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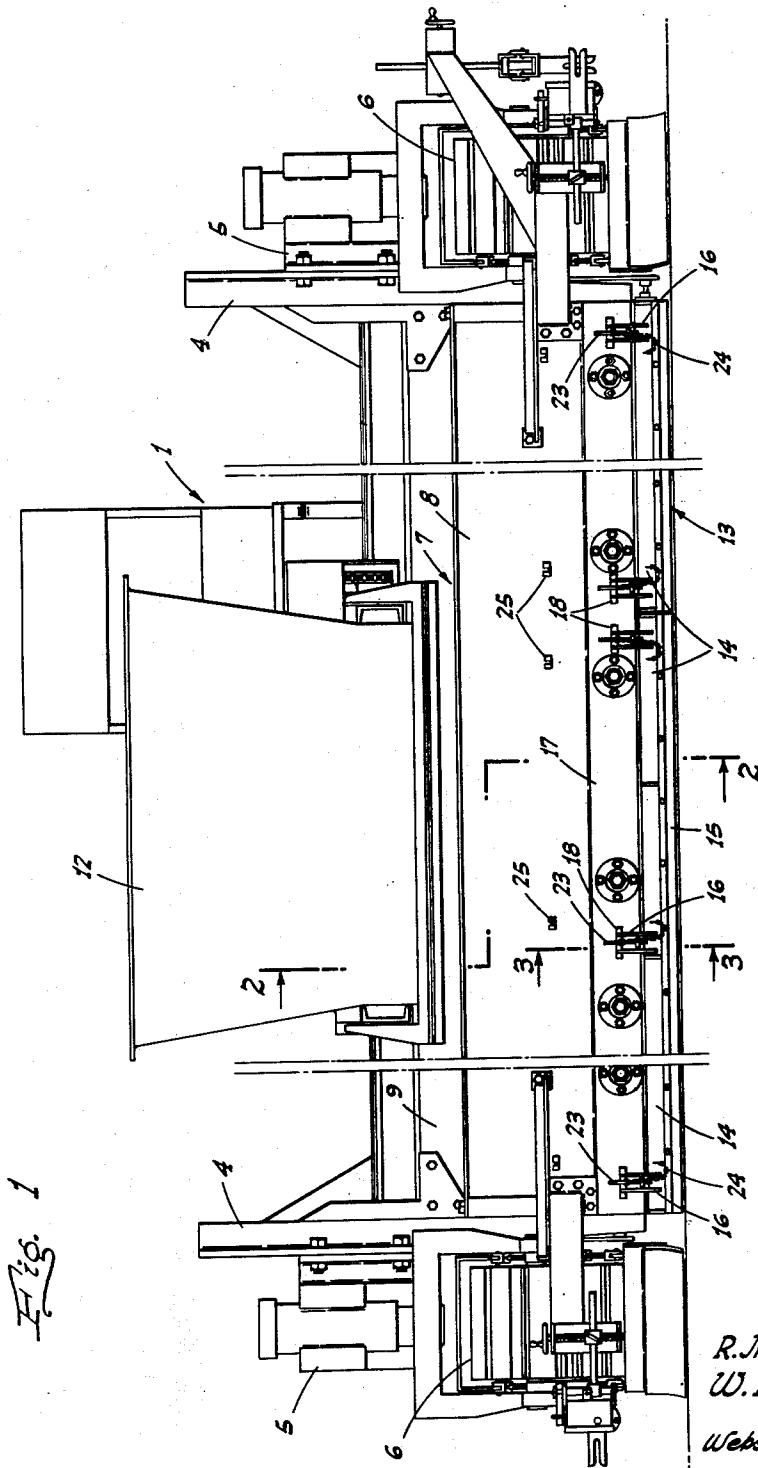
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HOPPER AND GATE UNIT FOR CONCRETE SLAB LAYING MACHINES

Original Filed March 18, 1960

2 Sheets-Sheet 1



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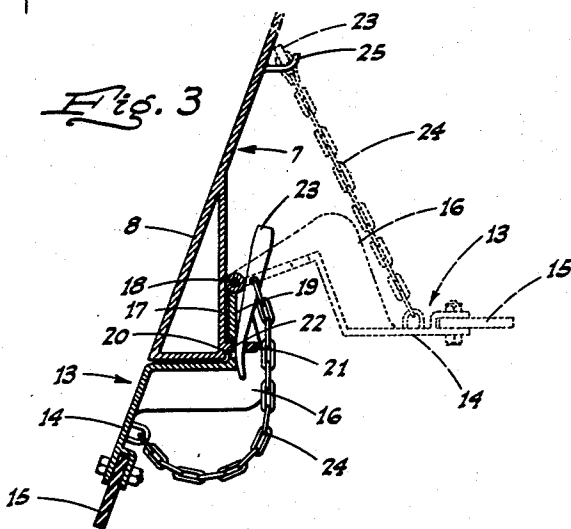
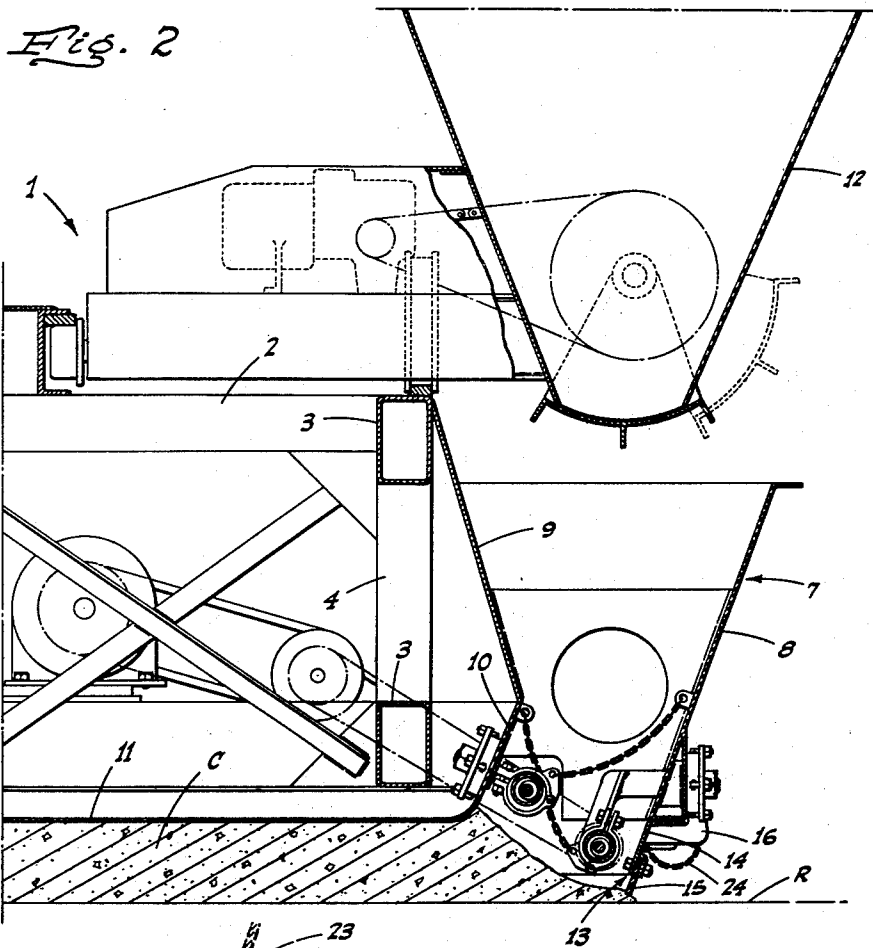
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HOPPER AND GATE UNIT FOR CONCRETE SLAB LAYING MACHINES

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Original application Mar. 18, 1960, Ser. No. 15,871, now
Patent No. 3,135,178, dated June 2, 1964. Divided
and this application Apr. 6, 1964, Ser. No. 357,508
1 Claim. (Cl. 94-46)

This invention relates to concrete slab laying machines of the type designed to lay wide slabs for various purposes; the instant application being a division of our application Serial No. 15,871, and now Patent No. 3,135,178.

Such machine includes a full-width, concrete distributing hopper which feeds the concrete under the smoothing pan of the machine as the latter advances; the major object of the present invention being to provide the hopper with a novel gate unit arranged so that while the concrete as poured is prevented from flowing freely in a forward direction beneath the front of the hopper, a certain degree of relief of the concrete being fed between the smoothing pan and the roadbed is automatically afforded, with the slow advance of the machine, in such forward direction.

A further object of the invention is to mount the gate unit in connection with the front wall of the hopper in such a manner that the machine may be backed up if necessary to repair a faulty slab, or to make a re-run, without interference from the gate unit.

A further object of the invention is to provide a practical, reliable, and durable hopper and gate unit for concrete slab laying machines, and such a unit which is exceedingly effective for the purpose for which it is designed.

These objects are accomplished by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claim.

In the drawings:

FIG. 1 is a foreshortened front elevation of the machine, showing the improved hopper and gate unit thereon.

FIG. 2 is an enlarged fragmentary longitudinal section on line 2-2 of FIG. 1.

FIG. 3 is a further enlarged fragmentary section on line 3-3 of FIG. 1.

Referring now more particularly to the drawings and to the characters of reference marked thereon, the concrete slab laying machine to which the improved hopper and gate unit is applied is indicated generally at 1. Such machine embodies a frame, denoted generally at 2, which includes transverse vertically spaced beams 3, and uprights 4 at the ends of such beams. The uprights 4 are secured to bolsters 5, which support self-propelled endless track units 6.

As a part of the machine, the present invention includes a transverse or full-width concrete distributing hopper 7; such hopper, which is closed at its ends, being rigidly secured to the frame 2 just ahead of the foremost transverse beams 3.

The hopper 7 includes front and back walls 8 and 9, respectively; the main upper portions of said walls converging downwardly relative to each other. However, the lower portion 10 of the back wall 9 slopes rearwardly and substantially parallel to the front wall 8, as shown in FIG. 2. Said back wall portion 10 is actually the front wall of the usual concrete confining and smoothing pan 11 of the machine, and which pan is mounted thereon at a predetermined height above the graded roadbed R.

The hopper 7 is supplied—throughout its length—with concrete delivered thereto from a receptacle 12 mounted on the machine above the hopper for back and forth movement along the same, as set forth in our copending application Serial No. 15,871.

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The upper or main rigid portion of the front wall 8 of the hopper 7 terminates at its lower edge substantially at the level of the pan 11, while the lower portion of said front wall is in the form of a gate unit indicated generally at 13. The gate unit 13 is preferably made as a number of separate gate sections 14 disposed end to end transversely of the machine; such gate sections 14 depending from the lower edge of said upper or main rigid portion of front wall 8 substantially parallel thereto and in alinement therewith when in a normal position. Each gate section 14 is fitted with a flexible depending lip 15 of rubber or the like which terminates adjacent but in clearance relation to the roadbed R, as shown in FIG. 2.

Each gate section 14 includes rigid mounting brackets 16 on its front side; said brackets extending forwardly and then upwardly to clear a reinforcing angle 17 secured to the front wall 8. To the front vertical face of such angle 17 the brackets 16 are hinged at a level some distance above the lower edge of the upper or main rigid portion of front wall 8, as shown at 18.

Each gate bracket is formed with a lateral flange 19, normally disposed adjacent and parallel to the front wall of angle 17. Such flanges 19 have openings 20 below the hinge 18 and through which horizontal forwardly extending lugs 21 normally project; said lugs being rigid with angle 17 and being orificed, as at 22, in front of the related flanges 19, as shown in FIG. 3.

A manually operable locking pin 23 of wedge form, for each lug, and normally projecting through orifice 22 from above and then engaging the adjacent flange 19, prevents forward turning of the corresponding gate section 14 about its hinge 18. Each pin 23 is attached to one end of a flexible member, such as a chain 24, the other end of which is anchored to the front of the related gate section.

Upon lifting the pins 23 clear of the lugs 21 the gate sections 14 may be swung forward without interference, and may then be held in a substantially horizontal or wide-open position—above the level of pan 11—by engaging the pins 23 in a horizontal position with hook-type supporting elements 25 projecting forwardly from the front wall 8; the chains 24 then taking the weight of the corresponding gate sections, as shown in dotted lines in FIG. 3.

When in its operative position the gate unit 13, comprised of gate sections 14, confines the concrete C as poured and prevents the same flowing freely in a forward direction beneath the front of the hopper, while at the same time a certain degree of forward relief of the concrete being fed between the pin 11 and the roadbed R is permitted, with the slow advance of the machine, by reason of the depending flexible lip 15.

As the gate unit 13 is capable of being raised and held at a level above that of the pan, as above pointed out, the machine may be backed up if necessary to repair a faulty slab, or to make a re-run, without interference from said gate unit.

From the foregoing description, it will be readily seen that there has been produced a hopper and gate unit which substantially fulfills the objects of the invention, as set forth herein.

While this specification sets forth in detail the present and preferred construction of said hopper and gate unit, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claim.

Having thus described the invention, the following is claimed as new and useful and upon which Letters Patent is desired:

In a concrete slab laying machine having a slab engaging pan extending lengthwise thereunder, and a concrete distributing hopper mounted on the machine and extending the full width of the pan and including front and

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rear walls spaced apart; the rear wall terminating at and merging into the pan at its front end, the upper portion of the front wall being rigid and the lower portion of said front wall comprising a gate unit extending lengthwise of the hopper, means mounting the gate unit on said upper portion of the front wall for forward and upward swinging movement from a position normally substantially aligned with said upper portion of the front wall, the lower edge of the upper portion of the front wall being substantially on a level with the pan, releasable holding means to retain the gate unit in such normal position, and means included in part with the holding means to releasably retain the gate unit in a forwardly and upwardly swung position at a level above that of the pan; the gate unit mounting means comprising rigid spaced brackets secured to the front of the unit and extending thence upwardly to a pivotal connection with the front wall of the hopper; said holding means comprising an orificed lug rigid with and projecting forwardly from the front wall adjacent each bracket, said lug normally pro-

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jecting through the gate unit below the pivot, and a holding pin releasably projecting through the lug orifice in front of the gate unit; and said last named means comprising a flexible element connected at one end to the pin and anchored at the other end on the gate unit below the lug, and a support for the pin mounted on the front wall of the hopper at a point a predetermined distance above the lug.

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