J. B. CROWTHERS & W. R. WILKINS.

Drop-Chute Reverser.

No. 160,308 Patented March 2, 1875.

Fig: 1.

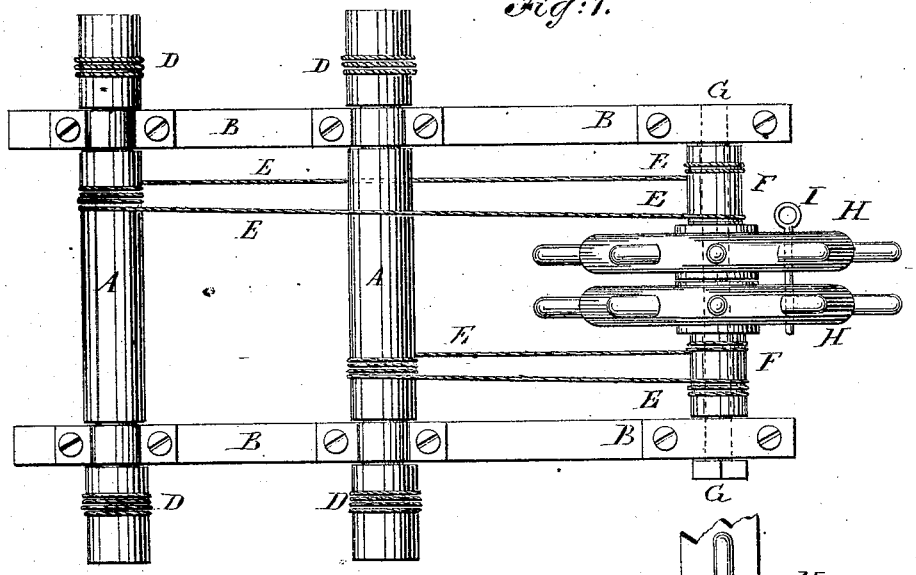
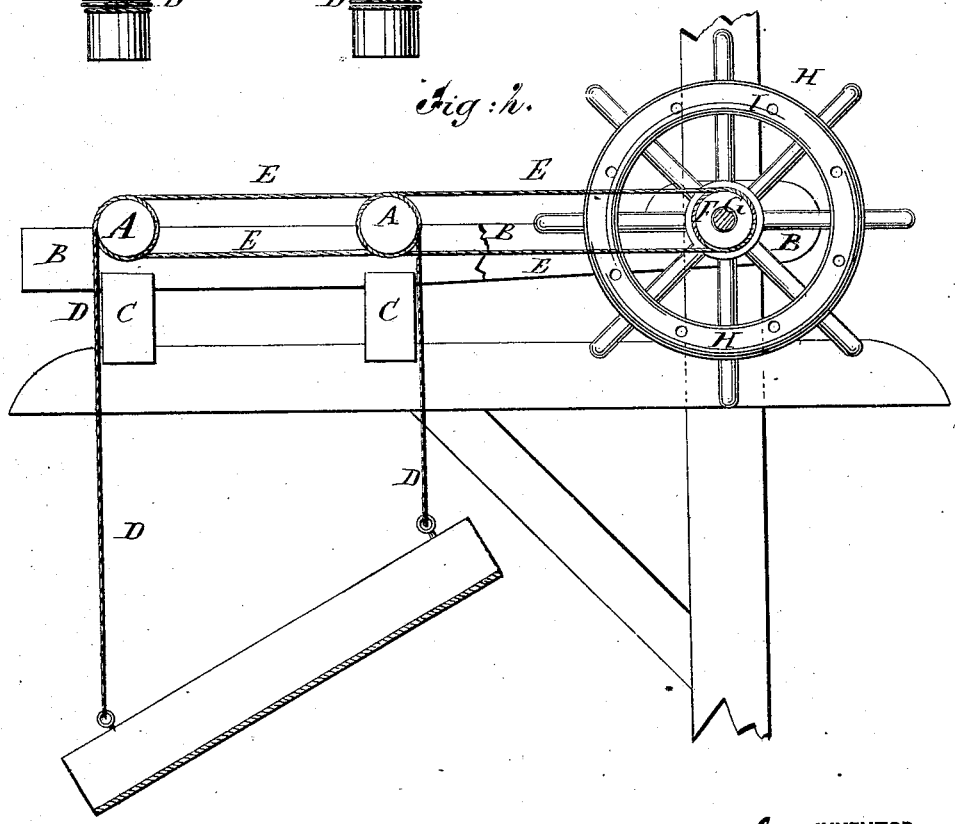


Fig: 2.



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UNITED STATES PATENT OFFICE.

JOSEPH B. CROWTHERS, OF MONONGAHELA CITY, AND WILLIAM R. WILKINS, OF PIKE RUN, PENNSYLVANIA.

IMPROVEMENT IN DROP-CHUTE REVERSERS.

Specification forming part of Letters Patent No. **160,308**, dated March 2, 1875; application filed January 25, 1875.

To all whom it may concern:

Be it known that we, JOSEPH B. CROWTHERS, of Monongahela City, in the county of Washington and State of Pennsylvania, and WILLIAM R. WILKINS, of Pike Run, in the county of Washington and State of Pennsylvania, have invented a new and useful Improvement in Drop-Chute Reversers, of which the following is a specification:

Figure 1 is a top view of our improved reverser. Fig. 2 is a side view of the same, partly in section to show the construction.

Our invention has for its object to improve the construction of the drop-chutes in common use for loading coal into boats, barges, and other vessels, so as to enable them to be more quickly and more easily reversed than when constructed in the ordinary way, and which may be conveniently adjusted to correspond with the rise and fall of the water in the river.

The invention consists in the combination of the two ropes, the two drums, the two wheels, the locking-pin, and the shaft with the two rollers, provided with ropes wound upon their ends in opposite directions, as hereinafter fully described.

A are two rollers, the journals of which revolve in bearings attached to the bars B, which are connected with the scale-frame C, or other suitable support. To the end parts of the rollers A are attached the ends of the ropes or chains D, the other ends of which are attached to the four corners of the drop chute or box, in which the coal is weighed and lowered, and from which it is discharged into the vessel. The ropes or chains D are wound in different directions upon the two rollers A, as shown in Fig. 2. E are two ropes, the middle parts of which make several turns around the rollers A, and their ends are wound in opposite directions around and are attached to two drums, F. The two drums F revolve loosely upon the same shaft G, which is secured to the bars B, or to other suitable supports. To the adjacent ends of the drums F are attached two wheels, H, with radial handles projecting from their rims, similar to a pilot-wheel, which wheels are thus side by side and close together, as shown in Fig. 1. The two wheels H are locked together, when desired, by a pin, I, passed through holes in their rims, several holes being formed in the said rims to receive the said pin, so that the said wheels may be locked together, however they may be turned or adjusted.

In using the apparatus the hanging parts of the ropes or chains D are adjusted to be of equal length, and so that their lower ends may be at the point at which it is desired to discharge the coal from the chute or box, and the wheels H are then fastened together by the pin I. If, now, the wheels H are turned together in either direction, the ropes D will be wound upon one of the rollers A, and unwound from the other, enabling either end of the box to be lowered according to the direction in which the coal is to be discharged. By removing the locking-pin I, and turning the two wheels H in opposite directions, the ropes D may be wound upon or unwound from the rollers A, to shorten or lengthen their hanging parts, according as the water in the river may be high or low.

The wheels H are placed near the "tipple," so that the operator can place his hands upon them by merely taking a step, and can thus adjust them instantly to reverse the chute, which has to be done every five or ten minutes. With the old apparatus the operator had to walk twenty-five or thirty feet to the rollers A, unfasten one of said rollers, turn it to unwind or wind up its ropes D, and fasten it. He then had to unfasten the other roller A, turn it to wind up or unwind its ropes D, and fasten it, and then return twenty-five or thirty feet to his place, making a walk of fifty or sixty feet, besides his labor every time he reversed the chute. With our improved device the chute can be reversed instantly without any walk, and the rollers A do not require to be fastened, as they are held by the wheels H, which are fastened to a joist or floor, as may be most convenient.

The chute is raised and lowered by a separate hoisting apparatus, in the ordinary way.

The hoisting apparatus and trip are not shown in the drawing, as there is nothing new in their construction.

We are aware of the fact that drop-chutes have been heretofore constructed in which the

reversing mechanism consists of continuous ropes attached to the ends of the drop-chute, and wound around a single drum provided with a single ratchet-wheel and pawl. This arrangement, however, does not admit of the separate adjustment of the ends of the drop-chute, or the vertical adjustment of the whole chute for the variations in the tides; nor can the chute be reversed without great difficulty. We disclaim, therefore, any broadness of invention, and confine ourselves to the devices herein described and claimed.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

The combination of the two ropes E, the two drums F, the two wheels H, the locking-pin I, and the shaft G with the rollers A, provided with ropes D, wound upon their ends in opposite directions, substantially as herein shown and described.

JOSEPH B. CROWTHERS.
WILLIAM R. WILKINS.

Witnesses:
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