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UNDERGROUND LOADING MACHINE, INCLUDING A FLEXIBLE TROUGH

Original Filed June 17, 1947

2 SHEETS—SHEET 1

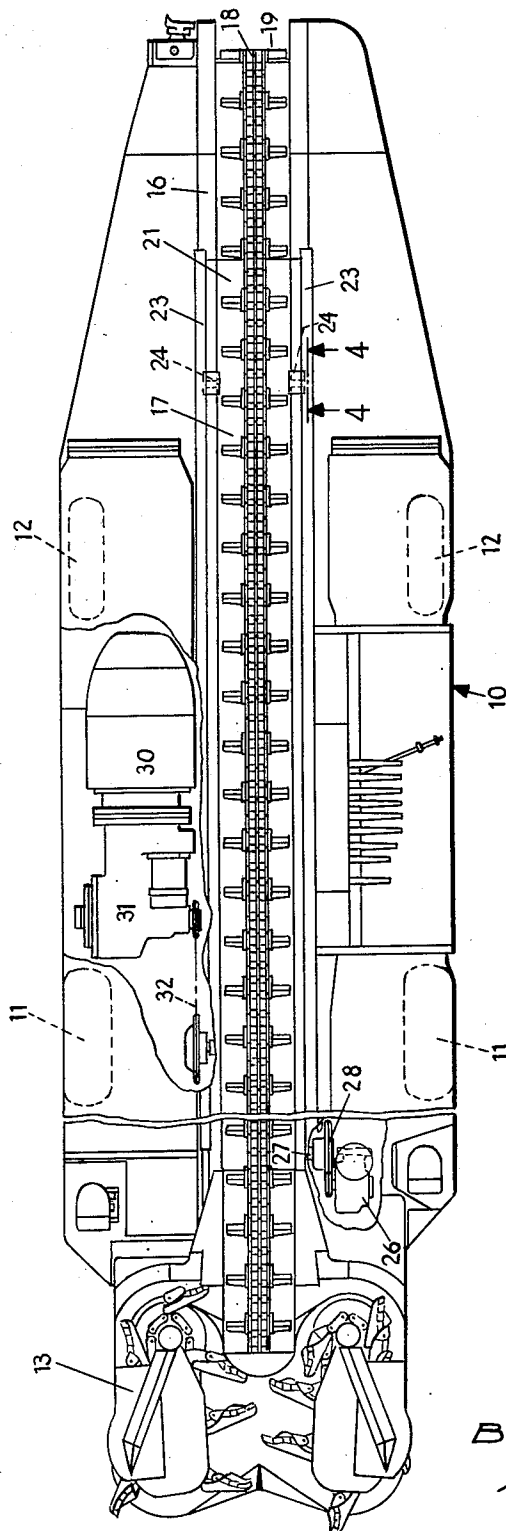


Fig. 1

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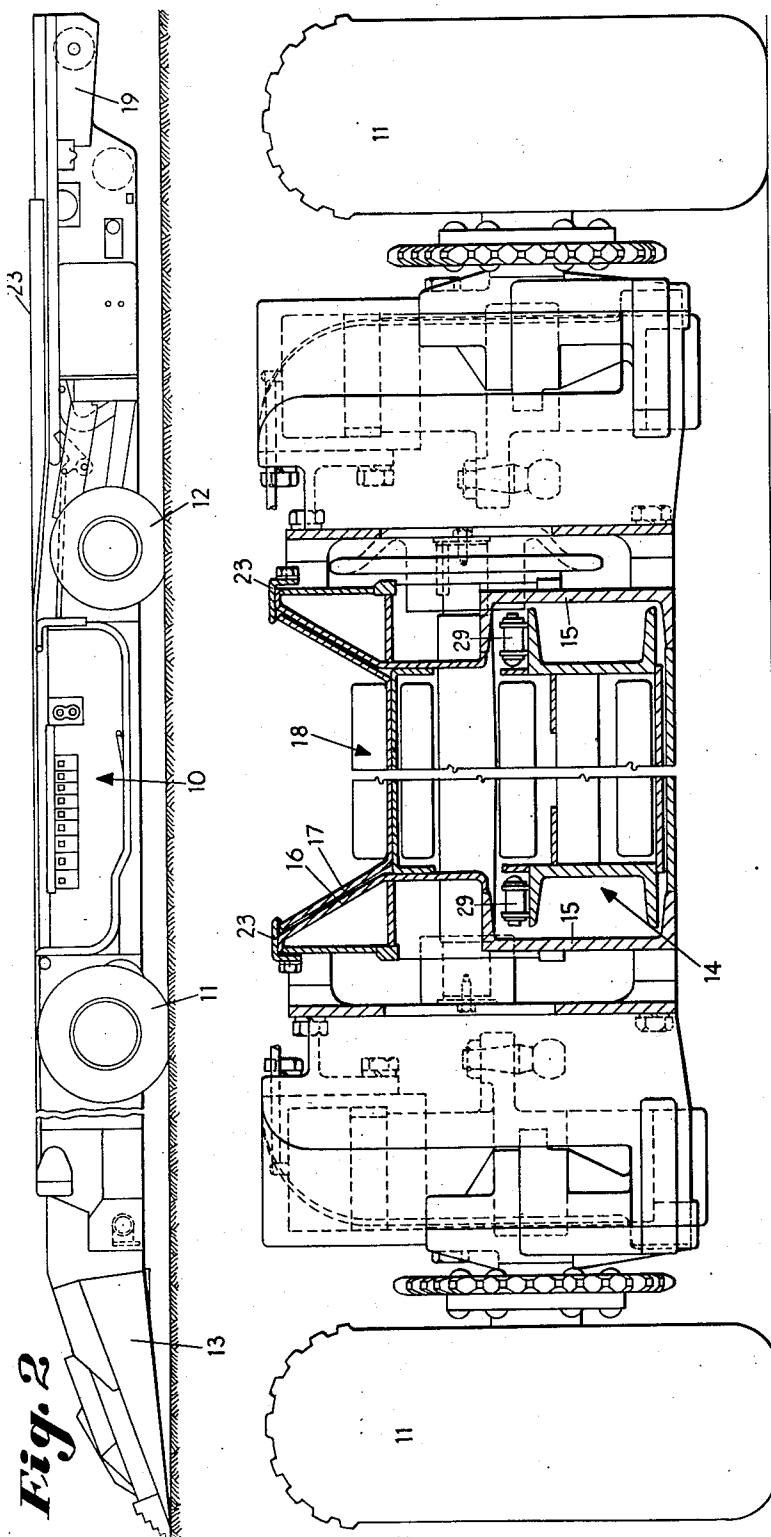


Fig. 3

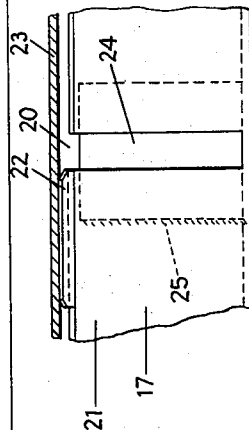


Fig. 4

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UNITED STATES PATENT OFFICE

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UNDERGROUND LOADING MACHINE,
INCLUDING A FLEXIBLE TROUGH

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Original application June 17, 1947, Serial No.
755,162. Divided and this application March
16, 1949, Serial No. 81,794

4 Claims. (Cl. 198—8)

1

This invention relates to an underground loading machine and an object of the invention is to provide an improved machine of that type.

Another object of the invention is to provide flexibility in a sliding trough adapted to slide forwardly and rearwardly as the gathering head of the loading machine is adjusted.

Other objects of the invention will appear hereinafter the novel features and combinations being set forth in the appended claims.

In the accompanying drawings,

Fig. 1 is a plan view of the loading machine incorporating my invention;

Fig. 2 is a side elevational view of the loading machine seen in Fig. 1;

Fig. 3 is a transverse sectional and elevational view, the view being taken substantially through the adjustable front traction wheels of the machine and showing the main frame and conveyer trough members in section; and

Fig. 4 is a view partly in section on a larger scale, the view being taken substantially on line 4—4 of Fig. 1 and showing details of the adjustable trough mechanism of the loading machine.

This application is a division of my co-pending application serial No. 755,162, filed June 17, 1947, now abandoned, for an Underground Loading Machine.

Many of the details of the machine hereinafter described are disclosed in full detail in the application of Sterling C. Moon, Serial No. 754,516, filed June 13, 1947, entitled Underground Loading Machine, now Patent No. 2,591,584, dated April 1, 1952.

As illustrated in Figs. 1 and 2 of the drawings the loading machine includes a main frame 10 provided with a pair of laterally spaced front traction wheels 11, 11 and a pair of laterally spaced rear wheels 12. Adjacent the front end of the machine there is a gathering head 13 provided with laterally spaced chain and flight conveyer mechanisms adapted to gather coal by feeding the head 13 forwardly. The gathering head 13 is mounted on a boom 14 (see Fig. 3) which telescopes between the side walls 15 of the main frame 10. The main frame 10 is of elongated box-like construction providing a unit of low overall height, and the top thereof forms a continuous trough 16 which extends from the front to the rear of the machine. Attached to the gathering head 13 is an overlapping trough 17 which slides in the main frame trough 16 as the head 13 and boom 14 are slidably adjusted. Continuous chain and flight mechanism 18 has its upper run traveling through the overlapping

2

troughs 16 and 17 and receives material from the gathering conveyers on the head 13 and delivers said material through a discharge chute 19 at the rear of the machine.

5 The chain and flight conveyer mechanism 18 is driven from an electric motor 30 through gearing and a clutch contained within a housing 31 and a chain and sprocket mechanism indicated at 32 in Fig. 1 of the drawings.

10 The boom 14 is reciprocated within the main frame 10 to move the head 13 toward and from it by a hydraulic motor and gear reduction mechanism 26. Gear reduction mechanism 26 drives a shaft 27 that extends transversely of the main frame 10 to sprockets and a chain indicated at 28 of Fig. 1 of the drawings. Shaft 27 drives a pair of chains 29, see Fig. 3, each of which is attached at one end to the rear of the boom 14 and, at the other, to the front of boom 14 adjacent to gathering head 13. It will be seen that when the shaft 27 is rotated by the motor 26 to feed the chains 29 rearwardly, the boom 14, the gathering head 13, and the trough 17 that overlaps trough 16 of main frame 10 will be fed toward the main frame 10, and that when the shaft 27 is rotated to feed the chains 29 forwardly said boom, head, and trough will be fed forwardly or away from the main frame 10.

30 The general overall construction of the machine and its mode of operation is disclosed in my application Serial No. 530,361, filed April 10, 1944, for a Loading Machine, now Patent No. 2,589,827, dated March 18, 1952 to which reference is made for various details as well as the general mode of operation of the machine herein disclosed.

As illustrated in Fig. 4 of the drawings, the sloping side walls of the trough 17 are split, separated or severed intermediate their ends by a notch 20 so that only the bottom plate of said trough 17 interconnects the two parts on opposite sides of said notch 20. These notches 20 in the two side walls of said trough 17 are formed preferably within a few feet of the discharge end thereof so that the rear edge of the bottom of trough 17 will ride upon the bottom of the trough 16 for all positions of adjustment of the head 13. To insure this action the rear portion 21 of said trough 17 has hold-down strips or shoes 22 adjacent the top edges thereof which are held down by angle clips or tracks 23 which extend the major length of the main frame 10 and along the top edges of the side walls 15 and they overlap the top edges of the side walls of trough 17, as illustrated in Figs. 1 and 2 of the drawings.

3

To prevent spillage of material adjacent the notches 20, auxiliary side plates 24 overlap said notches and are welded to one side of the adjacent side plate of trough 17, as illustrated at 25 in Fig. 3 of the drawings.

From the foregoing description it will be obvious that the rear portion 21 of trough 17, which trough is attached to and reciprocates with the gathering head 13, can flex with respect to the forward portion of the trough and that the auxiliary plates 24 which are carried by the side wall members of the trough 17 will at all times cover the notches 20 to prevent the loss of material therethrough which is being conveyed rearwardly in the troughs 17 and 16 by the endless conveyer 18.

Obviously those skilled in the art may make various changes in the details and arrangement of parts without departing from the spirit and scope of the invention as defined by the claims hereto appended and applicant wishes therefore not to be restricted to the precise construction herein disclosed.

Having thus described and shown an embodiment of the invention, what it is desired to secure by Letters Patent of the United States is:

1. A loading machine including a main frame, a gathering head at the front of said main frame, a boom telescoping with said main frame and supporting said gathering head, a first trough in said main frame, a second trough attached to said gathering head including a bottom and generally upwardly extending side wall members overlapping and sliding in said first trough, endless conveyer mechanism extending along said troughs for conveying material rearwardly therethrough, track means carried by said main frame overlapping the side walls of said second trough, said side wall members of said second trough being notched adjacent the rear end thereof whereby its rear portion may flex with respect to its forward portion, plate means carried by the side wall members of said second trough covering said notches for preventing the loss of material therethrough, and shoe means carried by the rear portions of the side wall members of the rear portion of said second trough engaging said track means for holding down said rear portion of said second trough.

2. A loading machine including a main frame, a gathering head at the front of said main frame, a boom telescoping with said main frame and supporting said gathering head, a first trough in said main frame, a second trough attached to said gathering head including a bottom and generally upwardly extending side wall members overlapping and sliding in said first trough, endless conveyer mechanism extending along said troughs for conveying material rearwardly therethrough, track means carried by said main frame overlapping the side walls of said second trough, said side wall members of said sec-

4

ond trough being notched adjacent the rear end thereof whereby its rear portion may flex with respect to its forward portion, and plate means carried by the side wall members of said second trough covering said notches for preventing the loss of material therethrough.

3. A loading machine including a main frame, a gathering head at the front of said main frame, a boom telescoping with said main frame and supporting said gathering head, a first trough in said main frame, a second trough attached to said gathering head including a bottom and generally upwardly extending side wall members overlapping and sliding in said first trough, endless conveyer mechanism extending along said troughs for conveying material rearwardly therethrough, track means carried by said main frame overlapping the side walls of said second trough, said side wall members of said second trough being notched adjacent the rear end thereof whereby its rear portion may flex with respect to its forward portion, and shoe means carried by the rear portions of the side wall members of the rear portion of said second trough engaging said track means for holding down said rear portion of said second trough.

4. A loading machine including a main frame, a gathering head at the front of said main frame, a boom telescoping with said main frame and supporting said gathering head, a first trough in said main frame, a second trough attached to said gathering head including a bottom and generally upwardly extending side wall members overlapping and sliding in said first trough, endless conveyer mechanism extending along said troughs for conveying material rearwardly therethrough, said side wall members of said second trough being notched adjacent the rear end thereof whereby its rear portion may flex with respect to its forward portion, and plate means carried by the side wall members of said second trough covering said notches for preventing the loss of material therethrough.

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