

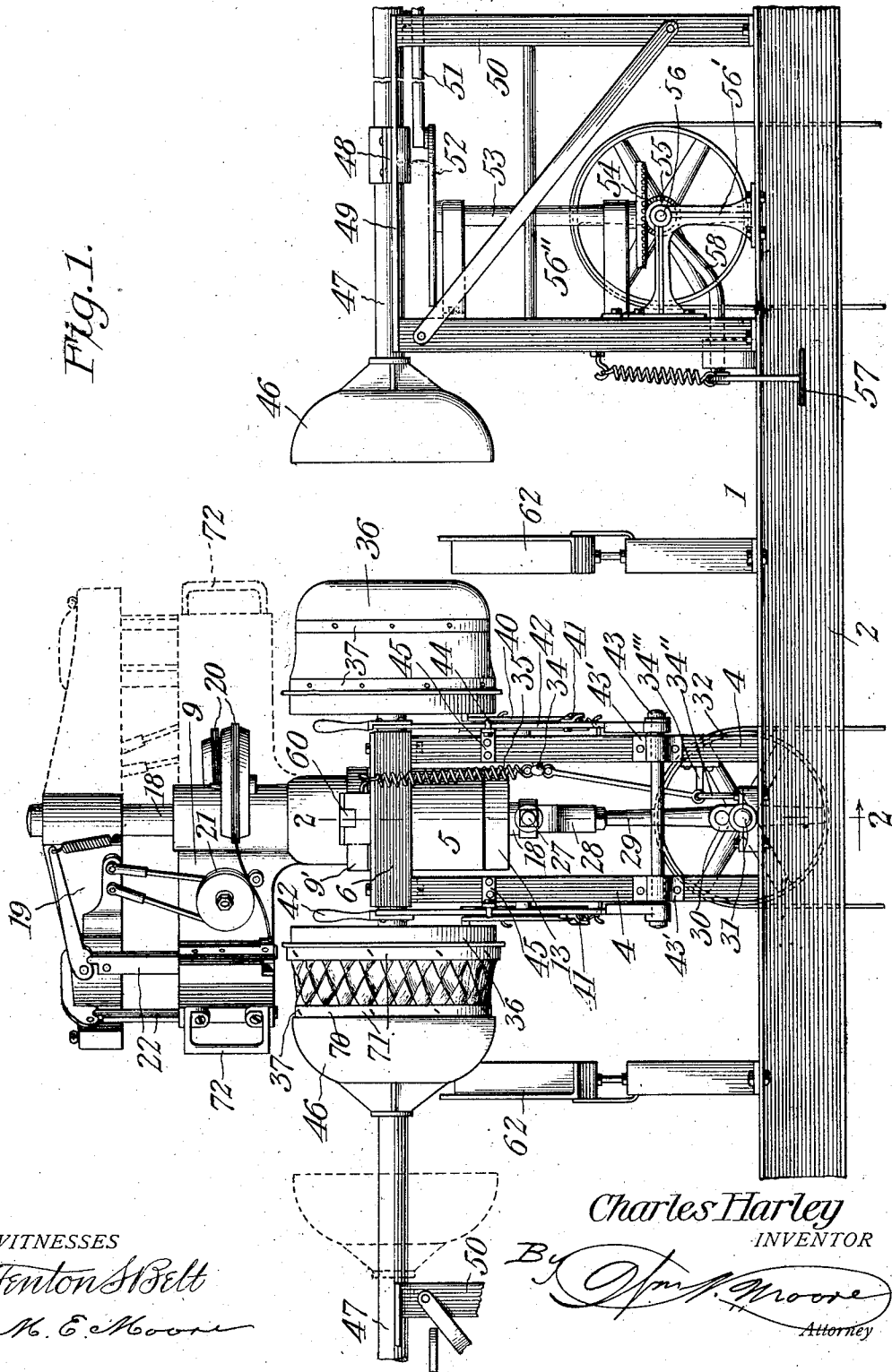
1,061,939.

C. HARLEY.
BASKET MACHINE.
APPLICATION FILED MAR. 26, 1912.

Patented May 13, 1913.

2 SHEETS—SHEET 1.

Fig. 1.



WITNESSES
Fenton S. Bell
M. E. Moore

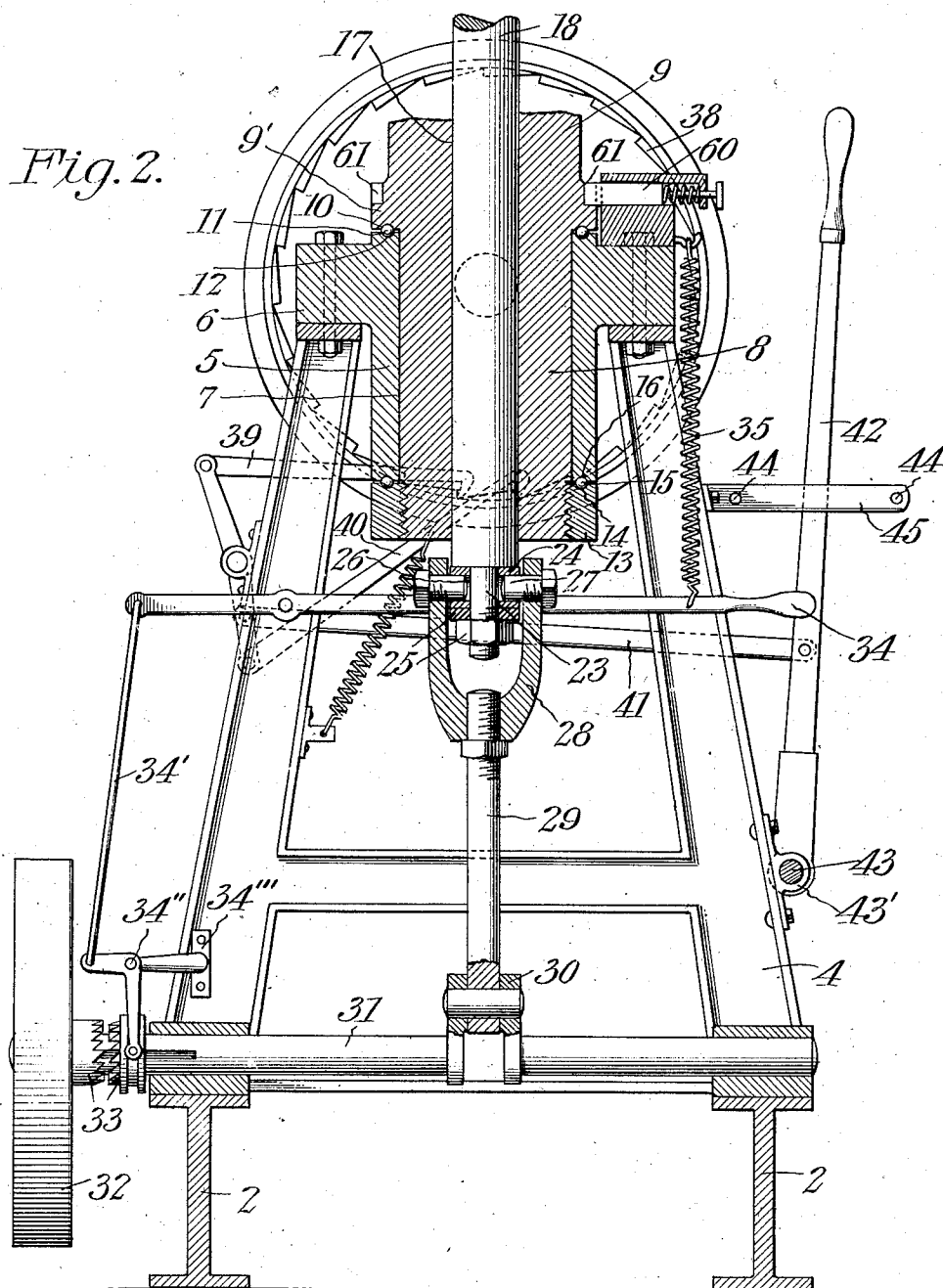
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By *Wm. J. Moore*
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UNITED STATES PATENT OFFICE.

CHARLES HARLEY, OF LUDINGTON, MICHIGAN, ASSIGNOR TO LUDINGTON BASKET COMPANY, OF LUDINGTON, MICHIGAN.

BASKET-MACHINE.

1,061,939.

Specification of Letters Patent.

Patented May 13, 1913.

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To all whom it may concern:

Be it known that I, CHARLES HARLEY, a citizen of the United States, residing at Ludington, in the county of Mason and State of Michigan, have invented certain new and useful Improvements in Basket-Machines, of which the following is a specification.

My invention relates to improvements in basket machines, and refers particularly to a machine for stapling the hoops of the baskets as they are brought upon the basket forms.

The leading object of the invention is the provision of a basket machine embodying means whereby a basket may be stapled upon one form while another basket is being put in place for the stapling operation, thereby effecting an appreciable saving in time and greatly increasing the capacity of the machine.

Another object of the invention is to provide a swinging stapling head which can be turned upon its bearings from one form to another to enable a continuous operation of the machine.

A further object of the invention is to provide an automatic locking device for the swinging stapling head whereby the head may be swung into the desired position over the form and then locked in position until the stapling operation has been completed.

A further object of the invention is to provide a basket machine having rotatable basket forms whereby the forms may be rotated a predetermined distance for properly spacing the staples.

Another object of the invention is to provide a basket machine having basket followers adapted to advance and recede from the basket forms to crowd the web upon the forms, which followers may be controlled in their movement at all times by the operator.

Another object of the invention is the provision of a basket machine which can be easily controlled and which will be of extremely simple and practical construction, highly efficient in operation, and which will prove a very desirable improvement over machines now in use by reason of its vast time-saving qualities.

The invention resides in the provision of a basket machine embodying certain novel features of construction and combinations of

parts for service, substantially as shown, described and claimed hereinafter.

In order that the details of construction of my invention may be readily understood and its many advantages fully appreciated, I have illustrated in the accompanying drawings a basket machine constructed in accordance with and embodying the principles of my invention, in which—

Figure 1 is a side elevation of a basket machine constructed in accordance with and embodying the principles of the invention and showing a basket follower advanced to crowd the web of the material upon one of the basket forms, the hammer being in position to perform the stapling operation. Fig. 2 is an enlarged vertical sectional view on line 2—2 of Fig. 1, illustrating clearly the main operating parts which comprise my improvement.

In the drawings the numeral 1 designates the base of the machine, comprising a pair of horizontal, parallel beams 2, mounted on which intermediate their length is a frame for supporting and guiding the stapling mechanism, said frame consisting of two vertically disposed parallel supports 4, spaced apart and firmly secured to the beams 2. Mounted on the upper ends of the supports is a cylindrical bearing 5, having a flange 6 bolted to the supports. This bearing is provided with a central bore 7 to receive the shank 8 of the lower stapling head 9. The shank 8 has a flange 9', provided on its under side with a ball race 10, adapted to engage the balls 11 seated in the race 12 on the upper face of the bearing 5. The shank 8 has its lower end screw-threaded and receives a nut 13, provided with a ball race 14 cut in its upper face to carry balls 15 interposed between said race and a race 16 cut in the extreme lower face of the bearing 5, thereby providing an anti-friction support for the stapling head.

The stapling head has a vertical central bore 17 to receive and guide the reciprocating hammer shaft 18, which in turn carries the hammer head 19 at its upper end. The stapling head 9 and hammer head 19 carry the usual wire reels 20, wire feed 21, and staple cutting and driving bars 22, which are of the well known type.

The hammer shaft 18 is vertically slidable within the head 9 and has a reduced lower

end 23 on which is mounted a collar 24 held loosely in place by the jam nuts 25. The collar is provided with two diametrically opposite smooth openings 26 to receive the smooth ends of short bolts 27 carried by the bifurcated member or cross head 28, adjustably connected to the connecting rod 29, which in turn is connected to the crank 30 of the stapler operating shaft 31. The shaft 31 carries at one end a drive wheel 32 and clutch members 33 adapted to be thrown into and out of engagement with each other by means of the lever 34, connected by a rod 34' to the bell crank lever 34'', engaging one of the clutch members and spaced from the supports 4 by means of a bracket 34''', connected thereto and to one of the supports 4. The clutch members are normally held out of engagement by the spring 35.

Rotatably mounted on opposite sides of the frame are hollow basket forms 36, each provided with properly spaced staple clenching rings 37 on their outer periphery, and on their internal edges with suitable ratchet teeth 38 to be engaged by the ratchet dogs 39 and 40, connected by links 41 to operating levers 42, mounted on a rock shaft 43, journaled in bearings 43' formed on the supports 4. These levers are operated between limit pins 44 carried by arms 45 projected from the supports 4. The dogs 39 and 40 serve to rotate the basket form in one direction while each lever is moved in two directions.

As shown in the drawings there are two clamping followers, and as their construction and operation is identical, a description of one will suffice. The basket clamping followers 46 are rotatably mounted on the ends of shafts 47, each of which is carried by a cross head 48 sliding on suitable guides 49, carried by the frame 50. To the outer end of the shaft 47 is pivoted a rod 51, connected by a wrist pin to a crank disk 52, secured to the upper end of a vertical shaft 53, mounted in suitable bearing brackets and carrying at its lower end a gear 54 in mesh with a gear 55 carried by a horizontal power shaft 56 mounted in supports 56' rising from the frame bars 2, and driven by a drive wheel 56'' connected to a suitable driving agency. From this construction, it will be seen that when the foot lever 57 is depressed, it will rock the clutch shifting arms 58, and power from the shaft 56 will be imparted through the gears 55, 54, shaft 53, crank disk 52, rod 51, and shaft 47 to move the follower 46 toward the form, and thereby securely clamp the bottom of the basket while the sides thereof are formed and the hoops are being placed in position for stapling, as shown in Fig. 1.

Fixed to the flange 6 of the bearing 5 is a spring actuated bolt 60 adapted to engage notches 61 in the flange 9' to lock the

stapling head in stapling position over each basket form. Supported by the beams 2 and located adjacent each form is a work support and guide 62 for guiding the stock while the basket is being formed. The member 62 is a guide or centering device of well known construction such for instance as shown in the patent to Reed, No. 601,778.

In operation, the partially interwoven stock material to be made into a basket is placed against the end of the form 36, the foot lever 57 is depressed and will, through the medium of the above described connections cause the follower to advance toward the form and clamp and shape the bottom of the basket, the extending ends of the stock being manually interwoven and held by hoops 70 and 71. The edges of the stock having been trimmed, the basket is ready to be stapled. The latch 60 is now opened and the stapling head swung into position by means of the handle 72, the bolt 60 automatically locking the head in this position. The operator now shifts the lever 34, which throws the clutch 33 to transmit power from the power wheel 32 to the shaft 31, which having its crank 30 connected by the rod 29, member 28, and collar 24 to the hammer shaft 18, will cause the head 19, carrying the plungers 22 to descend once to each revolution of the shaft 31. The staple plungers 22 always come into alinement with the clenching rings 37, and it will thus be seen that two staples are driven and clenched at once.

As the hammer head begins its upward movement, the operator, by means of the lever 42, rod 41, and dogs 39 and 40 causes the form to revolve a predetermined distance for properly spacing the staples. After the proper number of staples have been driven into the hoops, the lever 34 is released and is thrown out of operative position by the spring 35, which will stop the stapling mechanism. The lever 57 is again depressed long enough for the disk 52, to revolve one half revolution withdrawing the follower from the form and the finished basket may be readily removed, and while this stapling operation has been going on, another basket was formed on the opposite basket form and is now ready for the stapler. The corresponding follower is now advanced to this form by means of the foot lever and parts, the stapling head is swung upon its bearings so as to be positioned directly above the form and the hammer reciprocated in its bearings to drive the staples.

From the foregoing description, taken in connection with the accompanying drawings, it will be readily seen that I have provided simple, durable, and highly practical and efficient mechanism for accomplishing the objects heretofore set forth.

While I have shown and described my invention in connection with a basket forming machine, it will of course be understood that I do not limit myself to this application of the principles, but reserve the right to employ the invention in any capacity where it would perform its functions.

I claim:—

1. A basket machine, comprising rotatable basket forms disposed in horizontal axial alinement, a rotatable stapling mechanism capable of selective positioning over a desired form and having its shaft arranged at a right angle to the horizontal axes of the basket forms, and means arranged in line with the axes of the forms and in opposite horizontal relation with each other for crowding stock on the forms.

2. In a basket machine, the combination of a pair of opposite horizontally disposed rotatable basket forms, a stapling mechanism arranged to be positioned over a desired form, and a pair of oppositely disposed laterally movable followers having their axes in line with each other and with the axes of the basket forms and arranged to be alternately advanced toward and retracted from said forms.

3. In a basket machine, the combination with a plurality of axially opposing rotatable basket forms, of a swinging stapling head adapted to be positioned above any form, means for operating said stapling head, and laterally movable followers for crowding the material upon the forms.

4. In a basket machine, the combination with a plurality of axially opposing rotatable basket forms, of a swinging stapling head adapted to be positioned above any form, means for operating said stapling head, and followers laterally movable with reference to the forms and having their axes disposed in line with each other and with the axes of the forms for crowding the material thereupon.

5. In a basket machine, the combination with a plurality of rotatable basket forms, of a swinging stapling mechanism adapted to be positioned over any form, means for operating said stapling mechanism, and laterally movable followers independently operable and movable laterally with respect to the basket forms for crowding the material thereupon.

6. In a basket machine, the combination with a plurality of axially alining independently operated basket forms, of a swinging stapling mechanism having its shaft at right angles to the axes of the forms and adapted to be positioned over any form, means for operating said stapling mechanism, means for positioning and locking said stapling mechanism over each form, and means adapted to alternately advance and recede in a horizontal plane and mov-

able laterally with respect to the forms for crowding material upon the forms.

7. In a basket machine, the combination with a plurality of basket forms, of a stapling mechanism adapted to be positioned over any form with its shaft at right angles to the axes of the forms, means for operating said stapling mechanism, means for positioning and locking said stapling mechanism over each form, and followers adapted to alternately advance and recede toward said forms in opposing horizontal planes and operated independently of the form positioning mechanism for crowding material upon the forms.

8. In a basket machine, the combination with a plurality of oppositely disposed basket forms, of a stapling mechanism adapted to be positioned over any form with its shaft at right angles to the axes of the forms, means for operating said stapling mechanism, means for positioning and locking said stapling mechanism over each form, and followers adapted to alternately advance and recede toward said forms in opposing horizontal planes and operated independently of the form positioning mechanism and movable laterally with respect thereto for crowding material upon the forms.

9. In a basket machine, the combination with a base, of supports rising therefrom, basket forms carried by said supports, a stapling mechanism mounted in said supports with its shaft at right angles to the axes of the forms, operating means therefor, and followers adapted to alternately advance toward and recede from said forms in opposite horizontal planes for crowding the material upon said forms.

10. In a basket machine, the combination with a base, supports rising therefrom, oppositely disposed rotatable basket forms on said supports, a stapling mechanism rotatable in the supports, means to operate said stapling mechanism, and followers adapted to alternately advance toward and recede from said forms in opposing horizontal planes for crowding material upon said forms.

11. In a basket machine, the combination with a base, supports rising therefrom, basket forms rotatably mounted on said supports, means for rotating each form independently, a stapling mechanism swiveled in said supports, and adapted to be positioned over each form, operating means for said stapling mechanism, and laterally movable followers for crowding material upon the basket forms.

12. In a basket machine, the combination with a base, supports rising therefrom, basket forms rotatably mounted on said supports, means for rotating each form independently, a stapling mechanism swiveled

in said supports, and adapted to be positioned over any form, operating means for said stapling mechanism, means for positioning and locking the stapling mechanism over each form, and followers laterally movable on the base for crowding material upon the basket forms.

13. In a basket machine, the combination with a base, supports rising therefrom, basket forms rotatably mounted on said supports, means for rotating each form independently, a stapling mechanism swiveled in said supports and having its shaft at right angles to the axes of the forms, and adapted to be positioned over any form, operating means for said stapling mechanism, means for positioning and locking the stapling mechanism over each form, and followers mounted on the base and movable laterally with respect to the forms for crowding material upon the basket forms.

14. In a basket machine, the combination with a base, supports rising therefrom, basket forms rotatably mounted on said supports, means for rotating each form independently, a stapling mechanism mounted in said supports, and adapted to be positioned over any form, operating means for said stapling mechanism, means for positioning and locking the stapling mechanism over each form, and independently operated oppositely disposed followers mounted on the base and movable laterally with respect to the forms for crowding material upon the basket forms.

15. In a basket machine, the combination with a base, supports rising therefrom, basket forms rotatably mounted on said supports, means for rotating each form independently, a stapling mechanism mounted on said supports, and adapted to be positioned over any form, operating means for said stapling mechanism, means for positioning and locking the stapling mechanism over each form, independently operated oppositely disposed means mounted on the base and movable laterally with respect to the forms for crowding the material upon the basket forms, and work guiding members mounted on the base intermediate the basket forms and the basket crowding means.

16. In a basket machine, the combination with a base, supports rising therefrom, basket forms rotatably mounted upon said supports, means including a dog and ratchet mechanism for rotating each form, a stapling mechanism mounted in said supports and adapted to be positioned over any form, means for locking said stapling mechanism in position over any form, means for operating said stapling mechanism, and followers movable laterally with respect to the forms for crowding material upon the basket forms.

17. In a basket machine, the combination

with a base, supports rising therefrom, basket forms rotatably mounted upon said supports, means including a dog and ratchet mechanism for rotating each form, a stapling mechanism mounted in said supports and adapted to be positioned over any form, means for locking said stapling mechanism in position over any form, means for operating said stapling mechanism, followers mounted upon the base, and means including a foot lever and connections for advancing and retracting the followers toward and from the forms.

18. In a basket machine, the combination with a base, supports rising therefrom, basket forms rotatably mounted in said supports, ratchets in said forms, dogs engaging said ratchets, levers connected by links to said dogs for operating the same, a stapling mechanism mounted in said supports, and capable of a swinging movement for positioning the same over any form, means for locking said stapling mechanism in position over a desired form, means for operating said stapling mechanism, basket followers laterally movable with respect to said forms, and means including levers and connections for causing the followers to advance toward and recede from the forms.

19. In a basket machine, the combination with a base, supports rising therefrom, basket forms rotatably mounted in said supports, ratchets in said forms, dogs engaging said ratchets, levers connected by links to said dogs for operating the same, a bearing in said supports, a stapling head mounted in said bearing, staple driving plungers carried by said head, a hammer shaft reciprocally mounted in said supports, means for reciprocating said hammer shaft, means for locking said stapling head in position over any form, basket followers laterally movable with respect to the forms, and means for causing the followers to advance toward and recede from said forms.

20. In a basket machine, the combination with a base, supports rising vertically therefrom, basket forms rotatably mounted in said supports, ratchets in said forms, dogs engaging said ratchets, levers connected by links to said dogs for operating said dogs and thus the forms, a bearing in said supports, a stapling head mounted in said bearing, staple driving plungers carried by said head, a hammer shaft reciprocally mounted in said supports, means including a cranked shaft provided with a clutch mechanism, a connection between the crank of the shaft and the hammer shaft, and a driving agency connected to the cranked shaft for reciprocating said hammer shaft, means for locking said stapling head in position over any form, basket followers laterally movable with respect to the forms, and means including levers and connections for causing

the followers to advance toward and recede from said forms.

21. In a basket machine, the combination with a base, supports rising vertically from said base, basket forms rotatably mounted in said supports, ratchets in said forms, dogs engaging said ratchets, levers connected by links to said dogs for operating said dogs and thus the forms, a bearing in said supports, a stapling head mounted in said bearing, staple driving plungers carried by said head, a hammer shaft reciprocally mounted in said supports, means including a cranked shaft provided with a clutch mechanism, a connection between the crank of the shaft and the hammer shaft, and a driving agency connected to the cranked shaft for reciprocating said hammer shaft, a lever pivoted to one of the vertical supports and connected to said cranked shaft for controlling the reciprocation of the hammer shaft, means for locking said stapling head in position over any form, basket followers laterally movable with respect to the forms, and means for causing said followers to advance toward and recede from said forms.

22. In a basket machine, the combination with a base, supports rising therefrom, basket forms rotatably mounted in said supports, means for rotating said forms, said means comprising ratchets in said forms, dogs engaging said ratchets, and levers connected by links to said dogs for operating same, a bearing in said supports, a stapling head mounted in said bearing, staple driving plungers carried by said head, a hammer shaft reciprocally mounted in said supports, means including a cranked shaft provided with clutch mechanism, a connection between the crank of the crank of the shaft and the hammer shaft, and a driving agency connected to the cranked shaft for reciprocating said hammer shaft, means for locking said stapling head in position, a lever pivoted to one of the vertical supports of the base and connected to said cranked shaft for controlling the reciprocation of the hammer shaft, supports rising from the base on either side of the central supports, shafts journaled therein, basket followers mounted on said shafts, rods pivoted to said shafts, crank disks connected to said rods, geared vertical shafts connected to said crank disks, power shafts having gears meshing with the gears of the vertical shafts for rotating said vertical shafts, clutch mechanism for said power shafts, and levers connected to said clutch mechanism for rocking same to

permit the power shafts to cause the followers to advance toward and recede from 60 the basket forms.

23. In a basket machine, the combination with a base supporting spaced uprights carrying oppositely disposed alining axes, basket forms on said axes, a hammer shaft 65 arranged in the uprights at right angles to said axes of the basket forms, a stapling mechanism carried by said shaft and adapted to be positioned selectively over any form, followers mounted on the base and 70 having oppositely disposed alining shafts spaced by said forms and hammer shaft from each other, means for advancing and retracting said followers, means for operating the stapling mechanism, and means for 75 locking said mechanism over either form, and means for imparting an intermittent motion to the basket forms.

24. In a basket machine, a plurality of rotatable forms, stapling mechanism adapted to be positioned selectively over any 80 form, and devices mounted directly opposite each other with their axes in line with each other and with the axes of the forms arranged to advance and recede in the same 85 horizontal plane for crowding material upon said forms.

25. In a basket machine, a plurality of rotatable forms, stapling mechanism adapted to be positioned selectively over any 90 form, and followers of the same relative shape as the forms mounted directly opposite each other with their axes in line with each other and with the axes of the forms and arranged to advance and recede in the 95 same plane for crowding material upon said forms.

26. In a basket machine, the combination with a base supporting spaced uprights, a rotatable stapling mechanism mounted on 100 said base, rotatable basket forms journaled in said uprights, spaced uprights rising from the base on either side of the central uprights, and material crowding followers journaled in said uprights and adapted to 105 alternately advance toward and recede from the basket forms in the same horizontal plane with each other and with the basket forms.

In testimony whereof I affix my signature 110 is presence of two witnesses.

CHARLES HARLEY.

Witnesses:

HERMAN KLEMM,
J. C. JENSEN.