July 21, 1925.

1,546,963

C. M. BIERNBAUM

SEALING APPARATUS

Filed Feb. 1, 1922

2 Sheets-Sheet 1

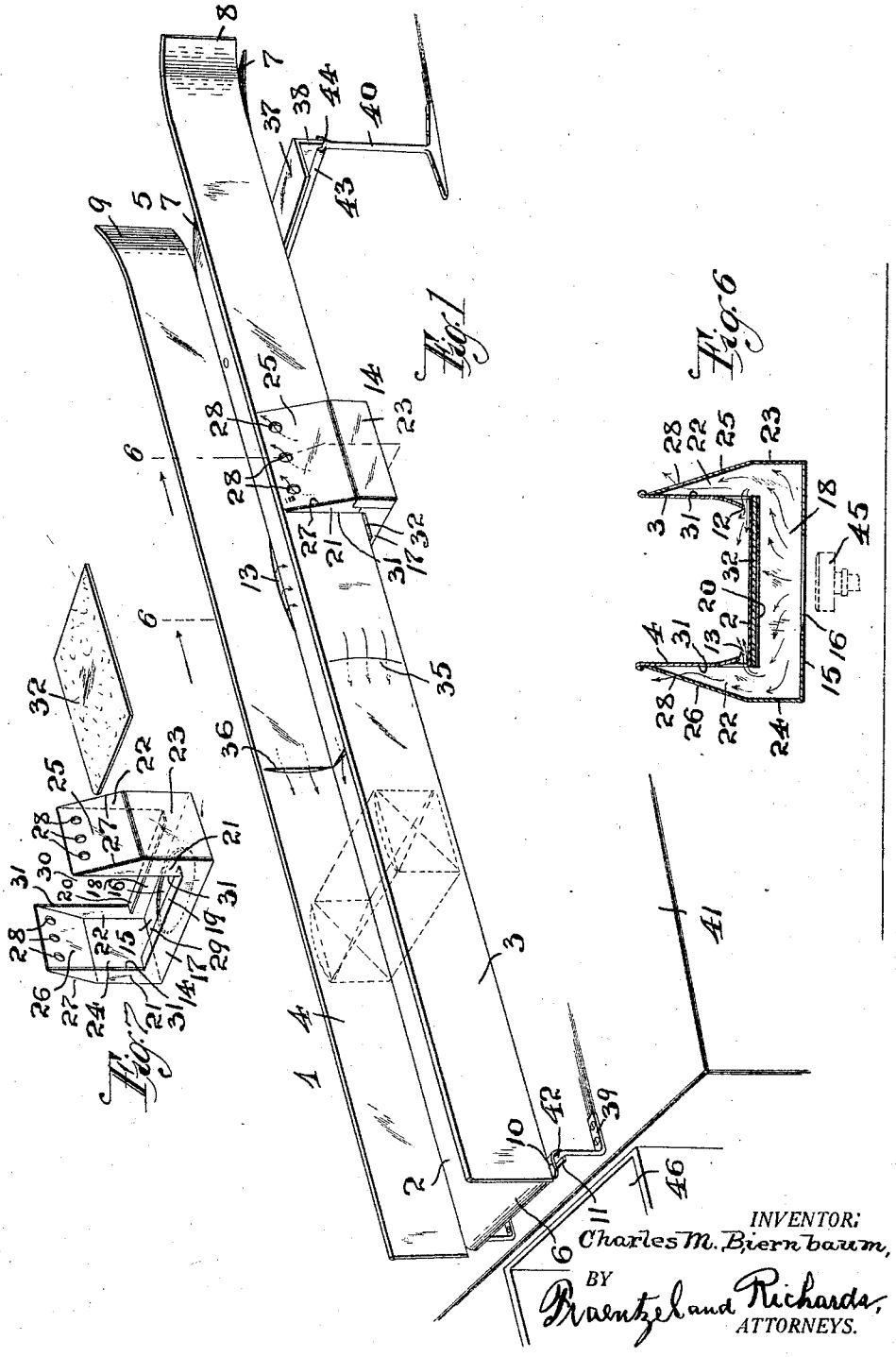


Fig. 1

Fig. 6

Fig. 7

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2 Sheets-Sheet 2

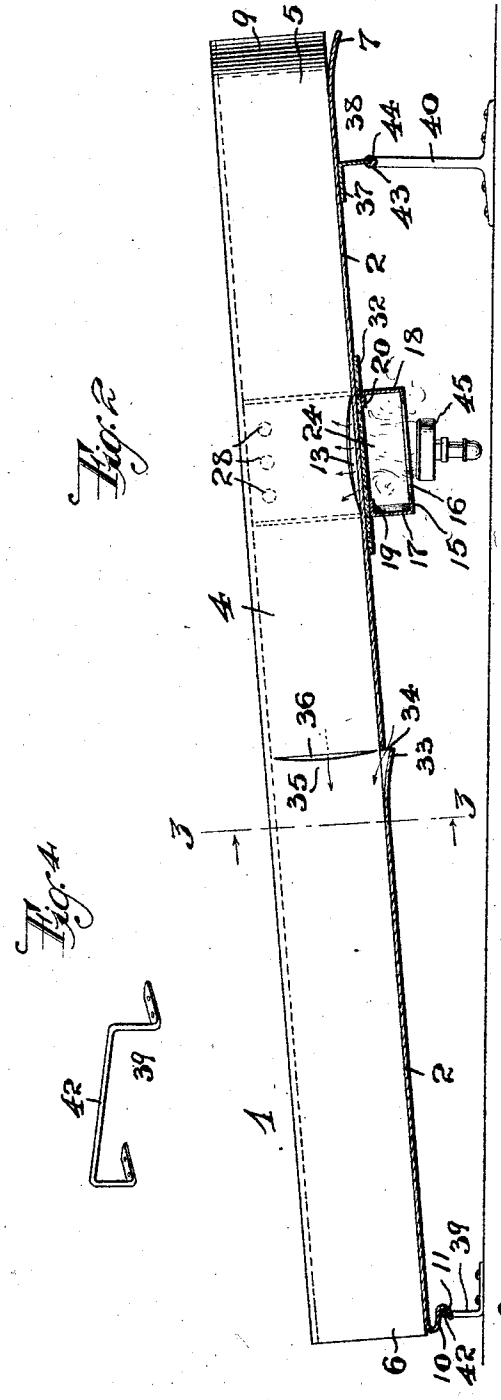


Fig. 2

Fig. 4

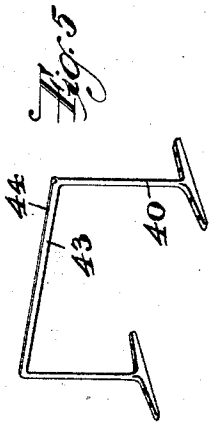


Fig. 5

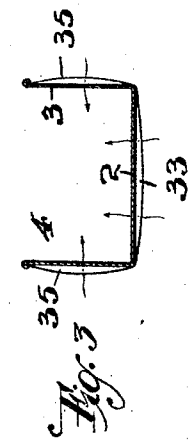


Fig. 3

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Patented July 21, 1925. 1,546,963

UNITED STATES PATENT OFFICE.

CHARLES M. BIERNBAUM, OF OCEAN GATE, NEW JERSEY.

SEALING APPARATUS.

Application filed February 1, 1922. Serial No. 533,257.

To all whom it may concern:

Be it known that I, CHARLES M. BIERNBAUM, a citizen of Germany, residing at Ocean Gate, in the county of Ocean and State of New Jersey, have invented certain new and useful Improvements in Sealing Apparatus; 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, reference being had to the accompanying drawings, and to characters of reference marked thereon, which form a part of this specification.

This invention has reference, generally, to that class of apparatus or devices used for sealing the waxed wrappers surrounding loaves of bread, and the like; and, the present invention relates, more particularly, to a novel and simply constructed apparatus or devices for perfectly and automatically sealing wrapped loaves of bread, or the like, in self-sealing waxed paper or wrappers.

The present invention has for its principal objects to provide a novel and simply constructed sealing apparatus or device of the general character hereinafter more particularly set forth, which is strong and durable, is readily handled and easy to operate, enabling the operator to feed into a heated and air-cooled runway of the device, loaves of bread, or the like, wrapped in self-sealing waxed paper, the apparatus at a heated point in said runway, causing the wax with which the paper is impregnated to become semi-fluid, so as to seal the folded ends, and also the folded or overlapped portions of the wrapper between said ends, and at another point in said runway to cool the said sealed portions of the wrapper, and thereby producing a wrapper-encased loaf delivered in a perfectly sealed condition from the end of the runway of the sealing device or apparatus.

Other objects of the present invention not at this time more particularly enumerated, will be clearly evident from the following detailed description of the present invention.

With the various objects of the present invention in view, the said invention consists, primarily, in the novel sealing apparatus or device hereinafter more fully set forth; and, the said invention consists, furthermore, in the novel arrangements and combinations of the several devices and parts, as well as in the details of the construction of the said parts, all of which will be more fully described in the following specification, and then finally embodied in the clauses of the claims which are appended to and which form an essential part of the said specification.

The invention is clearly illustrated in the accompanying drawings, in which:—

Figure 1 is a perspective view of a sealing apparatus or device for sealing the waxed wrappers of loaves of bread, and the like, said view showing one embodiment of the principles of the present invention; and Figure 2 is a horizontal vertical sectional representation of the same.

Figure 3 is a transverse vertical section of the device, said section being taken on line 3—3 in said Figure 2; and Figures 4 and 5 are perspective views of a pair of standards or supporting devices adapted for use with the sealing apparatus.

Figure 6 is a transverse sectional representation of the apparatus or device, said section being taken on line 6—6 in said Figure 1; and Figure 7 is a collective perspective view of a hot-air chamber and a sheet of asbestos adapted for use therewith, said parts being shown in their detached relation from the main member of the sealing apparatus or device.

Similar characters of reference are employed in all of the said herein-above described views, to indicate corresponding parts.

Referring now to the several figures of the drawings, the reference-character 1 indicates a complete sealing apparatus or device, made according to and embodying the principles of the present invention, the same comprising a loaf-receiving runway, preferably made of sheet-metal, for lightness in construction, although the said runway may be made of other suitable material.

The said runway consists, essentially, of a base-member 2, and the longitudinally extending side-walls 3 and 4, extending vertically and upwardly from said base, so as to provide a runway or chute, having at one end thereof a receiving opening, as 5, and at

the other end thereof a discharge opening, as 6. At the receiving opening, the said base-member 2, and the said side-walls 3 and 4 are preferably and respectively provided with the downwardly flaring portion 7, and the laterally extending and outwardly flaring portions 8 and 9, arranged to provide a convenient loaf-receiving opening, as will be clearly evident. At the discharge opening or end 6, the said base-member 2 is preferably bent under and rearwardly, as at 10, and then forwardly, as at 11, all arranged to provide a standard-engaging and runway or chute-retaining means, as will be evident from an inspection of Figures 1 and 2 of the drawings, and for the purposes hereinafter more fully set forth. As shown in Figures 1, 2 and 6 of the drawings, the said side-walls 3 and 4 are respectively provided with openings, as 12 and 13, and suitably disposed about the outer surface-portions of the base-member 2 and the said side-walls 3 and 4, at the points where the said openings 12 and 13 are located, is a chambered heat-conveyor 14, usually of the construction and conformation represented more particularly in Figures 2, 6 and 7 of the drawings. As shown in said figures, the said heat-conveyor 14 comprises a base 15 formed with an opening 16, upwardly projecting side-walls 17 and 18, respectively formed with the inwardly extending flanges 19 and 20, and with upwardly extending end-members, as 21 and 22. Connecting each pair of said end-members 21 and 22, are laterally extending end-walls 23 and 24, the upper portions 25 and 26 of the respective end-walls being angularly disposed, as shown, and being suitably connected with or secured to the angular marginal edge-portions 27 of the previously mentioned end-members 21 and 22. The said portions 25 and 26 may also be provided with suitably disposed ventilating openings or perforations 28, if desired. The heat-conveyor, thus produced, is such that the runway or chute is snugly fitted in the spaces 29 and 30, bounded by the flanges 19 and 20, and the marginal edges 31 of the upwardly extending end-members 21 and 22, as shown more particularly in Figure 6 of the drawings, a protector-sheet 32 of asbestos, or similar material, being placed upon the flanges and against the lower surface of the base-member 2 of the runway or chute, substantially as shown in Figures 2 and 6 of the drawings. In this manner, the base-portion of the runway or chute and the embracing portions of the heat-conveyor 14 provide a suitably formed chamber, in which air is heated, in the manner and for the purposes presently described, and conveyed from said chamber through the openings 12 and 13 to the sealing space between the base-member 2 and the side-walls 3 and 4 of the runway or chute, as will be clearly evident. At a suitable location between the said heat-conveyor and the discharge opening or end 6 of the runway or chute, the base-member 2 is made with an outwardly pressed portion 33 to provide an opening 34, and in like manner, the side-walls 3 and 4 may be made with outwardly pressed portions 35 to provide the side-walls with openings 36.

Suitably secured to the under surface of the base-member 2, at or near the receiving opening 5 thereof, is a suitably formed bar or plate 37, having a member 38 extending at a right angle, downwardly from said bar or plate.

Adapted for use with the runway or chute of the sealing apparatus just described are a pair of supports or standards, as 39 and 40, one of which, as 40, is of greater height than the other. The supports or standards are suitably secured upon a table or work-bench, as 41, for the reception in its operative position of the said runway or chute upon the said table or work-bench, in the manner shown in Figures 1 and 2 of the drawings, the previously described members 10 and 11 of the base-member 2 being placed in supported and retaining engagement with a connecting cross-bar 42 of the support or standard 39, and the marginal edge of the previously mentioned right-angled member 38 being made to rest in supporting engagement with the receiving channel 44 of a connecting cross-bar 43 of the support or standard 40. In connection with the sealing apparatus or device thus produced there is used, in position beneath the heat-conveyor 14, a heat-producing medium, usually in the form of a gas-heater, as 45, although it will be clearly understood, that in connection with the heat-conveyor, any other suitable source or means for heating the same may be employed.

Having in the foregoing description set forth, in a general manner, a sealing apparatus, or device embodying the principles of the present invention, I will now briefly set forth the manner of using the same for sealing the folded ends of the waxed wrapper, and also for sealing the paper laps of the wrapper, extending along the bottom of the loaf of bread, or the like.

The sealing apparatus or device of the desired width, according to the length of the wrapped loaf to be sealed, having been mounted upon the supports or standards 39 and 40, the heater 45 is lighted, so that the air contained in the heat-conveyor 14 is properly heated, and conveyed therefrom, through the openings 12 and 13, into the corresponding space between the two side-walls 2 and 3 of the runway or chute of the apparatus, the sheet of asbestos 32 protect-

ing the bottom of the runway or chute from excessive heat. Any excess of heat is also carried off through the ventilating openings or perforations 28. The loaves of bread, wrapped as usual in wax paper, with their non-sealed folded ends, and their non-sealed bottom-laps, are now fed by the operator, one after the other into the receiving opening or end 5 of the runway or chute, and pushed down the same over the heated space of the runway or chute. When passing over this space, the wax in the portions of the overlapped parts of the wrapper is rendered semi-fluid, causing the wrapper-parts to readily stick together, or to adhere to each other. Almost immediately, after leaving this heated space, the wax congeals and by the time the loaf reaches the openings 34 and 36, into and through which air, as a cooling medium, passes against the wrapped loaf, the wax is further congealed and is rendered sufficiently hard, so that a perfectly sealed wrapper of the self-sealing wax paper, about the loaf or bread, or the like, is produced.

The sealed packages or loaves are finally and continuously forced, one after the other, from the delivery or discharge end of the runway or chute, into a receiver or basket, as 46, which may be placed at the end of the table or work-bench and the said runway or chute, substantially as shown in Figure 1 of the drawings.

Of course, I am fully aware, that changes may be made in the general arrangements and combinations of the several devices and parts, as well as in the details of the construction of the said parts, without departing from the scope of the present invention as set forth in the foregoing specification, and as defined in the clauses of the claims which are appended thereto. Hence, I do not limit my present invention to the exact arrangements and combinations of the various devices and parts, as described in the said specification, nor do I confine myself to the exact details of the construction of the said parts, as illustrated in the accompanying drawings.

I claim:—

1. A sealing apparatus for sealing the ends and laps of waxed wrappers for packages, comprising a package-receiving runway consisting of a base-member and longitudinally extending side-walls, provided with a receiving end and a discharge end, said side-walls being provided with heat-conveying openings, a chambered heat-conveyor embracing outer portions of said base-member and said side-walls, said heat-conveying openings being in communication with the chamber of said heat-conveyor, said runway being provided at other portions of its base-member and side-walls intermediate said heat-conveyor and the discharge-end of the apparatus with other openings, providing inlets for leading a cooling medium into the runway.

2. A sealing apparatus for sealing the ends and laps of waxed wrappers for packages, comprising a package-receiving runway consisting of a base-member and longitudinally extending side-walls, provided with a receiving end and a discharge end, said side-walls being provided with heat-conveying openings, combined with a heat-conveyor, consisting of a base-member provided with an opening, a pair of side-walls adapted to be disposed against the lower surface of said runway, end-members extending upwardly from said last-mentioned side-walls, and end-walls between said end-members, said end-members and end-walls embracing the side-walls of said runway, and all arranged to provide a heating chamber with which said heat-conveying openings are in communication, said runway being provided at other portions of its base-member and side-walls with other openings, providing inlets for leading a cooling medium into the runway.

3. A sealing apparatus for sealing the ends and laps of waxed wrappers for packages, comprising a package-receiving runway consisting of a base-member and longitudinally extending side-walls, provided with a receiving end and a discharge end, said side-walls being provided with heat-conveying openings, combined with a heat-conveyor, consisting of a base-member provided with an opening, a pair of side-walls adapted to be disposed against the lower surface of said runway, end-members extending upwardly from said last-mentioned side-walls, and end-walls between said end-members, said end-members being provided with ventilating perforations, said end-members and end-walls embracing the side-walls of said runway, and all arranged to provide a heating chamber with which said heat-conveying openings are in connection.

4. A sealing apparatus for sealing the ends and laps of waxed wrappers for packages, comprising a package-receiving runway consisting of a base-member and longitudinally extending side-walls, provided with a receiving end and a discharge end, said side-walls being provided with heat-conveying openings, combined with a heat-conveyor, consisting of a base-member provided with an opening, a pair of side-walls adapted to be disposed against the lower surface of said runway, end-members extending upwardly from said last-mentioned side-walls, and end-walls between said end-members, said end-members being provided with ventilating perforations, said end-members and end-walls embracing the side-walls of said runway, and all arranged to provide a heating chamber with which said

heat-conveying openings are in connection, and means located at another portion of said runway, between said heat-conveying openings and the discharge end of the runway for leading a cooling medium into the runway.

5. A sealing apparatus for sealing the ends and laps of waxed wrappers for packages, comprising a package-receiving runway consisting of a base-member and longitudinally extending side-walls, provided with a receiving end and a discharge end, said side-walls being provided with heat-conveying openings, combined with a heat-conveyor, consisting of a base-member provided with an opening, a pair of side-walls adapted to be disposed against the lower surface of said runway, end-members extending upwardly from said last-mentioned side-walls, and end-walls between said end-members, said end-members being provided with ventilating perforations, said end-members and end-walls embracing the side-walls of said runway, and all arranged to provide a heating chamber with which said heat-conveying openings are in communication, said runway being provided at other portions of its base-member and side-walls with other openings, providing inlets for leading a cooling medium into the runway.

6. A sealing apparatus for sealing the ends and laps of waxed wrappers for packages, comprising a package-receiving runway consisting of a base-member and longitudinally extending side-walls, provided with a receiving end and a discharge end, said side-walls being provided with heat-conveying openings, combined with a heat-conveyor, consisting of a base-member provided with an opening, a pair of side-walls, flanges extending inwardly from said side-walls, a sheet of asbestos resting upon said flanges, said sheet of asbestos being disposed against the lower surface of said runway, end-members extending upwardly from said last-mentioned side-walls, and end-walls between said end-members, said end-members and end-walls embracing the side-walls of said runway, and all arranged to provide a heating chamber with which said heat-conveying openings are in communication.

7. A sealing apparatus for sealing the ends and laps of waxed wrappers for packages, comprising a package-receiving runway consisting of a base-member and longitudinally extending side-walls, provided with a receiving end and a discharge end, said side-walls being provided with heat-conveying openings, combined with a heat-conveyor, consisting of a base-member provided with an opening, a pair of side-walls, flanges extending inwardly from said side-walls, a sheet of asbestos resting upon said flanges, said sheet of asbestos being disposed against the lower surface of said runway, end-members extending upwardly from said last-mentioned side-walls, and end-walls between said end-members, said end-members and end-walls embracing the side-walls of said runway, and all arranged to provide a heating chamber with which said heat-conveying openings are in communication, and means located at another portion of said runway, between said heat-conveying openings and the discharge end of the runway for leading a cooling medium into the runway.

8. A sealing apparatus for sealing the ends and laps of waxed wrappers for packages, comprising a package-receiving runway consisting of a base-member and longitudinally extending side-walls, provided with a receiving end and a discharge end, said side-walls being provided with heat-conveying openings, combined with a heat-conveyor, consisting of a base-member provided with an opening, a pair of side-walls, flanges extending inwardly from said side-walls, a sheet of asbestos resting upon said flanges, said sheet of asbestos being disposed against the lower surface of said runway, end-members extending upwardly from said last-mentioned side-walls, and end-walls between said end-members, said end-members and end-walls embracing the side-walls of said runway, and all arranged to provide a heating chamber with which said heat-conveying openings are in communication, said runway being provided at other portions of its base-member and side-walls with other openings, providing inlets for leading a cooling medium into the runway.

9. A sealing apparatus for sealing the ends and laps of waxed wrappers for packages, comprising a package-receiving runway consisting of a base-member and longitudinally extending side-walls, provided with a receiving end and a discharge end, said side-walls being provided with heat-conveying openings, combined with a heat-conveyor, consisting of a base-member provided with an opening, a pair of side-walls, flanges extending inwardly from said side-walls, a sheet of asbestos resting upon said flanges, said sheet of asbestos being disposed against the lower surface of said runway, end-members extending upwardly from said last-mentioned side-walls, and end-walls between said end-members, said end-members being provided with ventilating perforations, said end-members and end-walls embracing the side-walls of said runway, and all arranged to provide a heating chamber with which said heat-conveying openings are in communication.

10. A sealing apparatus for sealing the ends and laps of waxed wrappers for packages, comprising a package-receiving runway consisting of a base-member and longitudinally extending side-walls, provided

with a receiving end and a discharge end, said side-walls being provided with heat-conveying openings, combined with a heat-conveyor, consisting of a base-member provided with an opening, a pair of side-walls, flanges extending inwardly from said side-walls, a sheet of asbestos resting upon said flanges, said sheet of asbestos being disposed against the lower surface of said runway, end-members extending upwardly from said last-mentioned side-walls, and end-walls between said end-members, said end-members being provided with ventilating perforations, said end-members and end-walls embracing the side-walls of said runway, and all arranged to provide a heating chamber with which said heat-conveying openings are in communication, and means located at another portion of said runway, between said heat-conveying openings and the discharge end of the runway for leading a cooling medium into the runway.

11. A sealing apparatus for sealing the ends and laps of waxed wrappers for packages, comprising a package-receiving runway consisting of a base-member and longitudinally extending side-walls, provided with a receiving end and a discharge-end, said side-walls being provided with heat-conveying openings, combined with a heat-conveyor, consisting of a base-member provided with an opening, a pair of side-walls, flanges extending inwardly from said side-walls, a sheet of asbestos resting upon said flanges, said sheet of asbestos being disposed against the lower surface of said runway, end-members extending upwardly from said last-mentioned side-walls, and end-walls between said end-members, said end-members being provided with ventilating perforations, said end-members and end-walls embracing the side-walls of said runway, and all arranged to provide a heating chamber with which said heat-conveying openings are in communication, said runway being provided at other portions of its base-member and side-walls with other openings, providing inlets for leading a cooling medium into the runway.

In testimony, that I claim the invention set forth above I have hereunto set my hand this 30th day of January, 1922.

CHARLES M. BIERNBAUM.

Witnesses:

FREDK. C. FRAENTZEL,

EVA E. DESCH.