

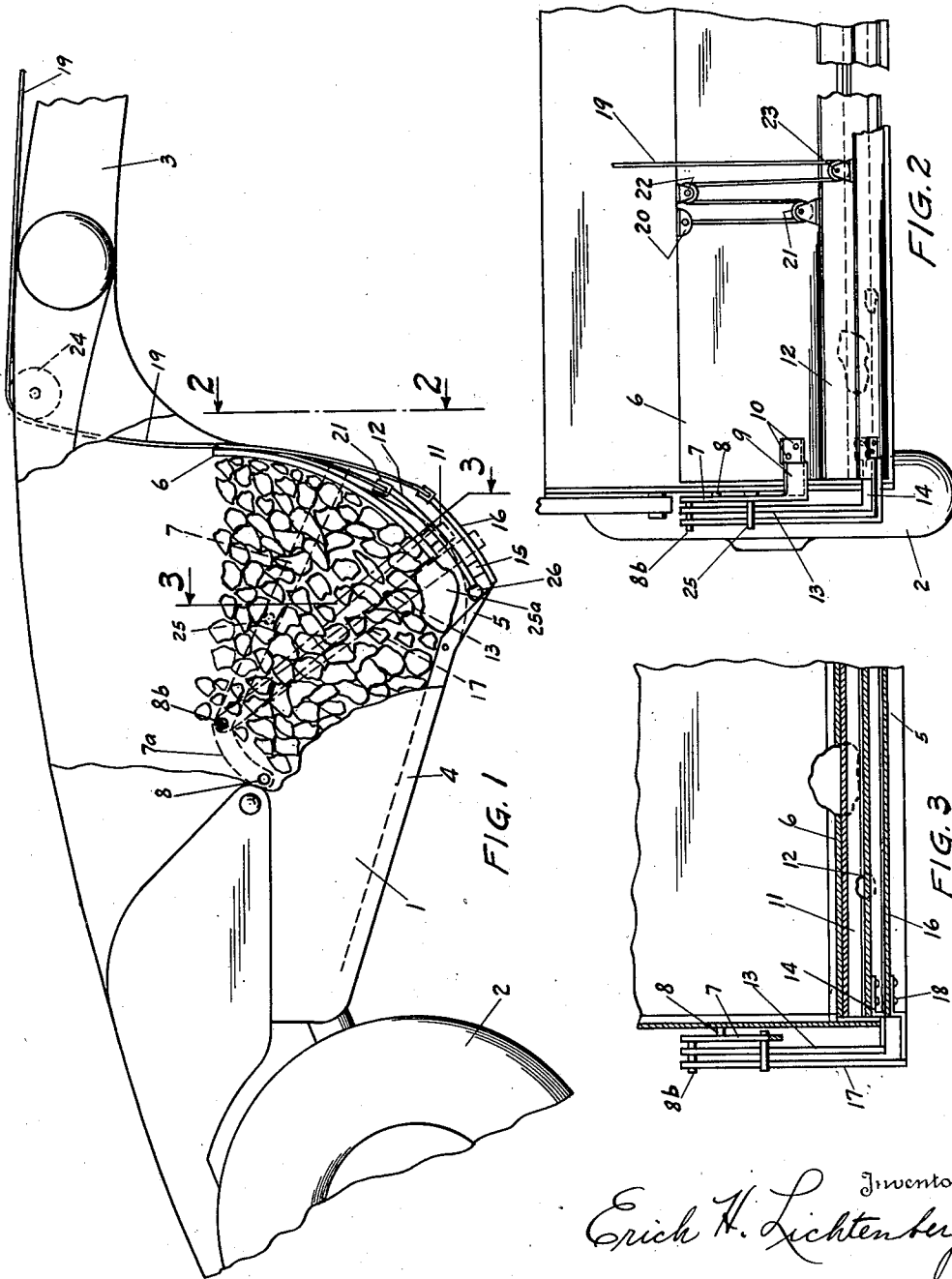
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FRONT APRON CONSTRUCTION

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FRONT APRON CONSTRUCTION

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This invention pertains to improvements in apron construction, and is particularly directed to improvements in apron construction embodied in earth scraping or hauling vehicles.

The present day practise in apron construction employed for use in connection with dirt scraping and hauling vehicles in many cases results in the loss of considerable fine material, after the said material has been introduced into the body to be carried thereby, by reason of the fact that any large particles of sufficient size to prevent adequate and easy closing of the apron member may become lodged between the scraping blade over which the material is introduced into the body and the edge portion of the apron member itself, and thereby prevent the adequate closing desired and permit the fine particles to escape. Oftentimes this results in a loss of a material portion of the load introduced into the body, and as a consequence increased costs of dirt moving operations result.

It is, therefore, an object of this invention to provide instrumentalities particularly adaptable for use in connection with earth hauling or scraping vehicles, but not necessarily limited thereto in their application, adapted to completely close the dirt receiving opening in the body, under all conditions, whether large particles remain adjacent the scraping blade and might ordinarily impede the closing action of the unit.

Another object of the invention is to provide a novel form of apron unit, including several members operable in any suitable fashion, into and out of engagement normally with a scraping blade, but, under conditions where obstructions are placed between the scraping blade and a portion of the apron unit, certain other members of the apron unit will coast in a dirt supporting and retaining manner with the scraping blade aforesaid.

A further object of the invention is to provide a novel form of apron unit facilitating large opening movement in a relatively short space to permit the introduction into the body of large quantities of material, and at the same time, to eliminate the necessity for certain superstructure to operate the apron unit availed of in many instances.

A still further object of the invention is to provide a novel apron unit including certain wiping elements affixed to individual members thereof, to prevent the lodging of dirt or other obstructing material between the various respective members of the apron unit.

A further object of the invention is to provide novel operating means for the apron unit, whereby sequential operation of the respective members is obtained, and simultaneous movement of all the members of the unit may likewise be obtained.

Further and more particular objects of the invention will appear during the description of the invention, and are disclosed in the drawing.

In the drawing:

Figure 1 is a side elevation of a dirt hauling scraper embodying the apron unit, and illustrating the location of the various members comprising the said unit, including the cable means for operating the same, the view being fragmentary in certain instances.

Figure 2 is a fragmentary front view of the vehicle looking in the direction of the arrows 2—2 in Figure 1, and illustrating the arrangement of the apron member supporting means and the operating means for the said members.

Figure 3 is a fragmentary sectional view taken about on the line 3—3 of Figure 1, illustrating further details of the apron unit and supporting means therefor.

Referring now to Figure 1, there is shown a scraping and hauling vehicle, including a forwardly open body 1 supported at the rear thereof for raising and lowering movement by the wheels 2 and at the front portion by means of a draw bar 3 adapted to be supported on a tractor, not shown, in the conventional manner of operation of this type of vehicle.

The vehicle body 1 includes a bottom 4 having suitably fixed adjacent the forward end thereof, a scraping blade 5 extending transversely between the sides. The bottom 4 of the vehicle may be equipped so as to dump the load out of the body but since this forms no portion of the invention, the instrumentalities for accomplishing this are not further referred to.

Adjacent the forward portion of the body, the apron unit shown includes what will be termed an inner apron member 6 supported on arms 7, formed with bent portions 7a, as shown in Figure 1, pivoted on the sides of the body at 8. The arms 7 are suitably fastened to the apron member 6, adjacent the end edges thereof, as by the inwardly extending arm portions 9 of the said arms 7 suitably fixed to the body of the apron member as at 10.

As will be apparent from the drawing, the apron member 6 may be comprised of a segment in cross section, and generally rectangular in

transverse appearance for purposes that will be apparent as the description of the device proceeds. Adjacent the lower edge of the apron 6 is a wiping element 11 suitably fixed to the outer side of the apron member by any well known means.

Spaced from the just described apron member 6 an additional apron member 12 is provided supported on arms 13, said arms 13 being pivoted at the pivot 8b, and including inwardly extending arm portions 14 similar in formation to the arm portions 9 just described.

The apron member 12 is a segmental member similar to the apron member 6, although for most purposes, the actual width of the same may not necessarily be as great and is provided with a wiping element 15, suitably fastened adjacent its lower edge and on the outer side thereof, for purposes that will appear.

An outer apron member 16 is provided supported on arms 17, similar to the previously described arms, and pivoted at the common pivot point 8b, likewise being provided with the inwardly extending arm portions 18, suitably fastened to the end edges of the said apron member 16.

The previously described apron members are all spaced from one another, as will be apparent from consideration of the drawing, the said wiping elements 11 and 15 being adapted to substantially engage the inner surfaces of the apron members 12 and 16 respectively, in order to prevent the accumulation on the said inner surfaces of dirt or other foreign matter that would interfere with the proper operation of the apron unit.

It is noted that the apron unit, as a whole, is comprised of superposed apron members, and while three apron members are shown in the drawing, it is apparent that under some conditions more might be provided to carry out the end sought in this particular application. The operating means for the various apron members includes a cable 19 shown as being dead-ended at one end 20 on the apron member 6, passing downwardly therefrom, around a suitable sheave 21 carried by the intermediate apron member 12 in any suitable manner, thence upwardly over a sheave 22 on the first mentioned apron member 6, and thence downwardly to a sheave 23 supported in like manner adjacent the upper edge of the outer apron member 16. Thence the cable 19 passes upwardly, as shown in Figure 1, over a pulley 24, and thence forwardly to suitable operating means located on the tractor, but not shown.

It will be apparent, therefore, that when it is desired to raise the apron, pulling of the cable 19 in the rightward direction, as shown in Figure 1, will cause an initial upward movement of the outer apron 16, until the said member reaches its extreme upward position, as determined by stop member 25, fixed on the inner apron member arm 7 at which time further pulling on the cable will cause the intermediate apron member 12 to be raised until the arm carrying the same comes in to contact with the previously mentioned stop 25, and thereafter, subsequent pulling of the cable 19 will cause a simultaneous raising movement of the apron unit, as a whole, out of the dirt supporting and retaining position.

The operation just described is obviously a sequential operation, the same resulting near the end thereof in simultaneous operation of the apron unit. With the apron unit in the just

described position, the vehicle may be emptied and subsequently engaging the scraper blade 5 with the ground, to thereby introduce a load into the body, will cause the said body to be filled up with material.

At this time, it is, of course, desirable to retain the load thus introduced into the body, and, therefore, the cable 19 is paid out, and the apron unit begins downward movement.

As is shown in the drawing of Figure 1, if the inner apron member 6 should encounter a large stone or other obstruction as 25a, interposed between the edge of said apron and the scraping blade, it would be apparent that further downward movement of the apron member 6 will be prevented.

However, further downward movement of the intermediate apron member may take place, and, if, under certain circumstances, the said edge of this apron member should encounter a somewhat smaller obstruction 26, and thereby be prevented from contacting the said scraper blade, the outer apron member 16 will in all likelihood be permitted to fall and contact the scraper blade, and thereby retain the load of material introduced into the body thereof. It is, of course, apparent that additional apron members might be supplied, but in all probability those shown will adequately serve the purpose intended to be carried out.

At this point, the desirability of the wiping elements 11 and 15 is understood by reference to the fact that if small particles of stone or other hard material were permitted to enter into the spaces between the superposed apron members, the effective operation of these members would be interfered with, and, therefore, the wiping elements are availed of. It is pointed out that under certain conditions, the pivotal points of the respective arms carrying the apron members might be located in different places, under other circumstances, and thereby carry out the novel operating advantages achieved with the present invention, as shown in the drawing.

The front apron, just described, may obviously be adapted for use at the rear of a scraping vehicle and used in places where a scraping blade is not availed of, still retaining the advantages derived therefrom, and under certain circumstances, the apron unit, as a whole, may be so incorporated into a dirt supporting body that a scraping blade is not necessary.

The apron unit, previously referred to, may readily be incorporated into stationary material handling equipment adapted to receive and distribute aggregate, or the like, having large particles therein possibly susceptible of preventing the proper closing of a door for which the apron unit would be substituted, which said apron unit may be caused to operate in the previously described manner, and absolutely control the distribution of material from the body in which it is stored.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States, is:

1. Dirt engaging and moving body construction, including a body having a forwardly movable scraper, and an apron unit supported thereby, movable toward and from the scraper and comprised of superposed apron members arranged to close the body adjacent to the scraper to retain dirt in the body, and means for independently or simultaneously operating each of

said members to and from positions engaging the scraper.

2. In a dirt hauling vehicle, a body having a dirt receiving opening, an apron unit for closing said opening of the body and supported by said body, comprising a plurality of apron members each movable toward and from positions opening and closing said opening, and means for successively moving said members from the body closing position to body opening position.

3. In a dirt hauling and scraping vehicle, in combination, a dirt supporting body, including a dirt receiving opening, a scraper blade adjacent said opening, and a plurality of superposed apron members for closing said opening, and operable each to move substantially into contact with the scraper blade aforesaid, and means supporting the said members for independent movement toward closing positions.

4. In a dirt hauling and scraping vehicle, in combination, a forwardly open dirt supporting body, a scraper blade adjacent said opening, a plurality of superposed apron members supported by the vehicle including an inner apron member and a plurality of outer apron members spaced with respect to said inner member and with respect to each other, at least one of said

inner and outer members adapted to contact the scraper blade aforesaid for completely closing the opening in said body when obstructions are interposed between other of the said members and said scraper blade.

5. In a dirt hauling and scraping vehicle, in combination, a dirt supporting body including a dirt receiving opening, a scraper blade adjacent said opening, means for closing said opening comprising an apron unit pivotally supported by the vehicle, including an inner apron member, an intermediate apron member spaced from said first named member and an outer apron member spaced from said intermediate member, said inner member supported by pivots on said body, edge portions of said members adapted to normally contact the scraper blade aforesaid to close the said opening, and means for raising said outer member first, said intermediate member next, and said inner member last.

6. A vehicle as claimed in claim 5, wherein the raising means operates as stated and includes cable instrumentalities, further movement of said cable instrumentalities effecting simultaneous raising action of the members.

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