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1,804,337

ROAD BUILDING APPARATUS

Filed Feb. 24, 1928

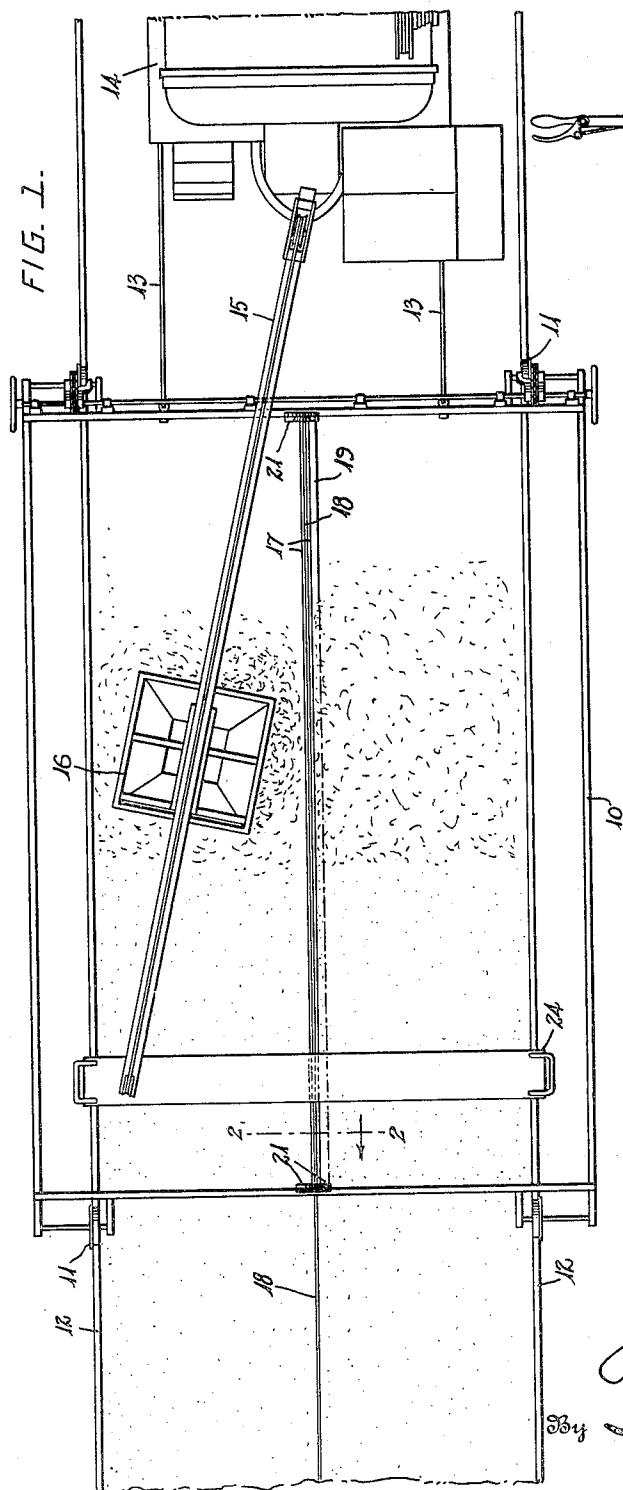
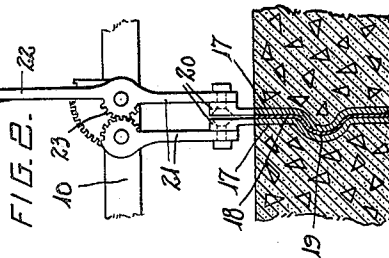


FIG. 3.

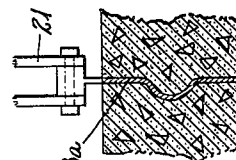


FIG. 4.

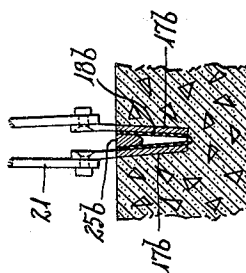


FIG. 5.

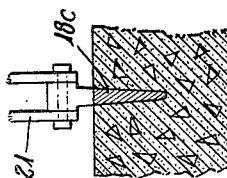
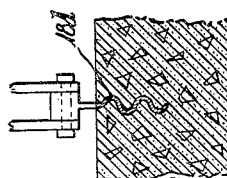


FIG. 6.



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ROAD BUILDING APPARATUS

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The present invention relates to road building apparatus and machines, and aims to provide novel and improved apparatus for building concrete roads and similar surfacing structures with longitudinal joints therein.

It is also an object of the invention to provide simple and practical apparatus for conveniently building concrete roads with longitudinal joints or weakened lines, in order that the road will break or fracture along said joint or line, instead of developing irregular breaks such as occur when the breaks are permitted to develop at random.

Another object is the provision of means to be trailed from a concrete mixer to facilitate the production of the longitudinal joint or weakened line as the concrete is deposited on the sub-base and finished.

With the foregoing and other objects in view, which will be apparent as the description proceeds, the invention resides in the construction and arrangement of parts, as hereinafter described and claimed, it being understood that changes can be made within the scope of what is claimed, without departing from the spirit of the invention.

The invention is illustrated in the accompanying drawing, wherein—

Figure 1 is a plan view of the improved apparatus.

Fig. 2 is an enlarged sectional detail taken on the line 2—2 of Fig. 1.

Figs. 3, 4, 5 and 6 are fragmentary sections corresponding with Fig. 2 illustrating modifications.

In carrying out the invention there is provided a carriage or bridge composed of the frame 10 mounted on wheels 11 which are adapted to travel on the side rails or forms 12 which define the edges or sides of the road under construction. The frame 10 is composed of suitable structural iron, or may be of wood, and is open between the ends and sides thereof in order that the road may be built and finished within the frame.

The carriage is trailed from the concrete mixer 14, by means of cables 13 or other members connecting the carriage and mixer, so that the mixer being advanced will pull

the carriage with it as the building of the road progresses.

The concrete mixer 14, which is preferably of the tractor type, has a boom 15 extending rearwardly over the frame 10, and from which is suspended a movable bucket 16 that receives the mixture from the mixer and deposits same on the sub-base in the well known manner. The boom 15 may be swung laterally of the road and the bucket 16 moves along the boom to deposit the batches of plastic concrete at the desired points on the sub-base. In the arrangement herein disclosed the bucket 16 deposits the material within the frame 10.

The frame 10 carries means for producing a longitudinal joint in the road as the road is built. As shown in Figs. 1 and 2, such means comprises a pair of longitudinal plates 17 between which a joint plate or strip 18 is disposed to be embedded in the concrete. As shown, the plates 17 and 18 are provided between their upper and lower edges with the portions 19 offset toward one side, for producing a tongue and groove joint between the slabs at the opposite sides of the joint. The joint member 18 may be a continuous strip of paper or other flexible material passing rearwardly between the plates 17, or the joint material may constitute strips or sections of metal or other suitable material of suitable length disposed end to end.

The plates 17 are supported from the frame 10 and are capable of being separated, for depositing joint strips or plates between them. Thus, the plates 17 have upstanding lugs 20 at their ends secured to depending arms 21 pivotally connected with the frame 10 at the opposite ends thereof. One arm 21 of each pair has a hand lever 22 for conveniently swinging said arms. As shown in Fig. 2, the arms 21 of each pair are geared together, as at 23, and any suitable means may be provided for locking the arms 21 with the plates 17 disposed together.

When building the road the concrete is dumped from the bucket 16 on opposite sides of the plates 17, and the concrete may be screeded or struck-off, tamped and otherwise finished in the usual manner. As shown in Fig. 1, a screed or strike-off 24, or finishing

belt, may be used on the surface of the concrete over the plates 17 and 18, so that the road may be built and finished within the outline of the frame 10. As the building of the road progresses the mixer 14 and frame 10 are moved forwardly, and the plate or strip 18 remains stationary, so that the plates 17 are withdrawn from the finished portion of the road, leaving the plate or strip 18 embedded therein. When the frame 10 has been moved forwardly, the plates 17 may be separated for depositing the next plate or strip in place, and the sections or plates may be coupled together, if desired, to prevent them from being drawn forwardly with the frame 10. When the concrete has been finished within the outline of the frame 10 to a point near the forward end of the frame, the frame is moved forwardly, and to enable the strip or plate 18 to remain stationary, the plates 17 may be separated slightly prior to such forward movement. The separation of the plates 17 will also permit the next strip or plate 18 to be readily inserted longitudinally rearwardly between the plates 17. The plates 17 may then be moved together to clamp the strips or plates 18 between them, and the pouring and finishing of the concrete may be resumed. It is also possible, when the frame has been moved forwardly to bring the rear ends of the plates 17 adjacent to the unfinished portion of the concrete, to separate said plates 17 so that the joint strip may be deposited downwardly between the plates 17, after which the plates may be moved together for the pouring and finishing of the concrete.

Fig. 3 illustrates a divider plate 18a supported by the arms 21, for dividing the concrete as the road is built over said plate, and when the frame 10 moves forwardly, the plastic concrete may come together in rear of said plate. However, the bond or union is weakened, because the stones or coarser aggregate are separated along the line of the plate 18a, thereby producing a weakened line, so that the road will break along such line. Thus, instead of depositing a strip or plate 18 in the road, as shown in Fig. 1, a weakened line may be produced in the road, so that the longitudinal fracture or break will follow such line.

Fig. 4 illustrates a form 18b of V-shaped cross-section disposed between plates 17b suspended from the arms 21. The form 18b is of sheet metal and is composed of sections disposed end to end, said forms remaining in the road in rear of the frame 10. The forms 18b may be readily deposited between the plates 17b similarly to the placing of the strips 17 between the plates 18 as hereinbefore described. Closure bars 25b are disposed in the form sections 18b to close them and prevent said forms from being filled with concrete. After the concrete has set the bars

25b may be removed, which permits the forms 18b to be removed, which is facilitated by springing the sides of the forms together. This provides a groove along the center line of the road, which may be filled by asphalt, bitumen or other composition, and the groove will also cause the concrete to break below the groove.

Fig. 5 illustrates a plate 18c carried by the arms 21 for producing groove in the road, said plate being withdrawn from the finished road as the frame 10 moves forwardly, but the groove may be filled with sand, asphalt, or other material immediately behind the plate 18c as it moves forwardly.

Fig. 6 illustrates a plate 18d having longitudinal corrugations, and depicting one of various forms of plates that may be used for this purpose.

With the construction shown in Figs. 1 and 2, it is also possible to space the plates 17 apart and to fill the space between them with asphalt or other plastic material, so that such material will provide a joint between the opposite halves or slabs of the road.

Having thus described the invention, what is claimed as news is:—

1. A frame movable on the side forms of a concrete road under construction, said frame being open for the depositing and finishing of concrete within the outline of the frame, and a pair of spaced longitudinal plates supported from said frame to receive a joint strip or material between them and their upper edges being arranged to be substantially flush with the finished surface of the concrete, the space between said plates being open at the upper edges of said plates.

2. A frame movable on the side forms of a concrete road under construction, a pair of spaced longitudinal plates moveable with the frame for keeping the concrete separated, and means supporting said plates from the frame for a movement of the plates toward and away from one another.

3. A frame movable on the side forms of a concrete road under construction, said frame being open for the depositing and finishing of concrete within the outline of the frame, a pair of spaced longitudinal plates for keeping the concrete separated while it is being deposited and finished, and means for supporting the ends of said plates from the frame for adjusting said plates toward and away from one another.

4. A frame movable over the sub-base of a concrete road under construction, a pair of joint installing plates, and means adjustably supporting said plates from the frame for the movement of the plates toward and away from one another.

5. A frame movable on the side forms of a concrete road under construction, said frame being open for the depositing and finishing of concrete within the outline of the frame,

and a pair of spaced longitudinal plates supported at their ends from the frame to receive a joint strip or material between them and their upper edges being arranged to be substantially flush with the finished surface of the concrete, the space between said plates being open at the upper edges of said plates.

6. A frame movable over the sub-base of a concrete road under construction, and joint installing means carried by said frame and including plates adapted to receive a joint strip or material between them and adjustable relatively to one another.

In testimony whereof I hereunto affix my signature.

JOSEPH WILLIAM HELTZEL.

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