

March 10, 1942.

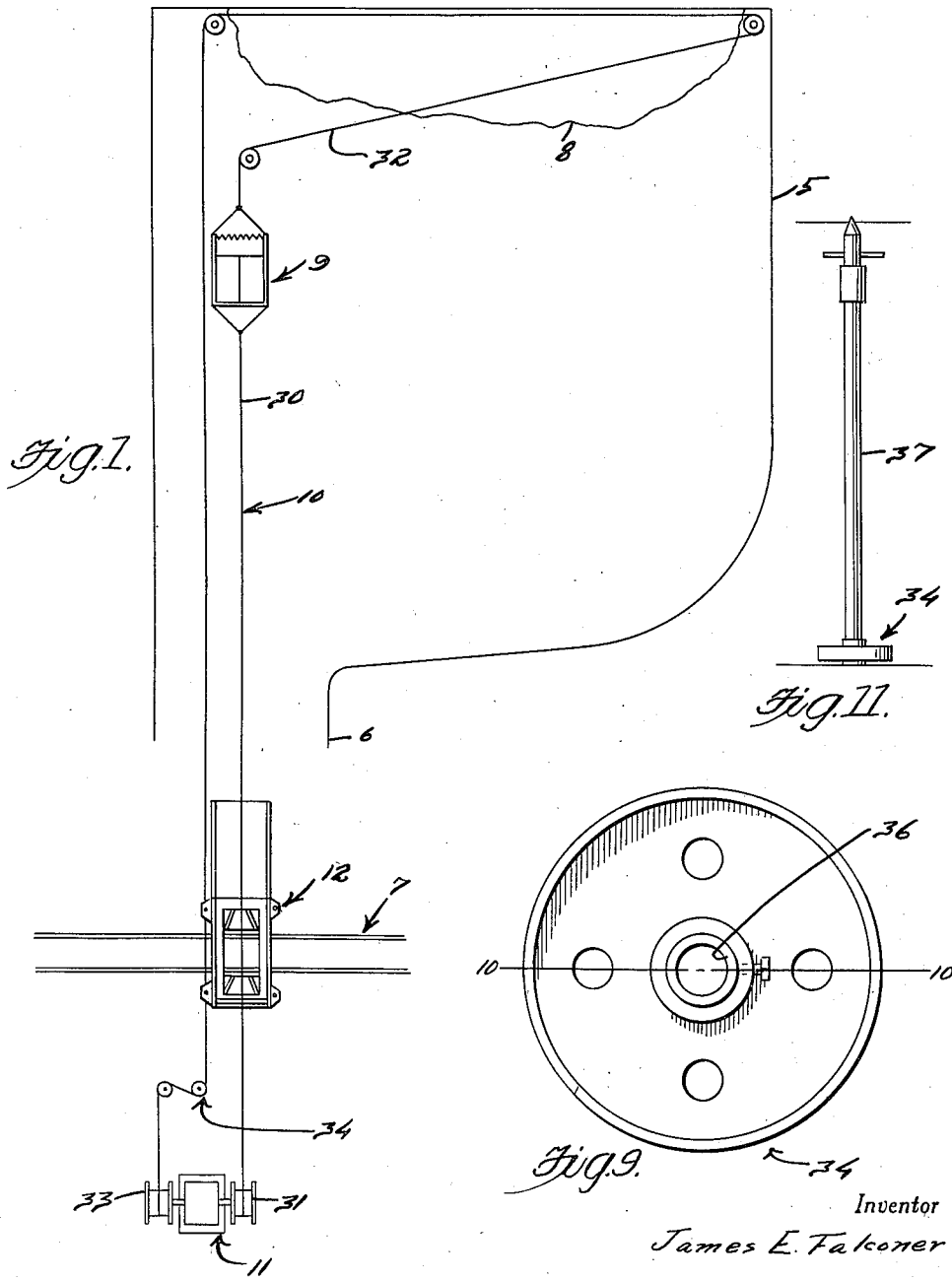
J. E. FALCONER

2,275,950

COAL LOADER

Filed Feb. 24, 1941

4 Sheets-Sheet 1



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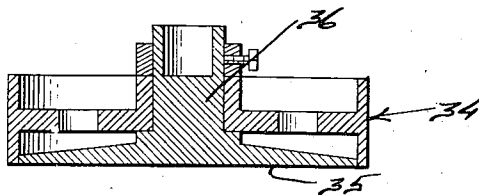
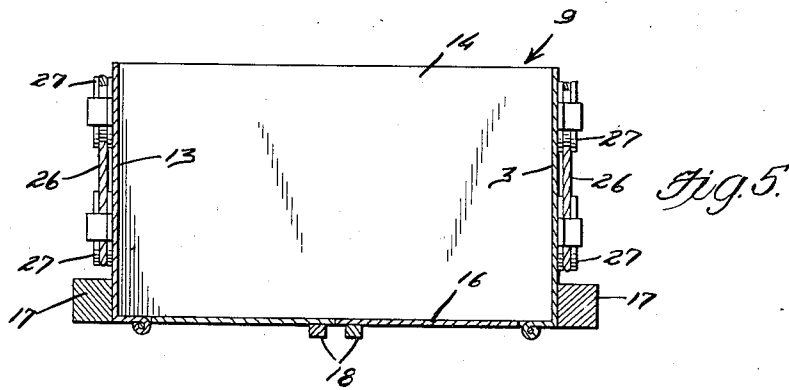
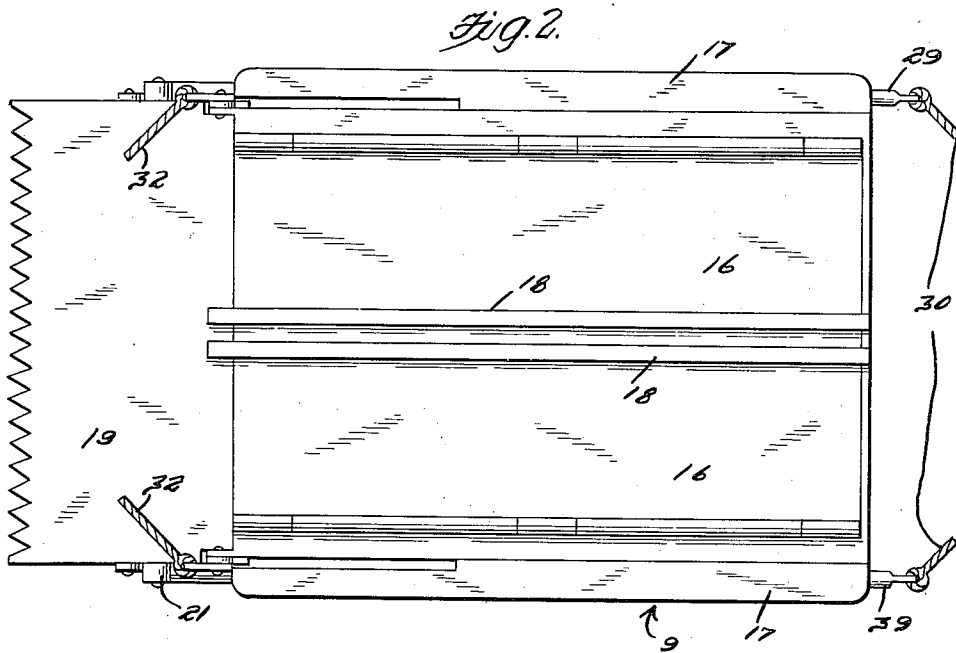
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4 Sheets-Sheet 2



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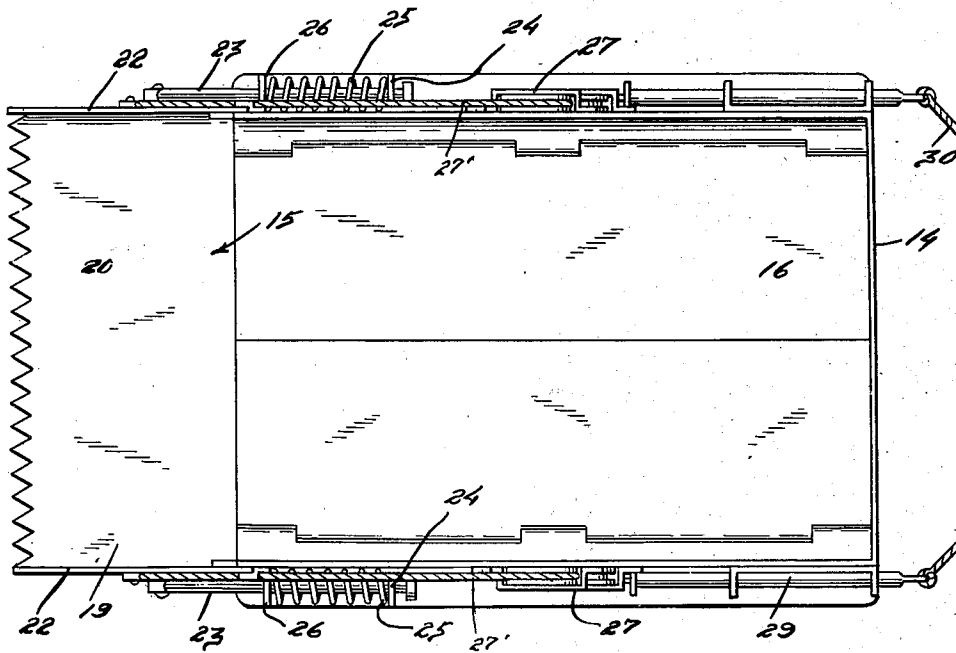
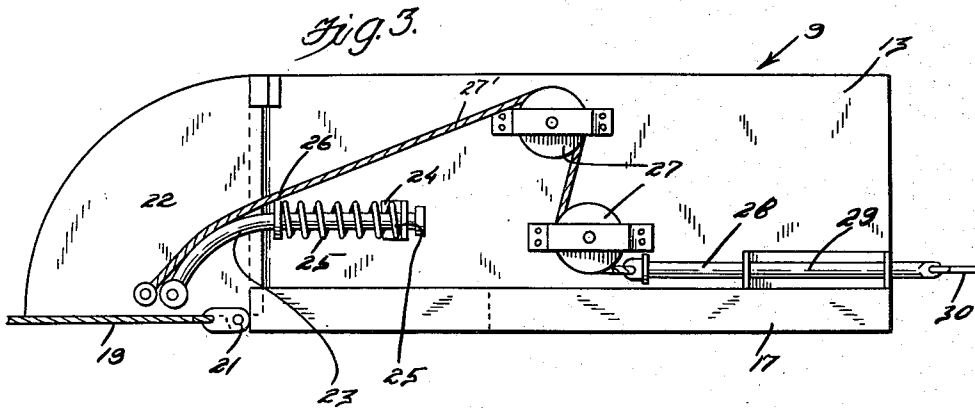
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COAL LOADER

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4 Sheets-Sheet 3



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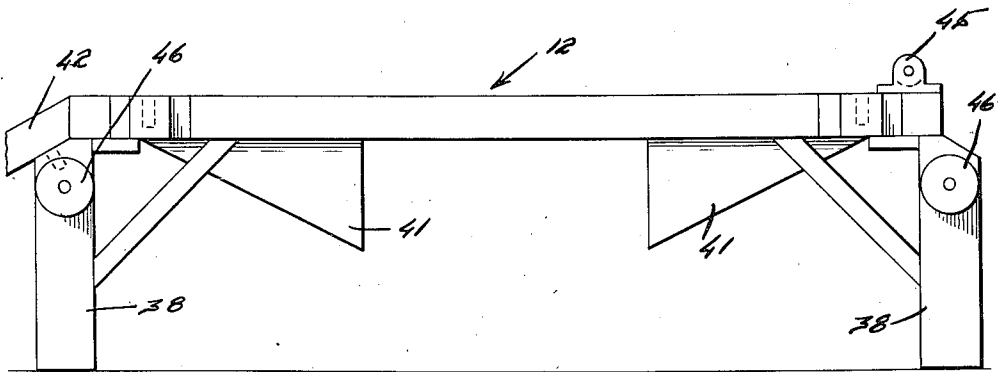
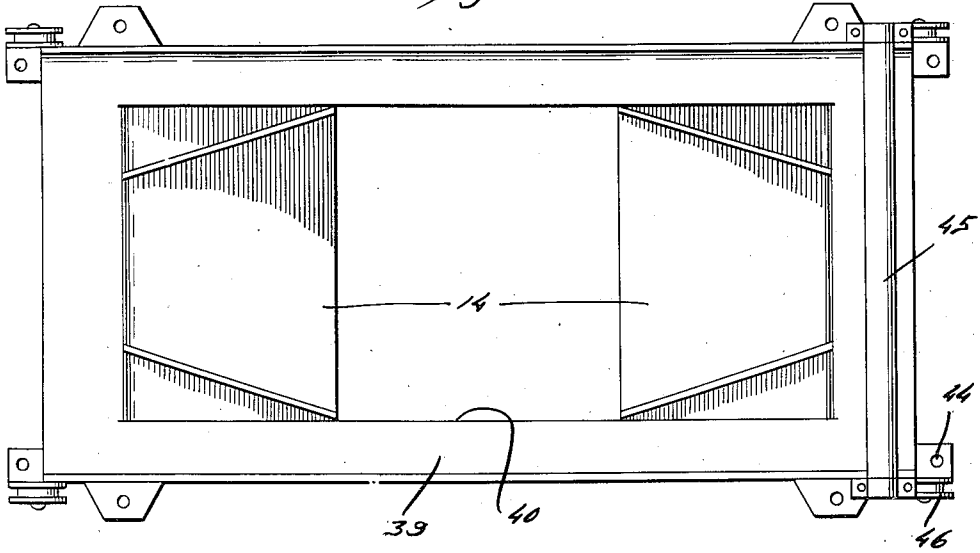
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COAL LOADER

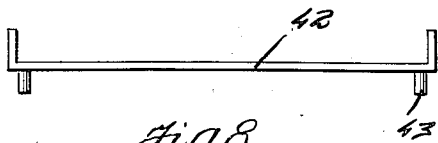
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*Fig. 6.*



*Fig. 7.*



*Fig. 8.*

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# UNITED STATES PATENT OFFICE

2,275,950

## COAL LOADER

James E. Falconer, Cheswick, Pa.

Application February 24, 1941, Serial No. 380,331

1 Claim. (Cl. 37-136)

This invention relates to a coal loader especially adapted for loading coal obtained from a mine room into cars or other conveying means remotely located to the source of coal, and has for the primary object the provision of a device 5 of this character which may be economically installed and operated and conveniently adjusted to meet mining operations as they advance underground and may be successfully operated with a minimum number of attendants, thereby materially reducing mine operating cost with an 10 increased production.

Another object of this invention is the provision of a sled or drag type conveyance including means for loading coal therein when 15 moved in one direction and acting as a gate or closure therefor when moved in an opposite direction with power means for moving said conveyance in either direction.

A further object of this invention is the provision of means on the conveyance and an elevated trestle for automatically dumping the load 20 into mine cars or on a conveyor for transportation to a coal dump or some other place.

With these and other objects in view as will become more apparent as the description proceeds, the invention consists in certain novel features of construction, combination and arrangement of parts as will be hereinafter more fully 25 described and claimed.

For a complete understanding of my invention, reference is to be had to the following description and accompanying drawings, in which

Figure 1 is a diagrammatical view, showing the installation of the present invention in a coal 30 mine.

Figure 2 is a bottom plan view illustrating the conveyance.

Figure 3 is a side elevation, partly in section, 40 illustrating said conveyance.

Figure 4 is a top plan view, partly in section, showing the conveyance.

Figure 5 is a transverse sectional view taken on the line 5-5 of Figure 3.

Figure 6 is a top plan view illustrating a dump trestle.

Figure 7 is a fragmentary side elevation illustrating the dump trestle.

Figure 8 is an end view of a ramp forming a 50 part of the dump trestle.

Figure 9 is a top plan view illustrating a guide pulley.

Figure 10 is a sectional view taken on the line 10-10 of Figure 9.

Figure 11 is a side elevation illustrating the means of anchoring the guide pulley.

Referring in detail to the drawings, the numeral 5 indicates generally a coal mine room in which mining of coal is being carried out in the usual way, 6 a lateral passage connecting the room 5 to a main passage in which is located some type of coal transportation to the surface of the ground which may be in the form of mine cars operating on a track or a conveyor, designated generally by the character 7. The mined coal in the room 5 is designated generally by the character 8. To reduce the cost of conveying and loading the mined coal 8 onto the conveyor system 7, the present invention is employed which consists primarily of a sled or drag type conveyance 9, a cable system 10, a power operating means 11 therefor and a dump trestle 12 15 under which passes the conveyor system 7. The cable system 10 is so arranged that the conveyance 9 may be pulled into the room into the pile of mined coal and become filled therewith and then moved in a reverse direction onto the trestle and automatically dumped onto the conveyor system 7 and which only requires two attendants at the most for the successful operation of the device, one of the attendants being in the mine room for the purpose of signalling the attendant at the power device 11 when the conveyance 9 is loaded so that the power device 20 may be made to pull the conveyance out of the room onto the trestle for automatic dumping. Consequently, it will be seen that the removal of the coal from the mine room onto the conveyor system can be rapidly and economically carried out.

The conveyance 9 is in the form of a sled or drag including upstanding side walls 13, an end wall 14 rigidly connected thereto and a combined scoop and tail gate 15 arranged opposite to the end wall 14 and a pair of trap doors 16 hingedly mounted and located between a pair of runners 17 for the support and movement of the conveyance over the floor of the mine. The trap doors 16 are held in closed position by contact with the mine floor and are equipped with runners 18.

The combined scoop and tail gate 15 includes a wall plate 19 having a serrated free edge 20. The wall plate is hingedly mounted, as shown at 21. Side plates 22 are integral with the wall plate 19 to coact therewith in forming the scoop 15 and are movable relative to the side walls 13 to permit the wall plate to act as a closure for the open end of the conveyance.

Rods 23 are pivotally connected to the side plates 22 and are pivotally and slidably connected to the side walls 13 by brackets 24. Coil springs 25 act on said rods to normally position the combined scoop and tail gate in a position of loading material into the conveyance 9. The coil springs 25 are mounted on the rods 23 and bear against the brackets 24 and collars 26 fixed on the rods.

Pairs of superimposed pulleys 27 are journaled on the side walls 13 and have cables 27' trained thereover, which are secured to the side plates 22 and to the ends of pull rods 23 slidably mounted in brackets 29 mounted on the side walls 13 and to which a tail cable 30 of the cable system 10 is secured. The tail cable 30 is secured to and adapted to wind on and off of a drum 31 of the power device 11. A head cable 32 is fastened onto the open end of the conveyance 9 and is secured to a drum 33 of the power device 11 and adapted to wind on and off of said drum 33. The head cable 32 is trained over a series of guide pulleys 34 located at various places within the mine for guiding the conveyance 9 into the mine room 5 and from the latter onto the dump trestle 12.

When the conveyance 9 is being pulled by the head cable 32 the springs 25 act to position the combined scoop and tail gate in gathering position so that when moved into contact with the coal 8, the latter will be gathered into the conveyance. When the conveyance 9 is moved by the tail cable 30 the combined scoop and tail gate is moved into conveyance closing position by the pull on the cables 27' preventing the loaded coal from falling out of the conveyance during its travel from the mine room 5 onto the dump trestle.

It is to be understood that the power device 11 can be operated to move the conveyance 9 into and out of the room 5.

Each guide pulley 34 includes a base 35 to rest on the floor of the mine and an upstanding sprocketed post 36 on which the guide pulley is journaled and receives a ceiling engaging and anchoring post 37 of a conventional construction for anchoring the base in place.

The dump trestle 12 includes pairs of supporting legs 38 and a horizontally arranged platform 39 having a substantially rectangular shaped opening 40 and downwardly inclined chutes 41 arranged in opposed relation. The size of the opening 40 is such that the trap doors 16 may swing downwardly when the conveyance 9 moves onto the platform for discharging the load into the chutes 41 which direct said load onto the conveyance system 7.

A removable ramp 42 may be associated with

either end of the dump trestle and is provided with pins 43 which may engage with openings formed in the upper ends of the pairs of legs and which openings are designated by the character 44.

An abutment or stop 45 is removable mounted on the trestle and may be located at either end thereof depending on which end the ramp is associated with, it being understood that the abutment or stop is located at the end of the trestle opposite to the end having the ramp connected thereto.

Guide pulleys 46 are journaled in each side of the ramp or on the legs thereof for guiding the movement of the head cable 32 as the latter passes the trestle. The guide pulleys 46 being located on either side of the trestle permits the head cable to be guided at either side of the trestle depending on which side of the trestle the head cable may be located.

In operation, the power device 11 is operated to draw the conveyance 9 into the room 5 and into engagement with the coal 8 whence the conveyance is loaded. The power device is then caused to operate in a reverse direction to draw the conveyance out of the room 5 onto the trestle whence the load is automatically dumped onto the conveyor system 7.

It will be seen that the guide pulleys 34 operate in close proximity to the floor of the mine so that the head and tail cables may readily pass thereover as well as the conveyance 9 so that the latter will be efficiently guided into and out of the mine.

While I have shown and described the preferred embodiment of my invention, it will be understood that minor changes in construction, combination and arrangement of parts may be made without departing from the spirit and scope of the invention as claimed.

Having thus described the invention, what I claim is:

A drag scoop comprising a scoop body having one end closed, a shovel gate pivoted at its other end, wings secured to the gate at each side thereof for movement with the gate, said wings forming a continuation of the side walls of the body, guides at each side of the body for the wings, an arm attached to each wing, spring means carried by the arm for urging the gate into an open position, a pair of vertically spaced pulleys at each side of the body, a cable leading from the gate over the upper pulley and extending downwardly therefrom under the lower pulley and outwardly at the closed end of the scoop for closing the gate, and unloading trap doors in the bottom of the body.

JAMES E. FALCONER.