E. I. DAVIS.

CONCRETE LAYING MACHINE.

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1,250,809.

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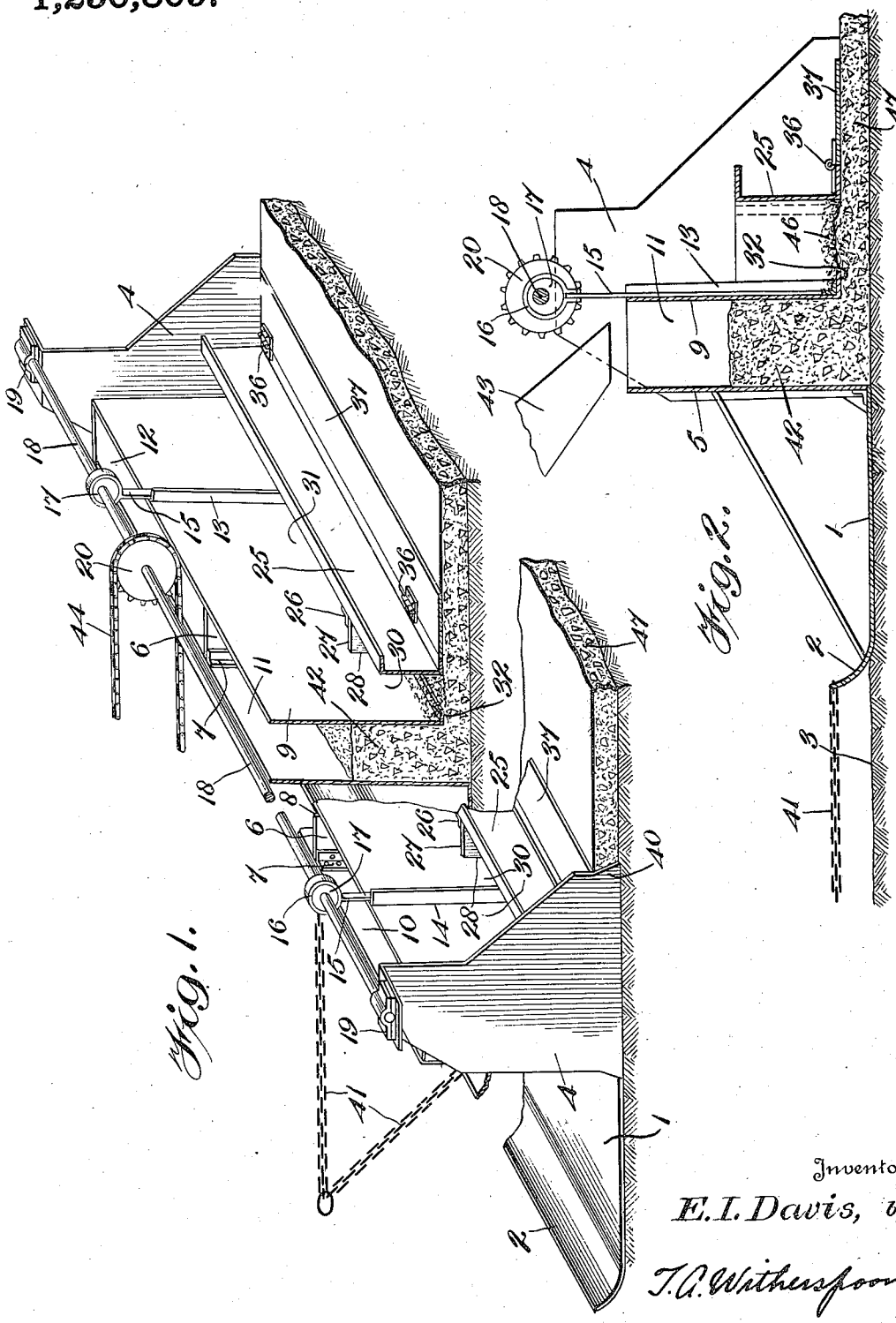

Fig. 1.

Fig. 2.

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CONCRETE-LAYING MACHINE.

1,250,809. Specification of Letters Patent. Patented Dec. 18, 1917.

Application filed December 18, 1916. Serial No. 137,645.

To all whom it may concern:

Be it known that I, EDMUND I. DAVIS, a citizen of the United States, residing at Anderson, in the county of Shasta and State of California, have invented certain new and useful Improvements in Concrete-Laying Machines; 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 concrete laying machines and has for its object to provide a machine of this nature which will be certain in action, efficient in operation and less costly to manufacture than those which have been heretofore proposed.

With these and other objects in view the invention consists in the novel details of construction and combinations of parts more fully hereinafter disclosed and particularly pointed out in the claims.

Referring to the accompanying drawings forming a part of this specification in which like numerals designate like parts in all the views:—

Figure 1 is a diagrammatic perspective view partly broken away of a machine made in accordance with this invention; and

Fig. 2 is a transverse sectional view of the parts shown in Fig. 1.

1 indicates a sled like member provided with an upwardly flared forward portion 2, and adapted to be dragged over the roadbed 3. Suitably attached to the sled like member are the end wall members 4 and extending between said wall members 4 is the forward hopper wall member or plate 5. Rigidly attached to the said wall member or plate 5, as by the angles 7, are one or more division members 6. Associated with the unattached rear edges 8 of the division members 6 is the vertically slidable rear wall member or plate 9, thus completing a series of hoppers 10, 11 and 12 having rigid front walls formed by the plate 5 and vertically movable rear walls formed by the plate 9. The said plate 9 has rigidly attached thereto the angles 13 and 14 to which are attached the members 15 provided with the eccentric straps 16 encircling the eccentrics 17 mounted on the shaft 18 journaled in the bearings 19, carried by the end wall members 4 as illustrated. The said shaft 18 is provided with any suitable means for receiving power such for example as the sprocket 20. Located to the rear of the vertically movable plate 9 is the plate 25 which is of a less height than the plate 9 and which has rigidly attached thereto, as by the angles 26, the division members 27 having the forward edges 28 that are unattached to the plate 9, and which therefore permit said plate 9 to rise and fall in contact with said edges. The said division members 27 divide the space between the plates 9 and 25 into a series of lesser hoppers such as 30 and 31, all as will be clear from the drawings.

Rigid with the vertically movable plate 9 is a flange or tamping member 32 adapted to tamp or compress the concrete material as it falls from a higher position to a lower position.

The said plate 25 has suitably secured thereto, as by the hinges 36, a smoothing plate such as 37 adapted to ride over the laid concrete and smooth off its surface.

The extreme end walls 4 of the machine are provided with the extensions 40 adapted to extend down below the edge of the laid concrete, and to smooth the same off as will be readily understood from the drawings.

The operation of this machine will be clear from the foregoing, but may be briefly summarized as follows:—

The roadbed 3 is prepared as usual for the laying of concrete whereupon the machine will be slowly drawn thereover by any suitable means such as 41, and concrete such as 42 is placed within the hoppers such as 10, 11 and 12 by any suitable means, as for example, the spout 43. As the machine is slowly drawn over the roadbed 3 the sprocket 20 is rotated by any suitable means, as for example, the sprocket chain 44 whereupon the rear plate 9 is jigged up and down by the action of the cams 17 and the concrete escapes from underneath the tamping member 32 while it is being tamped to a greater or less extent into position. When fine material such as 46 escapes past the said tamping means 32, it is caught in the hoppers such as 30 and 31 and is eventually worked into the main body 47 of the concrete. The rearmost plate 25 follows the plate 9 and serves to still further smooth off the laid concrete 47 while the hinged or surfacing plates such as 37 serve to finish the top surface of the laid concrete.

Whereas this machine is illustrated as lay-

ing concrete on a comparatively level roadbed, yet of course, it is adapted to lay concrete on inclined surfaces. In fact, it can be inclined to a considerable angle and still operate. When so inclined the division members such as 6 and 27 serve to prevent the concrete 42 from slipping from end to end of the machine.

It is obvious that those skilled in the art may vary the details of the construction as well as the arrangement of parts without departing from the spirit of the invention and therefore, I do not wish to be limited to the above disclosure except as may be required by the claims.

What I claim is:—

1. In a concrete laying machine the combination of an open bottom hopper adapted to hold the concrete to be laid and having a wall capable of moving up and down; means for moving said wall up and down to permit said concrete to escape from the bottom of said hopper; and means for moving said hopper over the surface to be concreted while said wall is being moved up and down, substantially as described.

2. In a concrete laying machine the combination of a bottomless hopper having a movable wall adapted to hold concrete; means for supporting said hopper with its bottom at a predetermined distance above the surface to be concreted; means for moving said hopper and concrete over said surface; means for jigging said movable wall up and down while so moving said hopper to permit said concrete to escape from said hopper; and means associated with said movable wall for tamping the escaping concrete, substantially as described.

3. In a concrete laying machine the combination of a hopper having a fixed front wall and a vertically movable rear wall adapted to permit concrete to escape from said hopper as the machine is moved over the surface to be concreted; means to automatically move said rear wall up and down; means to move said machine over said surface; a third wall positioned in rear of said second mentioned wall; partitions between said third wall and said movable wall and means associated with said third wall for smoothing off the top surface of the laid concrete during the same movement of said machine, substantially as described.

4. In a concrete laying machine the combination of a hopper having a fixed front wall and a movable rear wall adapted to permit concrete to escape from said hopper as the machine is moved over the surface to be concreted; means to move said machine over said surface; means for jigging said movable wall up and down during the movement of said machine to permit the said concrete to escape from said hopper; a third wall positioned in rear of said second mentioned wall; and means associated with said third wall for smoothing off the top surface of the laid concrete during the said movement of said machine, substantially as described.

5. In a concrete laying machine the combination of a bottomless hopper having a vertically movable rear wall adapted to hold concrete; means adapted to vertically move said rear wall up and down to facilitate the escape of concrete from said hopper as the machine is moved over the surface to be concreted; means carried by said rear wall to tamp the concrete as it escapes from said hopper; and means comprising a plate adapted to smooth off the surface of the laid concrete during the said movement of said machine; substantially as described.

6. In a concrete laying machine the combination of means for moving the same over the surface to be concreted; a bottomless hopper comprising a fixed front plate and a vertically movable rear plate whose lower edge is positioned higher than the lower edge of said front plate to permit concrete to escape thereunder as said machine is moved; a tamping means carried by said lower edge; means to jig said movable plate and tamping means up and down as said concrete escapes from said hopper; and means associated with said movable plate for catching any wet and loose concrete which is not thus tamped, substantially as described.

7. In a concrete laying machine the combination of means for moving the same over the surface to be concreted; a bottomless hopper comprising a fixed front plate and a vertically movable rear plate whose lower edge is positioned higher than the lower edge of said front plate to permit concrete to escape thereunder as said machine is moved; a tamping means carried by said lower edge; means to jig said movable plate and tamping means up and down as said concrete escapes from said hopper; means associated with said movable plate for catching any wet and loose concrete which is not thus tamped; and a hinged smoothing means for the tamped concrete adapted to finish off the surface thereof, substantially as described.

8. In a concrete laying machine the combination of means for moving the same over the surface to be concreted; a bottomless hopper comprising a fixed front plate and a vertically movable rear plate whose lower edge is positioned higher than the lower edge of said front plate to permit concrete to escape thereunder as said machine is moved; a tamping means carried by said lower edge; means comprising a cam to jig said movable plate and tamping means up

and down as said concrete escapes from said hopper; means comprising an auxiliary hopper associated with said movable plate for catching any wet and loose concrete which is not thus tamped; and a plate hinged to said auxiliary hopper for surfacing the laid concrete; substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses.

EDMUND I. DAVIS.

Witnesses:
JOHN KLUPPERT,
ELLA HOSTETLER.