Feb. 15, 1966 F. E. APPEL 3,234,861

ADJUSTABLE HEADER ASSEMBLY FOR ROAD-BUILDING MACHINERY

Filed Aug. 10, 1962 3 Sheets-Sheet 1

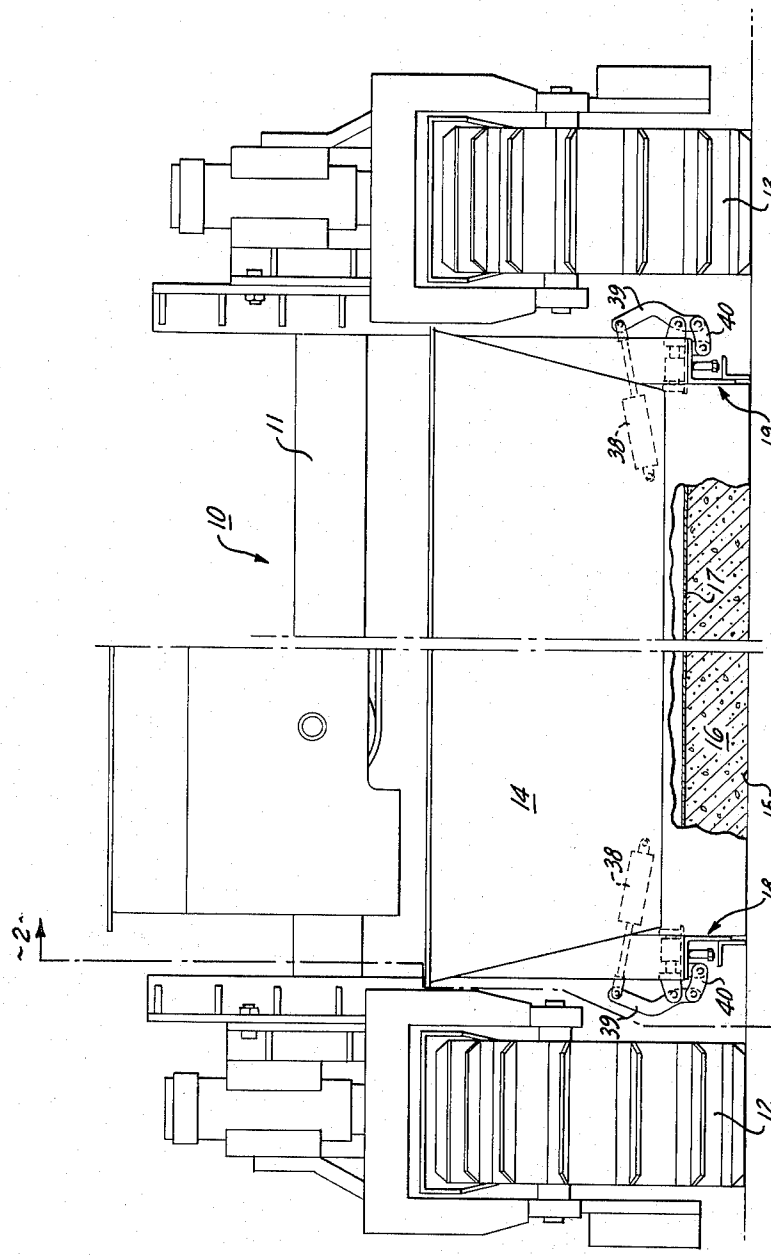


FIG. 1

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FIG. 2

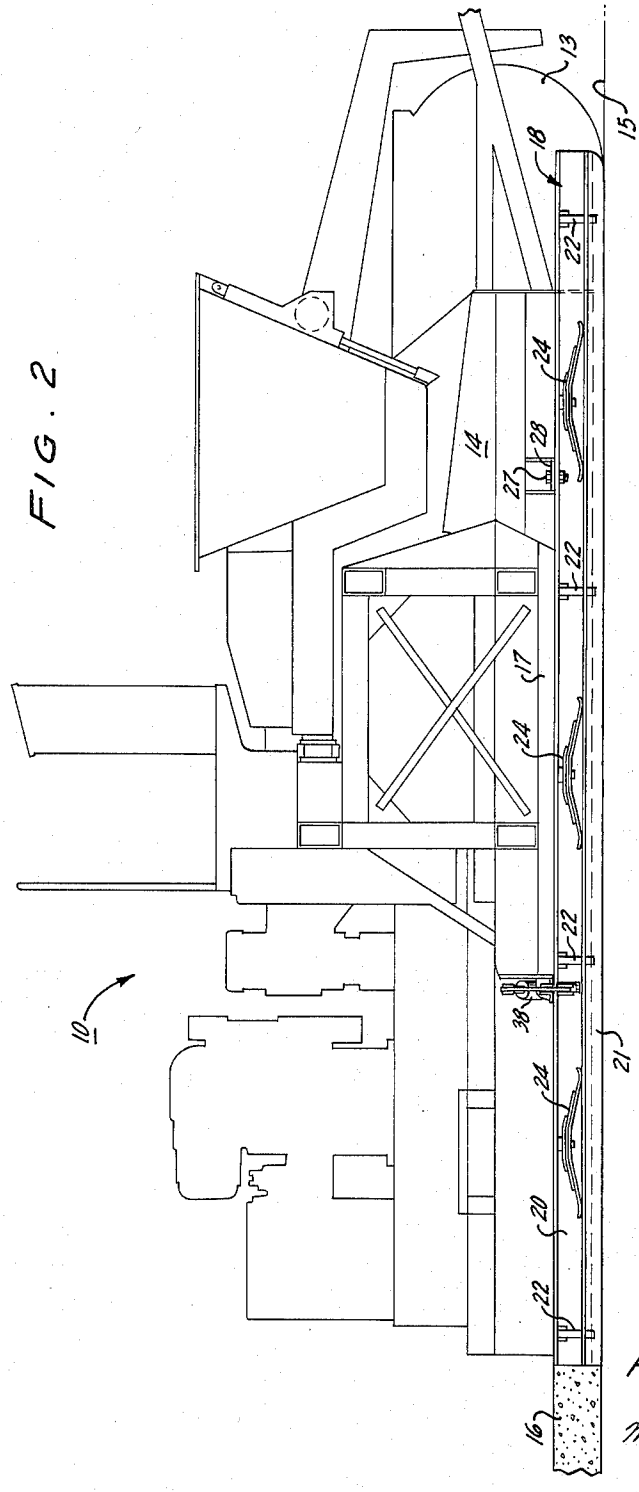
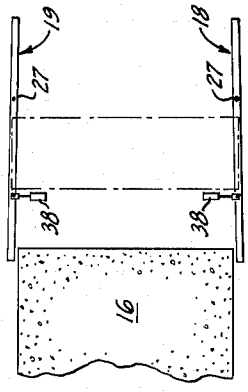


FIG. 7



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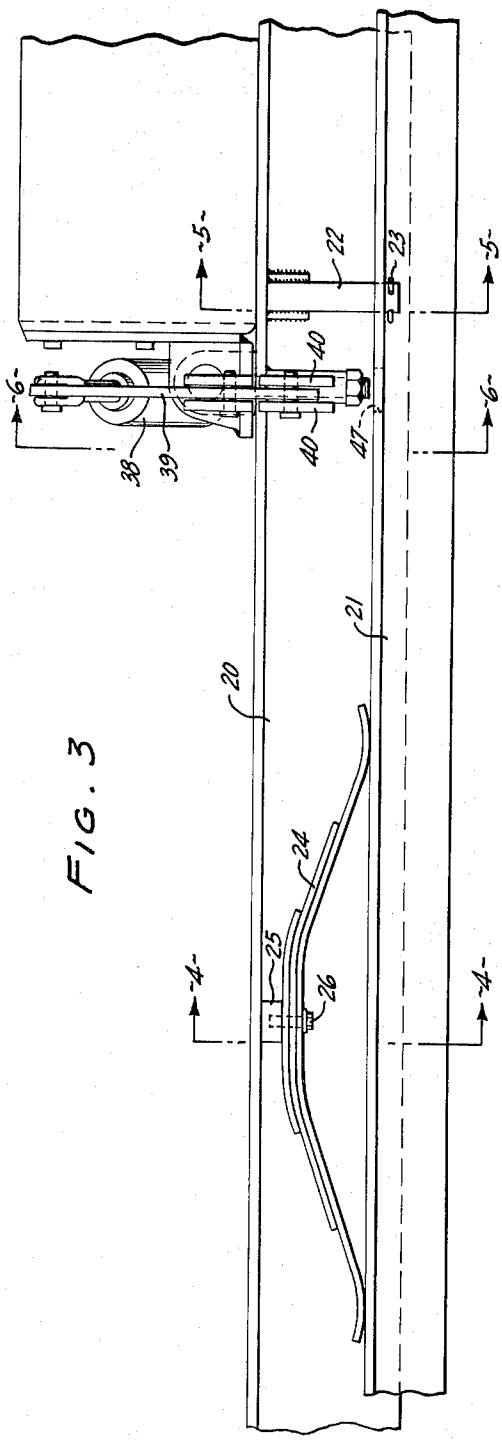


FIG. 3

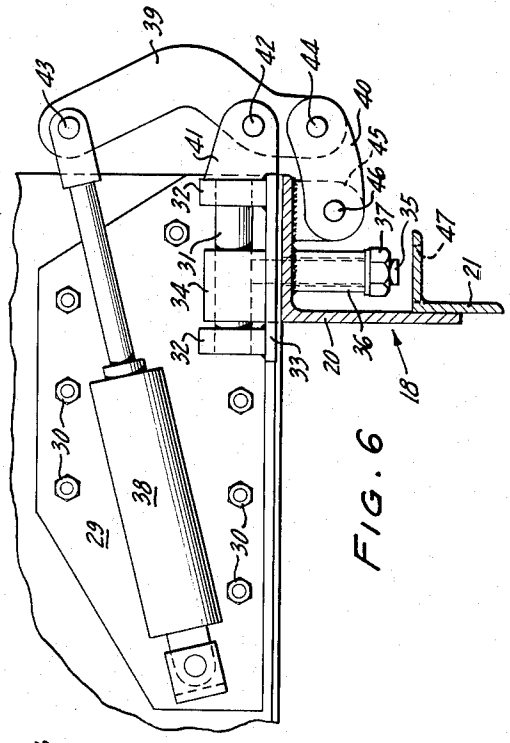


FIG. 6

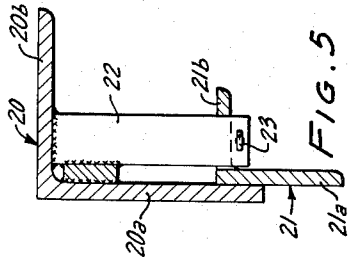


FIG. 5

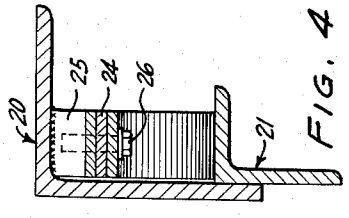


FIG. 4

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ADJUSTABLE HEADER ASSEMBLY FOR ROAD-BUILDING MACHINERY

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1 Claim. (Cl. 94—46)

This invention relates to road-building machinery and more specifically to an adjustable header assembly for use therewith.

It is to be recognized that the prior art structures include road-building machinery including header assemblies secured thereto and movable therewith for laterally containing base material or cementitious material. These prior art road-building machines, however, employed an arrangement that mounted a pair of header members rigidly relative to a screed pan. Accordingly, if the subgrade in advance of the machine should fall, relative to the desired grade to which the screed pan is adjustably held, the material contained between the headers tends to seek that line of least resistance and flow out underneath the headers, causing a wastage. Such prior art structures were particularly troublesome when used in connection with the more modern machinery controlled automatically by grade wires. If the subgrade on which the material such as concrete is being placed is not perfect, and if it rises and falls in relation to the established line of grade, a rise in the subgrade relative to the line of grade fixed by a grade wire would cause the fixed headers to come into contact with the ground. In many instances, the automatically controlled machine would lose control of itself, for although the machine were receiving a signal through the control of the grade wire, indicating that the screed pan should be lowered, the screed pan could not come down because of the contact between the header and the ground. Thus, an irregularity in the subgrade might cause the machine to be grounded on the subgrade.

In brief, the present invention contemplates an adjustable header assembly that will adjust itself to the irregularities of a grade, thereby preventing the machine from grounding on the subgrade and avoiding the wastage of concrete or other material being laid.

One object of this invention is to provide a unitized header assembly adapted to be mounted to a road-building machine comprising a header and support member, a header member, and vertical yieldable means for mounting said header member from said header and support member.

Another object of this invention is to provide a header assembly of the type described including a plurality of springs disposed intermediate a header and support member and a header member that resiliently urges the header member vertically downward into contact with the ground.

Another and more specific object of the invention is to provide a header assembly of the type described wherein the springs which resiliently urge the header member downward into contact with the ground comprise at least one set of leaf springs rigidly secured to a header and support member and having spaced ends bearing against an auxiliary header member.

It is another object of this invention to provide a header assembly comprising a header and support member, a header member, and means for mounting the header member to its header and support member including a plurality of vertical mounting guides provided on one of said members, said other member being formed with vertically aligned openings relative to each guide and respectively receiving said guides therethrough, each

mounting guide being provided with means preventing a vertical withdrawal from its respectively aligned opening.

A further object of the invention is to provide a unitized header assembly of the kind described including a support means for horizontally adjusting a header member transversely relative to the road-building machine to which it is mounted.

Another object is to provide a header assembly and support means therefor comprising means for pivotally mounting the front end of a header and support member upon a vertical axis, and including means for mounting the rear end of said header and support member to provide horizontal and transverse adjustment.

A still further object of the invention is to provide a unitized header assembly including a support means therefor comprising a horizontal slide bar mounted to a road-building machine, a sleeve support secured to a header and support member and mounted upon said slide bar, and including a fluid-operated means for adjustably moving said sleeve along said slide bar.

Other objects of this invention will become apparent in view of the following detailed description and the accompanying drawings.

In the drawings forming a part of this application and in which like parts are identified by like reference numerals throughout the same,

FIG. 1 is a front end view of a road-building machine having header assemblies constructed and mounted thereon in accordance with the teaching of the present invention;

FIG. 2 is a side elevation and section taken on lines 2—2 of FIG. 1;

FIG. 3 is an enlarged detail and fragmentary view of a portion of a header assembly shown in FIG. 2;

FIG. 4 is a section taken on lines 4—4 of FIG. 3;

FIG. 5 is a section taken on lines 5—5 of FIG. 3;

FIG. 6 is a section taken on lines 6—6 of FIG. 3;

FIG. 7 is a diagrammatic plan view of a pair of header assemblies mounted to the road-building machine shown, and illustrating the manner in which they may be adjusted transversely relative to the roadway.

Referring to FIGS. 1 and 2 of the drawings, there is shown a road-building machine generally indicated by reference numeral 10 and generally comprising a support framework 11 mounted on ground-engaging supporting tracks 12 and 13. The machine further includes a transversely extending distributing hopper 14 from which concrete is deposited onto a prepared roadbed 15 to form a strip of pavement 16, the thickness of which is determined by a screed pan 17 mounted to framework 11 directly behind the hopper. The width of pavement 16 is determined by a pair of header assemblies 18 and 19 extending longitudinally of the machine and intermediate track units 12 and 13.

It should be understood that the above described arrangement of apparatus forms no part of this invention in and of itself. More particularly, the present invention relates to the manner of construction and mounting of header assemblies 18 and 19 which is shown in greater detail in FIGS. 2–6, and are of symmetrical construction.

Each header assembly embodies a unitized construction comprising a header and support member 20, a header member 21, and vertical yieldable means for mounting said header member from said header and support member. Referring to FIGS. 2 and 3, members 20 and 21 are constructed from angle plates having vertical, overlapping sides 20*a* and 21*a*, respectively. The vertical yieldable means comprises a plurality of vertical mounting guides 22 welded to the horizontal flange 20*b* of angle plate 20, and the horizontal flange 21*b* of angle plate 21 is formed with vertically aligned openings relative

to each guide for respectively receiving said guide therethrough. Each mounting guide **22** is provided with a cotter pin **23** or other means for preventing a vertical withdrawl of the guide from its respectively aligned opening in plate **21** through which it is received.

Header assemblies **18** and **19** further comprise a plurality of leaf springs **24** arranged in sets and disposed intermediate the header and support member **20** and header member **21**. The leaf springs are rigidly secured to a mounting block **25** provided on flange **20***b*, said springs being held thereto by a bolt **26**. The spaced ends of springs **24** bear against the top surface of flange **21***b*, resiliently urging said header member vertically downward into contact with the ground.

The header assemblies **18** and **19** are mounted to the road-building machine in a manner permitting an adjustment of the header support members transversely relative to the machine. Referring to FIG. 2, a bolt connection **27** is employed for pivotally mounting the leading end of each header support member **20** from a flange plate **28**, said plate forming a portion of the frame **11** of machine **10**. The trailing end of each header support member **20** is mounted to the machine upon a sliding block arrangement as shown in FIGS. 1, 3 and 6. A mounting plate **29** is secured to the frame **11** by means of a plurality of bolts **30**, said mounting plate extending in a plane transverse of the machine and supporting a shaft **31** between a pair of mounting blocks **32** welded to a slotted plate **33** projecting outwardly therefrom.

A sleeve support **34** is supported on the rod **31**, being slidable therealong and having a support bolt **35** extending downwardly through the slot of plate **33** and a mounting sleeve **36** welded to the under surface of the horizontal flange **20***b*. As best shown in FIGS. 3 and 6, a nut **37** supports header assembly **18** from shaft **35** by contact with the sleeve **36**. Moreover, it will be apparent that sleeve support **34** and header assembly **18** can be adjustably positioned in the direction of rod **31** and transverse to machine **10**.

Assembly **18** is further interconnected with mounting plate **29** by an actuating mechanism comprising a fluid-operated cylinder **38** and a linkage mechanism comprising links **39** and **40**. Link **39** is pivoted to an ear **41** welded to plates **32** and **33** by a pin **42**, and pivotally connects to the rod of cylinder **38** by a pin **43** and to links **40** by a pin **44**. Link **40** is in turn pivoted to an ear **45** welded to the under surface of the horizontal flange **20***b* forming a part of header and support member **20** by a pin **46**. A clearance opening **47** is provided in the horizontal flange of header plate **21**, said opening being axially aligned with rod **35** and nut **37**. Accordingly, header member **21** may be moved upwardly against the resilient bias of springs **24** without coming into contact with rod **35** or the other mounting members **36** and **37**.

A positioning of fluid cylinder **38** will of course actuate links **39** and **40**, thereby adjustably positioning header assembly **18**. Header assembly **19** is mounted to the machine by a similar and symmetrical arrangement of apparatus and having its own fluid cylinder **38** providing horizontal and transverse adjustment, as indicated in FIG. 1.

The operation of assemblies **18** and **19** during the forward advancement of machine **10** will be apparent in view of the drawings, and it will be realized that the retaining depth of each assembly will be automatically adjusted with a change in distance between the prepared roadbed **15** and the screed pan **17**. If the pan **17** and framework **11** should be raised upward relative to the roadbed, as in response to signals from a grade control device, header and support members **20** would also be elevated. Nevertheless, header members **21** would be retained in contact position with the ground by the vertical yieldable connection between it and its header and support member **20**. Leaf springs **24** would supplement the weight of the members **21** to force them into contact with the ground, thereby preventing leakage from beneath with consequent wastage. It will also be evident that each of the header assemblies **18** and **19** is adjusted vertically independently of the other. Thus, a grade change on either side will be properly compensated without affecting the adjustment of the other.

A lowering of framework **11** and pan **17** would, of course, tend to force header assemblies **18** and **19** into the ground, and except for their unique construction this might produce a grounding of the machine. However, since the header members **21** can slide vertically relative to header and support members **20** and move against the bias of springs **24**, any tendency of the machine to ground itself upon a prepared roadbed is averted.

Referring to the diagrammatic showing of header assemblies **18** and **19**, FIG. 7, each assembly, it will be seen, is pivotally supported from its front end by the bolt connections **27**, the rear end of said assemblies being laterally actuated by cylinders **38**. The structure shown obviously permits the headers to be spread apart at the back of the machine, thereby allowing the machine to back over the end of a previous day's pour, as illustrated. After the machine has been so positioned, the headers are then moved inward the proper width by means of the hydraulically controlled linkage.

It will be noted that the header assemblies **18** and **19** are of a unitized construction allowing them to be assembled at a factory and mounted to a road-building machine at its point of use.

It is to be understood that the form of the invention herewith shown and described is to be taken as a preferred example thereof, and that various changes may be made in the shape, size and arrangement of certain parts without departing from the spirit of the invention or the scope of the attached claim, and each of such changes is contemplated.

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

In combination, a road-building machine of the traveling type, having ground-engaging tracks on either side thereof; a pair of adjustable header assemblies disposed intermediate said ground-engaging tracks and extending longitudinally of said machine; each header assembly comprising a support member having a vertical retaining side and mounted to said machine, a lower header member having a vertical retaining side and a horizontally disposed flange having an opening therein, and vertically yieldable means mounting said header member from said support member said means including a mounting guide projecting downwardly from said support member but spaced therefrom and extending into said opening, means for preventing withdrawal of said mounting guide from said opening, and resilient means acting upon said horizontal flange for urging said flange downwardly relative to said support member, said vertical retaining sides being complementary to one another to thereby provide a retaining surface of adjustable depth.

References Cited by the Examiner

UNITED STATES PATENTS

1,970,391	8/1934	Nickerson	94—46 X
2,197,878	4/1940	Robinson	94—44
2,245,426	6/1941	Baker	94—46
2,403,820	7/1946	Miller	94—44
2,591,502	4/1952	Bohannan	94—46
2,779,258	1/1957	Johnson	94—46
2,888,864	6/1959	Plas	94—46
3,031,938	5/1962	Bero	96—46
3,098,414	7/1963	Guntert	94—46

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