertically through it the shaft 48 of a flat or level table-center which is thus permitted to revolve horizontally over the arm and directly beneath the shaft of the form when it is in the middle of its sliding slot between the plates. Arranged horizontally and to the side of the crane upon the pivot 50 is hung a lever 51. The back end of the lever is provided with a roller 52. On the periphery of the large wheel 4 is provided a track 53 for this roller to travel upon. The forward end of this lever is provided with a screw put up through it vertically to strike the center of the lower end of the table shaft 48 as the front end of the lever is raised, to raise the table upon the end of the screw. It will thus be seen that no matter if the wooden bottom is greatly pressed between the feet of the form and the table said table revolves with the form and bottom with but little friction.

The track of the roller 52 is not continuous around the wheel 4 but has a short aperture 54 (see dotted lines in Figs. 1 and 2 and where the crane is broken away in Fig. 3 which shows said aperture and shoulder 55) between the ends of the track. This aperture helps to make an internally inclined shoulder 55 at the beginning of the track, and to allow the roller of the lever 51 to swing in front of, and under it, at the same time that the crane swings home with a bottom under the form. Immediately said shoulder, on the revolving wheel 4, bears down on the roller which travels up to the track it presses the bottom upon the piercing points of the form through the medium of the table and the lever in the manner as heretofore described. Said roller departs from its track sidewise as the crane swings outward for another bottom, which it gets each time, taking the bottom one of the pile from under the cage 56. This cage is bolted to the top of the frame, and is adapted to project radially from the center of movement of the crane to hold said bottoms within the arms 57 thereof which guide the bottoms vertically to the same position on the rests 58 adjustably secured to raise or lower in the cage casting by pressure of the screws 59, and from which fastening they turn angularly across the cage, holding the bottoms just high enough to let the table of the crane pass closely under them.

The free end of the crane is extended around

and beyond the shaft of the table. To this extending part and to the outside of the crane as it relates to the machine, and upon the studs 60, are hung two elbow castings, 61 and 62, each elbow branching upwardly just above the level of the table, for the purpose of gripping a wooden bottom on the table which is between them. Each elbow from its pivot is also branched toward the other and is intermeshed with teeth at 63, so that the movement of one will move the other opposingly. The one elbow 62 nearest the frame, is provided with another arm projecting rearwardly from its pivot, upon the free end of which is hung a roller 64.

In the proper position upon the frame part 1 on the stud 65 is hung a spring cam 66 over and under which the roller of said elbow is made to run as the crane carrying it swings to and fro. Over said cam is a stopper 67 projecting from the frame. By the use of a spring 68 connected to the frame, and to a balancing arm of the cam, said cam is drawn up against its stopper, where it remains in an inclined position, to receive the truck under its highest end, and which is forced to travel down it, as the crane swings outward, the truck, however, running off. The cam rises as the crane reaches its terminus of stroke beneath the cage of bottoms, and the upper arms or jaws of the elbows swing inward astride the ends of the lower bottom in the cage. In returning, the truck strikes at once over the lower end of the cam, which gives way against the action of its spring 68, but in so doing closes the jaws more tightly upon the bottom as it is being removed from the pile. The raising of the table lifts said bottom out of and above the jaws where it is free to revolve with the form.

By referring to the dotted outline of the bottom as it is being transported in Fig. 4, it will be seen that the jaws of the elbows to which I have made reference, are so arranged as to sustain two gripping points 69 at each end of the bottom, their location being such as to act upon the rounded ends of the bottoms, and to drive the center of the bottom to the same center that is between them longitudinally, and is indicated by the center to the table and the dotted lines 70 therefrom. In getting a true basket made this construction for centering the bottoms is of much importance as the variations in width in the shrinkage of the bottoms are divided upon the central line.

About midway its length and upon the stud 71 in the rear leg of the frame part 1, and located along the side of the wheel 4, is fulcrumed a lever 72, its one arm extending rearwardly, and upon which is hung a roller 73 to travel upon the periphery of a circle 74, containing in inward departure a short cam 75, the circle and cam projecting from the side of the wheel 4. The other end of the lever projects downwardly below the face of the wheel, and is provided with a lug or offset 76 which projects from said lever under the face

of the wheel and forward of the wheel's center, so that as the lever is swung backward at this end its lug will increase in distance down from the face of the wheel, and so that when it is acted upon by the spur 77 which is secured by slot and bolt to the wheel, it can be swung back more or less as the spur is gaged to depart from the lug. To an outwardly extending arm 78 from the lower end arm of the crane, and to the lower end of the lever 72 just above described, is connected a pitman 79. Through the completed connection of the parts I have thus shown, the spur 77 on the wheel is enabled to turn the crane on its axis outward for a bottom, and the cam 75 to return it to the form, and the circle 74 to retain it in a closed and locked position while the basket is being made.

In beginning the description of the mechanism for feeding the sides 80 I will refer to the first movers, which are the lugs represented by 81, projecting from the periphery of the wheel 4, in rotation next to the track 53 heretofore described. These lugs may be solid as a part of the wheel, or merely the heads of square headed bolts put through the rim of the wheel.

For the purpose of sustaining the stud 82 in front of the machine, and upon which the vertically arranged levers 83 and 84 can be fulcrumed to swing back and forth, there is projected forward from the front leg of the frame 2 the arm 85. Just below the wheel 4 upon the cross ties 46 and 86 which, by bolts, tie together the lower portions of the frame parts 1 and 2, is laid the bar 87, the caps 88 guiding and holding it down. Below this bar 87 and the front cross-tie of the frame is another bar 89, its rear end finding guidance in the rear cross-tie, and its front end in the iron bent around it, and provided with a tightening screw 90, which iron I will call grip 91, that may be thus slid along anywhere upon the bar and fastened. Upon the upper bar is another similar and movable grip 92, and around the lever 83 above its fulcrum is still another movable grip 93. Connecting these two latter grips, and thus their bar and lever, are the pitman and slotted grip 94, the grip of the lower bar being pivoted upon a stud 95 at the lower end below the fulcrum of the same said lever 83. These two bars each have their rearward end bent upwardly, the bent portion of the lower bar 89 coming directly in rear of the bent portion of the upper bar 87, so that any one of the series of lugs 81 projecting from the periphery of the wheel, as I have described, will strike the upturned portions of the bars, and alternately reciprocate them in a rearward direction. Now by the roundabout connection of the bars, as has been just above described, as one is reciprocated back the other will be reciprocated forward, the one thus preparing the other for this alternate reciprocation, and by which the lever 83 is driven back and forth, and gaged in its stroke by the adjustable grips described.

96 and 97 represent a pair of reciprocating pinchers, and 98 a box or receptacle for holding the sides, and 99 boxes for retaining a vertically arranged shaft 100, upon the lower end of which is hung a pinion 101 to turn the shaft, and upon its upper end a sweeping arm which is swung to and fro by the shaft, and finally the extra attachment frame 103 which sustains all those parts, and is made applicable for attachment on the bolt 104 to the front side of the upward arm 27 at the front upper edge of the frame part 2.

By referring to Figs. 5, 10 and 11 in the detail views, the construction and operation of the pinchers may be well understood. For them two bars are used, and their rear ends are raised and formed into two parallel jaws 96 and 97. The other ends of the bars are the handle ends, at the extreme end of which are pivoted toggle-links 105 and 106. One of these, 106, is bent down and extended outward, and is provided with a hole for a connecting rod 107 to go through and have a connecting leverage to swing the links, bearing upon the arms and each other, thus opening and closing the jaws of the pinchers. Said connecting rod directly connects the extended link and the lever 83 which swings to and fro, as has been described, and in this way reciprocates the pinchers. It will be noted that one of these pincher bars is made straight and turned directly up to form its pincher end, and is thus made convenient to slide in the boxes 108 and 109 of its frame, and that the bars have their fulcrum on the bolt 110 of the straight and larger one that runs in the boxes and cannot swing, and further the arm end of this larger bar has bolted to it a gage 111 which by striking the links permits them to close only to a straight line between the arms, and by striking the opposite movable arm, gage the movement of the links outwardly and the opening of the jaws. By this use of the links, the jaws will always close before the pinchers begin their forward movement and if a side for the basket is between them, they will close upon it and transport it to the form, where I have designed they shall hold it until after nailed, the backward reciprocation then beginning, after the jaws are opened, leaving the side in place.

I will now show how the jaws are supplied with the sides. For this purpose I provide the lever 84, pivoted on the stud 82, and having attached to its upper and free end a small pressure plate which shall be supplied with needle points 112, that will go down into the box for the sides, and cause the side to adhere to the plate and rise with the lever. Upon the hubs of and between the levers 83 and 84 is a coiled wire spring 113, the free ends of the wire being brought up and hooked, one end upon each of the levers, the spring of the wire tending to separate the levers, to the extreme of their separation, which is provided for by a hook 114, as a part of the driv-

ing lever, hooking around the other lever, and upon which it strikes and rests.

The box or receptacle 98 has a slot 115 down through its bottom through which the lever 84, (which lever I will for the purpose of designation hereinafter call the needle arm) can travel, the box being provided with sides of such inclination that to strike a center for its curvature, would be the center of movement of the needle arm; and the box by having an arm 116, by which it can be bolted to its frame by the bolt 117, can be held firmly in position, which shall be such on the sweep of the circle of the needle arm, that the sides will remain as placed in the box and will not tip over as the top one is being removed therefrom. To the side of the needle arm is bolted a segmental arm 118 which strikes in mesh and turns the pinion 101.

Secured on top of the frame 103 which supports it, is a grooved way 119, the groove thereof opening upward and of such width that the lower edge of the sides for the basket will slide freely through it. Above this, and held by a standard 120 projecting upward from the same frame, is another grooved way 121, this one being inverted but of the same direction and inclination as the lower groove, and similarly guides the upper edges of the sides through it. These grooved guides lead from the box holding the sides around to, and in line with, the reciprocating pinchers. The grooves thus describe about the quadrant of a circle, of which the shaft of the sweep 102, which pushes the sides through the grooves, is the center vertically.

122 is a plate, and a spring 123, with a piece laid between them continues the formation and extension of the upper groove 121 leading on to the form. The piece 124 which holds a separation of the plate, and spring, as above mentioned, stops short of the front end of the plate and spring. By this means the spring is allowed to press lightly upon the side as it is passed on between the plate and the spring, by the pinchers carrying it to its position for adjustment, (which will be hereinafter described,) just previous to being nailed, after which the side will draw in, or on, with the form and wrap properly on it and can thus be further nailed. The object of the plate and spring is to lead the bands down astride the sides, (as will be hereinafter shown) and to lead the sides up to the form between the upper bands, and so they will, (the bands and the sides) be arranged levelly at the top edges.

To make the description I have given more clear, now let us follow the operation of the parts which feed the sides.

As the pinchers are moved to the front by the pitman, and lever 83 the spring 113 causes the lever 84 to move forward into the box and down upon the sides for the basket. The spring then takes action, forcing the needle points of the lever into the side of the first and uppermost side, the lever remaining in

this position by permission of the elasticity of its spring during the completion of the stroke forwardly of the pinchers and other parts. The return stroke now begins, the
 5 final of which lifts the needle arm completely out of the box. The side drawn up by it is forced off the points by striking against the stops and guides 125, which prepare it to enter the grooves at once by the force of the
 10 sweep 102 which is then operated by the needle arm entering into mesh with the pinion of the sweep arm shaft, in the further and final stroke of said needle arm. Now in the forward stroke the pinchers are opened and can
 15 back down astride the side and those left in position in their line. Thus it will be seen, that one side follows another in close relation, delivering one in every return stroke.

I will now describe the way in which the
 20 lower band is fed or supplied to the basket.

126 represents a casting bolted down to the top of the frame part 2, and projecting upward along the side of the form. This casting sustains the nailing mechanism described
 25 later on, the front lower part of it being cut away, also the frame, so that the two united form the guide or way 127 (see Fig. 6) across the top of the frame. The front ends of the lower bands are placed in this guide and behind them. To push them toward the form, is
 30 a follower having its advancing end 128 upturned and fitted to fill across the guide, and its other end movably bolted, or in other words adjusted to slide a little in its fastening to the lever 129. This lever is pivoted
 35 back to the top plate of the frame at the bolt 130, and is provided at its opposite or front end with a handle by which the follower may be drawn outwardly for insertion of bands in
 40 the guide and against the action of the spring 131, which presses the follower on the bands by having connection with the lever and the frame. For best view of this see Fig. 9. A
 45 plate 132, provided with a longitudinal slot in the side of it, is vertically arranged and bolted to the frame between the frame and form, and with the slot next to the frame, and so it will cover across the opening of the guide and receive the bands pressed against it by
 50 the follower. This slotted plate 132 rises to about a level with the under side of the bottom for the basket as pressed on the form, thus elevating a band to the level of the bottom of the basket and to receive the nails
 55 through it into said bottom.

As a means to elevate a band at a time, I have made a plunger 133 to travel in the slot of the plate, but to project beyond the face of the plate, and having about the thickness of
 60 one of the bands. A throat 134 is left between the face of the plate and the casting above the guide, that will permit a band to be moved up by the plunger; and this upward stroke of the plunger is done by the arm 135
 65 that projects under the plunger from the end of the lever 51 that swings with the crane, and lifts it with the movement of the lever as

heretofore described. The lower end of the plunger is spread into a horizontal bar to have room under it for the arm to lift it, and
 70 for the attachment to it of a spring 136 to draw it downward when the lifting lever leaves it on the completion of each basket made. The lower end of said spring is made
 75 fast to the frame at any point convenient below. A somewhat similar delivery of the upper bands is obtained. A guide 137 for the forward ends of the upper bands is provided
 80 by doubling a plate over (see Fig. 5) to form the upper and under plates 138 of the guide. The under one of these plates is the longer, and they are both secured to the top of the flange 139 which is an upwardly extending
 85 vertical face of the bar plate 21 along its outer side. The mouth of the guide and the guide plates are made even with this vertical face of the flange excepting a recess 140 cut in the face of the flange just
 90 below the guide that will permit the separator 141 to rock its mouth under the guide, and receive in it a band at the proper time. Said separator is made of a plate bent around to form a parallel groove between it, this groove
 95 opening at the top, at the front end and at the bottom, the bottom opening of the groove being, however, of less length than the top. The back of the groove, where the plate bends across thus has or is inclined forward as it goes down. From this separator, and maintaining it, runs back to the big wheel 4 a rod
 100 142, which finds a bearing in boxes 143 that project from, or may be secured to the bar plate. The back end of the rod turning downward and at an angle again, is operated on to swing out by a projecting cam 144 from
 105 the side of the wheel, the separator being thus rocked over under the mouth of the guide. The coil spring 145 is looped on the rod and hooked to it and its box so the spring will return the separator and hold it from
 110 under the guide, and while so the inside band to the basket can be taken from the same guide for bands, and shoved down between the separator and the face of the bar plate, the space 146 between them being suitably
 115 provided therefor. Back of the band guide and projecting higher up is an extended arm 147 of the flange of the bar plate. To this arm on the side next the separator is screwed a plate 157 which points forward to cover
 120 the mouth of the guide, and against which the bands are pressed. Sufficient space is left between this plate and the lower plate of the guide to allow only one band to go between them at a time. The back end of the bar
 125 plate runs upward and terminates in bulk to receive through it a stud, that projects out of the bar each side. Upon the side over the separator is fulcrumed on said stud a long lever 150. The back end of said lever is provided with a roller 151 hung to run on a stud
 130 out from the side of the lever, and the lever is operated up and down by the roller running on the periphery of a circle which pro-

jects from the side of the wheel 4, and has a short part of its circumference dropped and raised to form the cams 152 and 153 to raise the lever at the proper time, and against action of its spring 154 hooked over it and to a lower rib of the frame, to hold the roller down on the cam. The lever next forward of its fulcrum extends upward and forward and then nearly vertical to end near the bands, and to swing down directly in front of the separator, the office of the lower front end of the lever being to push the bands down astride the plate 122, and hold them down as a gage while they are being drawn in under and to the form.

To the lever 150 back of the vertical part 155 which it will do to term the head, are pivoted two plungers suspended similarly in line with the head. One of these plungers 156 is similar in thickness to the bands and is used to push one band at a time out of its guide, the plunger moving next and close to the plate 157 against which the bands press. The other plunger 158 hangs over the separator and is to go down through it and shove the band in the separator down and out below it. This confinement of the end of the band also shoves it forward to meet even with the first side in the basket.

At the front end and on top of the overhanging arm 24 of the frame part 1, is fulcrumed a lever 159, the handle of its free end being adapted to be grasped to reciprocate the rod 161, through a connecting link 160 which connects the other end of the lever and the rod. Now the rod is provided with a bearing through the arm 24 of the frame which guides it, and the other free end of the rod has upon it a foot 162 which will pass out and in the guide for the bands as it rests upon the lower longer guide plate. The spring 163 attached to the lever and the frame causes the rod and its foot to press upon the bands. To the upper end of the arm 147 is fastened a light spring 164 which curves down to lie between the bands and the head 155 so the spring will push the bands back and the head will not catch upon them as it starts down to shove down those cut out of the guide.

The operation of feeding the upper bands is to first rock the separator under the guide, then by the cam on the wheel operating on the lever and plungers, shove a band into the separator, which thus moved will let the separator plunger go outside of it. The lever then drops back, and so does the separator. The lever then comes down again, shoving a band out of the guide into the space between the separator and the bar plate, the plungers going down this time to the top of the form, one in the space mentioned, and the other through the separator.

While I have described in detail a band applying mechanism applicable to an oblong basket, yet it is obvious that substantially the same mechanism can be employed in the construction of various other forms of basket,

and particularly in a basket which is round in cross-section.

In connection with the feeding of the sides, I should have mentioned the adjuster 165 for them. It is a grooved piece operated up and down, and the side is carried through it while in the pinchers' jaws, which jaws are shaped to pinch the side a little hardest at their ends. The other edge of the side can be pushed up with the adjuster as the side passes over it. As before said, this adjustment of the side causes it to wrap tightly on the form. Upon the shaft 3 at the side of the large wheel is a smaller one 166 provided with points, projecting on its face indicated by 167. To the side and underneath the top plate of the frame part 2 on the bolt 168 is fulcrumed a lever, its one end holding the adjuster, its other end riding upon the under face side of the wheel and operated up and down by the points as they pass over it. (See the dotted lines in Fig. 2.)

The casting 126 bolted down to and projecting up from the frame part 2 is provided with grooves 169 across its front side in the direction of the form. There are two of these grooves across the casting, one opposite the upper bands of the basket and the other opposite the lower bands. As they are alike, a description of one and the accompanying nailing parts will suffice for a description of the other. Fitted to slide in these grooves is a rectangular block, which I will call the nailing block 170. On the top of the blocks is a square rod which I will call the knife rod 171. This rod, however, has been beveled on one of its sides 172 so that when pressed against the wire it will cut the wire off at an angle corresponding to the bevel given the knife rod. The groove is shaped to fit and receive the block and the knife rod in them even with the face of the casting. The casting is again cut away so it forms a raised part 173 over each groove. Out vertically across this raised part is a slot to the depth of the groove below into which it opens. A stationary knife 174, provided with a groove extending longitudinally in its side, is fitted to receive and pass the wire down in the groove in front of the beveled side of the knife rod, which passes closely by the grooved part of the stationary knife at its lower end, on the inclined wall 175 of the groove of the casting, and against which the reversed beveled side of the knife rod slides.

In preparing the nailing block 170, a hole 176 is drilled longitudinally through it. This hole is then reamed out to a larger size for about two-thirds the length of the block. The small hole in the front end of the block, is then provided with a groove 177 on its upper and lower sides. These grooves are of the size of the wire to be cut off and bent into staples or nails for the basket. A slot 178 is then made into the front end and side of the block directly into the smaller hole between the

grooves 177. The rods 179 are a counter part of the hole as thus made in the block, and I will call them the hammer rods. These rods are provided with tongues 180 fitted to the grooves of the hole and otherwise fit and will enter the hole through the block. In Fig. 16 it will be more clearly seen that the back end of the hammer rods is threaded and has screwed on it a nut 181. Between this nut and the block is slipped on the hammer rod a coil spring 182 that will hold the block away from the nut as far as the rod 183, screwed into the back end of the block, will let it. The other end of the rod 183 is bent to hook around the back of the lever 184 which rests against the nut and pushes the hammer rod in. The lower portion of the casting 126 extends out from the frame and thence upwardly into an arm 185. This arm of the casting has fastened to it angle irons 186. To the projecting part of these irons is pivoted what I will call benders 187, as they are made to bend the wire into staples or nails 189. From their pivot 190 these benders reach inwardly and have their free ends turned at right angles to enter the slot 178 in the nailing block. These benders are also shaped to have an incline 191 on their edge side next the casting or block, and are supplied with springs, that will hold them against the nailing blocks and their hooked end 192, (see Fig. 7,) in front of the wire. Said springs are seen at 193 in Fig. 4.

194 represents the knife holder which is a vertically arranged block slotted, (see Fig. 5,) at either end upwardly from a groove across it in which the knife rod is laid. Going through the holder above and oppositely to the knife rod is a clamping screw or bolt, by the turning of which, the slot permits the thus separated parts of the holder, to grip firmly between them the knife rod, which by this means of holding it, is adjustable for the wear and grinding off of its knife end.

The knife holder is shaped to pass around, or let the hammer rods 179 with their spring, go through it freely, but to catch and rest against the back ends of the nailing blocks 170. By referring to Fig. 7 it will be seen that the knife holder has projecting from it in the direction of the free ends of the benders, spurs 195. The end of these spurs is inclined to fit the inclined surface of the bender, and as the knife holder is advanced the knife cuts off the wire, the nailing block bends the piece of wire cut off, astride the bender, which draws it at the same time into the grooves in the end of the nailing block. At this time the incline of the spur engages the incline of the bender, and its hooked end is clearly drawn out of the staple and the nailing block, and at this time the knife holder stops moving, as I will now describe.

From the top of the frame part 2 stands a stud 196. Fulcrumed on this stud is a lever 197. The back end of this lever has running on it a roller 198. This roller travels over inclined lugs 199 on the side of the big wheel

4, and thus forces reciprocation of the lever 197. The other end forward of the lever is provided with a slot in which is horizontally hung on the bolt 200 a pushing latch or pawl 201. This pawl is provided with a shoulder 202, resting against the knife holder block, the pawl also projecting on past the knife holder block, and its ends presenting a beveled, or inwardly inclined surface 203. (See Figs. 4 and 7.) To the casting 126 by the bolt 204 is fastened to project forwardly even with the end of the pawl, an angled iron 205. The outer end of this iron is beveled or inclined at 206, to meet the inclined end of the pawl and lift its shoulder 202 off the knife holder block, thus stopping the movement of said block as it has been pushed to cut off and bend the wire by the lever of the pawl driving it. The pawl has a tail extension 207 curved round toward the fulcrum and back of the lever, and between which and the tail is put a spring 208 that forces the shoulder of the pawl to drop behind the knife holder block every time the lever 197 draws the pawl back of it. On the upper and under side of the pawl end of the lever 197, on the bolt 209, are fulcrumed two other levers 184, their front ends being made short to their fulcrums, resting against the nut of the hammer rods and being adapted to drive said rods as the lever is reciprocated. The back ends of the lever 184 are made long and sustained by the springs 211 between them and vertically projected lips 212 from the upper and under side of the lever 197. Now after the wire has been cut off and bent into a staple or nail, as has been described, the pawl is lifted from the knife holder, and the lever 197 continues on its stroke toward the form. The nailing block is pushed on by the spring 182 behind it till it reaches the wood of the basket, the nail being in the grooves in the front end of the nailing blocks. The nailing block now stops and the spring behind it is contracted as the hammer rod advances through the block and drives the nail into the wood of the basket from out of the grooves that guide it. To prevent the puncture of the wood, if the stroke of the lever 197 is still continued farther by the hammer rods, the spring of the lever 184 will contract and give according to the pressure or resistance. The return stroke of the lever is made by the attachment to it and the frame of the coiled spring 213.

In Fig. 9 a little different arrangement is shown for moving the lever 197 whereby it is given a greater range of adjustment, by the addition of a right angled lever 214 that is also fulcrumed to the stud 215 on the top of the frame. One arm of said angled lever has on its end the roller 198. The other arm of said lever is spread and provided with two upward projecting lugs 216 between which the back end of the lever 197 projects, and is adjustably held by screw bolts 217 screwed through the lugs against it. The rear end of the lever 184 is provided with notches 218, thus giving

ability for more or less leverage thereon by the spring 211, which in this case is held to draw from an arm 219 secured to project outwardly from the lever 197.

5 After the basket has been made it is necessary to remove it from the form when the crane is sprung out from under the cage to go for the bottoms. The upper end of the crane shaft is extended up through the plate of the
10 frame, and journaled on it above the frame, is a segmental beveled pinion 220 which turns with the crane. Meshing with this pinion is another segmental beveled pinion 221 which turns upon the stud 222 on the side of the
15 overhanging arm 24. To an arm of this latter pinion is rigidly secured an arm 223 projecting upwardly and thence into a circle 224. The lower end of the circle and the free end of the arm, stops closely above the plates over
20 the form when the crane is closed, but as the crane swings outward the end of the arm 223 or 224 goes down through the slot between the plates, and the opening 225 through the top of the form, and strikes the bottom of the
25 basket between the feet of the form, and thence on down shoving the basket off the form. It will be seen, therefore, that as the crane is swung out and back, the arm for delivering the basket moves accordingly.

30 To the overhanging arm 24 is bolted a standard 226 which reaches upward and has extending through it horizontally, and projecting from each side of the standard, a shaft 227. On this shaft, upon each side of the standard, is hung a reel upon which is supported a
35 coil of wire. These reels may be made in any convenient manner for the purpose of holding the wire as it is to be drawn off the coils down to the nailing parts. The particular
40 construction of the reels is therefore thought not necessary to describe. From the top of the casting 126 extends an arm which holds a horizontal stud 228 on which is hung a wheel
45 229 of two diameters, or in other words two wheels, one smaller than the other and both made fast together and having narrow faces. The purpose of this variation in the size of the feed rollers is to vary the length of the
50 staples, the longer ones being applied to the lower bands and the shorter ones to the top bands of the basket. Pressing upon the faces of these wheels 229 are the rollers 230 hung to the short upper ends of the levers 231 said
55 levers being fulcrumed at 232 to a raised part of the casting 126 that will allow the lower end of the levers 231 to hang along down the back side of the casting 126 between
60 which, and the extreme lower end of the levers, is a coil spring which has such pressing leverage upon the levers as to cause the rollers to squeeze forcibly upon the wire 234 between them. The larger wheels have in
65 their faces a track or slight groove—not so deep as the wire is thick—which leads and keeps the wire between the rollers. Now for operating the wheels and thus feeding the wire down to the nailing blocks as it is

wanted, I have put on the side of the wheels a ratchet wheel 235. Working into the under side of the ratchet wheel is a long pawl 70 336, extending along the side of the bar plate and pivoted to the side of the pendent arm 337 on the screw bolt 338 and operated to reciprocate and thus turn the wheels, by the lower end of the pendent lever being 75 turned to ride upon the face of the wheel 4, said wheel being provided with a series of lugs 339 that pass one at a time under the lever 337, pushing it and the pawl forward against the action of the spring 340 attached 80 to it and the bar plate, and that at once, on the lug passing by draws the pawl rearward and into the next notch of the ratchet. It will thus be seen that the wire is intermittently fed a distance down corresponding to 85 the divisions of the wheels indicated by the number of teeth in the ratchet.

Figs. 12, 14 and 15 show a change or different construction that would perhaps do as well for some of the parts. The departure in 90 Fig. 14, however, is merely to illustrate a method that might be employed to move the form or travel it as I now do and detailed in Fig. 13.

In Fig. 14 the top of the form is provided 95 with a rack 341, and in mesh with it is a vertical arm 342 terminating into a segment 343 at its lower end, its upper end being pointed to swing on a bolt 344 passing through it, and between the flattened jaws, through which 100 the bolt also passes. These jaws are a part of the lever end of the shaft 345. A flange of the shaft 446 is extended between its round part and jaws. Upon this shaft and next to the flange is loosely hung a pinion. To the 105 frame of the screw bolt 447 is pivoted a pawl 448 so it can engage the teeth of the pinion. Meshing with the pinion 449 is a horizontal rack 450. Midway of the arm 342 it is formed into a ball 451. This ball portion of the arm 110 is boxed by the end of a pitman 452 thus forming a universal joint connection of the arm and the pitman. By movement of the pitman the centers of the form can be drawn to a vertical line directly under the shaft above, then 115 by movement of the rack a half revolution of the form can be given. The pawl when disengaging the pinion will allow the rack to return from where it started and ready to turn the form again, the segment fitting between 120 the ears 453 preventing displacement while turning the form.

Fig. 12 shows how the sides of the basket may be held in a hopper 454 provided with a spring 455 to press them forward to the guide 125 456 between which a hook cut off 457 shoves a blank side piece out of the hopper to one side so the jaws can back down astride it. The cut off 457 is fastened to rise from one of the pincher bars, and to thus move with the 130 pinchers.

Fig. 15 shows a slight change in the mechanism for transporting the bottoms. Running out and upturned from the front end of

the crane is a gage 458 that swings round to the center of the end of the bottom. Extended to strike and press against the other end of the bottom, and pivoted to the side of the crane is a spring pawl 459. By reason of the spring 460 under the back of the pawl, said pawl shoves the bottom to and against the gage, and the bottom is thus regulated endwise under the form. An arm 461 reaches out and up from the side of the crane to near the side of the table 49. To the end of this arm is pivoted a latch or hook 462 that springs slightly above the top of the table and to hook back of and on to the bottoms and draw them from under the pile in the cage for them. On the opposite side of the table on a projection 463 are pivoted the plates 464, one extending forward and the other backward, both having an upturned lip at their free ends that rises to the height of a bottom when on the table. To the crane is screwed two bolts 465. These bolts are so located as to meet the lips of the plates, as the crane is swung round under the form. By screwing the bolts out or in the lips striking between them and the bottom, said bottom is adjusted in line sidewise under the form, the table of course lifting the bottom above all these parts, after its proper adjustment. To the inside of the upper side of the frame-part 2 is bolted the curved irons 486, to hang down and curve outward under the form. These irons are to catch and guide the basket outside the machine as it is ejected from the form.

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

1. In a basket making machine a form provided with mechanism for giving it an intermittent movement and rotating it alternately on two separate centers.
2. In a basket or receptacle making machine, a form in combination with a bottom feeding and a band feeding mechanism, and mechanism for assembling and uniting the sides and bands at the top and the bottom of the receptacle, substantially as described.
3. In a basket machine, a form which revolves successively on two separate centers, in combination with mechanism for assembling and uniting the parts composing the basket, substantially as described.
4. In a basket machine a rotatable form and mechanism for giving it a step-by-step movement, in combination with guide bars or plates between which the centers of the form move, and are rotated during the operation of uniting the assembled parts of the basket, substantially as described.
5. In a basket or receptacle making machine, a form in combination with a bottom feeding and a band feeding mechanism, and mechanism for assembling and uniting the sides and bands of the receptacle, substantially as described.
6. In a machine for making baskets with bottom, sides and bands complete, the combi-

nation with a form, a mechanism for feeding the bottom and sides to the form, a band feeding mechanism arranged and adapted to automatically and separately pass the bands to the inner and outer edges of the basket sides, and mechanism for uniting the bands and side pieces, substantially as described.

7. In a basket making machine the form and its operating mechanism, in combination with a semi-circular plate and a straight surface plate forming part of the machine, said plate having a passage between them to receive the centers of the form, as set forth.

8. The combination of the form having two centers, with a semi-circular plate and a straight-edged bar-plate for guiding said form in its rotary and rectilinear movement, substantially as described.

9. In a machine for making baskets, the combination of a cage or hopper for holding the basket bottoms, a form having an alternate rotary and rectilinear movement, and means, substantially as described, for transferring the bottoms from the cage into coincidence with the form.

10. In a basket making machine the combination of a form and hopper, a crane carrying a table and provided with bottom gripping jaws one of which has an extended arm, and a spring cam or arm for actuating the jaws through the medium of said arm, substantially as described.

11. In a basket making machine the combination of a rotatable form and mechanism for assembling blanks about the form, a bottom deliverer provided with a support for the bottom grippers which automatically grasp and adjust the bottom on the support, as and for the purpose set forth.

12. In a basket making machine, the combination of a form revolving successively on two centers, an ejector over the form, a movable table below the form, and mechanism connecting the table and the ejector, whereby on completion of a basket the moving of the table causes the ejector to pass through the form and eject the basket therefrom, substantially as described.

13. The herein described bottom delivering crane having a laterally projecting arm, in combination with a pitman connected to the arm, a lever fulcrumed on the frame and connected to the pitman, and a cam wheel provided with cams for rocking the lever, whereby the crane is oscillated, in the manner and for the purpose set forth.

14. A bottom deliverer comprising the combination of a crane having a vertical axis, a rotary bottom supported on the free end of the crane, a pair of bell-crank levers provided with double pronged grippers and carried by the crane, the grippers being adapted to grip the opposite ends of the bottom, the lower arm of the levers being provided with intermeshing teeth, a laterally extending arm upon one of the levers, and a cam upon the machine frame adapted to engage the arm

during the backward and forward oscillations of the crane, whereby the grippers are opened and closed, in the manner and for the purpose set forth.

15. In a basket machine, and in combination with a form, a band feeder and separator, mechanism for feeding the basket sides to the form, said separator being arranged to automatically pass the bands upon the opposite edges of the basket sides, and uniting mechanism, substantially as described.

16. In a basket making machine the combination with a form, of a band feeding chute, and a separating device adapted to separate and pass the bands upon the opposite edges of the parts composing the basket sides, substantially as described.

17. In combination with the rotary form, and mechanism for assembling and uniting the stock, of a guide or way for holding the ends of the bands, a resisting plate across the guide, a follower to press the bands against said resisting plate, and a plunger operating across the guide to deliver the bands therefrom to the form, substantially as described.

18. In a basket making machine, the combination with a rotary form, of a guide or way for holding the bands, a follower operating therein, a plunger traveling before the mouth of the guide to deliver the bands therefrom, a movable separating chute at the mouth of the guide to receive a single band, and adapted to separate and direct said band as it is delivered to the form by the plunger, substantially as described.

19. In a basket making machine, the combination of a form, a guide or way for holding the bands, a chute and plunger at the mouth of the guide, said chute having an inclined plane to receive the end of a band and move the band in an endwise direction as it is forced downward by the plunger to the form, substantially as described.

20. In a basket making machine, a band feeding mechanism consisting of a guide or way for holding the bands, in combination with a plunger and an oscillating chute located at the mouth of the way for separating the bands, substantially as described.

21. In combination with the straight bar-plate 21, the vertical flange extending upwardly from the bar plate to form a wall, the chute for separating and conducting the bands, and being located alongside the wall, so as to leave a passage between the wall and chute for conducting the bands to the form, substantially as described.

22. In combination with a bottom deliverer provided with a rotary support for the bottom, a form having feet provided with points, and an automatic lifting device so timed that when the rotary support has passed beneath the feet, it will force the bottom against the feet and cause the points to enter the bottom and hold it during the nailing operation, substantially as described.

23. In a basket making machine and in combination with a pivoted bender, a hammer rod, a nailing block provided with a longitudinal hole having communicating grooves, and a bender receiving slot, and having reciprocation in a line passing through the pivot of the bender, in combination with a knife adapted to move in unison with the block during a part of its stroke, as set forth.

24. The combination in a basket machine, of a nailing block having a partially grooved hole extending longitudinally through it, a hammer rod extending through the block, and having flanges plying in the groove of the hole, and a coil spring upon the hammer rod for actuating the nailing block, substantially as described.

25. The combination in a basket machine, of a bender, a nailing block having a longitudinally grooved hole, and a bender receiving slot, and a hammer rod extending through the nailing block and provided with flanges plying in the grooves of the hole, a spring on the hammer rod for actuating the nailing block while setting and driving the staple, a reciprocating lever carrying a pawl for actuating the nailing block when not actuated by the spring, and a knife adapted to move in unison with the block while cutting and bending the staples, substantially as described.

26. In a basket making machine, a nail or staple applying mechanism, having a lever adapted to actuate the nailing hammer and having a pawl adapted to engage the nail making mechanism, in combination with a yielding secondary lever fulcrumed on and carried by the main lever, and adapted to directly engage the nailing hammer, in the manner and for the purpose substantially as described.

27. The combination in a basket making machine, of a nail making mechanism provided with a lever carrying a pawl, a reciprocating knife bar and nailing block moving in unison therewith, the knife bar being engaged and actuated by the pawl, the nailing block being engaged and actuated by the knife bar, and a cam adapted to come in contact with the pawl and release it from the knife bar upon the cutting and forming of the nails, substantially as described.

28. In a basket making machine, a nailing mechanism comprising a reciprocating block provided with a longitudinal hole having grooves in the inner walls of the hole, a spring-retracted nailing hammer movable within the hole, a frame normally across the path of said block, a wire feeder adapted to introduce the wire across the chamber in which the block operates, and at a point between it and the bender, a side slot communicating with the longitudinal hole and adapted to receive the bender when the block is advanced, a knife-bar adapted to cut the wire, and means, substantially as described, for withdrawing the bender from the side slot as the nailing ham-

mer advances, all arranged and adapted to operate in the manner and for the purpose substantially as described.

29. In a basket making machine, the combination with a cam wheel, a lever actuated thereby, a pair of yielding secondary levers fulcrumed on and carried by said lever, and a pair of nailing hammers actuated by the secondary levers through the medium of the main lever, whereby the top and bottom bands of the basket are simultaneously nailed, in the manner and for the purpose substantially as described.

30. In a basket making machine, the combination with a feeding chute leading to the basket form, of a lever fulcrumed in the frame of the machine, below the chute, a rod connected to the upper end of the lever, a pair of gripping jaws attached to said rod and actuated thereby, said jaws being adapted to pass astride the stock in the chute, and to engage and advance it to the form, substantially as described.

31. In a feeding mechanism for a basket making machine, the combination with a form and the reciprocating pinchers arranged to carry and adjust the side pieces of the basket, of an adjuster located near the path of the advancing side pieces, and adapted to automatically engage and adjust the pieces as they pass to the form, in the manner and for the purpose set forth.

32. In a basket making machine and in combination with the assembling mechanism, a hopper having a passage way in one side, in combination with an oscillating lifting arm having its free end movable in said way to engage and lift the stock from the hopper, in the manner and for the purpose set forth.

33. In a basket making machine and in combination with the form, a hopper for holding the sides of the basket, in combination with a guideway or chute, an oscillating arm hav-

ing needles in its free end which enter and lift the stock out of the hopper and present it to the guideway, as and for the purpose set forth.

34. In a basket making machine, a hopper for holding the sides and a movable arm provided with needle points which enter the hopper and engage and lift the sides, one by one, therefrom, in combination with a form, and assembling and uniting mechanism, substantially as described.

35. In a basket machine a rotatable form having larger diametrical dimensions than the basket bottom to be operated upon, in combination with a bottom feeding and a band feeding mechanism, and mechanism for assembling and simultaneously uniting the sides and bands at the top and bottom of the basket, substantially as described.

36. A basket machine comprising the combination of a form, mechanism substantially as described, for feeding the sides to the form, a bottom feeding device, a band feeding mechanism, a nailing mechanism, a cam wheel and intermediate mechanism, substantially as described, for actuating all of said mechanisms, in the manner and for the purpose substantially as described.

37. In a basket making machine, the combination of a form revolving successively on two centers, an ejector over the form, a movable table below the form, and mechanism connecting the table and the ejector, whereby on the completion of a basket the moving of the table causes the ejector to pass through the form and eject the basket therefrom.

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

EMMET HORTON.

Witnesses:

R. G. DUBOIS,
J. W. HAMMER.