

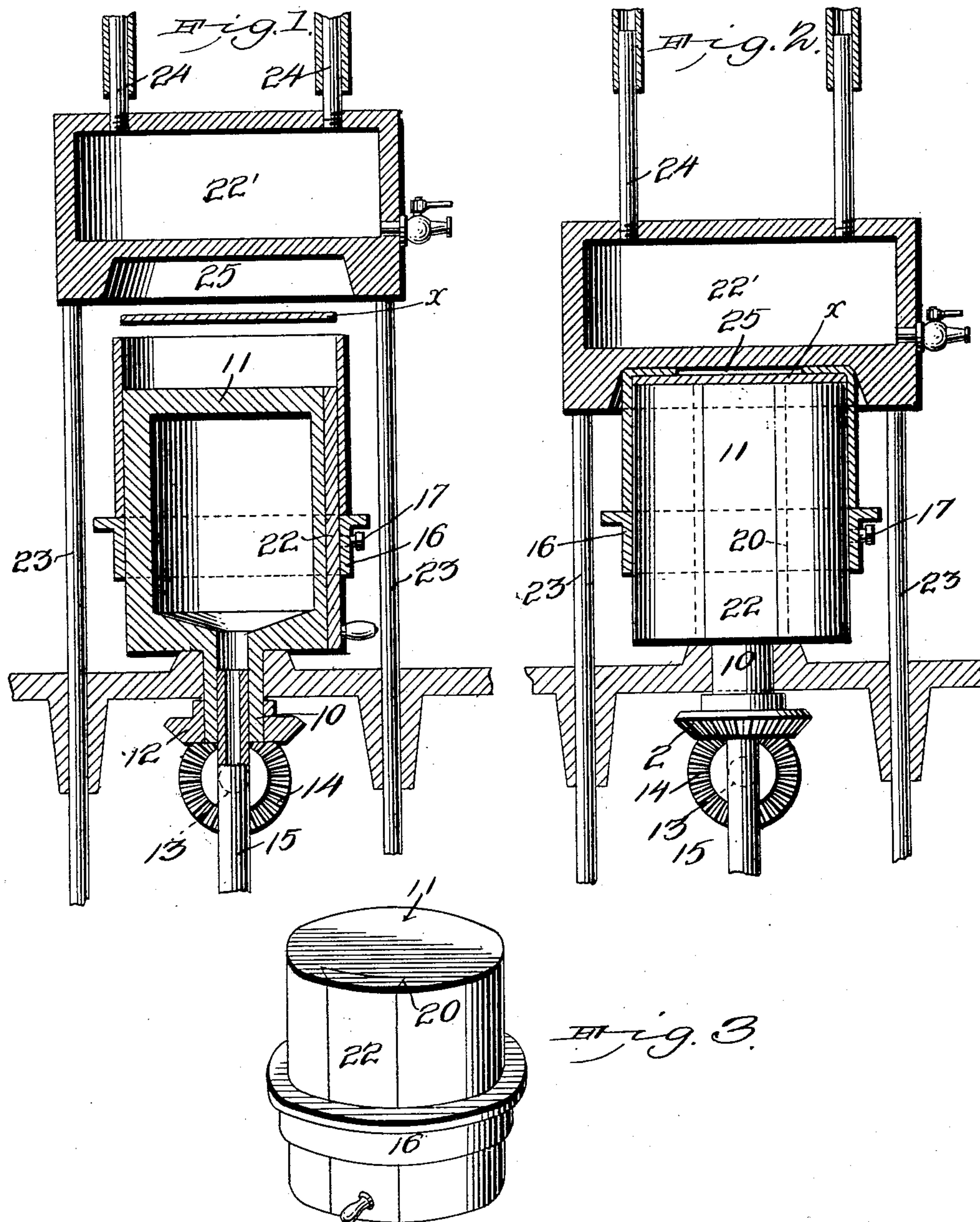
No. 738,047.

PATENTED SEPT. 1, 1903.

L. D. LEWIS.
PAPER BOX MACHINE.

APPLICATION FILED JUNE 12, 1902.

NO MODEL.



Witnesses
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UNITED STATES PATENT OFFICE.

LORENZO D. LEWIS, OF ADAMS, NEW YORK.

PAPER-BOX MACHINE.

SPECIFICATION forming part of Letters Patent No. 738,047, dated September 1, 1903.

Application filed June 12, 1902. Serial No. 111,355. (No model.)

To all whom it may concern:

Be it known that I, LORENZO D. LEWIS, a citizen of the United States, residing at Adams, in the county of Jefferson and State of New York, have invented a new and useful Paper-Box Machine, of which the following is a specification.

This invention relates to certain improvements in machines employed for the manufacture of boxes from paper, cardboard, straw-board, and the like, and has for its principal object to provide a device by which the boxes may be manufactured in an expeditious and economical manner.

The device is intended principally for the manufacture of paper-board boxes for the packing of cheese, but may be used for the manufacture of hat-boxes or other receptacles by making the mandrel and press-box of a contour corresponding to the character of box to be made.

In the accompanying drawings, Figure 1 is a sectionalelevation of a paper-box machine constructed in accordance with my invention. Fig. 2 is a similar view showing the press-box lowered for the formation of the flange at the top or bottom of the box. Fig. 3 is a detail perspective view of the body-forming member detached.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The framework of the machine may be of any desired construction and is provided with a vertical bearing for the reception of a hollow shaft 10, on the upper end of which is mounted a hollow mandrel 11 of a contour corresponding to the shape and size of the box to be made. On the lower end of the hollow shaft is secured a bevel-gear 12, to which motion is imparted from a power-shaft 13, having a bevel-gear 14. The mandrel may be formed of cast-iron or of sheet metal, and steam is supplied to its interior by means of a pipe 15, leading into the lower open end of the shaft 10, while the bottom of the mandrel is preferably inclined, the opening at the center being at the lowest portion of the mandrel in order that condensed steam may be drained off through the supply-pipe. On the exterior of the mandrel is mounted a flanged collar 16, which may be adjusted to any de-

sired position in accordance with the depth of the body portion of the box, one or more set-screws 17 being used to lock the collar in any position to which it may be adjusted. In the present instance the body of the box to be manufactured is of circular form and the mandrel is of corresponding shape to permit the winding of the sheet of paper-board and the formation of the cylindrical portion of the box, the mandrel being turned while the sheet is held in position and tightly wound. The edges of the sheet are secured together by a suitable adhesive material which is quickly dried by the steam-heated mandrel. In order to permit the ready removal of the finished box from the mandrel, the latter is provided with a slot or groove having undercut walls, as indicated at 20 in Fig. 3. The slot or groove extends parallel with the axis of rotation of the mandrel and serves to receive a filling-piece 22, the outer surface of which in position in the groove is flush with or extends slightly beyond the perimeter of the mandrel. After the box is manufactured the filling-block is withdrawn, and the circumference of the mandrel is thus slightly reduced in order to allow the completed box to be slipped off the mandrel.

Above the mandrel is a press-box 22', formed of a hollow cylindrical block, mounted on a pair of rods 23, which may extend to any suitable operating device capable of imparting vertical reciprocatory movement to the box. To the box are connected two steam-pipes 24, which may be telescopic, as indicated in Fig. 1, to permit the free vertical movement of the box, or the pipes may be flexible for a like purpose. In the lower portion of the box is formed a recess 25, of a contour corresponding to the shape of the bottom of the box, the walls of said recess being inclined or curved, so that the diameter of the lower portion of the recess will be greater than the diameter of the box to be made.

In using the device the body portion of the box is formed in the manner previously described, the lower portion of the cardboard resting on the adjustable collar 16 and the upper edge of the material extending up beyond the top of the mandrel. During the formation of the body portion or after the

finishing of this operation a bottom piece x is laid on top of the mandrel within the upper projecting portion of the box-body and adhesive material is applied to the inner surface of the projecting portion. The press-box is then lowered or the mandrel is raised and the projecting edge of the body portion of the box is turned inward and downward to the position shown in Fig. 2, the flange thus formed being held to the bottom piece of the box by the adhesive material and the latter being quickly dried by the heat from the steam supplied to both the mandrel and the press-box.

15 The device may be employed in the manufacture of boxes of any size and character, and while the construction herein described, and illustrated in the accompanying drawings, is the preferred form of the machine it is obvious that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

25 Having thus described the invention, what I claim is—

1. In a box-forming machine, a hollow heated mandrel, means for revolving the same, an adjustable collar surrounding the mandrel and serving as a support for a box-body, means for locking the collar in adjusted position, and a hollow steam-heated press-box for coöperation with said mandrel. 30

2. In a box-forming machine, a hollow steam-heated mandrel having a depending tubular portion, a supporting-bearing through which the depending tubular portion extends, driving-gears connected to said tubular portion for revolving the mandrel, a steam-pipe connected with said tubular portion, an adjustable collar carried by the mandrel and serving as a support for a box-body, and a vertically-movable heated press-box for coöperation with said mandrel. 40

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses. 45

LORENZO D. LEWIS.

Witnesses:

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