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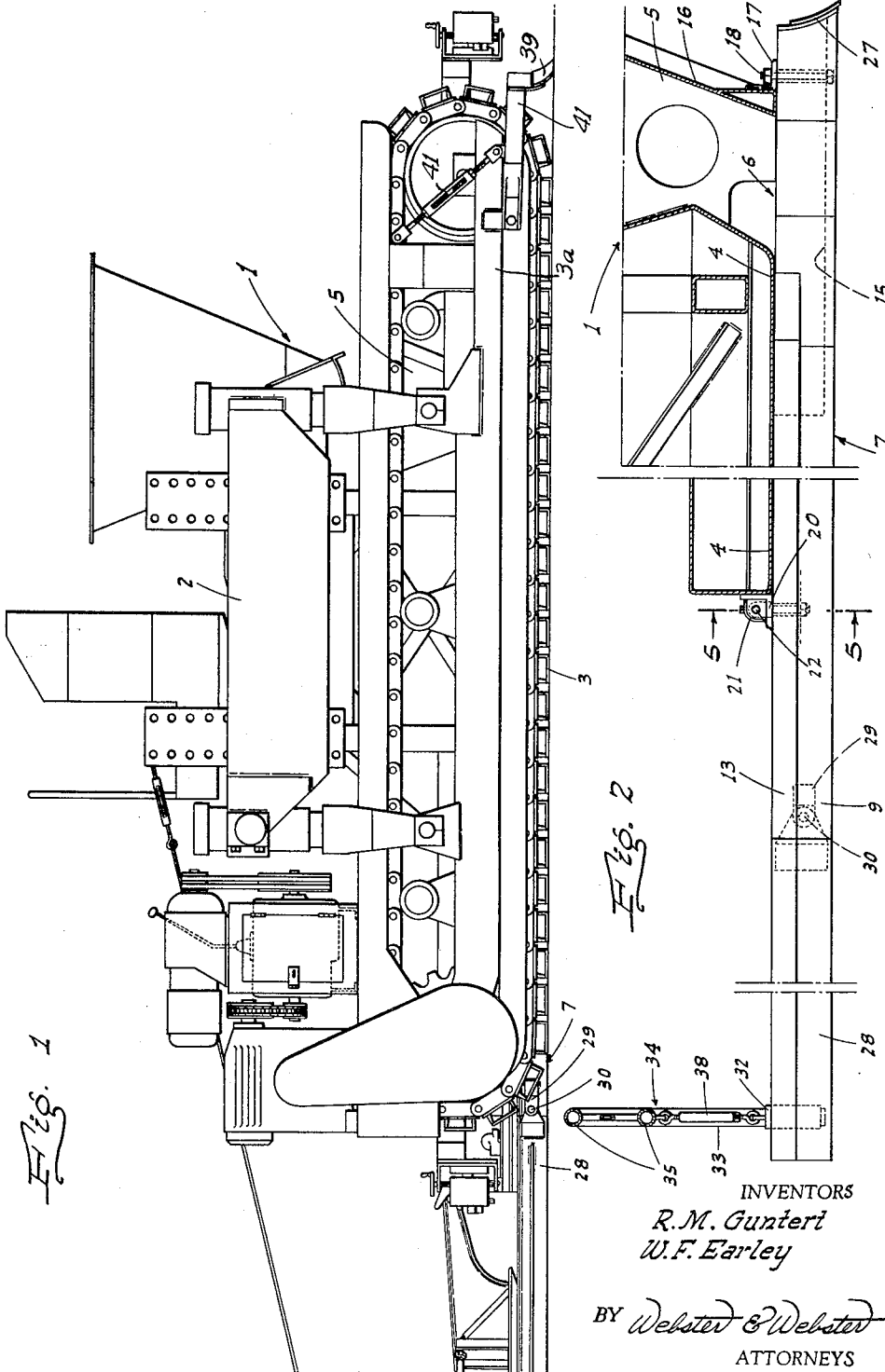
R. M. GUNTERT ETAL

3,098,414

HEADER ASSEMBLY FOR CONCRETE LAYING MACHINES

Filed March 18, 1960

2 Sheets-Sheet 1



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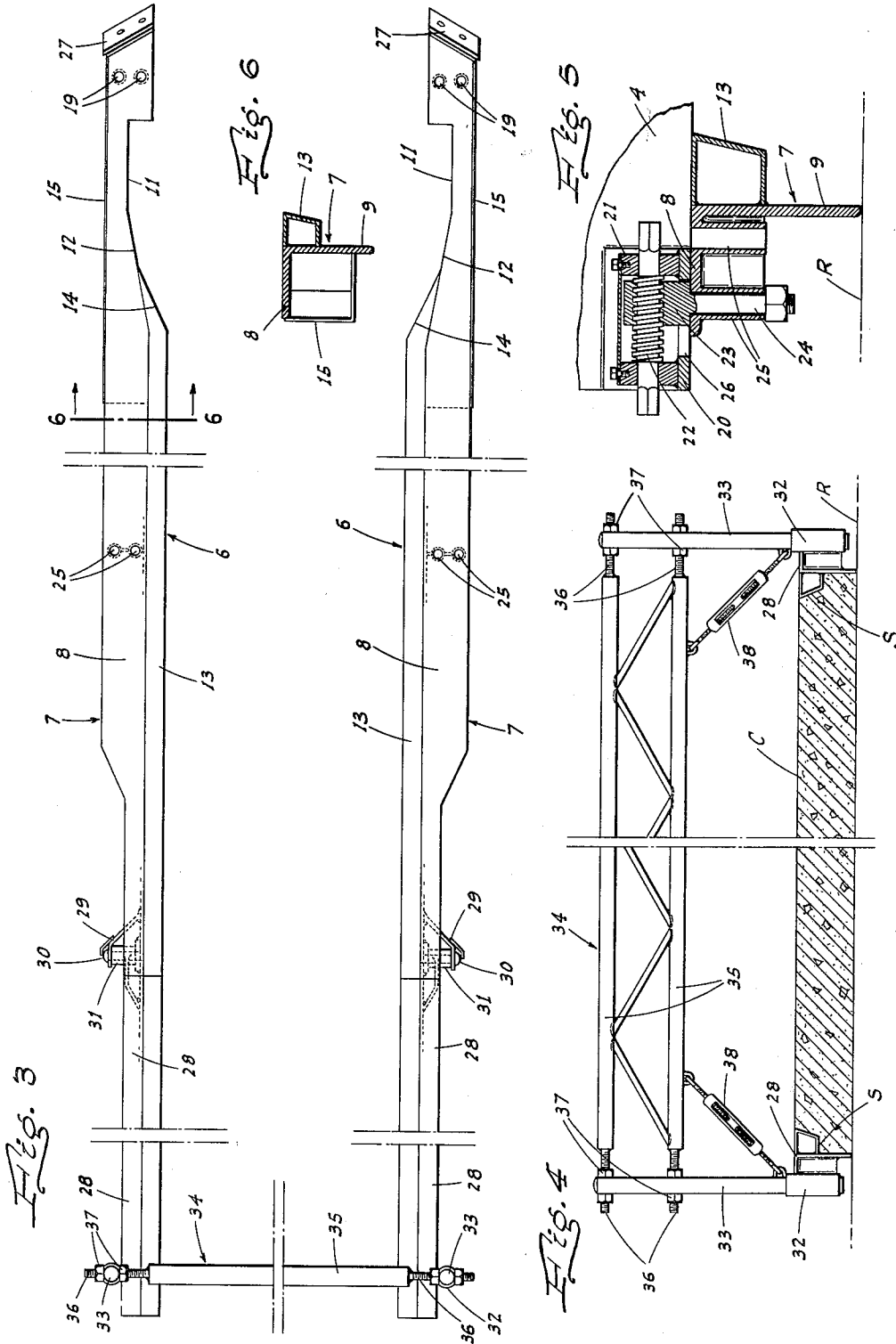
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HEADER ASSEMBLY FOR CONCRETE
LAYING MACHINES

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2 Claims. (Cl. 94-46)

This invention relates to headers or slip form such as are used to confine the side edges of concrete paving slabs as they are poured.

Such pouring, for large-scale jobs such as highway and air-strip paving and the like, is now frequently done by self-propelled concrete laying machines such as that shown in U.S. Patent No. 2,864,452, dated December 16, 1958, and a major object of this invention is to provide a header or slip form assembly which is mounted on and advances with the machine.

Another object of the invention is to mount the header assembly on the machine so that the width of the slab to be poured and confined may be adjusted, and so that the headers may be readily moved laterally and clear of the concrete, while still remaining on the machine, as at the termination of a day's run, so that said headers will not adhere to the concrete.

Since the headers advance with the machine as the concrete is poured, it is necessary that such headers be of sufficient length to assure setting of the concrete before the headers disengage the same.

A further object of this invention therefore is to provide extension headers detachably connected to and projecting from the rear ends of the machine-mounted headers. In this manner, a header assembly of any length may be provided, without having the same of such a permanently elongated nature as would make it hard to handle during transportation or storage.

A still further object of the invention is to construct the headers, in cross section, so that the concrete edges are of stepped form.

An additional object of the invention is to provide a practical, reliable, and durable header or slip form assembly for concrete laying machines, and one which will be 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 claims.

In the drawings:

FIG. 1 is a side elevation of a concrete laying machine, as equipped with the improved header assembly.

FIG. 2 is a somewhat enlarged foreshortened elevation of the left-hand header or side rail, looking laterally out and showing the header as mounted on the machine.

FIG. 3 is a foreshortened plan view of the header assembly, detached.

FIG. 4 is a foreshortened rear end view of the header assembly as engaged with the concrete.

FIG. 5 is a fragmentary enlarged cross section on line 5-5 of FIG. 2.

FIG. 6 is a cross section on line 6-6 of FIG. 3.

Referring now more particularly to the drawings, and to the characters of reference marked thereon, the concrete laying or paving machine to which the improved header assembly is applied is indicated generally at 1, and is mounted on and between bolsters 2 which support the endless track units 3 by means of which the machine is supported, in much the same manner as is shown in the previously mentioned patent, No. 2,864,452, dated December 16, 1958.

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The machine includes a pan or screed 4 under the forward end of which the concrete C being laid is fed from a transverse distributing hopper 5 on the machine, as shown particularly in copending application, Serial No. 15,871, filed March 18, 1960.

The header assembly includes a pair of main headers or side rails, indicated generally at 6. Each such rail comprises an elongated member 7 of angle form in section with the horizontal flange 8 of the angle on top and the vertical leg 9 thereof facing laterally in relation to flange 8. The upper surface of flange 8 is flat throughout its extent, and bears for the major portion of its length against the under side of pan 4, as shown in FIG. 2.

The member 7 extends a short distance ahead of the pan 4 and hopper 5, as shown in FIG. 2, and for the length of and aligned with the mouth of the hopper the laterally inner side of member 7 is abruptly set back or deflected laterally out, as shown at 11; such set back to the rear of the hopper mouth then following a gradual slope to the main or normal line of the inner face of member 7, as shown at 12.

Secured to the laterally inner face of leg 9 of member 7 and extending from the rear end thereof to the set-back portion 11 is a hollow projection 13 of box-like section. This projection, the height of which is materially less than that of leg 9, is disposed so that its top surface is level with the flange 8 of member 7, and thus forms a step S in the concrete along the side edges of which the header is moving, as clearly shown in FIG. 4.

At its forward end, the inner face of projection 13 slopes laterally out to a termination at the sloping face 12 of flange 8, as shown at 14. By reason of the set-back 11 and the sloping faces 12 and 14 of the header members, the concrete as initially discharged from the hopper for its full width is engaged and gradually confined between the headers, as is desired.

The forward portion of member 7 is stiffened by an angle member 15 disposed under flange 8 in facing relation to the angle of member 7, and connected along its edges to said flange and the leg 9, as shown in FIG. 6.

Each header is adjustably secured to the pan 4 and hopper 5 in the following manner:

Secured to the front wall 16 of the hopper adjacent one end thereof is an angle bracket 17 which supports a bolt 18 projecting through either one or the other of a pair of transversely spaced holes 19 in the flange 8 adjacent its forward end (see FIG. 3).

A similar angle bracket 20 is fixed on the rear end of pan 4, on which a housing 21 is mounted. A screw shaft 22, extending transversely of the header, is journaled against axial movement in the ends of the housing; the shaft at its ends projecting from the housing for engagement at either end by a wrench for rotating said shaft.

The screw shaft within the housing is threaded through a block 23. Depending from and rigid with the block 23 is a bolt 24 projecting through either one of a pair of transversely spaced sleeves 25 rigid with and depending from the flange 8 of member 7. The spacing of sleeves 25 is the same as that of holes 19. The block 23 is movable transversely of the housing 22, as the screw shaft is rotated, through a slot 26 in the bottom of the bracket 20.

By reason of the above arrangement, the distance between the opposed headers may be adjusted by placing the mounting bolts 18 and 24 in either the laterally inner or outer holes 19 and sleeves 25, respectively. When the headers are in a working and parallel position, the bolt 24 of each header is disposed in its laterally innermost position by suitable rotation of the screw shaft 22. When it is desired to withdraw the headers from engagement with the concrete, without detaching the headers from the machine, the screw shaft 22 of each header is rotated in a direction to shift the corresponding bolt 24

laterally out. This swings the entire header laterally out about the front-end bolt 19 as an axis; thus moving the header away from the concrete. This is necessary to prevent adhering of the header to the concrete when the machine is idle, as when operations are halted for the day.

The headers ride on the previously graded road bed R, and each header at its forward end is provided with a forwardly sloping and laterally angled scraper blade 27 which projects below the bottom level of the header slightly so as to engage and level off any slight humps or the like in the roadbed in the path of the headers, and which would interfere with the necessary flat engagement of the headers with such roadbed.

This leveling of the roadbed where engaged by the headers is an important feature. Without the scraper blades 27, either header would lift from its intended level when passing over any humps etc. in its path. Such lifting would also lift the concrete smoothing pan 4 which is engaged by the headers, and would cause the smoothing level of the pan to be disturbed and altered as long as the header remained engaged with such hump.

The header assembly preferably includes header extensions 28, separate from the main headers 7 but of the same cross sectional form as said main headers, and adapted to butt-engage and align therewith. Each header 7 at its rear end and on its outer side is provided with a yoke 29 which faces rearwardly and is adapted to receive a transverse-axis pin 30. Each extension header 28 adjacent its rear end is provided on the outside with a vertical-axis socket 32 adapted to removably receive the lower end of an adjacent upstanding end post 33 which forms part of a transverse tie bar unit 34. This unit includes a pair of parallel bars 35 disposed in a common vertical plane and provided at their ends with threaded studs 36 adapted to slidably project through holes in the posts 33.

Adjustable nuts 37 on the studs 36 engage the posts 33 on opposite sides thereof and enable the spacing of the opposed posts 33—and of the header extensions 28—to be altered to correspond to a change of spacing of the main headers in the manner previously described.

The tie bar unit also includes disengageable bracing turnbuckles 38 connected between the lower tie bar 35 and the posts 33. In this way, the various headers which make up the complete header assembly are maintained in rigid and parallel relationship when in operation. When it is desired to disengage the headers from the concrete by manipulation of the screw shaft 22 as previously recited, the tie bar unit 34 is first detached from the header extensions 28 by pulling the posts 33 out of the sockets 32 so that said extensions may swing out with the headers 7 as a unit.

It should be noted that as many extension headers are employed as may be desired or required to make a header assembly having a total length sufficient to allow the concrete poured and engaged by the headers as the machine advances, to be set before the headers move ahead and leave the side edges of the concrete. At the same time, the awkwardness and inconvenience of manipulation, for transportation or storage, of an excessively long header assembly incapable of being shortened or dismantled is avoided.

The steps S formed along the side edges of the concrete by the header projections 13 not only help to prevent such edges from falling away or slumping, but provide for a stepped or overlapping joint with the next lateral slab when the latter is poured, and when such stepped edge of the first slab takes the place of a header for the corresponding side of the next slab. In this case of course one or the other of the headers is detached from

the paving machine, and the tie bar unit 34 is not used.

A feature of equal importance to the scraper blades 27 is the provision of similar blades 39, one for each track unit 3. Each such blade 39 is disposed directly ahead and in the path of the adjacent track in position to remove or level off any obstructions or humps in such path.

Each blade 39 is mounted on one end of a substantially horizontal arm 40 pivotally mounted on the frame 3a of unit 3. An adjustable brace 41 connects the arm 40 intermediate its ends to the frame 3a so that the blade 39 may be adjusted downwardly as wear develops.

The endless track units are thus maintained against longitudinal teetering movement such as would cause an unwarranted action of the feeler units which are mounted on the frames 3a, as shown in said Patent No. 2,864,452, and whose action controls the level of the concrete smoothing pan.

From the foregoing description it will be readily seen that there has been produced such a device as will substantially fulfill the objects of the invention, as set forth herein.

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

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

1. A header assembly for a concrete laying machine having a transverse downwardly discharging concrete distributing hopper, and a concrete engaging pan projecting rearwardly from the hopper; the assembly comprising a pair of transversely opposed headers projecting rearwardly from ahead of and adjacent the side edges of the hopper below the same, the headers extending beyond the rear end of the pan and contacting the same, and means mounting the headers in fixed connection with the hopper and pan; the mounting means for each header comprising brackets on the machine at the front end of the hopper and at the rear end of the pan and overlying such header, a vertical pivot bolt connecting the header and the front end bracket, another bolt depending from the other bracket and connected to the header, and means between said other bracket and bolt to shift the other bolt laterally whereby the header will be swung in a horizontal plane about the pivot bolt as an axis.

2. An assembly, as in claim 1, in which the last named means comprises a block rigid with the upper end of the other bolt, a transverse manually turnable axially immovable screw shaft projecting in threaded relation through the block, and journal elements for the shaft fixed on said other bracket and between which the block is movably disposed.

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