F. G. LYNDE.

CONCRETE MOLD.

APPLICATION FILED OCT. 31, 1919.

1,343,572.

Patented June 15, 1920.

2 SHEETS—SHEET 1.

Fig. 1.

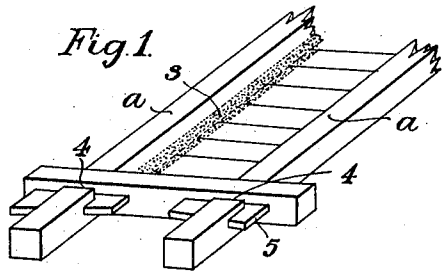


Fig. 2.

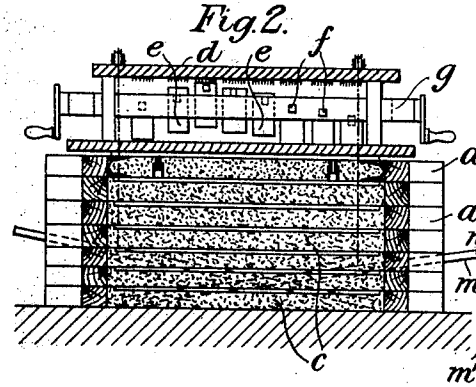


Fig. 3.

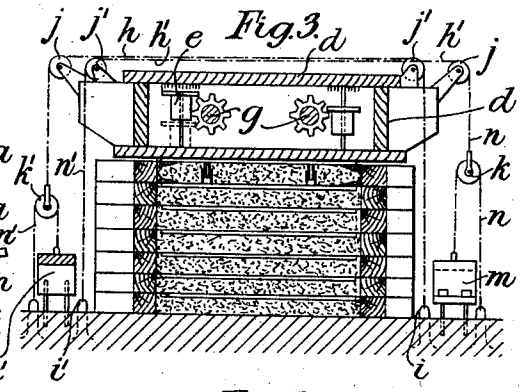


Fig. 4.

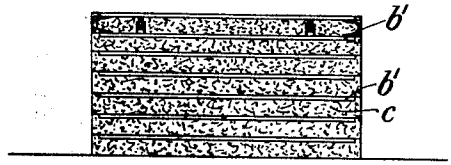


Fig. 5.

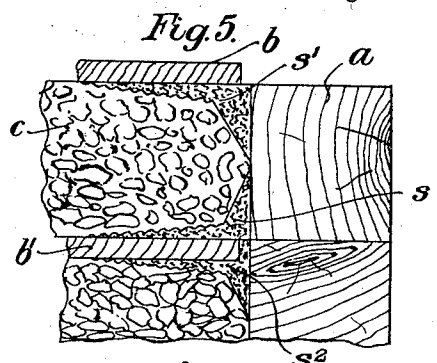


Fig. 7.

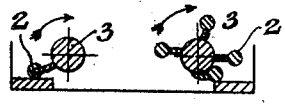
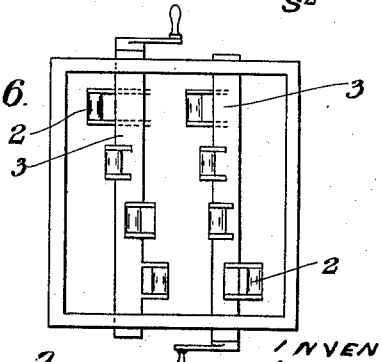


Fig. 6.



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Fig. 8.

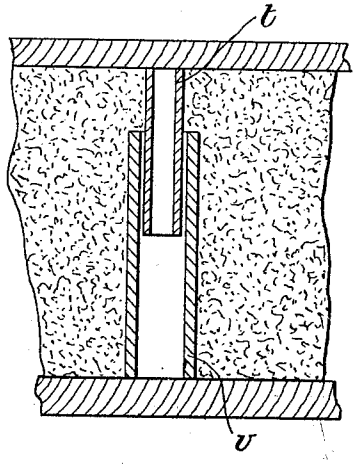


Fig. 9.

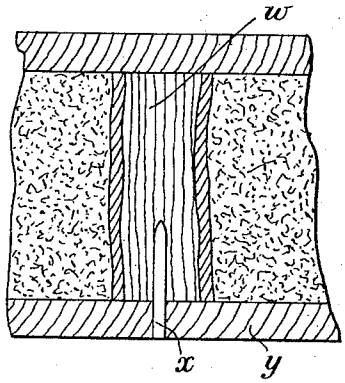


Fig. 10.

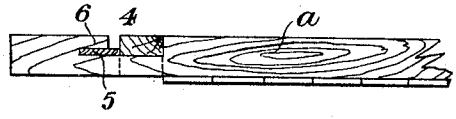
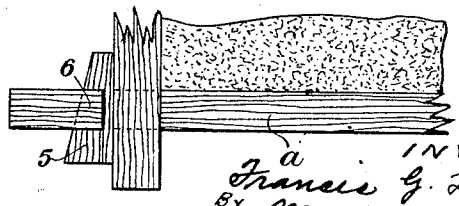


Fig. 11.



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UNITED STATES PATENT OFFICE.

FRANCIS GASCOIGNE LYNDE, OF BELVEDERE, ENGLAND.

CONCRETE-MOLD.

1,343,572. Specification of Letters Patent. Patented June 15, 1920.

Application filed October 31, 1919. Serial No. 334,760.

To all whom it may concern:

Be it known that I, FRANCIS GASCOIGNE LYNDE, of "The Eaves," Belvedere, Kent, England, civil engineer, subject of the King of Great Britain and Ireland, have invented certain new and useful Improvements in Concrete-Molds, of which the following is a specification.

This invention relates to the manufacture of slabs of concrete in molds which are adapted to be removed when the concrete is sufficiently hardened without injury to the slab with or without the use of sand cores within the mold, and also to the process of manufacture of slabs of concrete, in which the concrete is subject to vibration during the process of compression.

According to this invention concrete is molded into slabs, one at a time, in molds arranged one above the other, such molds adapted to be taken to pieces after the slabs have been formed, so as to leave a stack of slabs which can be allowed to mature without any disturbance of the concrete before it has become properly hardened and without exposure to the atmosphere.

It has been proposed to mold slabs one above the other but in such cases the molds have been left in position or the mold has had to be turned over for removal.

In carrying out this invention I provide a series of molds of the required size, the molds consisting of four sides of wood notched together and tightened up by wedges so that they can be readily taken to pieces.

In use a mold is placed on a level floor and filled with concrete. A board or division plate is then placed on the concrete and the surface of the division plate tamped or vibrated to make it subside so as to consolidate the concrete below. A fresh mold is then placed on top of the first mold and concrete placed in the mold, the concrete in second mold being separated from the concrete in the first mold by the division plate. The process is then repeated until a stack of slabs has been formed. The sides of the molds are then removed and the slabs remain to mature.

The means for tamping or vibrating the division plate to consolidate the concrete may comprise a portable frame adapted to rest on the uppermost division board, said frame carrying spindles fitted with triggers to lift weights provided with suitable guides which when released fall in rapid succession causing the frame to vibrate and being in contact with the top division board impart, through it the vibratory motion to the concrete. Spring buffers may be placed over the weights. Means are provided for holding the frame in position and also tackle for applying a downward force during the process of consolidation. The sides of the molds are then removed, the slabs remaining undisturbed.

Referring to the drawings filed herewith:—

Figure 1 is a perspective view of a mold made in accordance with this invention;

Fig. 2 is a section showing a stack of slabs with molds and one form of tamping device in position;

Fig. 3 is a section taken at right angles to the section shown in Fig. 2;

Fig. 4 is an elevation of a stack of slabs with the molds removed;

Fig. 5 is a section showing a portion of a stack of slabs to a larger scale;

Fig. 6 is a plan showing another form of tamping device;

Fig. 7 is a section of the device shown in Fig 6;

Fig. 8 is a section showing a telescopic core;

Fig. 9 is a section of another form of core made of pithy wood;

Fig. 10 is a section showing the wedges for tightening the mold;

Fig. 11 is part plan of the mold.

a a a are the sides of the mold, *b b'* are division plates, *b'* being the position of the plate after the concrete has been compressed, *c c* is the concrete, *d* is a frame adapted to be supported by the division plate. In the frame are mounted a series of stamps *e e* adapted to be lifted by arms *f f* mounted on shafts *g g*. The frame *d* is adapted to be held down by ropes or chains *h h'* fastened at *i i'*, and passing over pulleys *j j j' j'* and attached to pulleys *k k'* respectively. The ropes being kept taut by pedals *m m'* attached to ropes *n n'* passing over the pulleys *k k'*.

Figs. 6 and 7 show an alternative method of tamping and consolidating the material, and comprises a series of weights 2, 2, attached to shafts 3, 3, by wire ropes. In use the weights fly outward when the shafts are rotated and strike the plate on the bottom of the frame.

The method of erecting and dismantling a mold is shown in Figs. 1, 10 and 11, the members *a a* are halved where they cross leaving a clearance 4, a wedge 5 is driven into a slot 6 to tighten the members.

In use, immediately after the concrete has been placed in position and covered with a division plate, the frame is placed on the mold and pressed down by means of ropes tightened by pedals and the beaters operated. When the concrete has been consolidated the frame is removed to allow another mold to be placed on the stack, as above described. The sides and ends of the mold may be shaped to form tongues or grooves in the edges of the slab.

In Fig. 5 which shows a slab with beveled edges *s* indicates sand placed in the mold before the concrete, *s'* the sand placed in the mold after the concrete, and s^2 the sand in the lower mold after compression and vibration has taken place. The sand may be treated with water glass or otherwise rendered plastic.

Where it is desired to mold holes in the slabs for the purpose of connecting slabs together, edge to edge by wire, cores may be placed in the mold in suitable positions, and the cores may comprise tubes *t* (Fig. 8) of metal adapted to telescope in one another *v*, or they may be cut from small branches of trees with a pithy core as seen at *w* in Fig. 9, and adapted to be held in position by being forced upon pins *x* disposed on the division plates *y*, or cores may be made of cork or india rubber or other compressible material.

With apparatus made in accordance with this invention the slabs become quickly and well consolidated and hardened without disturbance or coming in contact with the air. Sand is placed in the mold for providing rough surfaces where required for junctions and may also be sprinkled on the surface of the concrete for giving a better appearance, the division plate being temporarily removed for the purpose. The rough sanded surface or edge is necessary for the concrete connecting slabs to properly adhere otherwise the skin of the concrete would have to be removed at great expense in order to obtain a sound and strong junction, when the slabs are used for building purposes.

What I claim and desire to secure by Letters Patent is:—

1. Apparatus for making concrete slabs comprising molds adapted to be placed one on top of another, division plates adapted to lie in each mold, means for tamping the concrete placed in the mold after each division plate has been located and before another mold is superposed, said molds having removable sides so that the molds can be taken to pieces after the slabs have been formed so as to leave a stack of slabs which can be allowed to mature without any disturbance of the concrete until it has became properly set.

2. Apparatus for making concrete slabs comprising molds adapted to be placed one on top of another, division plates adapted to lie in each mold, means for tamping the concrete placed in the mold after each division plate has been located and before another mold is superposed, said molds having removable sides so that the molds can be taken to pieces after the slabs have been formed so as to leave a stack of slabs which can be allowed to mature without any disturbance of the concrete until it has become properly set, said means for tamping the concrete comprising a portable frame adapted to be placed on each mold after the mold has been filled with concrete and the concrete covered with a division plate, said frame carrying weights and means for raising and dropping the weights on to the uppermost division plate.

3. Apparatus for making concrete slabs comprising molds adapted to be placed one on top of another, division plates adapted to lie in each mold, means for tamping the concrete placed in the mold after each division plate has been located and before another mold is superposed, said molds having removable sides so that the molds can be taken to pieces after the slabs have been formed so as to leave a stack of slabs which can be allowed to mature without any disturbance of the concrete until it has become properly set, said means for tamping the concrete comprising a portable frame adapted to be placed on each mold after the mold has been filled with concrete and the concrete covered with a division plate, said frame carrying weights and means for raising and dropping the weights on to the uppermost division plate, and means for holding the frame in position on the stack of molds and also for applying a downward force during the process of consolidation.

4. Apparatus for making concrete slabs comprising molds adapted to be placed one on top of another, division plates adapted to lie in each mold, means for tamping the concrete placed in the mold after each division plate has been located and before another mold is superposed, said molds having removable sides so that the molds can be taken to pieces after the slabs have been formed so as to leave a stack of slabs which can be allowed to mature without any disturbance of the concrete until it has become properly set, and means for shaping the edges of the slabs and providing them with rough surfaces, said means comprising sand placed in the molds substantially as described.

5. Apparatus for making concrete slabs comprising molds adapted to be placed one

on top of another, division plates adapted to lie in each mold, means for tamping the concrete placed in the mold after each division plate has been located and before another mold is superposed, said molds having removable sides so that the molds can be taken to pieces after the slabs have been formed so as to leave a stack of slabs which can be allowed to mature without any disturbance of the concrete until it has become properly set, means for molding holes in said slabs comprising telescopic cores, substantially as described.

In testimony whereof I have signed my name to this specification.

FRANCIS GASCOIGNE LYNDE.