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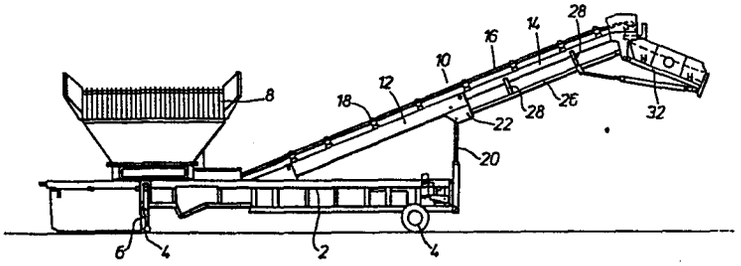
(54) A screening apparatus.

(57) A screening apparatus includes a conveyor (10) pivotally mounted at its rear end on a wheeled chassis (2). The conveyor (10) includes a rear section (12) and a forward section (14) telescopically connected to the rear section (12). An endless belt (16) is guided and powered by spaced rollers (18) mounted on the conveyor rear and forward sections (12) and (14). The conveyor (10) is moved between its operational and transporting positions by a jacking cylinder (20). A screen device (30) is pivotally coupled to the output stage of the forward section (14), and is controlled by a ram (36). A hopper (8) for receiving the material to be separated is mounted on the chassis (2). To convert the apparatus from its operational position to its transporting position, the jacking cylinder (20) lowers the conveyor (10), two sets of troughing rollers (38) are removed from the forward section (14), and the ram (36) is disconnected from the forward section (14). This forward section (14) is partially telescoped into the rear section (12), and the screen device (30) is pivoted clockwise and bolted to the rear section (12).

Fig.1.



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TITLE

"A Screening Apparatus"

TECHNICAL FIELD

The present invention relates to an apparatus for separating particulate material into particles of different sizes, and such apparatus will hereinafter be referred to as a screening apparatus. A screening apparatus possesses a considerable number of different applications, but it is particularly suitable for separating material such as sand, gravel, stone, coal, ash, soil and particulate minerals.

BACKGROUND ART

In a previously proposed screening apparatus, the material to be screened is fed onto the input stage of an elongate conveyor which conveys the material to a screen device for separating the material into particles of different sizes. The separated materials are then either deposited at different locations on the ground, or passed onto associated separate conveyors which convey the particles of different sizes to locations which are

remote from one another.

In order to prevent the separated material from becoming inadvertently mixed with the initial unseparated material it is desirable for the separated material to be deposited at a reasonable distance from the input stage of the conveyor. Consequently it is necessary for the conveyor to be of a considerable length, and the combined length of the conveyor and the screen device extending therefrom can cause difficulties in transporting the screening apparatus on a public highway or for any appreciable distance on site.

In a previously proposed screening apparatus the conveyor comprises a rear section and a forward section pivotally connected to one another, and the screen device is pivotally connected to the output stage of the conveyor forward section. In order to place the screening apparatus in its transporting condition, the conveyor forward section is folded back onto the conveyor rear section, and the screen device is folded back on the folded conveyor forward section. Difficulties can arise in carrying out this folding operation because of the weight of the conveyor. For example it has sometimes been found necessary to employ a crane to assist in carrying out the aforementioned folding operation.

STATEMENT OF INVENTION AND ADVANTAGES

It is an aim of the invention to alleviate the

aforementioned difficulties, and accordingly there is provided a screening apparatus as herein defined comprising an elongate conveyor having a rear section pivotally mounted on a wheeled chassis, and a forward section telescopically connected to the rear section, and a screen device pivotally connected to the output stage of the forward section whereby the conveyor sections and screen device are movable between an operational position in which the conveyor sections and screen device are extended, and a transporting position in which the conveyor sections are telescoped and the screen device is folded back on the conveyor forward section.

The term "telescoped" is intended to include the case where only a small part of the conveyor forward section is located in the conveyor rear section. It is to be clearly understood that the term "telescoped" is not restricted to the case where all or a major part of the conveyor forward section is located in the conveyor rear section.

FIGURES IN THE DRAWINGS

One embodiment of a screening apparatus of the invention will now be described by way of example with reference to the accompanying illustrative drawings in which:-

FIGURE 1 is a side elevation of a screening apparatus

in its operational position,

FIGURE 2 is a side elevation of the screening apparatus of Figure 1 in its inspection position, and

FIGURE 3 is a side elevation of the screening apparatus of Figure 1 in its transporting position.

DETAILED DESCRIPTION OF DRAWINGS

Referring to the drawings, the apparatus includes a chassis 2 mounted on four ground wheels 4; the rear ground wheels 4 being mounted on legs 6. As will be seen from the drawings, the ground wheels 4 and the legs 6 are dimensioned and arranged so that the chassis 2 is substantially parallel to the ground when resting on the ground wheels 4.

An input hopper 8 for receiving the particulate material to be separated is mounted on the rear part of the chassis 2, and this hopper 8 is dimensioned and shaped so that it can readily be fed from a conventional earth moving lorry. A conveyor 10 is adjustably mounted on the chassis 2 so that when in its operational position illustrated in Figure 1 it extends forwardly and upwardly from the hopper outlet, and when in its inspection position and transporting position illustrated in Figures 2 and 3 respectively it extends forwardly and only slightly above the horizontal position from the hopper outlet. The conveyor 10 includes a rear section 12 pivotally

mounted at its rear end to the chassis 2, and a forward section 14 telescopically connected to the rear section 12. The conveyor 10 includes an endless belt 16 which is guided and powered by spaced troughing rollers 18 which are mounted on the conveyor rear and forward sections 12 and 14. An hydraulic jacking cylinder 20 is mounted on a forward part of the wheeled chassis 2 and is connected at its upper end to a jib 22 on the forward end of the conveyor rear section 12.

The conveyor rear section 12 has a transverse cross section which is generally rectangular with a central longitudinal gap in its lower face thereby forming two transversely spaced housings. The conveyor forward section 14 includes two transversely spaced box girders 24 which are retained by transverse members so that these box girders 24 can slide in their respective housings of the conveyor rear section 12. The conveyor forward section 14 also includes two strut bars 26 which are connected to their respective box girders 24 by connecting bars 28.

A screen device 30 includes a support base 32 pivotally coupled at its rear to a mounting 34 secured to the output stage of the conveyor forward section 14. The screen device is of conventional form and consequently will not be herein described in detail. The support base 32 is coupled to the conveyor forward section 14 by a hydraulic ram 36 which is operable to vary the inclination

of the screen device 30 in relation to that of the conveyor forward section 14. Detachable bolts are used in mounting the strut bar 26, the connecting bars 28, and connecting the hydraulic ram 36 to the strut bar 26.

To transfer the screening apparatus from the operational position to its transporting position, the jacking cylinder 20 is operated to lower the conveyor 10 so that the screen device 30 can be pivoted clockwise and still just clear the ground. The two sets of troughing rollers 38 are removed from the conveyor forward section 14, and the strut bars 26 and the connecting bars 28 are removed from the box girders 24. The hydraulic ram 36 is disconnected from the strut bars 26 and is contracted so as to be of a convenient length for storing the screen device 30. The conveyor forward section 14 is partially telescoped into the conveyor rear section 12, and the screen device 30 is pivoted clockwise and bolted to the jib 22 thereby forming a substantially rigid structure with the conveyor rear section 12. The conveyor forward section 14 has two rollers mounted on its box girders 24 to run in respective housings of the conveyor rear section 12 thereby facilitating the movement of the forward section 14 into and out of the rear section 12. The screen device 30 can be bolted to the jib 22 by the bolts previously used to secure the strut bars 26 and the connecting bars 28.

It will be appreciated that the screening apparatus can now be towed by any suitable vehicle such as for example a tractor. To convert the screening apparatus from its transporting position to its operational position the aforementioned operational steps are carried out in reverse order.

CLAIMS

1. A screening apparatus as herein defined comprising an elongate conveyor having a rear section pivotally mounted on a wheeled chassis, and a forward section telescopically connected to the rear section, and a screen device pivotally connected to the output stage of the forward section whereby the conveyor sections and screen device are movable between an operational position in which the conveyor sections and screen device are extended, and a transporting position in which the conveyor sections are telescoped and the screen device is folded back on the conveyor forward section.

2. An apparatus as claimed in Claim 1 in which the conveyor sections and screen device are parallel to one another when in the transporting position.

3. An apparatus as claimed in Claim 1 or Claim 2 including jacking means extending between the wheeled chassis and the conveyor rear section to enable the conveyor to move between said operational and transporting positions.

4. An apparatus as claimed in any preceding Claim

including a ram extending between the screen device and the conveyor forward section to enable the screen device to move between said operational and transporting positions.

5. An apparatus as claimed in any preceding Claim in which the conveyor rear section includes transversely spaced housings and the conveyor forward section includes transversely spaced members arranged to slide in said housings.

6. An apparatus as claimed in any preceding Claim in which the screen device is pivotally connected at its rear to the output stage of the conveyor forward section.

7. An apparatus as claimed in Claim 6 inlcuding fastening means to secure the forward portion of the screen device to the forward end of the conveyor rear section to retain the screen device in the transporting position.

8. An apparatus as claimed in any preceding Claim including spaced troughing rollers mounted on the conveyor rear and forward sections, in which at least some of the troughing rollers on the forward section are removable to facilitate the telescoping of the conveyor rear and forward sections.

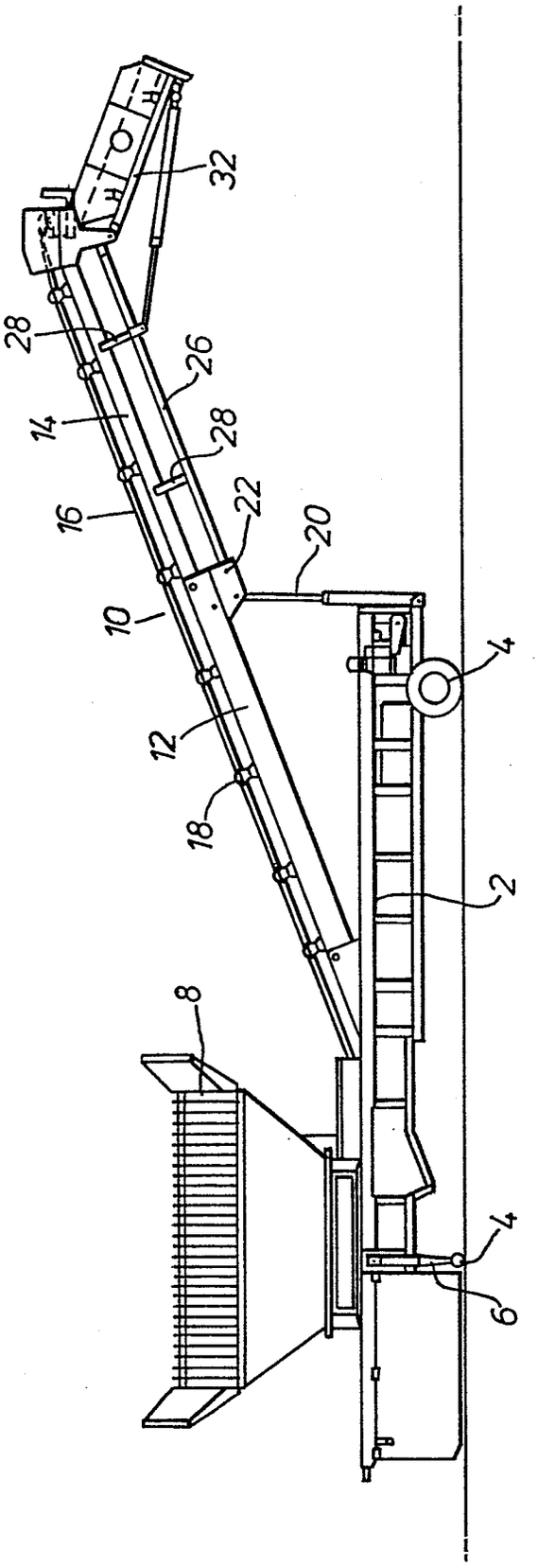

Fig. 1.

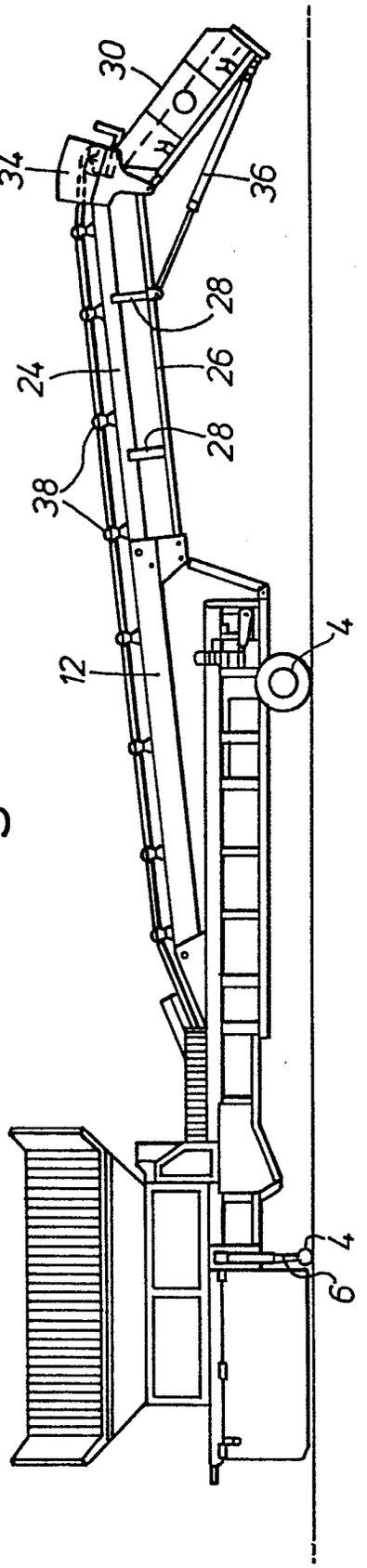

Fig. 2.

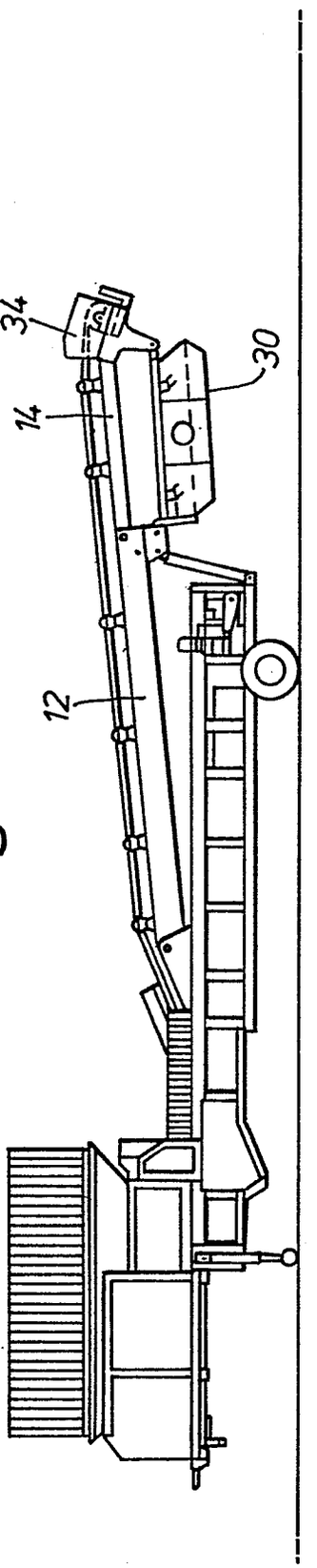

Fig. 3.