J. P. FABER.

DISTRIBUTING AND LEVELING DEVICE FOR CONCRETE PAVING MACHINES.

APPLICATION FILED MAY 19, 1921.

1,404,747.

Patented Jan. 31, 1922.

2 SHEETS—SHEET 1.

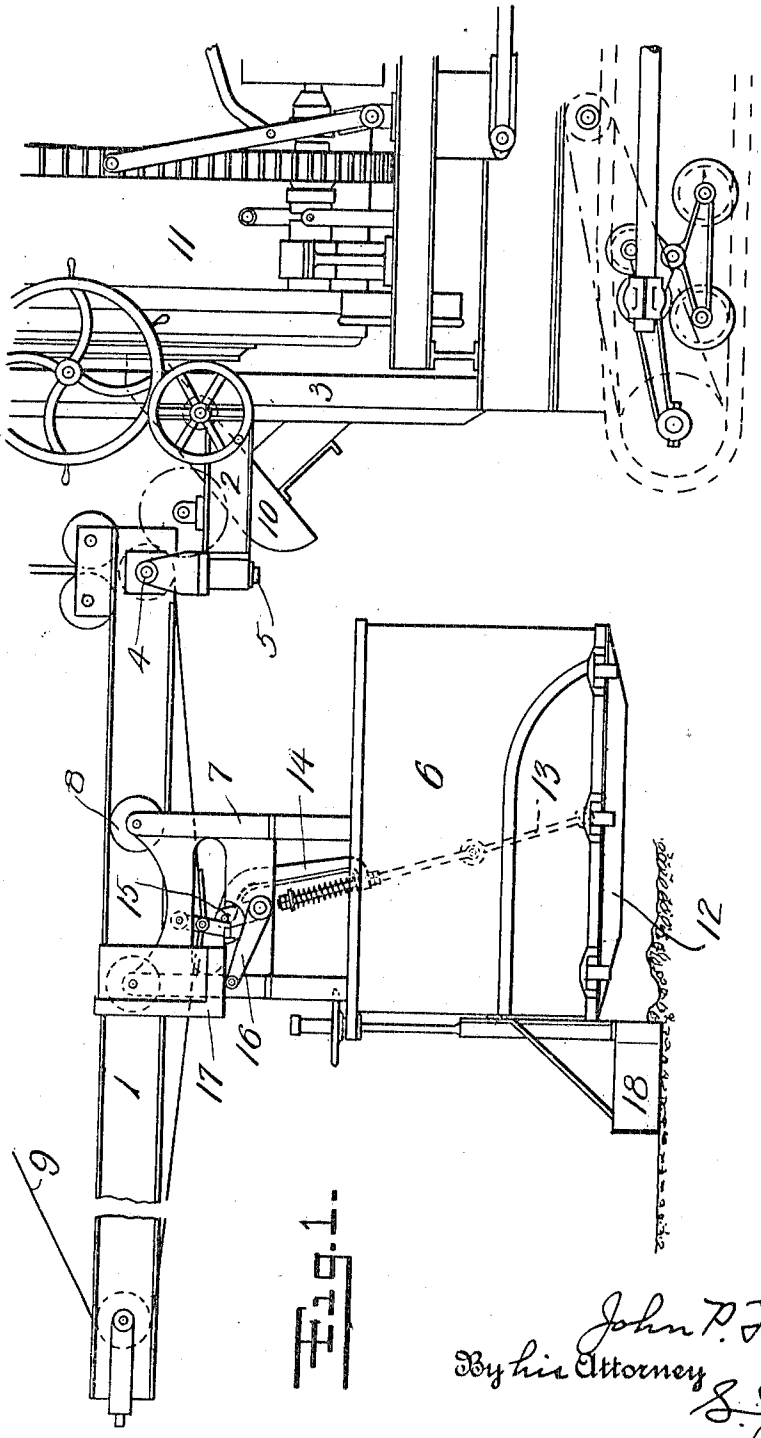


Fig. 1.

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2 SHEETS—SHEET 2.

Fig. 2.

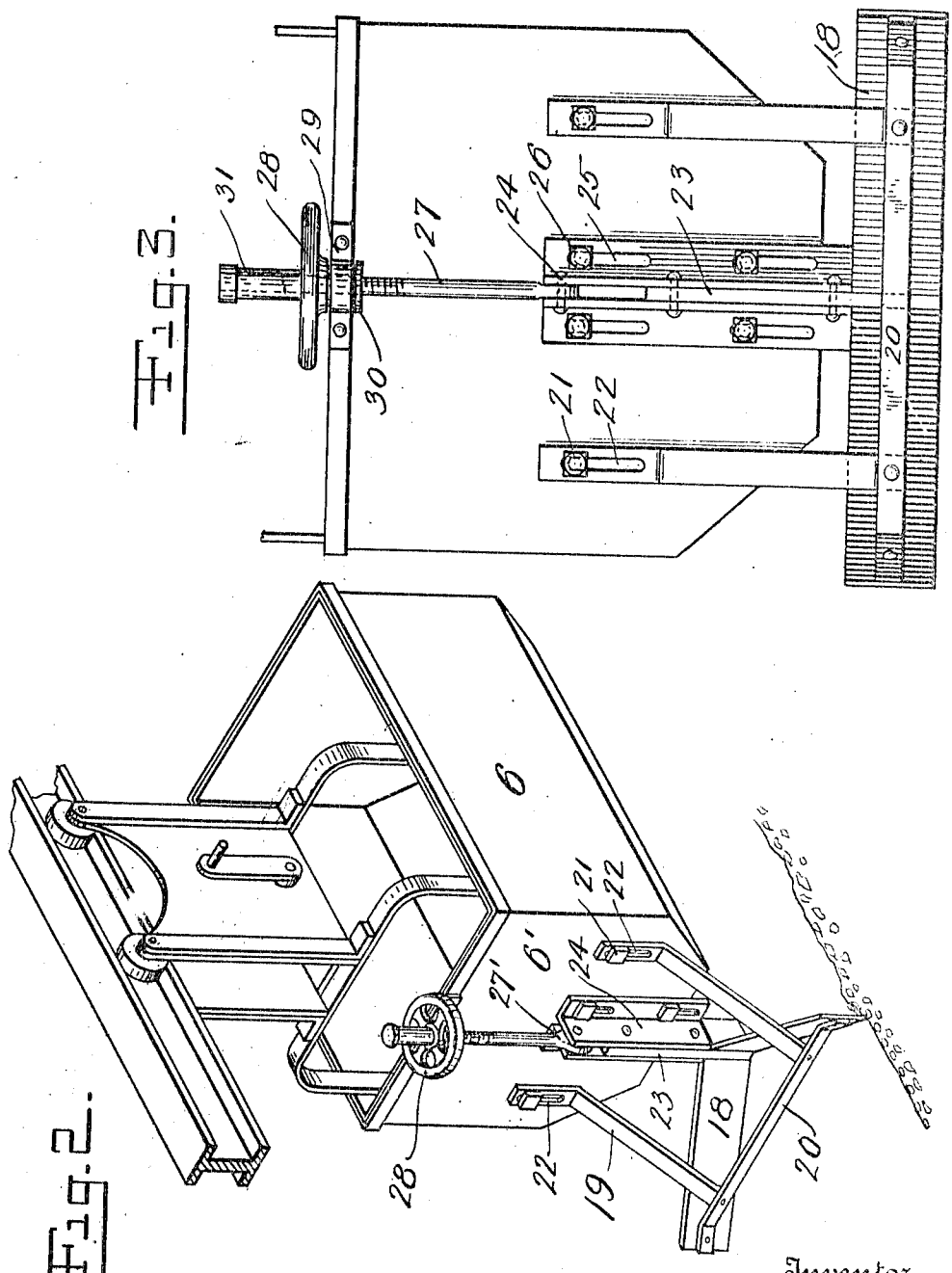


Fig. 3.

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UNITED STATES PATENT OFFICE.

JOHN P. FABER, OF DUNELLEN, NEW JERSEY, ASSIGNOR TO RANSOME CONCRETE MACHINERY COMPANY, A CORPORATION OF NEW YORK.

DISTRIBUTING AND LEVELING DEVICE FOR CONCRETE-PAVING MACHINES.

1,404,747. Specification of Letters Patent. Patented Jan. 31, 1922.

Application filed May 19, 1921. Serial No. 470,874.

To all whom it may concern:

Be it known that I, JOHN P. FABER, a citizen of the United States, and a resident of the borough of Dunellen, in the county of Middlesex, State of New Jersey, have invented certain new and useful Improvements in Distributing and Leveling Devices for Concrete-Paving Machines, of which the following is a specification.

The improvements relate to mechanism for distributing concrete and other paving materials, for the purpose of forming pavements, and more particularly to mechanism of the boom and bucket type, in which the paving materials in a plastic or fluid state are conveyed to the place of application by means of a bucket or tub arranged to be dumped, which travels along a movable boom or the like to the place where the materials are to be deposited, and then dumps its load and returns for another.

A conveying bucket with a door or doors in the bottom arranged to open at the proper time and deposit the load, has been found very useful and efficient in distributing concrete for pavements, and this bucket is usually arranged to travel along a boom supported in a position substantially parallel with the surface of the pavement to be formed. With a bucket of this description the load is deposited in a heap when the bottom of the bucket is opened and the spreading of the heavy plastic material is done by workmen, employing rakes or other spreading implements, after the bucket has returned for another load. This spreading work requires the employment of a number of workmen, who must keep pace with the output of the mixer, if loss of time and labor and inefficient operation are to be avoided, so that any lack of co-ordination between the spreading and the mixing and distributing operations results in a loss to the contractor, delay in the work of spreading the material, involving delay in the operation of the mixing and distributing means and a holding up of the work of supplying materials to the mixer. Again, when the concrete dumped by the bucket is spread by hand the more fluent portion of the mixture, which usually is at the top, and should be at the top when the pavement is finished, has an opportunity to run off into hollows or unpaved portions of the surface to be paved and, with its excess of water—if there is an excess—to become entrapped in the body of or beneath the coarse aggregates. Another feature of the hand spreading operation which sometimes gives undesirable results is the lack of accuracy in bringing the work to an even surface or grade. There are other objections and disadvantages well understood by those practiced in the work. It is among the objects of the present improvements to overcome these objections by means of a simple and effective device, adjustable to various requirements, which can be used under varying conditions and needs, and will operate with accuracy and dispatch and do its work without interfering in any manner with the operation of any of the other mechanism.

The accompanying drawings illustrate an embodiment of the improvements, and in these drawings Figure 1 is a side elevation of a distributing and leveling device embodying the improvements, and of adjacent parts of a boom and bucket paving machine; Figure 2 is a perspective view, and Figure 3 a rear elevation.

In the illustrated embodiment a boom 1 is mounted to move laterally on a bracket 2, extending rearwardly from the frame 3 of a tractor mixing machine, and is also arranged to be adjusted vertically on the pivot 4. The lateral movement is on the king bolt 5. Any suitable devices may be employed for moving the boom and maintaining it in different positions. A bucket 6 is suspended from the boom by means of a carriage 7 traveling on the boom by means of wheels 8, and a cable 9, or any other suitable means, is employed to move the bucket to and from the spout 10 of the mixing drum 11 along the boom. Means for opening and closing the longitudinal hinged dumping doors 12 in the bottom of the bucket are provided in the links 13 and 14, arm 15, and trip lever 16, the latter coming in contact with the bracket 17 and closing the doors as the bucket approaches the discharge spout of the mixer, and being operated reversely to open the doors and dump the bucket by any suitable device such as a cam or cable. It may also be operated by hand if desired. The dumping operation is also adapted to be performed by the cable 9 when the movement of the cable is checked, and the momentum

of the bucket carries it beyond the point where the cable stops. Mechanism of this character is well known in the art, and is shown in certain Letters Patent, for instance United States Letters Patent No. 1,141,470, of June 1, 1915, to E. H. Lichtenberg.

The plow proper 18 consists of a piece of heavy sheet metal formed into a V-shape and disposed horizontally. It is supported on the rear end 6′ of the bucket 6 by means of flat braces 19, having their lower ends secured to a brace 20 extending across from one extremity to the other of the plow, and their upper ends connected with the bucket in vertically adjustable manner by means of flat headed bolts 21 passing through slots 22. It is also supported by means of a post 23 secured to its angle and bolted between angular sliding members 24, which have their flanges provided with slots 25 receiving bolts 26 similar to the bolts 21. These slots determine the limits of the upward and downward adjustment of the plow, and the movement for adjustment is accomplished by means of a vertical rod 27 threaded at its upper part, and passing through the interiorally threaded hub of the wheel 28. The lower end of the rod 27 has an eye 27′ which receives a bolt passing through the outstanding flanges of the sliding members 24, whereby it is connected therewith, and its upper part passes through a collar 29 secured to the rim of the bucket and surrounding the wheel hub. Rotation of the wheel 28 in one direction or the other raises or lowers the plow, and an annular flange 30 on the hub of the wheel below the collar secures the parts against vertical movement, after adjustment. The upper threaded portion of the rod 27 which projects above the wheel 28, and the threads of the wheel hub are protected against concrete and other clogging matter by a capped tube 31 surrounding the said upper end of the rod and secured to the hub.

In operation the bucket is filled and then caused to travel at the end of the boom, or to a point along the boom where its load is to be dumped, and is drawn in toward the mixer as soon as its load has been deposited, or while it is dumping. This movement of the bucket causes the plow and spreader to pass through the bucket load and to spread it laterally and level it, and this is done before the contents of the bucket have an opportunity to run or settle to any extent and thereby disturb the consistency of the mix, or give rise to the other undesirable results hereinbefore mentioned. The weight of the bucket is sufficient to prevent the plow from riding on or jumping over any of the concrete, and the thickness of the concrete mixture may thus be accurately and automatically gauged. The level of the grade may also be gauged with reasonable accuracy by first adjusting the boom to the proper elevation and then, if necessary, adjusting the vertical position of the plow.

What I claim is:

1. The combination of a bucket arranged to travel horizontally, a vertically adjustable and laterally movable arm along which the said bucket is mounted to travel, means for dumping the contents of said bucket, and means carried by the bucket for spreading, leveling, and gauging the depth of the contents of the said bucket after the same has been discharged therefrom, comprising a plow device, means on the outer part of said bucket for connecting the said plow therewith, and means for adjusting the position of said plow vertically with respect to the said bucket.

2. The combination of a bucket arranged to travel horizontally, a vertically adjustable and laterally movable arm along which the said bucket is mounted to travel, means for dumping the contents of said bucket, and means carried by the bucket for spreading, leveling, and gauging the depth of the contents of the said bucket after the same has been discharged therefrom, comprising a plow device, means on the outer part of said bucket for connecting the said plow therewith, and means for adjusting the position of said plow vertically with respect to the said bucket and said arm.

3. The combination of a bucket arranged to travel horizontally, a vertically adjustable and laterally movable arm along which the said bucket is mounted to travel, means for dumping the contents of said bucket, and means carried by the bucket for spreading, leveling, and gauging the depth of the contents of the said bucket after the same has been discharged therefrom, comprising a plow device, means on the outer part of said bucket for connecting the said plow therewith, and means for adjusting the position of said plow vertically with respect to the said bucket, the said plow device being rigidly connected with said bucket and movable therewith along the said arm and normally located below the bottom of said bucket.

4. The combination of a bucket arranged to travel horizontally, a vertically adjustable and laterally movable arm along which the said bucket is mounted to travel, means for dumping the contents of said bucket, and means carried by the bucket for spreading, leveling, and gauging the depth of the contents of the said bucket after the same has been discharged therefrom, comprising a plow device, means on the outer part of said bucket for connecting the said plow therewith, and means for adjusting the position of said plow vertically with respect to the said bucket, said plow member being rigidly connected with said bucket and movable

therewith along the said arm, and laterally with the said arm, and normally extending below the said bucket.

5. The combination of a bucket arranged to travel horizontally, a vertically adjustable and laterally movable arm along which the said bucket is mounted to travel, means for dumping the contents of said bucket, and means carried by the bucket for spreading, leveling, and gauging the depth of the contents of the said bucket after the same has been discharged therefrom, comprising a plow device, means on the outer part of said bucket for connecting the said plow therewith, and means for adjusting the position of said plow vertically with respect to the said bucket, said plow device having a horizontal lower edge normally positioned below the bottom of said bucket.

6. The combination of a bucket arranged to travel horizontally, a vertically adjustable and laterally movable arm along which the said bucket is mounted to travel, means for dumping the contents of said bucket, and means carried by the bucket for spreading, leveling, and gauging the depth of the contents of the said bucket after the same has been discharged therefrom, comprising a plow device, means on the outer part of said bucket for connecting the said plow therewith, and means for adjusting the position of said plow vertically with respect to the said bucket, said plow device being rigidly connected with said bucket, and said means for adjusting it vertically being constructed and arranged to operate on the same, while it is held rigidly against movement in lateral directions.

7. The combination of a bucket arranged to travel horizontally, a vertically adjustable and laterally movable arm along which the said bucket is mounted to travel, means for dumping the contents of said bucket, and means carried by the bucket for spreading, leveling, and gauging the depth of the contents of the said bucket after the same has been discharged therefrom, comprising a plow device, means on the outer part of said bucket for connecting the said plow therewith, and means for adjusting the position of said plow vertically with respect to the said bucket, said adjusting means being constructed and arranged to move the plow device without affecting its connection with the bucket.

Witness my hand this 2nd day of May, 1921, at the borough of Manhattan, in the city, county and State of New York.

JOHN P. FABER.