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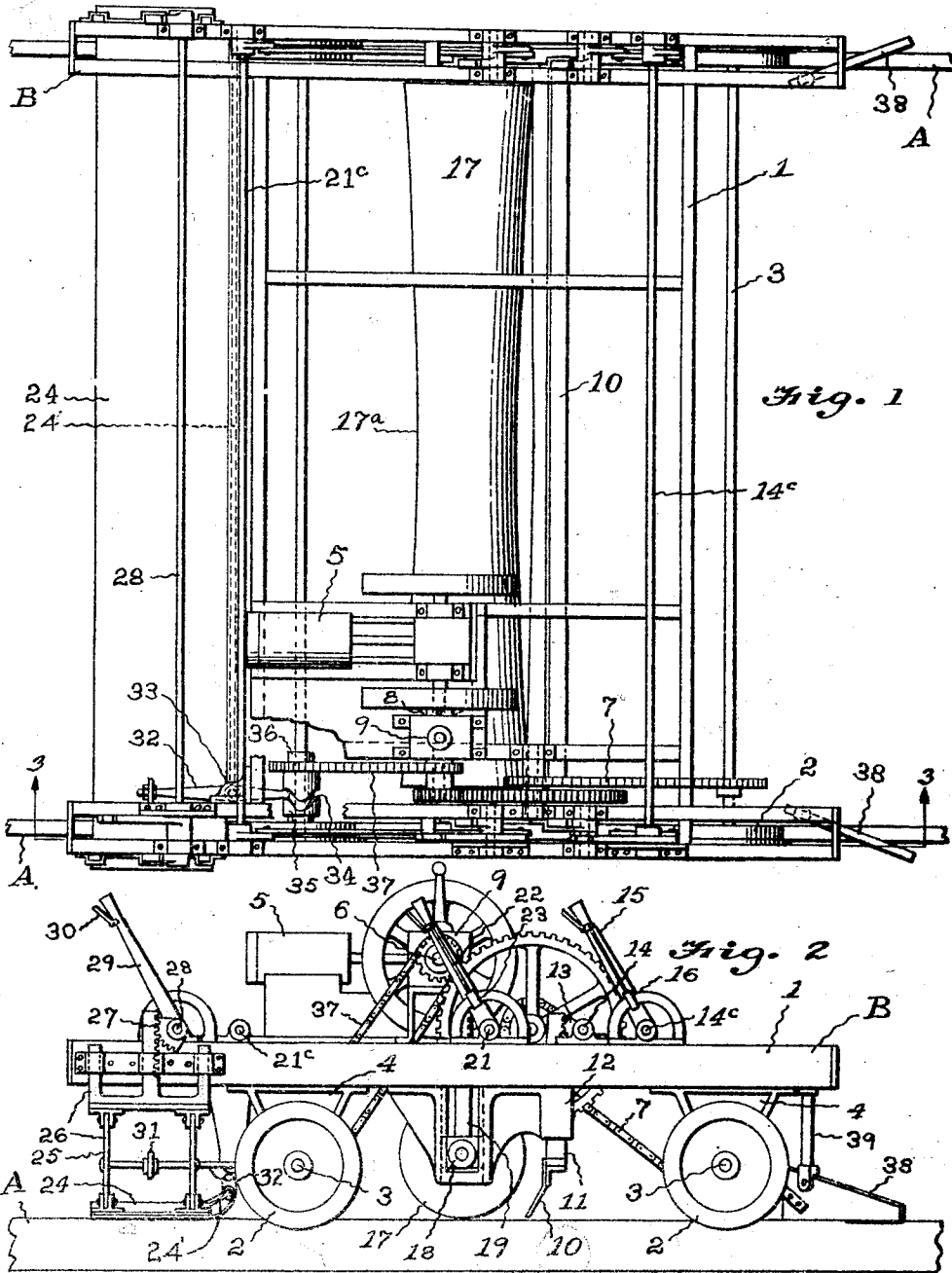
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CONCRETE ROAD FINISHING MACHINE

Filed Sept. 15, 1921

2 Sheets-Sheet 1



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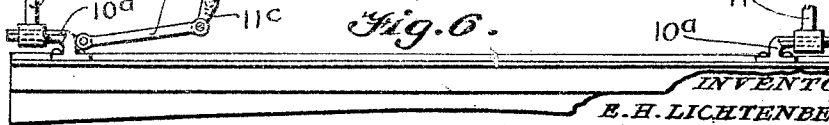
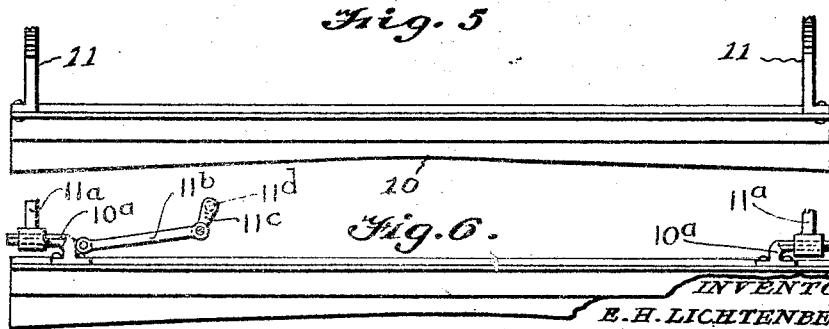
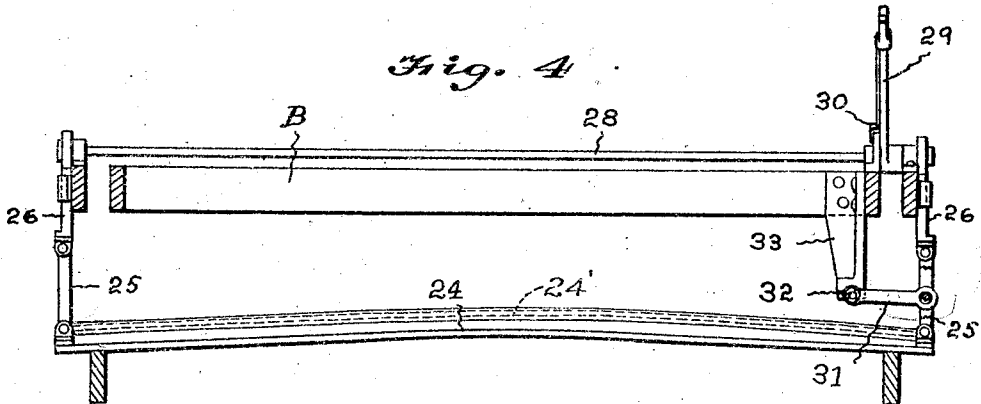
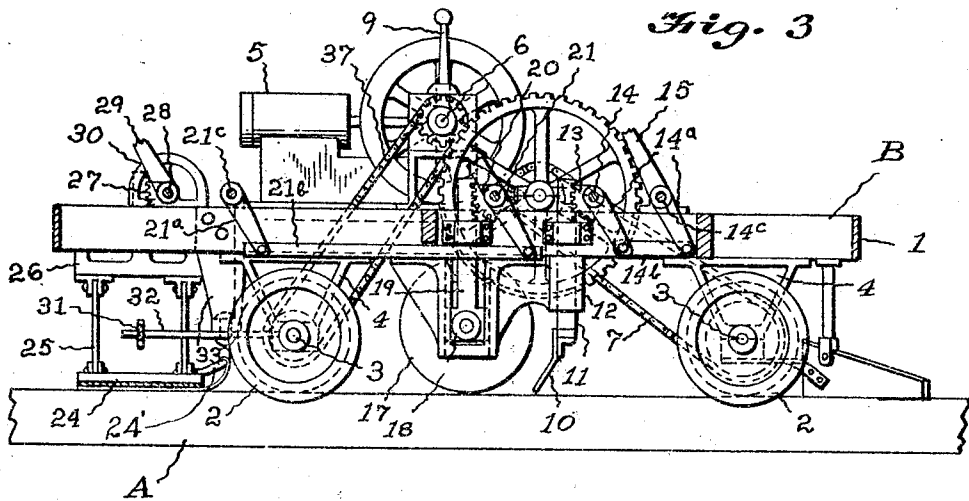
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UNITED STATES PATENT OFFICE.

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CONCRETE-ROAD-FINISHING MACHINE.

Application filed September 15, 1921. Serial No. 500,824.

The present invention relates to a machine which is intended to be used in the building of roads and pavements from plastic material such as concrete, for the purpose of acting upon the plastic material to strike off and shape the same so that a surface of the desired contour and finish is produced

In the building of concrete roads the plastic concrete is deposited upon the subgrade in any suitable manner, one well known form of distributing device for receiving the concrete from the mixer and placing it upon the subgrade being shown by my prior Patent #1,141,470 of June 1, 1915. After the plastic concrete has been deposited upon the road, it must be struck off and shaped to provide a road bed of the proper thickness and with the desired crown or contour of the wearing surface. In carrying out the present invention, the various shaping and finishing elements are all assembled as a unit upon a truck or car which travels upon the road forms, and the various finishing and shaping elements have the proper relation to each other and are mounted in such a manner as to cooperate in an effective manner to strike off the concrete or plastic material and shape and finish the wearing surface of the road bed in the desired manner. Owing to the manner of mounting and relation between the finishing elements of the device, the plastic concrete which has been deposited upon the subgrade is enabled to be acted upon to provide a smooth and finished surface of the proper contour in a quick and economical manner.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawings in which one of the many possible mechanical embodiments of the invention is illustrated and described in detail:

Figure 1 is a plan view of a road finishing machine constructed in accordance with the invention.

Figure 2 is a side elevation thereof.

Figure 3 is a sectional view on the line 3-3 of Figure 1.

Figure 4 is a detail view of the mechanism for reciprocating the finishing belt.

Figure 5 is a detail view of the strike off board.

Figure 6 is a detail view of a reciprocating mounting for the strike off board.

Corresponding and like parts are referred to in the following description and indicated in all of the views of the drawings by like reference characters.

The road finishing machine is intended to travel as a unit upon the usual road forms or rails A which are placed at the sides of the road and between which the plastic material such as concrete is deposited in any suitable manner, such as by means of a distributing mechanism similar to that disclosed in my above indicated Patent #1,141,470 of June 1, 1915. The rails or road forms A may be of any suitable or conventional construction. The various shaping and finishing elements are mounted upon a truck B which is mounted to travel upon the rails A. This truck is illustrated as formed with a body 1 and wheels 2 mounted upon axles 3 which are suitably journaled in bearing brackets 4. The wheels 2 travel upon the rails A and may be flanged for engagement therewith in the usual manner.

A suitable source of power, such as the engine 5 is mounted upon the truck B for furnishing the power required for propelling the truck and operating certain of the finishing elements. The engine 5 is shown as geared to a drive shaft 6 which is operatively connected in some suitable manner as by means of the chain and sprockets 7 to one of the axles 3. A conventional clutch 8 is provided for making and breaking the connection with the engine 5, and conventional gearing 9 is provided for enabling the truck B to be propelled either forwardly or backwardly.

The forward end of the truck is provided with a strike off board 10 which has the lower and operative edge thereof curved to conform with the desired contour or crown to be given the wearing surface of the road bed. While the strike off board 10 is mounted at a receding inclination as illustrated, so as to act in the most effective manner upon the freshly deposited plastic concrete, it is obvious that it may be positioned vertically or given a forward inclination according to the desirability of service and the

strike off board furthermore is preferably mounted so that it can be adjusted to act upon the concrete in the desired manner. Any suitable form of adjustable mounting may be provided, although for the purpose of illustration, the strike off board is shown as secured to the lower ends of slides 11 which are operable in upright guides 12, and have rack and pinion connections 13 with short shafts 14 on opposite sides of the truck. In order that the short shafts may move in unison they are operatively connected by the parallel crank arms 14^a and links 14^b to a counter shaft 14^c which extends transversely across the truck and is suitably positioned to clear the gearing for driving the truck. A lever 15 is operatively applied to the shaft 14^c for raising and lowering the strike off board 10, and a suitable latch 16 is shown for locking the lever in an adjusted position. I have herein set forth a construction in which this strike off board is relatively stationary but I desire it to be understood that it is within the purview of this invention to provide a mounting permitting the board to oscillate or reciprocate after the manner depicted in Figure 6, in which it will be observed the brackets 11^a are formed with bearings to slidably receive the curved supporting arms 10^a. To one of these or elsewhere a link 11^b is connected and actuated by a crank arm 11^c of a suitable shaft 11^d driven from the engine in any desired manner.

Following the strike off board is a roller 17 which is mounted to idle upon the surface of the concrete and which has a concave periphery, as indicated at 17^a, so that it will leave the road surface with the proper crown or contour. The roller is suitably journaled in bearings 18, and some means is preferably provided for raising and lowering the roller. On the drawings the bearings 18 are shown as carried by vertical slides 19 which have rack and pinion connections 20 with short shafts 21, said short shafts being connected by parallel crank arms 21^a and links 21^b to a counter shaft 21^c so that they operate in unison. A lever 22 is provided for raising and lowering the roller and an associated latch 23 cooperates for locking the parts in an adjusted position. After the roller has been adjusted, it is supported by the truck and idles upon the concrete, serving to shape and finish the concrete which has been roughly acted upon by the strike off board. It has also been found that the roller tends to act upon the stone or aggregate on the surface of the concrete to leave the stones in a more or less mosaic order, which is, of course, highly desirable.

Following the roller is a finishing device which is shown as in the form of a fabric belt 24. This belt extends transversely across the road and readily flexes to con-

form to the crown or contour of the road surface. The ends of the belt are secured to frames 25 which are pendant from the body of the truck B, being shown as carried by slides 26 which are movable up and down to raise and lower the finishing belt. Any conventional mechanism may be provided for this purpose and, as shown on the drawings, the slides have a rack and pinion connection 27 with an operating shaft 28 which extends transversely across the truck. A suitable hand lever 29 is provided for rotating the shaft, and a latch 30 holds the parts in an adjusted position. In order to take care of the slack of this belt when the latter is raised the forward edge is attached in any desired manner to the cross supporting bar 24'. The finishing belt may either be stationary or mounted to reciprocate back and forth. A reciprocating belt is shown on the drawings and for this purpose the end frames 25 are pivotally connected at their upper ends to the slides 26. One of the end frames is connected by a link 31 to an oscillating lever 32 which is pivotally connected between its ends to a suitable bracket 33 projecting from the truck. The link 31 is connected to one end of the lever 32 and the other end of the lever is loosely received within a cam groove 34 in a cam disc 35 which is loose upon one of the axles 3, but confined thereon between a pair of collars 36. This cam disc 35 receives power in some suitable manner from the engine 5, being shown as having a chain and sprocket connection 37 with the drive shaft 6. With this construction it will be obvious that the finishing belt 24 will have a rapid back and forth movement which will enable it to act in a most effective manner upon the surface of the concrete to leave the same in a smooth condition.

All of the shaping and finishing elements are assembled upon the truck B which is movable back and forth upon the road rails as a unit. When moving backward, the finishing belt can be raised, as can the rollers 17 if such is desired. Upon the forward movement of the device, the plastic concrete is shaped roughly by the action of the strike off board 10. The roughly shaped concrete is then acted upon by the roller 17, which is supported by the truck and idles upon the concrete surface so that it smooths and shapes the same and tends to arrange and distribute the stones and aggregate in a uniform manner. The concave contour of the surface of the roller produces the desired crown upon the road so that everything is in proper condition for the action of a final finishing medium such as the belt 24. This finishing belt acts upon the concrete after the roller 17, and leaves the concrete with the desired smooth surface. All of the shaping and finishing elements are assembled in a

unitary machine which can be operated by a single workman, and the elements are arranged in such a relation that they mutually cooperate with each other to act upon the concrete as it is roughly deposited upon the subgrade and leave it in the desired finished condition with a proper crown and a smooth surface.

The truck is provided with means such as the scrapers 38 for removing any foreign matter or accumulations of concrete from the top of the rails A so that the wheels 2 will travel upon the top of the rails without any interference. The track cleaners 38 are shown as supported by suitable brackets 39 and are located in advance of the truck wheels 2 so that they will remove any obstructions or deposits of concrete from the rails as the truck is advanced. The elements for acting upon the plastic concrete are thus maintained at the proper elevation and caused to act in the desired manner upon the concrete.

While I have illustrated and described one particular mechanical embodiment of the invention, it will be obvious that numerous modifications can be made in the details of construction within the scope of the claims

and without departing from the spirit of the invention.

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

1. A road finishing machine of the character described, including a wheeled frame adapted to travel over a road, vertically movable slides on the frame, levers pivotally connected to the slides and carried thereby, a finishing belt connecting the levers of the two slides, means for moving the slides to raise and lower the finishing belt, and power means connected with the levers for reciprocating the finishing belt.

2. A road finishing machine of the character described, including a wheeled frame mounted to travel over a road, independent slides mounted for vertical movement on opposite sides of the frame, levers pendant from the slides and pivotally connected thereto, a finishing belt connecting the levers of the two slides, manually controlled gearing for simultaneously operating the slides to move the finishing belt up and down, and power means operatively connected with the finishing belt for reciprocating the same.

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