Nov. 2, 1926. 1,605,094

M. M. BUTLER

ROCK SPREADING MACHINE

Filed Sept. 29 1924

Fig. 1.

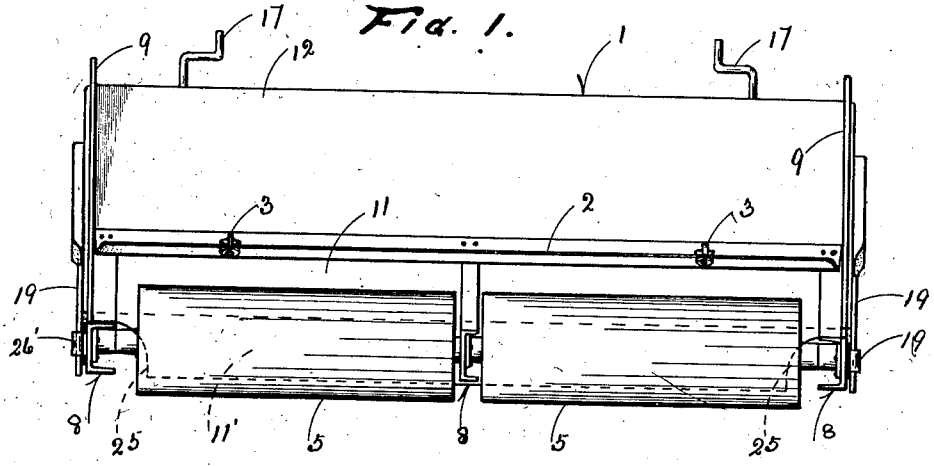


Fig. 2.

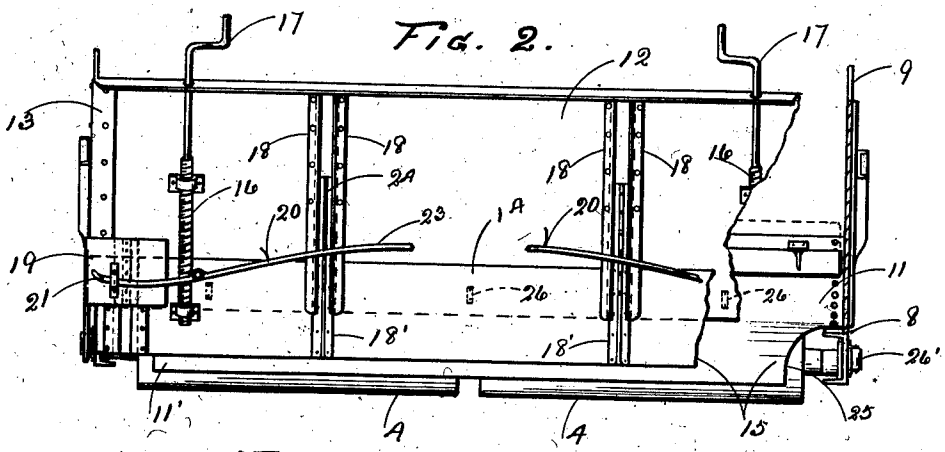


Fig. 3

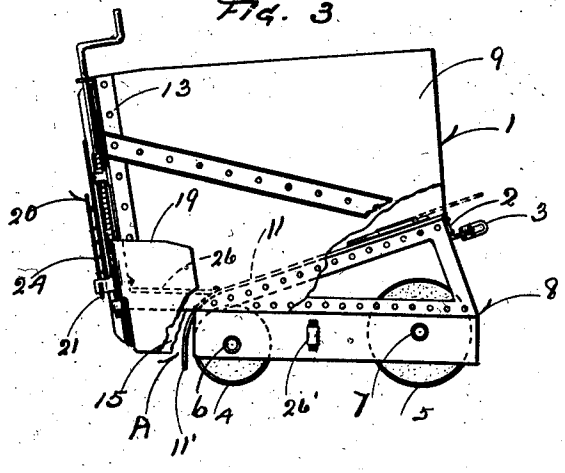


Fig. 4.

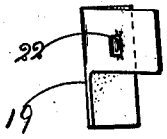
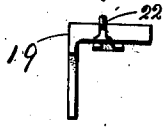


Fig. 5.



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ATTY.

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UNITED STATES PATENT OFFICE.

MARK M. BUTLER, OF LOS ANGELES, CALIFORNIA.

ROCK-SPREADING MACHINE.

Application filed September 29, 1924. Serial No. 740,563.

My invention relates to a means for laying mineral aggregates in the building of roadways and it has particular reference to a device for delivering upon a surface in a continuous manner a regulable mass of material discharging from a container.

Various objects are aimed at by this invention and the most important of them may be stated to be the provision of a device of this character in which the material to be laid is received and from which it discharges by natural gravitation in an uninterrupted flow while in motion; in which the material during the passage therefrom onto the ground offers no impedance to the free draft of this device; in which the mineral aggregates or other contents leave the device substantially by rolling motion and in frictionless manner, thereby preventing any dragging of the material laid, with the inevitable consequences of uneven or irregular deposit, and in which the entire weight of the material is sustained by and within the container and from which a definite amount is paid out for a required surface.

Another object of the invention is to provide a device of this character which may be supported entirely above and free of the surface over which it is to be moved by means having rolling contact with the surface whereby the loaded device may freely follow any direction of the vehicle by which it is drawn.

Other objects will apear from the specification following, in connection with the accompanying drawing illustrating preferable forms of my invention, which may be obviously expressed in forms other than shown herein.

Fig. 1 is a front view showing my invention.

Fig. 2 is a rear view showing the rear stationary wall of my device and the adjustable rear wall associated therewith, with extensions mounted thereon.

Fig. 3 is a side view partly broken, to show the bottom of the device and the discharge chute for the contents.

Fig. 4 is a detail of one of the extensions of and on the rear wall and

Fig. 5 is a bottom plan view of such extension.

My invention consists of a container adapted to receive the charge of and to be drawn by, a vehicle and to lay its contents upon the ground or other surface during the movement of the container over the surface. It consists further of a container which is supported freely above the surface to be traversed and supplied thereby by means having rolling or frictionless contact with the surface and which feeds out the contents in regulated continuous stream. Attention is here called to many devices known in this art in which hoppers having open bottoms are employed for distributing purposes and in which skids are used either entirely or partly as supports for the hoppers. My experience has shown that devices with open bottoms act merely as enclosures for guiding the mass of aggregates without sustaining any of its weight, which is carried entirely by the ground or surface to be laid, consequently the movement of the enclosure over the ground is resisted by the superimposed mass which therefore must be dragged over the portion contacting the ground.

One of the main objects of this invention, therefore is to provide a device in which the material deposited therein may be laid in a continuous stream, without dragging the same and producing unevenness in the layer.

Referring to the drawing, a casing 1, is shown, of substantially rectangular shape and open at the top for the reception of material adapted to be discharged thereinto from a suitable vehicle, by which the casing may be drawn. For this latter purpose, the device 1 may be provided with a draw bar 2, carrying clevises 3.

The casing 1 is supported entirely free of the surface over which it is arranged to be drawn, by means having rolling contact with such surface and the means may comprise a plurality of series of rollers 4 and 5, arranged one series in advance of the other and preferably in pairs, as shown, to render mobile the device. For purposes of disclosure, these rollers are shown revoluble upon axles 6 and 7, carried in a frame 8, to which the side walls 9 of the casing are permanently secured, and upon which frame 8 the bottom 11 of the casing is rigidly supported. This bottom 11 is, as shown inclined to the horizontal, from the open front of the casing 1 toward the rear thereof and terminates preferably in an apron 11′ conforming approximately to the contour of the rollers 4. Said apron 11′ is extended downwardly below the bottom of the casing 1 and inward of the rear wall a desirable distance and provides between such apron 11′ and rear wall

12 a throat A through which the material may gravitate. The rear wall 12 is conjoined to the side walls 9 of the casing 1, by angle irons 13 or other means and is inclined to the vertical, for purposes appearing later. Upon the back of the rear wall 12 is mounted for movement relative to the bottom thereof, a regulating means, as a blade 14, which, coacting with the apron 11′, forms a chute 15 for the discharge of the material. This blade 14 is adjustable on said rear wall 12 by any mechanical means, as screws 16 operable by cranks 17 and is slidably mounted in ways 18 on the rear wall. The movement of the blade 14 on the inclined rear wall occurs relative to the bottom thereof and according to the direction of such movement determines the extent of the throat in, or the area of, the chute, of which it, the blade, forms a part, and consequently the quantity of material which may flow through said chute. As seen, the side walls 9 of the casing 1 are imperforate and the bottom of said side walls 9, extend for a portion of their length rearwardly of the frame 8 and overhang the way. The quantity of material passing from the casing through the chute 15 determines the thickness of the lay of material and, as stated, such quantity may be regulated by the adjustable blade 14, which, as shown, is inclined at a degree substantially coincident with the rear wall, whereby a downward movement of same operates to constrict or reduce the transverse throat area of the chute. The material within the casing flows freely therefrom onto the ground and clear of the casing which leaves the material undisturbed during the movement thereof. To guide the material to the ground and prevent any unevenness along the margin of the material laid, the chute 13 may be laterally enclosed and such lateral enclosure may be extensions 19 of the blade 14. These extensions 19 embrace the sides of the casing 1 and operate relative to the bottom of the side walls to confine within the lateral limits of the chute 15 the material passing therethrough. For purposes of the present disclosure, these extensions 19 are carried upon the blade 14 and are movable therewith and relatively thereto, the relative movement of such extensions being effected by levers 20 fulcrumed on said blade 14, and having the end 21 freely extended through eyelets 22 in said extensions and the other ends 23 being arranged to be held in position by notches 24 provided on the slides 18′ which are fastened to the blade 14 and operate between and underneath the ways 18. By this means, the extensions may be held in any position of adjustment or may be operated according to needs.

In order to prevent "bridging" of the material within the throat of the chute 15, and particularly at the extreme ends or corners the apron 11′ is provided with cut outs 25, which prevent packing and permit a constant and regular flow of the material through the entire area of the chute. Suitable braces 26 may be used to tie together the apron 11′ and the rear wall 12.

The roller carrying frame 8 is preferably provided with rolling buffers 26, which protect the curbing of a street and also the frame against damage due to collision or inadvertent contact.

It will be obvious from the above description, that a course of material may be laid with ready ease by this device without scraping or pushing along the laid material and that the facile traction of the device is in no wise interfered with by the laid material. It will also be apparent from the above description that the material laid flows in a constant uniform stream from the container which sustains the entire weight of the material and from which the stream of material pays out continuously and fluently as the device is moved.

What I claim is:

1. In an apparatus for laying material, a casing having a rearwardly inclining bottom terminating in a downwardly extending apron, and a rear wall, a blade on said rear wall co-operating with said apron to form a chute having open sides, means to move said blade relative to said apron to control the transverse area of said chute, and roller means arranged in pairs and disposed in advance of the chute for supporting said casing entirely above the surface of the ground.

2. In an apparatus for laying material, a casing having a rearwardly inclining bottom formed with an apron extending below said bottom, and a rear wall, a blade on said rear wall co-operating with said apron to form an open-sided chute below said bottom, means to move said blade relative to said apron to control the transverse area of said chute, and means selectively operable to control the discharge of material through the sides of said chute.

3. In an apparatus for laying material, a casing having a rearwardly inclining bottom formed with a downwardly extending apron, and a rear wall, a blade on said rear wall forming with said apron an open-sided chute below said casing, means to move said blade relative to said apron to control the transverse area of said chute, and means to control the passage of material through the sides of said chute, said means movable with and independently of said blade.

4. In an apparatus for laying material, a casing, rollers arranged in pairs to support the casing entirely above the surface operated over, said casing having an inclined bottom terminating below said casing, and a rear wall spaced from said bottom, a blade on said rear wall co-operating with the por-

tion of the bottom terminating below the casing to form an open-sided chute, means to operate said blade on said rear wall to control the transverse area of said chute and means operable relative to the open sides of the chute to control the passage of material therethrough.

5. In an apparatus for laying material, a casing having a rearwardly inclining bottom formed with an apron extending below said casing, and a rear wall spaced from said bottom, a blade on said rear wall co-operating with said apron to form an open sided chute below said casing, means for selectively moving said blade to control the quantity of material passing through said chute, and means for selectively controlling the quantity of material passing through the sides of said chute.

In testimony whereof I have set my hand.

MARK M. BUTLER.