March 25, 1941. F. F. WAECHTER 2,235,856

CASING HEAD SECTION FOR CONVEYER ELEVATORS

Filed Jan. 30, 1940 4 Sheets-Sheet 1

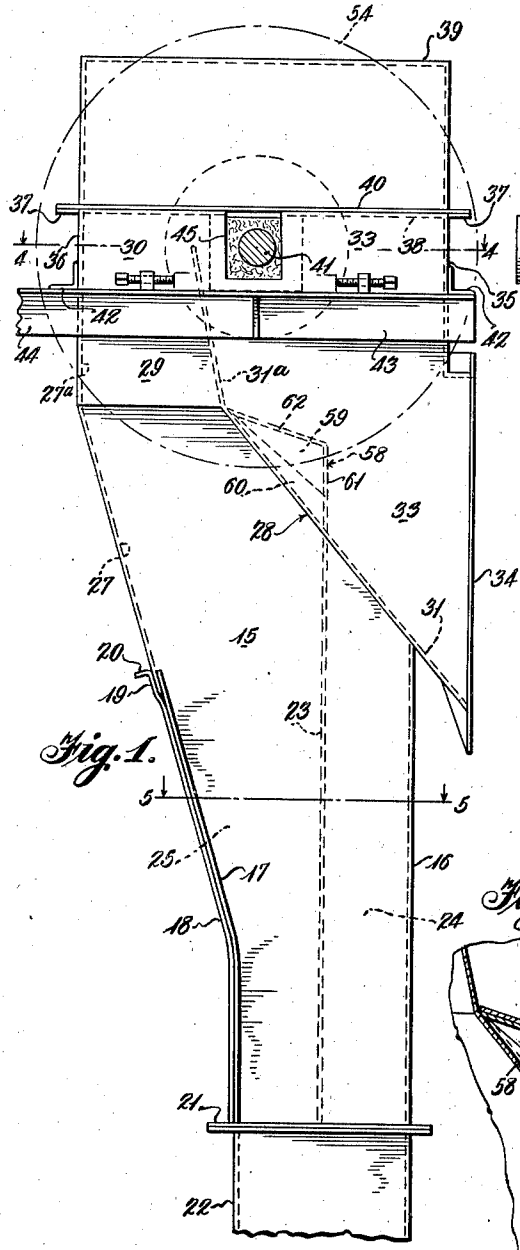


Fig. 1.

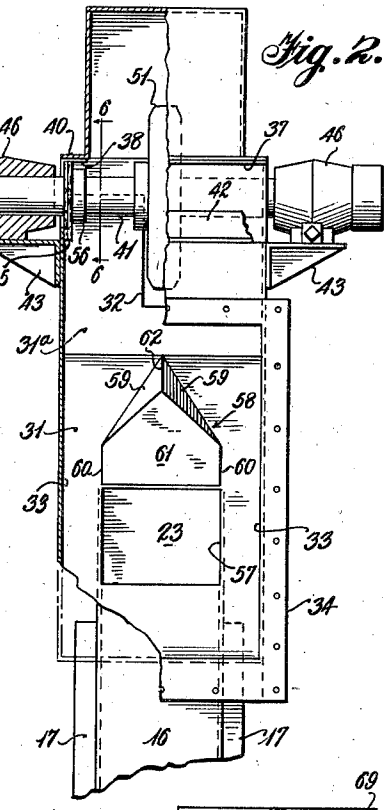


Fig. 2.

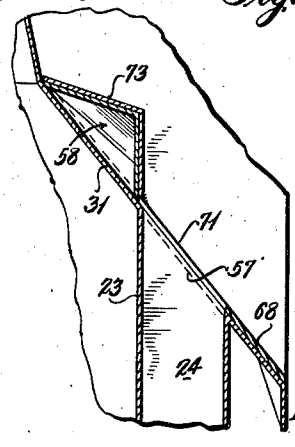


Fig. 13.

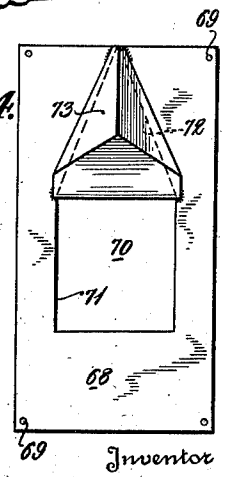


Fig. 14.

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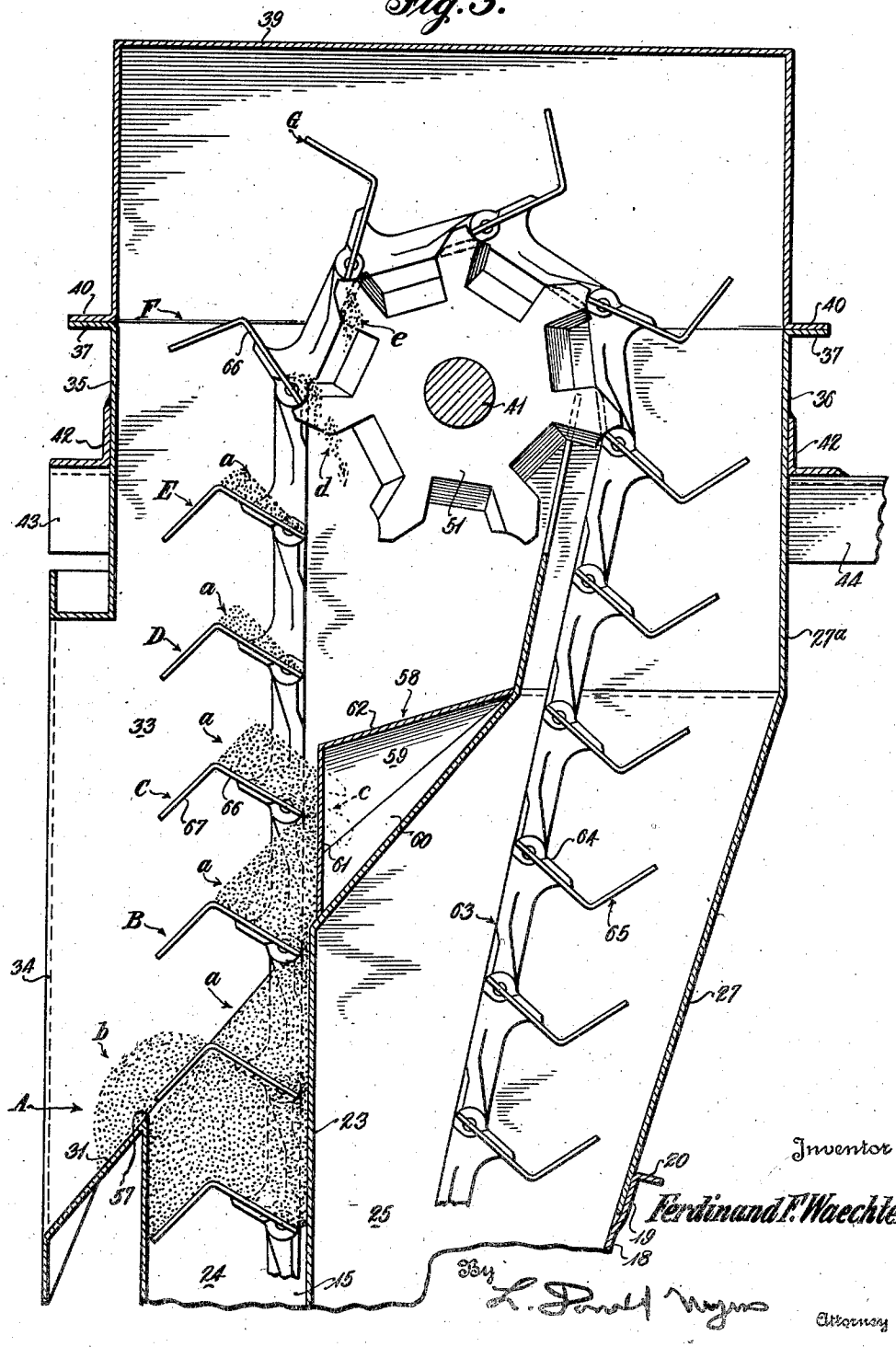
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CASING HEAD SECTION FOR CONVEYER ELEVATORS

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Fig. 3.



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Fig. 4.

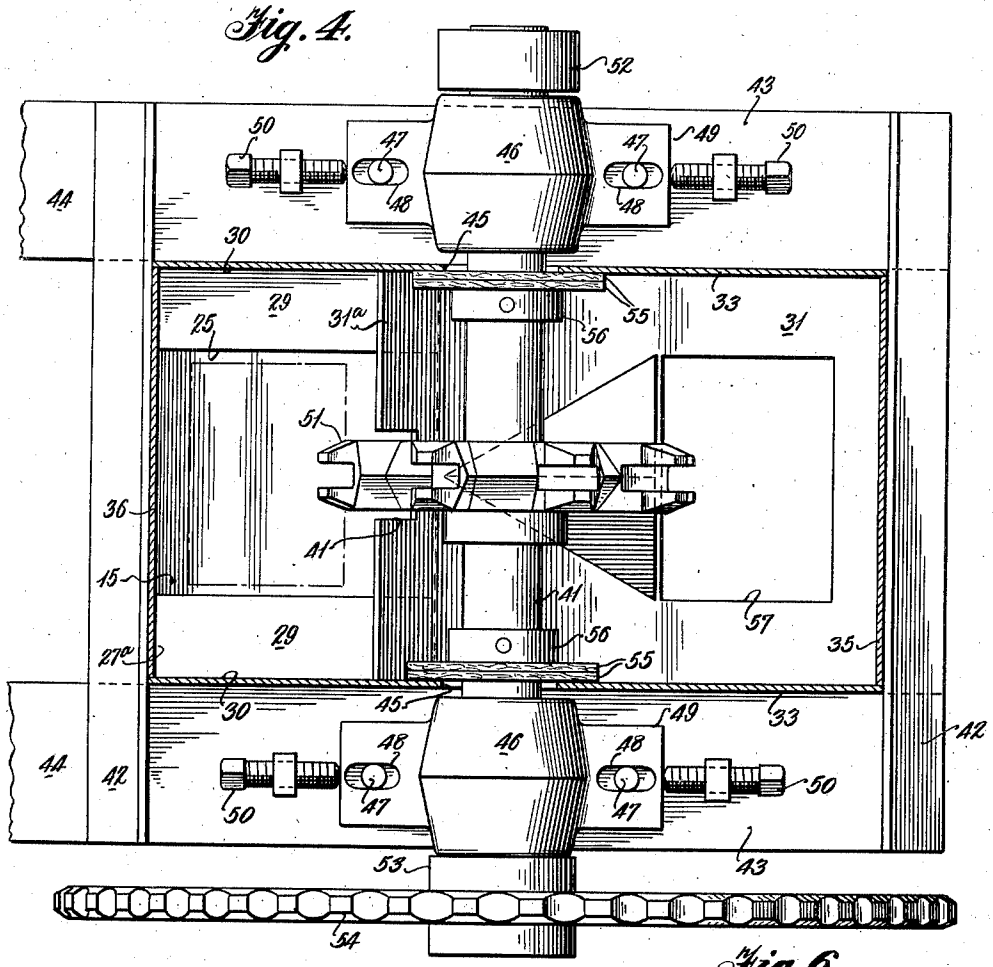


Fig. 5.

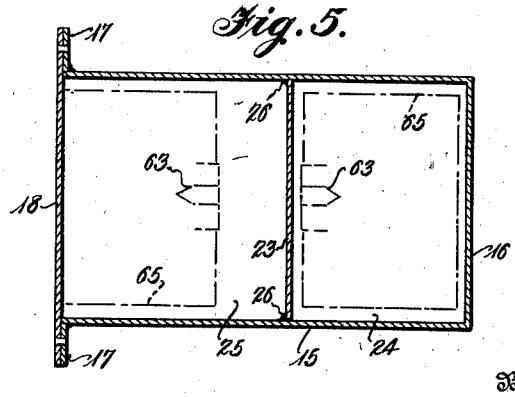
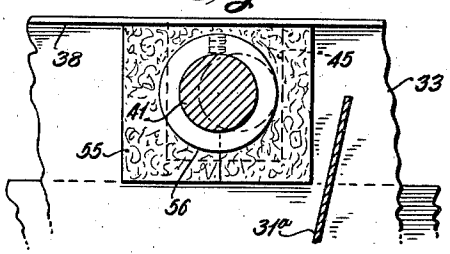


Fig. 6.



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CASING HEAD SECTION FOR CONVEYER ELEVATORS

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Fig. 7.

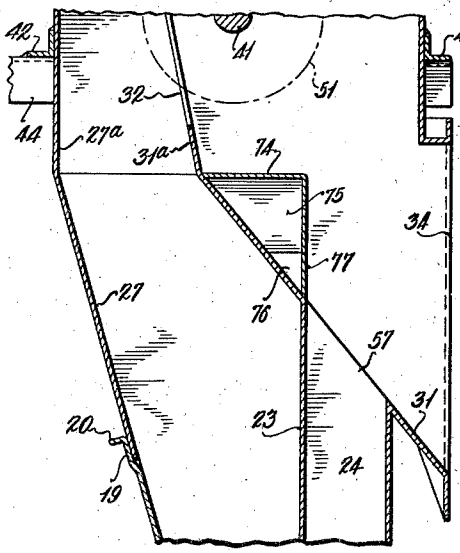


Fig. 8.

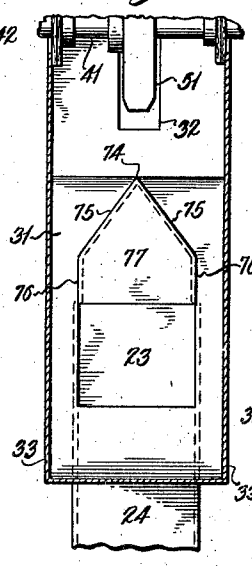


Fig. 9.

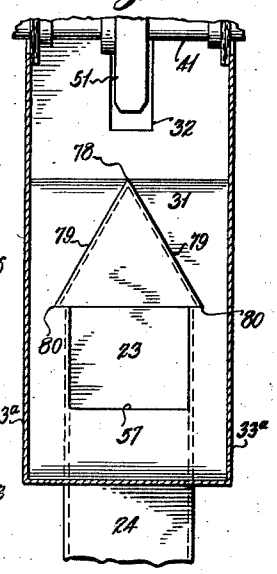


Fig. 10.

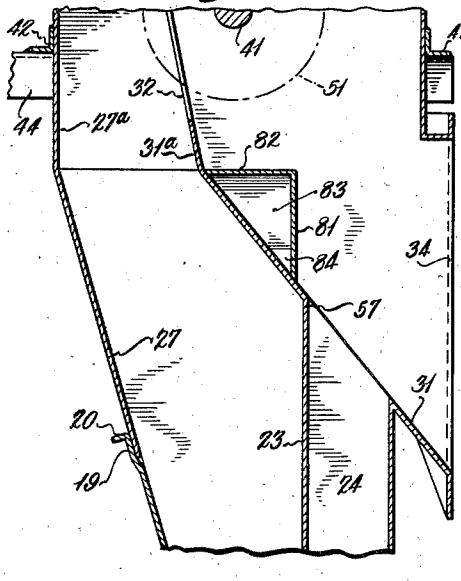


Fig. 11.

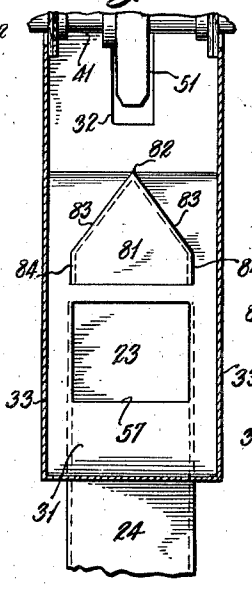
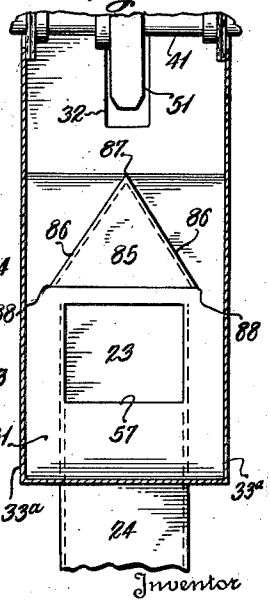


Fig. 12.



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Patented Mar. 25, 1941 2,235,856

UNITED STATES PATENT OFFICE

2,235,856

CASING HEAD SECTION FOR CONVEYER-ELEVATORS

Ferdinand F. Waechter, Philadelphia, Pa., assignor to Link-Belt Company, a corporation of Illinois

Application January 30, 1940, Serial No. 316,436

21 Claims. (Cl. 198—168)

This invention relates to new and useful improvements in casing head sections for conveyer-elevators of the type which transport lump, granular, powdered, or other comminuted materials in a continuous flow or mass and effect discharge from their head sections.

In copending application Ser. No. 316,434, filed by William W. Sayers, on January 30, 1940, there is disclosed and claimed a novel "peak-top" solid flight type of conveyer structure which is particularly effective in transporting flowable materials in a continuous stream or mass through enclosing casings. When this type of flight is employed in a casing which is laid out in a closed path that includes a vertical leg, for example, a conveyer-elevator, the transported material usually is discharged from the head section of the casing.

In unloading, the "peak-top" flights spill the major portion of their respective loads by gravity as a result of the flights passing out of the open upper end of the active vertical leg of the casing into the head section. The balance of each flight load is spilled as the flight moves from the end of the vertical casing leg up to and partially around the head sprocket wheel located in the head section of the casing. The material flows off of the flight on all four sides and must be properly delivered to the discharge chute which will carry it away from the casing head.

If the material is not carried away from the head section at least as rapidly as it is delivered thereto by the flights, the head section of the casing will fill. If this occurs, the flights will not be allowed to properly discharge their load and a considerable amount of material will be carried over to and down the return run of the conveyer with the result that the capacity of the machine will be greatly reduced. Also, the material may build up to such an extent as to jam the transporting mechanism and cause considerable damage.

It is the primary object of this invention to provide means for effecting rapid and complete delivery to the discharge chute of all material unloaded in the casing head section by the flights of the transporting mechanism.

A further important object of the invention is to provide a conveyer casing head section structure which will handle without difficulty all of the material spilled from the four sides of the transporting flights so that no piling up of material will occur and so that material discharged from the side and rear edges of the flights will not interfere with the flow of material into the casing head section from the upper end of the active vertical leg of the casing.

Another object of the invention is to provide means for splitting or spreading the material which is discharged from the rear edges of the flights so that as this material moves toward the discharge chute it will pass around the opening through which the loaded flights enter the casing head section.

A still further object of the invention is to provide a conveyer casing head section structure which will permit of easy renewal or replacement of parts which are subject to the greatest amount of wear.

Other specific objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings forming a part of this specification, and in which like numerals are employed to designate like parts throughout the same,

Figure 1 is a side elevational view of a casing head section for conveyer-elevators which embodies this invention,

Figure 2 is a partly vertical sectional view and partly front elevational view of the upper portion of the head section disclosed in Fig. 1,

Figure 3 is a vertical sectional view of the upper portion of the casing head section disclosed in Figs. 1 and 2 with a "peak-top" flight type of transporting mechanism operatively arranged therein,

Figure 4 is a horizontal sectional view taken on line 4—4 of Fig. 1,

Figure 5 is a horizontal sectional view taken on line 5—5 of Fig. 1,

Figure 6 is a detail, vertical sectional view taken on line 6—6 of Fig. 2,

Figure 7 is a vertical sectional view of a portion of a casing head section and illustrates a modified form of flow splitting wedge structure from that disclosed in Figs. 1 to 4, inclusive,

Figure 8 is a vertical sectional view taken at right angles to the disclosure of Fig. 7,

Figure 9 is a view similar to Fig. 8 but illustrates a still further modified form of flow splitting wedge structure,

Figure 10 is a view similar to Fig. 7 but illustrates another form or arrangement of flow splitting wedge,

Figure 11 is a vertical sectional view of the casing head structure disclosed in Fig. 10 but taken at right angles thereto,

Figure 12 is a view similar to Fig. 11 but il-

lustrates another form of flow splitting wedge structure,

Figure 13 is a detail, vertical sectional view of a portion of the head casing section illustrated in Figs. 1 and 2 with a replaceable lining or wear plate applied over a portion of the gathering chute illustrated in Figs. 1 and 2 and with a replacement flow splitting wedge secured to the said lining or wear plate and overlying the original flow splitting wedge of the structure, and

Figure 14 is a front elevational view of the replaceable lining or wear plate and the replacement flow splitting wedge illustrated in vertical section in Fig. 13.

In the drawings, wherein for the purpose of illustration are shown the preferred embodiments of this invention, and particularly referring to Figs. 1, 2, and 5 in which there are disclosed certain detail features of construction of the casing head section embodying this invention, this casing head section is formed of pressed or stamped sheet metal and, with the exception of certain joint structures which are specifically disclosed and described, because of their importance, no attempt will be made to illustrate in detail all of the seams or joints which might be provided in uniting separately formed sheet metal parts. It will be appreciated that the essential structural characteristics of this head casing section might be obtained by numerous variations of the structure which is specifically illustrated.

Fig. 5 is a horizontal, sectional view through the vertical leg portion of the structure disclosed in Fig. 1. It will be seen that this vertical leg portion is formed by a plate which is properly shaped to provide the side walls 15 and the front wall 16 of a casing leg which is of substantially rectangular shape in the illustrated section. The rear edges of the side walls 15 are illustrated as having flanges 17 welded thereto and projecting laterally outwardly thereof. Figs. 1 and 5 disclose the flanges 17 as having replaceably secured thereto, as by means of bolts, or the like, a renewable plate 18. Fig. 1 discloses the upper edge portion of this renewable plate 18 as being offset at 19 which will make allowance for inaccuracies in this renewal plate and yet provide a closed or continuous joint. The flange 20 is formed on the edge of this offset portion 19 to allow for the omission of bolts across the casing at this joint location. Fig. 1 illustrates suitable flanges 21 secured to the lower edges of the walls 15 and 16 and the renewable plate 18 for use in securing a lower casing section 22 to the lower end of the casing head section. Figs. 1 and 5 disclose a partition plate 23 as extending between the side walls 15 for dividing this portion of the casing into the active leg portion 24 and the inactive or return leg portion 25 through which the transporting mechanism travels in going to and from the head sprocket wheel, see Figs. 2 and 4, located in the upper portion of the head section. This sprocket wheel will be specifically referred to at a later point. The partition plate 23 is secured to the inner faces of the side walls 15 by welding at 26. It will be noted that the welding for these seams or joints is located on the return side of the partition so that the "up" or active run portion 24 may be unobstructed.

Above the joint formed at the upper end of the renewable plate 18, the rear wall 27 of the "down" or inactive leg 25 is closed by a permanent portion of the casing. It will be noted by inspecting Fig. 1 that the permanent rear wall 27 and the upper portion of the renewable plate 18 diverge rearwardly from the truly perpendicular front wall 16. This provides a flare or an increased depth in the casing which allows for the return run of the transmission mechanism to travel from the periphery of the head sprocket wheel down into the reduced, next adjacent casing section 22 and the portion of the head casing section which lies immediately thereabove. This return of the transmission mechanism is best illustrated in Fig. 3. It will be appreciated that in moving into the more restricted lower portion of the head casing section, the flights of the transmission mechanism will scrape or drag along the inner surface of the renewable plate 18. This plate, therefore, will be subjected to considerable wear and for that reason it is renewable.

Figs. 1 and 2 clearly disclose the upper end of the "up" or active portion 24 and a part of the "down" or return portion of the casing as being cut off at an angle of approximately 50°, or along the line 28. The purpose of this will be developed at a later point. The side walls 15, where they project above the upper end of the line 28, flare laterally outwardly away from each other at 29 to provide an increased width at this portion of the casing. The side wall portions 30, located above the upwardly diverging side wall portions 29, are arranged in parallelism. An extension 27*a* of the permanent rear wall 27 closes the upper part of the casing formed by the side wall portions 29 and 30. Fig. 4 further illustrates this construction of the casing.

By inspecting Figs. 1 and 2, it will be seen that an inclined gathering chute 31 is joined to the side walls 15 of the casing along the aforementioned line 28. This gathering chute is of greater width than the width of the casing portion having the side walls 15; i. e., this gathering chute 31 is wider than the "up" and "down" portions 24 and 25 of the casing. The width of the gathering chute, therefore, defines the bottom wall or floor of a casing enlargement which facilitates unloading or spilling of the transported material from the flights. The upper portion 31*a* of the gathering chute extends at a greater angle upwardly to the horizontal plane which intersects the axis of the shaft on which the head wheel is mounted. This gathering chute portion 31*a* joins with the front edges of the upwardly diverging casing side wall portions 29. This gathering chute portion 31*a* is illustrated in Fig. 2 as being cut away or notched at 32 to accommodate the head sprocket wheel. The opposite sides of the discharge chamber, which has the gathering chute 31 as a floor, are formed by the walls 33. The major portion of the front of this discharge chamber is left open to provide a discharge opening through which the material leaves teh casing head section. A flange structure 34 is joined to the edges of the discharge opening. This flange is employed for bolting to the head section a suitable chute or conduit, not shown, by means of which the material discharged from the head section of the conveyer-elevator, is carried to the point or points of use.

The upper edges of the side wall portions 30 and 33 and the front and rear wall portions 35 and 36, respectively, are flanged at 37 and 38. The flanges 37 project outwardly from the front and rear walls 35 and 36 while the flanges 38 project laterally inwardly from the wall portions 30 and 33. A cover 39 is employed for closing the upper end of the head casing section. This cover is flanged at 40 for being removably secured to the flanges 37 and 38 of the main body of the

casing section. Removal of the cover 39 allows inspection and adjustment of the conveyer mechanism.

Figs. 1, 2, 4, and 6 disclose in detail the head shaft 41 and its mounting. It will be noted that angle irons 42 extend across the front and rear wall portions 35 and 36, respectively, of the upper part of the main head casing section. These angle irons are joined at their end portions to bearing brackets or supporting beams 43 which extend transversely of and bear against the wide walls 33 and 30 of the upper portion of the head casing. These bearing brackets or beams 43 may project laterally of the head casing, as at 44, if desired, for supporting a suitable prime mover employed for driving the head shaft 41.

The casing side wall portions are illustrated in Figs. 1, 2, 4, and 5 as having openings 45 formed therein through which the head shaft 41 projects laterally outwardly in opposite directions from the casing. These projecting portions of the shaft are journaled in bearings 46, see Figs. 2 and 4, which are adjustably supported on the bearing brackets 43. Bolt holes 47 are formed in the bearing brackets 43 while bolt receiving, elongated openings 48 are formed in the base portions 49 of the bearing. Bolts, not shown, are to be arranged in these openings 47 and 48 for attaching the bearings to the brackets 43. Takeup screws 50 are adjustably mounted on the brackets 43 and function to adjust or position the head sprocket wheel 51 relative to the "up" or active passage 24 of the head casing section. In other words, the pitch circle of the head sprocket wheel 51 should be so positioned relative to the "up" passage 24 of the head casing as to cause the chain, or the like, of the transmission mechanism to bear against the partition 23 in its upward movement through the casing leg portion 24. A safety collar 52 is secured to one extremity of the head shaft 41 for preventing endwise movement of the head shaft in one direction while the hub 53 of the drive sprocket 54 is secured to the remaining end portion of the head shaft 41 for preventing axial movement of this shaft in the opposite direction.

To seal the openings 41 against the leakage of material being conveyed, suitable sealing members 55 encircle the head shaft 41 and overlie the inner sides of the openings 45. These sealing members are split so that they may be applied to and removed from the head shaft 41 without disturbing the shaft. Collars 56 are secured to the shaft to retain the sealing members 55 against the inner surfaces of the side walls 33 of the casing. By inspecting Fig. 2, it will be seen that these collars 56 and sealing members 55 underlie the inwardly directed flanges 38 so that they will in no way interfere with the flow or discharge of material from the conveyer mechanism flights.

By inspecting Figs. 1, 2, and 4, it will be seen that the gathering chute 31 is provided with a flight opening 57 which registers with the bore of the active or "up" passage 24. The conveyer flights, therefore, will be permitted to move smoothly from the bore of the casing passage 24 through the opening 57 of the gathering chute 31. Positioned upon and suitably secured, as by means of welding, to the portion of the gathering chute 31 located upwardly or inwardly of the flight opening 57 is a flow splitting wedge 58. This wedge is provided with laterally, downwardly sloping top surfaces or walls 59 which terminate at their side edges in perpendicular wall portions or surfaces 60. The front wall 61 of this flow splitting wedge 58 is perpendicularly arranged and is aligned with the partition 23 which divides the casing into the two leg portions or passages 24 and 25. By inspecting Fig. 2 it will be seen that the laterally, downwardly sloping top walls or surfaces 59 of the flow splitting wedge 58 form a ridge 62 at the junction of their upper edges. This ridge is centered with respect to the head sprocket wheels 51. Figs. 1 and 2 also disclose this ridge line 62 as being arranged at an angle with respect to the horizontal, or as sloping downwardly toward the discharge opening formed in the side wall of the casing.

Fig. 3 discloses the head casing structure previously described with material transporting mechanism of the type disclosed in the aforementioned William W. Sayers application which includes the solid "peak-top" flights. As the casing parts or elements are all the same as those which have been described heretofore, the same reference characters will be applied in Fig. 3.

This transmission mechanism includes a flexible drive member 63 which may be formed of an appropriate number of chain links connected by articulated joints. Each link is provided with an attachment lug 64 to which the "peak-top" flights 65 are appropriately attached. These flights are made from solid plates and include oppositely inclined portions 66 and 67. These inclined portions may be arranged at any desired relative angle and angles with respect to the horizontal.

In moving from the "up" or active passage 24 into the discharge chamber floored by the discharge chute 31, the flights move through the flight opening 57 formed in the chute. One of the "peak-top" flights 65 is arranged in position A in which a portion *b* of the material spills over the front edge of the flight onto the gathering chute and moves or flows through the side discharge opening of the casing. The portion *a* of the material remains resting on the inner or rear inclined portion 66 of the flight in position A. This material *a* is supported at its rear by the partition 23 and at its opposite sides by the side walls 15 of the casing leg.

The flight 65 arranged in position B has moved above the plane of the gathering chute 31 so that the material *a* resting on this flight is no longer supported at its opposite sides. Some of the material, therefore, has discharged or spilled laterally off of both side edges of the flight onto the side portions of the gathering chutes which are arranged in opposite sides of the flight opening 57. The rear of this material *a* in flight position B, is still supported by the front perpendicular wall or surface 61 of the flow splitting wedge 58. As the "peak-top" flights 65 move upwardly along the front face 61 of the flow splitting wedge 58, some of the material *a* is permitted to discharge, as designated by the reference character *c* rearwardly off of the flights because the upper edges of the perpendicular face 61 of the wedge converge toward the peak line 62. This material *c* spills onto the downwardly and laterally sloping surfaces 59 of the wedge and is delivered to the side portions of the gathering chute 31 along which the material will flow to the discharge opening of the casing. This splitting or spreading of the material laterally will cause it to pass around the flight opening 57 of the chute so that it will not in any way interfere with the material being conveyed by the flights through this opening.

When the flights move from position C up to

and through positions D and E, the material *a* remaining thereon is that material which will not spill from the flights because of its angle of repose.

As the "peak-top" flights **65** move into position F, the angle of the rear inclined portion of each flight is increased and the material *a* which remained on the flights in positions D and E will be discharged as indicated by the reference character *d*.

As the "peak-top" flights **65** move around the head sprocket wheel **51**, the angle of their inner flight portions **66** will increase until the angle passes the perpendicular, which is indicated in flight position G. Assuming that a very small amount of material has remained on the flight after leaving position F, this material will be discharged as indicated by the reference character *e*.

It will be appreciated that all of the material which spills over the rear edges of the flights, in moving from position B up to and including position G, will fall downwardly in back of the chain, or the flexible drive member **63**. Any of this material which falls on the downwardly, lateraly sloping top surfaces **59** of the flow splitting wedge **58** will be spread laterally by this wedge onto the side portions of the gathering chute **31** and will flow down the portions past the flight opening **57** formed in the chute. This rearwardly discharged material, therefore, will in no way interfere with the movement of material through the flight opening **57** on the flights as they pass through the opening.

As the material handled by the transporting mechanism all spills onto the gathering chute **31** and the flow splitting wedge **58**, these elements will be subjected to a considerable amount of abrasive action and rapid wear. It becomes desirable, therefore, to be able to renew these portions of the mechanism. Figs. 13 and 14 disclose suitable renewal parts for the gathering chute and the flow splitting wedge.

A lining or wear plate **68** is provided which will exactly fit over the portion of the gathering chute **31** which surrounds the flight opening **57** and the flow splitting wedge **58**. Apertures **69** are provided in the margins of this plate **68** for receiving suitable securing devices, such as rivets, bolts, or the like. The plate **68** is provided with an opening **70** which includes a substantially rectangular portion **71** and a cone-shaped or pointed portion **72**. The rectangular portion **71** is intended to conform in size and shape with the flight opening **57** of the gathering chute **31**. The opening portion **72** is of a proper shape and size to allow for the passage of the flow splitting wedge **58** therethrough. The lining or wear plate **68** may either be used with or without a replacement flow splitting wedge **73**. This wedge is secured by welding, or the like, to the plate **68** when it is to be used. If the substitute wedge **73** is not to be used, the original flow splitting wedge **58** will properly cooperate with the replacement plate **68**. This substitute or replacement wedge **73** should take the same shape as the wedge **58** so that this latter wedge will be nested within the replacement wedge **73**. Figs. 7 to 12, inclusive, illustrate various modifications of the flow splitting wedge **58** disclosed and described in connection with the preceding figures. As the flow splitting wedges are the only portions of the structures disclosed in these Figs. 7 to 12, inclusive, which differ from the elements previously described, the same reference characters will be applied to the identical elements and new reference characters will be applied to the flow splitting structures.

Figs. 7 and 8 illustrate a single flow splitting wedge structure. This wedge differs from the previously described wedge **58** by having its ridge line **74** arranged truly horizontally instead of being inclined like the peak line **62** of wedge **58**. This ridge line **74** is formed by the junction of the top edges of the laterally and downwardly sloping top wall portions **75**. Perpendicular side walls **76** underlie the lower edges of the sloping top walls **75**. The front face **77** of this flow splitting wedge is arranged perpendicularly and is aligned with the partition **23**.

Fig. 9 discloses a further modified form of flow splitting wedge. This wedge has a truly horizontally extending peak line **78**, like the wedge of Figs. 7 and 8, but the opposite sides are formed entirely by downwardly and laterally sloping walls **79**. These walls are of sufficient length and are arranged at an appropriate angle with respect to each other to cause the lower edges of the same to terminate laterally of the side edges of the flight opening **57**. By projecting beyond the side edges of this side opening **57**, the material which falls onto the sloping top walls **79** will be carried laterally away from the side edges of the flight opening to a greater extent than will be accomplished with the flow splitting wedge of Figs. 7 and 8 or the wedge of Figs. 1 and 2. To allow ample room for the material to pass the bottom edges **80** of the sloping walls **79**, the side walls **33***a* are spaced farther apart to provide a wider discharge chamber and a wider gathering chute **31**.

Figs. 10 and 11 disclose a still further modified form of flow splitting wedge. This wedge corresponds in shape with the wedge of Figs. 7 and 8 but differs from all previously described wedges by being arranged so that its perpendicular front wall or face **81** is offset or stepped back from the plane of the partition **23**. In the handling of certain materials, this rearward offsetting of the perpendicular face **81** is desirable because it assists in effecting rearward discharge of the material from the rear edges of the flights while they traverse the height of the flow splitting wedge. With other materials, however, this offsetting is undesirable as material either tends to pack against the perpendicular face **81** or roll along this face and be crushed during the movement of the flights. As a general rule, therefore, the perpendicular front faces of the flow splitting wedges should be vertically aligned with the partition **23**. This flow splitting wedge of Figs. 10 and 11 further includes a truly horizontal ridge line **82**, downwardly and laterally sloping top walls or surfaces **83**, and perpendicular side walls **84**. The flow splitting wedge of Fig. 12 corresponds with the wedge of Fig. 9 in shape and in width. This wedge, however, is offset or stepped backwardly from the partition **23** in the same manner as the wedge of Figs. 10 and 11. The perpendicular front face **85**, therefore, is not in vertical alignment with the partition **23**. The downwardly sloping side walls **86** of this wedge form a truly horizontally arranged peak line **87** at the junction of their upper edges. Their lower edges **88** project laterally of the flight opening **57** formed in the gathering chute **31**. The side walls **33***a* of the casing for this structure of Fig. 12 are spaced farther apart like the side walls of the structure disclosed in Fig. 9.

It is to be understood that the forms of this

invention herewith shown and described are to be taken as preferred examples of the same, and that various changes in the shape, size, and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

Having thus described the invention, I claim:

1. In a casing structure for elevators, or the like, a casing head section divided into vertical leg portions and having a discharge opening adjacent the upper end of one of said portions, a head wheel journaled in the head section, a material transporting device including a plurality of interconnected flights adapted to pass around the head wheel in traveling from one vertical leg portion to the other, said flights being constructed to spill material into the head section as they move therethrough after leaving the vertical leg portion adjacent said discharge opening, an inclined gathering chute for receiving the material spilt from the flights, extending from the discharge opening across the upper end of said last mentioned vertical leg portion and beneath the head wheel, said chute having a rectangular flight opening which registers with the bore of the said underlying vertical leg portion, and means positioned beneath the head wheel and entirely rearwardly of the inner side of said rectangular flight opening for splitting the flow of material falling thereon from the inner edges of the flights to cause said material to pass around the flight opening of the chute in flowing toward the discharge opening of the head section.

2. In a casing structure for elevators, or the like, a casing head section divided into vertical leg portions and having a discharge opening adjacent the upper end of one of said portions, a head wheel journaled in the head section, a material transporting device including a plurality of interconnected flights adapted to pass around the head wheel in traveling from one vertical leg portion to the other, said flights being constructed to spill material into the head section as they move therethrough after leaving the vertical leg portion adjacent said discharge opening, an inclined gathering chute for receiving the material spilt from the flights, extending from the discharge opening across the upper end of said last mentioned vertical leg portion and beneath the head wheel, said chute having a rectangular flight opening which registers with the bore of said underlying vertical leg, and an elongated flow splitting wedge extending from the inner side of the rectangular flight opening rearwardly thereof to a position beneath the head wheel for causing the material falling thereon from the inner edges of the flights to pass around the flight opening of the chute in flowing toward the discharge opening of the head section.

3. In a casing structure for elevators, or the like, a casing head section divided into vertical leg portions and having a discharge opening adjacent the upper end of one of said portions, a head wheel journaled in the head section, a material transporting device including a plurality of interconnected flights adapted to pass around the head wheel in traveling from one vertical leg portion to the other, said flights being constructed to spill material into the head section as they move therethrough after leaving the vertical leg portion adjacent said discharge opening, an inclined gathering chute for receiving the material spilt from the flights, extending from the discharge opening across the upper end of said last mentioned vertical leg portion and beneath the head wheel, said chute having a flight opening which registers with the bore of said underlying vertical leg portion, and a flow splitting wedge, having oppositely laterally sloping top surfaces, positioned beneath the head wheel for causing the material spilt over the inner edges of the flights to pass around the flight opening of the chute in flowing toward the discharge opening of the head section.

4. In a casing structure for elevators, or the like, a casing head section divided into vertical leg portions and having a discharge opening adjacent the upper end of one of said portions, a head wheel journaled in the head section, a material transporting device including a plurality of interconnected flights adapted to pass around the head wheel in traveling from one vertical leg portion to the other, said flights being constructed to spill material into the head section as they move therethrough after leaving the vertical leg portion adjacent said discharge opening, an inclined gathering chute for receiving the material spilt from the flights, extending from the discharge opening across the upper end of said last mentioned vertical leg portion and beneath the head wheel, said chute having a flight opening which registers with the bore of the said underlying vertical leg, and a flow splitting wedge, having oppositely laterally sloping top surfaces for causing material to flow laterally around the flight opening and a front wall portion for retaining material on the rear portions of the flights after they have moved above the level of the gathering chute and while the material is allowed to spill over the front and sides of the flights.

5. In a casing structure for elevators, or the like, a casing head section divided into vertical leg portions and having a discharge opening adjacent the upper end of one of said portions, a head wheel journaled in the head section, a material transporting device including a plurality of interconnected flights adapted to pass around the head wheel in traveling from one vertical leg portion to the other, said flights being constructed to spill material into the head section as they move therethrough after leaving the vertical leg portion adjacent said discharge opening, an inclined gathering chute, for receiving the material spilt from the flights, extending from the discharge opening across the upper end of said last mentioned vertical leg portion and beneath the head wheel, said chute having a flight opening which registers with the bore of the said underlying vertical leg, and a flow splitting wedge having oppositely laterally sloping top surfaces for causing material to flow laterally around the flight opening and a front wall vertically aligned with the rear edge portion of the flight opening in the chute for retaining material on the rear portions of the flights after they have moved above the level of the gathering chute and while the material is allowed to spill over the front and sides of the flights.

6. In a casing structure for elevators, or the like, a casing head section divided into vertical leg portions and having a discharge opening adjacent the upper end of one of said portions, a head wheel journaled in the head section, a material transporting device including a plurality of interconnected flights adapted to pass around the head wheel in traveling from one vertical leg portion to the other, said flights being constructed to spill material into the head section as they move therethrough after leaving the ver-

tical leg portion adjacent said discharge opening, an inclined gathering chute, for receiving the material spilt from the flights, extending from the discharge opening across the upper end of said last mentioned vertical leg portion and beneath the head wheel, said chute having a flight opening which registers with the bore of the said underlying vertical leg, and a flow splitting wedge having oppositely laterally sloping top surfaces for causing material to flow laterally around the flight opening and a front wall offset rearwardly with respect to the rear edge portion of the flight opening in the chute for retaining material on the rear portions of the flights after they have moved above the level of the gathering chute and while the material is allowed to spill over the front and sides of the flights.

7. In a casing structure for elevators, or the like, a casing head section divided into vertical leg portions and having a discharge opening adjacent the upper end of one of said portions, a head wheel journaled in the head section, a material transporting device including a plurality of interconnected flights adapted to pass around the head wheel in traveling from one vertical leg portion to the other, said flights being constructed to spill material into the head section as they move therethrough after leaving the vertical leg portion adjacent said discharge opening, an inclined gathering chute, for receiving the material spilt from the flights, extending from the discharge opening across the upper end of said last mentioned vertical leg portion and beneath the head wheel, said chute having a flight opening which registers with the bore of the said underlying vertical leg, and a flow splitting wedge, of greater width than the flight opening in the chute, positioned beneath the head wheel for causing the material spilt over the inner edges of the flights to pass around the flight opening of the chute in flowing toward the discharge opening of the head section.

8. In a casing structure for elevators, or the like, a casing head section divided into vertical leg portions and having a discharge opening adjacent the upper end of one of said portions, a head wheel journaled in the head section, a material transporting device including a plurality of interconnected flights adapted to pass around the head wheel in traveling from one vertical leg portion to the other, said flights being constructed to spill material into the head section as they move therethrough after leaving the vertical leg portion adjacent said discharge opening, an inclined gathering chute, for receiving the material spilt from the flights, extending from the discharge opening across the upper end of said last mentioned vertical leg portion and beneath the head wheel, said chute having a flight opening which registers with the bore of said underlying vertical leg, and a flow splitting wedge, having oppositely laterally sloping top surfaces extending beyond the opposite sides of the flight opening in the chute, positioned beneath the head wheel for causing the material spilt over the inner edges of the flights to pass around the flight opening of the chute in flowing toward the discharge opening of the head section.

9. In a casing structure for elevators, or the like, a casing head section divided into vertical leg portions and having a discharge opening adjacent the upper end of one of said portions, a head wheel journaled in the head section, a material transporting device including a plurality of interconnected flights adapted to pass around the head wheel in traveling from one vertical leg portion to the other, said flights being constructed to spill material into the head section as they move therethrough after leaving the vertical leg portion adjacent said discharge opening, an inclined gathering chute extending from the discharge opening across the upper end of said last mentioned vertical leg and beneath the head wheel, said chute having a flight opening which registers with the bore of said underlying vertical leg, a replaceable lining plate overlying the portion of the gathering chute on which the material spills from the flights, and a flow splitting wedge attached to the lining plate to underlie the head wheel for causing the material spilt over the inner edges of the flights to pass around the flight opening of the chute in flowing toward the discharge opening of the head section.

10. In a casing structure for elevators, or the like, a casing head section divided into vertical leg portions and having a discharge opening adjacent the upper end of one of said portions, a head wheel journaled in the head section, a material transporting device including a plurality of interconnected flights adapted to pass around the head wheel in traveling from one vertical leg portion to the other, said flights being constructed to spill material into the head section as they move therethrough after leaving the vertical leg portion adjacent said discharge opening, an inclined gathering chute for receiving the material spilt from the flights, extending from the discharge opening across the upper end of said last mentioned vertical leg portion and beneath the head wheel, said chute having a flight opening which registers with the bore of said underlying vertical leg, a flow splitting wedge positioned beneath the head wheel for causing the material spilt over the inner edges of the flights to pass around the flight opening of the chute in flowing toward the discharge opening of the head section, and a replaceable wear plate overlying the portion of the gathering chute on which the material spills from the flights.

11. As an article of manufacture, a replaceable part for the inclined gathering chute and flow splitting wedge of an elevator, or the like, casing head section, comprising a plate having an opening of a shape to provide a flight passage portion to register with the flight opening of the aforesaid gathering chute and a portion to fit around the flow splitting wedge carried by the gathering chute.

12. As an article of manufacture, a replaceable part for the inclined gathering chute and flow splitting wedge of an elevator, or the like, casing head section, comprising a plate having an opening of a shape to provide a flight passage portion to register with the flight opening of the aforesaid gathering chute, a portion to fit around the flow splitting wedge carried by the gathering chute, and a hollow flow splitting wedge secured to the margins of the portion of the plate opening which fits around the flow splitting wedge of the gathering chute, said hollow flow splitting wedge being of a proper shape and size to fit over the wedge of the chute.

13. In a casing head section for elevators, or the like, a hollow lower body portion having a width to accommodate, with the desired amount of clearance, the traverse of flights therethrough and having a depth which increases in dimensions upwardly and rearwardly to accommodate two flight runs traveling to and from a head sprocket wheel, and a partition dividing said

lower body portion into active and return passages for said two flight runs; a hollow upper body portion of greater width than the lower body portion to provide a material discharge chamber and being open at its upper end, said discharge chamber being closed at its bottom and rear portions by an inclined gathering chute having a flight opening registering with the active passage of the flight runs formed by said partition, said chute also forming a dividing wall between the upper and lower body portions and defining the return passage for the flights in said upper body portion, the front wall of said discharge chamber having a discharge opening formed therein which is defined at its bottom by the outer edge of the gathering chute, a head shaft journaled at the open end of the upper body portion, a head sprocket wheel on said shaft, and a cover removably attached to the open end of the body portion.

14. In a casing head section for elevators, or the like, a hollow lower body portion having a width to accommodate, with the desired amount of clearance, the traverse of flights therethrough and having a depth which increases in dimensions upwardly and rearwardly to accommodate two flight runs traveling to and from a head sprocket wheel, and a partition dividing said lower body portion into active and return passages for said two flight runs; a hollow upper body portion of greater width than the lower body portion to provide a material discharge chamber and having an opening at its upper end which is defined at its opposite sides by inwardly bent flanges, said discharge chamber being closed at its bottom and rear portions by an inclined gathering chute having a flight opening registering with the active passage of the flight runs formed by said partition, said chute also forming a dividing wall between the upper and lower body portions and defining the return passage for the flights in said upper body portion, the front wall of said discharge chamber having a discharge opening formed therein which is defined at its bottom by the outer edge of the gathering chute, the flanged sides of said upper body portion open end being cut away to provide openings for the passage of a head shaft, a head shaft journaled in bearings positioned outwardly of and aligned with the shaft openings, a head sprocket wheel mounted on said shaft, sealing means for the shaft openings underlying said inwardly bent flanges, and a flanged cover removably mounted on the said bent flanges of the upper body portion.

15. In a casing head section for elevators, or the like, a hollow lower body portion having a width to accommodate, with the desired amount of clearance, the traverse of flights therethrough and having a depth which increases in dimensions upwardly and rearwardly to accommodate two flight runs traveling to and from a head sprocket wheel, and a partition dividing said lower body portion into active and return passages for said two flight runs; a hollow upper body portion of greater width than the lower body portion to provide a material discharge chamber and being open at its upper end, said discharge chamber being closed at its bottom and rear portions by an inclined gathering chute having a flight opening registering with the active passage of the flight runs formed by said partition, a flow splitting wedge supported on the gathering chute rearwardly of its flight opening, said chute also forming a dividing wall between the upper and lower body portions and defining the return passage for the flights in said upper body portion, the front wall of said discharge chamber having a discharge opening formed therein which is defined at its bottom by the outer edge of the gathering chute, a head shaft journaled at the open end of the upper body portion, a head sprocket wheel on said shaft, and a cover removably attached to the open end of the upper body portion.

16. In a casing structure for elevators, or the like, a casing head section having a side discharge opening, an inclined gathering chute positioned in said head section and sloping toward said discharge opening, said chute having an opening through which material is carried in being delivered thereto, and a flow splitting wedge positioned on the uphill side of said chute opening and having oppositely laterally sloping top surfaces for causing material to pass around the chute opening in flowing toward the discharge opening of the head section.

17. In a casing structure for elevators, or the like, a casing head section divided into vertical leg portions and having a discharge opening adjacent the upper end of one of said portions, a head wheel journaled in the head section, a material transporting device including a plurality of interconnected flights adapted to pass around the head wheel in traveling from one vertical leg portion to the other, said flights being constructed to spill material into the head section as they move therethrough after leaving the vertical leg portion adjacent said discharge opening, an inclined gathering chute for receiving the material spilt from the flights, extending from the discharge opening across the upper end of said last mentioned vertical leg portion and beneath the head wheel, said chute having a rectangular flight opening which registers with the bore of said underlying vertical leg, and an elongated flow splitting wedge extending from the inner side of the rectangular flight opening rearwardly thereof to a position beneath the head wheel for causing the material falling thereon from the inner edges of the flights to pass around the flight opening of the chute in flowing toward the discharge opening of the head section, said flow splitting wedge also having a front wall portion for retaining material on the rear portions of the flights after they have moved above the level of the gathering chute.

18. In a casing structure for elevators, or the like, a casing head section having a side discharge opening, an inclined gathering chute positioned in said head section and sloping toward said discharge opening, said chute having an opening through which material is carried in being delivered thereto, and a flow splitting wedge positioned on the uphill side of the chute opening and having a flat perpendicular front wall portion which registers with the adjacent margin of the chute opening and oppositely laterally sloping top surfaces for causing material to pass around the chute opening in flowing toward the discharge opening of the head section.

19. In a casing structure for elevators, or the like, a casing head section having a side discharge opening, an inclined gathering chute positioned in said head section and sloping toward said discharge opening, said chute having an opening through which material is carried in being delivered thereto, and a flow splitting wedge positioned on the uphill side of said chute opening and having oppositely laterally sloping top

surfaces, forming at their joined upper edges a forwardly and downwardly sloping ridge, for causing material to pass around the chute opening in flowing toward the discharge opening of the head section.

20. In a casing structure for elevators, or the like, the improvement which comprises an inclined material gathering and feeding chute having an opening through which material is carried in being delivered to the chute, and a flow splitting wedge positioned on the uphill side of said chute opening and having oppositely laterally sloping top surfaces for causing material to pass around the chute opening in flowing down the chute.

21. In a casing structure for elevators, or the like, the improvement which comprises an inclined material gathering and feeding chute having an opening through which material is carried in being delivered to the chute, and an elongated flow splitting wedge extending along the chute on the uphill side of said chute opening for causing material to pass around the chute opening in flowing down the chute.

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