

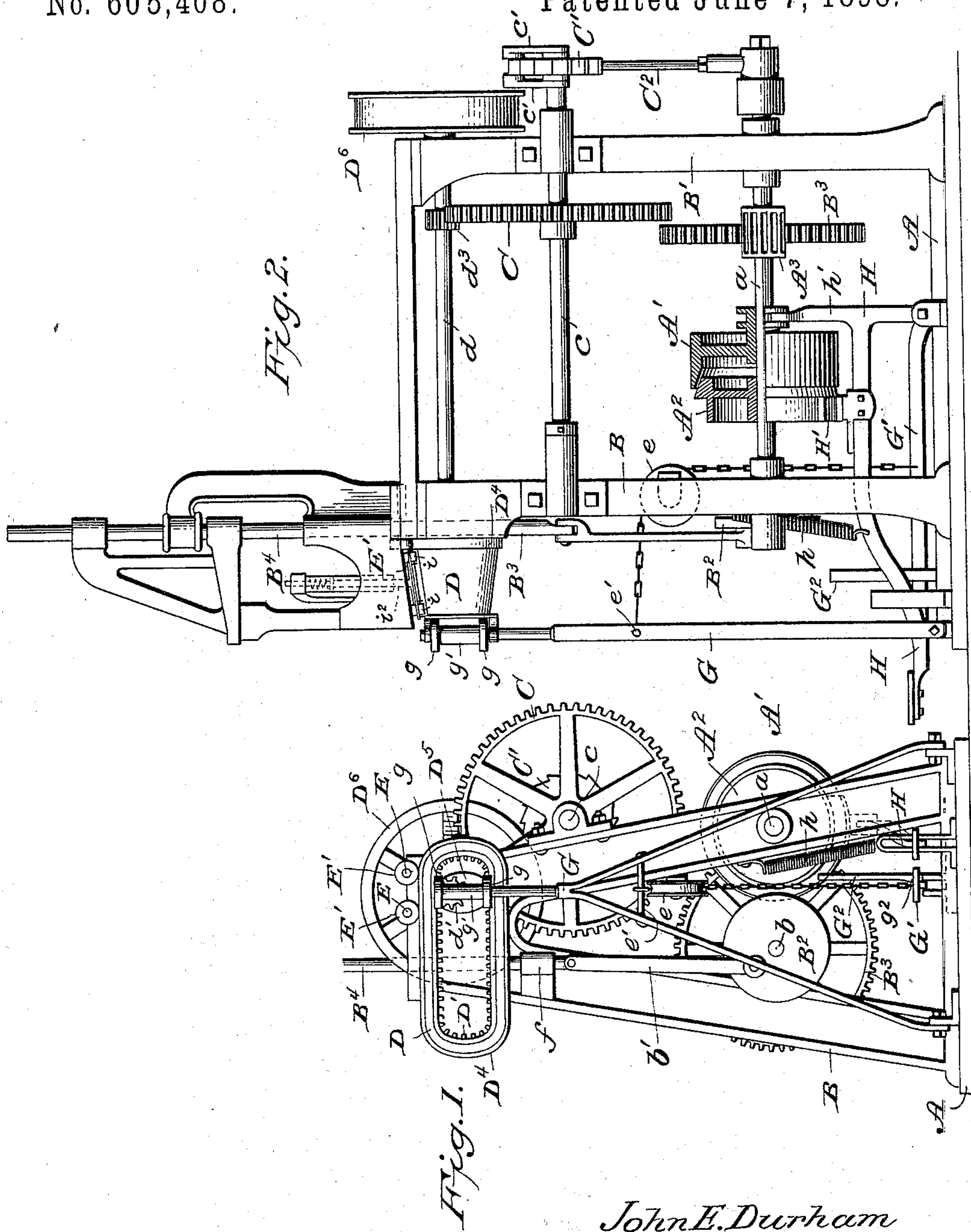
(No Model.)

2 Sheets—Sheet 1.

J. E. DURHAM & J. E. DEVINE.
BASKET MAKING MACHINE.

No. 605,408.

Patented June 7, 1898.



John E. Durham
Joseph E. Devine
INVENTORS,

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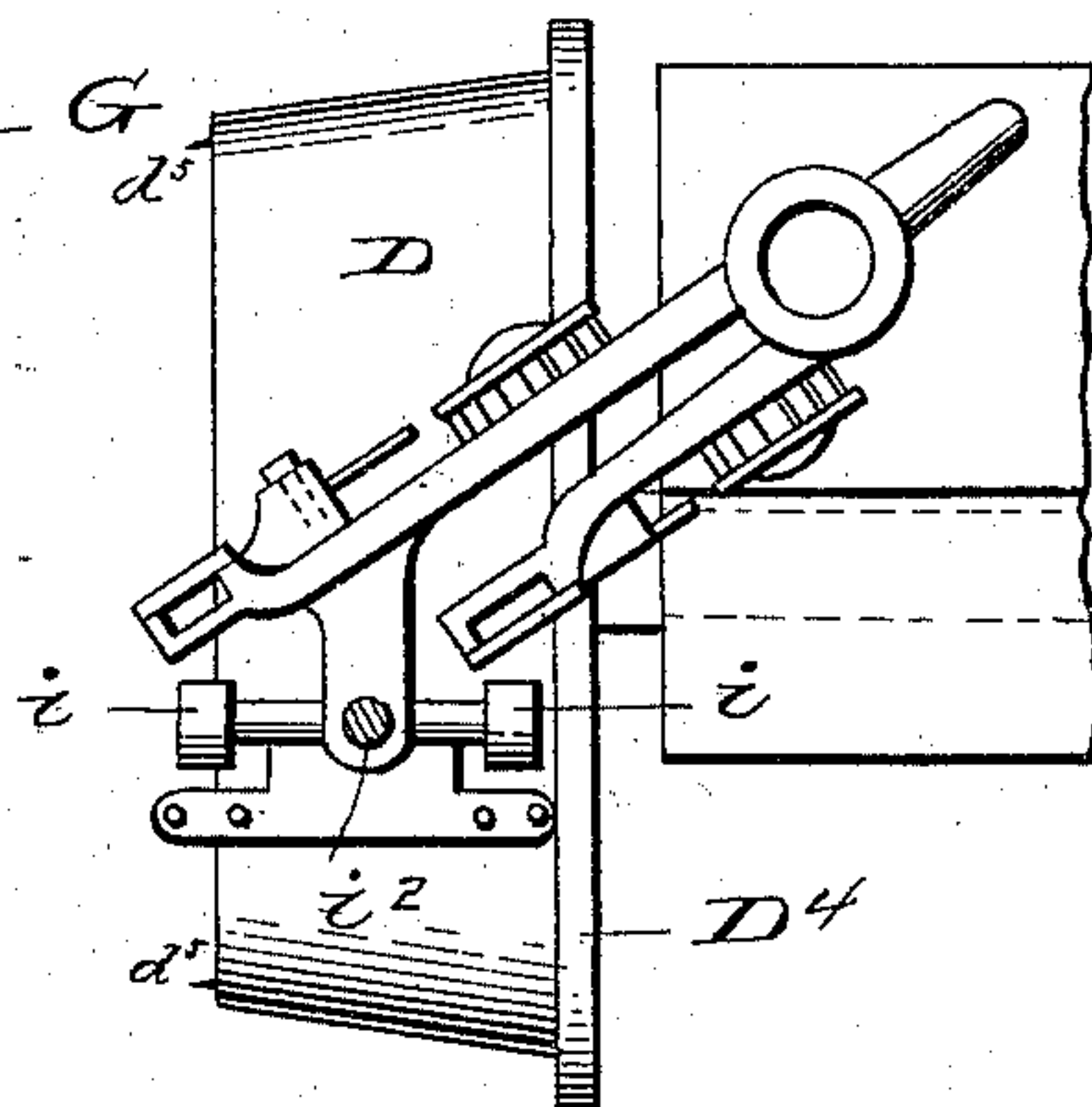
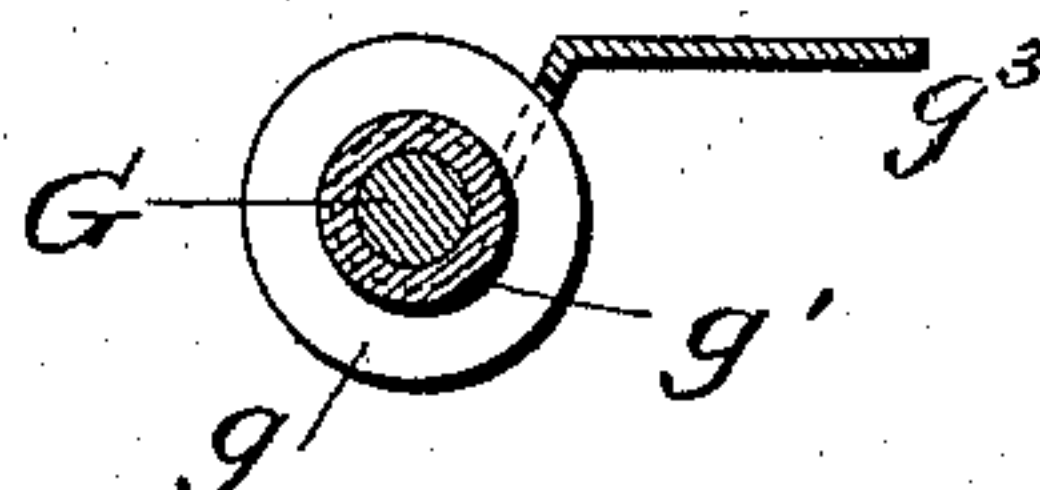
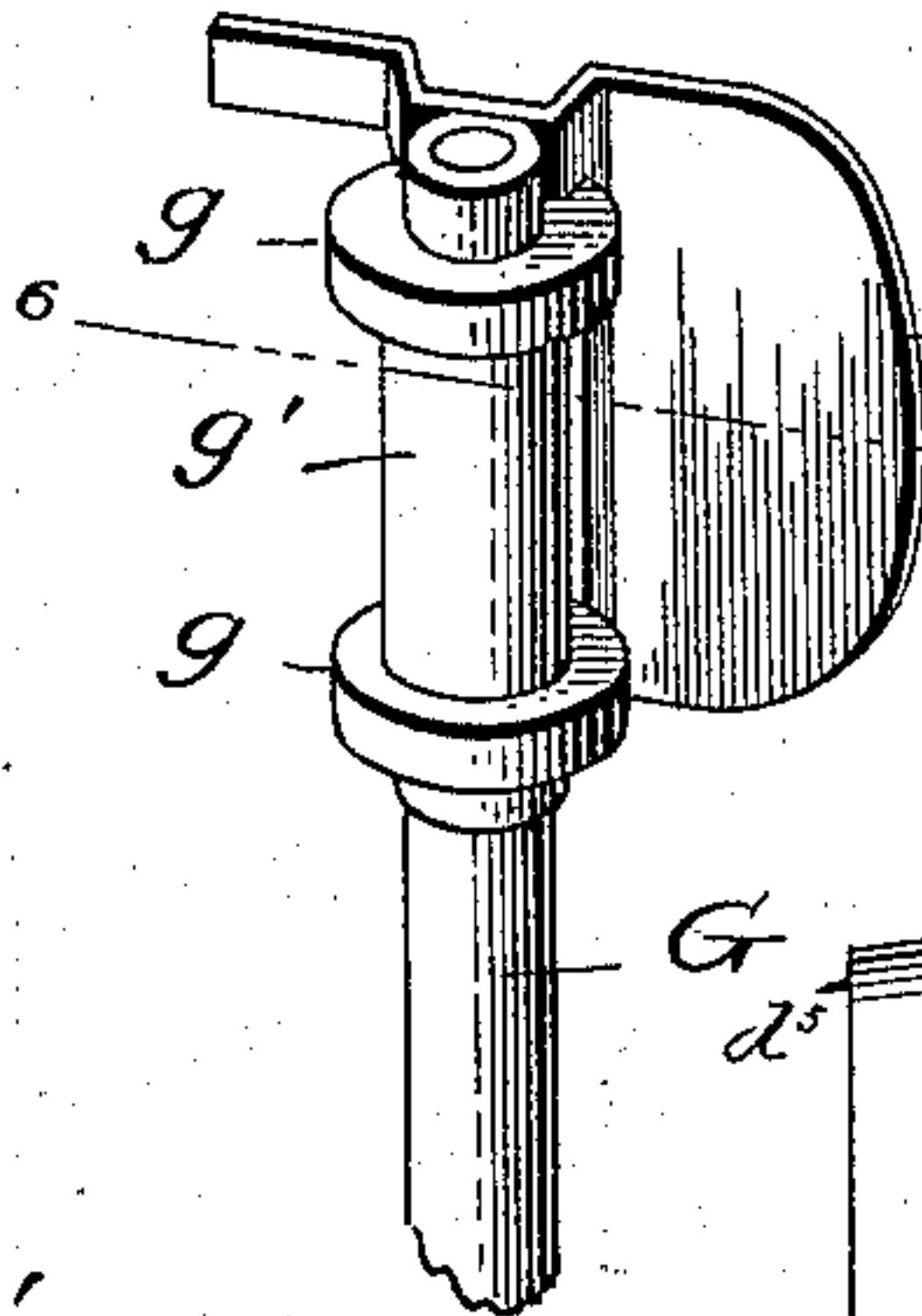
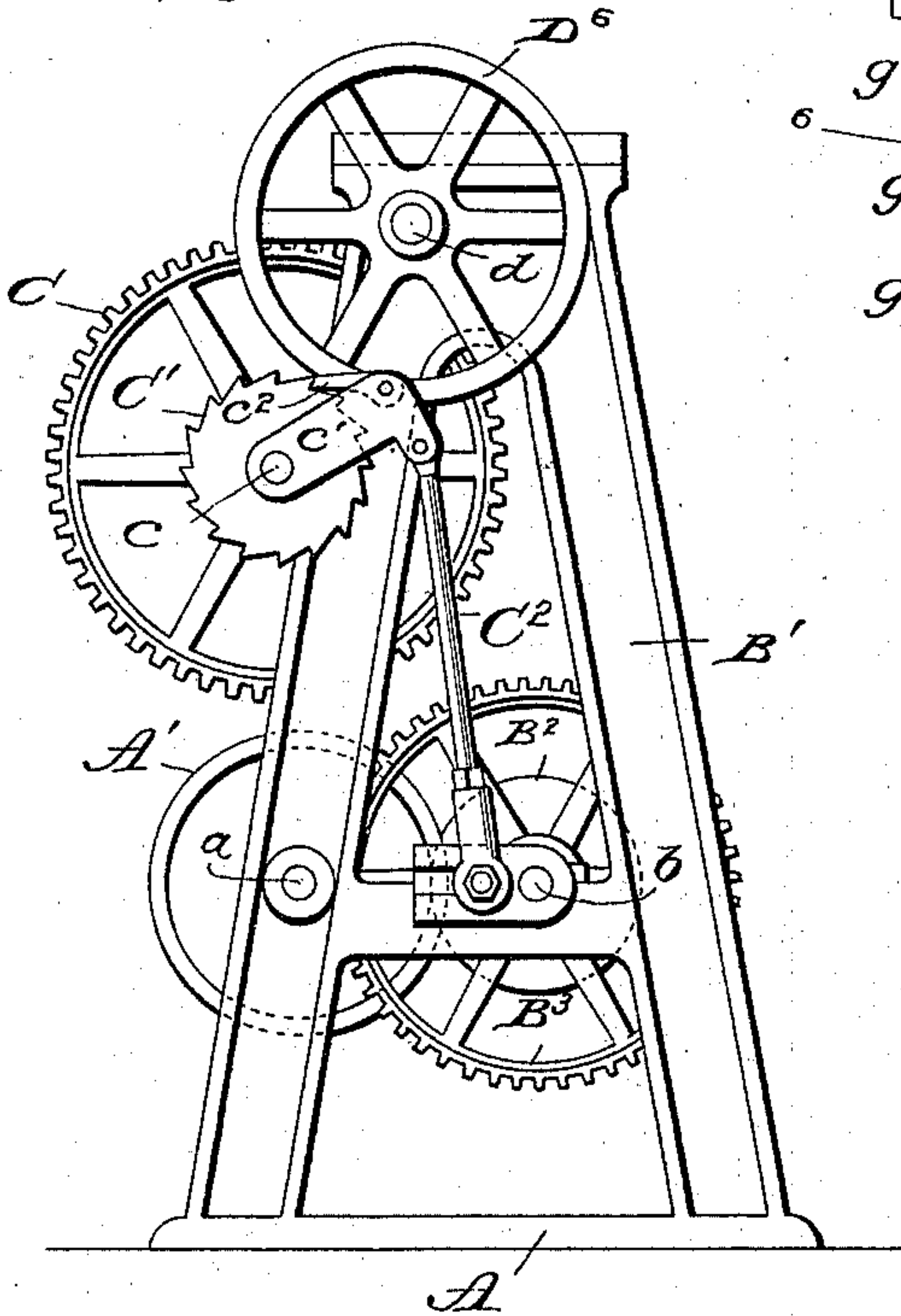
WITNESSES:

L. S. Elliott.
D. L. Rice.

2 Sheets—Sheet 2.

BASKET MAKING MACHINE.

Patented June 7, 1898.



INVENTORS,

L. S. Elliott.
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UNITED STATES PATENT OFFICE.

JOHN E. DURHAM AND JOSEPH E. DEVINE, OF DOUGLAS, MICHIGAN, ASSIGN-
ORS TO ELMER E. WEED, D. MILTON GERBER, AND CORNELIUS GERBER,
OF SAME PLACE.

BASKET-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 605,408, dated June 7, 1898.

Application filed July 19, 1897. Serial No. 645,133. (No model.)

To all whom it may concern:

Be it known that we, JOHN E. DURHAM and JOSEPH E. DEVINE, citizens of the United States of America, residing at Douglas, in the county of Allegan and State of Michigan, have invented certain new and useful Improvements in Basket-Making Machines; and we do hereby 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 letters of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in basket-making machines of that class which are designed for use in the manufacture of baskets or packages having solid wooden bottoms, splint sides, and hoops or bands which are secured thereto by staples or nails.

The machine illustrated is designed especially for the manufacture of fruit-packages, such as is known to the trade as the "Climax" basket, said basket being substantially rectangular with rounded corners.

The invention consists in the particular construction, organization, and combination of the parts, as will be hereinafter set forth and specifically claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a front elevation of a basket-making machine constructed in accordance with our improvement, the stapling mechanism being omitted. Fig. 2 is a side elevation; Fig. 3, a rear elevation. Fig. 4 is an enlarged detail view taken through the form, the form and means for holding the same in engagement with the frame being shown in section. Fig. 5 is a detail view showing the parts carried by the upper end of a lever, which parts engage with the bottom of the basket when placed on the form. Fig. 6 is a horizontal sectional view taken through the line 5 5 of Fig. 5. Fig. 7 is a plan view, partly in section, showing the arrangement of the stapling-machine, hoop-guides, and rollers with respect to the basket-form.

A refers to the base of the machine, to which are secured standards B B', which are provided with the necessary boxes or shaft-bearings, in which are journaled shafts *a b c d*, the standard B also having a support for a guide pulley or roller *e* and a boxing or housing *f*, through which passes a reciprocating shaft. The upper ends of the standards are connected to each other by a flat plate or board, which provides a table and means for attaching thereto a suitably-constructed stapling-machine, which operates in unison with the form and is driven from the shaft *b*.

D refers to the form upon which the basket is made, and this form has an exterior shape corresponding to the internal configuration of the basket—that is to say, the form in the present instance is tapered, has parallel sides, rounded corners and ends, though the ends may have such a slight curve as to be practically flat at their centers. The form D has internal gear-teeth *D' D²*, and adjacent to the gear-teeth or rack *D²* is a recess *D³*, one side of which is formed by a rim *D⁴*, which is attached to the form in any suitable manner, preferably by bolts or screws, as shown. The shaft *d* carries pinions *d' d²*, which are in mesh with the racks *D' D²*. The form is held in engagement with the frame by means of a plate *D⁵*, which is rigidly attached to the frame or standard B, and through which passes the shaft *d*, and the plate *D⁵* is preferably elliptical in shape and of such length that the ends will engage or lie in the recess *D³*, except when the form turns vertically, for when in such a position only the upper end of the plate engages with the recess. In practice when the shaft is rotated the form will move horizontally or longitudinally until it reaches a corner, when it will drop to substantially a vertical position and will then be again swung around to a horizontal position, and during such movements the part above the pinions will occupy the same relative position. To the upper end of the standard or to the table-top are attached short or stub shafts *E*, upon which are mounted rollers *E'*, which bear upon the rim *D⁴* and assist in holding the form in engagement with the pinions, and these rollers are of sufficient distance apart as to allow

the sharp or rounded corners of the form to pass up between the rollers as the form turns. The rim of the form is provided with a spring catch or projection d^4 , between which are placed the ends of the hoop, which is attached to the inner side of the upper edge of the basket. The form described is made of metal and may be in a single piece, as the rim can be formed integral therewith, and when it is made integral the form can be caused to engage with the plate by placing it in a vertical position and then turning the form. It is, however, preferred to make the form in two parts and connect the rim thereof to the body portion by bolts, as shown.

The shaft d is driven at a low rate of speed, said shaft carrying a pinion d^3 , which meshes with a gear-wheel C on a shaft c , and the end of the shaft d opposite the form has a friction-pulley D^6 , over which is passed a band or strap to which is attached a weight (not shown) to hold the shaft against rotation except when positively driven. The shaft c carries at its rear end a ratchet-wheel C' , and on each side of the ratchet-wheel are secured plates c' , between which is pivoted pawl c^2 , and said plates c' have extensions or projecting portions between which is pivoted the upper end or head of a pitman-rod C^2 , the lower end being connected to an arm or pitman mounted on the shaft b , said pitman having an adjustable wrist-pin, so that the throw of the pawl may be varied when desired. The driving-pulley is referred to by A' and is mounted on the shaft a so as to rotate independent thereof and also be capable of a sliding movement, and when said pulley is moved toward the front part of the machine it will frictionally engage a pulley or drum A^2 , which is rigidly mounted on the shaft a . The pulley A' is provided with a hub having a circumferential recess, and the face of the pulley opposite said hub is beveled for engagement with the beveled face of the drum A^2 , said drum also having a projecting rim or flange. The shaft a , hereinbefore referred to, which is the driving-shaft, has a pinion A^3 , which is in mesh with a gear-wheel B^3 on the shaft b , and the front end of said shaft carries a wrist-wheel B^2 , with which the pitman-rod b' engages, said pitman-rod also being attached to a vertical reciprocating shaft B^4 , which extends upward through the table and frame of the stapling-machine, said stapling-machine being actuated therefrom, as will be hereinafter described.

G refers to an arm or lever with extensions at its lower end which are spread and are fulcrumed or pivoted to brackets which extend upward and are secured to the forward portion of the base A, and this lever G has a cross-bar e' , to which is attached a chain which passes over the guide pulley or roller e and extends therefrom to a foot-lever G' or treadle, which when depressed moves the lever G toward the front of the machine, and said foot-lever engages with a post or standard G^2 , hav-

ing a notched portion g^2 , which engages with the foot-lever when moved laterally to hold the foot-lever in a depressed position. The upper end of the lever G carries a pair of rollers g , which are separated from each other by a sleeve g' , and the upper end of the lever G carries a plate g^3 , (see Figs. 5 and 6,) which projects laterally therefrom and is adapted to bear upon the bottom of the basket and hold the same, acting in conjunction with the rollers, against the outer edge of the form, and the plate is of such a size that it will project slightly beyond the form and form a guide for the splints which make up the side of the basket.

H refers to a foot-lever, which is held normally raised by a spring h , which is attached thereto and to the standard B, the function of said spring being to hold the forwardly-projecting member of the foot-lever raised, so that the rear or vertical member h' , which engages with the grooved hub of the pulley A' , will hold said pulley out of engagement with the drum A^2 . The forwardly-projecting member of the lever H passes through a suitable guide-loop, which insures a vertical movement of the foot-lever and prevents the same being moved laterally as the foot-lever adjacent thereto is moved to hold it depressed. The lever H, at a point in front of its fulcrum and below the straight flange of the drum A^2 , carries a brake-block H' , which is bolted to the horizontal portion of the lever.

To start the machine, the foot-lever H is depressed, which causes the driving-pulley A' to be moved laterally upon its shaft, so as to engage with a conical or tapered face of the drum. The same movement moves the brake-block out of engagement with said drum. As the shaft a turns, the pinion will drive the gear-wheel B^3 on the shaft b , which operates the pitman-rod b' , which is connected to the wrist-wheel on the end of the shaft b , said shaft also actuating the pitman-rod C^2 , so as to give an intermittent motion to the shaft c , which motion is imparted to the shaft d , upon which the form is mounted, as hereinbefore described. The stapling-machine, it will be noted, is driven from the pitman b' .

The stapling-machine is rigidly bolted to the table and projects over the form and when operated is adapted to drive two sets of staples, one of the sets of staples entering the outer hoop, which is at the bottom of the basket, passing through said hoop, the veneers or splints, and entering the bottom of the basket, the other stapler passing through the outer hoop at the top of the basket, the veneers, the inner hoop, and being clenched over the inner side of the same by engagement with the form. To the stapling-machine are secured a pair of hoop-rollers i , which are carried by a bar which maintains them in proper position over the form, and to this bar is attached the standard i^2 , which works up and down in a tube which is provided with a coiled spring, the function of

the same being to keep the rollers pressed upon the hoops while being stapled, and in front of the hoop-rollers are guides, the function of which is to keep the hoops in line as they are being drawn around the form.

The stapling-machine may be of any approved construction, and the outer plunger drives the staples into the bottom of the basket without clenching or upsetting the ends, while the inner stapler drives the staples through the hoops and sides of the basket, the ends of the staples being clenched or upset by engagement with the metallic form.

The stapling-machine has a pair of stapling-heads and drives two staples at every downward motion, and the distance between the staples may be varied by changing the throw of the pawl, which engages with the ratchet-wheel.

The basket-form such as is used in the manufacture of a basket of the shape known to the trade as the "climax" has parallel sides and ends, which are at right angles to the sides, the sides and ends being joined by rounded or quadrant corners. The mechanism for driving the form includes a shaft having a fixed axis, the shaft having pinions which mesh with a rack carried by the form, and the shaft is intermittently rotated, so as to actuate the form and impart thereto a step-by-step movement, the sides and ends of the form successively being brought to the same plane beneath the staple-drivers of the stapling-machine, the corners of the form being turned successively in quadrant arcs, the axis of which is the center of the shaft. Thus the driving-shaft forms a fixed center upon which the form turns as each corner thereof is engaged by the driving-pinion on the shaft.

In forming a basket the inside hoop is first placed on the form and is held thereon by a small plate or spring d^4 . The bottom is then placed over the form and is held against movement by pins d^5 , which project outwardly therefrom. The foot-lever G' is then depressed and a piece of veneer is placed on the top of the form and the top and bottom hoops are placed beneath the hoop-rollers. The operator then places his foot on the lever H , which starts the machine, and as the form revolves the pieces of veneer are placed thereon until the basket is completed. The machine is stopped by simply removing the foot from the lever H , and after the machine is stopped the lever G' is released by moving it laterally, which permits the lever or arm to swing away from the form. The basket is then removed from the form and is complete and ready for use.

The frame of the stapling-machine is rigidly attached to the table and has two arms formed integral with the frame, in which the staple-drivers reciprocate, each arm also carrying mechanism for making the staples which are driven thereby. Motion is imparted to the wire-feed staple, formers and drivers by the usual mechanism attached to the arms, which

are carried by the vertically-reciprocating bar B^4 .

Though the machine hereinbefore described is designed especially for making baskets of such shape as are known to the trade as the "Climax" basket, it is obvious that the shape of the form may be changed and a basket of a different shape produced without in any wise departing from our invention.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a basket-making machine, a form having internal racks rotatably mounted beneath a stapling-machine, a shaft having pinions which engage with the racks of the form and means for holding the form in engagement with said pinions, substantially as set forth.

2. In a basket-making machine, a form having racks, a recess in the form, a plate engaging with said recess and a shaft which passes through the plate, said shaft having pinions for actuating the form, substantially as shown.

3. In a basket-making machine, the combination with a form having parallel sides and rounded corners, a shaft having pinions for engagement with racks which project from the inner side of the form; together with a retaining-plate upon which the form moves and a stapling-machine mounted above the form, substantially as shown.

4. In a basket-making machine, a form upon which the parts of the basket are assembled, a stapling-machine mounted above the form and in gear therewith, the gear including mechanism for imparting to the form an intermittent movement between the strokes of the staple-drivers, the range of movement of the form being alternately horizontal beneath the staple-drivers and in quadrant arcs in turning the corners thereof.

5. In a basket-making machine, a form having internal racks, a recess and circumferential flange, a plate carried by a support said plate engaging the recess, a shaft which passes through the plate and is provided with pinions which engage with the racks so that the plate and pinions on the shaft provide a support for the form, a pair of rollers mounted so as to engage with the flange and a stapling-machine mounted above the form, substantially as shown.

6. In a basket-making machine, the combination with a stapling-machine, of a form mounted beneath the same and in gear therewith, means for supporting and actuating the form so as to impart thereto a longitudinal movement for the length of each side and an intermediate turning or rotative movement at the corners.

7. In a basket-making machine the combination with a form and means for moving said form longitudinally turning the same and again moving the opposite side longitudinally, of rollers carried by the frame and adapted to engage with said form and a pair of rollers carried by a pivoted support for engagement

with the bottom of a basket when placed on the form; together with a stapling-machine operating above said form and in conjunction therewith.

5 8. In a basket-making machine, the combination with a stapling-machine and driving-gear therefor, of a basket-form in gear with the mechanism for driving the stapling-machine, the form being so supported and geared
10 that there will be imparted thereto an intermittent movement rotatably about its four corners alternately with a movement horizontally for the length of its sides and ends.

9. In a basket-making machine, the combination with driving mechanism having means
15 or devices for imparting an intermittently-rotary movement to a shaft, a basket-form having a horizontal and partially-rotary movement imparted thereto from the intermittent-
20 ly-rotating shaft, a shaft in gear with the driven shaft and provided with a pitman for imparting a reciprocating movement to a stapling-machine, a foot-lever and means for holding the foot-lever raised so that the driving-shaft will be held against movement with
25 the driving-pulley free to turn thereon, the brake being released when the driving-pulley is in operative engagement therewith by the depression of the foot-lever, substantially as
30 shown and for the purpose set forth.

10. In a basket-making machine a frame or support having a plate, a form having a recess with which said plate engages, a rotary shaft having a pinion, the form having inward-projecting racks for engagement with
35 the pinion on the shaft so that the form will be given when the shaft is rotated a longitudinal movement and a swinging movement on different arcs; together with a stapling-machine having hoop-rollers and hoop-guides,
40 for the purpose set forth.

11. In a basket-making machine, the combination with a form, a stapling-machine having staple-drivers positioned above the same,
45 of a support for a shaft carried by the stapling-machine so as to project beyond the staple-drivers thereof, hoop rollers and guides carried by said shaft and a spring for forcing the shaft toward the form, for the purpose
50 set forth.

12. In a basket-making machine, the combination with a form, of a stapling-machine mounted on a support above the form so that the staple-drivers will project over the form, a tube carried by the frame of the stapling-machine and positioned between the staple-drivers, a shaft-spring actuated in one direction, a cross-bar attached to the shaft and provided with rollers, said cross-bar also carrying a plate with guide-pins, substantially
60 as shown and for the purpose set forth.

13. In a basket-making machine, the combination with a frame having shaft-bearings as shown in which are journaled shafts *a b c* and *d*, pitmen attached to the shaft *a* one for
65 imparting a reciprocating motion to the staple-drivers of a stapling-machine the other having a pawl for engagement with a ratchet-wheel to drive the shaft *c*, a gear-wheel on the shaft *c* which meshes with a pinion on the
70 shaft *d*, and a basket-form in gear with the pinions on the shaft *d*, the parts being organized, substantially as shown and for the purpose set forth.

14. In a basket-making machine, a form
75 upon which the parts of the basket are manually assembled, mechanism for imparting to the form a step-by-step movement longitudinally and a movement rotatably about the corners of the form, a guide or plate upon
80 which the form moves and turns, a pair of guide-rollers in direct engagement with the form one on each side of the longitudinal center of the driving-shaft which imparts movement to the form, substantially as set
85 forth.

15. In a basket-making machine, the combination with a form having its bottom-receiving portion disposed in a vertical plane, of an arm movable to and from the form, a
90 plate and rollers carried by the arm so that they may engage with the bottom board of the basket, substantially as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN E. DURHAM.

JOSEPH E. DEVINE.

Witnesses:

D. MILTON GERBER,

G. H. PLUMMER.