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T. K. VOGLEY

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CONVEYER APPARATUS

Filed May 26, 1930

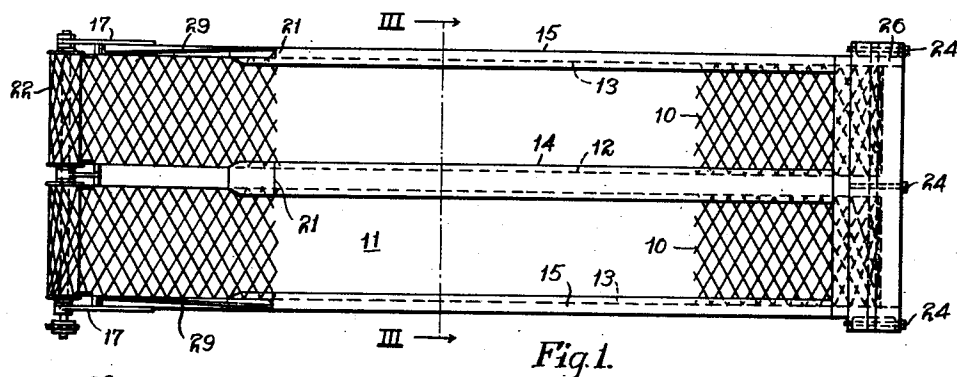


Fig. 1.

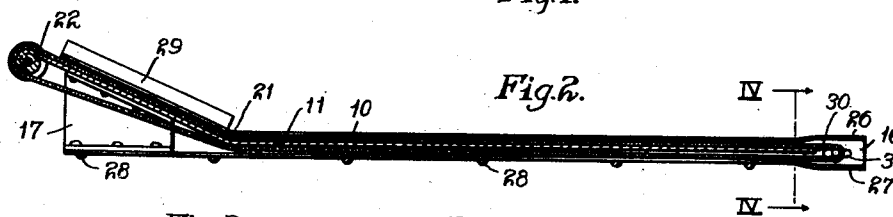


Fig. 2.

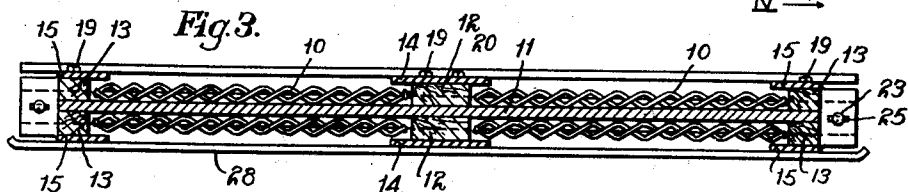


Fig. 3.

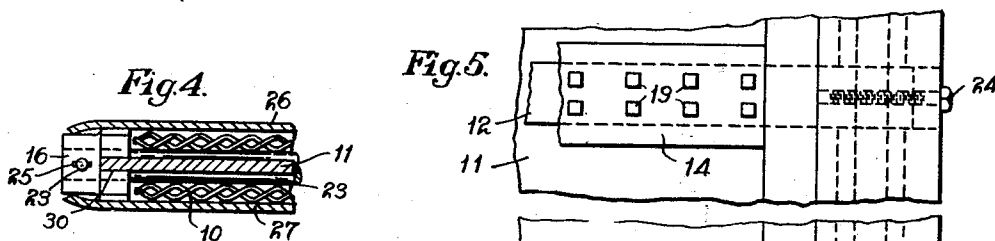


Fig.4.

Fig.5.

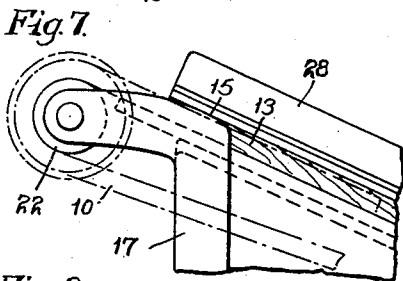


Fig. 7.

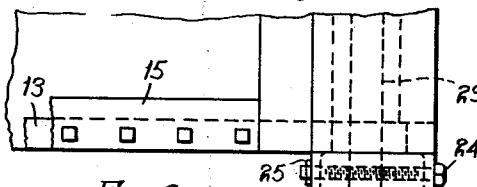


Fig. 6.

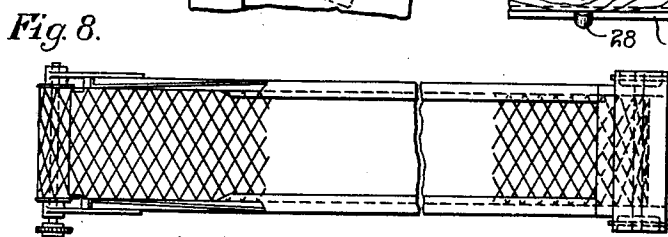


Fig. 8

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CONVEYER APPARATUS

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My invention relates to conveyer apparatus, and more particularly to those of the belt or mat type.

While the invention is hereinafter described as particularly designed for use in coal mines, it will be understood that it is capable of various other uses.

In coal mines where the coal is removed by first undercutting the coal seam to form a kerf, difficulty has been experienced in providing a conveyer which could be extended into the kerf, so that coal could be broken down directly upon the conveyer, instead of having to be shoveled or pushed onto the conveyer.

One object of my invention is to provide conveying apparatus of such form that it may be conveniently moved into a kerf of usual dimensions.

Another object of my invention is to provide a conveyer that is not likely to be damaged or broken in service, and one which will adapt itself to irregularities in a mine floor or other surface, and which can be conveniently moved from one location to another.

Still another object of my invention is to provide a conveyer structure of generally simplified and improved form.

Some of the forms which my invention may take are shown in the accompanying drawings, wherein Figure 1 is a plan view of a conveyer structure; Fig. 2 is a longitudinal sectional view thereof; Fig. 3 is a view, on an enlarged scale, taken on the line III—III of Fig. 1; Fig. 4 is a view, on an enlarged scale, taken on the line IV—IV of Fig. 2; Fig. 5 is an enlarged plan view of a portion of the structure of Fig. 1; Fig. 6 is an edge elevational view thereof; Fig. 7 is a view, on an enlarged scale, of the discharge end of the conveyer, and Fig. 8 shows a modification of the structure of Fig. 1.

In the practice of my invention, I prefer to use a belt or a mat conveyer, since such conveyers are less likely to become clogged or stuck, particularly when operating in a kerf and conveying lumps of coal. In the present case, I have shown a conveyer employing two wire mats 10. These mats are preferably of woven wire so that they will flex readily.

While the mats will slip beneath those lumps of coal whose movements are abnormally obstructed, thus avoiding stalling of the apparatus, they nevertheless exert sufficient drag on the coal to move it under normal conditions.

The conveyer mats 10 are mounted in a framework consisting mainly of a somewhat flexible mat-supporting plate 11 that extends for substantially the full length and width of the structure, spacer bars 12 and 13; guide plates 14 and 15; and end brackets 16 and 17.

The plate 11 serves as a support for the upper runs of the belts 10, to prevent excessive deflection of the belt by the weight of the coal and to prevent coal sifting through the conveyer. The members 12, 13, 14, 15 and 16 are secured together by bolts 19, the bolts also extending through the plate 11. The spacing bars 12 and 13 are preferably made of wood such as oak or hickory, to provide yieldability, and they will flex to permit the conveyer structure as a whole to bend and accommodate itself to uneven floor surfaces. Furthermore, they are not subject to permanent deformation from falling lumps of coal or slate, as are metal members. The plates 14 and 15 serve as guides for the edges of the belts 10, such plates extending forwardly past the point 21 where the conveyer is upwardly inclined toward its discharge end.

The belts are driven by a pulley-like driving roller 22 that is journaled in the brackets 17 from any suitable source of power. The opposite end of the conveyer belts pass around a guide rod 23 that is adjustably supported in the brackets 16. This rod 23 is shown as non-rotatable, since to provide suitable bearings therefor would require increase in the height of the conveyer at its receiving end, thus limiting its use to kerfs of greater height.

The brackets 16 are bifurcated as indicated at 30 to receive the plate 11 to which they are secured. The brackets are provided with slotted portions 31, through which slots, the guide rod 23 extends. Screws 24 are freely rotatable in the slotted portions of the cross bar and extend through threaded openings in the rod 23. Pins 25 hold the screws 24 against

displacement. It will be understood that when the screws 24 are rotated, they will shift the rod 23 longitudinally of the conveyer, and thus vary the tension of the belts 10.

5 Cover plates 26 and 27 are provided at the receiving end of the conveyer and suitably secured to the brackets 16. Skid bars 28 preferably of half-round rods are secured to the bottom of the conveyer frame to permit of
10 conveniently sliding the conveyer from one location to another, and side boards or guard plates 29 are provided at the sides of the inclined portion of the conveyer to prevent coal from falling off.

15 As shown in Figs. 1 to 7, the conveyer is provided with two belts so as to secure the desired width and to permit of conveniently mounting the central guide plate 14. If the belts 10 were made unitary or connected together at their inner edges, the belt would
20 tend to bulge upward at its mid portion, under driving strains, particularly at the point 21 where it enters the inclined path, unless a central guiding plate, such as the plate 14, were provided.

25 The plate 14 is more readily applied where the belt is divided into two sections as shown in Fig. 1, but such a plate can, of course, be applied along the mid portion of a belt of wide width.

30 The wires composing the mesh are of spiral form and extend in directions generally transversely of the belt, and their bends are so arranged as to loosely interlink with one another, as shown more clearly in Figs. 3 and 4,
35 thus permitting bending thereof on small radii without permanently distorting the mesh, as at the receiving end of the conveyer, where low height is required.

40 In operation, the conveyer may be connected to a cutting machine, in any suitable manner, for unitary traveling movement therewith into the kerf which is cut by the cutting machine. During advancing move-
45 ment of the cutter and the conveyer, the flexibility of the conveyer permits the conveyer to adapt itself to unevenness in the mine floor, and to freely pass over particles of coal or other material, without tendency to bind in
50 the kerf, or to impose unnecessary stresses upon the cutter, as would be the case if the conveyer was rigidly constructed. Moreover, the wire mats flex with the framework so that the possibility of binding between the
55 mats and the guides is eliminated, thereby preventing damage to the conveyer under abnormal operating conditions or under excessive loading.

60 It will be understood, however, that other types of mats may be employed so long as flexibility transversely of the same be provided.

I claim as my invention:—

65 1. Conveyer apparatus movable on an uneven surface, comprising a flexible frame, a

pair of conveyer belts disposed in side-by-side relation and movable in the same direction, means at each end of the frame for movably supporting the said belts, and means mounted on the frame and positioned over the inner
70 edges of the belts, for directing the adjacent runs of the belts in definite paths therewith during flexing movements of the frame.

2. Conveyer apparatus movable on an uneven surface, comprising a flexible frame, a pair of conveyer belts disposed in side-by-side
75 relation and movable in the same direction, means at each end of the frame for movably supporting the said belts, and guiding means mounted on the frame and positioned over the inner and the outer edges of the belts, for
80 directing the adjacent runs of the belts in definite paths therewith during flexing movements of the frame.

3. Conveyer structure comprising a pair of conveyer mats disposed in side-by-side
85 relation, each mat being flexible in a direction transversely thereof, and a frame therefor including a flexible mat-supporting plate between the runs of the mats, yieldable spacing blocks adjacent to the edges of the mats,
90 guiding plates on the blocks and overlying the edges of the mats, and means for connecting said plates and blocks to the said mat-supporting plate.

In testimony whereof I, the said THEODORE K. VOGEELEY have hereunto set my hand.

THEODORE K. VOGEELEY.

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