Dec. 23, 1924. 1,520,059

A. JEFFREY

STONE SPREADER

Filed July 16, 1923 2 Sheets-Sheet 1

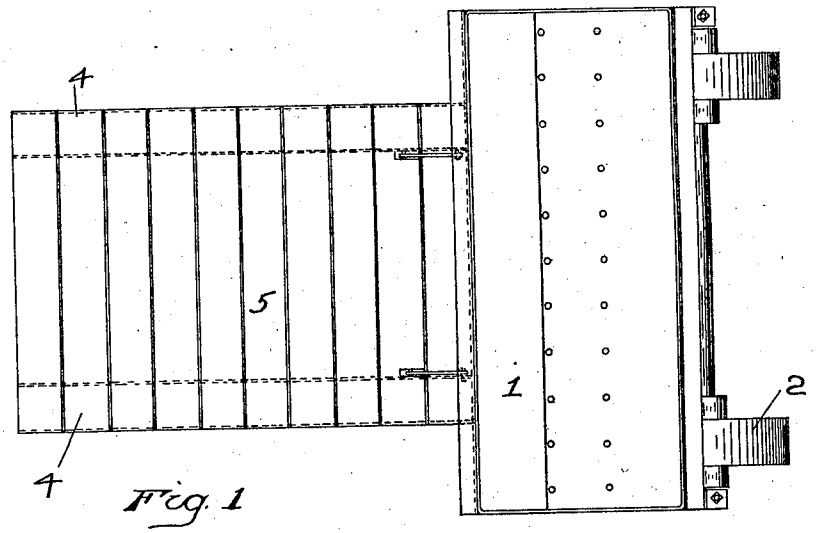


Fig. 1

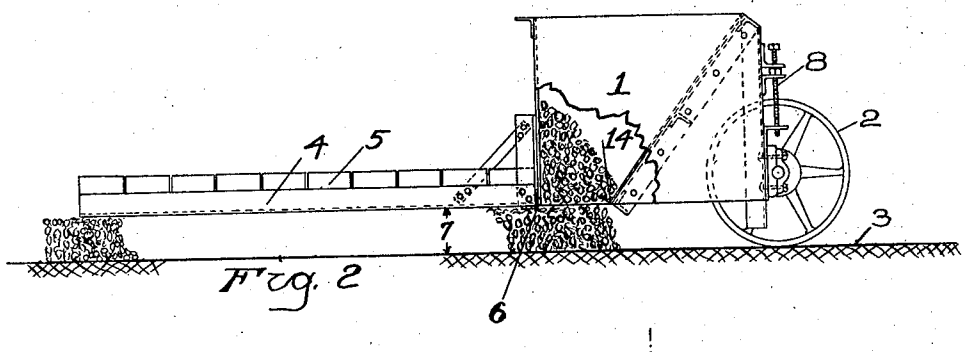


Fig. 2

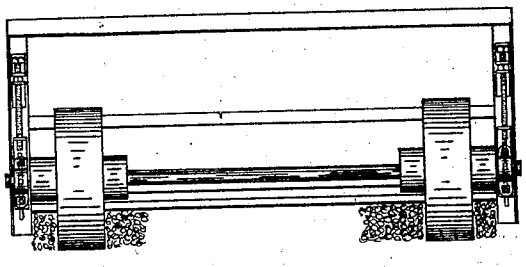


Fig. 3

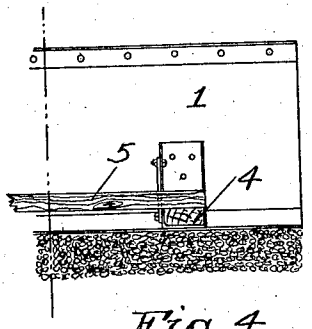


Fig 4

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Fig 5

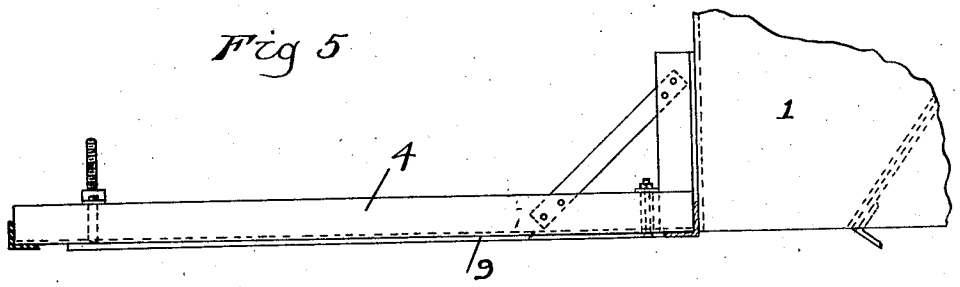
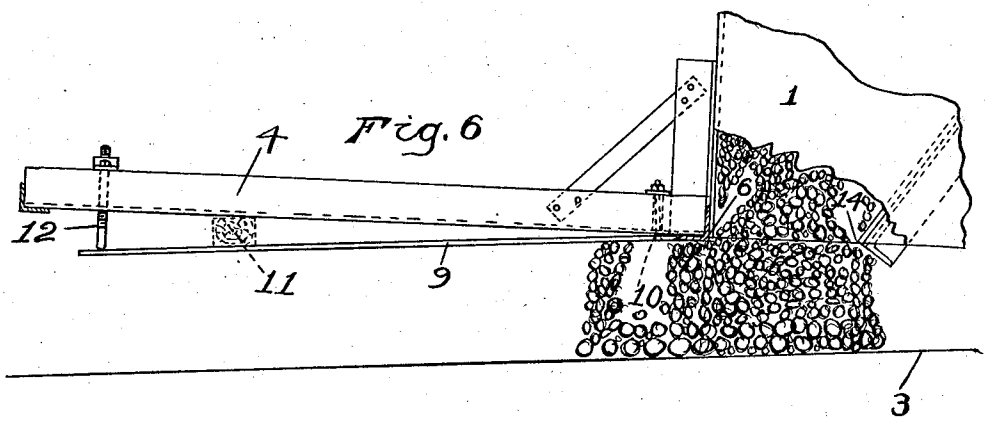


Fig. 6



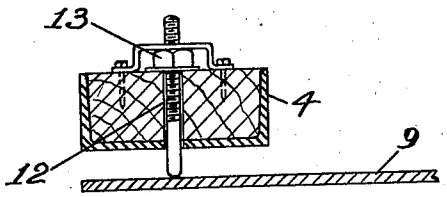


Fig. 7

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Patented Dec. 23, 1924. 1,520,059

UNITED STATES PATENT OFFICE.

ALEXANDER JEFFREY, OF SAGINAW, MICHIGAN.

STONE SPREADER.

Application filed July 16, 1923. Serial No. 651,826.

To all whom it may concern:

Be it known that I, ALEXANDER JEFFREY, a citizen of the United States, residing at Saginaw, in the county of Saginaw and State of Michigan, have invented certain new and useful Improvements in Stone Spreaders; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to stone spreaders used in road building and similar operations and the improvement pertains to stone spreaders in which the material to be spread is deposited in a hopper having an open bottom, the material being delivered from the hopper bottom as the hopper is moved forward over the subgrade.

My improvement relates more particularly to an improved spreader that can be of relatively light and inexpensive construction although having capacity for spreading large amounts of material, yet requiring but little traction power to operate it.

A further object is to provide a stone spreader of the hopper type with gauging means whereby the material can be deposited evenly over the road bed to a predetermined depth, the machine being so arranged that when set to deposit a layer of material of a given thickness it will automatically maintain that thickness until the machine is adjusted to suit a different depth. The layer of newly deposited material is itself utilized as the depth-gauging means by which the material subsequently deposited is kept at standard thickness.

A still further object is to provide in conjunction with the depth gauging device a supporting member such as a smoothing plate or its equivalent that will ride upon the gauged surface of the newly spread material and iron out its unevennesses, working the individual particles of material at the surface into their finally settled positions. The machine, therefore, not only will spread the material over the subgrade to the desired thickness, but will also smooth the surface ready for rolling.

With the foregoing and certain other objects in view which will appear later in the specifications my invention consists of the devices described and claimed and the equivalents thereof.

In the drawings, Fig. 1 is a top plan view of my improved spreader.

Fig. 2 is a side view, partly broken away.

Fig. 3 is a front view.

Fig. 4 is a rear view of the right-hand half of the machine.

Fig. 5 is a side view, partly broken away, showing a spreader with a surface smoothing plate attached.

Fig. 6 is a similar view showing means of raising the back end of the hopper to secure fine and accurate adjustment of the thickness of the deposited layer of material.

Fig. 7 is an enlarged sectional detail of the screw adjusting device shown in Fig. 6.

As is clearly shown in the drawings, the spreader consists in an open-bottom hopper 1 supported at its front and vertically adjustable on a pair of supports such as wheels 2 or their equivalents. The wheels project below the front and rear bottom edges of the hopper and run on the subgrade 3, whereby the hopper opening is kept above the subgrade a distance equal approximately to the desired thickness of deposited material.

Rigidly secured to the hopper 1 and projecting rearwardly therefrom is a hopper-supporting member consisting preferably in a pair of flat bars or shoes 4, which may be surmounted by a platform 5, as shown in Figs. 1 and 2.

The bottom surfaces of the rear parts of hopper-supporting members 4 are in effect horizontal continuations of the lower edge of hopper 1, so that when they are raised or lowered the rear strike-off or gauging edge 6 of hopper 1 will also be raised or lowered, but to a lesser extent and the thickness of the deposited material 7 will be increased or decreased accordingly and very accurately adjusted.

The initial adjustment to secure the specified depth of deposit can be regulated by raising or lowering the hopper 1 relative to

the wheels 2 by means of a screw adjustment 8, and by this adjustment alone, together with the gauging action of the guides 4 as they ride upon the newly deposited surface and support the rear or gauging edge of the hopper from some distance to the rear of the hopper very satisfactory results are attained in practice.

In many cases, however, it is desirable to slightly change the height of the striking edge 6 after the adjustment of the screw 8 has been effected and in such cases I provide means for raising the rear ends of members 4 and also the rear edge 6 of hopper 1 and holding them in their raised position as the machine goes forward.

The preferred means for accomplishing this result is shown in Figs. 5, 6 and 7, where 9 is a plate, preferably wide and made of heavy sheet metal, extending the width of platform 5 and preferably loosely bolted, as at 10, to the member 4 at points just back of the gauging edge 6 of the hopper. Plate 9 slides upon the top surface of the newly deposited material and since it carries the weight of the bars or shoes 4 and part of the weight of hopper 1 it thus becomes an ironing plate which smooths the material, working the surface particles into closely fitting positions, with the result that the final surface is left smooth and even, being practically without projections or depressions.

If either of the supports or wheels 2 travels into a depression in the surface of the subgrade, thereby ordinarily having a tendency to let the hopper 1 drop and thereby produce a wave in the surface of the deposited material, my machine will eliminate this effect and produce a uniform surface because the long rearwardly projecting guides or bars 4 and the smoothing plate 9, being rigidly fixed to the hopper and supported by the previously deposited material will keep the rear or striking edge 6 up to grade even when one of the wheels sinks into a depression. By keeping the edge 6 up to grade as described the depression is immediately filled with material and the proper contour of the top surface is not disturbed.

Various means may be employed for holding the rear ends of bars 4 in their elevated position, as shown in Fig. 6, one such means being to insert a block or piece of timber 11 between the plate 9 and the bars 4. No special fastening means is required to keep the timber 11 in place. I also sometimes employ an adjustable screw 12, threaded through a revolvable nut 13 and extending downwardly through the rear end of a shoe 4, the lower end of the screw resting on plate 9, as shown in Figs. 6 and 7.

It will be especially noticed that in my improved construction neither the front nor rear bottom edges of hopper 1 extend down to the subgrade 3, but they both are located above the subgrade a height equal to the desired thickness of the layer of material.

The material flows out of the hopper 1 near the front edge 14 as well as from the open bottom and under the rear edge. Most of it flows out under the front edge in the same direction as the machine is moving, as indicated in Fig. 6. A minimum of material has, therefore, to be scraped through or struck through by the rear edge 6 of the hopper. I thereby avoid as far as possible all scraping or striking action of the edge 6 against a large stream of material and greatly reduce the resistance and the tractive power required to operate the machine as compared with hoppers that deliver through the bottom and rear wall only.

By the means above described I have produced a simple, relatively light and comparatively inexpensive stone spreader which has great spreading capacity in proportion to its size and is capable of spreading material to a predetermined thickness with the utmost accuracy. By providing vertically adjustable front wheels for approximate gauging of the thickness, and by rigidly attaching to the hopper the long rearwardly extending guides or shoes 4, I utilize the carefully gauged layer of material already deposited as a gauge by which to support the rear strike-off edge of the hopper and thereby accurately maintain the desired thickness of material subsequently deposited.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A stone spreader comprising a pair of supports adapted to run on the subgrade to be covered, an open-bottomed hopper carried by said supports and vertically adjustable with relation thereto, a rearwardly extending horizontal member rigidly secured to said hopper and adapted to ride upon the deposited layer of material and thereby support the rear part of the hopper independently of the subgrade.

2. In a stone spreader including supports and a hopper secured thereon at its forward side, a horizontally disposed rearwardly projecting gauge bar rigidly secured to said hopper, a plate beneath said bar adapted to ride on the layer of deposited material and means for raising the rear end of said bar with relation to said plate, and means for supporting said bar in its raised position, for the purposes set forth.

3. In a stone spreader including a bottomless hopper mounted to travel above the subgrade to be covered, a hopper-supporting member located in the rear of said hopper and rigidly connected thereto, the rear part of said supporting member resting on the layer of deposited material independently of said subgrade.

4. In a stone spreader including a bottomless hopper mounted to travel over the subgrade to be covered, a horizontally disposed rearwardly projecting gauge member rigidly secured to said hopper, a supporting member beneath said gauge member and resting on the layer of deposited material, and means for raising and lowering the rear end of said gauge member relative to said supporting member.

In testimony whereof, I affix my signature.

ALEXANDER JEFFREY.