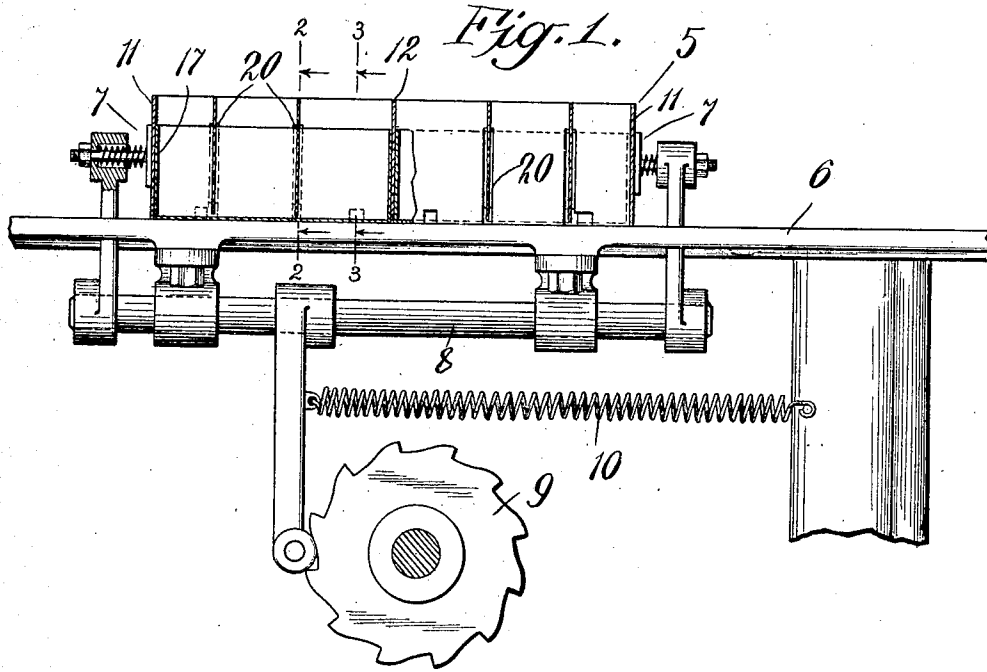
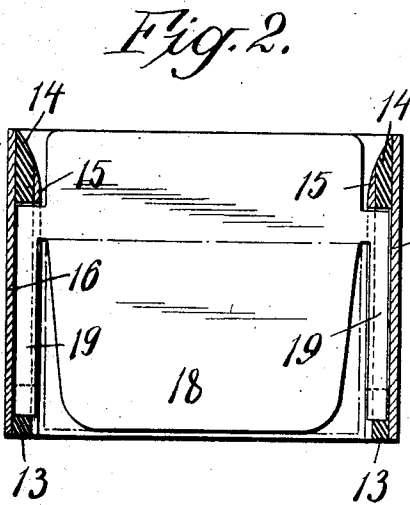
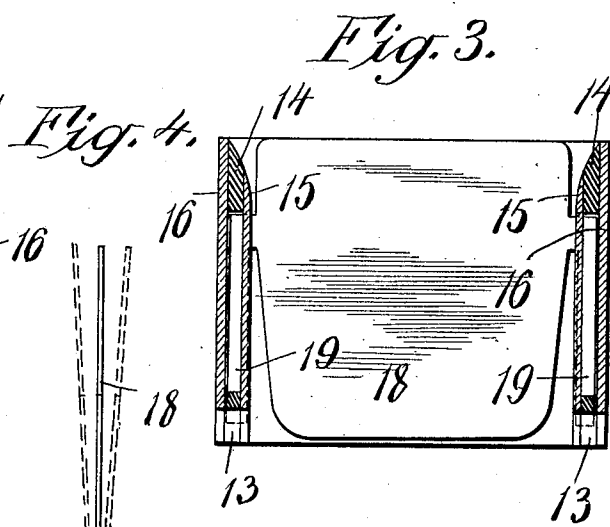
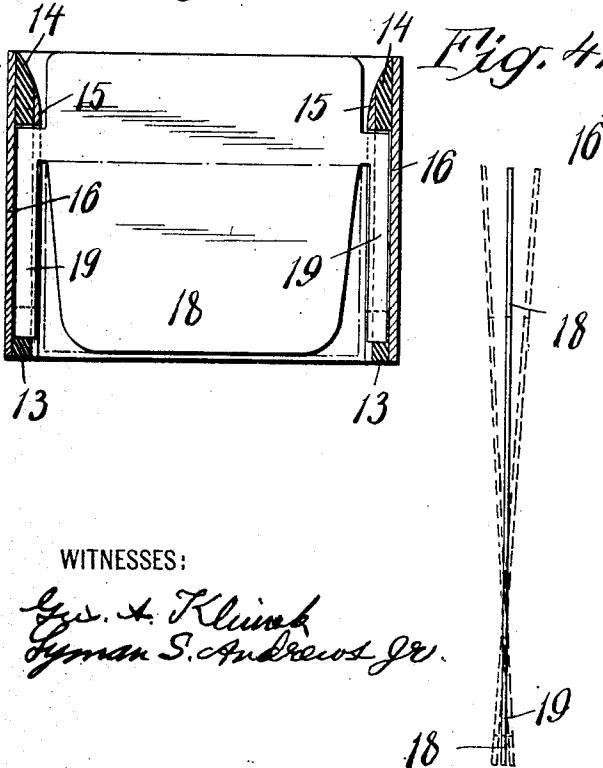


A. B. CALKINS.
CARRIER FOR BOX FILLING MACHINES.
APPLICATION FILED AUG. 8, 1907.

916,667.

Patented Mar. 30, 1909.



WITNESSES:

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UNITED STATES PATENT OFFICE.

ALMON B. CALKINS, OF BELLEVILLE, NEW JERSEY.

CARRIER FOR BOX-FILLING MACHINES.

No. 916,667.

Specification of Letters Patent.

Patented March 30, 1909.

Application filed August 8, 1907. Serial No. 387,693.

To all whom it may concern:

Be it known that I, ALMON B. CALKINS, a citizen of the United States of America, and a resident of Belleville, county of Essex, State of New Jersey, have invented certain new and useful Improvements in Carriers for Box-Filling Machines, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

This invention relates to carriers for box filling machines such as are commonly employed for the purpose of receiving matches from match making machinery and packing them in suitable boxes or trays.

The present carrier is designed to receive and support one or more trays or boxes during the time they are being filled with matches, and is provided with a plurality of blades arranged to enter the said trays or boxes and to be laterally vibrated therein, whereby to produce parallelism of the matches and to cause the matches to settle down to a closely packed condition. The box carrier is designed to be given a lateral vibration as a whole, but the blades are so supported as to receive vibratory movements largely in excess of the movements of vibration imparted to the box carrier, and such movements of vibration are designed to be the greatest at the upper end and the smallest toward the lower end, whereby the movements of the blades will have a progressively greater effect as the level of the matches rises in a box. Further, the blades are supported in such a way as to have a maximum of flexibility whereby when the filled box or tray is removed from the carrier the matches therein will be but little disturbed by their withdrawal from engagement with the said blades.

In order that my invention may be fully understood, I will now describe an embodiment thereof, having reference to the accompanying drawings illustrating the same, and will then point out the novel features in claims.

In the drawings: Figure 1 is a view in central vertical section through a box carrier embodying my invention and showing in partial side elevation, and partial section such portion of a box filling machine as is necessary for a complete understanding of my invention. Figs. 2 and 3 are views in transverse vertical section through a box

carrier upon substantially the lines 2—2 and 3—3 respectively of Fig. 1. Fig. 4 is a diagrammatic view showing particularly the main path of vibration of a blade.

The box carrier as a whole is designated by the carrier 5, said box carrier being shown as supported upon a runway 6 between positioning members 7—7. The positioning members 7—7 are mounted upon a rod 8 to which vibratory movements are given by means of a cam 9 and a spring 10.

The box carrier comprises end walls 11, a central wall 12, bottom side strips 13—13, top side strips 14—14, interior side walls 15—15, and exterior side walls 16—16. The size and shape of the device is such as to just receive a tray or box 17 in the space inclosed between the side walls, one end wall, and the central partition, so that in the present instance the box carrier is designed to carry two trays or boxes, but, it will, of course, be understood that the carrier may be readily designed to carry more or less than two such trays or boxes.

The before mentioned blades which are herein designated by the reference character 18 are so arranged as to enter the boxes or trays 17 when they are mounted in the carrier, there being preferably several of such blades for each box or tray carried by the device. The blades are provided with spring tongues 19, which are secured to the bottom side strips 13, the inner side walls 15 being provided with slots 20 which are of somewhat greater length, and several times wider, than the said tongues, whereby the tongues will be received therein free and clear of contact with the walls of the slots, both when the tongues and blades are at rest, and when they are vibrating as will presently appear. It will also be noted as the inner faces of the spring tongues 19 are set back from the inner faces of the side walls 15, they will in no way interfere with the reception of the boxes or trays within the carrier. In Fig. 1, one such tray is shown in the left hand section of the box carrier, and a portion of another tray is shown in the right hand section. In Fig. 2 such a tray is shown in broken dot and dash line, while in Fig. 3 no tray is shown at all.

In operation one or more trays, according to the size of the carrier, are inserted in the carrier from beneath, and the carrier is then set in place in the machine. Vibratory movements are imparted to the carrier as the

splints are being deposited therein, and the blades 18 being secured to the carrier, vibratory movements will also be imparted thereto, but the movements of vibration of the said blades will be largely in excess of the movements of the box carrier as a whole, because the upper ends thereof are free and the blades will hence vibrate rapidly, somewhat in the manner of reeds, the upper portions thereof vibrating through the greatest arc and the extent of the vibration growing gradually less down toward a point near the bottom of the blades, as is shown in Fig. 4. The effect of this will be to even up the splints and to pack them down firmly in their boxes in the most improved manner.

When the boxes or trays are filled and it is required to remove them, such removal will take place with a minimum of disturbance of the splints therein, because of the great flexibility of the connection between the blades and the portions of the carrier supporting them. While the blades will normally vibrate through the path shown in the diagrammatic Fig. 4, still, where any lateral pressure is applied to the blades, they may swing over from right to left as a whole or the lower ends may even swing in excess of the upper ends, because the blades as a whole may swing with the narrow neck, which connects the tongues to the blade, as a pivot. Thus, if the blades become slightly bent, as often happens, the filled boxes may be removed without materially disturbing the matches therein, because it will be easier for the blades to give the necessary amount rather than the splints to be disturbed.

What I claim is:

1. A carrier for receiving open topped boxes or trays, provided with blades adapted to be received within the boxes or trays, said blades having spring tongues secured to the box carrier near the base thereof, whereby the upper ends of the blades will be free to vibrate.

2. A carrier for receiving open topped boxes or trays, provided with blades adapted to be received within the boxes or trays, said blades having spring tongues projecting therefrom near the upper end thereof, and connected to the said carrier, the side walls of the box carrier being arranged to clear the spring tongues, substantially as specified.

3. A box carrier comprising end and side walls and bottom side strips to which the side walls are secured, said carrier provided with blades adapted to be received within the boxes or trays when mounted in the carrier and having spring tongues secured at their upper ends to the blades near the upper ends thereof and at their lower ends to the said bottom side strips, substantially as specified.

4. A carrier for receiving open topped boxes or trays, provided with blades adapted to be received within the boxes or trays, and flexible members secured at their lower ends to the base of the box carrier and at their upper ends to the upper portions of the blades, whereby the said blades will be free to move laterally throughout their entire extent.

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Witnesses:

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