

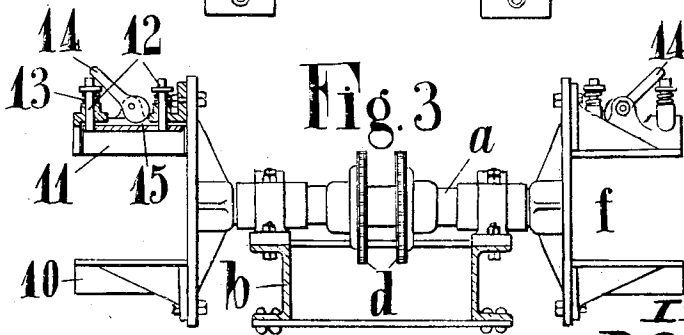
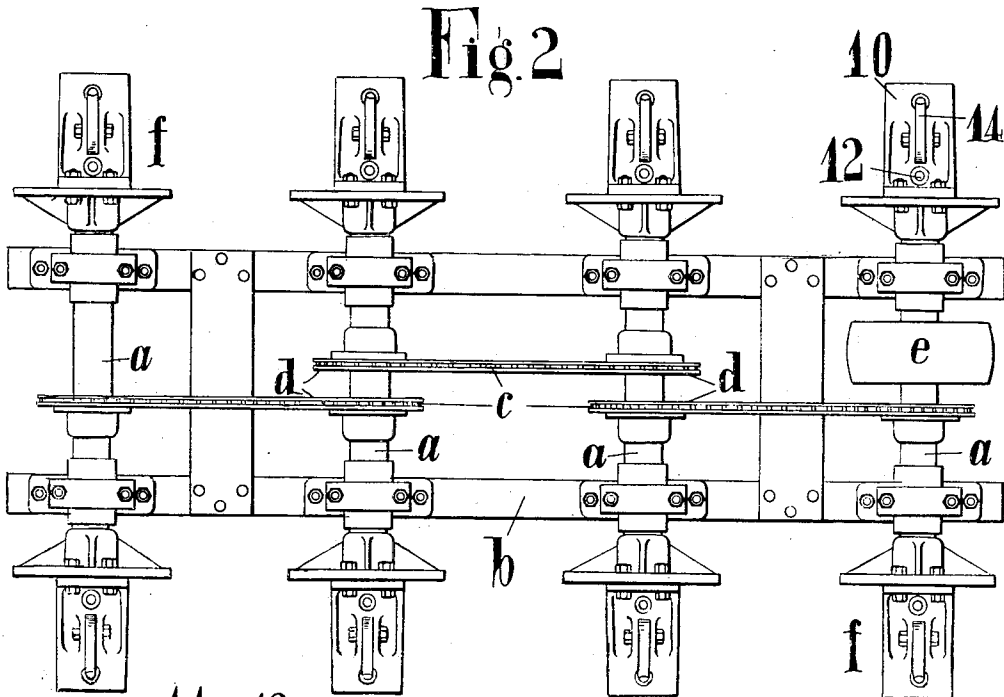
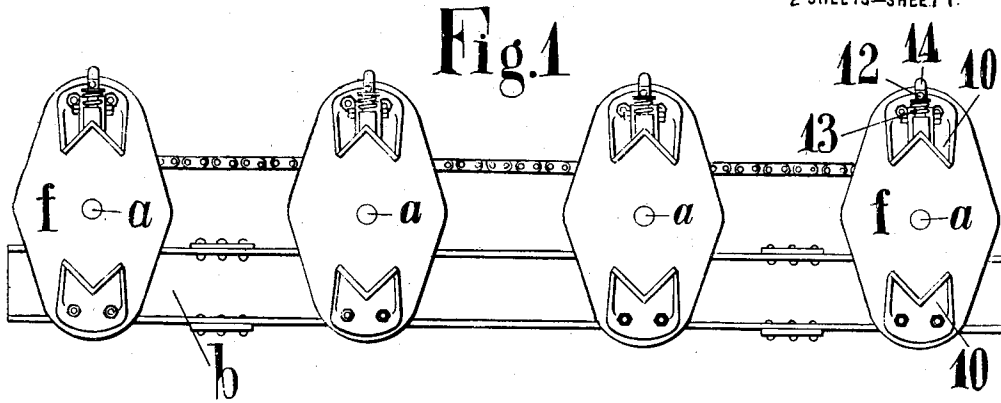
P. C. CANNON.
 APPARATUS FOR USE IN MANUFACTURING CONCRETE AND LIKE BLOCKS, PIPES, POSTS, GIRDERS,
 AND THE LIKE.

1,404,578.

APPLICATION FILED DEC. 10, 1920.

Patented Jan. 24, 1922.

2 SHEETS—SHEET 1.



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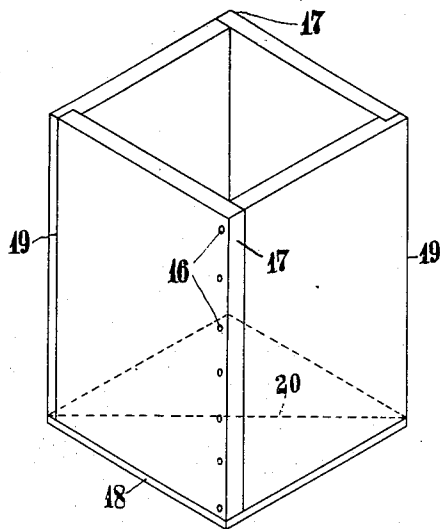


Fig. 4

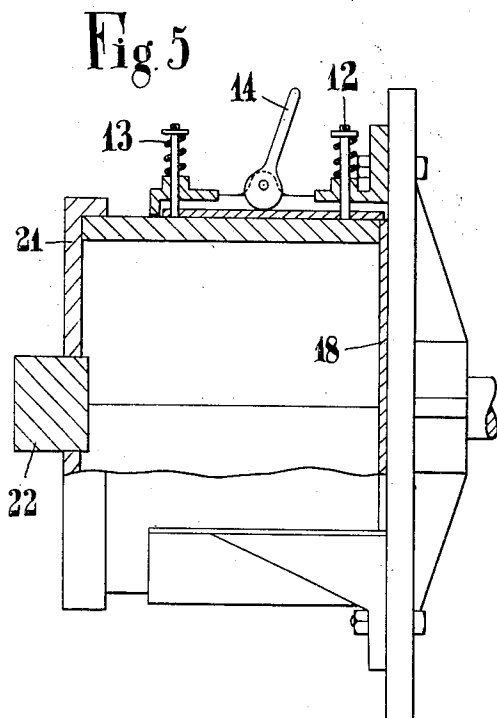


Fig. 5

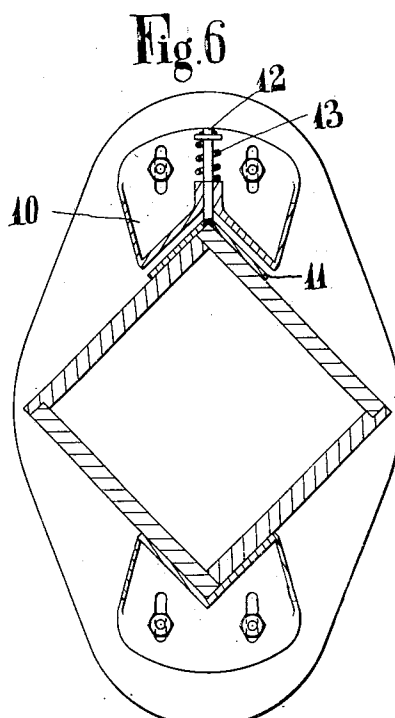


Fig. 6

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR USE IN MANUFACTURING CONCRETE AND LIKE BLOCKS, PIPES,
POSTS, GIRDERS, AND THE LIKE.

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Specification of Letters Patent. Patented Jan. 24, 1922.

Application filed December 10, 1920. Serial No. 429,777.

(GRANTED UNDER THE PROVISIONS OF THE ACT OF MARCH 3, 1921, 41 STAT. L., 1313.)

To all whom it may concern:

Be it known that I, PERCIVAL CHARLES CANNON, a subject of the King of Great Britain and Ireland, and residing at Clarence Street, Wolverhampton, in the county of Stafford, England, have invented certain new and useful Improvements in or Connected with Apparatus for Use in Manufacturing Concrete and like Blocks, Pipes, Posts, Girders, and the like, (for which I have made application for patent in Great Britain, No. 18,839, dated 29th July, 1919, Patent No. 158,012, and No. 21,819, filed 27th February, 1920; Canada, filed 15th December, 1920; Belgium, filed 2nd December, 1920; France, filed 3rd December, 1920; Germany, filed 3rd December, 1920, and 10th January, 1921; Holland, filed 15th March, 1921; Norway, filed 30th March, 1921; Denmark, filed 31st March, 1921,) of which the following is a specification.

This invention relates to apparatus for use in manufacturing concrete and like blocks, pipes, posts, girders, and the like, and in which a number of the articles are formed by centrifugal action in a plurality of simultaneously rotated moulds, and has for its object to improve and simplify the construction of such apparatus.

In two constructions of such apparatus it has been proposed to loosely support the moulds on a number of vertical frictional driving discs arranged under their ends and mounted on a plurality of parallel horizontal shafts or to stand the moulds, each by one of its ends, on a number of horizontal rotatable tables carried by vertical spindles, driven in unison from a common drive shaft by bevel gearing.

The improved apparatus provided by the present invention comprises a plurality of parallel horizontal spindles mounted to rotate upon girders or other supports, chain and sprocket or other gearing connecting all of the spindles to one another so that each is positively driven and all of them in unison, means for driving one of the spindles by power, and a clamping device provided on one or each end of each spindle for positively clamping and holding a mould.

The invention will now be described with reference to the accompanying drawings, in which:—

Figure 1 is a side elevation of a suitable construction of the improved apparatus, 55

Figure 2 is a plan of same, and

Figure 3 is an end view, partly in section, of said apparatus.

Figure 4 is a perspective view of a mould.

Figure 5 is a side elevation partly in section of a mould in position on the machine. 60

Figure 6 is an end view in section of the mould in position.

The apparatus shown comprises a plurality of parallel spindles *a* mounted to freely rotate upon two parallel girders *b* or other supports and geared to one another to rotate in unison, such as by means of chains *c* and sprocket wheels *d*, one of the spindles being driven by power in any suitable manner, for instance through a belt and pulley *e*. One or both ends of each spindle *a* is or are each fitted with a clamping device *f* for supporting a mould. In this manner moulds containing the material or materials of which the articles are to be formed, are clamped in place in the clamping devices *f* and rotated simultaneously in one or two straight rows. All of the moulds may be of similar shape and dimensions, or they can vary within wide limits. 80

The moulds which are preferably of wood may be constructed as shown in Figures 4 and 5, so that they may be divided longitudinally to allow of the removal of the final concrete product. Along two opposite edges 17 the mould is nailed as at 16. The bottom of the mould is formed by a metal plate 18 which is screwed to the two sections of the mould formed as described. This plate is slightly bent across the diagonal 20 so that the spring of the plate tends to force together the two sections of the mould along the edges 19. The resilience of the plate allows the sections of the mould to be sprung apart sufficiently for the concrete block to be removed easily and without damage. During the filling and spinning operation the mould is closed by means of a lid 21 which fits over the top end and is clamped to the mould by 100

suitable clips. The lid has a circular hole into which a wooden plug 22 is fitted to prevent the mixture escaping when the mould is tilted for placing in the machine and in the
5 initial stage of spinning.

The moulds containing liquid concrete are placed in the machine and clamped in position by the means hereinafter described, the machine being then set in motion. The speed
10 of rotation is gradually increased to that desired for consolidating the concrete, at which it is maintained for a few minutes. Meanwhile the plugs 22 are knocked out from the lids so as to permit the surplus water which is
15 expelled from the concrete to escape. After removal from the machine the mould is placed for a time in a chamber heated by low pressure steam, by which means the formed article is rendered more easily separable from
20 the mould.

The means preferably adopted for securing a mould in each of the clamping devices comprise two opposed V or other suitably shaped brackets 10 one of which is fitted with
25 a movable inner lining or clamping plate 11 of V or other cross-sectional shape, pins 12 rigid with said lining and guided through bosses formed upon the bracket, springs 13 surrounding said pins and tending to retain the lining within a recess formed in the inner face of the bracket, and a cam lever
30 14 pivoted upon the bracket and adapted to project through a slot 15 formed in the latter, and to act upon the lining. When the mould is placed in position in the clamping
35 device, opposite corners or portions at one end of said mould are arranged between the brackets and the cam is turned over to depress the lining on to the mould, so that the latter is securely held in position for rotation. Flats are preferably formed on the periphery of the cam to engage the outer edge or surface of the lining, which flats constitute means for locking the cam in adjusted position and preventing it loosening
45 during rotation of the clamp and mould. When the cam is moved back to release the mould the lining is automatically retracted out of contact with the latter by the springs
50 13. The brackets 10 and/or the plates which carry them are preferably slotted to enable said brackets to be adjusted upon said plates and radially relatively to the spindles *a*.

It will be appreciated that when pipes, posts and girders are manufactured with the aid of the machine they are preferably short, although long ones could be made by suitably supporting the outer ends of the moulds.

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

1. Apparatus for use in manufacturing concrete and like blocks, pipes, posts, girders and the like, comprising in combination a

horizontal spindle mounted to rotate upon 65 supporting means such as girders, power transmission gearing connected to said spindle whereby it is positively driven by power, a throw-over lever clamping device carried by said spindle and a mould secured
70 by said clamping device for rotation about a horizontal axis coinciding with that of the spindle.

2. Apparatus for use in manufacturing concrete and like blocks, pipes, posts, girders 75 and the like, comprising in combination a horizontal spindle mounted to rotate upon supporting means such as girders, power transmission gearing connected to said spindle whereby it is positively driven by
80 power, two opposed brackets carried by at least one end of said spindle, movable clamping means situated upon the inner side of one of said brackets, means carried by said bracket for quickly moving said clamping
85 means relative thereto and a mould secured between said brackets by said clamping means.

3. Apparatus for use in manufacturing concrete and like blocks, pipes, posts, girders 90 and the like, comprising in combination a plurality of parallel horizontal spindles mounted to rotate upon supporting means such as girders, power transmission gearing connecting all of the spindles to one another
95 so that each is positively driven and all of them in unison, means for driving one of the spindles by power, a clamping device at both ends of each spindle and a mould secured by said clamping device for rotation about a horizontal axis coinciding with that of the spindle. 100

4. Apparatus for use in manufacturing concrete and like blocks, pipes, posts, girders, and the like, comprising in combination a 105 plurality of parallel horizontal spindles mounted to rotate upon supporting means such as girders, power transmission gearing connecting all of the spindles to one another so that each is positively driven and all of
110 them in unison, means for driving one of the spindles by power, a vertical face plate attached to at least one end of each spindle, two opposed brackets carried by said face plate, a movable clamping plate lining
115 within one of said brackets, a cam lever adapted to engage and secure said movable clamping plate, and a mould secured between said brackets.

5. Apparatus for use in manufacturing 120 concrete and like blocks, pipes, posts, girders and the like, comprising in combination a plurality of parallel horizontal spindles mounted to rotate upon supporting means such as girders, chain and sprocket gearing
125 connecting all of the spindles to one another so that each is positively driven and all of them in unison, means for driving one of

the spindles by power, a vertical face plate attached to each end of said spindles, two opposed brackets carried by said face plate and radially adjustable thereon, a movable
5 clamping plate lining within one of said brackets, a cam lever adapted to engage and secure said movable clamping plate, and a mould secured between said brackets for rotation about a horizontal axis coinciding with that of the spindle.

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

PERCIVAL CHARLES CANNON.