April 7, 1953 C. H. CLEMENT 2,633,782

CEMENT TAMPING MACHINE

Filed Oct. 19, 1950 2 SHEETS—SHEET 1

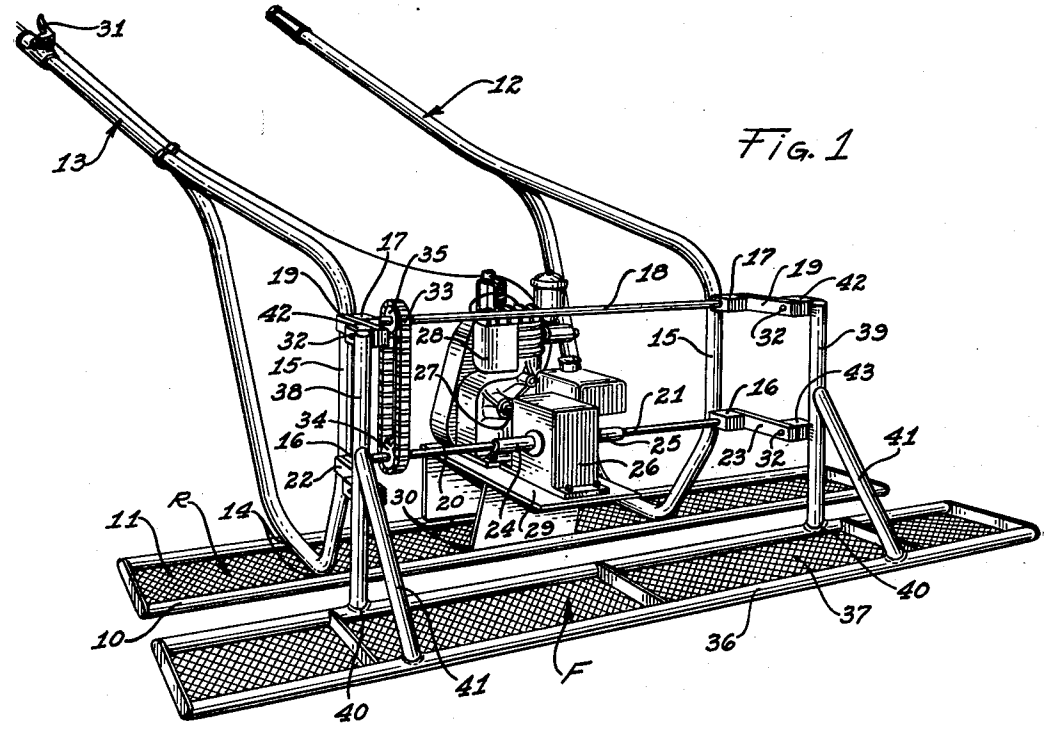


Fig. 1

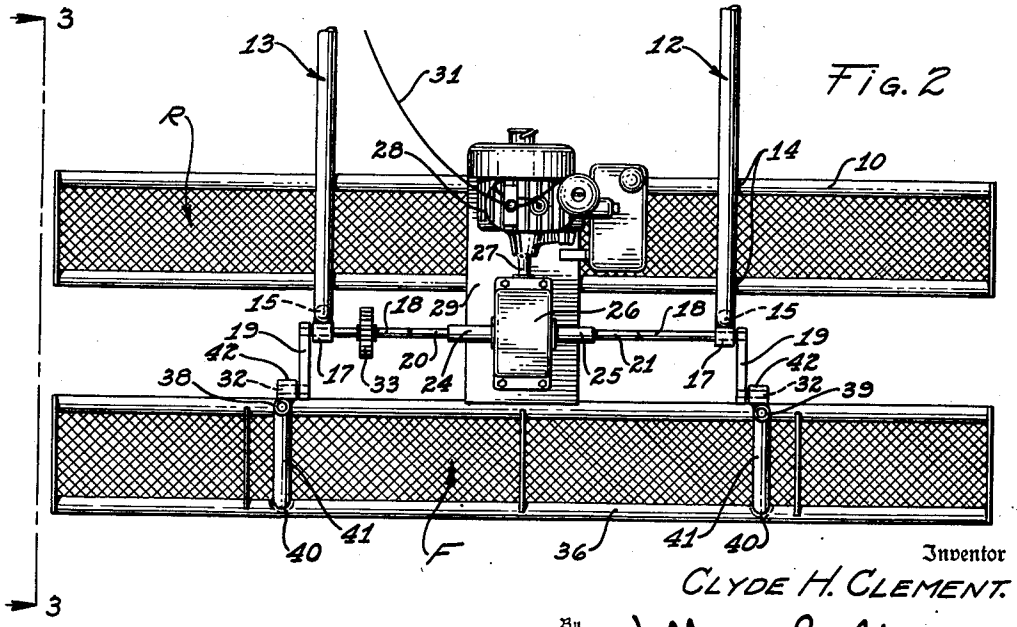


Fig. 2

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CEMENT TAMPING MACHINE

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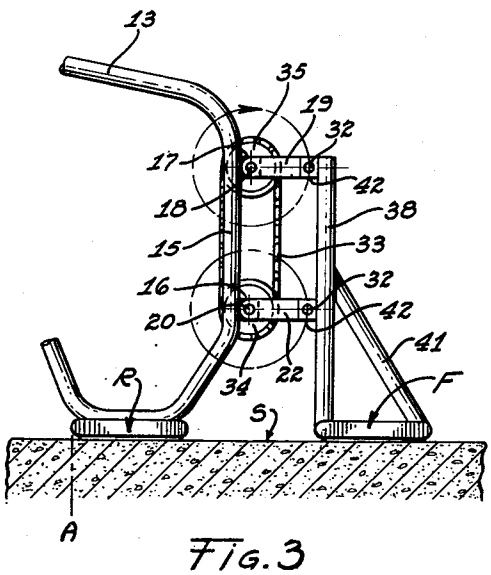


FIG. 3

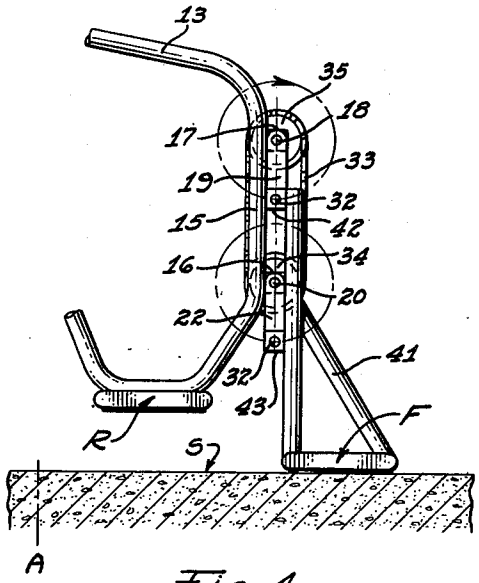


FIG. 4

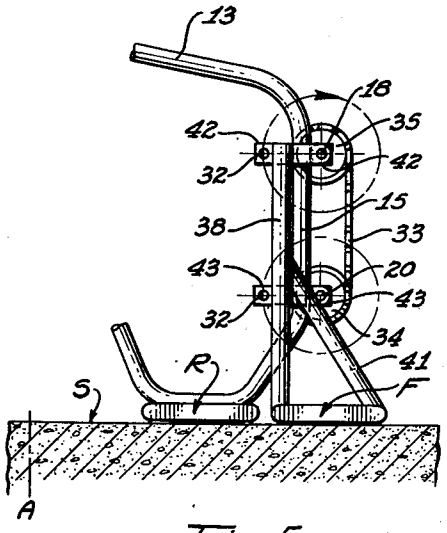


FIG. 5

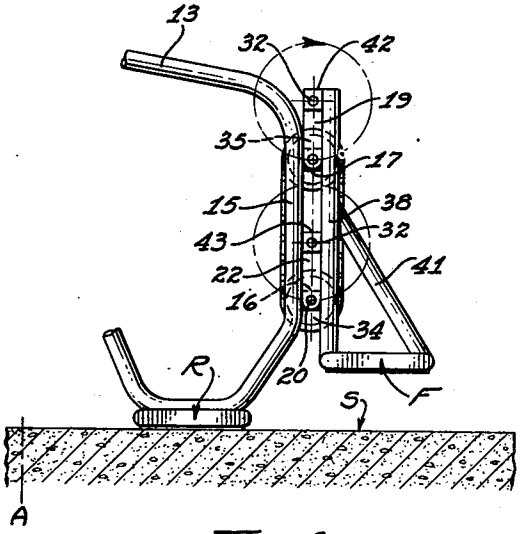


FIG. 6

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CEMENT TAMPING MACHINE

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2 Claims. (Cl. 94—49)

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This invention pertains to improvements in cement finishing machinery, and is particularly directed to improvements in machines for tamping and compacting poured cement and concrete.

One of the objects of this invention is to provide a cement tamping machine having a true tamping action to properly compact the liquid cement in the forms to eliminate entrapped air and to compact the aggregate in proper manner.

Another object of this invention is to provide a cement tamping machine having a walking action which may automatically progressively proceed over a poured cement surface to compact the aggregates.

It is a further object of this invention to provide a cement tamping machine which is motor driven and may be reversably operated in a walking manner to progressively proceed in any direction over a poured concrete surface.

It is also a further object of this invention to provide an improved cement tamping machine utilizing a pair of master crankshafts driven in synchronism to alternately present one or the other of a pair of tamping pads to a poured concrete surface in such a manner as to effect a walking and tamping action of the machine over the poured cement.

Further features and advantages of this invention will appear from a detailed description of the drawings in which:

Fig. 1 is a front perspective view of a cement tamping machine incorporating the features of this invention.

Fig. 2 is a fragmentary plan view of the machine shown in Fig. 1.

Fig. 3 is a diagrammatic end view in the direction indicated by the line 3—3 in Fig. 2 showing one position of operation of the machine shown in Figs. 1 and 2.

Fig. 4 is a diagrammatic end view in the direction indicated by the line 3—3 in Fig. 2 showing still another position of operation of the machine.

Fig. 5 is a diagrammatic end view in the direction indicated by the line 3—3 in Fig. 2 showing a further position of operation of the machine.

Fig. 6 is a diagrammatic end view in the direction indicated by the line 3—3 in Fig. 2 showing a still further operating position of the machine in Figs. 1 and 2.

For exemplary purposes this invention is shown applied to a cement tamping machine having a rear tamping pad R comprising a tubular steel

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frame work 10 secured to the bottom of which is a corrugated or expanded metal screen 11 which engages the plastic cement to be tamped. Fixed to the frame 10 is a pair of handlebars 12 and 13 which are suitably secured as by means of welding at the points 14 to the frame 10. On the front upright portions 15 of the handlebars 12 and 13 are mounted suitable journal bearing supports 16 and 17.

An upper master crankshaft comprising the shaft member 18 is journaled in the members 17 and on the outer ends of the shaft 18 are fixed the crankarms 19. Below the shaft 18 and the journal member 17 are the shafts 20 and 21 which are journaled in the bearing portions 16. On the outer ends of the shafts 20 and 21 respectively are fixed the crankarms 22 and 23. The inner ends of the shafts 20 and 21 are connected to the output shafts 24 and 25 respectively of a gear box unit 26 which unit in turn is connected to the output crankshaft 27 of a suitable internal combustion engine 28 utilized to drive the apparatus. Both the gear box 26 and the internal combustion engine 28 are rigidly mounted on the supporting plate 29 which in turn is rigidly secured to the frame 10 of the rear tamper R by a suitable welded connection at 30. The gear box 26 is provided with any suitable gearing, preferably of a worm gearing type, so that the rapid speed of the motor 28 will be delivered at a slow relative speed to the shafts 20 and 21 for powerful controlled operation thereof. The motor may be adjusted in its desired speed by means of any suitable throttle control 31 conveniently located at one of the handlebars of the machine.

The crankarms 19, 22 and 23 each terminate in crank pins 32 which are located at the same radial distance from their respective main shafts 18, 20 and 21, so that all of the crankarms have the same stroke. The shaft 18 is rotated in exact synchronism with the shafts 20 and 21 by means of a synchronizing drive chain 33 which operates over sprockets 34 and 35 respectively fixed on the shafts 20 and 18. Thus in this manner, power from the driving motor 28 is transmitted through the gear box 26 to the shafts 20 and 21 and the shaft 18 so that they all rotate in exact synchronism at the same speed.

The front tamper F is constructed similarly to that of the rear tamper R comprising a frame structure 36 to the bottom of which is secured a suitable perforated or expanded metal sheet 37. Projecting upwardly from the rear portion of the frame 36 are the connecting rod members

38 and 39 which are rigidly secured to the frame 36 at the point 40 and further supported by means of the angle braces 41. The upper portions of the connecting rod members 38 and 39 have journal bearings 42 which are journaled on the crank pins 32 of the upper crankarms 19 while a second set of journal bearings located on the connecting rod members 38 and 39 as indicated at 43 are respectively journaled on the crank pins 32 of the lower crankarms 22 and 23. Thus rotation of the crankarms by the rotation of the shafts 18, 20 and 21 as described causes the connecting rod members 38 and 39 and the front tamper F to be reciprocated in vertical parallel movement by the driving motor 28.

The operation of the apparatus is best shown by reference to Figs. 3, 4, 5, and 6. Starting at position A in Fig. 3, both the rear tamper R and the front tamper F are in engagement with the cement surface S to be treated and with the crankarms 19, 22 and 23 extending horizontally and toward the front of the machine, the position of the parts is as indicated in the Fig. 3. By operating the motor so as to cause the crankshafts to be rotated in a clockwise direction as indicated in the aforementioned Figs. 3, 4, 5 and 6 the front tamper F will remain in contact with the cement surface S while the rear portion of the machine including the motor, the rear tamper R and the handlebars will be raised upwardly and moved forwardly to the position shown in Fig. 4 at which time the crank pins 32 will be down directly below the main shafts 18, 20 and 21 of the crankshaft structure.

Continued operation of the machine in this manner again causes the rear tamper to be moved away from position A still further to the front and finally again brought down into contact with the concrete surface S closely up against the front tamper F as best shown in Fig. 5. In this case the crankarms now extend backwardly from the main shafts 18, 20 and 21. Further operation of the machine then causes the front tamper F to be raised upwardly and moved forwardly while the rear tamper R remains in contact with the cement surface S as best illustrated in Fig. 6. By a continuous operation of the driving motor 28 this operation may be repeatedly continued effecting an automatic tamping and compacting of the cement surface over which it is guided. Obviously, any suitable reversing and disconnect clutch may be provided in connection with the motor 28 and gear box 26 for reversing the direction of operation of the device while the handlebars may be manipulated to steer the direction of the tamping operations.

There has thus been provided a novel cement tamping arrangement in which there are a pair of

tampers one of which contains the drive transmission and motor and the other of which is mounted on a pair of synchronously operated crankshafts and in which the driving motor effects an alternate presentation of one or the other of the tamping members into engagement with the concrete surface to be treated so as to provide combination tamping and walking traverse motion for the tamping machine.

Having thus fully set forth and described this invention what is claimed as new and desired to be secured by United States Letters Patents is:

1. In a tamping machine, a rear tamping member comprising a frame, a drive motor mounted on said frame, a pair of vertically disposed crankshafts journaled on said frame, means for driving said crankshafts in synchronism from said motor, a front tamping member journaled for vertical reciprocatory movement on the crank arms of said crankshafts, said frame having handlebar control means for directing the movement of said tamping machine upon operation of said driving motor.

2. In a cement tamping machine comprising a rear tamping member, a front tamping member, handlebars fixed to said rear tamping member, a pair of crankshafts journaled one above the other on said handlebar, a drive motor mounted on said rear tamping member, a drive transmission connected to the lower of said crankshafts and driven from said main driving motor, synchronous drive means including means for synchronizing the rotation of said crankshafts, crankarms on the ends of said crankshafts having crank pins equal distance from the axes of rotation of said crankshafts so that both of said crankshafts have equal stroke, a front tamping member, frame means fixed to said front tamping member having journaled bearings mounted on the crank pins of said crankshafts, said handlebar control means directing the movements of said tamping machine during the operation of said main drive motor.

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