

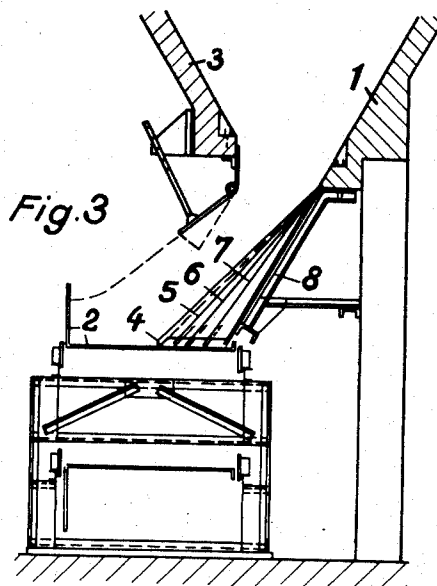
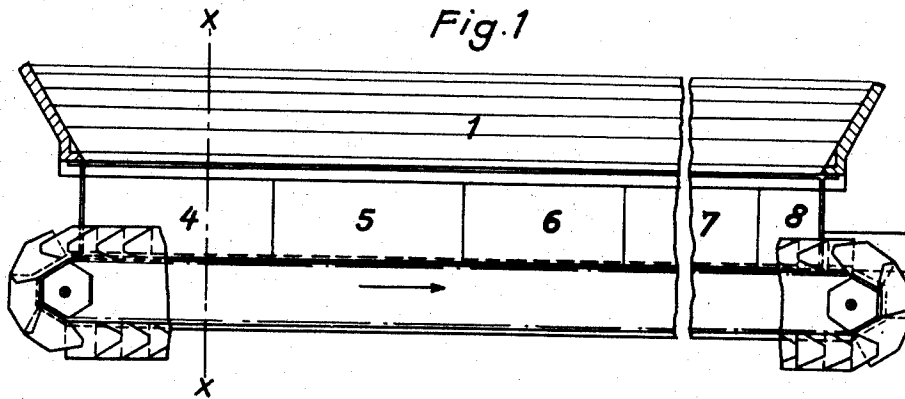
June 5, 1934.

K. JELLINGHAUS
AUTOMATIC BUNKER DISCHARGER

1,962,017

Filed Aug. 28, 1931

4 Sheets-Sheet 1



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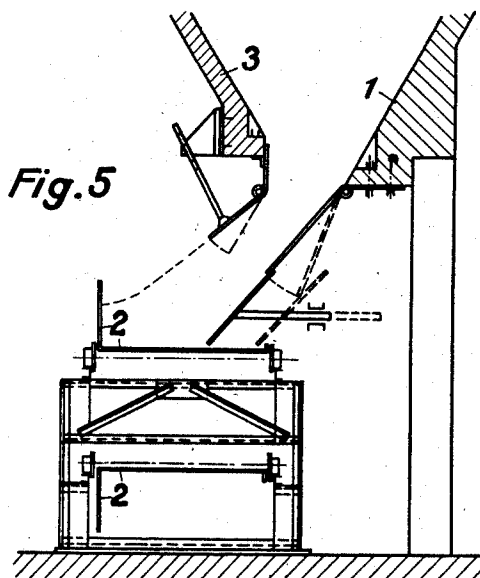
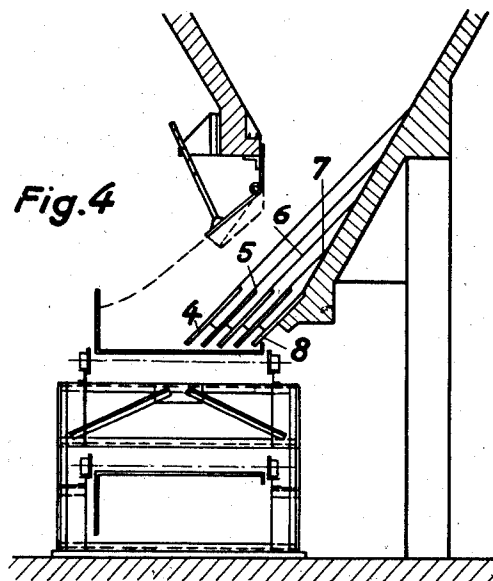
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Fig. 7

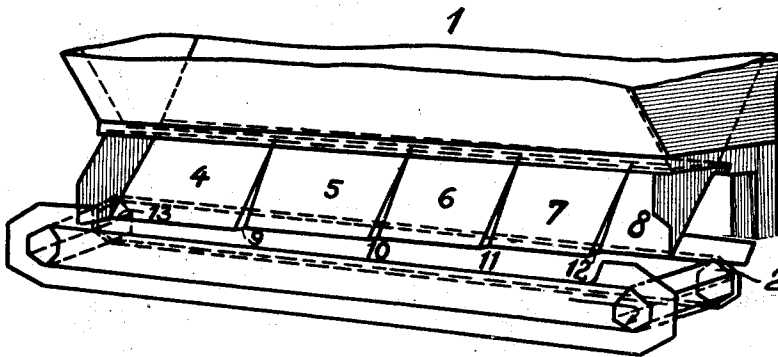
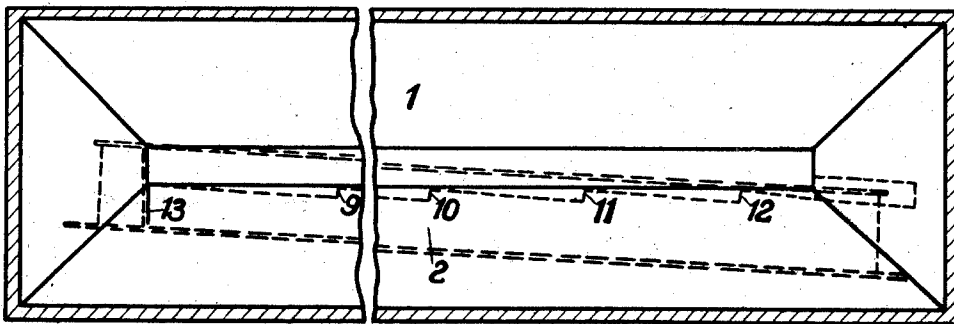


Fig. 6



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Fig. 8

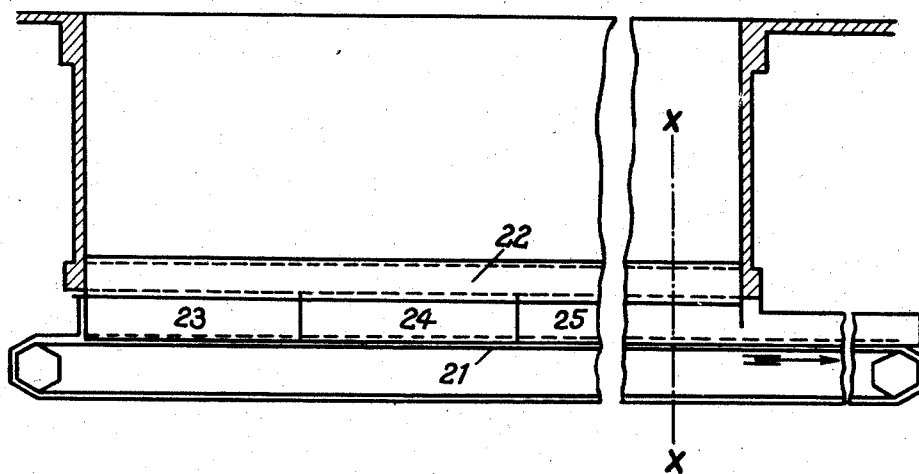
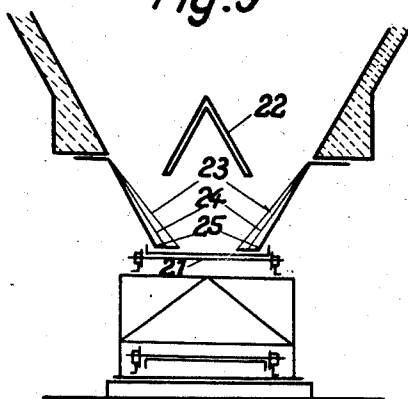


Fig. 9



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UNITED STATES PATENT OFFICE

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AUTOMATIC BUNKER DISCHARGE

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In Germany September 29, 1930

4 Claims. (Cl. 198—57)

This invention relates to a discharger for bunkers with a lateral discharging slit from end to end at its base. The hopper bottom closure being formed by a conveyor belt upon which the

loose goods leaving the slit are heaped. tion in a perspective view. Fig. 8 shows in a longitudinal section, Fig. 9 in a cross section according to line $x-x$ of Fig. 8, but on an enlarged scale, another manner of carrying my invention into effect.

The chief feature of this invention consists of the one side wall of the bunker opposite to the bunker slit being formed in such a manner that a section through this side wall made above the conveyor belt in the plane of the passing belt or near it will give an intersecting edge not as usual in form of a straight line in the ground plane but a broken one by preference in the form of a zig-zag or a wave line. According to this invention this side wall of the bunker is staggered or stepped in the conveying direction at least in its lower part in such a manner that the steps or offsets are transversal to the moving direction of the belt. Here they leave an empty portion of the belt which comes into contact with the goods to be transported which will here fall upon it so that they are conveyed.

By means of this arrangement steps or offsets are distributed over the whole length of the bunker and at each of them the goods are brought into contact with an empty portion of the conveying belt whereby the bunker is discharged over all its length simultaneously at several places corresponding to the number of steps or offsets provided. Contrary to known devices at present in use a uniform sinking of the surface of the goods is thus attained over the whole length of the bunker by very simple and cheap means. Thereby it is made possible to discharge at the same time a complete train of self discharging wagons into a long bunker whereby very much time and work will be saved.

In the accompanying drawings some examples of carrying out my invention are shown.

In Figs. 1-3 the discharging device is shown, the conveyor belt being arranged in the ground plan parallel to the axis of the bunker. Fig. 1 is a side view partially in section, Fig. 2 is a top view and Fig. 3 a section on an enlarged scale according to line $x-x$ of Fig. 1. Fig. 4 shows another example with parallel flaps or chutes of the one side wall of the bunker while Fig. 5 shows variable and adjustable positions of the flaps or chutes. Fig. 6 shows a top view of a discharging device in which the conveying belt in the ground plan is arranged slantingly to the longitudinal axis of the bunker. Fig. 7 shows the arrangement according to the inven-

The section of the bunker according to Fig. 3 makes it clear that the flaps or chutes of the side wall 1 of the bunker extend down to the conveyor belt 2 while the under edge of the other side or front wall 3 of the bunker leaves a slit extending over the whole length of the bunker for allowing the loose goods to leave the bunker and to heap upon the conveyor belt 2 forming the bottom of the bunker. The side wall 1 at its bottom part is formed of flaps or chutes 4, 5, 6, 7, 8, Fig. 1, which are arranged at different angles of inclination, Fig. 3. As shown in Fig. 2, they are staggered or stepped with their under edges above the conveyor belt 2 so that steps or offsets 9, 10, 11, 12 are formed which each leaves an empty space on the conveyor belt 2 when it moves in the direction of the arrow. A discharging effect by a conveyor belt always presents itself at the point where the empty belt first comes into contact with the goods and on account of this arrangement the loose goods will be drawn off at the points 13, 9, 10, 11, 12, whereby a uniform sinking of the surface of the goods in the bunker is obtained.

In order to fix the amount of the loose goods to be discharged, the lower part of the other side wall 3 of the bunker can be adjusted in height as indicated in Fig. 3 and it can be provided with plates adjustable as regards their angle of inclination.

While according to Fig. 3 the flaps or chutes are arranged with different angles of inclination with regard to the conveyor belt, the section of Fig. 4 shows that the same effect can be obtained by staggering the flaps or chutes 4-8 parallel to one another.

With regard to different sorts of goods and also in order to be able to adjust the discharging effect at the steps 9-13 the flaps or chutes also may be arranged and adjusted transversely to the conveying direction as shown in Fig. 5. Other known means also may be provided for this adjustment.

The conveyor belt 2 may also be arranged slanting to the longitudinal axis of the bunker as shown in Fig. 6 or inclined to the longitudinal axis of the slit.

In order that my invention may be better understood an example of the arrangement is shown in a perspective view in Fig. 7.

For diminishing the width of the arrangement the conveyor belt 2 may be provided with only one side wall as is well known.

Figs. 8 and 9 show another manner of carrying my invention into effect. Two longitudinal side walls of the bunker, both of the same construction are placed in an inverted position on both sides. In the centre of the bunker and above the conveyor belt 21 a saddle-like and adjustable chute 22 is arranged so that on both sides of it the loose goods are heaped upon the conveyor belt which is free from ground pressure. By staggering the steps or offsets 23, 24 and 25 on both sides, both the longitudinal side walls of the bunkers slope in such a manner that the charging plane of the conveyor belt is enlarged in its moving direction. The saddle 22 may be adjustable both with regard to its width, to its inclination and to its height above the conveyor belt 21.

This arrangement has the advantage that while the uniform sinking of the surface of the goods and the capacity of the bunker are preserved the construction height of the bunker is diminished and thereby building costs are saved, or with the same construction height an enlargement of the useful capacity is obtained.

Having thus described my invention I declare that what I claim is:

1. An automatic bunker discharger, comprising a hopper having a lateral discharging slit extending from end to end at its base, and a conveyor belt under said hopper and adapted to receive loose goods discharged from the slit in said hopper, and a downwardly inclined extension on the lower end of one side wall of said hopper terminating in close proximity to the upper surface of said belt and of a cross section at its lower end consisting of a series of offset portions.

2. An automatic bunker discharger, comprising

ing a hopper having a lateral discharging slit extending from end to end at its base, and a conveyor belt under said hopper and adapted to receive loose goods discharged from the slit in said hopper, and a downwardly inclined extension on the lower end of one side wall of said hopper terminating in close proximity to the upper surface of said belt and staggered at its lower end to form steps projecting successively further over said belt oppositely to the direction of travel.

3. An automatic bunker discharger, comprising a hopper having a lateral discharging slit extending from end to end at its base, and a conveyor belt under said hopper and adapted to receive loose goods discharged from the slit in said hopper, a downwardly inclined extension on the lower end of one side wall of said hopper terminating in close proximity to the upper surface of said belt, and composed of sections forming steps projecting successively further over said belt oppositely to the direction of travel, and means for adjusting said sections to vary the distance of projection of each succeeding section beyond its preceding section.

4. An automatic bunker discharger, comprising a hopper having a lateral discharging slit extending from end to end at its base, and a conveyor belt under said hopper and adapted to receive loose goods discharged from the slit in said hopper, two downwardly inclined extensions on the two opposite side walls of said hopper, each extension being composed of sections projecting successively further over the belt in steps, the steps of the two extensions projecting farthest over the belt being arranged at opposite ends of the slit, and a saddle-shaped two-way chute mounted in the end walls of said hopper intermediate said extensions adapted to direct the material onto said extensions.

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