Feb. 13, 1951 L. T. ROBINSON 2,541,547

MOLDING APPARATUS FOR ROADWAY MARKERS

Filed June 15, 1948

Fig. 1.

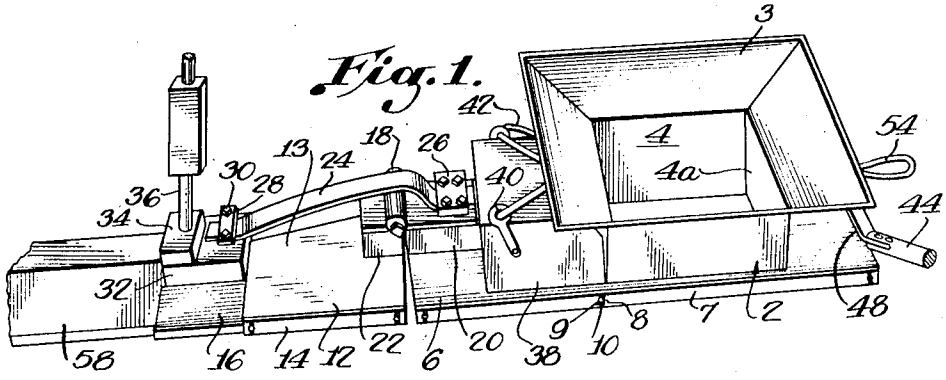


Fig. 2.

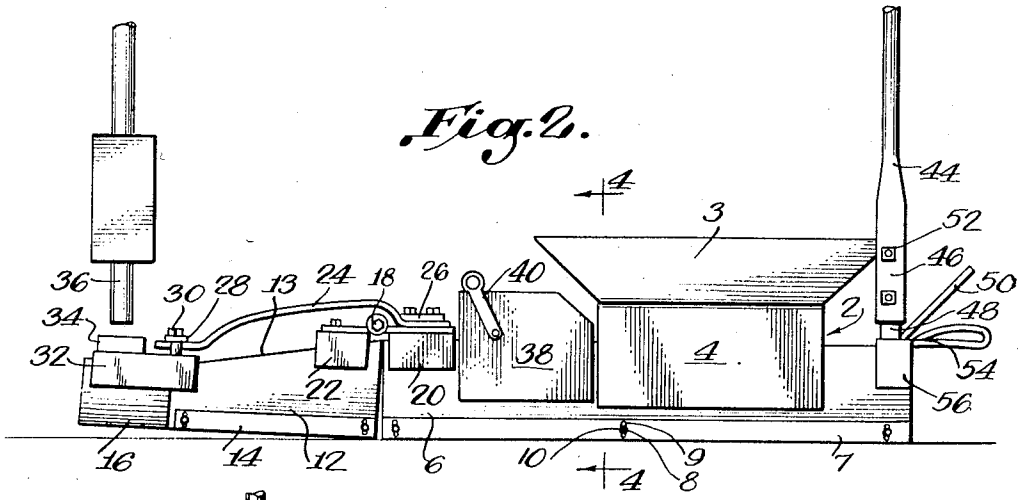


Fig. 3.

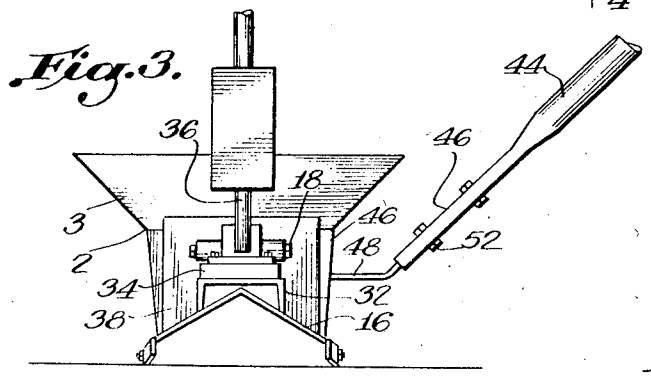
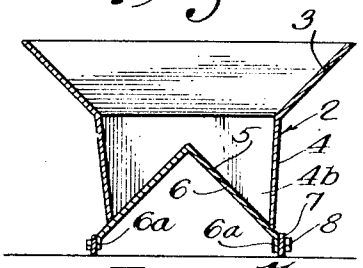


Fig. 4.



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MOLDING APPARATUS FOR ROADWAY MARKERS

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6 Claims. (Cl. 94—46)

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This invention relates to devices for forming highway markers and, more particularly, to a portable molding machine for forming raised molds on highway surfaces.

The object of the invention is to provide a molding machine which can be readily transported to sites of operation for forming raised molds which, for all practical purposes, become integral with the highway, such molds being usable for denoting lane separation, for defining parking stalls, and as barriers. It is further intended to provide a molding machine capable of forming molds of various cross-section and of infinite length, depending upon the requirements of any given task.

More particularly, the object is to provide a portable mold into which an aggregate mix of asphalt or a like material commonly used for surfacing may be poured and, as the machine is moved along the highway, the mold is preliminarily formed by an advance portion of the machine, subsequent to which the mold is further compacted by a rear portion, and tamped to final form while within the confines of a final finishing form.

Another object is to provide a molding machine having hollow, tunnel-like molds serially pivoted together for forming raised markers from the material fed into the front mold and passing beneath them as they are moved lengthwise along a road, and resiliently to bias the rearmost mold so that it tends to pivot upwardly in readiness to receive a tamping blow whereby to compress the material therebeneath. Still another object is to provide vertically adjustable shoes on the lower edges of the molds for adjusting their effective heights above a roadway and, in turn, to adjust the height and cross-section of the markers formed thereby.

These and other objects will be apparent in the following specification and drawings in which:

Fig. 1 is a perspective view of the machine and showing the parts in their relative positions during the tamping operation;

Fig. 2 is a side elevation showing the machine parts in their relative nominal positions in which the finishing mold is ready to receive a tamping blow;

Fig. 3 is an end elevation of the machine as shown in Fig. 2; and

Fig. 4 is a vertical cross-section taken along the line 4—4 of Fig. 2 looking in the direction of the arrows.

Referring now to the drawing in which like reference numerals denote the same or similar elements, the machine comprises a generally rectangular hopper 2 having a flared open top 3 and rectangular side walls 4, the hopper being formed preferably of sheet metal or other suitably rigid material. Rectangular front wall 4a is unbroken, but rear wall 4b is formed with an inverted V-shaped cutout so as to fit complementarily over an advance mold 6 which, as will be seen best in Fig. 1, is cut away in the region occupied by hopper 2.

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Advanced mold 6 is an elongated, tunnel-like body substantially of inverted V-shape in cross section and having its lower edges 6a flanged downwardly. Shoes 7 comprising elongated metal strips are secured to lower edges 6a for vertical adjustment by bolts 8 which extend outwardly through suitable openings in edges 6a and through vertical slits 9 in the shoes, these parts being held in adjusted position by nuts 10. It will thus be seen that the effective height of advance mold 6 above a roadway may be altered by vertical adjustment of shoes 7.

A rear mold 12 is arranged serially behind advance mold 6 and is distinguished by its front portion 13 which tapers downwardly from its forward end toward the rear. Rear mold 12 has shoes 14 thereon adjustable in the manner of shoes 7. The rear portion 16, which is rigid with front portion 12, is of uniform cross section from front to rear and similar in form and size to the rear end of front portion 13 for reasons apparent hereafter.

Advance and rear molds 6 and 12 are serially connected by hinge 18 operating about a horizontal axis transverse to the lengths of the molds so that rear mold 12 may swing upwardly with respect to the remainder of the assembly. Hinge 18 is connected by bolts to saddles 20 and 22 affixed on molds 6 and 12 respectively. The rear end of mold 12 is supported by a relatively heavy leaf spring 24 having its front end anchored beneath plate 26 and with its rear end slidingly held beneath a plate 28. Plate 28 is loosely held by bolts 30 affixed vertically in a saddle 32 which, in turn, is rigidly affixed on the top of finishing form 16. Leaf spring 20 is formed so as normally to bias rear mold 12 upwardly to about the position shown in Fig. 2.

An anvil 34 is affixed on the top of saddle 32 for receiving a tamping blow from suitable tamping iron 36, it being understood that instead of anvil 34, equivalent elements such as a socket may be used, and that various elements may be substituted for tamping iron 36 for exerting a

downward force preferably on the rear portion of rear mold 16.

The machine is preferably loaded by a removable weight 38 having eye bolts 40 which form terminals for a sling 42, the weight 38 being removable merely for facilitating the handling of the machine.

The assembly is slidable along a roadway from left to right as seen in Figs. 1 and 2 by a detachable handle 44 having a socket 46 on its lower end selectively fitting over a laterally extending stub 48 or a stub 50 extending forwardly, the handle being secured to either stub by bolts 52. The assembly may be dragged forwardly also by tractor hitch 54, these traction elements all being affixed on a saddle 56 on the front end advance mold 6. It is apparent that when the machine is being dragged by a tractor, handle 44 may be fitted over lateral stub 48 so that the machine may be manually guided.

In operation the loose aggregate is dumped into hopper 4 so that its mass rests on the roadway through the open bottom of the hopper. As the assembly is moved forwardly, the aggregate passes relatively backwardly through the cutout of rear hopper wall 4b and beneath the inverted V-shaped advance mold 6 which affects a preliminary shaping of the aggregate so that it becomes an elongated, loosely compacted ridge. As the machine is further advanced, the front end of rear mold 12 embraces the ridge and, because of the downward and rearward tapering of mold 12 the ridge of aggregate is compacted downwardly while the rear mold 12 tends to ride up slightly on the aggregate. Thereupon tamping is commenced so that when the machine has moved forwardly enough for rear portion 16 to start along the ridge, the aggregate will have been compacted almost to its final consistency. Further tamping by repeated blows on rear portion 16 until the shoes 14 on rear mold 12 come down even with the roadway as shown in Fig. 1 finishes the forming of the ridge 58.

If runners 7 and 14 are adjusted downwardly with respect to molds 6 and 12 it is apparent that the marker rdige 58 will be slightly higher. Likewise, if molds 6 and 12 are given a curve or otherwise different cross section shape, marker ridge 58 will partake of a corresponding cross section. Various other mechanical changes and arrangements may be made without departing from the essence of the invention as defined in the following claims.

I claim:

1. A machine for molding raised markers and the like on a roadway comprising, in combination, a first elongated mold of substantially inverted V-shaped cross section having front and rear ends and an intermediate portion of the top thereof cut away to provide an opening, a hopper disposed over said opening, a second elongated mold of substantially inverted V-shaped cross section and having front and rear ends, a pivot operating about a horizontal axis transverse to the lengths of said molds and connected to the tops of said first and second molds adjacent the rear and front ends thereof, respectively, said second mold being comprised of front and rear portions, the top of said front portion being sloped downwardly from front to rear, and a spring connected between said molds urging said second mold to pivot upwardly against tamping impacts.

2. The combination claimed in claim 1 the rear portion of said second mold being of substantially uniform height and cross section and substantially equal to the cross section at the rear of said front portion.

3. A machine for molding raised markers and the like on a roadway comprising, in combination, a first elongated mold of substantially inverted V-shaped cross section having front and rear ends and an intermediate portion of the top thereof cut away to provide an opening, a hopper disposed over said opening, a second elongated mold of substantially inverted V-shaped cross section and having open front and rear ends, a pivot operating about a horizontal axis transverse to the lengths of said molds and connected to the tops of said first and second molds adjacent the rear and front ends thereof, respectively, and a tension spring having its ends connected to the tops of said molds urging said second mold to pivot upwardly against tamping impacts.

4. The combination claimed in claim 3, and an anvil affixed on the top of said second mold adjacent to rear end thereof for receiving a tamping blow.

5. In the combination claimed in claim 3, shoes comprising elongated strips extending lengthwise along the lengths of the lower edges of said molds, and adjustable means connecting said molds to said shoes whereby the latter may be adjusted vertically for altering the heights of said molds above the roadway.

6. A machine for molding raised markers and the like on a roadway comprising a hopper member for receiving the material to be molded, said hopper member having roadway-engaging means on its lower portion and an outlet in one side thereof, an open-bottom, elongated mold having open entrance and exit ends, the entrance end being disposed towards said outlet, the height of the cross section of a portion of the interior of said mold being smaller than the cross section of said outlet, whereby said mold will ride up on material issuing from said outlet when said machine is moved along said roadway, means pivotally connecting one end of said mold and said hopper member whereby said mold may pivot upwardly, and spring means urge said mold to pivot upwardly against tamping impacts.

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