

F. W. BRIGHT.
SPREADING SECTION FOR OVERHEAD CONVEYERS.
APPLICATION FILED SEPT. 9, 1908.

961,338.

Patented June 14, 1910.

3 SHEETS—SHEET 1.

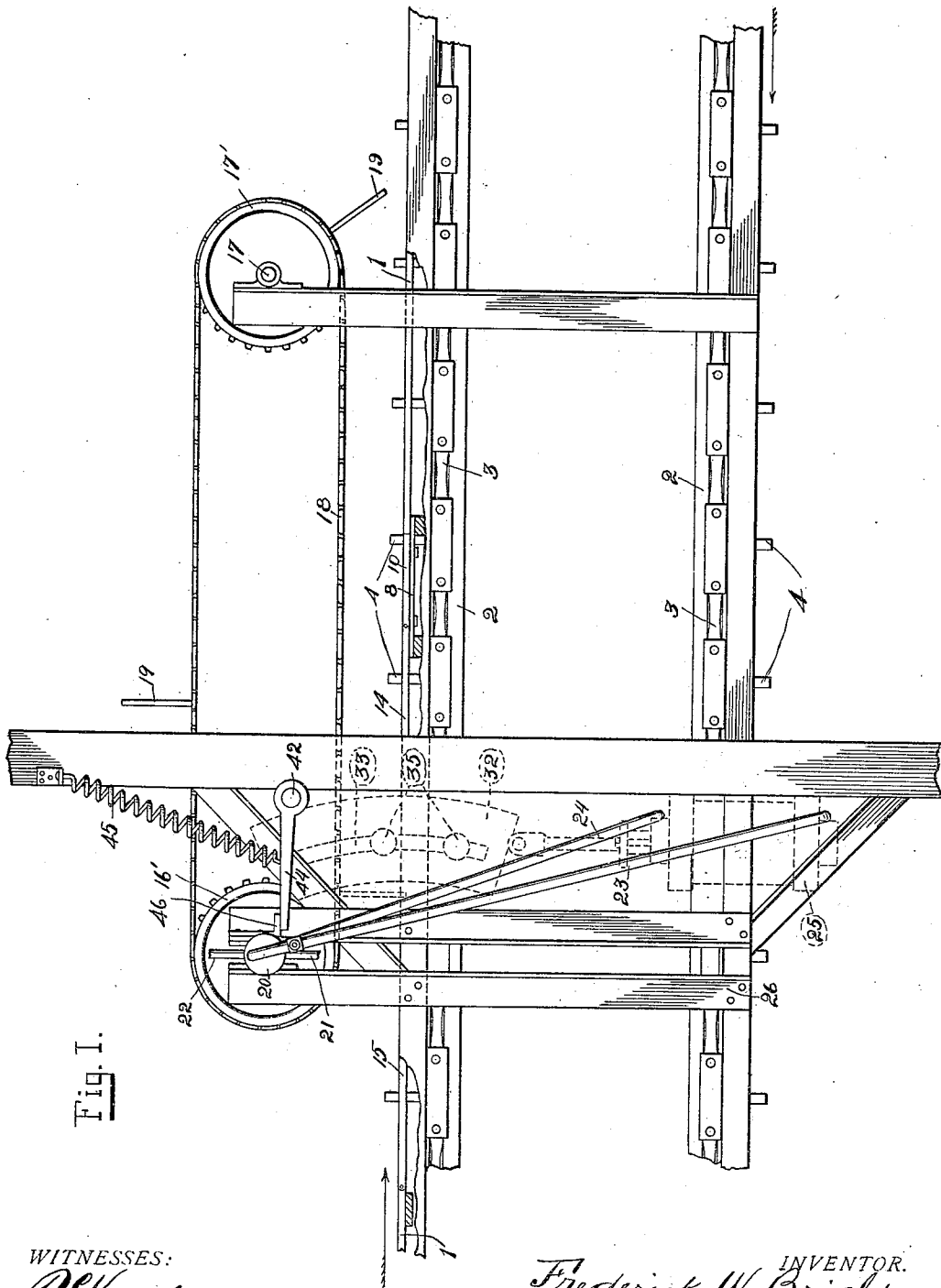


Fig. 1.

WITNESSES:

R. Hamilton.
E. Cahill.

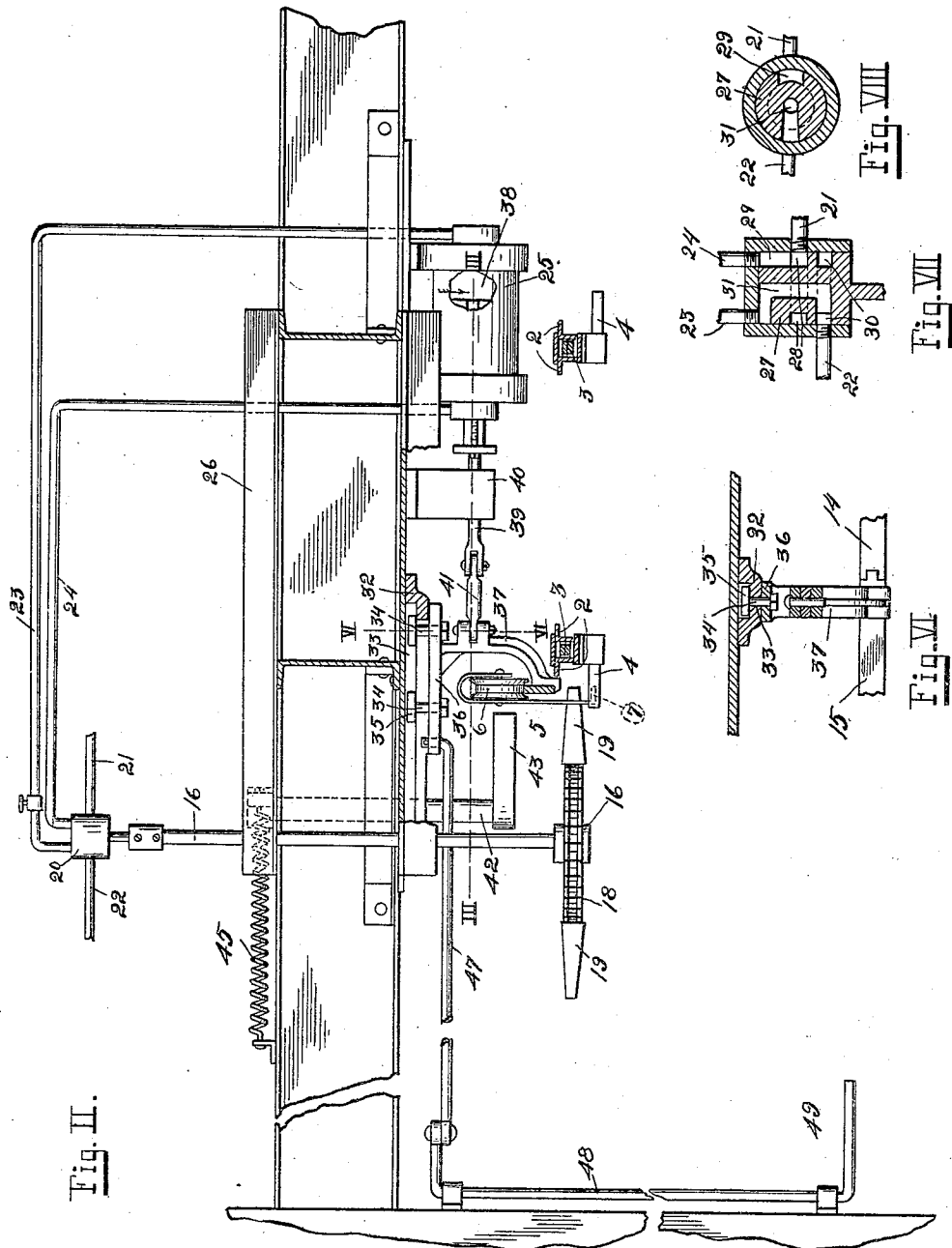
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BY
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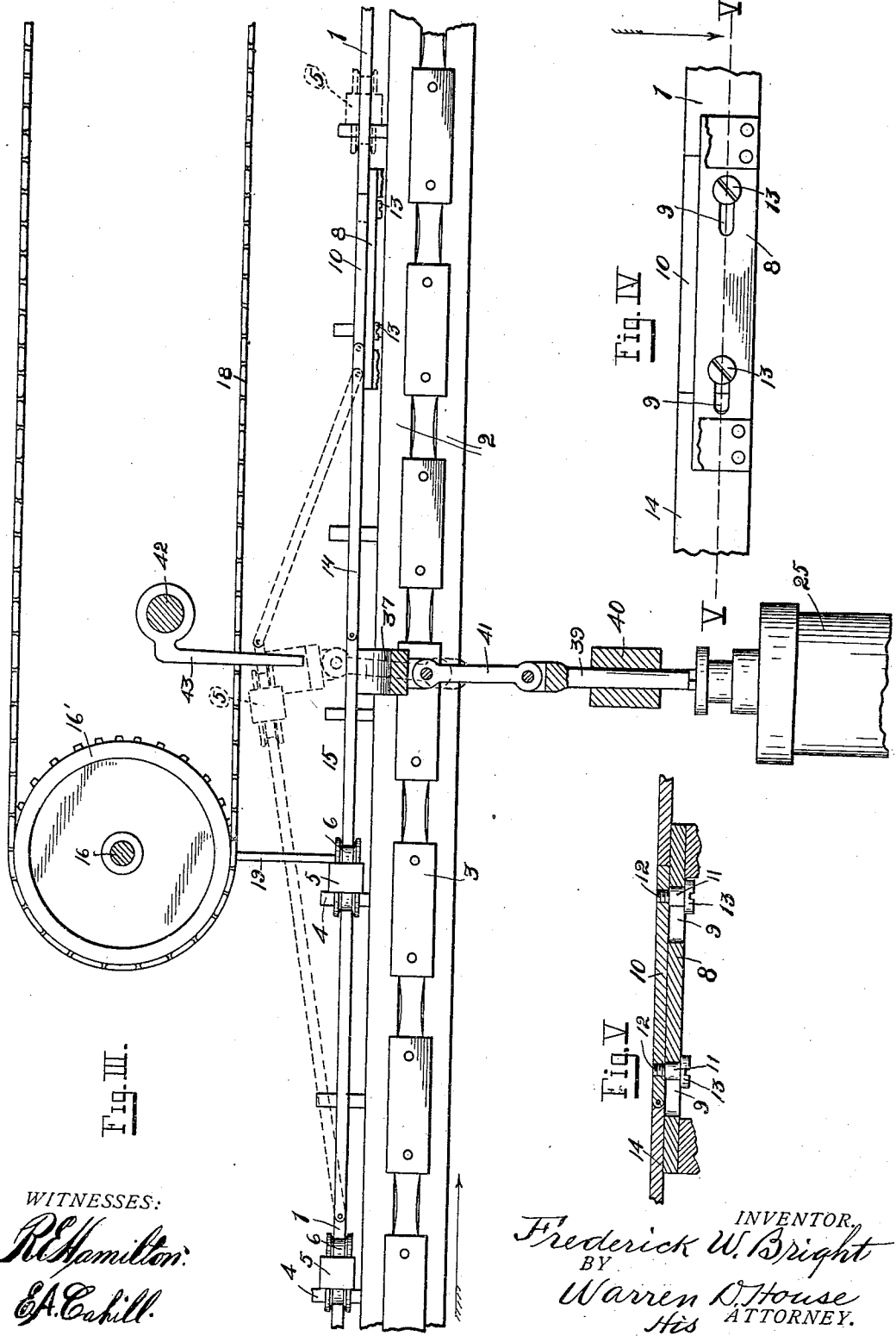
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UNITED STATES PATENT OFFICE.

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SPREADING-SECTION FOR OVERHEAD CONVEYERS.

961,338.

Specification of Letters Patent. Patented June 14, 1910.

Application filed September 9, 1908. Serial No. 452,307.

To all whom it may concern:

Be it known that I, FREDERICK W. BRIGHT, a citizen of the United States, residing at Kansas City, in the county of Wyandotte and State of Kansas, have invented certain new and useful Improvements in Spreading-Sections for Overhead Conveyers, of which the following is a specification.

My invention relates to a spreading section for over head conveyers, and more particularly to a device of that class for use in packing houses, wherein the halves of a beef may be spread preliminary to the splitting operation.

In accomplishing the above object, I have provided the improved details of structure presently described and pointed out in the claims, reference being had to the accompanying drawings in which,

Figure I is a top plan view of a portion of an over head conveyer including a spreading section constructed according to my invention. Fig. II is an end view of same looking in the direction of the arrow Fig. I. Fig. III is a horizontal sectional view on the line III—III, Fig. II. Fig. IV is an enlarged detail view of the sliding rail section. Fig. V is a horizontal section of same on the line V—V, Fig. IV. Fig. VI is an enlarged detail view of the slotted hanger plate in section on the line VI—VI, Fig. II. Fig. VII is a vertical section of the valve. Fig. VIII is a horizontal section of same.

In referring more in detail to the parts, I will not describe the construction of the main body of the conveyor for the reason that it may be of any suitable type comprising a supporting rail and propeller mechanism.

In the present conveyer the rail is stationary with the exception of the spreading section, and the propeller comprises an endless belt having arms adapted for projection into the path of the rail hangers, and for actuating engagement therewith.

In the drawings, 1 designates stationary portions of the conveyer rail which may be supported by permanent hangers from the ceiling or walls of the building within which the device is located.

2 designates a track for the support of the propelling mechanism heretofore described as preferably comprising an endless belt, indicated by numeral 3, and having the laterally projecting arms 4.

5 designates a trolley, the wheel 6 of which is adapted for travel along the rails 1 when

engaged by a propeller arm and is preferably provided with a laterally projecting portion 7 for supporting a shackle.

It is readily apparent from the description and drawings that with a continuous track of this kind the halves of a beef may be supported from adjacent trolleys and conducted from place to place through the medium of the propeller belt and arms. In order, however, to facilitate the splitting of the beeves it is the purpose of my present invention to spread the halves of each beef at a predetermined point on the conveyer mechanism, and to do this I provide means for retarding the travel of the trolley from which the last half of a beef is suspended, while the trolley supporting the first half of same is conducted along the rail to the desired spreading distance; such mechanism also comprising means for automatically releasing the second trolley and means for retaining same a proper distance from the one carrying the first half of the beef.

Referring now to the spreading parts, 8 designates a plate that is rigidly secured to the stationary portion of the rail 1 at one end of the spreading section and is provided with the longitudinal slots 9.

10 designates a sliding member, one end of which is adapted for abutment against the stationary rail 1 and is supported by the pins 11 which are carried by and adapted for travel in the longitudinal slots 9 of the plate 8; such pins preferably comprising the shanks 12 which are threaded into the slide 10 and the heads 13 which engage the outer surface of the plate 8 and anchor the parts together.

Pivoted to the slide 10, opposite the end adapted for abutment against the stationary rail 1, is a spreading rail section 14, and pivotally connecting the other end of section 14 is a rail link 15, the slide 10, section 14 and link 15, when in their normal or unbroken condition, being adapted to cooperate with the stationary rail sections 1 to form a continuous track over which the trolleys 5 may travel.

Journaled at the side of the conveyer, adjacent to the spreading section, are the vertical shafts 16 and 17, upon which are mounted the sprocket wheels 16' and 17'.

18 designates a chain belt which is adapted for travel over the sprocket wheels noted and is provided with the laterally projecting arms 19, which are preferably three in num-

ber, are arranged at equal distances apart on the belt and are adapted to extend into the path of the trolleys 5, so that they may be engaged thereby during the travel of the

5 trolleys on the conveyer rail.

20 20 designates a valve which is supported over the shaft 16 by the intake pipe 21 and exhaust pipe 22, which pipes enter through the valve casing at different elevations, as

10 illustrated in Figs. II and VII.

23 and 24 designate conduits leading from diametrically opposite ports in the top of the valve casing to the respective ends of a cylinder 25 which is preferably suspended from

15 a frame 26 that extends transversally over the conveyer mechanism.

The core 27 of valve 20 is provided with an upper peripheral ring groove 28 that is adapted for constant communication with

20 the intake pipe 21 and has a vertical groove 29 that is adapted for connecting the ring groove 28 with the port of either of pipes 23 or 24, according to the position of the core.

30 30 designates a lower ring groove which is adapted for constant communication with the exhaust pipe 22 and with a conduit 31 which extends vertically through the core body into position for communication with the port of either the pipe 23 or 24 according to the position of the core, the ports being so arranged that when one end of the cylinder 25 is in communication with the intake

35 pipe 21, the opposite end of the cylinder will be in communication with the exhaust pipe 22.

The valve core 27 is rigidly connected with the shaft 16 upon which the sprocket 16' is mounted, so that upon the revolution of the shaft and sprocket the valve core will be

40 turned to bring the intake and exhaust pipes into communication with the pipes 23 and 24, as hereafter more specifically described.

32 designates a plate that is suspended transversally over the conveyer rail and has a curved slot 33 within which the pins 34 are adapted to travel; such pins being provided at their upper ends with the heads 35 by which the pins and the parts attached thereto are supported. At their lower ends

50 pins 34 carry a plate 36 from which a hanger arm 37 is suspended; such arm in turn being connected with the rail link 15 which it supports while the latter is in both its direct and broken positions.

55 38 designates a piston which is adapted for travel in cylinder 25 and has a rod 39 which extends through a bearing 40 and is pivotally connected at its outer end, preferably through a link 41, with the hanger

60 arm 37.

42 designates a shaft which is revolubly mounted near the line of projection of the piston 38 and has secured thereto the arms 43 and 44, the former of which projects

65 across the path of the trolleys, when the

latter are traveling over the broken path formed by the spreading of the rail section, and the latter being provided with a spring 45 by means of which both of the arms are held in the position indicated, the rear surface of the arm 44 being adapted for abutment against a dog 46 to prevent the retraction of the arms by spring 45.

47 designates a rod which is connected at one end with the slide plate 36 which supports the movable trolley hanger, and at the other end with an operating lever 48 having the hand crank 49 by which the parts may be operated by hand should there be a failure of the automatic parts.

In the use of the apparatus, the trolleys 5 are moved over the conveyer rails by the propeller arms 4. After the trolley from which the first half of a beef is suspended has moved into the broken rail section, its hanger engages one of the arms 19 on the belt 18 and carries the same along therewith; such travel of the belt 18 causing a revolution of the sprockets 16' and 17' and the shafts 16 and 17. When shaft 16 is

90 revolved it turns the valve core 27 so that the conduit 29, which has constant communication with the intake pipe 21, is brought into communication with the pipe 24 leading to the outer end of cylinder 25.

As soon as communication between the intake pipe 24 and the cylinder 25 is established the fluid medium for creating a pressure in the cylinder enters the cylinder and forces the piston 38 forwardly. Upon the forward travel of piston 38 the sliding plate 36, hanger arm 37 and rail link 15 are moved laterally, spreading the broken rail section, as indicated in dotted lines in Fig. III; such breaking action being made possible

105 because of the pivotal connection between the rail link 15, section 14 and the slide 10, the pins 11 of the latter moving through the slot 9 in the plate 8 proportionately to the lateral movement of the rail parts. The parts are so arranged that the trolley carrying the first half of the beef will pass the point at which the arms 43 and 44 are located before the rail parts are broken sufficiently to produce an engagement of the

115 trolley hanger with the arm 43, but are so arranged that after the first half has passed the arm, the rail parts move outwardly to cause an engagement of the trolley carrying the second half of the beef with such

120 arm. The arm 43, being held by the spring 45, detains the second trolley while the first continues its travel, the second trolley being held until the belt 18 has traveled a sufficient distance to produce a revolution of the

125 valve core that will carry the vertical intake groove 29 out of communication with the pipe 24 and into communication with the pipe 23, and the exhaust conduit 31 out of communication with the pipe 23 and into

130

communication with the pipe 24. When the position of the valve core has been changed as described, the fluid pressure medium will exhaust from the outer end of the cylinder and enter the inner end through pipe 24, so that the piston is forced backwardly to its original position, thereby withdrawing the slide 36, hanger arm 37 and rail section 15 into alinement with the main body of the conveyer rail and drawing the trolley hanger 5 out of engagement with the arm 43, so that it is permitted to continue its travel along the rail. As the trolley carrying the last half of the beef has been detained a sufficient length of time to produce a material spreading of the carcass, there is a tendency of the trolleys to be drawn together because of the weight of the carcass. This action is, however, obviated by the engagement of the first trolley with the forward face of one of the propeller arms, and the engagement of the second trolley with the rear face of a succeeding arm, so that the parts of the beef are held apart in position to facilitate the splitting operation.

It is readily apparent that should the cylinder or valve parts fail to operate properly the pivoted rail section may be broken through the medium of the hand lever, previously described.

Having thus described my invention, what I claim as new therein and desire to secure by Letters-Patent is:—

1. The combination with a stationary conveyer rail having an interrupted span and a slotted plate at one end of said span, of movable rail members pivotally connected with each other and with the stationary rail at one end of the span, means on one of said members adapted for travel in the slots in said plate, and mechanism whereby the movable rail members may be moved from and to alinement with the stationary parts while retaining their ends in coöperative relation thereto.

2. The combination with a main conveyer rail, of a spreading rail section adapted for coöperation with the main rail and for lateral projection therefrom, trolleys adapted for travel on the main rail and spreading section, means for engaging a trolley on the spreading section when the latter is projected, and mechanism for actuating the spreading section.

3. The combination with a conveyer rail having a section adapted to spread laterally from alinement with the main rail body, of trolleys adapted for travel on the conveyer rail, mechanism for actuating the spreading rail section, and means adapted for actuation by a conveyer trolley, whereby the motive power for operating the rail section actuating mechanism is controlled.

4. The combination with a conveyer rail having a section adapted to spread laterally

from alinement with the main rail body, of means for actuating the spreading section, means for controlling the application of a power medium to said means to induce operation thereof alternately in opposite directions, and trolleys adapted for travel on the conveyer rail and for operative engagement with the power controlling means.

5. The combination with a conveyer rail having a section adapted to spread laterally from alinement with the main rail body, of trolleys adapted for travel on the conveyer rail and means for actuating same, mechanism whereby the spreading section may be moved from and to alinement with the main rail body, means for controlling the application of power to the mechanism for actuating the spreading rail section comprising, in part, an arm adapted for projection into the trolley path, and means for detaining a trolley on the spreading section while said arm is propelled by a preceding trolley, substantially as set forth.

6. The combination with a conveyer rail, of trolleys adapted for travel on said rail, means whereby one of said trolleys may be detained without interrupting the travel of preceding trolleys, and means for actuating said trolleys and maintaining a spreading interval between a preceding trolley and the one detained, after the release of the latter.

7. The combination with a conveyer rail having a spreading section, of mechanism for moving such section from and to alinement with the main rail body, trolleys adapted for travel on said rail, means for controlling the flow of a fluid power medium to such mechanism to determine the direction of its operation, an arm forming part of the controlling mechanism and projected into the path of said trolleys, and means for detaining a trolley on the spreading section until the arm and a preceding trolley, by which the arm is actuated, have reached a predetermined point in advance of the one detained.

8. The combination with a conveyer rail having a spreading section, of a cylinder having a piston connected with said spreading section, conduits for conducting a fluid pressure medium to opposite ends of said cylinder, a valve for controlling the supply of fluid pressure medium to said conduits, trolleys adapted for travel on said rail, and means adapted for actuation by said trolleys whereby the valve may be operated to admit the fluid pressure medium into said conduits alternately.

9. The combination with a conveyer rail having a spreading section, of a cylinder having a piston operatively connected with said spreading section, separate conduits for conducting a fluid pressure medium to opposite ends of said cylinder, a common valve adapted to supply either of said conduits

and simultaneously exhaust the other conduit, movable shafts, one of which is operatively connected with said valve, sprockets carried by said shafts, a belt adapted for
 5 travel on said sprockets, arms projecting from said belt, pulleys adapted for travel on said rail and for engagement with said belt arms, and a holding arm adapted for engagement with said pulleys when the spreading
 10 rail section is extended from alinement with the main rail body, said valve parts being arranged to open to one conduit when a trolley has traveled a predetermined distance in engagement with the belt arm and
 15 to the opposite conduit after a further predetermined travel of the trolley and arm.

10. The combination with a conveyer rail having a spreading section comprising pivotally connected rail members and a sliding
 20 section, of a sliding plate having a hanger connected with one of the members of said spreading section, trolleys adapted for travel on said rail, a cylinder having a portion connected with said hanger, means for conducting a fluid pressure medium to opposite ends
 25 of said cylinder, and means actuated by said trolleys for controlling the flow of such medium to the cylinder.

11. The combination with conveying means

provided with means for engaging and independently supporting the hind quarters of
 30 a carcass, of means cooperating with said supporting means by which the hind quarters are moved apart and so held preparatory to the splitting operation. 35

12. The combination with a conveyer comprising a rail and a plurality of trolleys on said rail, of means for moving the trolleys along the rail, and means by which one of the
 40 trolleys may be automatically disengaged from the moving means and retained stationary for a period of time and then restored to its engagement with the moving means.

13. In a beef dressing apparatus for packing
 45 houses, a conveyer mechanism comprising a rail and parts adapted for travel thereon, a part of said rail being jointed and provided with a sliding portion, whereby it is enabled to spread laterally out of alinement
 50 with the main body.

In testimony whereof I have signed my name to this specification in presence of two subscribing witnesses.

FREDERICK W. BRIGHT.

Witnesses:

JAMES FENNELL,
 E. B. HOUSE.