R. G. LAWRY.

SHAKER BOOM.

APPLICATION FILED JAN. 14, 1916.

1,197,133.

Patented Sept. 5, 1916.

3 SHEETS—SHEET 1.

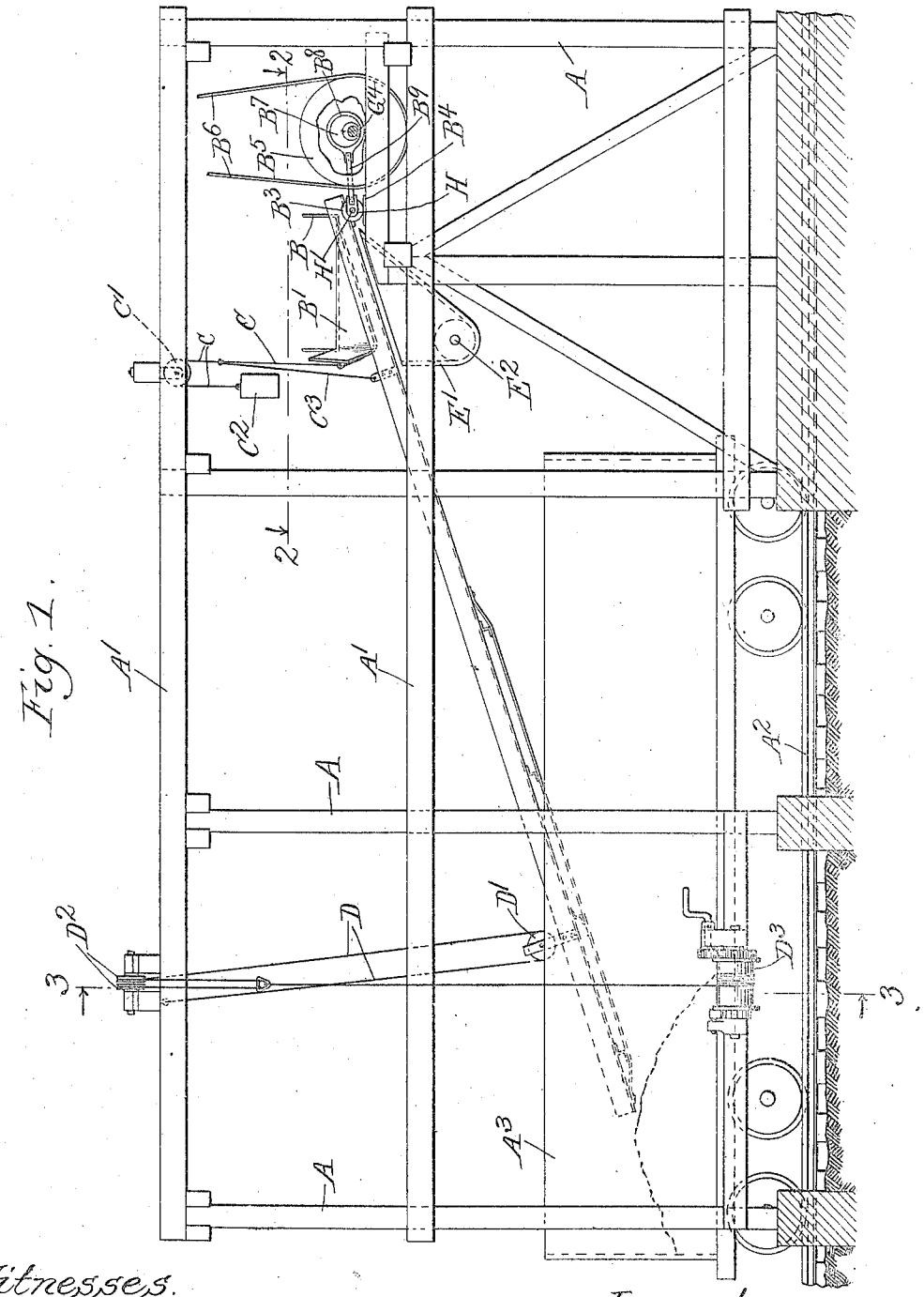


Fig. 1.

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3 SHEETS—SHEET 2.

Fig. 2.

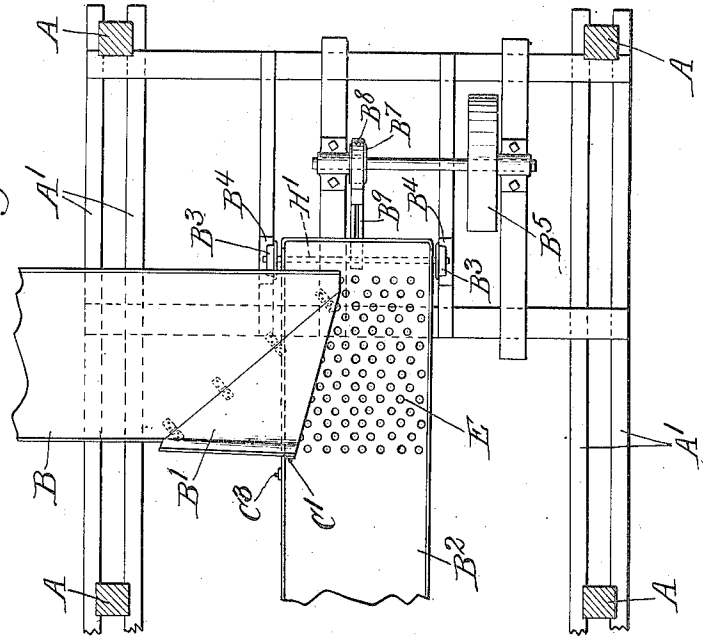
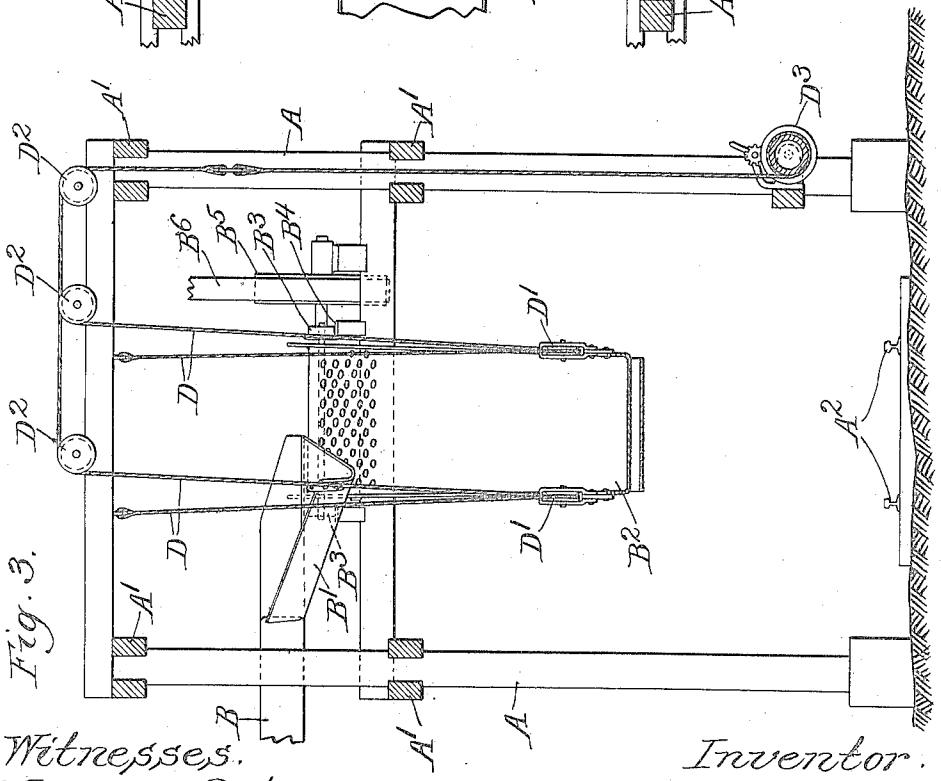


Fig. 3.



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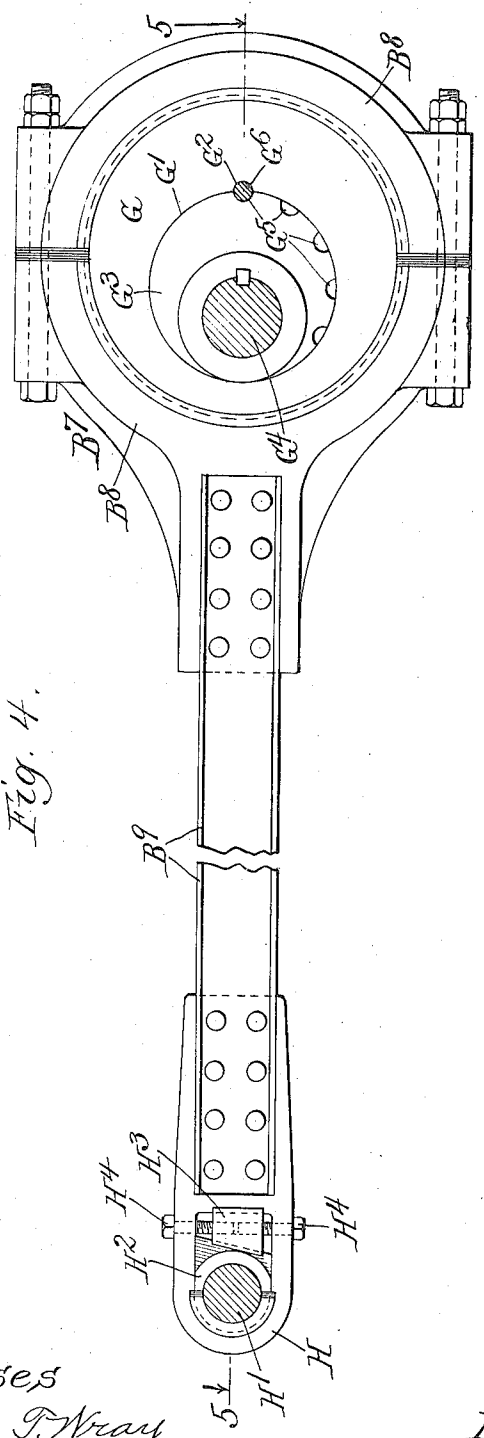


Fig. 4.

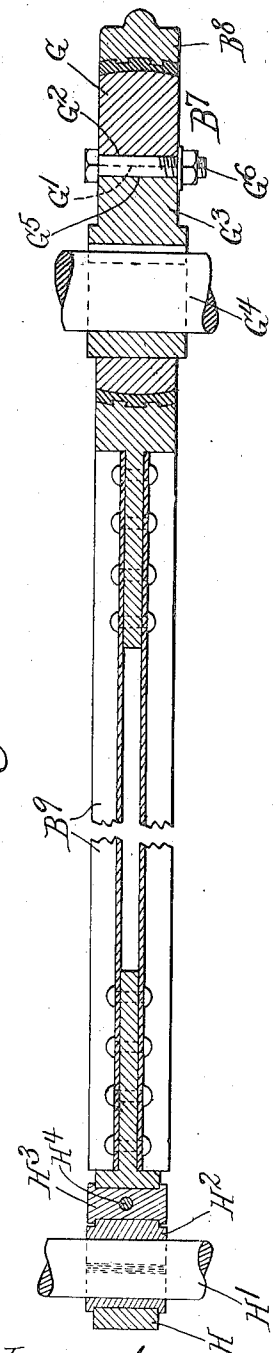


Fig. 5.

Witnesses
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UNITED STATES PATENT OFFICE.

RAYMOND G. LAWRY, OF CHICAGO, ILLINOIS, ASSIGNOR TO ROBERTS AND SCHAEFER COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

SHAKER-BOOM.

1,197,133. Specification of Letters Patent. Patented Sept. 5, 1916.

Application filed January 14, 1916. Serial No. 72,035.

To all whom it may concern:

Be it known that I, RAYMOND G. LAWRY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Shaker-Booms, of which the following is a specification.

My invention relates to improvements in shaker boom loader devices and has for one object to provide a shaker boom loader mechanism which will feed coal or like material smoothly and freely from an elevated position to a discharge point without breaking or damaging the material.

Another object is to provide means for screening and separating the material if need be.

Another object is to provide a new and improved feed for feeding material to coal cars and the like.

Other objects of my invention will appear from time to time in the specification.

My invention is illustrated more or less diagrammatically in the accompanying drawings wherein—

Figure 1 is a side elevation; Fig. 2 is a section on the line 2—2 of Fig. 1; Fig. 3 is a section along the line 3—3 of Fig. 1; Fig. 4 is a detailed side elevation on an enlarged scale; Fig. 5 is a section along the line 5—5 of Fig. 4.

Like parts are indicated by like numbers throughout the several figures.

A A represents uprights and A^1 A^1 horizontal members forming a part of the material handling shed or structure. A^2 A^2 are railroad tracks extending longitudinally within such structure. A^3 is a railroad car adapted to stand upon such tracks.

B is a feed chute or spout leading from a suitable source of coal or other material supply not here shown. This spout is provided with an apron or extension B^1 diagonally hinged thereupon and suspended at its discharge edge immediately above but just out of contact with the upper surface of the pivotally mounted normally inclined feed and conveyer boom B^2. This conveyer boom is supported at its upper end on rollers B^3, riding on track members B^4.

B^5 is a pulley driven from any suitable source of power, by a belt B^6. It drives an eccentric B^7 which in turn drives an eccentric strap B^8, which strap is connected by an eccentric rod B^9 to the upper end of the feed boom so that rotation of the pulley causes a reciprocation of the upper end of the boom in a substantially horizontal direction.

The apron B^1 is supported by a cable C which passes over a sheave C^1 and is attached to and supports a weight C^2. A cable C^3 is interposed between the boom B^2 and the cable C. The weight is sufficiently heavy to always hold the apron up but this weight is overcome by the weight of the boom, the arrangement being such that as the boom moves up or down, the apron moves with it so as to always provide a smooth gentle flow from the apron to the upper end of the boom. The lower end of the boom is supported by cables D passing over sheaves D^1 on the boom and sheaves D^2 on the structure. The windlass D^3 is provided whereby the height or position of the end of the boom may be controlled quite independent of the reciprocation of the boom.

The eccentric B^7 comprises a shifting block G having an eccentric aperture G^1 therein provided with a semi-cylindrical slot G^2. This shifting block rides upon an eccentric G^3 keyed to the shaft G^4. The eccentric has a series of semi-cylindrical slots G^5 therein. In operation the throw of the eccentric is adjusted by rotating the shifting block on the eccentric block and locking it in position by inserting a bolt G^6 into the bolt hole formed by the registry of the eccentric slots on the two blocks. At the other end of the eccentric link B^9 removed from the eccentric is a loop H. This loop is adapted to engage the pin H^1 and the pin is held in position by a semi-cylindrical box member H^2 adapted to be tightened up by a wedge H^3, which wedge is forced into and held in place by the cap screws H^4.

The apertures E are provided in the floor in the upper portion of the boom forming an integral part of the boom. Their function is of course to separate out such material as may be broken off into fines during the passage of the material from the conveyer to the boom. The hopper receives such material and the conveyer E^2 disposes of it.

It will be evident that while I have shown in my drawings an operative device, still many changes might be made in size, shape and arrangement of parts, without departing from the spirit of my invention.

The use and operation of my invention is

as follows: Coal or other friable material is fed from the storage reservoir by any suitable means, such for instance as the horizontally disposed conveyer shown across the car tracks. This conveyer discharges at its end or elsewhere, as the case may be, upon the upper end of an inclined, pivotal reciprocating feed chute, which chute is in my preferred form, at right-angles to the path of the material as it approaches on the conveyer. This reciprocating spout is made in one section, and means must be therefore provided to convey the material from the fixed conveyer and drop it or discharge it or gently deposit it upon the upper end of the reciprocating shaker chute or boom independent of the inclination of that boom. In other words, it would be fatal to have any sudden drop of the material from the conveyer to the boom. The diagonally pivoted apron provides such necessary intermediate link. Its presence results in permitting a smooth flow of the material and a gentle deposition of it from the conveyer onto the boom. The supporting means comprising a weight and cable being anchored on the boom causes the inclination of the apron to vary in proper proportion with respect to the variation and the inclination of the boom. The operator will start with the boom lowered so that it rests substantially on the floor of the car. The coal comes gradually down the boom, being encouraged in its flow by the reciprocation or shaking of the boom, and is gradually flowed off or deposited on the car without breakage and without appreciable drop. As the car fills up the operator manipulates the windlass to raise the end of the boom, and this manipulation of the boom is quite independent of the reciprocation of the boom. The only time the reciprocation of the boom need be changed is when different types of material are being handled. Some coal does not flow as easily as others. For such coal the reciprocation must be increased. This is done by rotating the adjusting block with respect to the eccentric. Both these blocks are eccentric, and by locking them in position with respect one to the other, a fixed eccentric is provided. A relative rotation of the two parts as shown will of course result in changing the flow of the eccentric, but this can only be done when the eccentric is at rest. The screen is provided integral with the boom to take out dust and small particles which may have been produced by the conveying of the material along the conveyer and by its discharge from the conveyer to the boom, caused principally by the rubbing of the particles together.

I claim:

1. The combination with a pivotally mounted loading boom and means for raising and lowering one end thereof, of means for feeding material to the upper end of the boom and depositing it gently thereupon independent of the inclination thereof, said means comprising a conveyer fixed in position, and a discharge apron interposed between a portion of said conveyer and the boom, and means for supporting such apron with its discharge edge adjacent the upper surface of the boom, said supporting means comprising a cable anchored at one end on the boom, means for pulling upwardly thereupon, and a cable anchored on said first mentioned cable and supporting the apron at the other end.

2. The combination with a pivotally mounted loading boom and means for raising and lowering one end thereof of means for feeding material toward such boom along a line perpendicular to the axis thereof, and means for depositing such material gently thereupon independent of the inclination thereof.

3. The combination with a pivotally mounted loading boom and means for raising and lowering one end thereof, of means for feeding material toward such boom along a line perpendicular to the axis thereof, and means for depositing such material gently thereupon independent of the inclination thereof, said means comprising a conveyer fixed in position, and a discharge apron interposed between a portion of said conveyer and the boom, and means for supporting such apron with its discharge edge adjacent the upper surface of the boom.

4. The combination with a pivotally mounted loading boom and means for raising and lowering one end thereof, of means for feeding material toward such boom along a line perpendicular to the axis thereof, means for depositing such material gently thereupon independent of the inclination thereof, said means comprising a conveyer fixed in position, and a discharge apron interposed between a portion of said conveyer and the boom, and means for supporting such apron with its discharge edge adjacent the upper surface of the boom, said supporting means comprising a cable anchored at one end on the boom, means for pulling upwardly thereupon, and a cable anchored on said first mentioned cable and supporting the apron at the other end.

5. The combination with a pivotally mounted loading boom and means for raising and lowering one end thereof of a conveyer arranged to feed material along the line substantially perpendicular to the axis of the boom, said conveyer being in fixed position, and means carried by said conveyer for depositing material from the conveyer gently upon the feeding boom independent of its inclination.

6. The combination with a pivotally mounted loading boom, and means for rais-

ing and lowering one end thereof of a conveyer and means for feeding material directly from the conveyer to the boom and depositing it gently upon the boom independent of the change in the inclination of the boom.

In testimony whereof, I affix my signature in the presence of two witnesses this 4th day of January 1916.

RAYMOND G. LAWRY.

Witnesses:
MINNIE M. LINDENAU,
CHRISTINA DEANS.