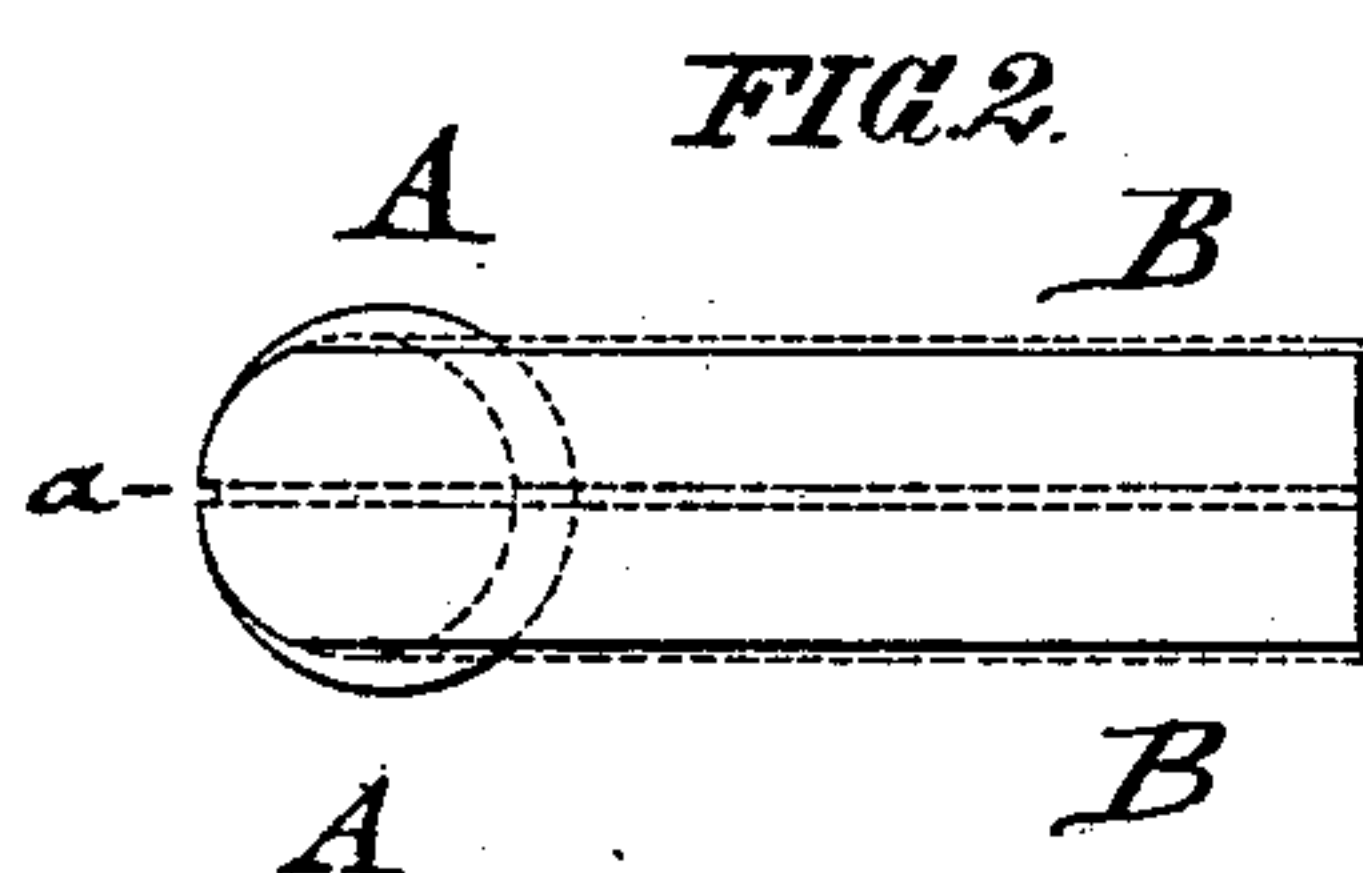


2 Sheets—Sheet 1.

HORN EXTENSION FOR CAN BODY FORMING MACHINES.

No. 602,647.

Patented Apr. 19, 1898.



WITNESSES:

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Bruno von Bültzingshlagen
Geo. W. Finkel

Fig: 1^a



INVENTOR

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(No Model.)

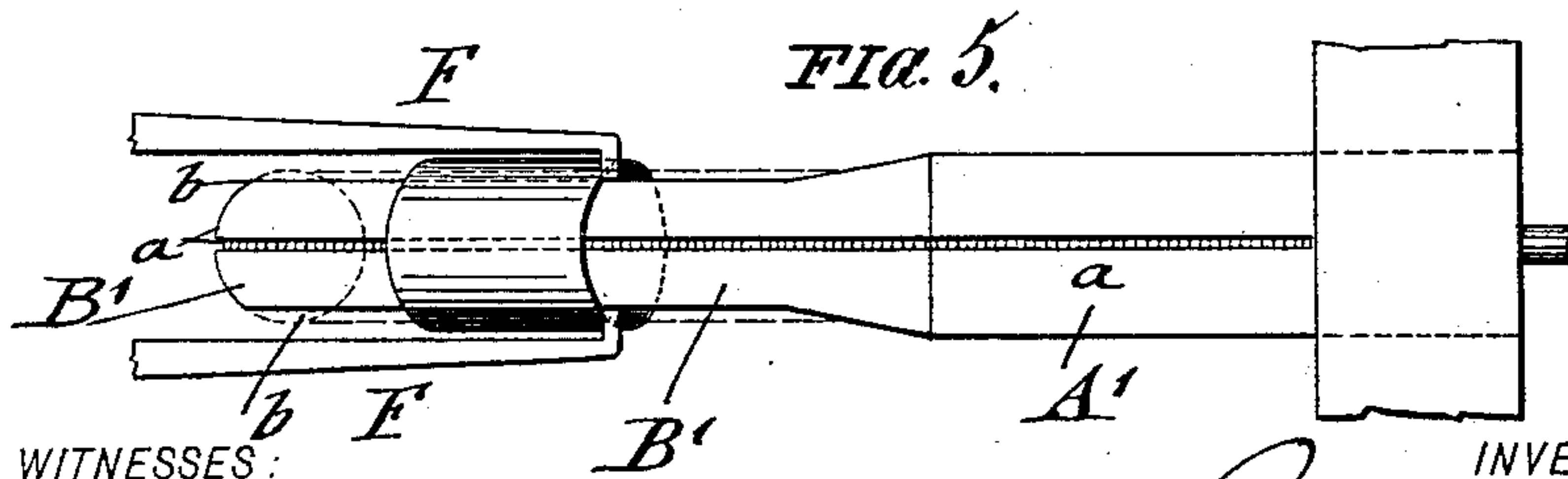
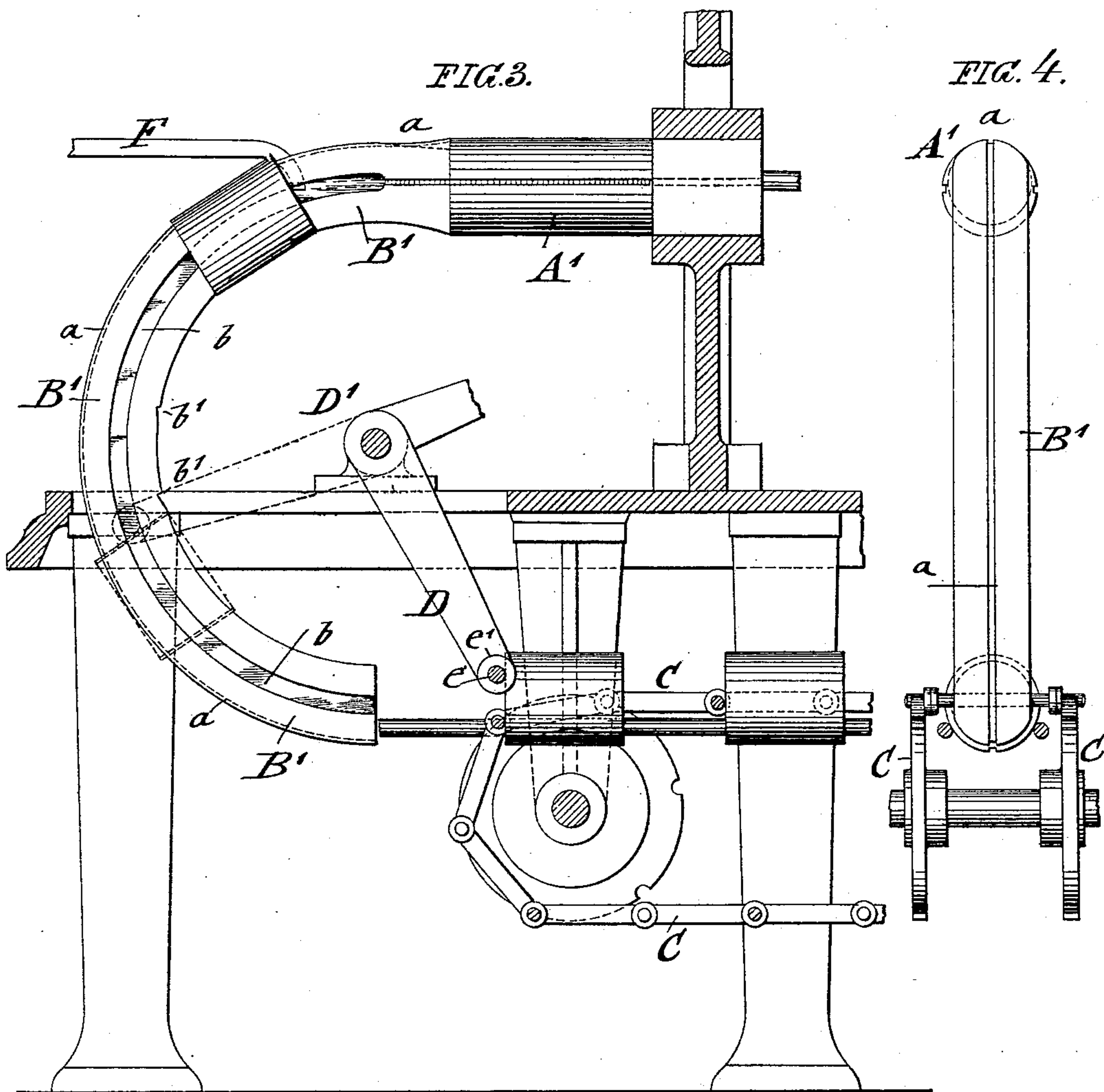
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R. STEEGMÜLLER.

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UNITED STATES PATENT OFFICE.

RICHARD STEEGMÜLLER, OF NEW YORK, N. Y.

HORN EXTENSION FOR CAN-BODY-FORMING MACHINES.

SPECIFICATION forming part of Letters Patent No. 602,647, dated April 19, 1898.

Application filed March 31, 1897. Serial No. 630,110. (No model.)

To all whom it may concern:

Be it known that I, RICHARD STEEGMÜLLER, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Horn Extensions for Can-Body-Forming Machines, of which the following is a specification.

In the manufacture of sheet-metal cans or boxes of any shape the bodies of the cans or boxes after they are formed on the former-horn are either moved clear of the former-horn and then transported by hand to a suitable carrier mechanism which conveys them to the side-seam-soldering machine or the can or box bodies are transported directly from the former-horn by a suitable transporting mechanism to a suitable carrier mechanism. As the seam of the can or box bodies is usually formed at the upper or side part of the former-horn, according as the same is located in horizontal or vertical position, it was necessary to impart to the can or box bodies a partial rotation on their axes, so as to bring the seams to the under side of said body before it is taken up by the carrier mechanism of the side-seam-soldering machine. A type of a machine of this class is that shown and described in Letters Patent No. 444,000, granted to F. M. Leavitt, for a can-body-forming and side-seam-soldering machine, dated January 6, 1891. In this machine the can-bodies are pushed forward over the former-horn by suitable transporting devices, turned on their axes, and then conveyed by a carrier mechanism to the side-seam-soldering machine. The side seam of the can-body, being then located by the partial rotation of the can-body at the lower part of a horn extension arranged in line with the former-horn, is in proper position for being conducted to and through the soldering-tank of the side-seam-soldering machine.

The object of my invention is to arrange between the former-horn of a can-body-forming machine and the carrier mechanism by which the can-body is conveyed to the side-seam-soldering machine a curved horn extension, to which the body is conveyed by gravity, then taken up by a suitable transporting mechanism, by which the can-body is conducted from the lower part of the former-horn

extension to a carrier mechanism, by which it is conveyed through the side-seam-soldering machine.

For carrying out this operation of transmitting the can-body from the former-horn to a carrier mechanism, elevator, or runway it is necessary to use in place of a straight horn extension a curved horn extension either of quadrantal or semicircular shape, according as the can-body has to be transported from a vertical or a horizontal can-body former-horn to the carrier mechanism; and therefore my invention consists, more specifically, of the combination, with a can-body former-horn, of a curved horn extension, mechanism for transporting the can-body over the lower portion of said curved horn extension, and a carrier mechanism for conveying the cans from said horn extension to and through a side-seam-soldering machine, the can-body being conveyed with its side seam at its underside without requiring the partial rotation which was heretofore necessary for this purpose.

The invention consists, further, of a curved horn extension, which is made of a somewhat smaller size than the can-body former-horn, so that the can-bodies transferred to the same are permitted to pass readily over the curvature of the horn extension without sticking thereto.

The invention consists, lastly, of certain details of construction, which will be fully described hereinafter and finally pointed out in the claims.

In the accompanying drawings, Figures 1 and 3 represent side elevations of the former-horn and horn extension of a can-body-forming machine, said horn extension being shown in Fig. 1 as of quadrantal shape and in Fig. 2 as of semicircular shape, according as the can-body former-horn is arranged in vertical or horizontal position. Fig. 1^a is a detail section of the transporting-arm with its push-pin. Fig. 2 is a bottom view of the curved horn extension shown in Fig. 1, and Figs. 4 and 5 are respectively an end view and a top view of the former-horn and curved horn extension shown in Fig. 3.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents the former-horn of a can-body-forming machine

of any approved construction, B a curved horn extension for the same, and C a carrier-mechanism conveyer or runway by which the can-body is conducted from the horn extension B to the place where it is delivered to a suitable side-seam-soldering machine.

D is a transporting mechanism which takes up the can-body after it has been dropped by gravity from the former-horn A over the upper part of the horn extension onto the lower part of the same and which conveys the can-body over the lower portion of the horn extension for delivering it to the carrying mechanism C.

The can-body former-horn A is made in any approved construction and provided at that side where the overlapping edges of the can-body are closed with a groove *a* for the side seam of the can-body, which groove is extended along the edge of the curved horn extension B, so that the side seam of the can-body can readily pass along this guide-groove until the can-body is transferred to the carrier mechanism C. The curved horn extension B is provided along its sides with flattened-off portions *b*, along which the projecting push-pins *e* of the transporting mechanism D pass, so as to take the can-body along. The horn extension D is reduced somewhat in size as compared to the can-body former-horn, so as to permit the can-bodies to pass freely over the curvature of the horn extension. This diminishing in size is clearly shown in Figs. 1, 3, and 5 and forms an important feature, as otherwise the can-bodies could not be moved by gravity along the upper part of the curved horn extension, but would be liable to stick to the same and prevent the regular automatic transfer of the can-bodies from the former-horn to the carrier mechanism and to the side-seam-soldering machine.

The transporting mechanism D consists of two parallel arms, that are applied to a rock-shaft D', which is operated by any suitable power-transmitting mechanism from the driving-shaft of the carrier mechanism C, said arms being provided at their outer ends with sockets *e'*, containing the push-pins *e*, which project at right angles to the arms and are acted upon by helical springs *e*², that are interposed between the heads of the push-pins and the sockets, as shown in detail in Fig. 1^a. The push-pins of the transporting-arms D pass readily during the return motion of the arms over the can-body, being pushed into the sockets against the springs, the pins being slightly beveled at their outer ends, so that they pass freely over the can-body and into position above the same, as shown in dotted lines in Figs. 1 and 3. The inner edge of the middle portion of the curved extension B is preferably provided with one or more nicks *b'*, against which the edge of the can-body abuts, while push-pins of the arms pass over the same, so as to be prevented from being carried up by the arms over the horn extension D. During the downward motion of the

arms D the can-body is moved along the lower part of the horn extension into the path of the carrier mechanism C and delivered by the latter to the side-seam-soldering machine. When the can-body former-horn A is arranged in vertical position, the can-body is dropped from the horn directly by gravity over the upper part of the curved horn extension B to the lower part of the same, as shown in dotted lines in Fig. 1, there being no forwarding mechanism required for this purpose. This is an important point in my improved machine, as by this means the can-body is quickly transmitted from the former-horn directly after it is formed over the upper to the lower part of the horn extension and placed thereby in position for being taken up by the transporting mechanism D and conducted over the lower portion of the horn extension to the carrier mechanism, by which it is conveyed to the side-seam-soldering machine.

When the can-body is formed on a horizontal former-horn A', the horn extension B' is made semicircular instead of quadrantal in shape, as shown in Fig. 3. In this case the can-body is drawn over the former-horn A' by the usual clearing-fingers F, which impart a sufficient impetus to the can-body so that it is moved over the upper portion of the curved horn extension and then caused to slide by gravity over the middle portion onto the lower portion of the same, over which latter it is moved by a transporting mechanism D of the same construction as that shown in Fig. 1, said mechanism being operated from the driving-shaft of the carrier mechanism C. The can-body is thereby moved over the lower portion of the horn extension B' into the path of the carrier mechanism and then conducted to the side-seam-soldering machine, which may be located in any suitable relative position to the body-forming machine. In both forms of curved horn extensions, whether they are of quadrantal or semicircular shape, the groove for the side seam of the can-body extends along the outer edge of the horn extension, and it is therefore obvious that as the can-body is transported from the former-horn over the horn extension to the carrier mechanism it requires no partial rotation on its axis, as the side seam of the can-body assumes by its passage over the curved horn extension directly the required position at the lower part of the can-body. In other words, the side seam is brought from a position at the side or upper part of the can-body into position at the lower part of the same ready to be taken up by a carrier, elevator, runway, or other conveying mechanism for transference to the side-seam-soldering machine. My improved curved horn extension dispenses, therefore, with two objectionable features of the can-body-forming machines heretofore proposed—namely, with a transporting mechanism between the former-horn and the upper part of the horn extension and, secondly, with the necessity for a par-

tial rotation of the can-body, so as to bring its side seam into position at the lower part of the can-body for the soldering action.

Having thus described my invention, what I claim is—

1. A can-body former-horn, provided with a curved horn extension of smaller size than the former-horn, so as to permit the dropping of the can-body by gravity from the former-horn to the horn extension, substantially as set forth.

2. A can-body former-horn provided with a curved horn extension of somewhat smaller size than the former-horn and provided with flattened sides, substantially as set forth.

3. A can-body former-horn, provided with a curved horn extension of smaller size than the former-horn so as to permit the dropping of the can-body by gravity from the former-horn to the horn extension, the latter having a groove extending in line with the groove of the former-horn, along the outside edge of said horn extension, substantially as set forth.

4. The combination with a can-body former-horn, of a curved horn extension made of smaller size than the former-horn so as to permit the dropping of the can-body by gravity from the former-horn to the horn extension, and a carrier mechanism for taking up the can-body from the lower end of the horn extension, substantially as set forth.

5. The combination, with a can-body former-horn, of a curved horn extension made of

smaller size than the former-horn, and a transporting mechanism by which the can-body is moved over the lower part of said horn extension after it has moved over the upper part by gravity, substantially as set forth.

6. The combination, with a can-body former-horn, of a curved horn extension made of somewhat smaller size than the former-horn, a transmitting mechanism by which the can-body is moved over the lower portion of the curved extension after it has passed by gravity over the upper portion of the same, and a carrier mechanism by which the can-body is conveyed forward after being delivered by the transporting mechanism, substantially as set forth.

7. The combination, with a horizontal can-body former-horn, of clearing-fingers for moving the can-body over said horn, a curved horn extension extending from said former-horn, an oscillating transmitting mechanism for conducting the can-body over the lower portion of the horn extension, and a carrier mechanism for conveying the can-body from the lower end of the horn extension to the side-seam-soldering machine, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

RICHARD STEEGMÜLLER.

Witnesses:

PAUL GOEPEL,
GEO. W. JAEKEL.