

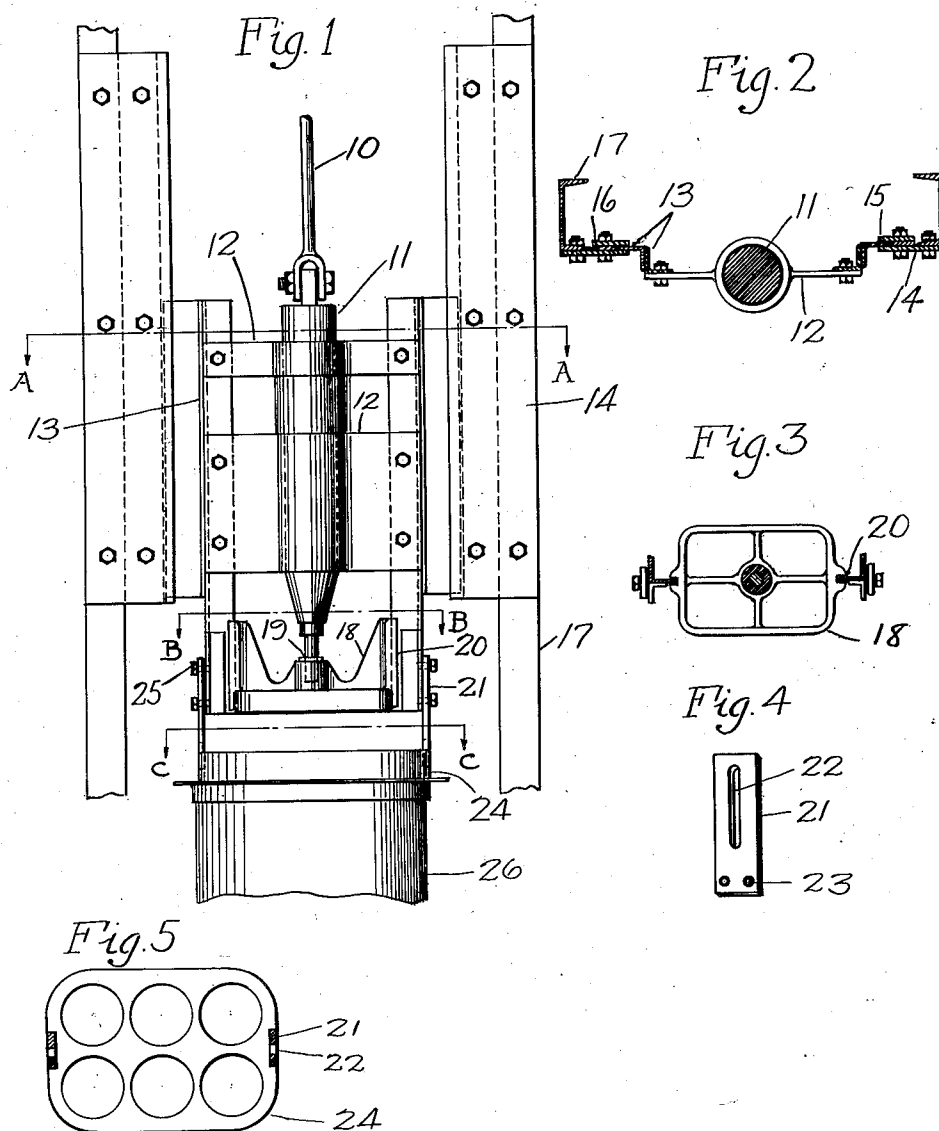
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ADJUSTABLE SLIDING FRAME FOR AIR HAMMERS

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ADJUSTABLE SLIDING FRAME FOR
AIR HAMMERS

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9 Claims. (Cl. 25—41)

The invention relates to an adjustable sliding frame mechanism to be used in connection with a machine for manufacturing multiple underground duct for electric cables of dry mixed vibrated concrete.

It has for its object the control of the rebound of the air hammer and its sliding hammer head and the withdrawal of top forming ring of mould.

The invention has for a further object by its application to the aforementioned machine, the following improvements to the present method of hammering top forming ring and withdrawing same by hand, viz: By its floating guided action the rapid blows of the air hammer and recoil due to impact of hammer with top forming ring allow a similar rebound action of air hammer as when held by hand, the lever arm link motion of an operator's arms is duplicated by the aforementioned guided and floating action obtained by this improvement.

The nature of the invention will be best understood when described in connection with the accompanying drawing in which—

Fig. 1 shows an elevation of the machine.

Fig. 2 shows a cross section of uprights, guides and sliding frame.

Fig. 3 shows plan of hammer head and cross section of guides for same on line B—B.

Fig. 4 shows slotted drag link for top forming ring.

Fig. 5 shows plan of top forming ring and cross section of drag link on line C—C.

Referring to the drawing: 10 designates air cylinder rod used to raise, lower, apply pressure and absorb rebound of air hammer 11; 12 shows clamps for air hammer and transverse members of sliding frame fastened to upright member 13, which acts as guide for hammer head 18; 13 also shows sliding member of frame in grooves formed by guides 14 and 15 and spaced by part 16; at 17 is shown the main frame of machine supporting aforementioned air lift and pressure cylinder for sliding frame; at 18 and 20 is shown the guides formed on hammer head and sliding on frame guides 13; air hammer piston rod is attached to hammer head at 19; the connecting or slotted drag links 21 are connected to and guided by cap screws 25 in slot 22 and fastened to top forming ring 24 by bolts or welding at 23 Fig. 4; 24 designates top forming ring which is lowered and withdrawn from moulding can 26.

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

1. An adjustable sliding frame holding an air

hammer in a vertical position permitting same free up and down movement and absorb the rebound of the sliding guided hammer head and adjustable links for lowering and withdrawing of the top forming ring of a mould can.

2. In tamping devices, a relatively fixed frame, guides mounted vertically of the frame in parallel spaced relation, a transverse member slidably engaging said guides, an air hammer mounted on the transverse member, a hammer head below the transverse member operatively associated with the hammer and constructed and arranged for vertical motion relative to the transverse member, the transverse member and hammer comprising a weighted rebound absorbing vertically guided movable unit responsive to reaction from the thrust of said hammer head.

3. In combination, relatively fixed frame members, a pair of substantially parallel horizontally spaced guide members carried by the frame, the guide members each comprising a vertical grooved element, means for varying the width of said grooves, a transverse member having vertical fins disposed in the respective grooves of the guide members, a fluid hammer rigidly mounted on said transverse member and forming therewith a weighted reaction absorbing vertically movable element, and a hammer head operatively associated with and vertically reciprocal relative to said hammer from which such reaction arises, said means operative to vary the frictional resistance of the guides to vary the reaction stroke.

4. In combination, a frame, a relatively movable fluid hammer and a fluid hammer head, a member rigidly engaging the hammer and forming a vertical guide element for the relatively movable hammer head, and means for slidably guiding said member for vertical reciprocation relative to the frame.

5. In combination, a molding can, a top forming ring removably mounted in said can, a hammer head in alignment with said forming ring, a hammer in alignment with said head, a guided element rigidly engaging said hammer and having a portion guidingly associated with said hammer head, means associating said portion with said top forming ring for a lost motion connection, so arranged as to permit upward reaction of the air hammer and guided element in response to downward impulses of the hammer head without disturbing the association of top forming ring and can.

6. In combination, an air hammer, a guide element rigidly associated with the hammer and

having a depending portion, a frame, means on the frame for vertically guiding said member, a hammer head operatively associated with said hammer and having guidable association with said portion.

5 7. In a tamping device, a frame, an air hammer, a hammer head, means rigidly engaging the air hammer and slidably guided relative to the frame, guides on the frame for said means to permit upward reaction of the air hammer and
10 means as a unit, and means for imposing frictional restraint on said means to limit the upward movement of said unit.

15 8. In combination, a molding can for material to be tamped, a top forming ring slidable in said can in abutting engagement with the material to be tamped, a fluid hammer, a hammer head operatively associated with the hammer and arranged for hammering association with said
20 top forming ring, said ring arranged to be driven into the can in response to repeated hammer blows, and means connecting said ring with the hammer for vertical withdrawal from the can upon upward movement of the hammer at the
25 conclusion of the tamping operation.

9. In combination, a molding can arranged to contain material to be tamped, a forming ring slidably movable in the can to abutting engagement with such material, a frame fixed relative to the can and having guides, a fluid hammer, 5 means rigidly engaging the hammer and slidable in said guides, a hammer head operatively associated with the hammer and so constructed and arranged to impinge against said ring, the hammer and said means so constructed and arranged
10 to permit upward reaction in response to downward impulse of the hammer head, means connecting the hammer and said ring to permit downward movement of the forming ring upon the tamped material in the can without affecting
15 the position of the hammer and to permit upward reaction of the hammer without disturbing the position of the forming ring and so constructed and arranged as to positively withdraw the forming ring upon upward movement of the
20 hammer in the guides beyond its reaction range of movement therein, and means for moving said hammer upwardly relative to said guides.

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