

F. GIRTANNER.

ASH DRAG.

APPLICATION FILED DEC. 20, 1909.

968,844.

Patented Aug. 30, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

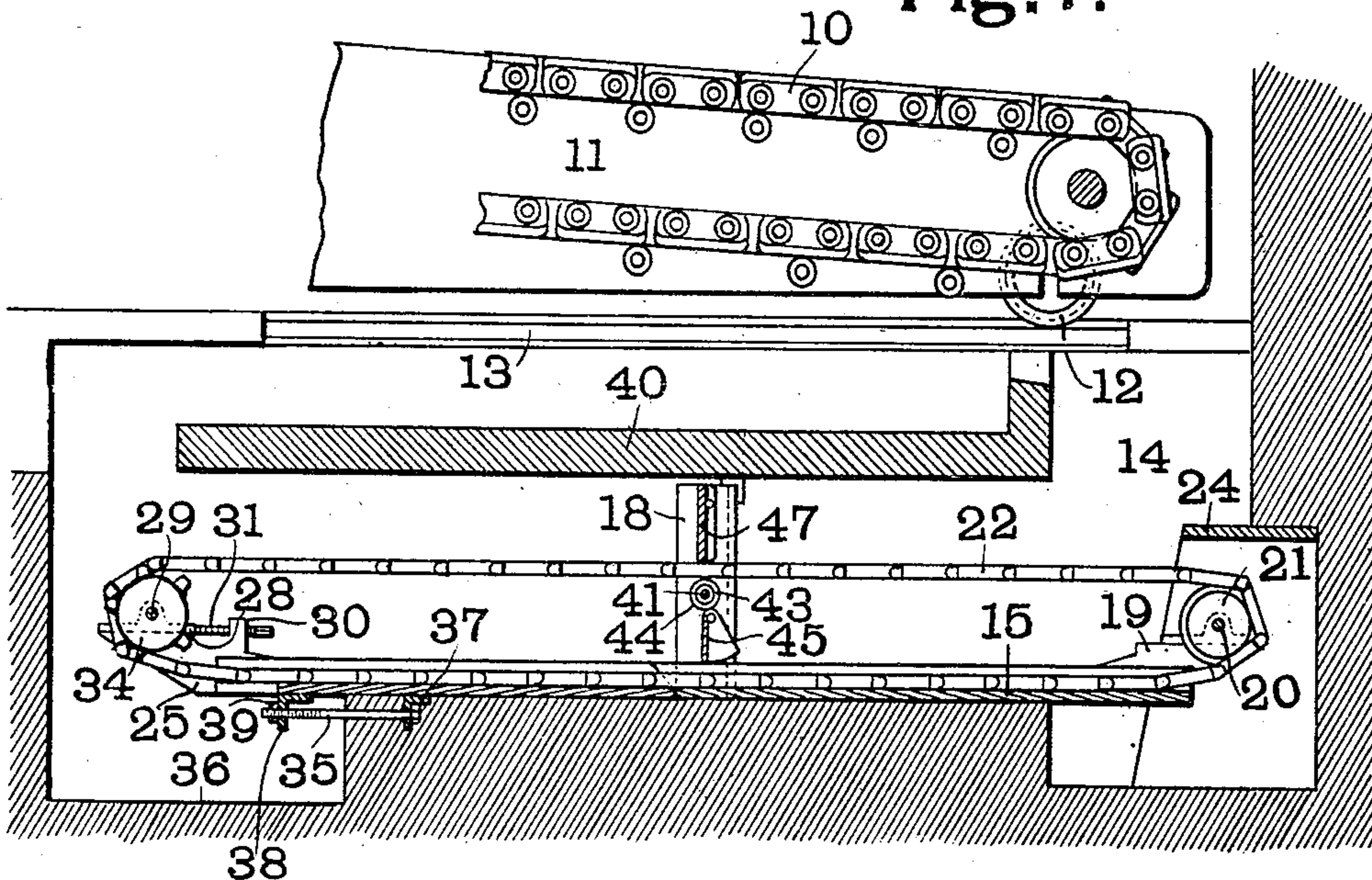
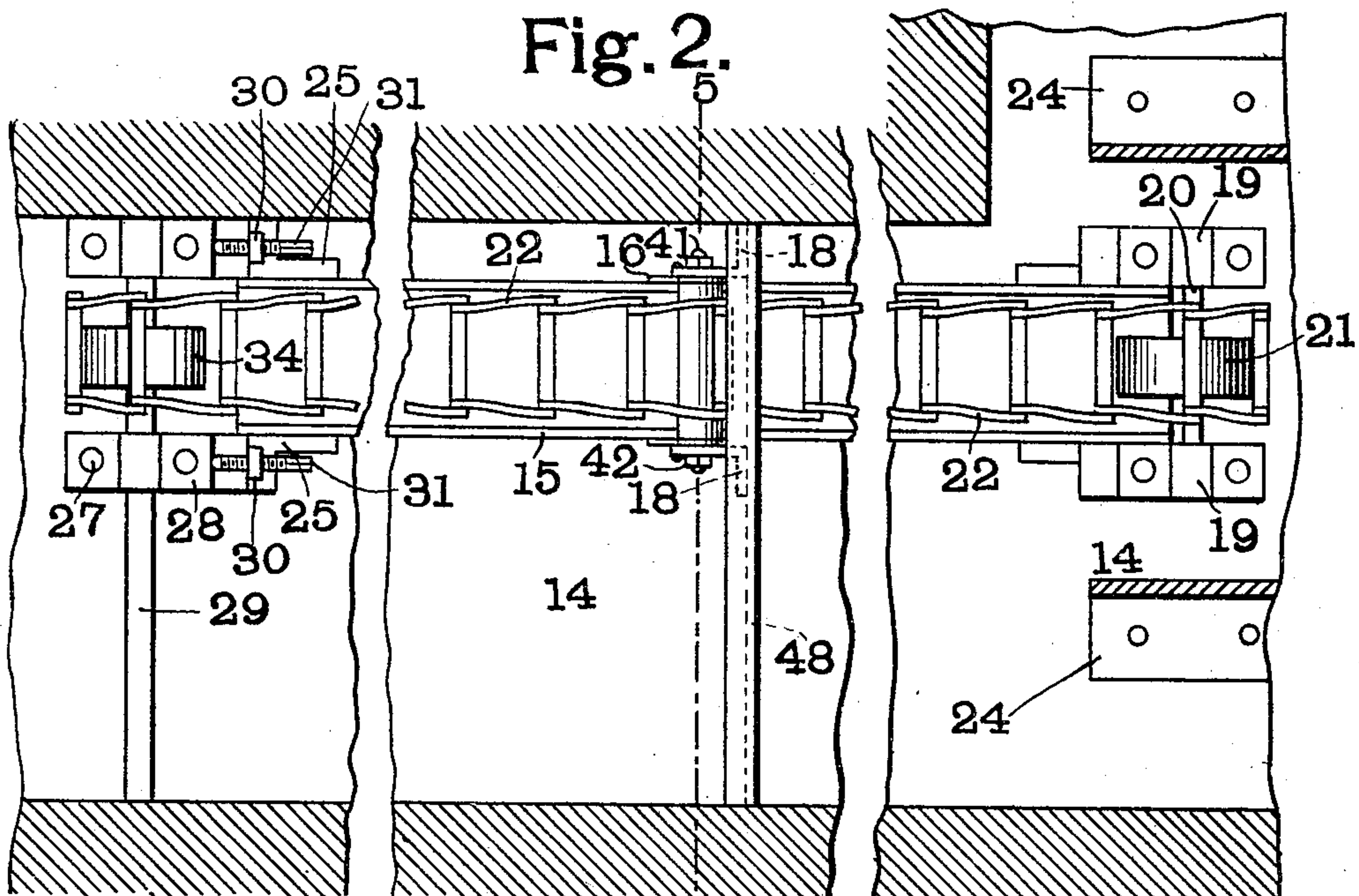


Fig. 2.



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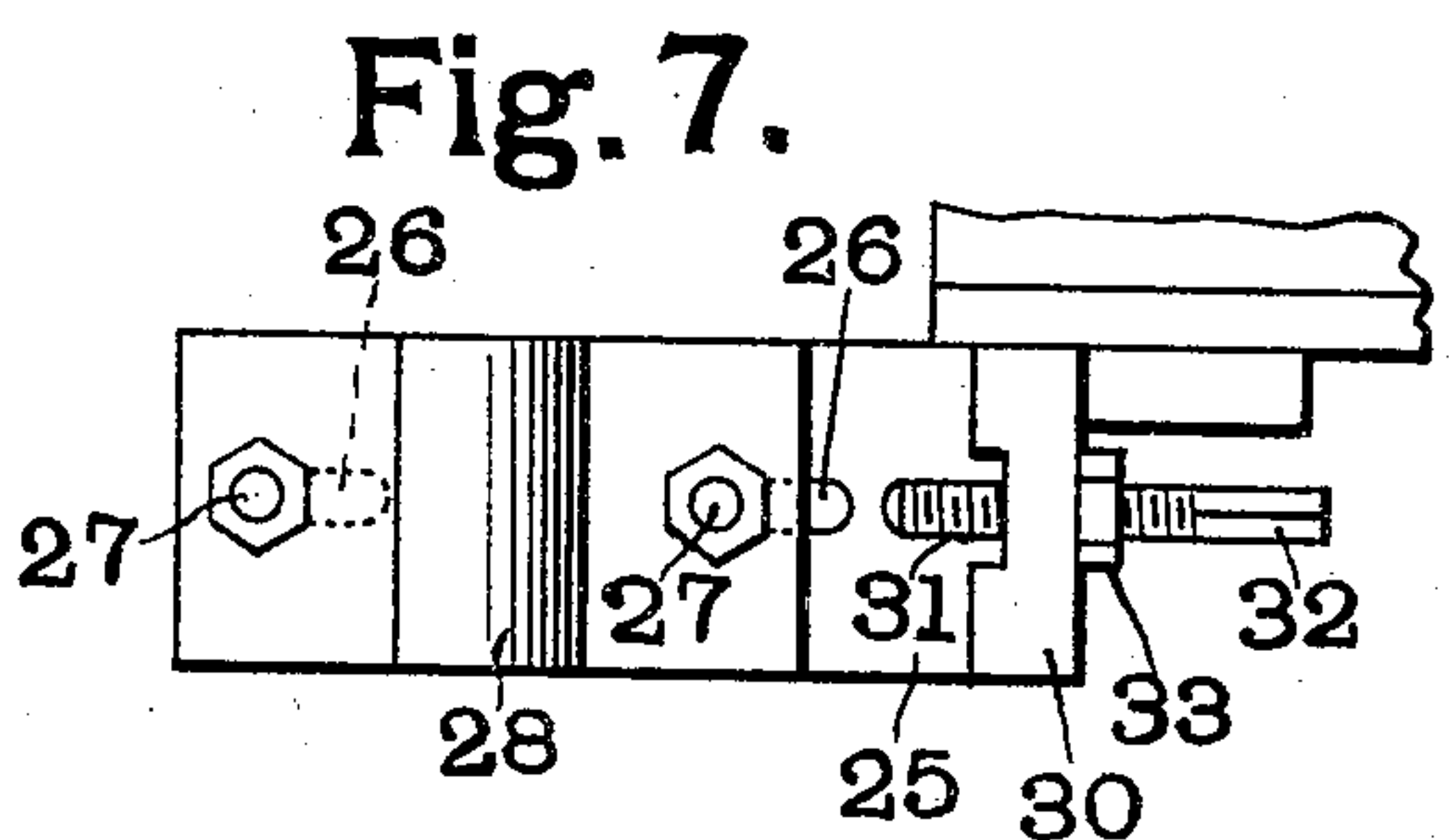
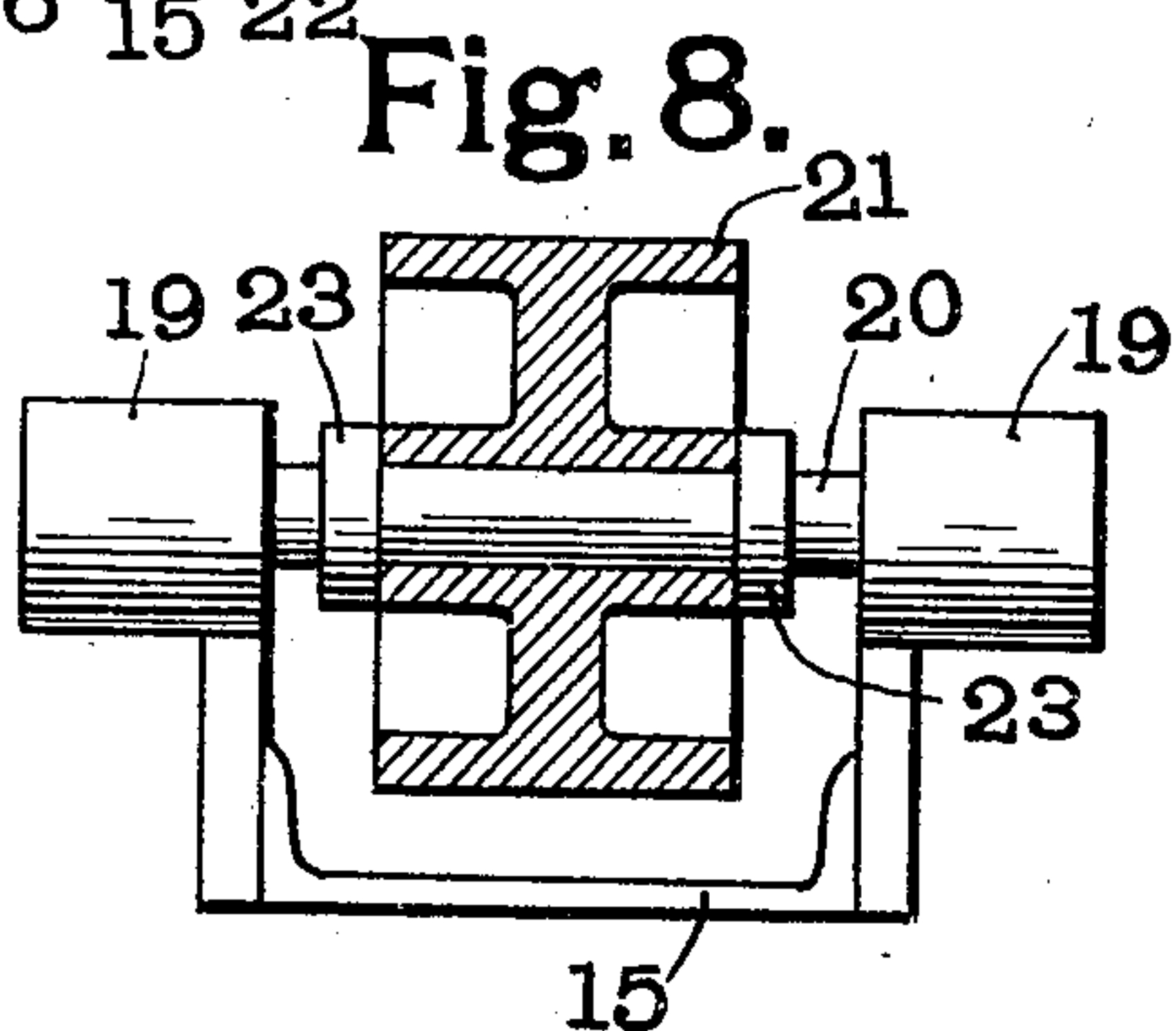
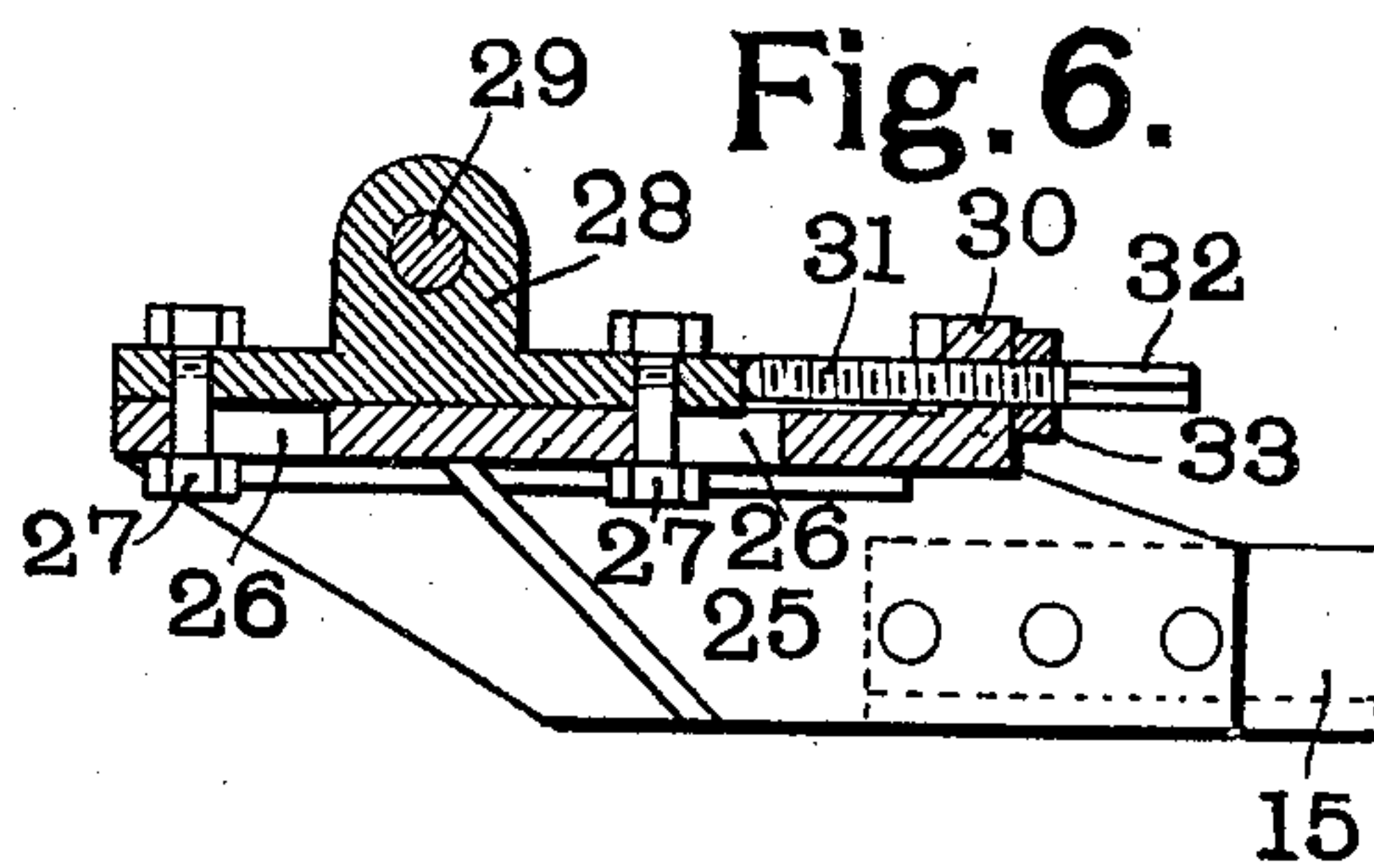
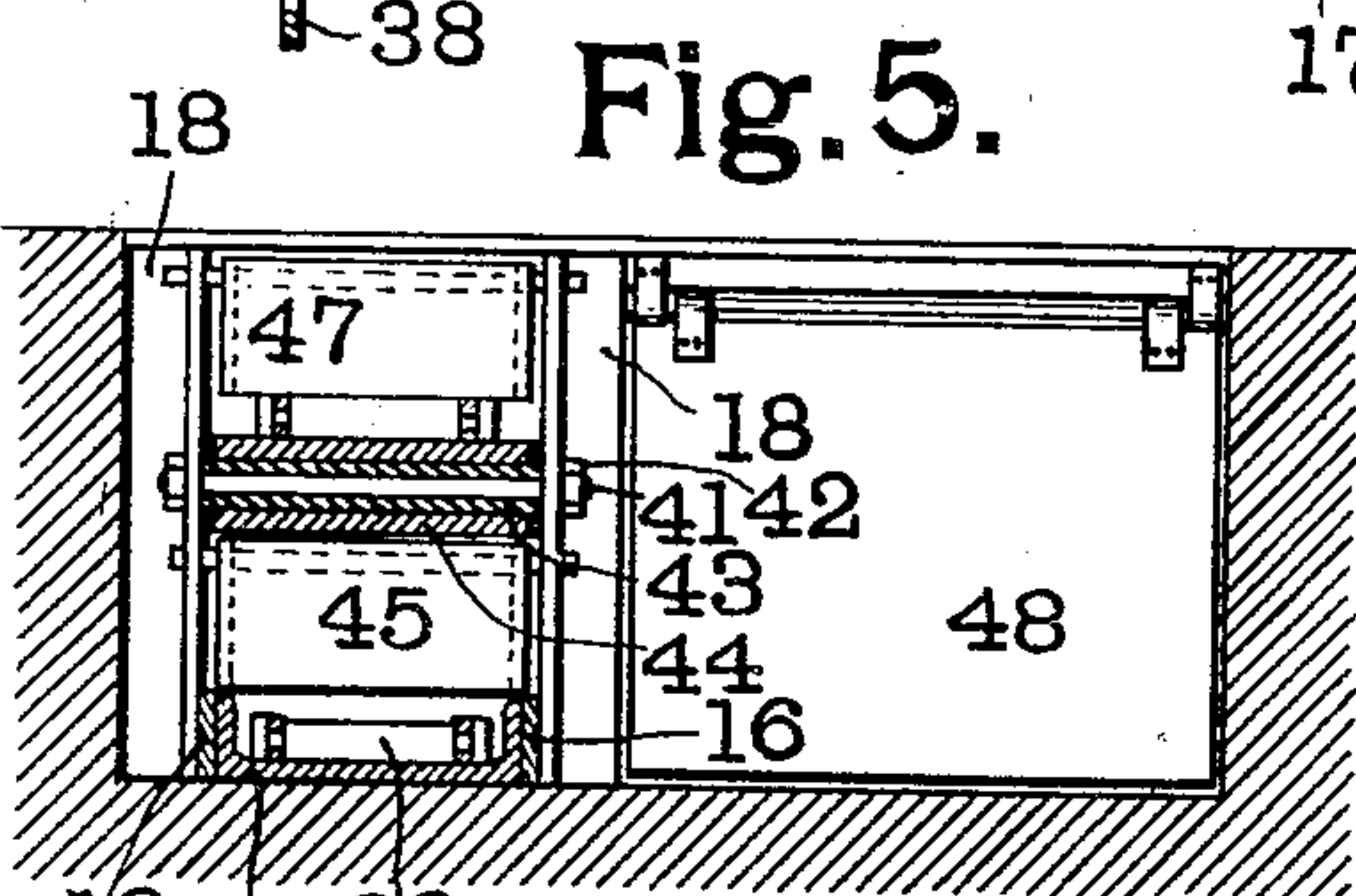
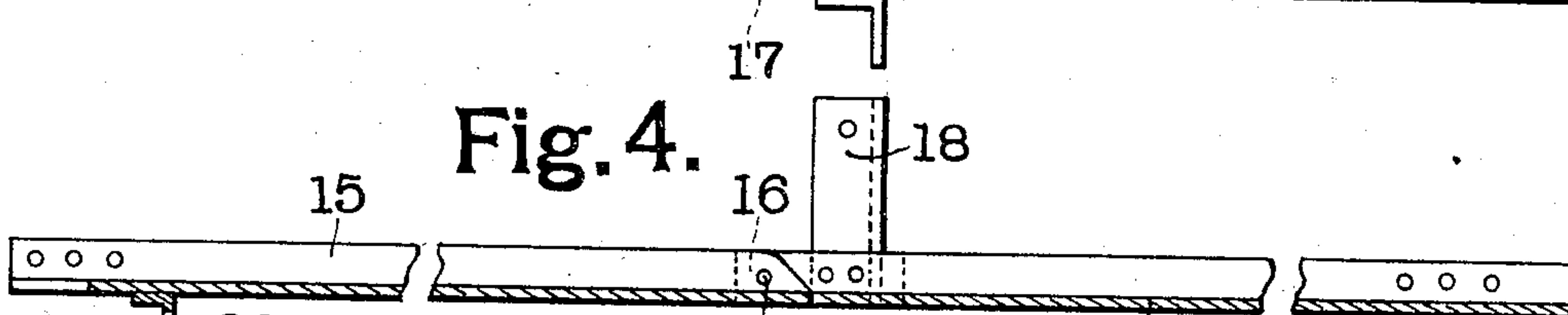
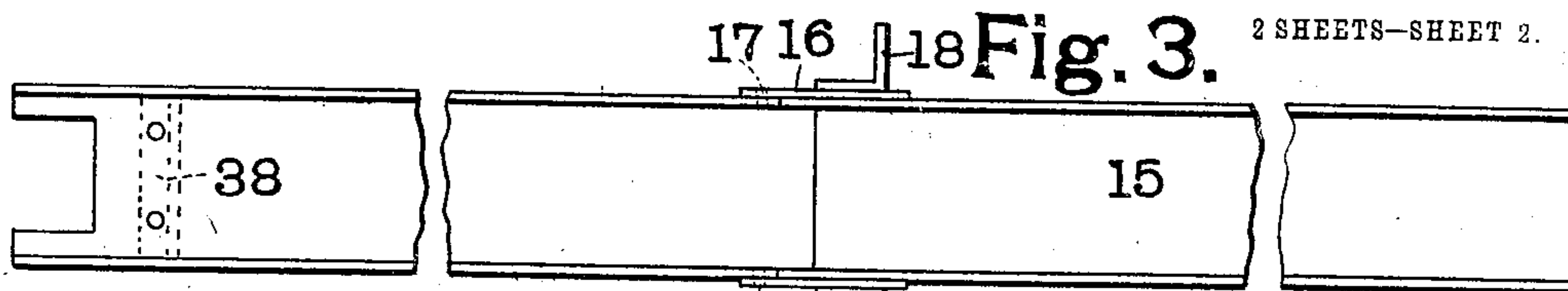
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WITNESSES:

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UNITED STATES PATENT OFFICE.

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ASH-DRAG.

968,844.

Specification of Letters Patent. Patented Aug. 30, 1910.

Application filed December 20, 1909. Serial No. 534,105.

To all whom it may concern:

Be it known that I, FREDERICK GIRTANNER, a citizen of the United States, residing at the city of St. Louis, State of Missouri, have invented a certain new and useful Ash-
5 Drag, of which the following is such a full, clear, and exact description as will enable any one skilled in the art to which it appertains to make and use the same, reference
10 being had to the accompanying drawings, forming part of this specification.

My invention relates to an ash drag and more particularly to an ash drag for use in connection with a chain grate furnace.

15 In the accompanying drawings which illustrate one form of ash drag made in accordance with my invention, Figure 1 is a vertical central section; Fig. 2 is a top plan view partly in section; Fig. 3 is a top
20 plan view of the body of the frame of the conveyer; Fig. 4 is a longitudinal section of the part shown in Fig. 3; Fig. 5 is a vertical cross section on the line 5—5 of Fig. 2; Fig. 6 is a side view partly in section of one
25 end of the conveyer frame; Fig. 7 is a top plan view of the part shown in Fig. 6 and Fig. 8 is an end view partly in section of the conveyer frame.

30 Like marks of reference refer to similar parts in the several views of the drawings.

10 represents a chain grate which may be of any usual form. This grate 10 is carried by a frame 11 mounted on wheels 12 running on a track 13. Arranged below the grate 10
35 is the ash pit 14. Resting on the bottom of the ash pit 14 is a trough-shaped body 15 of the conveyer frame. This body 15 is preferably formed of channel-iron and is made in two parts, as best shown in Figs. 3 and 4.
40 The two parts are connected by means of plates 16 which are rigidly secured to the rear part of the channel-iron 15 and are pivoted at 17 to the front part of the channel-iron so that the two parts are hinged to-
45 gether. Outside of the plate 16 are secured upright angle-irons 18, the purpose of which will be hereinafter more fully described. Secured to the rear end of the channel-iron 15 are a pair of bearings 19 in which is
50 mounted a shaft 20. Upon this shaft 20 is mounted a wheel 21 around which passes the chain 22 forming the endless conveyer for the ashes. I prefer to mount the shaft 20 rigidly in the boxes 19 and loosely mount
55 the wheel 21 on the shaft 20. The lateral

movement of the wheel 21 is prevented by means of collars 23 on the shaft 20. In order to prevent cinders or other heavy objects contained in the ashes from dropping directly upon the wheel 21, I prefer to protect the same by means of a hood 24 as
60 shown in Figs. 1 and 2. At the front end of the channel-iron 15 are secured a pair of blocks 25 shown in detail in Figs. 6 and 7. In each of the blocks 25 is formed a pair of
65 slots 26 through which pass bolts 27 securing in place bearings 28 carrying the driving shaft 29 of the conveyer. Upon the shaft 29 is mounted a sprocket wheel 34 which drives the conveyer chain 22.
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By loosening the nuts on the bolts 27 the bearings 28 can be moved relatively to the frame 15 of the conveyer. In order to accurately make such adjustment I provide each of the blocks 25 with a lug 30 through
75 which passes a screw 31 bearing against the box 28 and provided with a squared-end 32 by means of which it may be rotated. A lock nut 33 is provided for securing the bolt 31 in position after the adjustment has been
80 obtained. Inasmuch as the driving shaft 29 is fixed it is necessary for the entire body 15 of the conveyer to move when the adjustment is made. Consequently the securing means for the body 15 must also be made ad-
85 justable. I secure this by providing a bolt 35 in the floor of the ash pit 14 so as to project into a deepened portion 36 at the front end of the ash pit. This bolt may be secured in any suitable manner, such for
90 instance, as by the angle iron 37 set into the floor of the ash pit as shown in Fig. 1. The front end of the bolt 35 passes through an opening in an angle bar 38 secured to the bottom of the channel iron 15. A nut 39
95 provides for an adjustable connection between the angle iron and the bolt.

Arranged below the grate 10 and just above the upper ends of the angle bar 18 is a partition 40. This partition stops short
100 of both ends of the ash pit so as to allow room at the rear for the ashes to fall down around the conveyer 22 and to leave room at the front end for the insertion and removal of the conveyer. By forming the
105 conveyer frame of two parts hinged together the forward end of the frame may be brought up at a sharper angle and consequently removed through a smaller opening between the partition and the front wall of
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the furnace than would be the case with a solid frame. In order to support the upper strand of the conveyer 22 a rod 41 extends through the angle bars 18 and is secured in position by means of nuts 42. Surrounding the rod 41 is a tube 43 which serves to hold the angle bars 18 at the proper distance apart. Loosely mounted upon the tube 43 is a larger tube 44 which acts as a roller bearing to support the central portion of the upper strand of the chain 22 forming the conveyer. In order to prevent the passage of the air through the ash pit below the partition 40 I provide a swinging valve 45 which is pivoted to the angle bars 18 just below the roller 44. This valve 45 together with the roller 44 completely closes the passage between the two strands of the conveyer chain and at the same time will swing so as to allow any large object carried by the conveyer to pass to the front end of the ash pit. The space above the upper strand of the chain 22 is closed by an air cut-off 47 which is also preferably made in the form of a swinging valve so as to allow the passage of any object which might be carried by the upper strand of the conveyer chain 22. The conveyer is preferably arranged at one side of the ash pit as shown in Figs. 2 and 5 and the passage of air through the ash pit at the side of the conveyer is stopped by means of a swinging valve 48 as best shown in Fig. 5. This valve can be thus made of sufficient size to allow the passage of a person so that the conveyer may be repaired without removal from the ash pit. The pivoting together of the two parts of the conveyer frame, however, allows the same to be readily removed from the front end of the ash pit when it is desired to do so.

The operation of my device will be evident from the above description. The ashes from the grate 21 fall down at the rear end of the ash pit and pile up around the conveyer chain 22. The chain being driven by any suitable power applied to the shaft 29, the ashes are drawn forward through the guideway formed by the channel iron 15 and are deposited in the deepened portion 36 at the front end of the ash pit, from which position they can be moved by any suitable device which is not shown as it forms no part of the present invention.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. In an ash drag, the combination with a grate, of a frame arranged below said grate, an endless conveyer carried by said frame, a swinging valve situated between the upper and lower strands of said conveyer, and means for driving said conveyer.

2. In an ash drag, the combination with a grate, of a frame composed of two parts hinged together arranged below said grate,

an endless conveyer carried by said frame, a swinging valve situated between the upper and lower strands of said conveyer, and means for driving the conveyer.

3. In an ash drag, the combination with a grate, of a frame arranged below said grate, a partition arranged between said grate and frame, an endless conveyer carried by said frame, a swinging valve situated between the upper and lower strands of said conveyer, an air cut-off between the upper strand and said conveyer and said partition, and means for driving said conveyer.

4. In an ash drag, the combination with a grate, of a frame arranged below said grate, a partition arranged between said grate and frame, an endless conveyer carried by said frame, a swinging valve situated between the upper and lower strands of said conveyer, a second swinging valve situated between the upper strand of said conveyer and said partition, and means for driving said conveyer.

5. In an ash drag, the combination with a grate, of a frame composed of two parts hinged together arranged below said grate, a partition arranged between said grate and frame, an endless conveyer carried by said frame, a swinging valve situated between the upper and lower strands of said conveyer, a second swinging valve arranged between the upper strand of said conveyer and said partition, and means for driving said conveyer.

6. In an ash drag, the combination with a grate, of a partition extending below said grate, a passage being left between each end of said partition and the furnace walls, a frame arranged below said partition and formed of channel iron, said frame being hinged intermediate its length whereby the frame may be removed through the opening between the partition and the furnace wall, an endless conveyer carried by said frame, and means for driving said conveyer.

7. In an ash drag, the combination with a frame formed of channel-iron and hinged intermediate its length, of a pair of uprights carried by said frame adjacent to the hinge, a swinging valve carried by said uprights, an endless conveyer carried by said frame and means for driving said conveyer.

8. In an ash drag, the combination with a grate, of a frame arranged below said grate and formed of channel iron, said frame being provided with a hinge intermediate its length, a pair of uprights carried by said frame adjacent to the hinge, a pair of pivoted valves carried by said uprights, an endless conveyer carried by said frame, a support for said conveyer carried by said uprights and means for driving said conveyer.

9. In an ash drag, the combination with

5 a grate, of a frame arranged below said grate, an endless conveyer carried by said frame, a driving shaft for said endless conveyer, and means for securing relative longitudinal movement between said driving shaft and frame.

10 10. In an ash drag, the combination with a grate, of a frame arranged below said grate, an endless conveyer carried by said frame, a driving shaft for said frame, means for securing relative longitudinal move-

ment between said driving shaft and frame, and an adjustable connection between said frame and the floor of the ash pit.

In testimony whereof, I have hereunto 15 set my hand and affixed my seal in the presence of the two subscribing witnesses.

FREDERICK GIRTANNER. [L. S.]

Witnesses:

W. A. ALEXANDER,
RHODES E. CAVE.