No. 892,550. PATENTED JULY 7, 1908.

J. REAM.

CONVEYER CHUTE.

APPLICATION FILED MAR. 21, 1908.

2 SHEETS—SHEET 1.

Fig. 6.

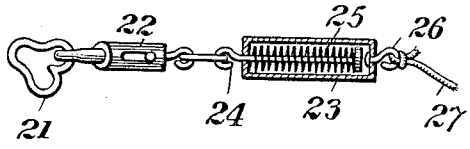


Fig. 1

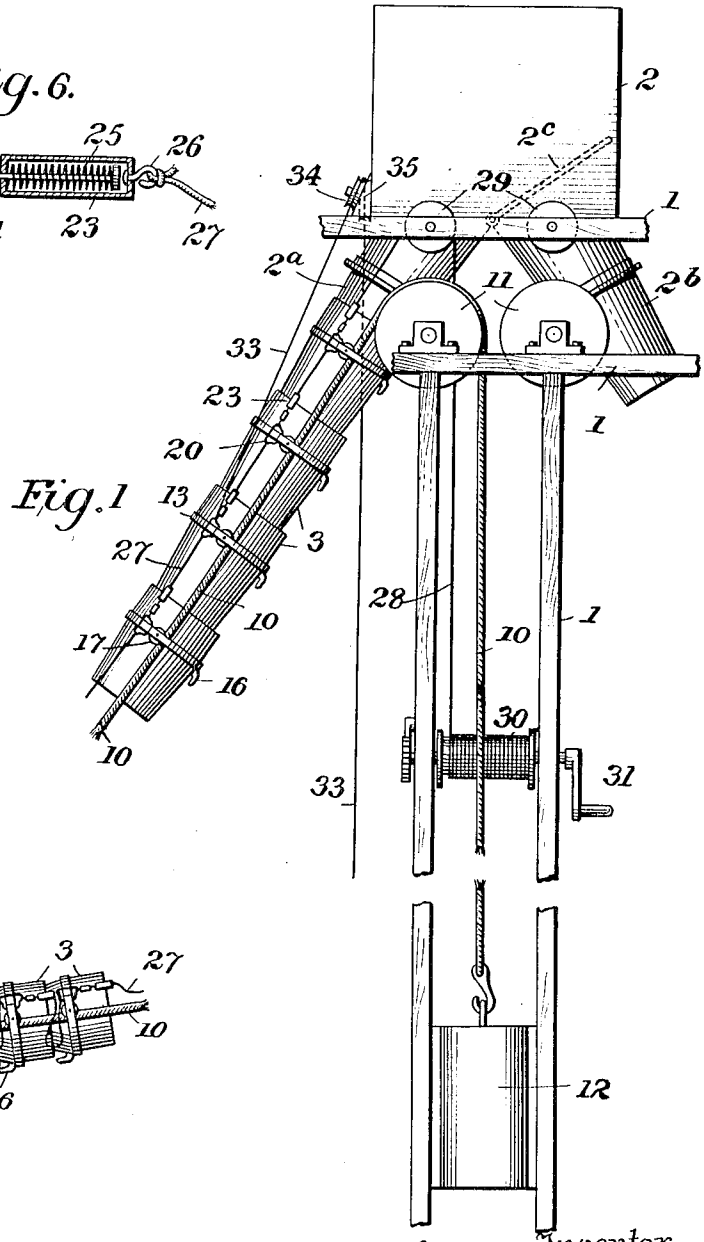
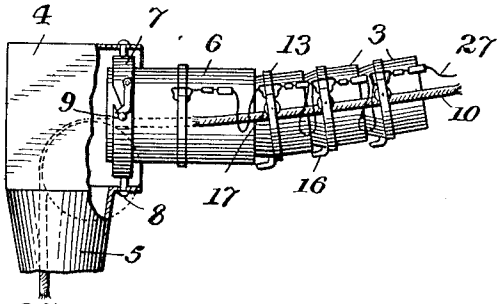


Fig. 1a



Witnesses

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2 SHEETS—SHEET 2.

Fig. 2.

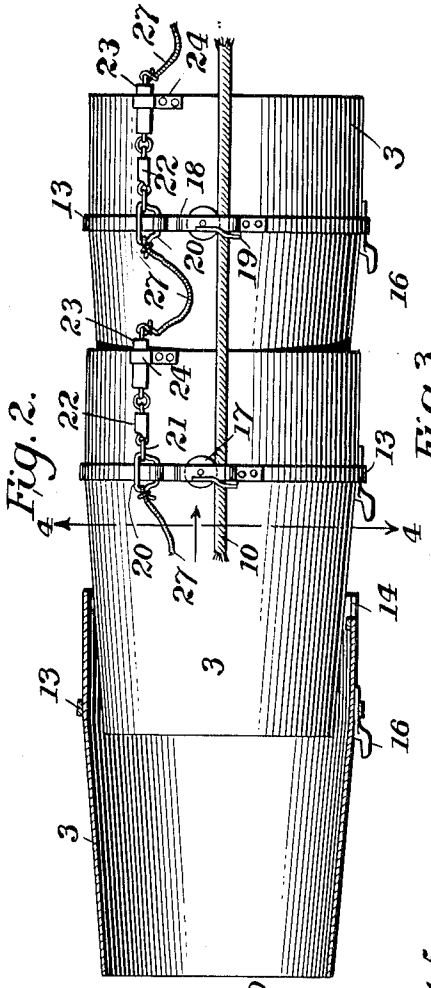


Fig. 3.

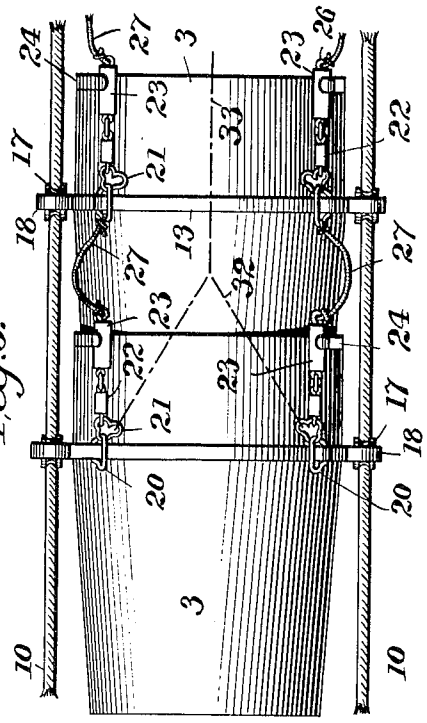


Fig. 4.

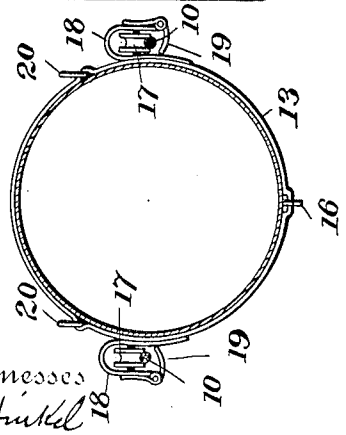
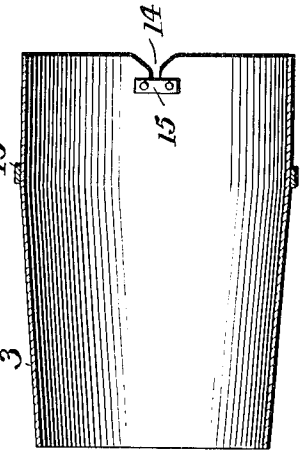


Fig. 5.



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CONVEYER-CHUTE.

No. 892,550. Specification of Letters Patent. Patented July 7, 1908.

Application filed March 21, 1908. Serial No. 422,482.

To all whom it may concern:

Be it known that I, JOHN REAM, a citizen of the United States, residing at Osceola, in the county of Clarke and State of Iowa, have invented new and useful Improvements in Conveyer-Chutes, of which the following is a specification.

My invention relates to conveyer chutes and more particularly to devices of this character designed for carrying coal, ore, or similar heavy material over comparatively long distances.

The primary object of the invention is to provide supporting means for the conveyer throughout its length, which shall serve to impart the required strength thereto and at the same time possess the necessary flexibility.

A further object of the invention is to provide improved means for supporting the end of the conveyer in such manner that it may be capable of universal movement.

A further object of the invention is to provide improved means for coupling and uncoupling the sections of the conveyer.

With the above and other objects in view, and to improve generally upon the details of such devices, my invention consists in the construction and arrangement hereinafter described, and illustrated in the accompanying drawings, in which:

Figure 1 is a side elevation of the receiving end of my improved conveyer chute, and supporting frame work; Fig. 1[a] is a side elevation of the delivery end thereof; Fig. 2 is an enlarged side elevation of a portion of my improved chute, one of the parts being shown in section; Fig. 3 is an enlarged plan view thereof; Fig. 4 is a transverse section substantially on the line 4—4 of Fig. 2; Fig. 5 is a longitudinal section through one of the sections of the chute on a plane at right angles to that of Fig. 2; Fig. 6 is an enlarged detail view of the coupling means.

Referring to the drawing in detail, 1 indicates the supporting frame work, on which is mounted a suitable hopper 2, from the bottom of which project diverging spouts 2[a] and 2[b]. By means of a pivoted door, 2[c], the contents of the hopper may be discharged through either spout. The coal or other material may be loaded into the hopper 2 by means of any suitable traveling conveyer (not shown).

My improved chute comprises a series of short, tubular, telescoping sections 3, each of which consists of a cylindrical and a tapering portion, the tapering portion of one section fitting into the cylindrical portion of the next.

4 represents the receiving hopper to which the delivery end of the chute is attached, and this hopper is provided with any suitable form of spouts 5. The end section 6, of the chute, is pivoted about a horizontal axis, as at 9, to a ring 7, which ring is itself pivoted about a vertical axis, as at 8, to the hopper. By this arrangement, it will be seen that the chute is capable of universal movement relative to the hopper 4.

In order to give the necessary strength to the conveyer chute, I support the sections by means of a pair of tension cables 10, which cables pass over pulleys 11, and are provided at their free ends with means for maintaining them under tension, such for example, as weights 12, which may freely slide up and down in the frame 1. The cables at the other end pass over similar pulleys, and are similarly counterweighted.

Each section of chute is surrounded by a hoop or band 13, which is preferably placed at the junction of the tapering and cylindrical portions of the section, as clearly shown in Figs. 2 and 5. In the edge of the cylindrical portion of each section is formed a V-shaped notch 14 across the bottom of which is secured a wear plate 15. Each of these notches is adapted to receive a lug 16 carried by the next adjacent section, as clearly shown in Fig. 2. It will be evident that these lugs serve to limit the movement of these sections toward each other and to prevent them from telescoping to an undue extent. They also form a connection in the nature of a hinge which permits slight lateral rotation of one section relative to the other and obviates the jamming and binding of the sections, which would occur if the edge of one section abutted squarely against the band of the next.

Secured to the band of each section at diametrically opposite points, is a pair of

brackets 18 in which are mounted groove rollers or pulleys 17 adapted to run on the cables 10. Spring guards 19, secured to the end of the brackets, 18, are arranged to embrace the cables, and are so constructed that the cables will snap past them into position and they will then close against the hoops, and thus prevent the cable becoming disengaged from the pulleys. Also secured to the hoop or band of each section, and spaced apart, though not diametrically disposed, is a pair of clevises, 20. These clevises serve as points of attachment for the coupling means now to be described.

Each of such coupling means, as clearly shown in Fig. 6, comprises a heart-shaped ring 21 secured in the clevis of one section, a snap hook 22 engaging such ring and a spring buffer or shock absorber 28. This shock absorber, as shown, comprises a casing in which is arranged a spiral spring 25, through which passes a headed rod 24, one end of said rod being connected to the snap hook 22. The hook 26, secured to the other end of the casing 23 serves as a point of attachment for a short piece of connecting chain or cable 27, which is secured at its other end to the clevis 20 of the next preceding section. Ears 24, riveted to the sides of the sections serve to support the spring buffers 23, and prevent them from becoming fouled with the cables.

From the spring buffer of the uppermost section extends a cable 28 over a pulley 29, to a drum 30, carried by the frame work 1, and which may be provided with a crank 31, or other suitable gearing, whereby it may be driven. This cable 28 is employed only for paying out or taking in the conveyer chute. When it is desirable, for instance, to take out two sections of the conveyer, and thus shorten the same by this amount, a temporary bridle 32 (indicated by broken lines in Fig. 3) is attached to the heart-shaped rings of the third section, and from this bridle extends a cable 33 over pulleys 34 and 35. It is evident that by pulling on this cable 33, the first two sections may be relieved of the weight of the rest of the conveyer, and the snap hooks 22 may then be disengaged from the heart-shaped rings of the third section, and the two upper sections removed by means of manipulating the cable 28.

My invention is particularly useful in loading ships. In such case the end of the conveyer shown in Fig. 1[a] is secured to the ship to be loaded and the chute 5 leads to the hatches. The structure shown in Fig. 1 may be supported either upon a collier or barge, or upon the shore. The universal joint at 7—9, and the flexible cables 10, together with the yielding means for supporting the same, permit the conveyer to sway and turn freely, and its two ends to be relatively displaced due to the movement of the waves or other cause, without in any way impairing the operation of the device.

It will thus be seen that I have provided a very practical and efficient conveyer chute, which adapts itself to a large variety of uses, and it is thought that the numerous advantages of my invention will be readily appreciated by those skilled in the art.

What I claim is:—

1. A conveyer chute comprising a series of sections, flexibly connected, and a cable on which said sections are supported.

2. A conveyer chute comprising a plurality of flexibly connected sections, and a pair of cables between which said sections are supported.

3. A conveyer chute comprising a plurality of connected sections, rollers carried by said sections, and a cable, co-extensive with said chute, and on which said rollers are adapted to run.

4. A conveyer chute comprising a plurality of connected sections, a pair of rollers carried by each section, and a pair of cables between which said chute is supported, and with which said rollers engage.

5. The combination with a conveyer, of a cable for supporting the same, and means for yieldingly supporting the cable at each end, and maintaining the same under tension.

6. The combination with a conveyer, of a cable for supporting the same, a fixed guide pulley over which said cable passes, and a counterweight carried by the free end of said cable.

7. A conveyer chute section comprising cylindrical and tapering portions, and a ring or band surrounding said section at the point where said portions join.

8. A conveyer chute comprising a plurality of flexibly connected telescoping sections, capable of relative lateral movements each section being provided with a notch in one end, and a lug carried by each section, and adapted to engage the notch in the next adjacent section.

9. In a conveyer chute comprising a plurality of sections, coupling means for said sections, such means comprising a flexible connection secured at one end to each section, and carrying at its other end engaging means adapted to be connected to another section, and a spring buffer interposed in said flexible connection.

10. In combination with a conveyer comprising a plurality of connected sections suspended between two points, means for temporarily relieving the end sections, of the weight of the conveyer, whereby said sections may be detached.

11. A conveyer chute comprising a plurality of sections, each section being provided

with means of attachment to the next adjacent section, and each section being further provided with means to which an auxiliary connection may be temporarily attached.

12. A conveyer section provided with means of attachment to a similar section, such means comprising a flexible connection carrying at one end a substantially heart-shaped ring, such ring being so formed as to accommodate the end of a second flexible connection in addition to the first.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN REAM.

Witnesses:
J. HANSON BOYDEN,
ARTHUR L. BRYANT