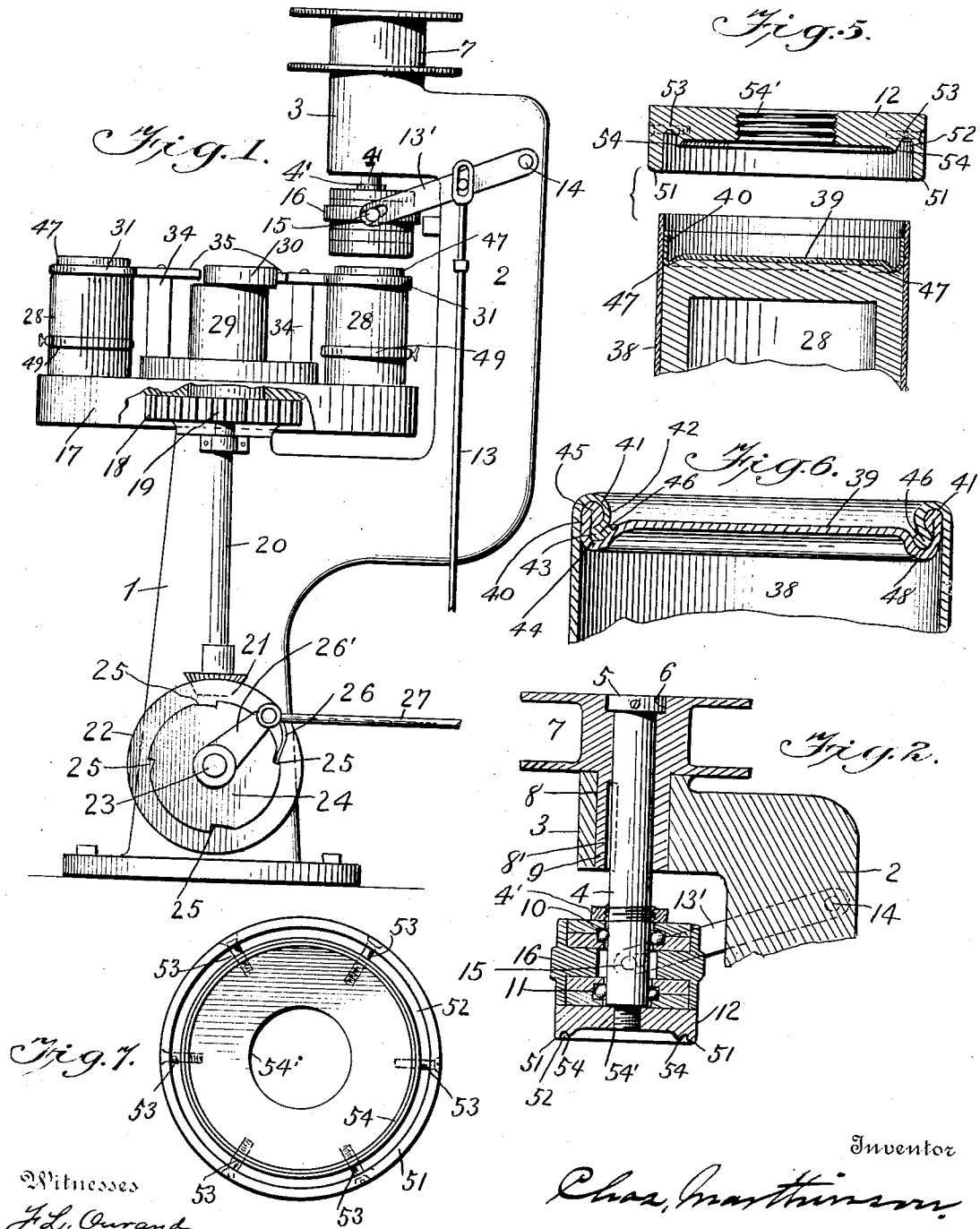


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MACHINE FOR MAKING PAPER RECEPTACLES.
APPLICATION FILED JULY 29, 1909.

941,085.

Patented Nov. 23, 1909.
2 SHEETS—SHEET 1.



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Fig. 3.

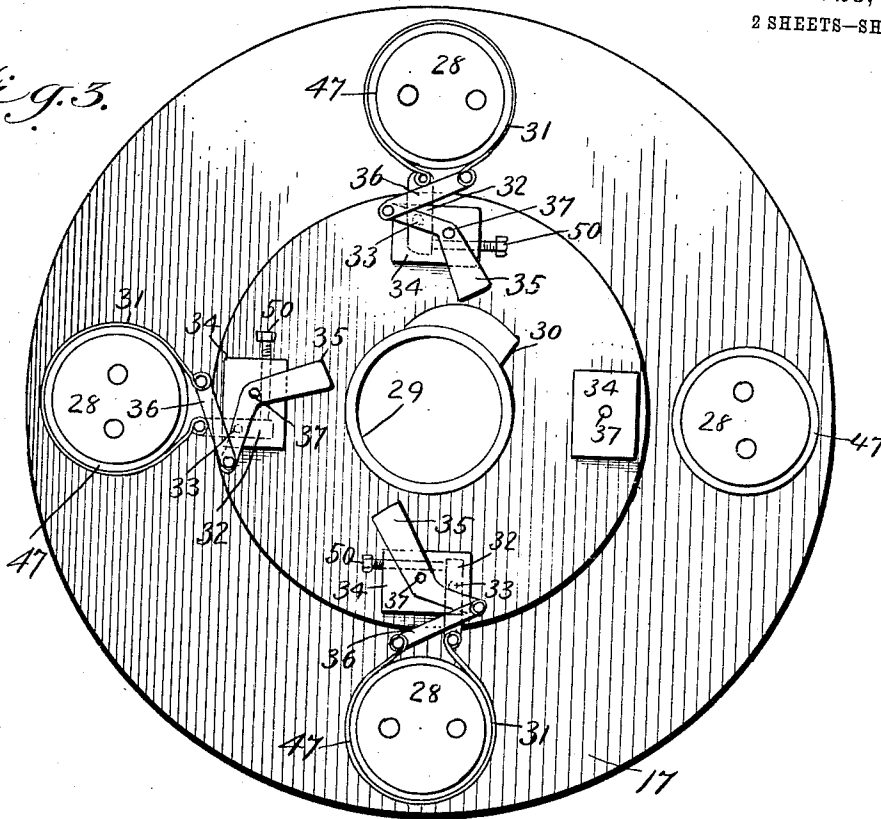
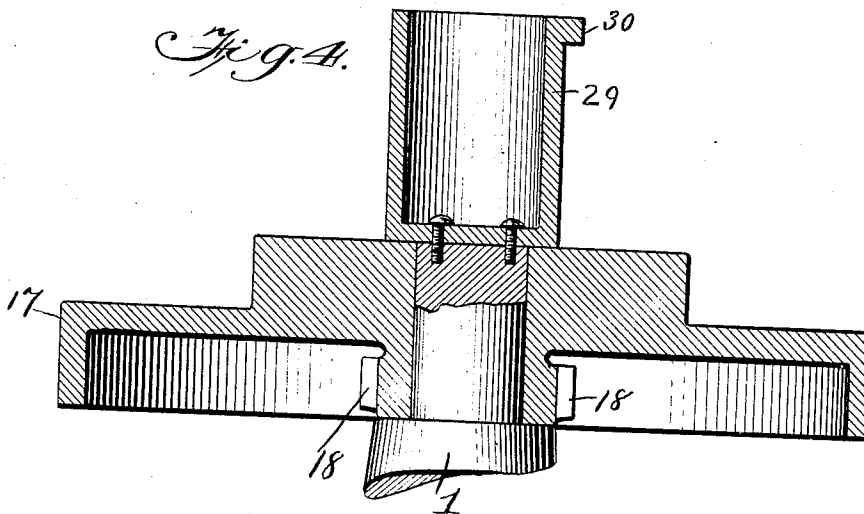


Fig. 4.



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UNITED STATES PATENT OFFICE.

CHARLES MARTHINSON, OF WASHINGTON, DISTRICT OF COLUMBIA.

MACHINE FOR MAKING PAPER RECEPTACLES.

941,085.

Specification of Letters Patent.

Patented Nov. 23, 1909.

Application filed July 29, 1909. Serial No. 510,284.

To all whom it may concern:

Be it known that I, CHARLES MARTHINSON, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Machines for Making Paper Receptacles; and I 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.

My invention relates primarily to packing or storage vessels or receptacles, preferably made of paper or the like, has especial reference to machines for securing the ends or closures in the receptacles, and consists in certain improvements in construction which will be fully disclosed in the following specification and claims.

In the accompanying drawings, which form part of this specification:—Figure 1 represents a side elevation of my improved machine. Fig. 2 a vertical section on an enlarged scale of the upper part of the machine. Fig. 3 a top plan view showing the mandrels, the clamping members and the cam for contracting them. Fig. 4 a detail section on an enlarged scale. Fig. 5 a detail section of one of the mandrels and one of the dies for forming a lock joint. Fig. 6 a vertical transverse section of a vessel with a closure secured in one end, and Fig. 7 an inverted plan view of the die.

Reference being had to the drawings and the designating characters thereon, the numeral 1 indicates the column or base of the machine, 2 a bracket extending therefrom, 3 a head on said bracket in which a shaft 4 is supported, which shaft is provided with a collar 5 at its upper end which engages an annular seat 6 in the pulley, which limits the downward movement of the shaft. The pulley 7 is provided with an annular vertical extension 8, in which is a groove or way 8' engaged by a key or spline 9 on the shaft 4, which causes the pulley 7 to transmit rotary motion to the shaft 4. 10 and 11 are ball-bearings for said shaft, and on the lower end of shaft 4 a head or forming die 12 is detachably secured, and above the ball bearing casing is a nut 4' on the shaft 4, which in conjunction with the head 12 secures the ball bearings in position on said shaft as the shaft and the head 12 are raised

and lowered. The die is automatically raised and lowered by a cam, not shown, at the lower end of the machine which is connected by a pitman or rod 13 to link 13' on each side of the machine, one end of which link is pivotally connected to a stud or pin 14 on the bracket 2, and the opposite end is provided with a slot working on a stud or pin 15 on a collar 16, which surrounds the shaft 2 between the casings of the ball-bearings 10, 11. The pulley 7, is driven continuously while the machine is in operation by a suitable belt, not shown.

17 indicates a table supported on the upper end of the column and provided with a spur gear wheel 18 which is engaged by a pinion 19 on shaft 20, having a miter pinion 21 on its lower end which engages a master miter gear wheel 22 supported on shaft 23 and driven by power, not shown. On the side of the wheel 22 is a disk 24 in whose periphery are equidistant notches 25, engaged by a pawl 26 on an arm 26' and operated by a rod 27, connected to a movable part of the machine, not shown, to impart intermittent rotary motion to the table 17.

On the table 17 are secured a plurality of cylindrical mandrels 28, arranged in a circle and equidistant, as shown in Fig. 3, and secured to the upper end of the column 1 is a cylindrical projection 29, on one side of which, opposite the bracket 2 is a cam 30.

31 indicates a clamping-band surrounding each mandrel 28, one end of each band is secured to a lever 32 which is pivoted at 33 on a seat or projection 34 resting on and secured to the table 17, and the opposite end of said band is connected to one end of a lever 35 by a link 36. The lever 35 is pivotally connected to the seat or projection 34 at 37, and the long or free end of said lever 35 engages the cam 30 as each mandrel passes the cam in the revolution of the table to bring the mandrels under the head or die 12, to secure the body of the receptacle and the closure on the mandrel and prevent rotation thereof while the end or wall of the body of the vessel and the flange of the closure are being operated upon to form the lock-joint between the body and the closure.

38 indicates the body of the receptacle, 39 the closure and 40 an annular flange on the closure which are operated upon by the head

12 to which a rotary spinning motion is imparted under vertical pressure as the head or die 12 is revolved by the pulley 7 and drawn down by the rods 13 and the links 13'.

5 In forming the lock-joint, an annular groove 41 is formed in the end of the body 38 or cover of the receptacle and the stock bent inward at 42 to form an outwardly overhanging member 43, and in the closure 10 39 is an annular groove 44 and the stock in the flange 40 of the closure is bent back upon itself and forms an inwardly projecting member 45 which is interlocked with the member 43 on the body or cover of the receptacle and prevents separation of the parts. 15 On the inner side of the end of the body or cover is an annular shoulder 46, formed by the head or die 12, the purpose of which is to force or crowd the stock in the body outward, and form the overhanging member 43. 20

The upper end of each mandrel is provided with a concentric rabbet or seat 47 to receive the annular projection 48 on the inner side of the closure, and on the mandrel 25 is an adjustable collar 49 to be used in making receptacles of different heights or lengths and capacity.

The bands 31 are of a length to allow space for the insertion of a body 38 of a 30 receptacle and a cover, which cover must have an internal diameter sufficient to allow it to be inserted over the upper end of the receptacle.

In making covers for receptacles, a mandrel of greater diameter than that used for 35 securing the bottom closure in the receptacle is substituted, and the clamping band 31 on each mandrel is lengthened by adjusting the lever 32 by means of the screw 50, as shown in Fig. 3. 40

The head 12 is provided with an annular flange 51 and a groove 52 which engage the ends of the body or cover and the flange of the closure and bend and spin them into 45 form, the initial bending being effected by radial projections 53 in the bottom of said groove and adjacent to said groove is an annular projection 54 which extends below the inner face of the head and engages the 50 stock and forms the annular shoulder 46 on the joint. The head is secured to the shaft 4 by a screw thread connection 54'.

In the operation of the machine, a body or cover of a receptacle is placed on each 55 mandrel and a closure 39 inserted in the upper end, said closure resting on the upper end of the mandrel; as the table revolves, the clamping band 31 is drawn taut and the head 12 is automatically raised at the 60 same time the mandrel is advanced (by the intermittent rotation of the table 17) until it comes directly under the head, when the head is automatically drawn down upon the upper end of the receptacle by rods 13 while 65 it is being revolved by the pulley 7 and the

stock forced into the form shown to form a lock-joint.

When the clamping-band is released by the outer end of the lever 35 disengaging the cam 30, in the rotation of the table 17, 70 the resiliency of the band assisted by the link 36, throws the band away from the body of the receptacle, when the receptacle is removed by an attendant and another body 38 placed upon the mandrel and supplied with 75 a closure 39.

The structure of the lock-joint forms subject matter of a separate application for a patent, filed by me, July 22nd, 1909, Serial Number 509,032. 80

Modifications may be made in details of construction without departing from the spirit of my invention.

Having thus fully described my invention, what I claim is— 85

1. In a machine of the class described, a revoluble table, a mandrel on the table for supporting the body of a receptacle, a resilient clamp for securing said body to said mandrel, a cam for contracting said clamp, 90 and a revoluble head for forming a lock-joint between the end of the body of the receptacle and a closure.

2. In a machine of the class described, a revoluble table, a mandrel on the table, a resilient clamping-band, a pivoted lever to 95 which said band is connected, a cam for operating said lever, a connection at the opposite end of said band, and a revoluble head for engaging the end of the body of a 100 receptacle and a closure.

3. In a machine of the class described, a revoluble table, a mandrel on the table, a resilient clamping-band, a pivoted lever, a link 105 between said band and said lever, a cam for operating the lever, a connection at the opposite end of said band, and a revoluble head for engaging the end of the body of a receptacle and the flange on a closure.

4. In a machine of the class described, a 110 mandrel, a resilient clamping-band, a pivoted lever, a link between said band and said lever, a cam for operating the lever, a pivoted lever at the opposite end of said band, means for adjusting the latter to vary 115 the effective length of the band, and a revoluble head for engaging the end of the body of a receptacle and the flange on a closure.

5. In a machine of the class described, an intermittently revoluble table, a plurality 120 of mandrels equidistantly arranged thereon and each provided with an annular rabbet at its upper end, a clamping-band, means for operating said band, means for adjusting the length of the band, and a head revoluble and reciprocally mounted and adapted 125 to register with each mandrel in the revolution of the table.

6. In a machine of the class described, a head having an annular flange, an annular 130

projection concentric to said flange and extending beyond the inner face of the head, an annular groove between the flange and the projection, and transverse projections in the
5 bottom of the groove; in combination with a mandrel provided with an annular rabbet at its upper end.

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

CHARLES MARTHINSON.

Witnesses:

D. C. REINOHLE,
LILLIAN C. MARTHINSON.