No. 730,448. PATENTED JUNE 9, 1903.

J. FERN.

CONVEYER.

APPLICATION FILED MAR. 18, 1902.

NO MODEL. 3 SHEETS—SHEET 1.

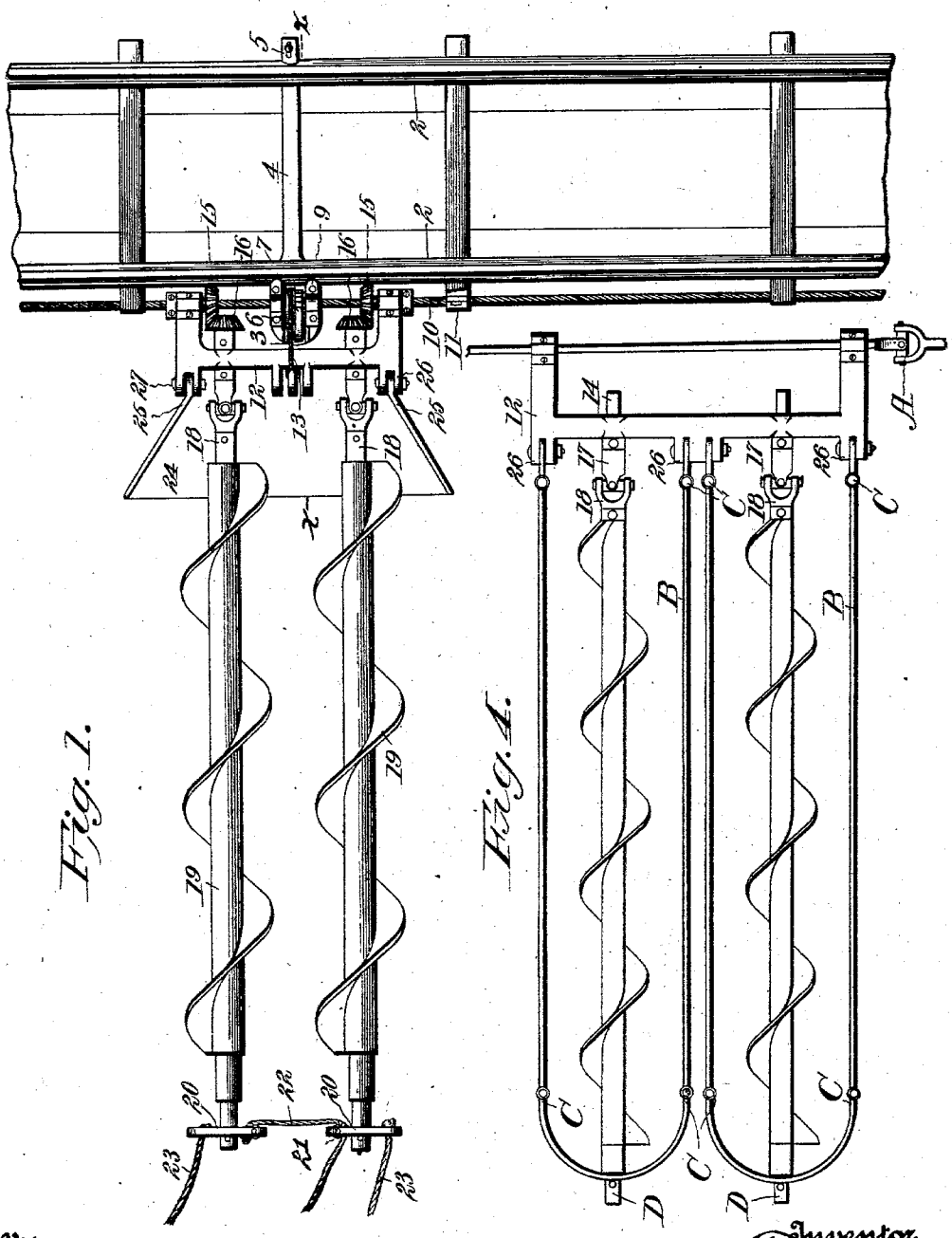


Fig. 1.

Fig. 4.

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NO MODEL. 3 SHEETS—SHEET 2.

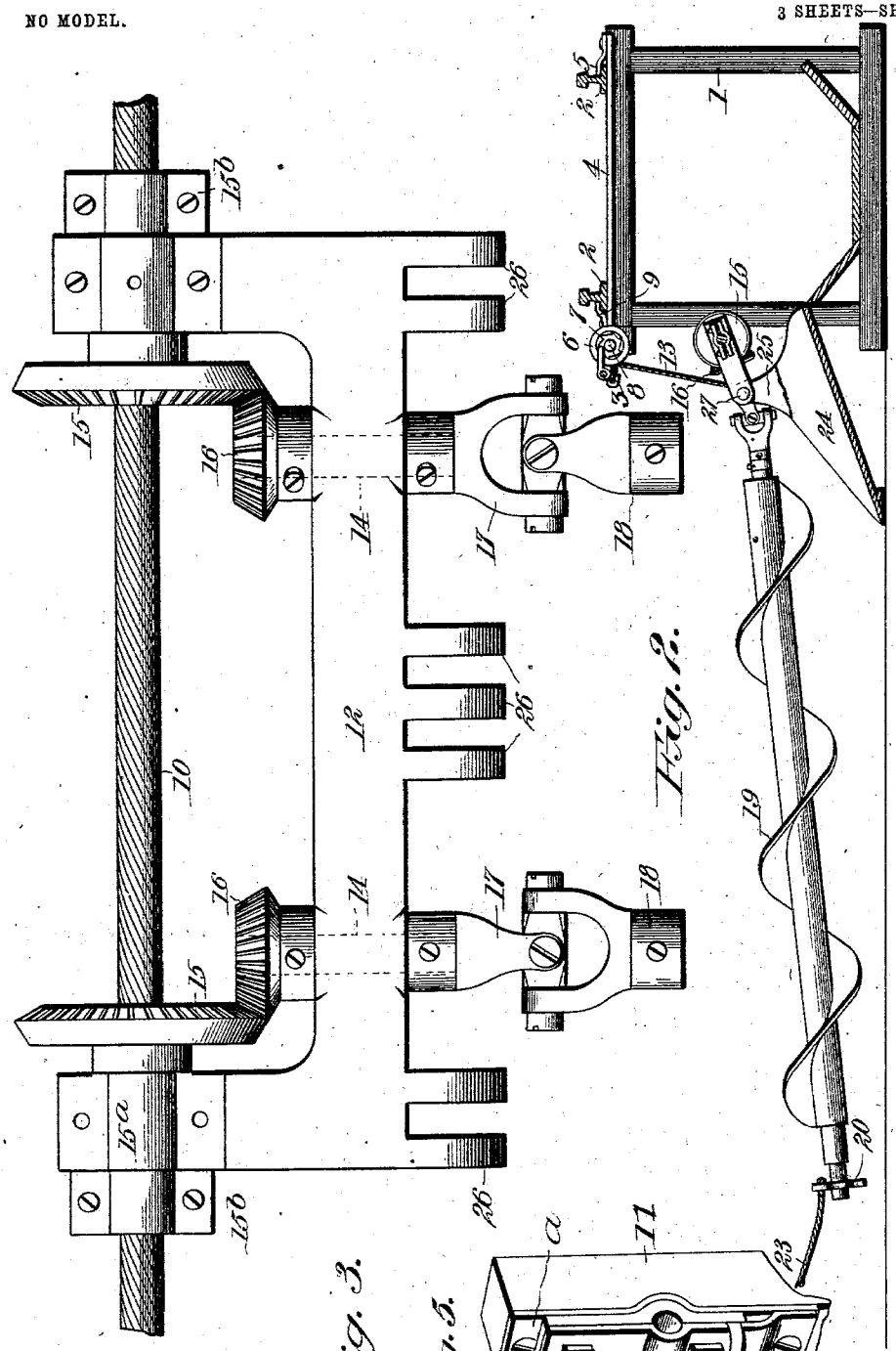


Fig. 2.

Fig. 3.

Fig. 5.

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NO MODEL. 3 SHEETS—SHEET 3.

Fig. 6.

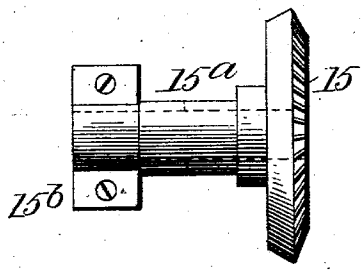


Fig. 7.

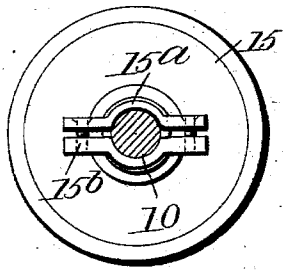


Fig. 8.

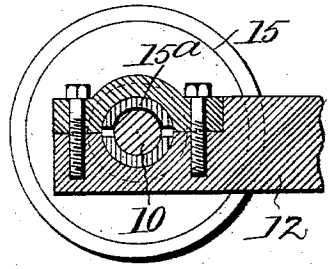


Fig. 9.

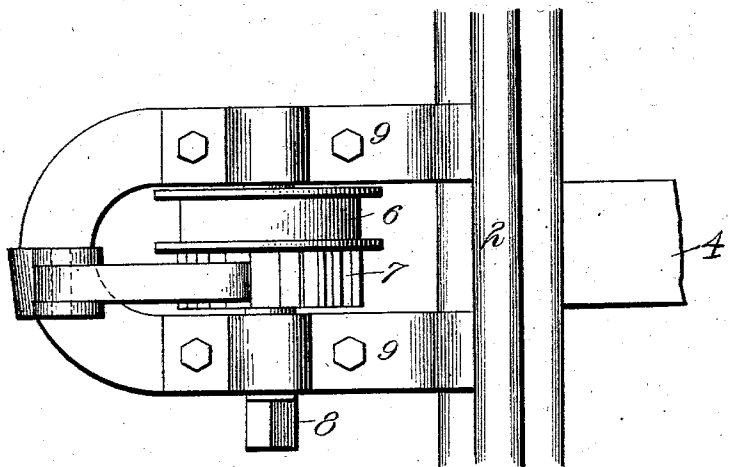
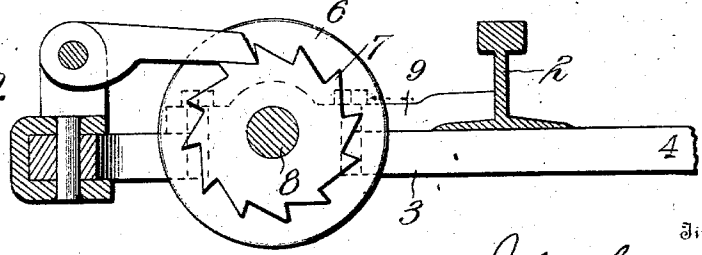


Fig. 10.



Witnesses

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No. 730,448. Patented June 9, 1903.

UNITED STATES PATENT OFFICE.

JOHN FERN, OF SCRANTON, PENNSYLVANIA.

CONVEYER.

SPECIFICATION forming part of Letters Patent No. 730,448, dated June 9, 1903.

Application filed March 18, 1902. Serial No. 98,795. (No model.)

To all whom it may concern:

Be it known that I, JOHN FERN, a citizen of the United States of America, residing at Scranton, in the county of Lackawanna and State of Pennsylvania, have invented certain new and useful Improvements in Conveyers, of which the following is a specification.

This invention relates to conveyers, and is designed for use in directing deposits to a main conveyer, in conjunction with which it operates.

The object of the invention is to produce a conveyer which can be moved in an arc for the purpose of carrying material, the said conveyer being moved over the deposit to dislodge the same.

The invention is of unusual importance in connection with the transfer of culm, which is generally found in large banks of considerable length. In reclaiming coal from culm a fixed horizontal and inclined conveyer is constructed, which delivers culm to a washer. The auxiliary conveyer, which comprises the present invention, is transferable along the fixed conveyer and acts on the receding surface of the bank at any desired angle, dislodging and carrying the culm to the main conveyer.

Furthermore, the object of the invention is to provide means whereby the auxiliary conveyer may be moved from one position to another throughout the length of the main conveyers.

Furthermore, the object of the invention is to provide means for adjusting the incline of the brackets of the auxiliary conveyers and for moving said conveyers in an arc of a circle.

A still further object of the invention is to produce operating mechanism for the auxiliary conveyers to which power may be conveyed from a distance and in a somewhat circuitous direction.

A still further object of the invention is to produce conveyers of the character noted which will possess advantages in points of simplicity, efficiency, and durability, proving at the same time comparatively inexpensive.

With the foregoing and other objects in view the invention consists in the details of construction and in the arrangement and combination of parts, to be hereinafter more fully set forth and claimed.

In describing the invention in detail reference will be had to the accompanying drawings, forming part of this specification, wherein like characters denote corresponding parts in the several views, and in which—

Figure 1 is a plan view of a fixed conveyer trough and frame with the auxiliary conveyers applied. Fig. 2 is a sectional view on the line X X of Fig. 1 with the yoke and auxiliary conveyer in elevation. Fig. 3 is an enlarged detail view of the auxiliary gearing. Fig. 4 is a plan view of a modified auxiliary conveyer and power-shaft. Fig. 5 is a detail view of the journal-bearing. Fig. 6 is a view in elevation of the parts 15 15^a 15^b detached from the conveyer. Fig. 7 is an end view thereof. Fig. 8 is a sectional view of a portion of the yoke, showing the split bearing. Fig. 9 is an enlarged detail view of the hoisting device. Fig. 10 is a detail view, partly in section.

In the drawings, 1 denotes the frames of the fixed conveyer, which support the T-rails 2. A plate 3 has an arm 4, which is secured to one of the T-rails 2 by means of the clamp 5. The plate projects beyond the edge of the frame 1 and is cut away to receive the drum 6 and ratchet-wheel 7. Bearings are formed in the plate 3 for the shaft 8, on which the drum and ratchet-wheel are mounted. Plates 9 form the upper halves of the journal-bearings and are bolted to the plate 3, the said plates 9 having bent-up ends which lie over the base-flange of the T-rail for supporting the plate 3. A flexible shaft 10 is journaled in the bearings 11, secured to the uprights of the frame of the main conveyer, and I have found in practice that wire cable which has become worn in use for hoisting purposes may be utilized to advantage as a flexible shaft. A yoke 12 is pivoted on the hub 15^a and has a supporting connection 13, which is wound on the drum. Bearings are formed in the yoke for the short shafts 14, and gear-wheels 15 on the flexible shaft mesh with the pinions 16 on the short shafts. The wheel 15 has an extended split hub 15^a, terminating in a clip 15^b, by which the wheel is clamped to the shaft. The hub, between the wheel and clip, forms a pivot for the yoke.

One member of a universal joint 17 is secured to each of the short shafts 14, and the

opposite members of the universal joints are connected to the shafts 18 of the conveyer-screws 19. It will be observed that the power applied to the flexible shaft will be transferred to the auxiliary-conveyer screws through the gearing just described.

Blocks 20 are loose on the outer ends of the shafts 18, pulleys 21 are mounted in recesses of the blocks, and ropes 22 or other flexible connections are employed to cause the ends of the shafts to approach each other, while other ropes 23 are employed to draw the shafts apart. By means of the ropes, properly manipulated, the conveyers may be oscillated from side to side over a culm bank for the purposes heretofore stated.

A chute 24 has ears 25, which are pivotally connected to the lugs 26 of the yoke through the medium of the pins or bolts 27, and as the yoke is adjusted vertically or longitudinally of the shaft the chute is carried to act in conjunction with the auxiliary conveyers for delivering to the fixed conveyer.

Under certain conditions, and especially where the auxiliary conveyers need not be moved longitudinally of the fixed conveyer, the device illustrated in Fig. 4 may be employed. In this device the yoke 12 is employed; but I may use a series of rigid shafts connected by universal joints A. Frames B are pivoted to lugs 26 of the yoke, said frames being in sections connected by universal joints C to permit a given movement of the frames. Conveyer-shafts D are supported by adjustable bearings in the ends of the frame and are connected by universal joints with gearing similar to that shown in Fig. 1, except that the gearing is driven by a shaft comprising rigid sections instead of the flexible shaft.

When it is desired to move the auxiliary conveyer along the main conveyer, the flexible shaft is released from the bearing 11 and sprung out a sufficient distance to permit the yoke and gear-wheels to pass the upright members of the frame of the fixed conveyer. The yoke 12 is also moved along the shaft 10, the clips 15^b being loosened to permit said yoke to slide on said shaft 10. The yoke-elevating mechanism is also removable by disengaging the clamp 5, as will be apparent.

The swinging journal-bearing 11 is pivoted on the plate *a*, which is attached to an upright member of the conveyer-frame, said plate being bent in a recess of the upright. A guide *b* is secured on the lower end of the plate *a* and serves to prevent outward movement of the bearing, said bearing consisting of two members *d*, pivoted near the top to the plate *a*, as shown in Fig. 5.

The construction, operation, and advantages will, it is thought, be understood from the foregoing description, it being noted that various changes may be made in the proportions and other details of construction for successfully carrying the invention into practice.

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

1. In a device of the character described, a main conveyer, auxiliary conveyers radiating from the main conveyer, a flexible shaft by which the auxiliary conveyers are driven, the said parts being so arranged that the auxiliary conveyers may be moved longitudinally of the flexible shaft, as and for the purpose described.

2. In a device of the character described, a main conveyer, a flexible shaft extended along the main conveyer, auxiliary conveyers adjustable on the shaft, a chute moved with the auxiliary conveyers and gearing for transmitting power from the flexible shaft to the auxiliary conveyer.

3. In a device of the character described, a main conveyer, a shaft journaled along the frame of the main conveyer, a yoke pivoted on the shaft, gearing carried by the yoke driven from the shaft, means for adjusting the position of the yoke, auxiliary conveyers connected to the gearing of the yoke and means for moving the outer ends of the conveyers.

4. In a device of the character described, a shaft, gear-wheels thereon, auxiliary-conveyer shafts, connections between the auxiliary-conveyer shafts and the gear-wheel of the first-named shaft, blocks on the outer ends of the shafts, connections operating in conjunction with the blocks whereby the shafts are moved toward and away from each other, and means for adjusting the height of the inner ends of the shafts.

5. In a device of the character described, a main conveyer, a shaft along the main conveyer, a yoke on the shaft, means whereby the yoke may be moved from section to section of the main conveyer, short shafts journaled in the yoke, gear-wheels on the short shafts meshing with gear-wheels on the first-named shaft, conveyer-shafts, universal joints connecting the conveyer-shafts and the short shafts of the yoke, means for oscillating the conveyer-shafts and means for adjusting the height of the yoke.

6. In a device of the character described, a main conveyer, a shaft extending longitudinally thereof, a yoke on the shaft, a bracket adjustable on the frame of the main conveyer, a drum and ratchet-wheel on the bracket, a connection between the drum and yoke, gearing carried by the yoke and auxiliary conveyers driven by the gearing.

7. In a device of the character described, a main conveyer, a shaft journaled along the main conveyer, a yoke thereon, gearing carried by the yoke, auxiliary conveyers driven by the gearing, a chute suspended from the yoke and means for oscillating the conveyers.

8. In a device of the character described, a main conveyer, a shaft journaled along the main conveyer, a yoke thereon, gearing carried by the yoke, auxiliary conveyers driven

by the gearing, said auxiliary conveyers being mounted in a sectional frame connected by universal joints as and for the purpose described.

9. In a device of the character described, a main conveyer, T-rails supported on the frame thereof, a plate 3, and its arm clamped to the strips, a drum and ratchet-wheel mounted on a shaft, said shaft having bearings in the plate, a shaft along the conveyer, a yoke thereon, a connection from the yoke to the drum whereby the yoke is adjusted, gearing on the shaft and yoke, conveyers driven thereby, a chute suspended from the yoke and means for oscillating the conveyers.

10. In a device of the character described, a main conveyer, journal-bearings pivoted on the frames of the main conveyer, a flexible shaft in the bearings, a yoke on the shaft, gearing on the yoke and auxiliary conveyers driven by the gearing.

11. In a device of the character described, a main conveyer, an auxiliary conveyer movable longitudinally of the main conveyer, means for operating the conveyers and means for oscillating the auxiliary conveyer.

12. In a device of the character described, a main conveyer, a yoke movable longitudinally of the main conveyer, gearing therein suitably driven and an auxiliary conveyer operated by the gearing.

In testimony whereof I affix my signature, in the presence of two witnesses, this 14th day of March, 1902.

JOHN FERN.

Witnesses:
CHAS. E. OLVER,
RODERICK JONES.