(No Model.) 2 Sheets—Sheet 1.

W. S. DAVIS.

BOX MACHINE.

No. 536,457. Patented Mar. 26, 1895.

Fig. 1.

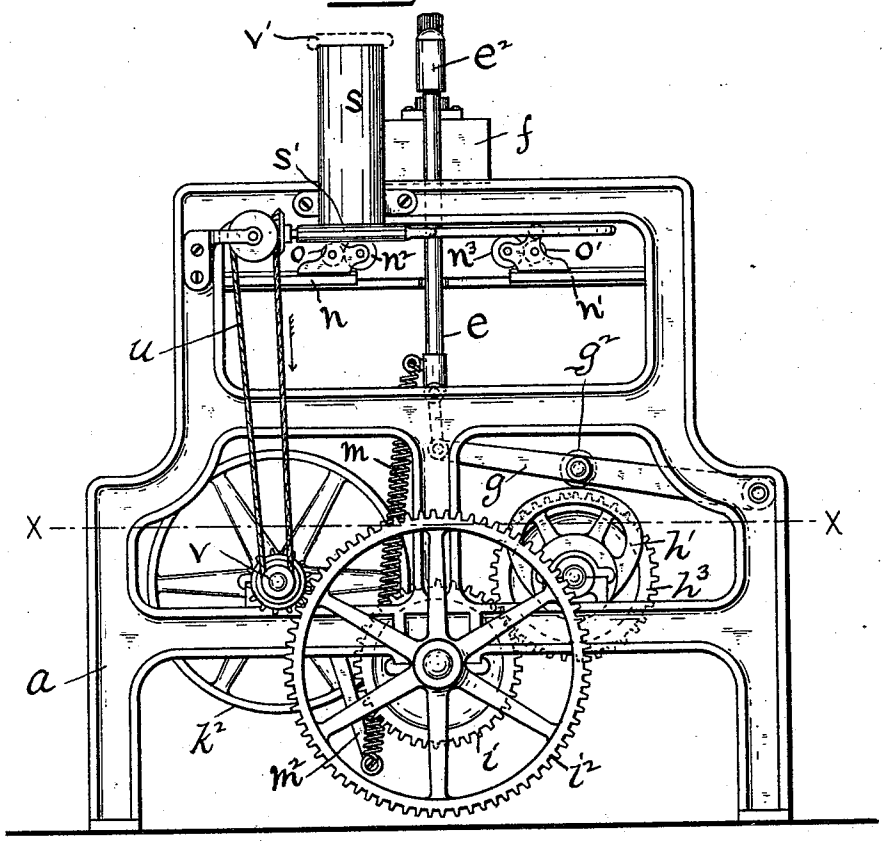
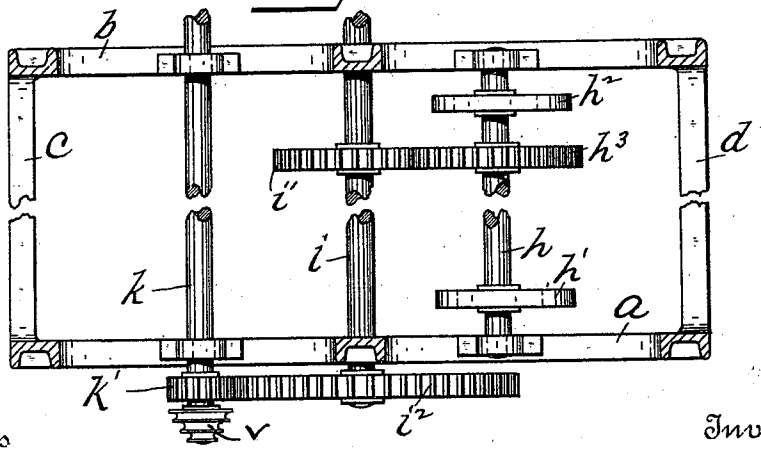


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

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BOX MACHINE.

No. 536,457. Patented Mar. 26, 1895.

Fig-3-

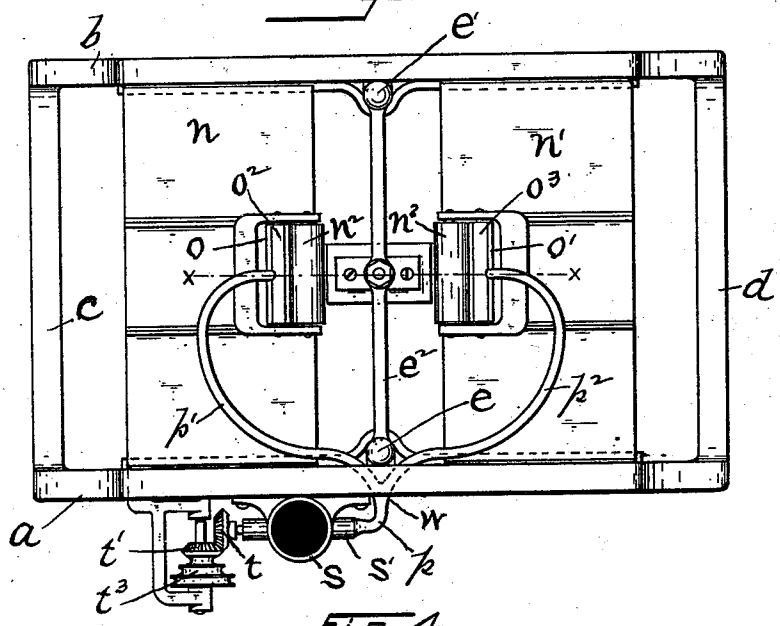


Fig-4-

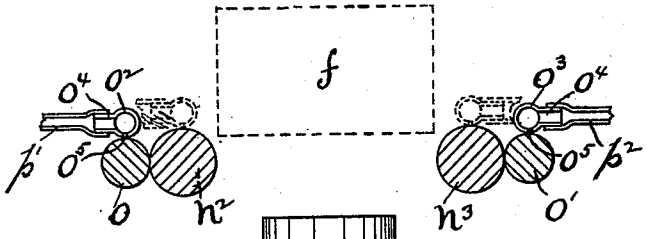
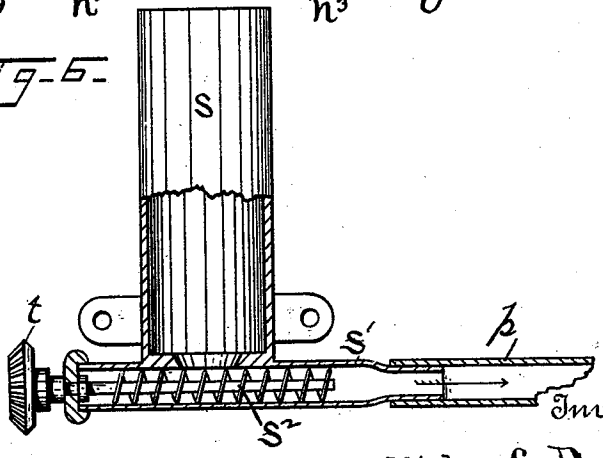


Fig-6-



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UNITED STATES PATENT OFFICE.

WALTER S. DAVIS, OF CONTOOCOOK, NEW HAMPSHIRE.

BOX-MACHINE.

SPECIFICATION forming part of Letters Patent No. 536,457, dated March 26, 1895.

Application filed July 9, 1894. Serial No. 517,005. (No model.)

To all whom it may concern:

Be it known that I, WALTER S. DAVIS, a citizen of the United States, residing at Contoocook, in the county of Merrimac and State of New Hampshire, have invented certain new and useful Improvements in Box-Machines, which improvements are fully set forth and described in the following specification, reference being had to the accompanying two sheets of drawings.

This invention is in the class of box machines for which a patent numbered 352,304 was issued to me November 9, 1886, and my present purpose is to improve materially the devices for supplying paste to the paste-rolls of such machines.

The corresponding mechanism of my said earlier patent, briefly described, consists of a box in which a supply of paste is maintained, suitable delivery rolls being journaled in the end walls of said box; said rolls gathering a coating of paste as they revolve. The space available for such paste boxes is necessarily limited and, as a result, the boxes are small and must be frequently filled. To thus refill the boxes and replenish the supply of paste, the machine must be stopped and such frequent interference with the operation of the machine lessens its daily capacity.

My present invention provides an arrangement of paste-rolls, reservoir, and connections that make it possible and easy to maintain a constant supply of paste without stopping the machine, or interfering with its operation.

In the annexed drawings Figure 1 is a side elevation of the frame-work of a machine embodying my improvements and of sufficient parts of such a machine to illustrate clearly my present invention. For a detailed description of those parts not of necessity connected with the pasting devices, reference is made to my Patent No. 352,304 above referred to. Fig. 2 is a plan view of the shafts, cams, &c., located below line x—x of Fig. 1. Fig. 3 is a plan view of the upper portion of the machine, as illustrated in Fig. 1. Fig. 4 is an enlarged, cross-sectional, view of the paste-rolls, distributing rolls and feeder tubes, taken on line x—x of Fig. 3, and Fig. 5 illustrates, enlarged and partly in section, the paste can or reservoir s, and the spiral conveyer by means of which the paste is drawn from said can and forced through certain delivery tubing hereinafter explained in detail.

Referring to the drawings, the letters a and b indicate the main supporting frames of the machine, said frames being connected and stiffened by girths c and d.

The letters e and e' denote rods that are vertically movable in bearings at the top of the machine near, or secured to, the frames a—b, said rods having attached to their upper ends a cross-bar e^2 which has depending from its center a rod e^3 whose lower end carries a block, or form, f upon which the boxes are to be molded. The lower ends of rods e e' are connected with the free ends of lever-arms g—g whose other ends are hung on studs projecting from the two frames a—b. Said lever-arms have mounted thereon, near their middle portion, rolls g^2—g^2 that ride on cams h'—h^2 carried by a shaft h journaled in the machine frames. (See Figs. 1 and 2.) Shaft h bears a gear h^3 that meshes with and is driven by, a similar gear i' on a shaft i, which latter has secured to one end a large gear i^2 that is driven by a small gear k' on a shaft k which serves as the initial or driving shaft of the machine. Shaft k is provided with a pulley k^2 which may be belted from any suitable counter, or line, shaft.

The described shafts and train of gearing provide a slow but steady rotary movement of the cam-shaft h and said cams, at each revolution, slide the rods e—e' upward in their bearings and thus raise the box form f to the position shown in Fig. 1 of the drawings. To aid the said form in its descent, springs m—m connect the lower ends of rods e—e' with some fixed part of the machine. As here shown said springs are secured to bars m^2—m^2 projecting downward from the main frames of the machine.

Near the upper part of the machine are plates n—n' upon which are mounted paste-rolls n^2—n^3 between which the form f passes as it moves downward.

o o' denote distributing rolls, located in the rear of the paste rolls and in contact therewith. Immediately over the distributing rolls are tubes o^2—o^3 having closed ends; each tube having near its central portion a hub or boss

o^4 over which is slipped one end of a piece of rubber tubing p'—p^2. Each of the tubes o^2—o^3 is perforated, or slitted, as at o^5.

Secured to frame a is a paste can, or reservoir, s whose lower end opens into a cylinder s' in which is journaled a spiral conveyer s^2 upon whose projecting end is a bevel gear t that is driven by a similar gear t' to whose outer face is secured a cone pulley t^3, preferably formed with several steps, as shown. Said cone is connected by a belt u with a similar cone pulley v carried by shaft k.

When the machine is in operation the spiral conveyer s^2 is in constant revolution and serves to force the paste forward into a tube p from which said paste passes into the two branch tubes p'—p^2 above referred to. The paste is gradually forced through the said branch tubes into the metal tubes, or cylinders, o^2—o^3, whence it oozes out through the perforations o^5 onto the distributing rolls o—o' and is finally deposited in a thin sheet upon the paste-rolls n^2—n^3. By varying the speed of the revolving conveyer the flow of paste may be readily governed, and by providing a two-way cock, as at w, the flow of paste may be equalized in said branch tubes.

The tubing p'—p^2 may, if desired, be connected with the ends of the metal cylinders o^2—o^3 instead of at the middle, as here shown, but I find in practice that the paste is more evenly distributed when introduced into said cylinders at or near the middle of the latter.

The paste can or reservoir s, being located outside the operative parts of the machine, may be filled with paste while the machine is in operation.

The conveyer s^2, being positive and constant in its action, makes it possible to use paste much thicker than is practicable in the paste boxes of my said earlier machine in which the paste was fed to the rolls by gravity and therefore must be quite thin.

A cap v' (dotted lines Fig. 1) may be provided for the paste can s, to be used when the machine is not in service to prevent evaporation of the paste.

The distributing rolls o—o' may be dispensed with and a very satisfactory result attained by locating the perforated cylinders immediately over the paste-rolls, as in dotted lines in Fig. 4.

Having described my invention, I claim—

In combination with a movable box form, paste-rolls located at opposite ends of said form, and mechanism for supplying paste to said rolls, consisting of perforated cylinders as set forth, a paste reservoir, a conveyer located in the said reservoir, tubing leading from the conveyer chamber to said perforated cylinders, and mechanism for rotating said conveyer.

WALTER S. DAVIS.

Witnesses:
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