J. W. DAWSON.

RUNWAY.

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1,191,407. Patented July 18, 1916.

Fig. I.

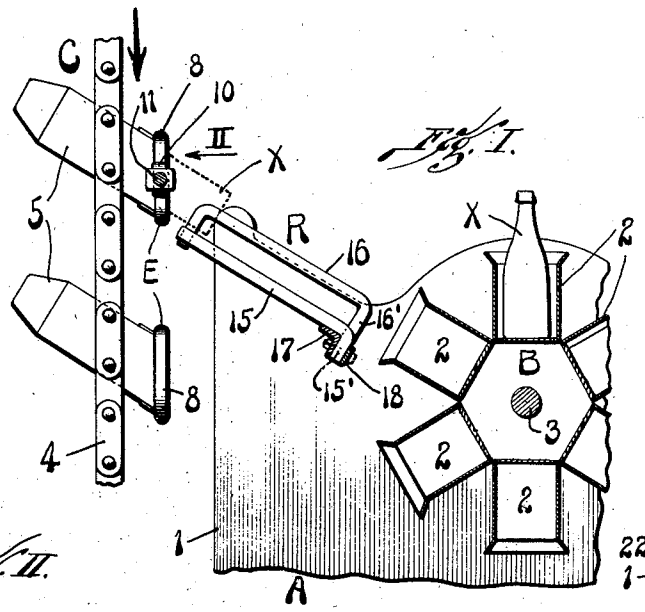


Fig. II.

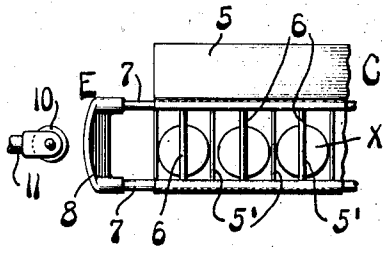


Fig. III.

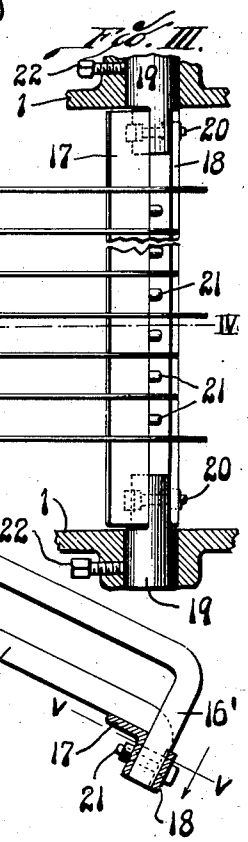


Fig. IV.

Fig. V.

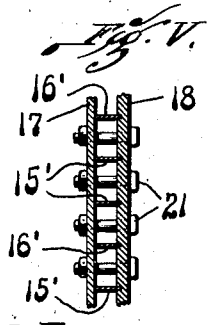
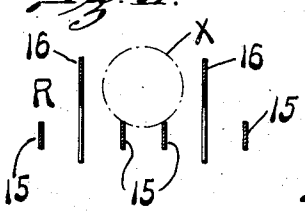


Fig. VI.



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RUNWAY.

1,191,407. Specification of Letters Patent. Patented July 18, 1916.

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To all whom it may concern:

Be it known that I, JOSEPH W. DAWSON, a citizen of the United States of America, a resident of the city of St. Louis, State of Missouri, have invented certain new and useful Improvements in Runways, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to a runway particularly adapted to be used in connection with a carrier from which bottles or other articles are discharged onto the runway.

Prior to this invention, mechanically driven bottle carriers have been moved step by step to carry bottles to a runway, and the devices have been so constructed that the bottles drop by gravity from the bottle carrier to the runway. The discharge end of the bottle carrier lies close to the runway while the bottles are passing from the carrier to the runway. If, instead of passing entirely from a bottle carrier, a bottle is accidentally stopped with one of its ends in the bottle carrier and its opposite end over the runway, a continued movement of the carrier will force the bottle onto the runway with the result of breaking the bottle, or breaking or bending some part of the machine. The bottles usually pass entirely from the bottle carrier before it moves away from the runway, so the accidental breakage does not occur frequently. However, the carrier moves automatically without the attention of an operator, and the bottles drop by gravity, the movement of the bottles being more or less uncertain, and I have found in practice that bottles as well as parts of the machine are sometimes accidentally broken on account of the failure of the bottles to pass entirely from the bottle carrier before the latter moves away from the runway.

The object of my invention is to produce a runway adapted to yield so as to prevent breakage when a bottle or other article is forced into engagement therewith.

My improved runway is adapted to receive bottles as they pass from a bottle carrier, and if a bottle is only partially discharged from the carrier, the runway will yield to permit the bottle to travel with the carrier without injury to the bottle or any part of the machine.

Figure I is a vertical section showing my runway associated with two bottle carriers. Fig. II is a fragmentary view of one of the bottle carriers, looking in the direction indicated by the arrow II, Fig. I. Fig. III is an enlarged top or plan view, partly broken away, the runway support being shown in section. Fig. IV is a transverse section taken on the line IV—IV, Fig. III. Fig. V is a fragmentary section taken on the line V—V, Fig. IV. Fig. VI is a fragmentary section taken on the line VI—VI, Fig. IV.

A designates a main support having side walls 1, and B designates a bottle carrier rotatably fitted to said main support. The bottle carrier B comprises a series of radial pockets 2 secured to a rotatable shaft 3. A bottle carrier C comprises a sprocket chain 4, and bottle holders 5 secured to said sprocket chain. Each bottle holder 5 is provided with partition members 5′ (Fig. II) which divide it into a series of bottle receiving pockets. Each bottle holder 5 is also provided with a gate E having transverse retaining rods 6 adapted to retain the bottles in the bottle pockets, rods 7 to which the retaining rods 6 are secured, and a head 8 connecting the rods 7. When the gate E occupies the position shown in Fig. II, the retaining rods 6, forming part of said gate, are positioned to retain the bottles in the bottle pocket. The long rods 7 are slidably fitted to the bottle holder 5, so that the gate may be shifted to locate the retaining rods 6 at a point opposite the partition members 5′, thereby permitting the bottles to drop from the bottle holder. The means for opening the gates E to permit the bottles to escape from the bottle holders, comprises a roller 10 secured to a rod 11.

This gate opening device does not travel with the bottle carrier C. It lies adjacent to the upper end of a runway R, and when a bottle pocket 5 reaches the runway the gate opening device 10—11 is moved horizontally to open the gate E, thus permitting the bottles to drop onto the runway R. The bottles slide along the runway R and pass into the bottle carrier B.

I do not deem it necessary to show or describe all of the elements of the bottle carriers B and C, for these bottle carriers are shown merely for the purpose of illustrating certain advantages of the runway R, and it is to be understood that the invention is not restricted to the bottle carriers.

The bottles X drop by gravity from the bottle carrier C, and it sometimes happens that a bottle, instead of passing entirely from the carrier C, will project from the carrier as shown by dotted lines in Fig. I. In this event the projecting portion of the bottle will lie directly above a portion of the runway R, and when the bottle carrier C continues to move downwardly the runway will yield to permit the bottle to travel with the carrier, without injury to the bottle or any part of the machine.

The yieldable runway preferably comprises a series of flexible track bars 15 adapted to support the bottles, and a series of flexible guide bars 16 associated with said track bars. The track bars 15 are preferably arranged in pairs, each pair constituting a bottle track, and the guide bars 16 are preferably associated with the track bars to prevent the bottles from accidentally rolling from one track to another.

The means for supporting the bars 15 and 16 preferably comprises an angle bar 17 and a bar 18 located at the discharge end of the runway. The lower ends of the bars 15 and 16 are preferably turned downwardly and arranged between the bars 17 and 18, the bar 18 being notched to receive the downturned portions 15′ and 16′, as shown in Fig. V. 19 designates pivot members (Fig. III) fitted to the side walls 1 and rigidly secured to the bars 17 and 18 by means of bolts 20. The bars 17 and 18 are also connected to each other by bolts 21 which lie between the downturned portions of the bars 15 and 16. It will be noted that all of the bars 15 and 16 are firmly secured at the discharge end of the runway, and that the entire runway may be turned about the axis of the pivot members 19 to locate the intake end of the runway in the desired position with respect to the bottle carrier C. After the runway has been adjusted to the desired position the pivot members 19 are firmly secured to the side walls 1 by means of set screws 22, Fig. III. The upper ends of the guide bars 16 are preferably turned downwardly as shown in Figs. I and IV.

The runway I have shown is a comb shaped structure, the bars 15 and 16 corresponding to the teeth of a comb, and it will be noted that the free ends of the flexible track bars 15 may be readily bent laterally in response to the downward pressure of the bottle, so as to permit the bottle to pass through the runway. When a bottle X accidentally stops in the position shown by dotted lines in Fig. I, it lies immediately above the free ends of a pair of track bars 15, Fig. VI, and as the bottle carrier descends the bottle forces these free ends away from each other and passes between them, without injuring the runway. The flexible or elastic track bars return to their normal position immediately after being spread apart by a bottle.

I claim:—

1. The combination of a bottle carrier, and a bottle runway adapted to receive the bottles which pass from said carrier, said bottle runway comprising a series of flexible tracks adapted to support bottles, a support to which said flexible tracks are secured, the upper ends of said flexible tracks being free to spread apart in response to the pressure of a bottle at the intake end of the runway, so as to permit a projecting bottle to travel with said carrier.

2. The combination of a bottle carrier, and a yieldable bottle runway associated with said bottle carrier, said yieldable bottle runway having flexible track members provided with free ends which lie adjacent to said bottle carrier, and said free ends being adapted to bend laterally to permit a projecting bottle to pass between them in response to the movement of said bottle carrier.

3. The combination of a bottle carrier, and a yieldable bottle runway associated with said bottle carrier, said yieldable bottle runway comprising a series of flexible tracks arranged in pairs and having free ends which lie adjacent to said bottle carrier, the free ends of each pair of tracks being adapted to spread apart in response to the pressure of a bottle projecting from said bottle carrier, thereby allowing the projecting portion of a bottle to pass between said free ends in response to the movement of said bottle carrier.

4. A bottle runway comprising a series of flexible track members adapted to support bottles, and a rigid support for said yieldable track members, said yieldable track members being secured, at the discharge end of the runway, to said rigid support, and the said yieldable track members being free

to spread apart at the intake end of the runway so as to permit a bottle to be forced between them.

5. The combination of a runway comprising a support, a series of flexible track members secured to said support, said flexible track members being free to bend independently of each other at the intake end of the runway, and a bottle carrier adapted to discharge bottles onto the free portions of said track members, said bottle carrier being located adjacent to the free portions of said track members for the purpose described.

JOSEPH W. DAWSON.