

March 8, 1932.

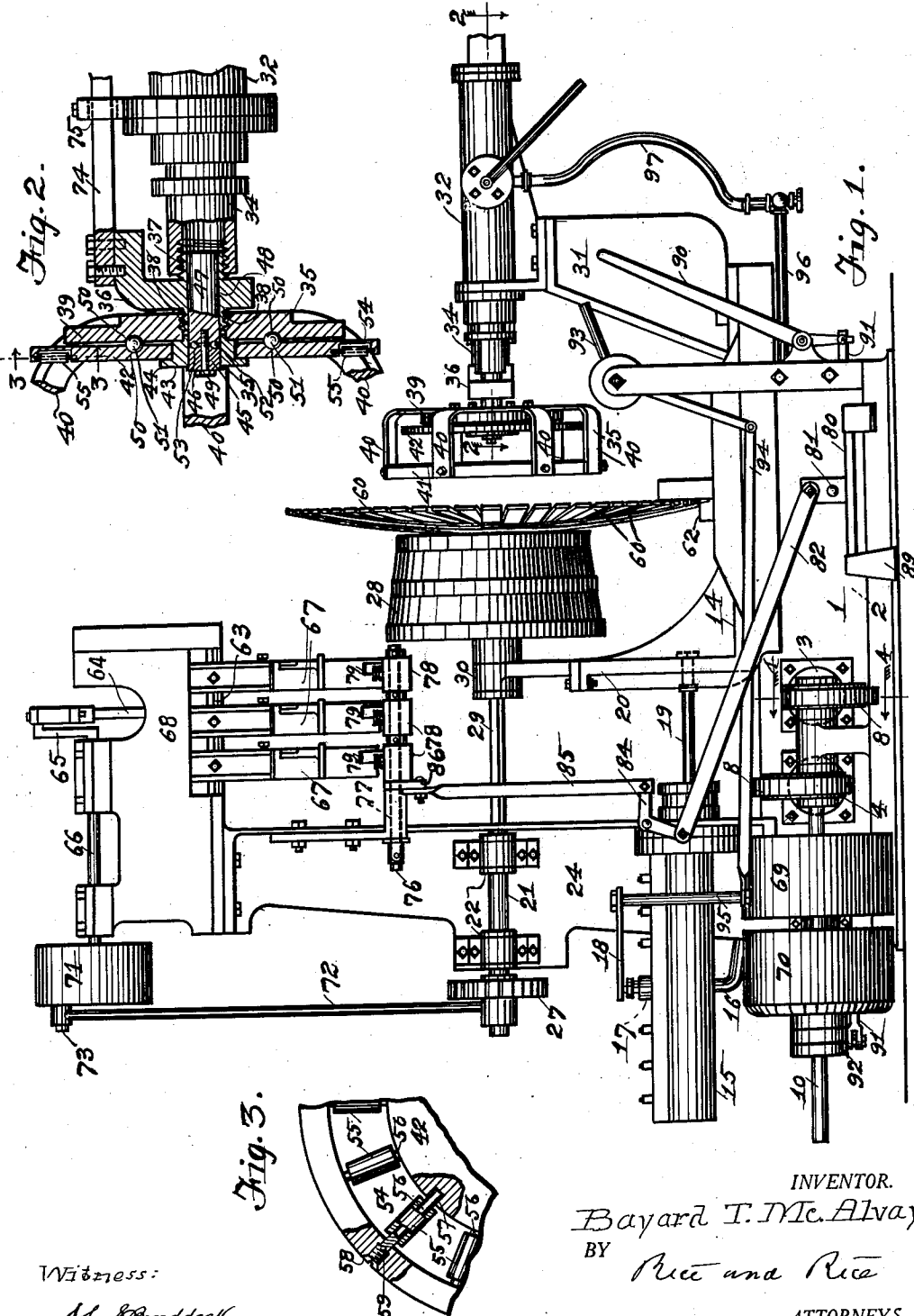
B. T. McALVAY

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BASKET MAKING MACHINE

Filed June 11, 1930

2 Sheets-Sheet 1



Witness:

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INVENTOR.

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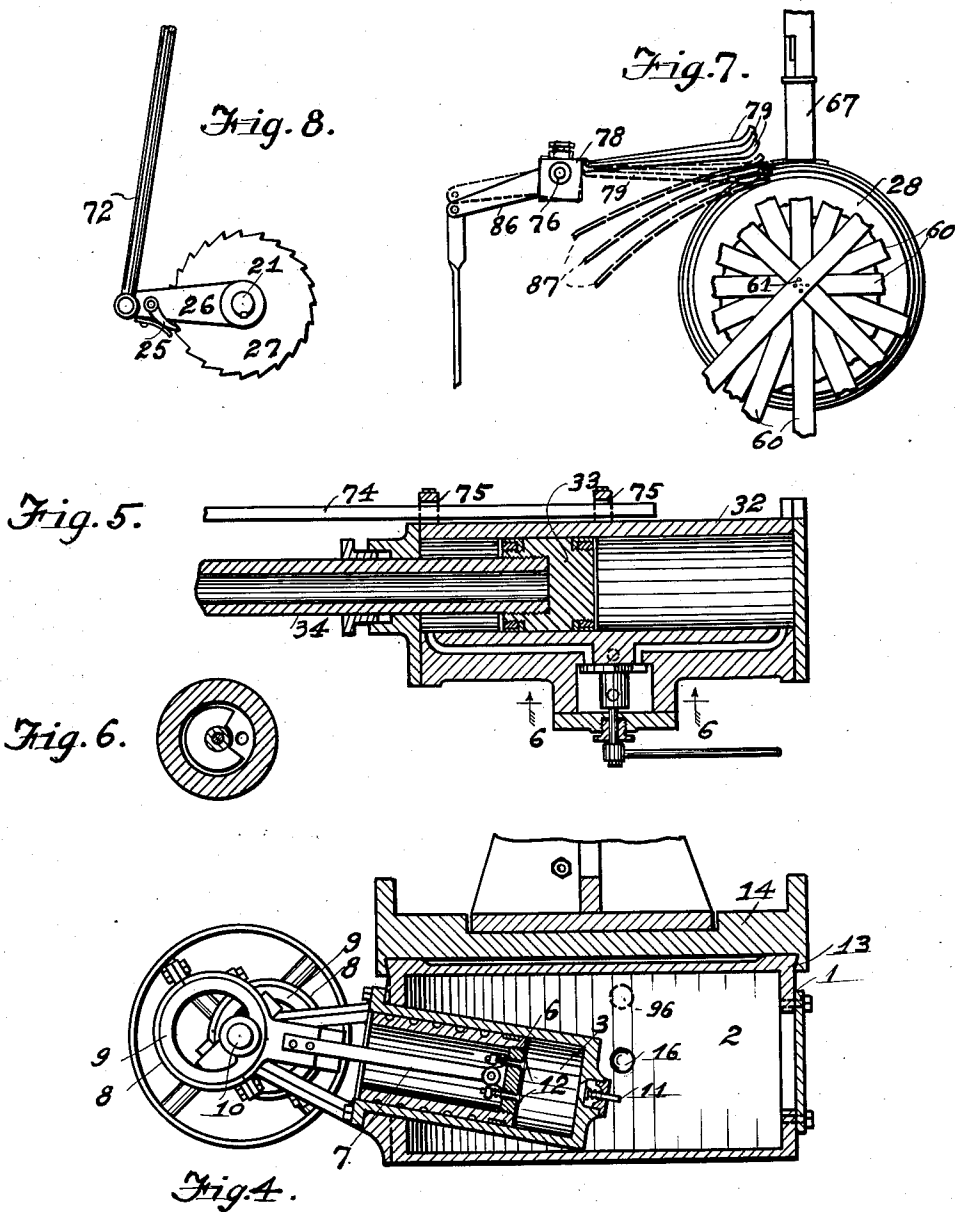
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UNITED STATES PATENT OFFICE

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BASKET MAKING MACHINE

Application filed June 11, 1930. Serial No. 460,342.

The present invention relates to basket-making machines; and an object thereof is to provide in such a machine co-operating basket forms relatively rotatable to shape the baskets in circular form; and further, to provide in such a machine improved members relatively movable on antifriction devices; and further, to provide such a machine improved in various respects hereinafter appearing.

These objects are attained by, and the invention finds preferable embodiment in, the structure and mechanism hereinafter particularly described in the body of this specification and illustrated by the accompanying drawings forming part hereof, in which:

Figure 1 is a front elevational view of a basket-making machine;

Figure 2 is a top plan view of an end portion of a fluid-pressure cylinder and an axially sectional view of a portion of a concave basket form and connections therebetween, taken on line 2—2 of Figure 1;

Figure 3 is a fragmentary view of the bottom portion of said form, partially sectioned on line 3—3 of Figure 2;

Figure 4 is a vertical sectional view of lower parts of the machine taken on line 4—4 of Figure 1;

Figure 5 is an axially sectional view of the fluid-pressure cylinder seen in Figure 2 and connected parts taken on line 2—2 of Figure 1;

Figure 6 is a transverse sectional view of parts of the same taken on line 6—6 of Figure 5;

Figure 7 is an end view of a convex basket form with adjacent parts and showing a fragment of the basket-making material in position to be formed by the basket forms and showing pressure bars for engaging hoop-making strips; and

Figure 8 is a view of pawl and ratchet mechanism for turning one of the basket forms.

In these drawings is illustrated a basket-making machine of the type shown in Patent No. 619,182 to William Jackson.

The base 1 of this machine is hollow forming a compressed fluid tank 2 which contains

a pair of fluid compressing cylinders or pumps disposed side by side, one of which 3 is shown in vertical section in Figure 4, the other cylinder 4 being located on the far side thereof in said view.

These cylinders contain piston heads 6 with piston rods 7 connected thereto and to the straps 8 bearing on the eccentrics 9 on the driving shaft 10, these piston heads being provided with check valves 12 and the cylinders with opposite check valves 11 through which the fluid is pumped into the tank.

On a way 13 on the base a carriage 14 is slid in opposite directions by a compressed fluid cylinder 15 supplied through a pipe 16 from the tank and controlled by a valve indicated at 17 having an operating arm 18, this cylinder containing a piston having the piston rod 19 connected to a standard 20 of the carriage. A shaft 21 rotatable in bearings 22 on the base's standard 24 is turned by degrees by a pawl 25 mounted on an arm 26 turnable on this shaft, this pawl engaging a ratchet wheel 27 keyed on said shaft.

A convex basket form 28, in shape a slightly tapering truncated cone, is splined at 29 on shaft 21 and turns in a bearing 30 on the carriage's standard 20.

A standard 31 on the carriage is spaced from standard 20 thereon and carries a compressed fluid cylinder 32 containing a piston head 33 having a hollow piston rod 34 carrying a concave basket form designated generally 35.

A head 36 has coaxial threaded opposite members, 37 screwed into the hollow outer end of rod 34, and 38 screwed into the base member 39 of the concave basket form, as particularly shown in Figure 2, the base member 39 having axially spaced arms 40 whose outer ends are connected by a ring 41. The bottom member 42 of this concave form is mounted turnably about a circular member 43 having a retaining flange 44 and being held in place by a round member 45 having a retaining flange 46 and screwed to a cylindrical plug 47 held in a longitudinal bore 48 in the head 36 by a screw 49 threaded in the outer end of this plug.

Ball bearings 51 in a circular race 50 in

base 39 and form bottom 42 and ball bearings 52 in a circular race 53 in plug 47 and member 45 permit the parts having these races with ball bearings therein to concentrically rotate freely relatively to each other. The bottom 42 of this concave form has adjacent its periphery and in its outer side a circular groove 54 containing angularly spaced roller bearings 55.

These rollers are hollow containing their spindles 56 whose inner ends are thrust into sockets 57 in the inner wall of said groove, and are held in place by the screw plugs 58 threaded in receiving bores 59 through the outer wall of said groove, their ends contacting the outer ends of the spindles.

The basket-making material comprising a plurality of radially extending thin strips 60 connected at 61 in their middles, being positioned on the support 62, and the carriage 14 with the convex basket form 28 being moved by the piston rod 19 to, and held in, the position seen in Figure 1, the concave basket form 35 is moved by the piston rod 34 toward convex basket form 28, thereby bending the said material over 28 and inside 35 to form it into basket shape.

The carriage 14 is now slid by piston rod 19 toward the left hand side of Figure 1 carrying the forms to a position beneath a staple driving mechanism 63 of common form, (such, for instance, as is shown in said Jackson patent) comprising the pitman 64 connected to the crank 65 on a driving shaft 66 and carrying at the lower end the staple driving plungers in the staple chutes 67 mounted on the head 68 of the base's standard 24.

The machine is driven by shaft 10, as by a belt carried by its pulley 69, and a belt carried by pulley 70 on said shaft and pulley 71 on shaft 66 operates the staple driving mechanism, and through the connecting rod 72 pivoted to the crank 73 of shaft 66 and to the ratchet mechanism's arm 26 turns the shaft 21 step by step.

By this operation the convex form 28, and the bottom 42 of the concave form 35 turn together carrying the basket forming material with them; and inasmuch as the base 39 (fast on the head 38 which is held from turning by a rod 74 slidable in bearings 75 on the carriage's arm 31) does not turn with the said material, this material is given a circularly forming operation by the bearing engagement therewith of the ring 41 carried by said stationary base 39.

A shaft 76 is turnably mounted in a bearing 77 on upright 24 and carries blocks 78 tight thereon.

These blocks carry pressure bars 79. When the pedal 80 swingably mounted at 81 on the base 1 and counter-weighted at 89 is pressed down, its rod 82 swings the bell crank lever 84 causing its rod 85, pivoted thereto

and to an arm 86 of one of said blocks, to turn shaft 76 and these blocks and raise the bars 79 from form 28 so that hoop-forming strips 87 may be inserted between the free ends of the bars and the bent over strips 60 of the basket-making material.

The pedal being released the hoop-strips 87 are fed circularly by the rotation of form 28 into positions to be stapled by the mechanism 63 to the strips 60 of said material.

When the basket has been thus formed, the carriage 14 is again moved to the position seen in Figure 1 and the basket is removed from the machine. A lever 90 and its rod 91 serves to operate a clutch indicated at 92 whereby the pulley 70 is rotatably connected to and released from the driving shaft 10; and a lever 93 and its connecting rod 94 having an upwardly extending member 95 pivoted to the forwardly extending arm 18 of valve 17 serves to open and close this valve.

The pipe 96 comprising a flexible portion 97 leads from the compressed fluid tank 2 to the cylinder 32.

It will be seen that the rotation of the basket strips 60 in slidable bearing contact with the stationary ring or shaping member 41 (caused by the rotation of basket form 28 carrying said strips with it) shapes the basket in symmetrical circular form, in which action the bottom 42 of basket form 35 may frictionally contact said material and be rotated therewith freely especially by reason of the antifriction balls 51 in race 50 and balls 52 in race 53; if however the said material is not in such contact with the bottom 42 as to rotate said bottom, said material rotates relatively thereto freely especially by reason of the antifriction rolls 55 contacting said material; and it will be seen that said rolls, by reason of their axes 56 extending radially, frictionally contact said material in such radial directions and tend to hold the basket axis of rotation in alignment with that of the basket form 28.

The invention being intended to be pointed out in the claims, is not to be limited to or by details of construction of the particular embodiment thereof illustrated by the drawings or hereinbefore described.

I claim:

1. In a basket making machine: coaxial basket forms convex and concave respectively and relatively movable axially and turnably in basket forming cooperation, one of the forms carrying the basket forming material therewith and the other form having a non-rotatable shaping member bearing slidably on and frictionally engaging the said material in the relative turning movement of the forms to smooth out the basket material during the rotation thereof.

2. In a basket making machine: coaxial basket forms convex and concave respectively

and relatively movable axially and relatively turnably in basket forming cooperation, one of the forms carrying the basket forming material therewith and the other form having a non-rotatable shaping member bearing slidably on and frictionally engaging the said material to smooth out the same during the relative turning movement of the forms having a bottom member clampingly contacting said material and rotatable therewith.

3. In a basket making machine: coaxial basket forms convex and concave respectively and relatively movable axially and turnably in basket forming cooperation, one of the forms carrying the basket forming material therewith and the other form having a body member and a relatively rotatable bottom member with rotatable antifriction bearings therebetween, the body member having a non-rotatable shaping member bearing slidably on and frictionally engaging the said material to smooth out the same during the relative turning movement of the first-mentioned form and said body member.

4. In a basket making machine: coaxial basket forms convex and concave respectively and relatively movable axially and turnably in basket forming cooperation, one of the forms carrying the basket forming material therewith and the other form having a body member and a relatively rotatable bottom member, the body member having a non-rotatable shaping member bearing slidably on said material and frictionally engaging the same to smooth out the material during the relative turning movement of the first-mentioned form and said body member.

5. In a basket making machine: coaxial basket forms convex and concave respectively and relatively movable axially and turnably in basket forming cooperation, one of the forms carrying the basket forming material therewith and the other form having a non-rotatable shaping member bearing slidably on and frictionally engaging the said material to smooth out the same during the relative turning movement of the forms and having a bottom member; rotatable antifriction bearings carried by said bottom member and adapted to bear on said material.

6. In a basket making machine: coaxial basket forms convex and concave respectively and relatively movable axially and turnably in basket forming cooperation, one of the forms carrying the basket forming material therewith and the other form having a non-rotatable shaping member bearing slidably on and frictionally engaging the said material to smooth out the same during the relative turning movement of the forms and having a bottom member; rotatable antifriction roller bearings carried by said bottom member having axes extending radially thereof and adapted to bear on said material and frictionally engaging the same to hold

the basket material against radial movement and displacement.

7. In a basket making machine: coaxial basket forms convex and concave respectively and relatively movable axially and turnably in basket forming cooperation, one of the forms carrying the basket forming material therewith and the other form having a non-rotatable circular shaping member bearing slidably on and frictionally engaging the said material to smooth out the same during the relative turning movement of the forms.

8. In a basket making machine: coaxial basket forms convex and concave respectively and relatively movable axially and turnably in basket forming cooperation, the convex form carrying the basket forming material therewith and the concave form having a non-rotatable circular shaping member bearing slidably on and frictionally engaging the said material to smooth out the same during the relative turning movement of the forms.

9. In a basket making machine: coaxial basket forms convex and concave respectively and relatively movable axially and turnably in basket forming cooperation, the convex form carrying the basket forming material therewith and the concave form having a non-rotatable circular shaping member bearing slidably on and frictionally engaging the said material to smooth out the same during the relative turning movement of the forms and having a bottom member clampingly contacting said material and rotatable therewith.

In testimony whereof I have hereunto set my hand at Traverse City, Michigan, this 7th day of June, 1930.

BAYARD T. McALVAY.