

May 29, 1928.

1,671,950

S. NECHEFF

CONVEYER CONSTRUCTION

Filed May 3, 1927

2 Sheets-Sheet 1

Fig. 1.

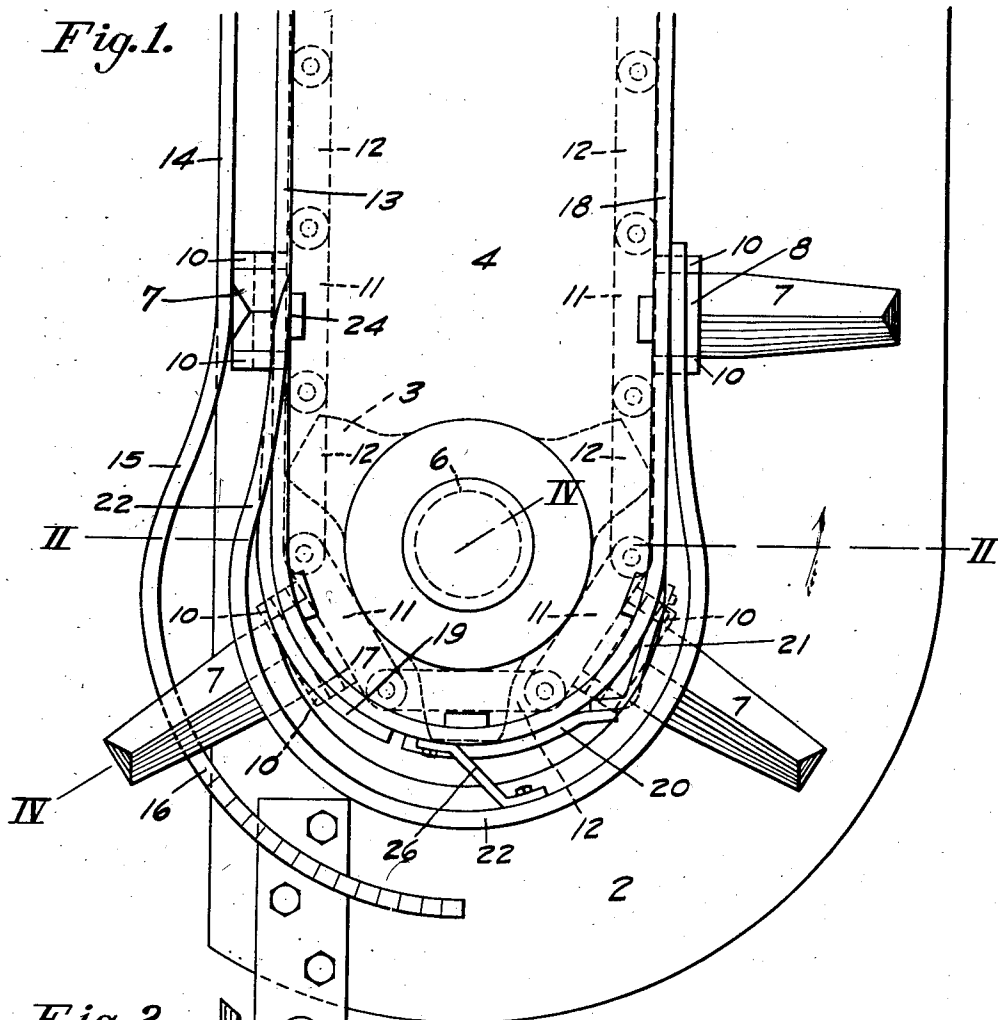
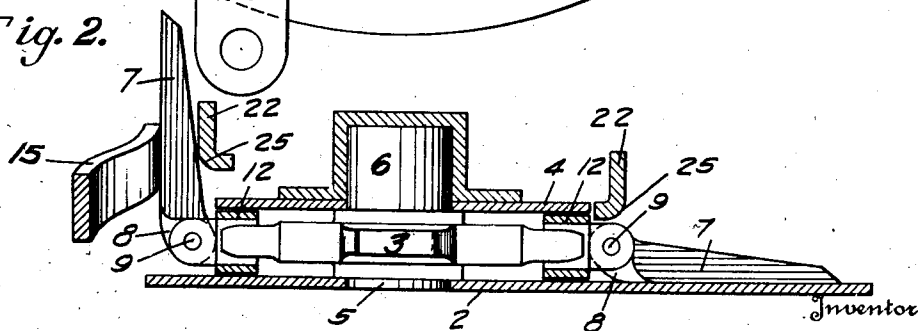


Fig. 2.



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Fig. 3.

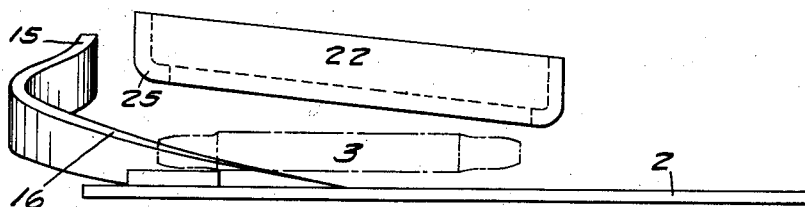
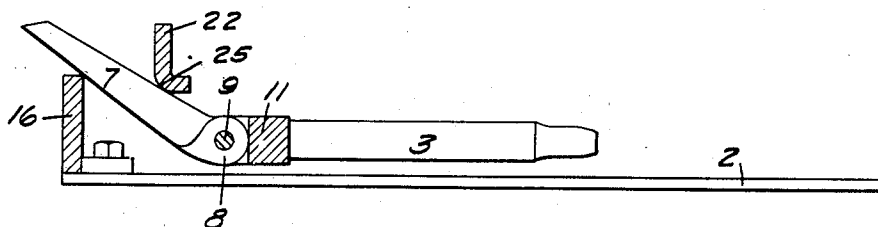


Fig. 4.



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UNITED STATES PATENT OFFICE.

STEVE NECHEFF, OF INDIANOLA, PENNSYLVANIA.

CONVEYER CONSTRUCTION.

Application filed May 3, 1927. Serial No. 188,475.

This invention refers to improvements in conveyer mechanism, and particularly to the conveyer of a coal mining machine.

In such machines the coal is cut and broken in the room of a mine and is then shifted along the floor surface by the action of sweeps or laterally operating flights, to deliver the coal to a conveyer for transfer by a car. In one type of apparatus in common use the laterally disposed flights of an endless conveyer are so mounted around a driving and an idler tail sprocket that they will be thrown upwardly to inoperative position after delivering the load, moving along vertically in the return direction. The flights are then thrown downwardly at the receiving end for horizontal movement over the surface of an under plate in a reverse outward direction, for loading.

In lowering the flights from erected inoperative position they ordinarily fall by gravity outwardly and downwardly against the gradually lowering cam-like edge of a supporting fender, which tapers down to the under plate. Such movement ordinarily occurs as the flights pass around the tail sprocket, reversing a similar erecting movement at the opposite end of the conveyer. In some cases an attempt has been made to force the flights downwardly by an inclined plate, but without satisfactory results.

Under certain conditions, as when the flights are worn, or broken, or otherwise affected, it occasionally happens that a flight may stick, or does not completely assume the flat working position against the bottom plate or pan, thereby failing to operate, with risk of damaging the flight or other parts of the apparatus.

The object of my invention is to provide means for positively ensuring proper gradual and positive lowering of the flights, in the manner hereinafter more fully described.

In the drawings showing one preferred embodiment of the invention:

Fig. 1 is a partial plan view of the receiving end of a conveyer, showing the flight controlling mechanism;

Fig. 2 is a vertical cross section on the line II—II of Fig. 1;

Fig. 3 is an end view in elevation of Fig. 1;

Fig. 4 is a vertical cross section on the line IV—IV of Fig. 1.

In the drawings, 2 is the pan or bottom

plate of the conveyer, showing its receiving end, as used with the other portions of a coal mining and loading machine, not shown.

A tail or idler sprocket wheel 3 is rotatably mounted between the bottom plate 2 and an upper or cover plate 4 by its terminal studs 5, 6, in suitable bushings or caps, for protection from coal dust etc.

The working portions of the conveyer consist of a series of flat faced conveyer flights 7 having raised middle portions or ribs for engagement with the coal as they sweep over the surface of the plate 2. Each such flight is pivotally connected by its inner hub 8 and cross pin or bolt 9 between the lugs 10 of carrying link 11. Said links 11 alternate with open two-part links 12 which are engaged by the teeth of the sprocket 3, for continuous movement of the complete chain and its flights around the tail sprocket wheel 3.

Ordinarily the flights are thrown upwardly at the driving end of the bottom plate by means not shown, and are guided outwardly towards the coal engaging end, and held erected, between an inner vertical wall guide 13 and an outer vertical wall guide 14.

The guide 14 is extended laterally opposite the sprocket wheel, as at 15, and then merged into the arc-shaped downwardly inclined annular flight support 16. Said support tapers downwardly to a point approximately in the longitudinal center of the sprocket wheels where it merges into the floor surface of plate 2. Here the flights are delivered flatwise for sweeping the coal along the plate.

In my improved construction I provide a positively acting annular fender 22 the purpose of which is to serve as a gradually acting positively depressing cam for the flights, to depress them outwardly and downwardly against the support 16.

Fender 22 is mounted above and forms a substantial continuation of vertical guide 13, to which it may be secured as at 24.

The fender 22 slopes downwardly around the peripheral path of the flights at the same general declination or slope as support 16, and extends along the other side to any desired extent. Its under side or edge portion is rounded inwardly as at 25, providing a good bearing for the upper portion of the flight.

As the flights arrive opposite the sprocket wheel where the fender 22 is extended beyond the normal width of guide 13 as at 23, they are gradually moved outwardly. From such point the fender gradually increases in distance from the center of the sprocket, in the manner of an eccentric, thereby offering increasing resistance to the flights. As they pass around, the rounded edge 25 gradually and positively depresses the flights, so that they finally pass off from the terminal of the tapered support 16 onto the flat surface of the bottom plate.

The fender is braced outwardly from the upper structure of the top plate by any suitable means, as one or more brackets 26.

By such arrangement each flight is positively forced downwardly by the continuously rounded and continuously lowering under side portion of the fender 22. It effects a depressing wiping action against each vertical flight as it comes into engagement with the fender. The fender itself, by reason of its eccentric relation to the sprocket wheel center, lies over the flights at increasing distances from the center until they are thrown completely down at the terminal of the inclined guide 16.

In this manner each individual flight is thrown over by frictional action from its pivoting hub outwardly towards the tip, so that any failure to depress is avoided, whether the flight be entire or broken.

The construction is comparatively simple, cheap and effective, and of great advantage in securing continuous lowering of the flights in apparatus of the kind involved.

What I claim is:

1. The combination with a carrying chain having a series of pivotally connected flights, of an upper depressing fender annularly arranged in the path of the flights and an outer annular flight support.

2. The combination with a bottom plate, a sprocket wheel mounted thereon, a flight carrying chain having pivotally connected flights, and an outer downwardly tapering flight support; of a depressing fender for the flights located above their annular pathway having a rounded bearing edge portion.

3. The combination with a bottom plate, a sprocket wheel mounted thereon, a flight carrying chain having pivotally connected flights, and an outer downwardly tapering flight support; of a depressing fender for the flights located above their annular pathway having a rounded bearing edge portion inclined downwardly in the same general direction as the tapering flight support.

4. The combination with a bottom plate, a sprocket wheel mounted thereon, a flight carrying chain having pivotally connected flights, and an outer downwardly tapering flight support; of a depressing fender for the flights located above their annular path-

way having a rounded bearing edge portion inclined downwardly in the same general direction as the tapering flight support and gradually increasing outwardly over the flights beyond their pivotal mounting.

5. In a conveyer provided with a bottom plate, a sprocket wheel mounted thereon, an upper covering plate, a chain passing around the sprocket wheel having a series of laterally extending pivoted flights, and an outer flight bearing rail provided with a downwardly tapering terminal portion for delivering the flights flatwise upon the bottom plate; the combination therewith of a continuous annular flight depressing fender located above the annular path of the flights and inwardly of the flight bearing rail.

6. In a conveyer provided with a bottom plate, a sprocket wheel mounted thereon, an upper covering plate, a chain passing around the sprocket wheel having a series of laterally extending pivoted flights, an outer flight bearing rail extending along and beyond the chain at one side having an outwardly rounded and downwardly tapering terminal portion for delivering the flights flatwise upon the bottom plate, and an inner guard rail for the flights substantially parallel with the outer flight bearing rail; the combination therewith of a flight depressing fender forming a continuation of the inner guard rail and arranged annularly around above the path of the flights beyond the sprocket wheel.

7. In a conveyer provided with a bottom plate, a sprocket wheel mounted thereon, an upper covering plate, a chain passing around the sprocket wheel having a series of laterally extending pivoted flights, an outer flight bearing rail extending along and beyond the chain at one side having an outwardly rounded and downwardly tapering terminal portion for delivering the flights flatwise upon the bottom plate, and an inner guard rail for the flights substantially parallel with the outer flight bearing rail; the combination therewith of a flight depressing fender forming a continuation of the inner guard rail and arranged annularly around above the path of the flights beyond the sprocket wheel, and having an inwardly rounded edge portion sloping downwardly in conformity with the taper of the outer flight bearing rail.

8. In a conveyer of the class described having a bottom plate, a tail sprocket wheel mounted thereon, and a sprocket chain passing around the wheel and provided with a series of pivotally mounted outwardly and downwardly swinging flights; the combination therewith of an upper flight depressing fender arranged around the outer portion of the sprocket wheel above the path of the flights and having a rounded gradually lowering edge portion.

9. In a conveyer of the class described having a bottom plate, a tail sprocket wheel mounted thereon, and a sprocket chain passing around the wheel and provided with a series of pivotally mounted outwardly and downwardly swinging flights; the combination therewith of an upper flight depressing fender arranged around the outer portion of the sprocket wheel above the path of the flights and having a rounded gradually lowering edge portion eccentrically extended beyond the center of the sprocket wheel. 10

In testimony whereof I hereunto affix my signature.

STEVE NECHEFF.