Dec. 4, 1934. E. F. MILTENBERGER 1,982,824

UNLOADING MECHANISM FOR BELT CONVEYERS

Filed Aug. 26, 1931 2 Sheets-Sheet 1

Fig. 1.

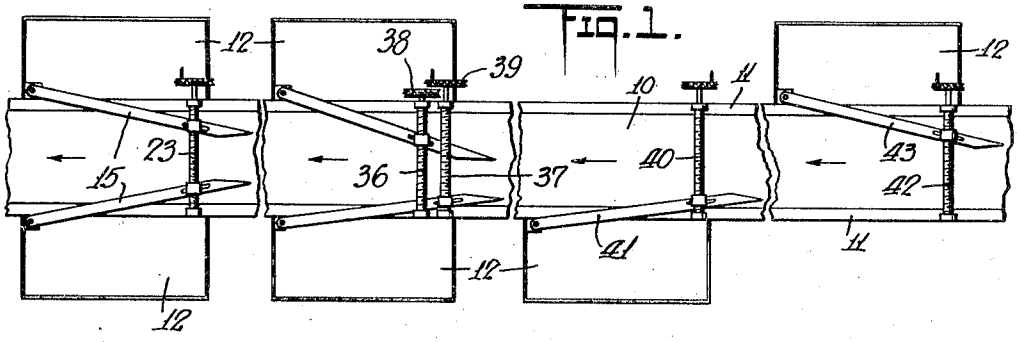


Fig. 2.

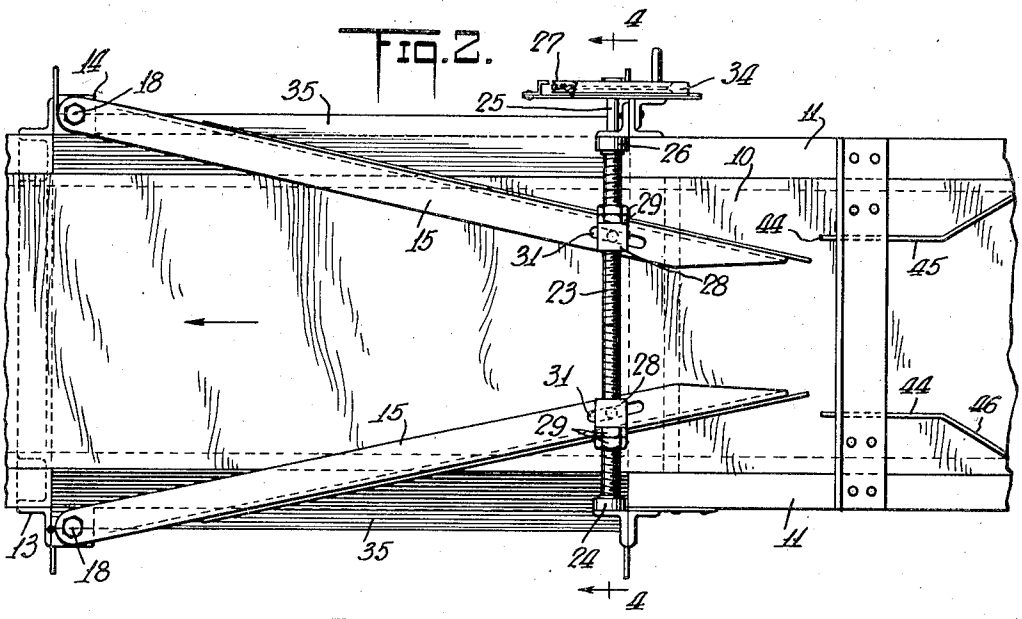
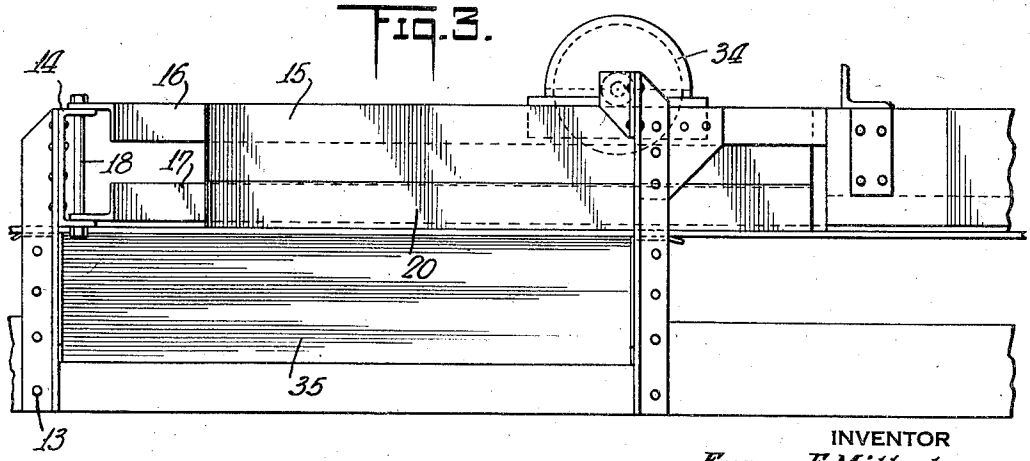


Fig. 3.



INVENTOR
Eugene F. Miltenberger
BY
Dean, Fairbank, Hirsch & Tate
ATTORNEYS

Dec. 4, 1934. E. F. MILTENBERGER 1,982,824

UNLOADING MECHANISM FOR BELT CONVEYERS

Filed Aug. 26, 1931 2 Sheets-Sheet 2

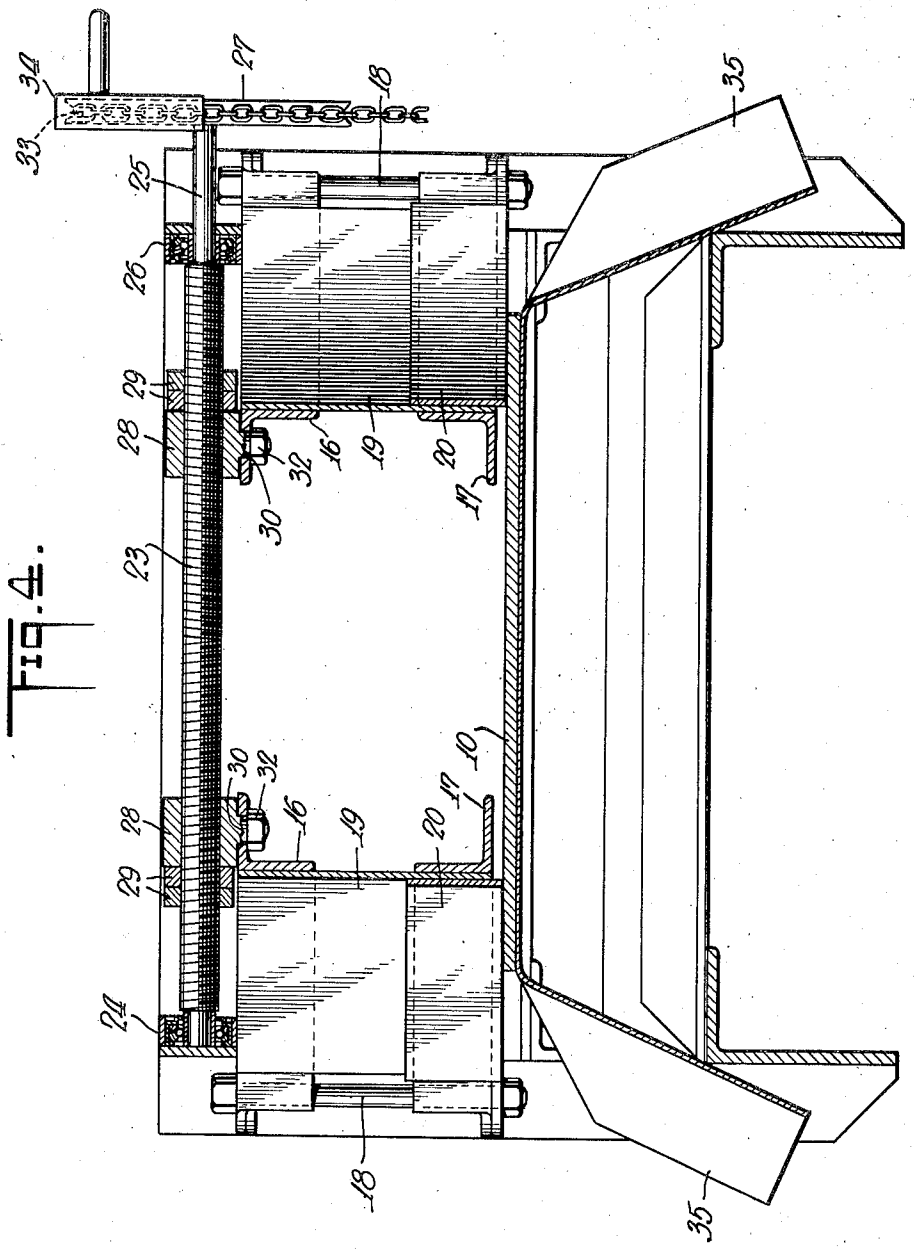


FIG. 4.

INVENTOR
Eugene F. Miltenberger
BY
Dean Fairbank Hirsch & Foster
ATTORNEYS

Patented Dec. 4, 1934

1,982,824

UNITED STATES PATENT OFFICE

1,982,824

UNLOADING MECHANISM FOR BELT CONVEYERS

Eugene F. Miltenberger, Red Bank, N. J.

Application August 26, 1931, Serial No. 559,365

5 Claims. (Cl. 198—188)

The invention relates to a mechanism for unloading sand or other material of pulverulent, granular, or other analogous form, from a conveying belt to a distributing station along the side or sides of said belt.

In carrying out the present invention, there is provided a plow blade or scraper pivoted adjacent to one edge of the belt, and extending to the desired extent across the belt to deflect material from the belt. As an important feature of the invention, the plow blade or scraper has associated therewith an improved means for supporting the blade and adjusting the position thereto to selectively regulate or control the amount of material deflected from the conveying belt.

The plow blade is pivoted at one end adjacent to one side of the conveying belt, and has means connected to the blade near the free end of the latter for adjusting the angular position of said blade about its pivot point.

As the material, such as sand, is carried along the belt and moves into the path of the sand plow extending obliquely across the belt, the sand is deflected thereby to the side of the belt, and into a hopper or other receiving station. By adjusting the angular position of the plow blade with respect to the blade, the amount of sand which is deflected to the side of the belt is correspondingly controlled and regulated. By connecting one end of the blade to the fixed pivot, and the other end to the adjusting means, the blade is effectively supported so as to resist the pressure of the advancing material, and be retained in the adjusted position with the minimum of warping or distortion.

In the accompanying drawings, there are shown for the purpose of illustration, various forms of the present invention, in which

Fig. 1 is a top plan view showing somewhat diagrammatically an apparatus having a plurality of stations provided with deflecting apparatus of different forms, but all embodying the present invention.

Fig. 2 is a top plan view on a somewhat larger scale, of one form of deflecting member embodying the present invention.

Fig. 3 is a side elevation of that part of the apparatus shown in Fig. 2, and

Fig. 4 is a section taken on line 4—4 of Fig. 2 on a still larger scale.

In the specific embodiment of the present invention, shown in Figs. 2, 3 and 4, there is provided an endless conveying belt 10 travelling between a frame structure 11 in the direction indicated, and having disposed at spaced points therealong, receiving stations 12 which may take the form of hoppers having chutes extending to a floor below where the sand or other material may be made easily available. The frame structure 11 includes an upright angle iron 13 having connected thereto a section of a channel bar 14 to which is pivoted a plow blade 15. This plow blade advantageously consists of a built-up member including a pair of angle irons 16 and 17, each having one wall thereof disposed adjacent a side of the channel members 14, and pivotally connected thereto by a pintle bolt 18. The two angle irons 16 and 17 are connected together by a web plate 19, and on the opposite side of the plate from the angle iron 17 is a plate member 20, the lower edge of which extends close to the top of the belt 10.

One of said plow blades 15 may be disposed at any desired point along the conveying belt, or if a pair of stations are oppositely disposed with respect to the belt, and if it is desired to control the deflection of the sand into both of said stations by a single control means, a pair of such blades may be provided and mounted at opposite sides of the belt as shown in Figs. 2, 3 and 4.

In order to effect the angular adjustment of the plow blade 15 with respect to the belt, a screw member 23 is provided which extends transversely across the belt and above the top of the sand plows near the free end of said plow blade, and having one end thereof journaled in a bearing 24 fixed to the frame structure 11, the other end having a shaft 25 journaled in a bearing 26 connected to the frame structure 11, and carrying at the outer end thereof an operating handle in the form of a crank wheel 27. Threaded on the screw member 23 is a block or sleeve 28 having a depending lug 30 extending into an elongated slot 31 in the angle iron 16, and held therein by a nut 32. The rotation of the crank wheel 27 causes the block 28 to be moved longitudinally along the screw member 23, said block carrying with it the free end of the plow blade 15, so that the angular position of the blade with respect to the belt, is adjusted. The slot 31 permits relative axial movement of the plow blade 15 with respect to the screw member 23 when changes in obliquity between these members are effected. The screw member 23 is provided with lock nuts 29 which serve as stops for the outward extreme positions of the plow blades 15.

In certain operations, the conveying system

may be disposed at a substantial distance above the floor, so that accessibility to the crank wheel 27 may be difficult. In that case, the wheel 27 may be provided with a groove 33 to receive a chain therearound, the chain being retained in position by a shield 34.

In order to direct the material in an orderly fashion from the belt 10 to the loading stations, it is advantageous to provide aprons 35 leading from the side of the belt to said loading stations.

If it is desired to effect adjustment of a pair of oppositely disposed plow blades through the operation of a single control means as shown in Fig. 2, the screw member 23 may have one end thereof threaded in one direction, and the other end of the screw member threaded in the opposite direction, so that upon the rotation of the wheel 27, the two oppositely disposed plow blades 15 may be moved in unison towards or away from the center of the belt.

In Fig. 1 there are shown means associated with separate stations along the conveying system, by means of which the deflection of the sand from the belt may be controlled. If it is desired to control the amount of sand being deflected to oppositely positioned stations independently of each other, a pair of screw bolts 36 and 37 are provided, each being controlled by a separate hand wheel 38 and 39 respectively, the plow blade 15 being associated therewith in a manner already described. If a single station at a transverse point along the belt run is desired, a single screw bolt 40 as shown in Fig. 1, may be provided to control the position of a plow blade 41, or if the station is disposed on the opposite side of the belt run, then a similar screw bolt 42 may be provided with a plow blade 43 pivoted on the opposite side of the belt run.

In order to push the sand away from the side edges and towards the center of the belt, there is provided a pair of upstanding stationary baffle plates 44 having portions 45 extending longitudinally along the belt, and having upstanding obliquely extending portions 46 which serve to guide the sand toward the center line of the belt.

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

1. An unloading mechanism for pulverulent, granular, or other similar material, including a pair of spaced receiving stations, a single conveying belt extending transversely between said stations, a pair of plow blades pivoted at one set of ends thereof alongside of the conveying belt at opposite sides of said belt and near said stations, and means connected near the free ends of said plow blades for moving said free ends towards and away from each other in unison across the top of said belt.

2. An unloading mechanism for pulverulent, granular, or other similar material including a pair of spaced receiving stations, a single conveying belt extending transversely between said stations, a pair of plow blades pivoted at one set of ends thereof alongside said conveying belt at opposite sides of said belt and near said stations, and means including a single screw member extending transversely across the top of said belt and mounted near the free ends of said plow blades for moving both of said plow blades towards and away from each other.

3. In a machine of the class described, a conveying belt having a substantially horizontal upper run, a pair of stationary upstanding baffle plates adjacent to the upper surface of the upper run of the belt and converging in the direction of travel of the belt for forcing the material from both edges towards the central portion of the belt, a plow blade extending obliquely across the top of said belt beyond said baffles, and pivoted at one end adjacent to one end of said conveying belt, and means for moving the free end of said blade transversely across said belt into or out of the path of the material on the central portion of the belt to unload the material from said belt.

4. An unloading mechanism for pulverulent, granular, or other similar material, including a single conveyer belt uninterrupted across its width and having a substantially horizontal upper run, a plow blade extending obliquely across the top of said upper run, pivoted at one end adjacent to one edge of said conveyer belt, and having the lower edge thereof close to the upper surface of said upper run, said plow blade having a slot near the free end thereof, a screw disposed above said upper run, extending substantially horizontally and transversely across said belt, and mounted near the free end of said blade, said screw being fixed against axial movement, a sleeve having a threaded engagement with said screw, a member connected to said sleeve and extending into said slot for permitting relative angular movement between said sleeve and said plow blade in a substantially horizontal plane, and a rotatable operating member at one end of said screw disposed beyond the edge of said belt for rotating said screw to move said sleeve longitudinally along said screw, whereby the free end of said plow blade may be moved transversely across said belt to a selective position, said blade being held in adjusted position by said screw against the thrust action of the material being conveyed on said belt.

5. An unloading mechanism for pulverulent, granular, or other similar material, including a single conveyer belt having a substantially horizontal upper run, a plow blade including a vertically extending plate having a horizontally extending flange near the top thereof, said flange being provided with an elongated slot extending lengthwise of said flange near the free end thereof, means for pivotally supporting said plow blade at one end thereof adjacent to one edge of said conveyer belt, a screw disposed above said plow blade in close proximity to said flange, extending substantially horizontally and transversely across said belt, and mounted near the free end of said blade, said screw being fixed against axial movement, a sleeve having a threaded engagement with said screw, and a member connected to said sleeve and extending into said slot for moving said plow blade angularly across said conveyer belt upon rotation of said screw.

EUGENE F. MILTENBERGER.