

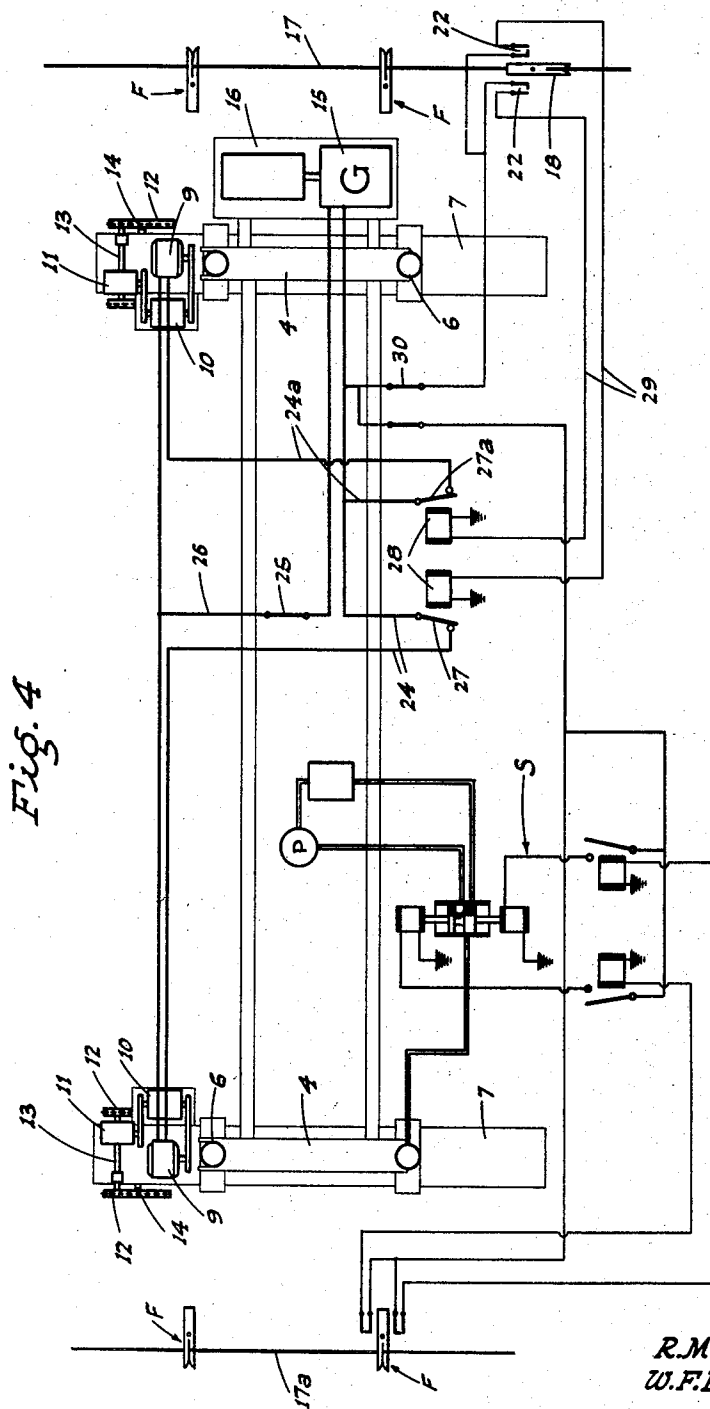
Oct. 6, 1959

R. M. GUNTERT ET AL
SUPPORTING, DRIVING, AND STEERING MECHANISM
FOR SLAB LAYING MACHINES

2,907,398

Original Filed Nov. 5, 1956

2 Sheets-Sheet 2



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Fig. 1

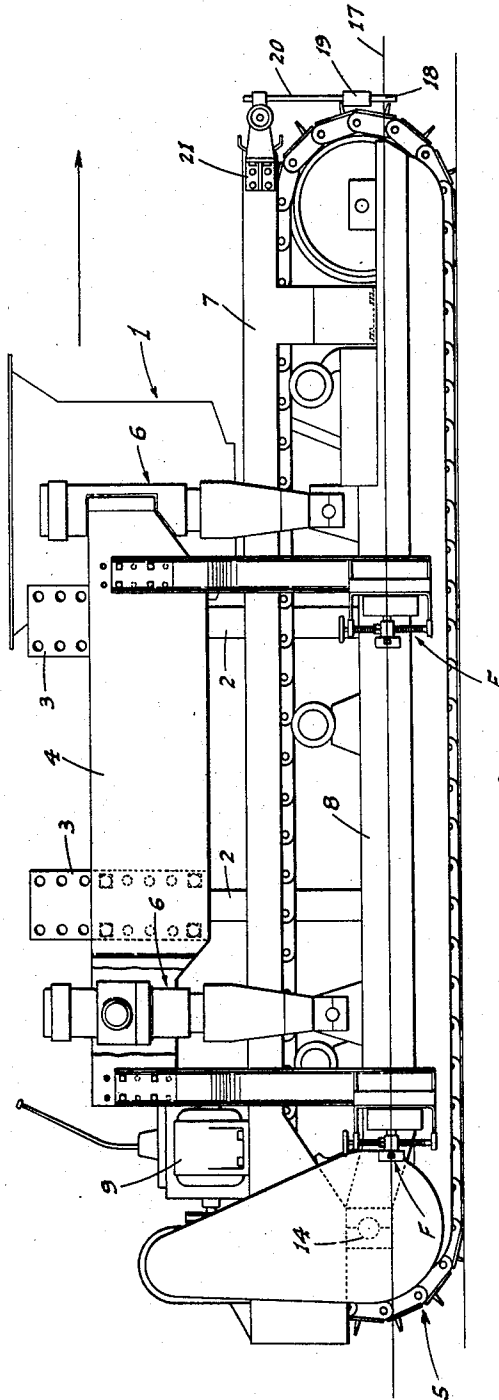


Fig. 3

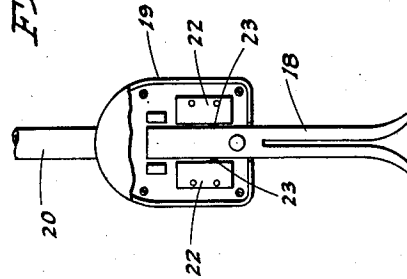
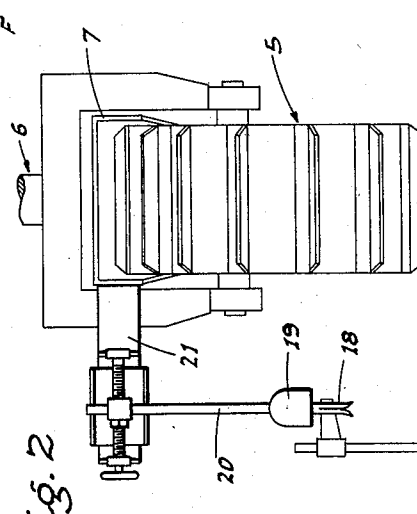


Fig. 2



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SUPPORTING, DRIVING, AND STEERING MECHANISM FOR SLAB LAYING MACHINES

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Original application November 5, 1956, Serial No. 620,498, now Patent No. 2,864,452, dated December 16, 1958. Divided and this application July 7, 1958, Serial No. 747,073

1 Claim. (Cl. 180—6.5)

This invention relates to concrete slab laying machines, and particularly to a means for driving and steering the machine; this application being a division of copending United States patent application, Serial No. 620,498, filed November 5, 1956, now Patent No. 2,864,452.

The machine includes endless track units by which the concrete laying assembly is supported, and means to separately self-propel the units at the same speed; and the major object of this invention is to provide automatically functioning means, actuated by a horizontally disposed grade and lateral-direction control wire, to cause the machine to be steered as it advances, by intermittently discontinuing the drive of one track unit or the other.

Another object of the invention is to provide a practical, reliable, and durable supporting, driving, and steering mechanism for concrete slab 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 claim.

In the drawings:

Fig. 1 is a side elevation of the machine as equipped with the improved driving and steering control means.

Fig. 2 is a fragmentary front end elevation, of one endless track unit, showing the steering-control feeler unit mounted thereon.

Fig. 3 is a fragmentary enlarged end elevation, partly broken out, of the feeler unit.

Fig. 4 is a diagram, mainly in plan, of the track units of the machine, showing particularly the drive mechanisms for the units and the grade-wire controlled steering-circuit arrangement for such mechanisms.

Referring now more particularly to the drawings and to the characters of reference marked thereon, the concrete laying or paving structure of the machine, and which of itself forms no part of this invention, is indicated generally at 1, and is mounted in a frame which includes longitudinally spaced side uprights 2 having outwardly facing plates 3 on their upper end portions.

The plates 3 on each side of the machine engage and are detachably secured to a bolster 4 in the manner shown and described in the above mentioned copending application. Directly below the bolster is an endless track unit 5, connected to the bolster by vertical hydraulic ram units 6 depending from the bolster adjacent its ends.

A rigid fender 7 extends over the track unit 5 for substantially the full length thereof, and is supported from the frame 8 of the track unit.

A driving mechanism for the track of unit 5 is mounted on the rear end portion of the fender 7 rearwardly of the bolster 4. This mechanism comprises an electric motor 9, and—as shown diagrammatically in Fig. 4—a change-speed transmission 10 driven from the motor; a reduction gear unit 11 driven from the transmission and chain drives 12 connecting the output shaft 13 of the gear unit

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on both sides of the track and the transverse drive shaft 14 of said track.

Each track unit has its own independent drive mechanism, and current for the motors 9 of both units is obtained from an engine-driven generator 15 mounted on a platform 16 disposed laterally out from and mounted on one of the bolsters 4.

In order to control the operation of the motors so as to automatically steer the machine as it advances, the following arrangement is provided:

A taut grade wire 17 is mounted alongside the machine and is set so as to be parallel to the horizontal path which it is desired the paving shall follow. This wire is straddled from above by a prong-like probe or feeler 18 which is pivoted intermediate its ends in a housing 19 depending from a shank 20. This shank is supported from a bracket 21 mounted on one side of the adjacent fender 7 near the front end thereof, as shown in Fig. 1. The feeler unit of which the feeler 18 is a part is preferably constructed as specifically shown and described in said copending application, Serial No. 620,498.

A pair of normally open sensitive limit switches 22 are mounted in the housing 19 above the pivot of the feeler and on opposite sides thereof, as shown; each switch including a press button 23 which engages the adjacent face of the feeler 18 even when said feeler is in a neutral position and the switch is open.

By reason of the above described mounting of the feeler, the probe-actuated switches 22 are alternately closed upon lateral swinging of said feeler to one side or the other, as the grade wire 17 deviates from a straight line.

The motors 9 are connected to the generator 15 in parallel by separate circuits 24 and 24a; a hand switch 25 being interposed in the common line 26 of such circuits. Interposed in circuits 24 and 24a are normally closed relay switches 27 and 27a respectively; the actuating coils 28 of such relays being connected to the switches 22 by circuit wires 29.

Since the switches 27 and 27a are normally closed, the motors 9 are normally energized, and thus drive the track units to advance the machine; said motors having the same speed and power so that the machine will travel a path or course designated by the grade wire 17.

The actuating circuits for the relay switches 27 and 27a are arranged relative to the feeler actuated switches 22 so that when the grade wire deviates to the right, for instance, and the upper portion of the feeler 18 swings to the left, the relay coil 28 of the right-hand motor control circuit 24a will be actuated to open the switch 27a.

The right hand motor 9 will thus be deenergized, and the left hand motor will continue to operate so as to cause the machine to be turned to the right. Conversely, if the grade wire deviates to the left, the left hand motor will be deenergized, while the right hand motor will continue to function to turn the machine to the left.

In case it is desired that the automatic steering unit shall not function, a hand switch 30 is interposed in the current feed line 31 of circuits 29.

The grade wire 17 and a corresponding wire 17a on the opposite side of the machine serve to engage the various feelers F by means of which the operation of the rams 6 is controlled, as fully set forth in the copending application, Serial No. 620,498, previously identified. The control system for one such ram is shown in Fig. 4, and indicated generally at S; the one generator 15 also supplying the current necessary for the operation of this system.

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 claim.

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

In a concrete-slab laying machine, endless track units arranged in supporting relation to the machine at the sides thereof, an independently operating power device mounted on the units and operatively connected in driving relation thereto, a normally idle control mechanism for each device arranged when actuated to render such power device inactive, a taut wire supported from the ground to one side of the machine and following a predetermined course in a horizontal plane, and a feeler unit mounted on the machine to control the actuation of the

control mechanism and including a movable wire engaging element arranged upon deviation of the wire in one horizontal direction or the other from a course line, to actuate one or the other of the mechanisms.

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