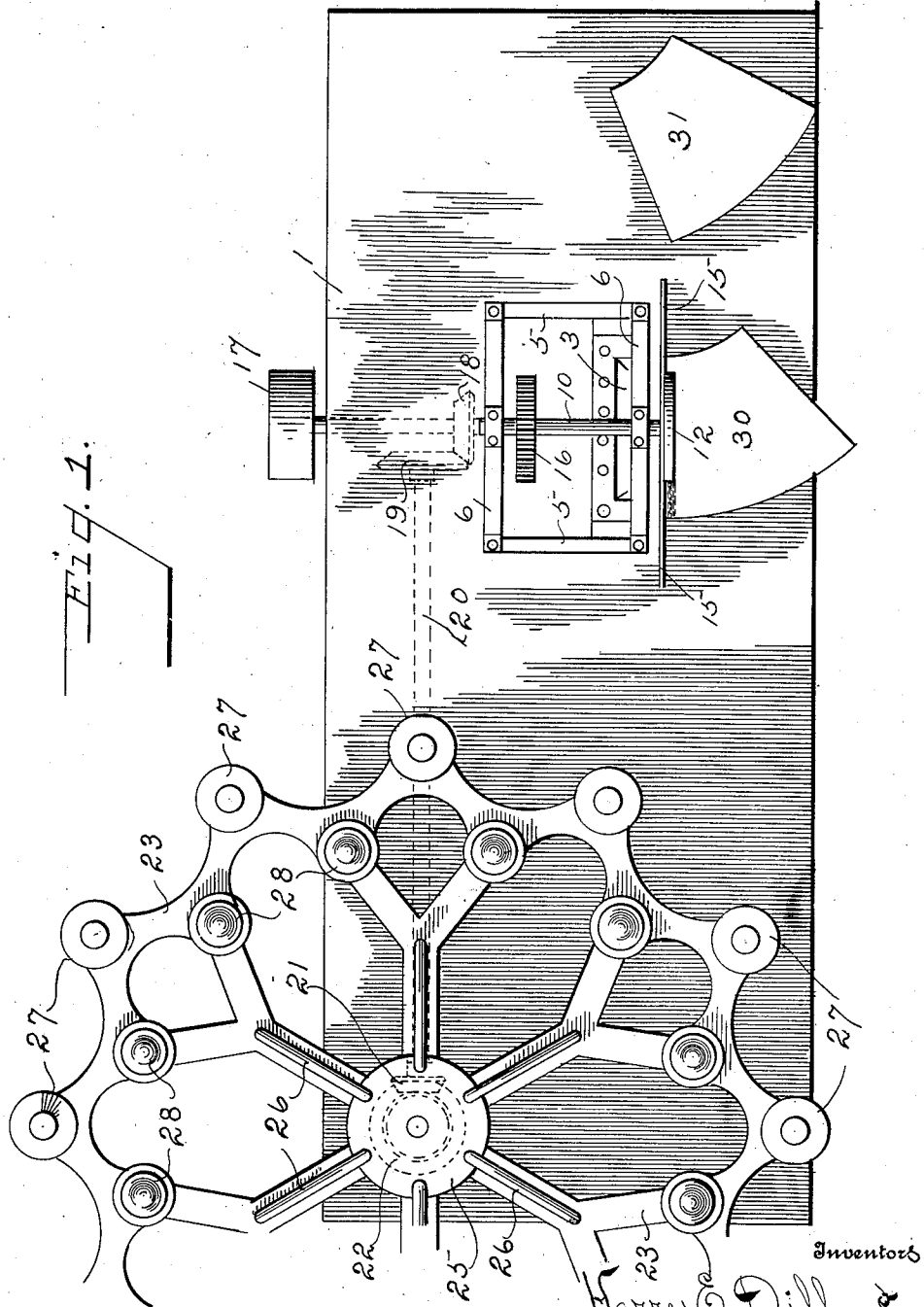


H. E. DILL & W. P. MARSH.
MACHINE FOR MAKING PAPER RECEPTACLES.
APPLICATION FILED OCT. 19, 1908.

1,055,024.

Patented Mar. 4, 1913.

3 SHEETS-SHEET 1.



Witnesses
Grace M. Truhison
Mabel B. Carr

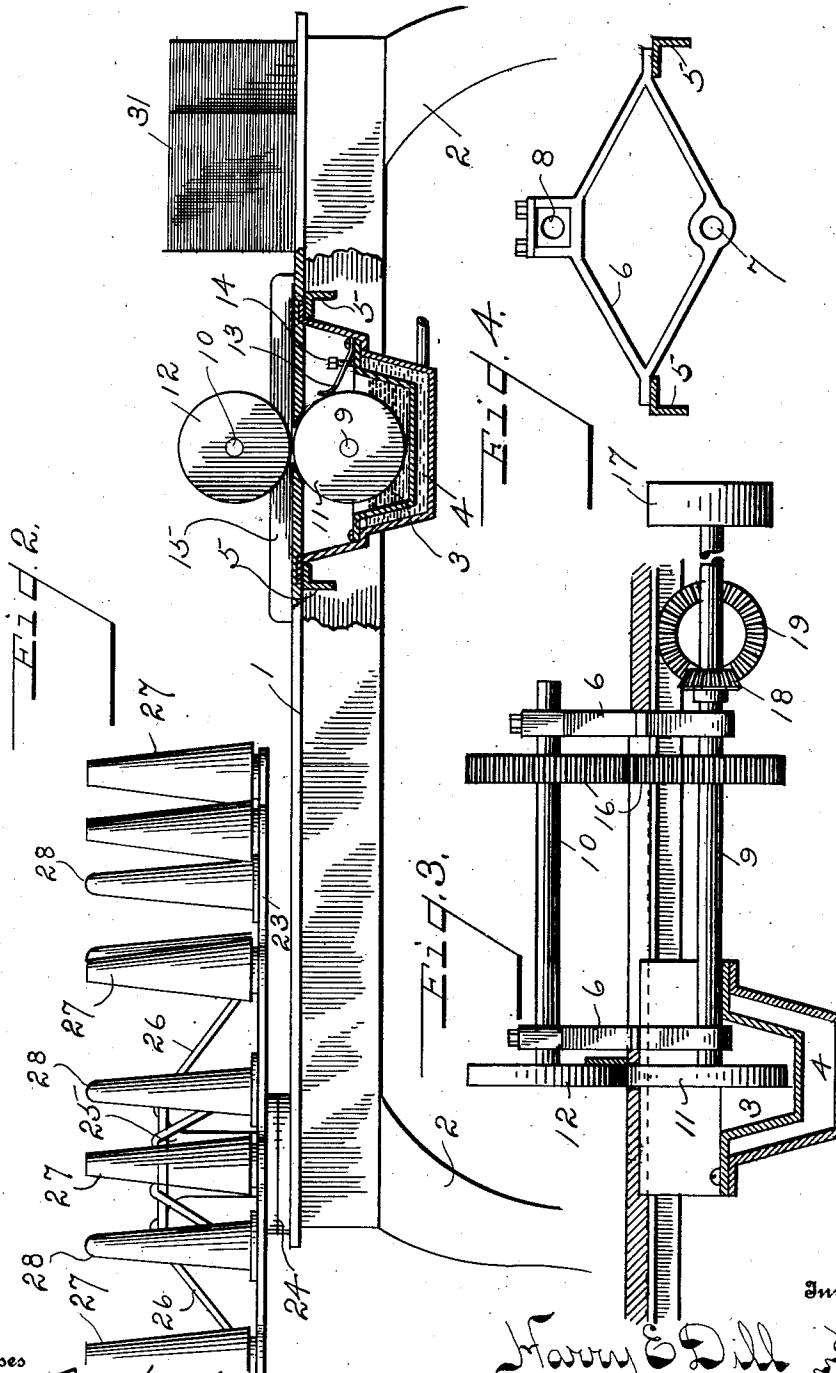
Inventors
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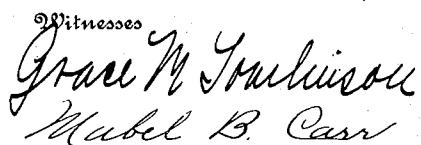


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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

HARRY E. DILL AND WILLIAM P. MARSH, OF DAYTON, OHIO, ASSIGNORS, BY DIRECT AND MESNE ASSIGNMENTS, TO NATIONAL CONING MACHINERY COMPANY, OF INDIANAPOLIS, INDIANA, A CORPORATION OF INDIANA.

MACHINE FOR MAKING PAPER RECEPTACLES.

1,055,024.

Specification of Letters Patent.

Patented Mar. 4, 1913.

Application filed October 19, 1908. Serial No. 458,390.

To all whom it may concern:

Be it known that we, HARRY E. DILL and WILLIAM P. MARSH, both citizens of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Machines for Making Paper Receptacles, of which the following is a specification.

Our invention relates to machines for making paper receptacles, and particularly to a machine for gluing and shaping the paper cone forming a part of the paper bottle shown and described in the co-pending application of Harry E. Dill, filed September 5, 1908, Serial Number 451,818.

The object of the invention is to simplify the construction of such machines whereby the operation will be greatly simplified and the machine not only be cheapened in construction but will also be efficient in operation, capable of being rapidly operated by unskilled labor, and unlikely to get out of repair.

With the above primary and other incidental objects in view as will more fully appear in the specification, the invention consists of certain features of construction, parts and combinations thereof and the mode of operation, or their equivalents as hereinafter described and set forth in the claims.

Referring to the drawings, Figure 1 is a plan view of the assembled machine. Fig. 2 is a side elevation partly broken away. Fig. 3 is a detail transverse sectional view of the glue applying and driving mechanism. Fig. 4 is a detail view of the bearing supports for the gluing and driving mechanism. Fig. 5 is a perspective view of the cone produced. Fig. 6 is a detail view partly in section showing the relation of the parts before the work is in place. Fig. 7 is a similar view after the work has been located in the form. Fig. 8 is a perspective view of one of the outer forms.

Like parts are indicated by similar characters of reference throughout the several views.

Referring by character to the drawings, 1 is a table or bed which may be supported upon legs 2 or on a suitable bench, or otherwise. Suspended below the top of the table or bed 1 and adjacent to one end thereof is a

glue-pot 3 having double walls 4 through which is circulated hot water or steam for heating the glue in the usual manner. The glue-pot 3 is preferably suspended from the transverse angle-irons 5 located within the bed 1. Also supported on the angle-irons 5 adjacent to the glue-pot 3 are supporting frames 6 in which are provided bearings 7 and 8 for horizontal transverse shafts 9 and 10 carrying impinging disks 11 and 12. The disk 11 extends within the glue-pot 3 where it receives a coating of glue, the thickness of which is regulated by a scraper-blade 13 of spring material which operates on the periphery of the disk 11, the thickness of the coating of glue being regulated by an adjusting screw 14 controlling the pressure of the scraper-blade. The point of impingement of the two disks 11 and 12 is substantially co-incidental with the plane of the top of the table 1. In other words, the upper surface of the table is a plane substantially tangent to both disks.

Adjacent to the disk 12 and perpendicular to the table top is a guiding-flange 15. There is also mounted on the transverse shafts 9 and 10 intermeshing gear-pinions 16 by which the shafts 9 and 10 and disks 11 and 12 are driven in unison. The shaft 9 extends beyond the bed and carries a drive pulley 17. There is also mounted on the shaft 9 a bevel pinion 18 meshing with a corresponding pinion 19 on a longitudinal shaft 20 adapted to drive through the medium of the two bevel gears 21 and 22, a revoluble wheel 23 supported on the table 1 and adapted to revolve in a horizontal plane. The wheel 23 is of considerable diameter and weight and in order to facilitate the movement thereof suitable ball bearings are provided (not shown) within the bearing 24. To render the wheel more rigid, the hub is extended upward as at 25 to which is attached a plurality of radial inclined braces 26 which engage the wheel intermediate the periphery and hub thereof. Located about the periphery of the wheel 23 are a plurality of conical forms 27 the proportion and inclination of which correspond with the interior of the cone forming the sides of the paper vessel described in the aforementioned application. The conical forms 27 are preferably formed of metal but may be of other material. Adjacent to the

forms 27 and concentric with said series of forms 27 is a series of supporting members 28 likewise conical shaped as shown in the drawings, but which may be merely studs projecting perpendicular to the wheel 23. There is also provided a series of hollow cones 29 as shown in detail in Fig. 8, one for each of the forms 27. The interior of the hollow cone 29 is of proportions and inclination corresponding to the exterior of the cone shaped body forming the sides of the paper receptacle before mentioned.

The forms 29 are normally carried on the members or studs 28. The blank from which the cone forming the sides of the bottle is constructed is shaped as shown at 30 in Fig. 1. A stack of such blanks being shown at 31 Fig. 2. Each blank is passed between the disks or rollers 11 and 12 with one side of the blank in contact with the guiding-flange 15. During the passage between the rollers glue is applied to one side of the blank throughout a strip of pre-determined width equal to the thickness of the disks. The blank is then rolled by hand, the two opposite edges overlapped and attached by the glue strip. In order to hold the edges of the blank in place until the glue has had time to set, the paper cone thus formed is then placed upon one of the forms 27 which closely conforms to the contour of the interior of the paper cone. One of the outer forms or hollow cone forms 29 is then removed from the corresponding stud or member 28 and is pressed in place over the forms 27 and the paper cone as shown in Fig. 7. The interior of the cone form 29 corresponds with the exterior of the paper cone and will press the overlapping glued edges of the paper cone tightly together and hold the same until the glue has had time to set. More or less pressure may be applied to the glue lap of the paper cone according to the pressure with which the cone form 29 is applied or how far it is driven down upon the paper cone and the form 27.

An operator stands at each side of the machine. The first operator removes the paper blanks from the stack 31 and passes them between the disks to coat the edge of the blank with glue and shapes the paper cone, placing it on the form 27 and inclosing it with the cone form 29. The wheel 23 slowly revolves so that a new cone 27 is presented to the operator. A second operator stands at the opposite side of the table 1 and when the wheel 23 has made substantially a complete revolution carrying with it the paper cones placed thereon by the first operator, the glue laps of which have, in the mean time become set, the second operator removes the cone form 29, replacing it on the corresponding stud or member 28 and then removes the paper cone from the form 27. The forms 27 and 29 being again

in their normal condition will be still farther advanced until they reach the first operator where they will again receive a new cone.

It will be seen that by the construction described that the operation is continuous and that when the paper cones are in place on the forms of the wheel 23 the glue-lap thereof will be subject to an even pressure throughout its length whereby two edges of the blank will be caused to adhere and that the pressure may be greater or less according to the pressure with which the cone form 29 is applied.

From the above description it will be apparent that there is thus produced a machine of the character described possessing the particular features of advantage before enumerated as desirable and which is susceptible of modification in its form, proportion, detail construction and arrangement of parts, without departing from the principle involved or sacrificing any of its advantages.

Having thus described our invention we claim—

1. In a machine for forming paper receptacles having overlapping joints therein, a support, a non-yielding tapered form carried by the support adapted to project within the hollow of the receptacle to the overlapping joints of which adhesive material has been previously applied, and a detached non-yielding tapered hollow form conforming to the exterior of the body of the receptacle when placed on the first mentioned form, said non-yielding tapered forms being capable of a relative reciprocatory movement adapted to clamp the receptacle body between the forms thereby placing the overlapping joints of the receptacle body under pressure, substantially as specified.

2. In a machine for forming paper receptacles, a traveling carrier, a plurality of forms located at intervals upon the carrier and shaped to correspond to the interior of the hollow bodies of the receptacles which when placed thereon inclose said forms, and a plurality of movable hollow forms corresponding in shape to the exterior of the bodies of the receptacles adapted to inclose the receptacle bodies when the latter have been placed on the first mentioned forms, substantially as specified.

3. In a machine for forming articles from blanks of paper or similar material, to which glue has been applied throughout a given space, a supporting table, a wheel adapted to revolve in a horizontal plane, forms carried on said wheel adapted to conform to the interior of the article, studs also on said wheel adjacent to said forms, hollow forms adapted to conform to the exterior of the article normally carried on said studs but adapted to be placed over and inclose the

article when the article is in position on the first named forms, and means for rotating said wheel, substantially as specified.

4. In a machine of the character described,
5 a traveling carrier, a plurality of non-yielding tapered forms carried by said carrier adapted to extend within the interior of hollow articles formed with an overlapping glue joint and placed thereon, and a plurality of tapered exterior forms adapted to
10 inclose with the first mentioned forms and

clamp the glue joint of said articles between said forms throughout its length.

In testimony whereof, we have hereunto set our hands this 16th day of October A. D. 15 1908.

HARRY E. DILL.
WILLIAM P. MARSH.

Witnesses:

HARRY F. NOLAN,
F. L. WALKER.