

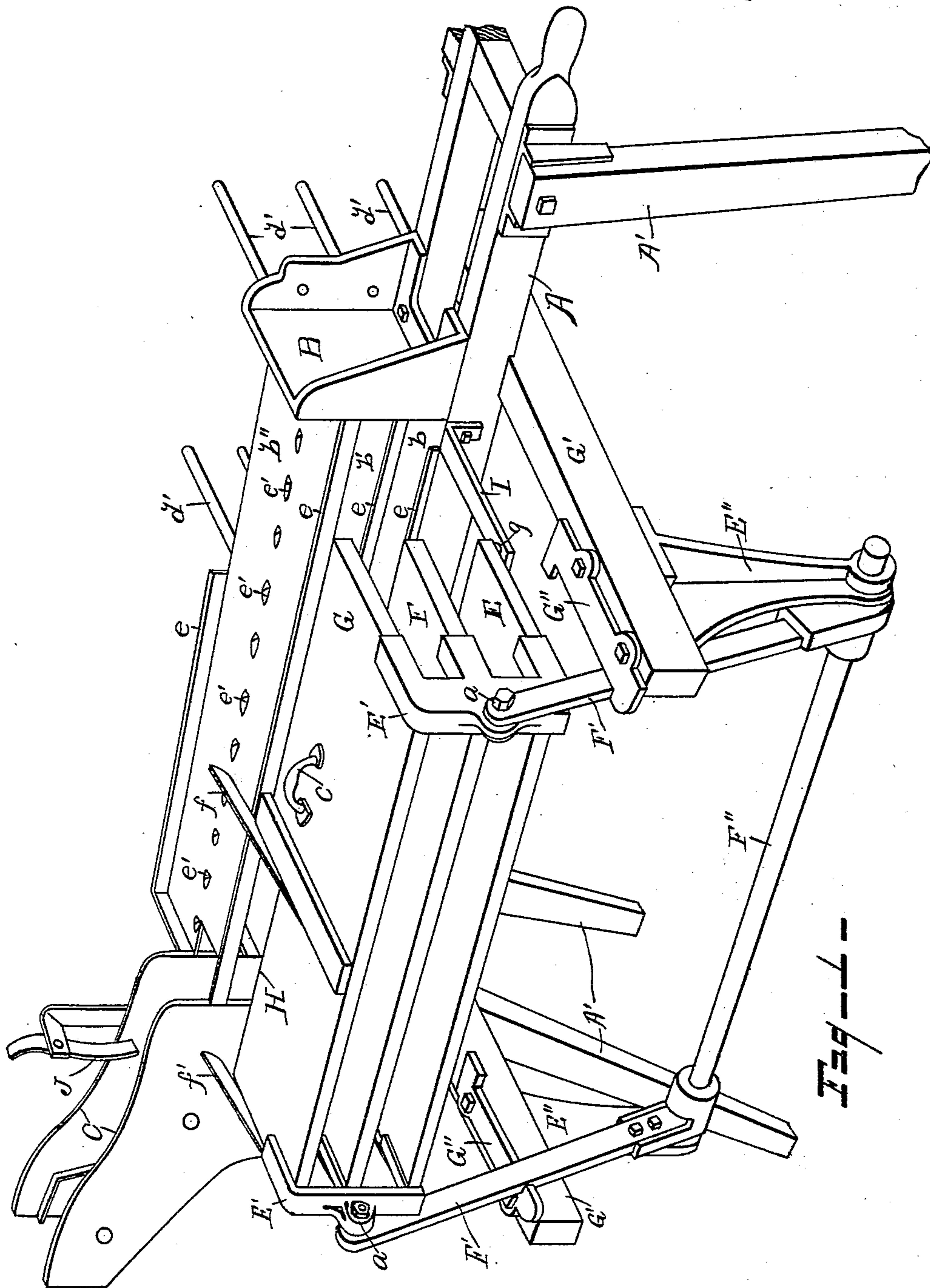
(No Model.)

3 Sheets—Sheet 1.

E. W. CORNELL.
CAN CASE FILLING MACHINE.

No. 560,058.

Patented May 12, 1896.



WITNESSES

Horace Q. Wheeler,
Cassius Hollenbrook.

INVENTOR

Evan W. Cornell,

By R. B. Wheeler & Co.

Attorneys.

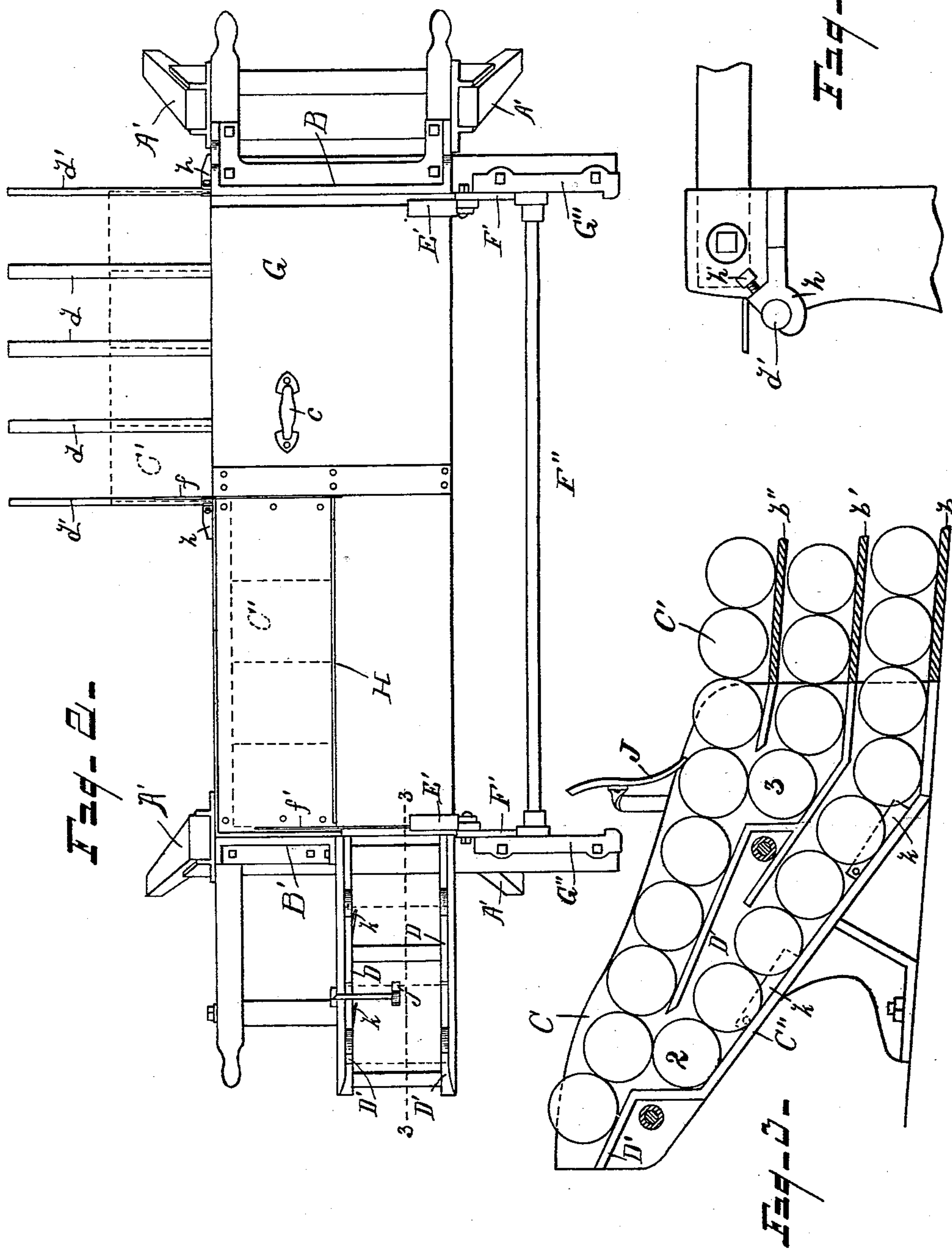
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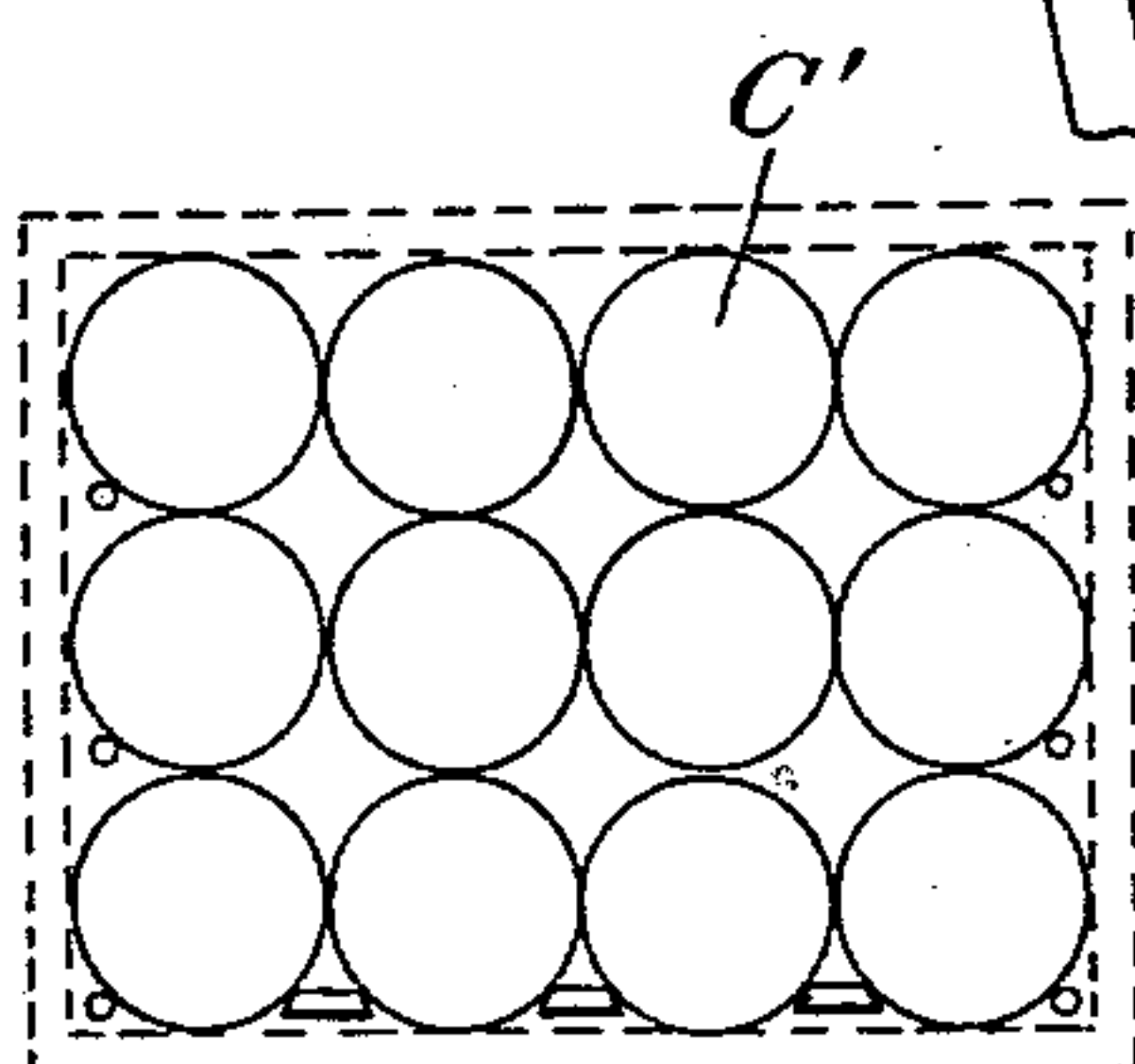
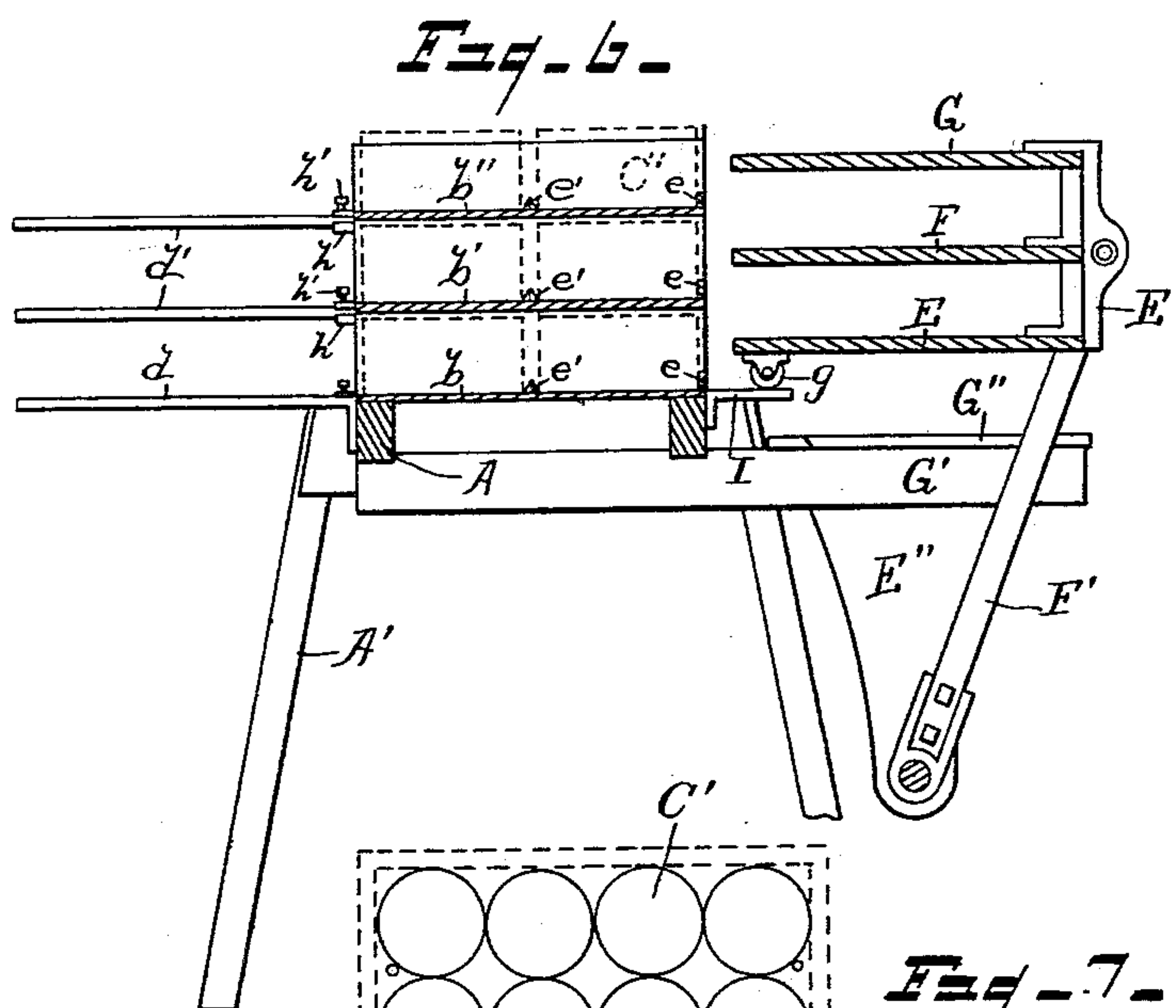
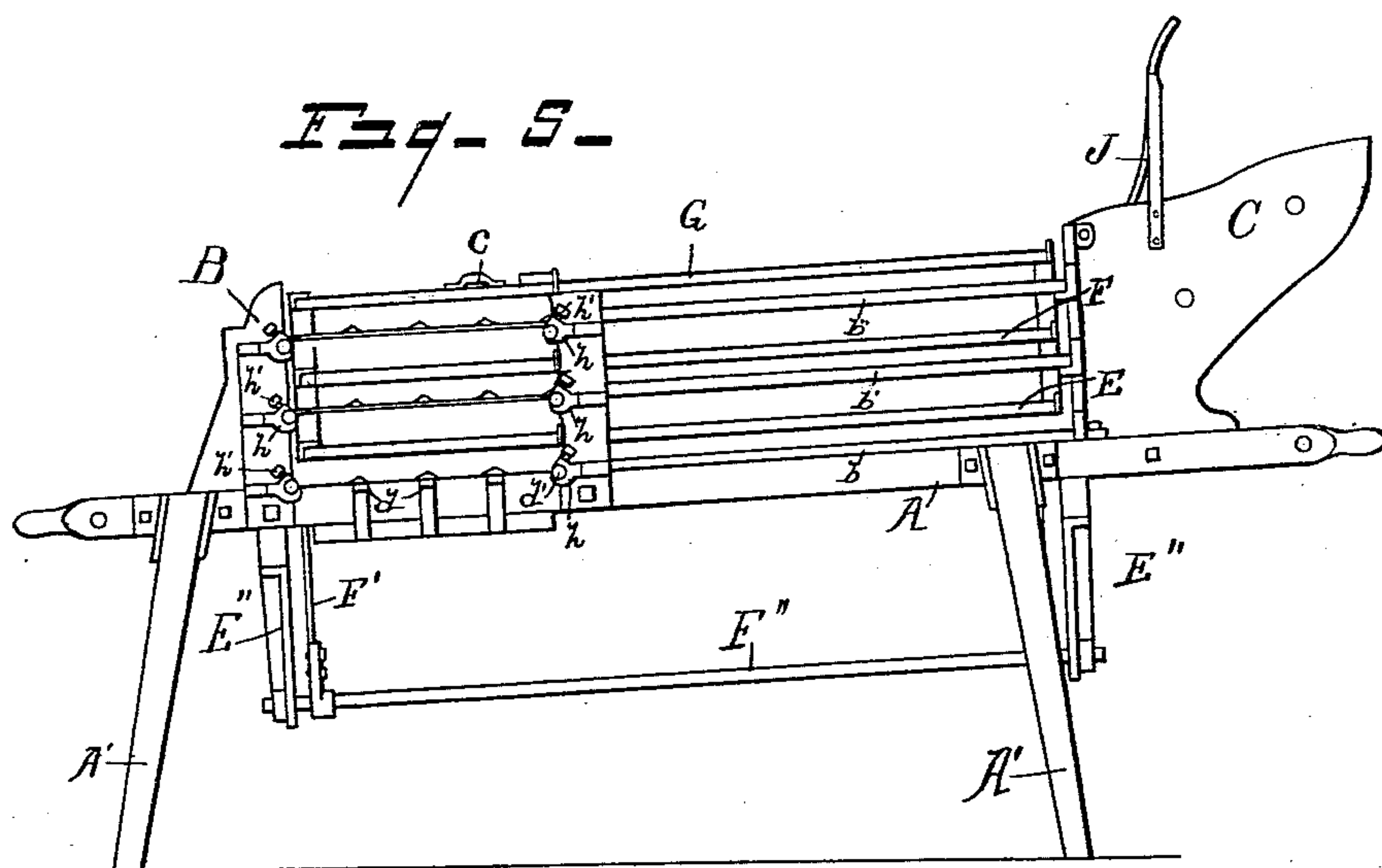
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UNITED STATES PATENT OFFICE.

EVAN W. CORNELL, OF ADRIAN, MICHIGAN, ASSIGNOR OF ONE-HALF TO
CORNELL & KNAPP CO., OF SAME PLACE.

CAN-CASE-FILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 560,058, dated May 12, 1896.

Application filed September 16, 1895. Serial No. 562,657. (No model.)

To all whom it may concern:

Be it known that I, EVAN W. CORNELL, a citizen of the United States, residing at Adrian, in the county of Lenawee, State of Michigan, have invented certain new and useful Improvements in Can-Case-Filling Machines; and I do 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 the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to a device for placing cans within the cases in which they are shipped after the labels have been applied thereto, and is designed to be used at the tail of a can-labeling machine.

The invention consists of the construction and operation of parts for accomplishing this purpose, as hereinafter more fully set forth, and pointed out particularly in the claims.

The object of the invention is to provide means whereby the labeled cans are arranged and contained in a suitable frame or rack in such position that by a single operation a sufficient number may be discharged therefrom into the box or case to completely fill said case, and a further arrangement whereby the remaining cans in the rack automatically take the place of the discharged cans, in position themselves to be discharged into a case by the succeeding operation, which object is attained by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a general view in perspective of my device. Fig. 2 is a plan view of same on a somewhat smaller scale. Fig. 3 is an enlarged sectional view as taken on dotted line 3 3 of Fig. 2. Fig. 4 is an enlarged detail hereinafter explained. Fig. 5 is a front elevation of the device. Fig. 6 is a central transverse section therethrough; and Fig. 7 is an end elevation of the projecting rods which support the cans and over which the case is placed to receive the cans therein, the dotted lines showing the position of the case.

Referring to the letters and figures of reference, A designates the frame of the device or machine, which is suitably supported upon

legs A' and is made portable to allow it to be moved from place to place.

The bed of the machine is made to decline toward the rear end, and mounted upon said bed is a suitable plate or flooring *b*. Located above the flooring of the bed, one above the other and equal distance apart, are two dividing-floors *b' b''*, respectively, the ends of which are supported by the uprights B B', mounted on the ends of the frame, forming a tier of inclined ways down which the cans may roll. Located at the upper end of the machine is a chute C, composed of opposed parallel sides of such distance apart as to receive the length of the cans C' between their adjacent faces. Located upon the sides of said chute are lateral dividing-tracks forming separate ways which communicate with the can-runways formed by the dividing-floors in the rack.

The cans discharged from the labeling-machine enter the mouth of the chute C and, dropping down upon the inclined bottom C' thereof, roll downward along the bottom floor *b* and fill the lower runway of the rack. When said way shall have become filled, the cans will extend up the incline C' of the chute, and the last can dropping thereon, as at 2 in Fig. 3, will fill the opening leading into the runway, so that the succeeding can will roll over said opening and onto the inclined track D of the chute, thence downward along the second floor *b'* of the rack until the runway therein above said floor shall have been filled, when the last can, as at 3, will fill the opening leading thereto, causing the succeeding can to roll over onto the upper floor *b''*, forming a row of cans thereon, which extend along the inclined track D' to the upper end of the chute, in which position of parts there is a single row of cans extending along each of the runways of the rack and filling the inclines of the chute.

To provide for allowing additional cans to roll downward into the rack and for placing the cans therein in such position as to enable them to be discharged into the cases, there is employed a swinging or reciprocal table composed of three leaves E F G, which are arranged one above the other equal distances apart and register with the runways of the rack occupied by the series of cans. The

leaves of said table are supported at each end in suitable fittings E' , which are pivoted at a to the upper ends of the swinging arms F' , the lower ends of said arms being mounted
 5 on a rock-shaft F'' , suitably supported from hangers E'' , depending from the cross-pieces G' of the frame, upon which are mounted stop-plates G'' , having shoulders thereon
 10 which project into the path of said arms and arrest them at each extremity of their movement. Upon the upper leaf of said table is a handle c , by means of which it may be operated to project the leaves thereof into the
 15 runways of the rack and to withdraw them therefrom.

It will be seen on referring to Figs. 2 and 6 that the full width of the rack is equal to the length of two cans placed end to end, enabling said rack to contain a double row of
 20 cans in each of the runways therein. It will also be seen, on referring to Fig. 2, that the chute is of sufficient width only to receive one row of cans, which causes the cans to form in a single row in each tier of the runways on
 25 one side of the rack as they roll into the rack from the chute, the length of each tier in the rack being sufficient to contain eight contiguous cans or more. It will also be seen that the leaves of the reciprocal table are wider at
 30 their lower ends, where their width is equal to twice the width of the remaining portion of the leaves, which extend toward the upper end of the table, as clearly shown at II in Figs. 1 and 2.

Extending from the side of the rack opposite to that on which the reciprocal table is mounted is a series of bars arranged to describe a rectangular frame, the bottom bars of which being flat and of such distance apart
 40 as to support a can between them and prevent it from passing through, the side bars d' of said rectangular frame being placed in such position as to prevent the cans from rolling out at the ends when placed within
 45 said frame, the length of the bars being sufficient to support two rows of cans thereon lying end to end of four cans to each row, and the height of said frame, formed by said bars, is sufficient to accommodate three tiers of
 50 cans, each tier registering with a corresponding tier or can-runway in the rack. This frame, formed by the projecting bars $d d'$, has a capacity of two dozen cans, which is the regulation number placed in the case for shipment, the size of this frame being such as to
 55 enable a case to be slipped over the bars of which the frame is formed after the cans have been moved onto said bars, so that the case may be withdrawn with the full number
 60 of cans therein.

In the operation of the machine the labeled cans entering the chute pass down and fill all of the runways of the rack, as above described, making three continuous rows of
 65 cans lengthwise of the rack lying upon the floors $b b' b''$. When all of the runways shall have been filled, as shown in Fig. 3, the re-

ciprocal table, which normally stands in the withdrawn position shown in Fig. 1, is moved forward, causing the leaves thereof to project
 70 into the runways and slide the cans therein longitudinally across the rack, the wide end of the leaves carrying the lower series of four cans outward onto the bars $d d'$, as shown
 75 by dotted lines in Fig. 2, the narrow portion of said leaves moving the cans across the rack, so as to occupy the space on the opposite side thereof, as also shown by dotted lines in said last-mentioned figure. The table is then swung backward or outward, with-
 80 drawing the leaves thereof from between the runways of the rack, when the cans which have been moved across the rack by the narrow end of the leaves will roll down and occupy the lower end of the runways of the rack
 85 opposite the cans which are resting upon the bars $d d'$, and the cans which remained in the chute being released will roll downward and assist to fill the series of runways of the rack in line with said chute. The succeeding cans,
 90 as they are discharged from the labeling-machine, pass down said chute and into the runway, filling them completely, as before described. By another operation of said table the leaves thereof are again caused to engage
 95 and carry the cans across the rack, those actuated by the wide end of the leaves being forced outward onto the bars $d d'$ and carrying the cans already placed upon said bars by a previous operation into the case, which may
 100 be placed over said bars to receive said cans. At the same time the narrow end of said leaves engage and move across the upper end of the rack a sufficient number of cans to again fill
 105 the three divisions at the lower end of the rack, when the leaves of the table shall have been again withdrawn or moved outward, and so the operation continues, the arrangement being such that by each operation of the table a sufficient number of cans are forced out-
 110 ward onto the supporting-bars $d d'$ to fill the case, which is slipped over said bars to receive the cans, the number of cans required to fill an ordinary case being twenty-four.

The cans are held in place on the runways
 115 of the rack by means of a raised rail e , extending along the edges of said runways, except at the discharge-opening at the point where the cans are moved outward onto the supporting-bars $d d'$, and the double rows of
 120 cans are held in perfect alinement on each side of the runways of the rack by means of a central row of beveled lugs e' , extending longitudinally of the floor of each runway, which cause the cans to keep a straight line down
 125 the runway and permit of said cans being moved laterally across the rack by being so placed that the cans may be passed between them, these lugs being clearly shown on the table of the upper runway in Fig. 1.

To provide for separating the cans in the rack so that the requisite number of cans therein shall be engaged by the proper portion of the leaves of the movable table and
 130

for separating the cans in the chute from those in the rack, there is employed a series of inclined knives *ff'*, which are mounted upon each of said leaves adjacent to the chute respectively which are so placed as to strike between the cans as the leaves of the table move inward and properly divide the cans, so as to be moved across the rack by the respective portion of the leaves of the table, as required, obviating the catching of the leaves upon the cans remaining in the chute and blocking the movement of the table, which would result should the cans therein project into the path of said leaves. These knives not only divide the cans but hold them in their respective places until after the withdrawal of the leaves of the table.

The projecting leaves of the table are supported against swinging downward by means of a roller *g*, mounted upon the under face of the lower leaf *E*, which is adapted to roll upon the face of the arm *I*, extending laterally from the frame, as clearly shown in Figs. 1 and 6.

The side bars *d'* of the projecting frame of bars onto which the cans are forced by the movable table are round, and are secured at their inner ends in suitable fittings *h*, which are suitably mounted on the frame and which embrace but a portion of the arc of said bars, thereby leaving the inner portion of the bars free from obstruction, so as to permit the cans to slide freely outward thereon, said bars or rods being secured in said fittings by means of set-screws *h'*, as clearly shown in Fig. 4.

Located over the chute is a depending spring-leaf *J*, which serves to deflect the cans into the second runway of the rack and to retard the motion of the cans to prevent them from rolling onto the upper runway with too much force.

Extending from the side of the lower incline *C''* of the chute are two springs *k*, one end of which is free and stands inward, as shown more clearly in Fig. 2, which engage the ends of the cans and press them against the side of the chute, so as to retard the motion of the cans down said incline and prevent them from being jammed from rolling with too much force onto the lower runway *b*.

It will now be understood with this improved device at the tail of a can-labeling machine that when the runways of the rack shall have been properly filled by one movement of the oscillative table a sufficient number of cans may be discharged from the rack to fill one case, which is placed over the frame of bars *d d'*, onto which the cans are forced to receive them, thereby effecting the complete filling of the case by a single operation and greatly facilitating the handling of the cans after being labeled, as such work heretofore has been done by hand, requiring a dozen or more movements to fill the case, which, with this improved machine, is accomplished with one.

Having thus fully set forth my invention,

what I claim as new, and desire to secure by Letters Patent, is—

1. In a device for the purpose set forth, the combination with the rack having a series of ways to receive the cans in vertical series, the movable agent having a series of leaves or members which engage the cans between said ways in the rack to discharge them therefrom into an adjacent case.

2. In a device for the purpose set forth, the combination of the rack having a series of runways therein, one above the other for containing a number of rows of cans, the movable table having leaves arranged in vertical series adapted to enter said ways and slide the cans transversely in the rack, said leaves being of greater width at one end than at the other whereby a portion of the cans within the rack are moved a greater distance by the movement of said table than the remaining portion.

3. In a device for the purpose set forth, the combination of the rack having can-runways therein, said ways being of such width as to permit of the lateral movement of the cans, and means for moving a portion of the cans laterally in the rack a greater distance than the remaining portion.

4. In a device for the purpose set forth, the combination of the rack having a series of inclined can-runways therein, the chute for discharging the cans into said ways respectively, the movable device having divided members which engage the cans in said ways and move them laterally, said members being of greater width at their lower than at their upper ends whereby the cans in the lower portion of the rack are moved lengthwise the distance of two can-lengths, while those in the upper end of the rack are moved the distance of one can-length by a single operation.

5. In a device for the purpose set forth, the combination of the inclined rack having a series of canways therein of sufficient width to contain two cans lying end to end, the chute for discharging the cans into said ways respectively so as to form a continuous row along one edge of each way, the reciprocal table having divided leaves or members which engage the cans in said ways and move them laterally, the width of the lower end of said leaves or members being twice that of their upper ends, the receiving-bars projecting from the rack opposite the wide ends of the leaves of said table, whereby, by an inward movement of the table the cans in the lower end of the rack are moved outward onto said bars while those in the upper end of the rack are moved across to the opposite side thereof, substantially as set forth.

6. In a device for the purpose set forth, the combination of the rack having inclined ways therein arranged in vertical order the chute attached to the upper end of said rack having independent divisions for directing the cans into said ways respectively and the movable device for discharging a group of

said cans laterally from the lower end of said rack.

7. The combination of the rack having a series of can-runways therein arranged in vertical order, the movable table having a series of approximate leaves arranged parallel and in vertical order, said table being movable horizontally so as to project said leaves into the ways of the rack, the outer edge of said table being pivoted to the upper end of the downwardly-extending arms whose lower ends are attached to a rock-shaft journaled in the frame, and means for limiting the movement of said table.

8. The combination of the rack having a series of runways therein which receive the cans in vertical rows, the movable table having leaves adapted to be projected into said ways and the flexible knives or dividing-plates mounted on said leaves for dividing the cans in said ways as the table is actuated.

9. The combination of the rack having a series of can-runways therein, said ways being of sufficient width to accommodate two cans lying end for end, each of said ways being provided with a series of beveled lugs arranged some distance apart and extending through the longitudinal center thereof and a series of receiving-bars projecting from the rack in the plane of said ways.

10. The combination of the rack having the can-runways therein the receiving-bars projecting from said rack adapted to contain a number of cans, and means for sliding the cans from the rack onto said bars.

In testimony whereof I affix my signature in presence of two witnesses.

EVAN W. CORNELL.

Witnesses:

D. B. MORGAN,
C. E. WEAVER.