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J. P. KANE.

TAMPING DEVICE.

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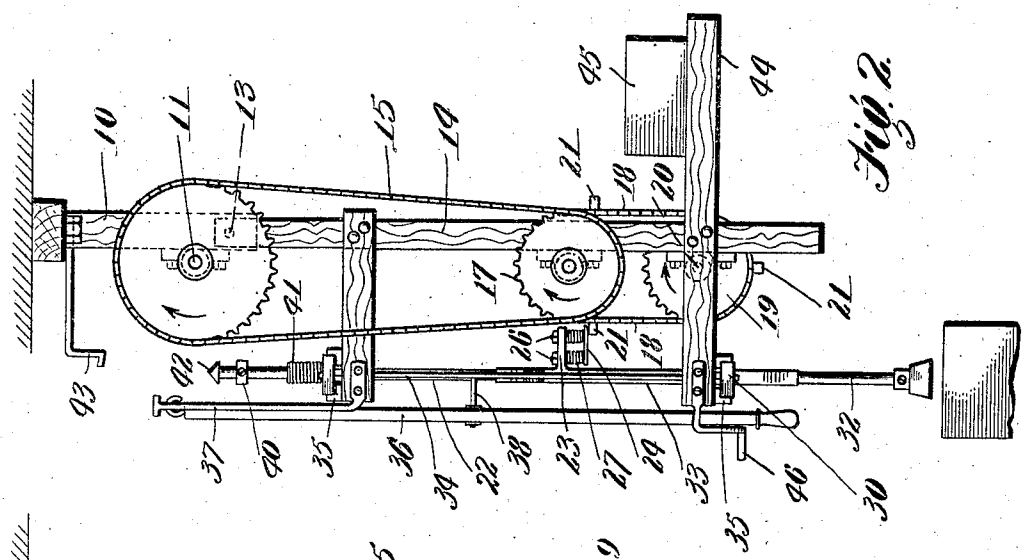

Fig. 2.

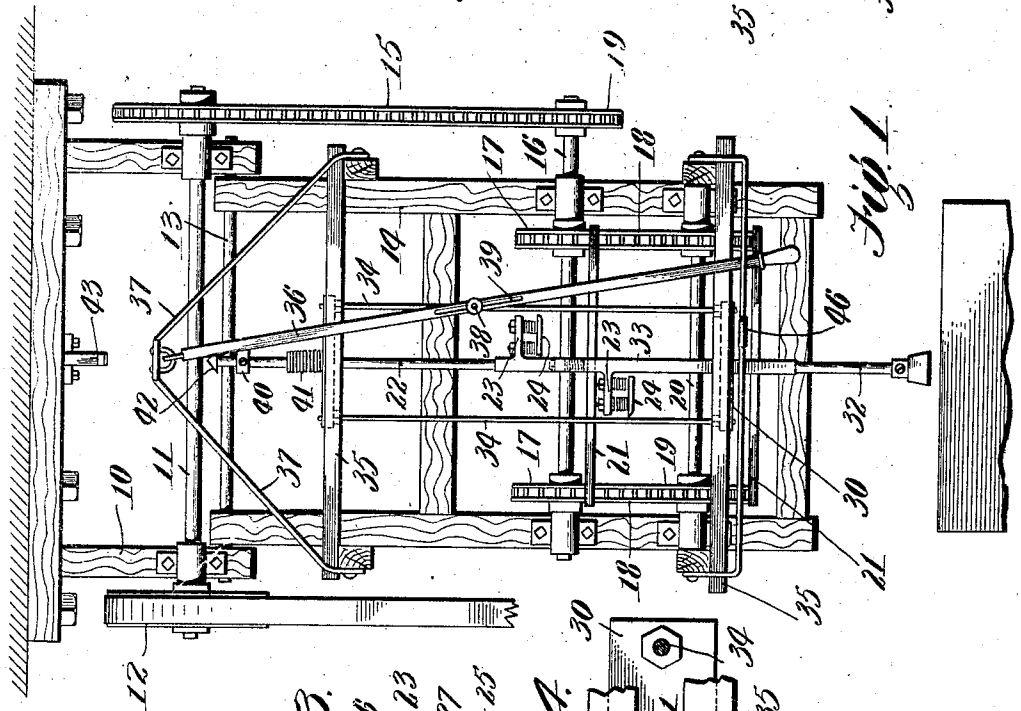

Fig. 1.

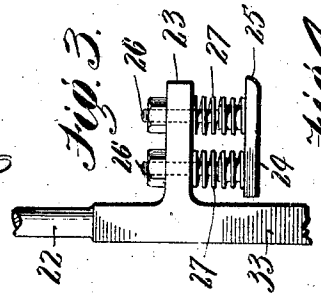

Fig. 3.

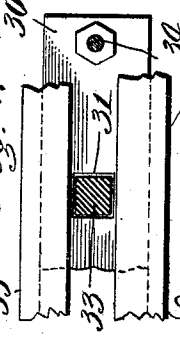

Fig. 4.

Witnesses

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TAMPING DEVICE.

No. 872,519. Specification of Letters Patent. Patented Dec. 3, 1907.

Application filed March 11, 1907. Serial No. 361,822.

To all whom it may concern:

Be it known that I, JOSEPH P. KANE, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Tamper, of which the following is a specification.

In the production of building blocks from concrete and other kinds of plastic material which are molded by the so-called "dry method", the ordinary practice is to tamp the molds by hand. This is not only a tedious operation which requires the greatest strength and endurance on the part of the operatives, but it also adds greatly to the cost of the building blocks.

The principal object of the present invention is to provide practicable and efficient mechanism whereby the blocks can be tamped by power without necessitating the instalment of an expensive compressed air or other power plant, which can be operated from any ordinary power which may be at hand, which will be capable of any necessary motion and adjustment in order to provide for tamping the full length of the molds, which can be adjusted in such a way as to regulate the force of the blows delivered, which can be readily operated by a comparatively unskilled laborer, and which by the application of different tools thereto may be used for analogous purposes such as tamping sand molds, peen hammering stone, and the like.

Further objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings which illustrate a preferred embodiment of the invention, and in which

Figure 1 is a front elevation of a device shown as used for tamping a building block mold. Fig. 2 is a side elevation of the same. Fig. 3 is a side elevation of a portion of the tamping rod on an enlarged scale, and Fig. 4 is a horizontal sectional view through the tamping rod showing the guide therefor.

The machine is supported by means of a stationary frame 10 which carries a shaft 11 through which power is transmitted from a pulley 12 or the like. A second shaft or rod 13 is pivotally connected with the frame 11 and supports a swinging frame 14. The shaft 11 delivers power through sprocket-chain 15 or any other desired power transmitting mechanism to a shaft 16 on the swinging frame which is provided with a lifting device preferably in the form of a pair of sprocket wheels 17 carrying chains 18 which operate sprocket wheels 19 on a lower shaft 20. These chains are spaced apart and are provided with a series of bars 21 extending between them. The chains and bars are so located and proportioned that the bars extend substantially across the entire face of the swinging frame, and as will be obvious, the rotation of the shaft 11 moves the bars in succession upwardly along the front of the frame so that they may engage a tamping rod 22 and lift it. As the bars pass over the top wheels 17 they will become disengaged from the rod and allow the same to drop. The tamping rod is provided with one or more lugs 23 extending outwardly therefrom, each of these lugs preferably being made integral with the rod by means of welding or in any other desired way.

In order to prevent a sudden blow being delivered to the rod, each lug is provided with a plate 24 below it. This plate has a curved end 25 which extends beyond the end of the lug 23 so that as the bar moves outwardly from it, it will permit the rod to drop without any danger of the bar engaging the lug itself. The plate 24 is supported from the lug 23 by pins or bolts 26 and separated therefrom by springs 27 which act as buffers and prevent a sudden blow from being delivered to the lug. It is to be observed that the tamper rod is shown as being provided with a plurality of these lugs and buffers located on different sides of the rod and at different heights. This provides for regulating the strength of the blows delivered by the tamper. When the heaviest blow is to be delivered the tamper is turned so that the lowest lug is in position to be engaged by the bars 21. They will then lift the tamper to the highest position at each operation. If it is desired to reduce the force of the blows, the rod is turned so that one of the other lugs is in position to be engaged by the bars.

On one side of the tamper there is no lug, and when this side is turned toward the bars they can operate without operating the tamper. In order to provide for readily adjusting the tamper in this way, a guide plate 30 is mounted on the swinging frame and provided with a passage 31. It will be observed that a portion 32 of the tamper rod is cylindrical, while another portion 33 is

non-cylindrical, in the present instance polygonal. The passage 31 is of the same shape as the polygonal portion 33 of the tamper, so that in the ordinary operation of the tamper this passage serves as a guide therefor, but if it is desired to adjust the same to regulate the force of the blows delivered the tamper is raised until the polygonal portion of the rod is above the plate 30, and then the cylindrical portion being in the passage 31, the tamper can be turned so as to present any desired one of the lugs to the traveling bars 21.

The guide plate 30 and the corresponding plate at the top of the frame together with tie rods 34 constitute a frame which supports and guides the tamper rod and which is movable along the swinging frame to permit the tamper to operate on the different parts of the mold. In order to accomplish this result the plates 30 move in tracks or ways 35 near the top and bottom of the swinging frame.

It will be noticed that the bars 21 are sufficiently long to engage the lugs or buffers in all positions of the frame which supports the tamper. This frame may be moved across the swinging frame in any desired way, but it is shown as operated by means of a lever 36 which is pivoted to a bar 37 which extends upwardly from the swinging frame. It is connected with one of the rods 34 by means of a pin or stud 38 which is mounted on the rod and extends through a slot 39 in the lever. It will be observed that the moving bars 21, when mounted on endless chains as shown, move upwardly in a plane parallel with the tamper rod, and that the travel of the bars in this plane is of a length equal at least to the distance between the highest and lowest lugs 23, so that any desired one of them may be operated by the bars. When the vertical adjustment of the tamper rod is not needed the rotary path of the bars 21 might be a circle instead of that shown.

The tamper rod 22 is provided with a collar 40 adapted to engage a buffer 41 when the tamper descends, so that if the adjustment is such that the tamper will not strike the mold in its descent, a sudden blow will be avoided. The tamper rod also is provided with a hook 42 adapted to engage a hook 43 extending outwardly from the stationary frame, so that the tamper may be raised and held in raised position.

In order to provide for counter-balancing the weight of the parts which in this instance are shown as located on one side of the swinging frame, this frame is provided with a rearwardly extending projection 44 having a weight 45 thereon.

In order to provide for swinging the swinging frame forward and back to permit operation throughout the width of the mold, the frame is provided with a handle 46 which is near the handle of the lever 36, so that the operator can manipulate the device and make all necessary adjustments from a single position.

Although I have referred to the rod 22 as a tamper rod, it is to be understood that wherever this term is used, in the specification and claims, it is intended to include such equivalents as a peen hammering rod and the like.

While I have illustrated and described a preferred form of the invention, I am aware that many modifications may be made therein without departing from the scope of the invention as expressed in the claims. Therefore, I do not wish to be limited to the particular form shown, but

What I do claim is:—

1. In a tamping machine, the combination of a horizontal shaft, a frame pivoted thereon to swing in a vertical plane, a tamper mounted on the frame and movable in the plane in which it swings, and a hand grip on the frame by which it may be swung to different inclinations.

2. In a tamping machine, the combination of a depending frame swinging on a horizontal axis, a reciprocable tamper thereon, means for operating the tamper, a counterweight on the frame to hold the same normally in substantially vertical position, and a hand grip on the frame by which it may be swung out of vertical position.

3. In a tamping machine, the combination of a track, a frame movable thereon, a tamping device supported by the frame, and a pivoted lever connected with the frame for moving it along the track.

4. In a tamping machine, the combination of a swinging frame, a track thereon, a second frame movable along the tracks, a tamping device supported by the second frame, and a lever pivoted to the swinging frame and connected with the second frame for moving the latter along the track.

5. In a tamping machine, the combination of a main frame, a track extending along the frame, a second frame mounted to move along the track, a tamping device supported by the second frame, the main frame having an extension projecting beyond the second frame, a lever pivotally connected at its end with the extension and having a longitudinal slot therein, and a pin secured to the movable frame and extending through said slot, whereby the motion of the lever will move the second frame.

6. In a tamping machine, the combination of a movable frame, a tamping device supported thereby, a lever having a longitudinal slot therein, and a pin secured to the movable frame and extending through said slot whereby the motion of the lever will move the frame.

7. In a tamping machine, the combination of a movable guide plate and a tamper rod, said tamper rod being of a shape to be guided by said plate and having means whereby it may be turned on its axis when moved vertically to a certain position with respect to the plate without removing it from the plate.

8. In a tamping machine, the combination of a swinging frame, a second frame movable along the swinging frame, a tamping device supported by the second frame, and a guide plate on the second frame, said tamping device comprising a rod having a cylindrical portion and a non-cylindrical portion, said guide plate having a passage of substantially the same shape as said non-cylindrical portion and of a size sufficient to permit the cylindrical portion to pass freely therethrough, whereby the tamping rod may be moved to different vertical positions with respect to the guide plate and turned therein without removing it therefrom when the cylindrical portion is in the guide plate.

9. In a tamping machine, the combination of a frame, a tamper thereon comprising a rod having a cylindrical and a non-cylindrical portion, a guide plate on the frame having a passage of substantially the same shape as the non-cylindrical portion, whereby the tamper rod may be turned to different angles on the frame, and means for lifting the tamper rod to different heights according to its position with respect to the guide.

10. In a tamping machine, the combination of a frame having a guide plate provided with a polygonal passage therethrough, and a tamper rod having a portion thereof of a form substantially like that of the polygonal passage and a portion of cylindrical form whereby the tamper rod may be guided, when in a certain position, by the passage and moved to bring the cylindrical portion in the passage to permit the rod to be turned.

11. In a tamping machine, the combination of a frame having a guide plate provided with a polygonal passage therethrough, and a tamper rod having a portion thereof of a form substantially like that of the polygonal passage and a portion of cylindrical form, said rod having lugs on its sides by which it may be lifted.

12. In a tamping device, the combination of a guide plate having a polygonal passage therethrough, a tamper rod having a cross-section of substantially the same shape as said passage but provided with a cylindrical cross-section at one point, whereby the rod may be turned to present its different faces in different positions with respect to the passage, said rod having lugs on all of its sides except one by which it may be lifted.

13. A tamping machine, comprising a guide plate having a polygonal passage, and a tamping rod having a cross-section similar to the shape of the passage and provided with a circular cross-section at one point, said rod having lugs projecting from its different sides, said lugs being located at different elevations.

14. A tamping machine comprising a guide plate having a polygonal passage, and a tamping rod having cross-section similar to the shape of the passage and provided with a circular cross-section at one point, said rod having lugs projecting from its different sides, said lugs being located at different elevations, and means for engaging any one of said lugs when located on a certain side of the rod to raise the tamper.

15. A tamper rod having a polygonal cross-section and being provided with lugs on all sides but one at different elevations.

16. A tamper rod having a plurality of lugs on different sides thereon arranged at different elevations.

17. A tamping rod having lugs projecting in different directions therefrom, each lug being provided with a plate located below it and resiliently connected with it.

18. A tamping rod having a lug integral therewith and projecting therefrom, a plate located below the lug and having a rounded edge extending beyond the end of the lug, and springs between the plate and lug.

19. In a tamping device, the combination of a vertically movable rod having a plurality of lugs arranged at different elevations thereon, and means movable in a plane parallel to the direction of motion of the rod over a distance as great as the distance between the top and bottom lugs for engaging said lugs to lift the tamping rod.

20. In a tamping device, the combination of a vertically movable rod having a plurality of lugs arranged at different elevations thereon, and means movable over a distance as great as the distance of the top from the bottom lug for engaging the lugs to move the tamping rod, said rod being adapted to be turned to present any one of the lugs to said lifting means.

In testimony whereof I have hereunto set my hand, in the presence of two subscribing witnesses.

JOSEPH P. KANE.

Witnesses:
LOUIS W. SOUTHGATE,
ALBERT E. FAY.