

L. H. LEWIS.
COAL CONVEYER FOR LOCOMOTIVE TANKS.

APPLICATION FILED FEB. 18, 1903.

NO MODEL.

FIG. 1.

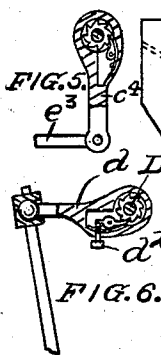
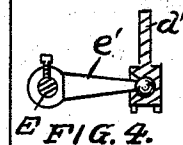
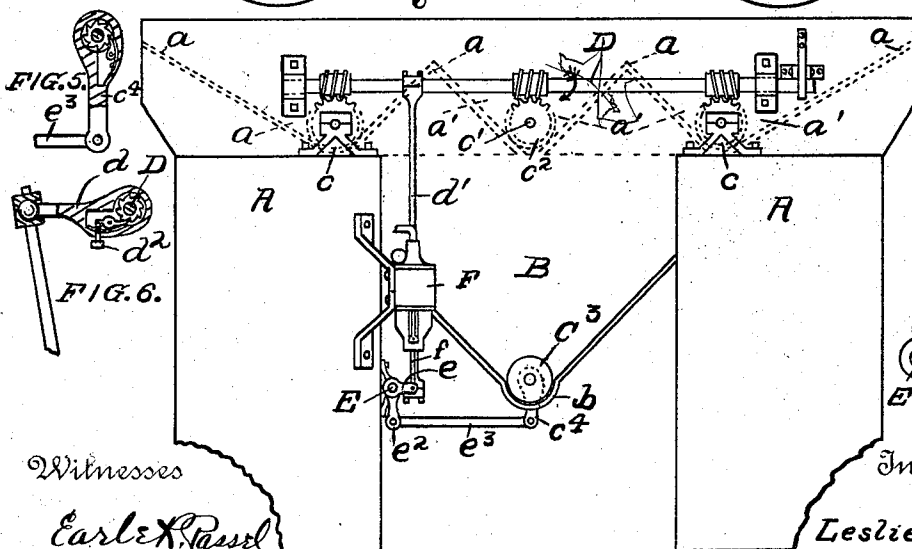
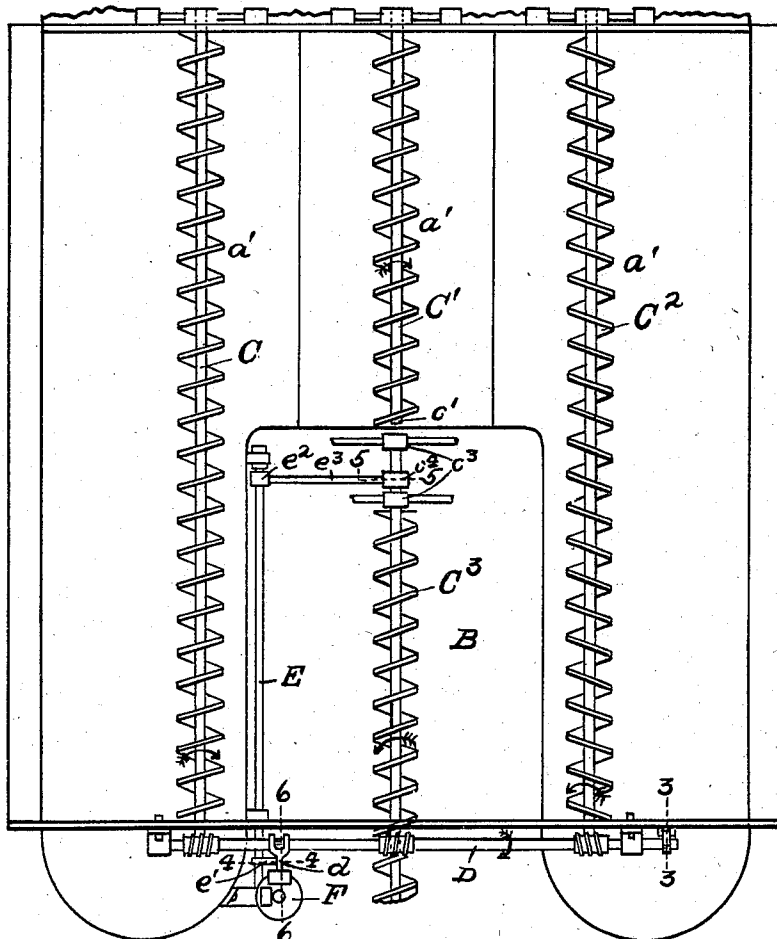


FIG. 6.

Witnesses

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FIG. 2.

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UNITED STATES PATENT OFFICE.

LESLIE H. LEWIS, OF LEXINGTON, KENTUCKY.

COAL-CONVEYER FOR LOCOMOTIVE-TANKS.

SPECIFICATION forming part of Letters Patent No. 726,711, dated April 28, 1903.

Application filed February 18, 1903. Serial No. 144,008. (No model.)

To all whom it may concern:

Be it known that I, LESLIE H. LEWIS, a citizen of the United States, residing at Lexington, in the county of Fayette and State of Kentucky, have invented certain new and useful Improvements in Coal-Conveyers for Locomotive-Tanks, of which the following is a specification.

The object of my invention is to provide improved means for conveying the coal in locomotive-tanks to within easy reach of the fireman; and my invention consists in the combinations and arrangements of parts hereinafter set forth.

In the drawings, Figure 1 is a top plan view of a locomotive-tank equipped with apparatus embodying my invention; Fig. 2, a front elevation of the same; Fig. 3, a section on line 3 3 of Fig. 1; Fig. 4, a section on line 4 4 of Fig. 1; Fig. 5, a section on line 5 5 of Fig. 1, and Fig. 6 a section on line 6 6 of Fig. 1.

Reference-letter A denotes a locomotive-tank; B, the pit therein; C, C', C², and C³, spiral or worm conveyers for conveying the coal; D, a shaft for operating conveyers C, C', and C²; E, a rock-shaft operating shaft D and conveyer C³, and F a steam-engine cylinder for operating shaft E.

The tank A is one of the usual forms of railway-locomotive tanks provided with the usual pit B. The bottom of the upper coal-carrying portion of the tank is provided with ridges *a*, forming hoppers *a'* between them, and the conveyers C, C', and C² are mounted in hoppers *a'*. Conveyers C and C² are provided at their forward ends with worm-gears *c*, meshing with a corresponding worm-gear on shaft D, and the shaft *c'* of conveyer C' is extended over the pit to the forward end of the tank, where it is provided with a worm-gear *c²*, also meshing with a corresponding worm-gear on shaft D. It will be seen that the result of this arrangement is that upon rotation of shaft D, as indicated, conveyers C, C', and C² are rotated in such manner as to carry the coal in the upper portion of the tank forward and deliver it into pit B.

The shaft D is operated through the medium of rock-shaft E, which is rocked by steam-engine cylinder F through the medium of a rock-arm *e* and extended piston-rod *f*. Shafts D and E are respectively provided

with rock-arms *d* and *e'*, which are connected by rod *d'*, having a ball-bearing in each. The rock-arm *d* on shaft D has a pawl-and-ratchet engagement therewith; as shown in Fig. 6, by means of which the rocking of shaft E causes rotation of shaft D, as indicated. A set-screw *d²* serves to throw the pawl out of engagement, and so to disconnect shafts D and E.

The pit B is provided with a hopped bottom having a central curved trough *b*, in which conveyer C³ lies. The conveyer C³ is journaled at two points *c³* at the rear and simply lies in trough *b*, not being journaled at the front. Rock-arms *c⁴* and *e²* and connecting-rod *e³* serve to operate conveyer C³ from rock-shaft E. Operation of conveyer C³ carries the coal in pit B forward and delivers it onto the fireman's platform within easy reach of the fireman.

It will be noted that the speed of rotation of conveyer C³ will be much faster than that of conveyers C, C', and C², since the former is directly connected with shaft E, while the latter are indirectly connected therewith through the medium of worm-gears. The relation between the speeds of the conveyers is preferably such that conveyer C³ carries all the coal delivered to it by conveyers C, C', and C². At first, when the tank and pit are full, conveyer C³ is alone operated to deliver the coal in the pit to the fireman. As the supply in the pit becomes exhausted, the conveyers C, C', and C² are started by loosening set-screw *d²*, whereupon the coal in the upper part of the tank is delivered into the pit, whence conveyer C³ carries it to the forward part of the tank and delivers it to the fireman.

While I have illustrated and described the preferred form of apparatus for carrying my invention into effect, this is capable of many variations and changes without departing from the spirit of the invention. I therefore do not wish to be confined to the exact construction disclosed; but

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination of a locomotive-tank having its bottom formed into two or more hoppers; screw conveyers mounted in the hoppers; and means for operating the conveyers, substantially as specified.

2. The combination of a locomotive-tank having upper and lower coal-compartments; a screw conveyer mounted in the lower compartment and adapted to deliver coal to the forward end of the tank; two or more screw conveyers mounted in the upper compartment and adapted to deliver coal to the lower compartment; and means for operating the conveyers, substantially as specified.
3. The combination of a locomotive-tank having upper and lower coal-compartments; a screw conveyer mounted in the lower compartment and adapted to deliver coal to the forward end of the tank; a series of ridges forming the bottom of the upper compartment into longitudinal hoppers; two or more screw conveyers mounted in said hoppers and adapted to deliver coal to the lower compartment; and means for operating the conveyers, substantially as specified.
4. The combination of a locomotive-tank having upper and lower coal-compartments; a hopped bottom for the lower compartment, provided with a central longitudinal curved trough; a screw conveyer mounted in the trough in the bottom of the lower compartment and adapted to deliver coal to the forward end of the tank; a series of ridges forming the bottom of the upper compartment into longitudinal hoppers; two or more screw conveyers mounted in said hoppers and adapted to deliver coal to the lower compartment; and means for operating the conveyers, substantially as specified.
5. The combination of a locomotive-tank having upper and lower coal-compartments; a screw conveyer mounted in the lower compartment and adapted to deliver coal to the forward end of the tank; two or more screw conveyers mounted in the upper compartment and adapted to deliver coal to the lower compartment; means for operating the conveyers in the upper compartment; and means for operating the conveyer in the lower compartment independently of those in the upper compartment, substantially as specified.
6. The combination of a locomotive-tank having upper and lower coal-compartments; a screw conveyer mounted in the lower compartment and adapted to deliver coal to the forward end of the tank; two or more screw conveyers mounted in the upper compartment and adapted to deliver coal to the lower compartment; means for operating the conveyers in the upper compartment; and means for operating the conveyer in the lower compartment at greater speed than those in the upper compartment, substantially as specified.
7. The combination of tank A; pit B; conveyers C, C' and C² in the upper portion of tank A; conveyer C³ in pit B; shaft D for operating conveyers C, C' and C²; shaft E; rock-arm *d* on shaft D, having a ratchet connection therewith, and provided with set-screw *d*² for rendering the pawl inoperative; rock-arm *e*' on shaft E; connecting-rod *d*' connecting arms *d* and *e*' and having a ball-bearing in each; rock-arm *e*² on shaft E; ratcheted rock-arm *e*⁴ on conveyer C³; rod *e*³ connecting arms *e*² and *e*⁴; and means for operating shaft E, substantially as specified.
8. The combination of tank A having its upper compartment provided with hoppers *a*'; pit B having a hopped bottom provided with trough *b*; conveyers C, C' and C² mounted in hoppers *a*'; shaft D for operating conveyers C, C' and C²; shaft E; rock-arm *d* on shaft D, having a ratchet connection therewith, and provided with set-screw *d*² for rendering the pawl inoperative; rock-arm *e*' on shaft E; connecting-rod *d*' connecting arms *d* and *e*', and having a ball-bearing in each; rock-arm *e*² on shaft E; ratcheted rock-arm *e*⁴ on conveyer C³; rod *e*³; connecting arms *e*² and *e*⁴; and engine-cylinder F for operating shaft E, substantially as specified.

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Witnesses:

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