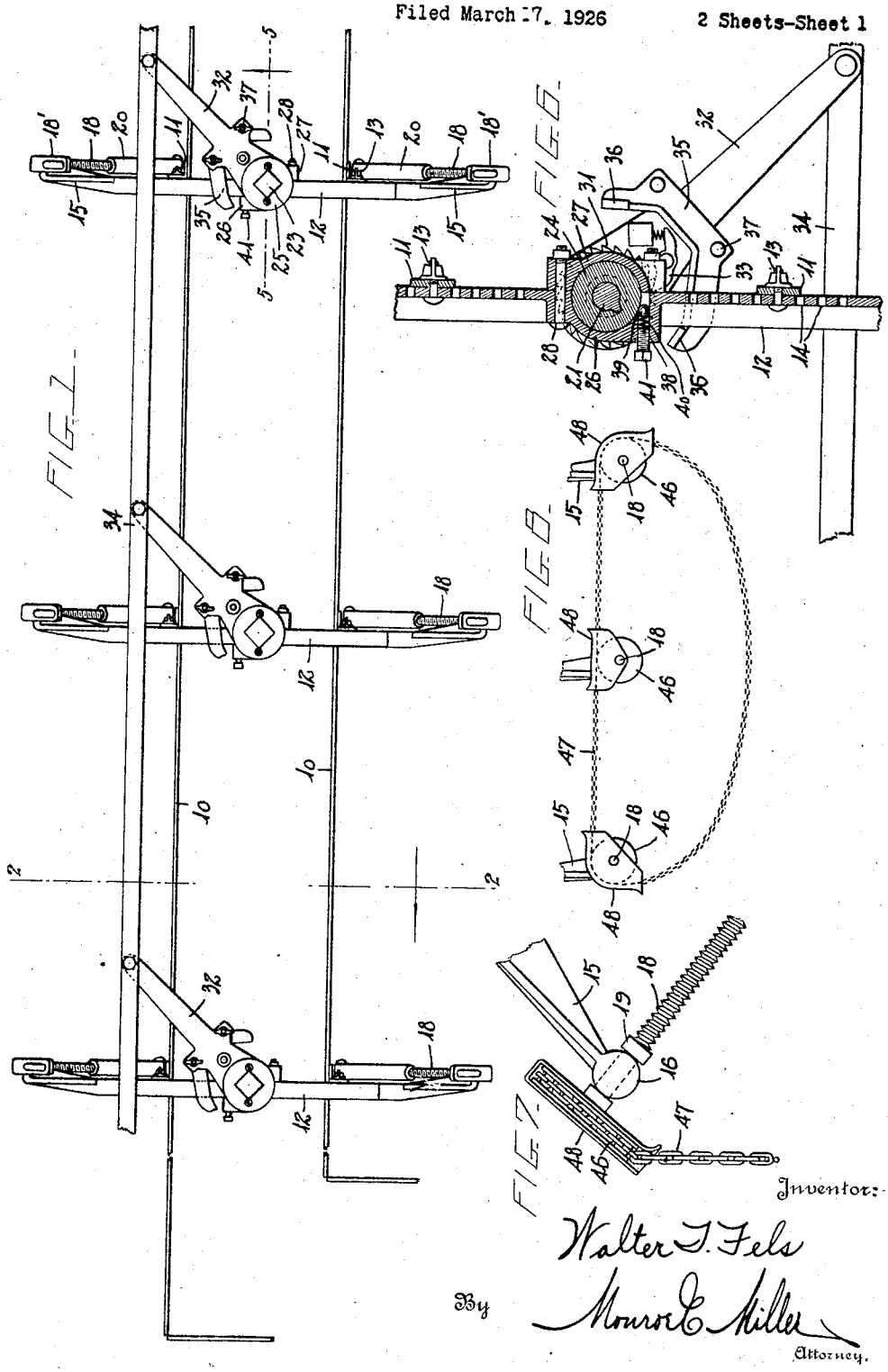
May 24, 1927. 1,630,080

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WALL MOLDING APPARATUS

Filed March 17, 1926 2 Sheets-Sheet 1



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FIG. 2.

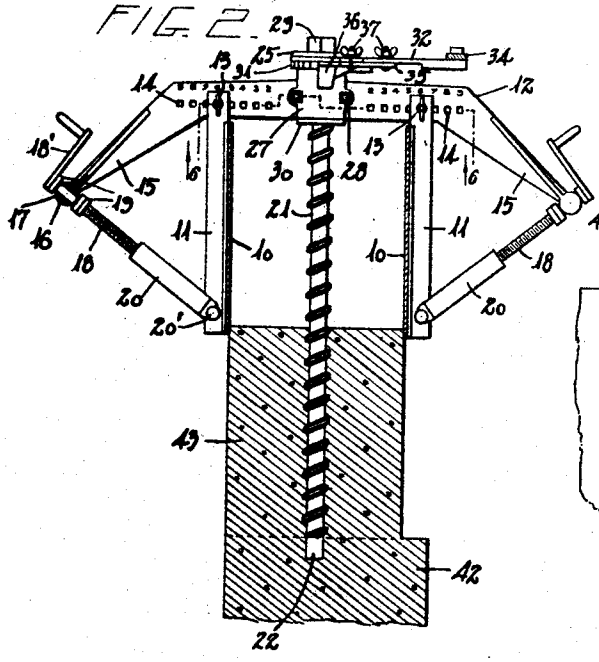


FIG. 5.

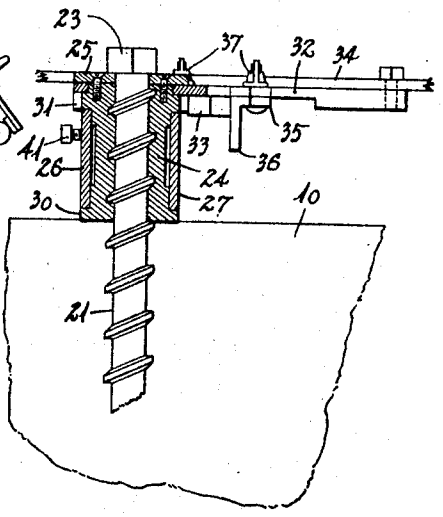


FIG. 3.

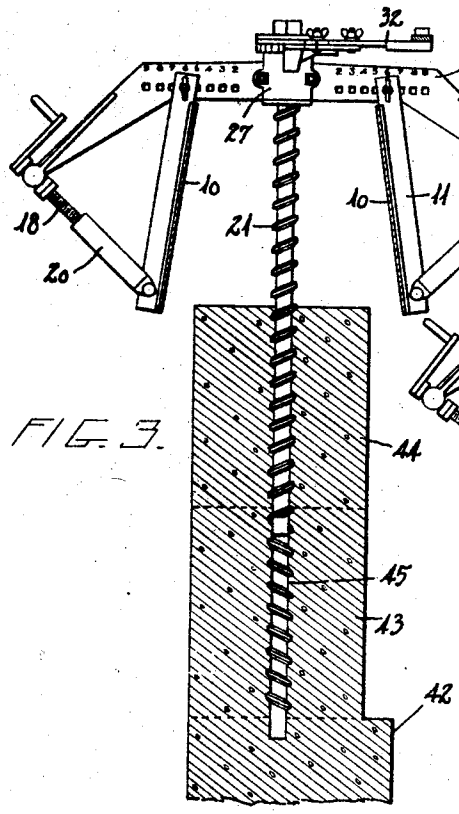
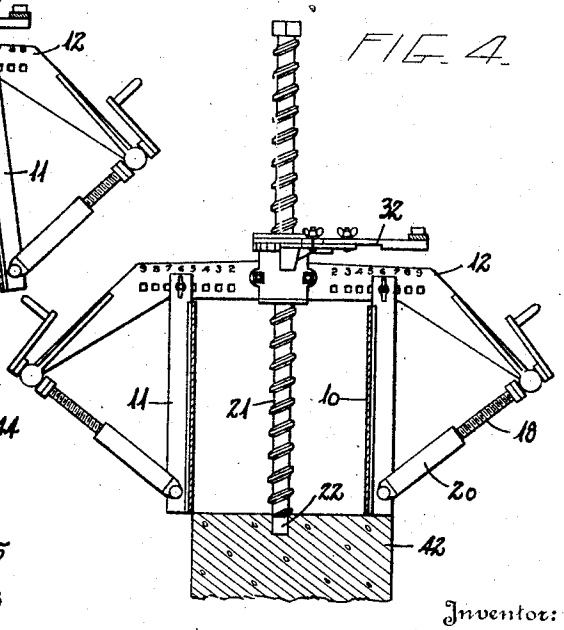


FIG. 4.



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UNITED STATES PATENT OFFICE.

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WALL-MOLDING APPARATUS.

Application filed March 17, 1926. Serial No. 95,293.

The present invention relates to apparatus for molding the walls of composition, concrete or similar buildings, and is particularly an improvement over the apparatus disclosed in my Patent No. 1,560,293, granted Nov. 3, 1925.

It is the object of the invention to provide a novel and improved apparatus for molding walls in superimposed courses in a simple and convenient manner, and with a simple mechanism, which eliminates cumbersome and expensive framework, and the device having improved features of construction to enhance the utility and efficiency thereof.

With the foregoing and other objects in view, which will be apparent as the description proceeds, the invention resides in the construction and arrangement of parts, as hereinafter described and claimed, it being understood that changes can be made within the scope of what is claimed, without departing from the spirit of the invention.

The invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a fragmentary plan view of the improved apparatus.

Fig. 2 is a vertical section on the line 2—2 of Fig. 1.

Fig. 3 is a vertical section on the same section line showing the side plates separated and raised after completing the course for which the parts are positioned in Fig. 2.

Fig. 4 is a cross section on the same section line showing the parts in position to start the first course on the base or foundation.

Fig. 5 is an enlarged vertical section on the line 5—5 of Fig. 1.

Fig. 6 is a section on the line 6—6 of Fig. 2.

Fig. 7 is a detail view illustrating a modification in the means for operating the screws controlling the side plates.

Fig. 8 is a detail view illustrating a plurality of the screws and sprocket wheels shown in Fig. 7.

The apparatus is constructed in sections, as disclosed in Patent No. 1,560,293, one section extending along each wall of the building, and each section may be the entire length of the wall.

Each section of the apparatus for one wall of the building comprises a wall form or mold proper including the inner and outer side plates 10 of sheet metal, wood or other suitable material. Said plates are of suitable height to define one course of the wall and said plates may be in sections secured together end to end in any suitable manner.

The side plates 10 are supported by hangers 11, which are of angle iron as shown, and which are bolted or otherwise secured to said plates with the upper terminals of said hangers projecting above the upper edges of the plates for connection with the yokes or cross bars 12 extending transversely over the plates at suitable intervals longitudinally of the form. The upper ends of the hangers 11 are pivoted by means of bolts 13 to the yokes 12, said yokes having longitudinal series of apertures 14 to receive said bolts, whereby the plates 10 may be spaced apart different distances for producing walls of different thicknesses. The yokes 12 preferably have numbers or other indications above the apertures 14 in order that the hangers may be readily adjusted for producing a wall of desired thickness.

The yokes 12 are provided at their opposite ends with arms 15 extending downwardly at obtuse angles, and means are provided between said arms 15 and hangers 11 for swinging the plates 10 toward and away from one another. The arms 15 have circular heads 16 at their lower ends provided with diametrical apertures 17 therethrough in which screws 18 are swivelled for rotation, nuts or collars 19 being secured on the screws 18 and contacting with the circular walls of the heads 16 to permit the screws 18 to swing in the vertical planes of the yokes 12. The screws 18 have cranks 18′ above the heads 16 for conveniently rotating said screws, and the lower terminals of the screws are screw-threaded within sleeves or elongated socket nuts 20 which have their lower ends pivoted, as at 20′, to the lower terminals of the hangers 11. Thus, by rotating the screws 18, the plates 10 may be swung toward and away from one another, and the screws 8 may oscillate in the apertures 17 which are sufficiently large to permit of such oscillation. The screws 18 and sleeves or nuts 20 provide extensible and contractile braces between the arms 15 of the yokes and the hangers 11, and the screw connections between the hangers 11 and arms 15 enable the plates 10 to be swung

away from and toward the wall with considerable force.

The form or mold is supported directly and solely from the wall which is under construction, without using a special framework, thereby providing a simple and convenient construction, to save time and expense. For this purpose, vertical screws 21 are provided and serve three purposes, namely; the form or mold proper is supported by the screws which are supported from the wall under construction, the screws are employed for raising the form or mold as each course is completed, and the screws serve to guide the form or mold vertically so that the wall is plumb. Each screw has a smooth lower terminal 22, and has a head 23 of square or angular form at its upper end, and the thread of the screw has its convolutions spaced apart in order that the screw may be unscrewed from the concrete or other plastic composition as will hereinafter more fully appear.

Each yoke 12 is supported from one of the screws 21, and for this purpose a nut 24 is fitted snugly on each screw, and is swivelled to the intermediate portion of the corresponding yoke 12 between the hangers 11. The nut 24 is journaled for rotation within a bearing with which the yoke 12 is provided, one half or section 26 of the bearing being integral with the yoke, and the opposite half or section 27 being secured to the section 26 by bolts 28 or other clamping elements, said sections 26 and 27 complementing one another and embracing the nut 24. The nut 24 has a lower flange 30 abutting the lower end of the bearing 26—27, and the nut 24 is provided near its upper end with an integral ratchet wheel 31 seating on the bearing.

In order to rotate the nuts 24 of one section of the apparatus, a lever 32 is mounted for rotation on the upper end portion of each nut 24, being swivelled and confined between the ratchet wheel 31 and a retainer ring 25 secured on the nut. A spring-pressed pawl or dog 33 is carried by the lever 32 at the lower surface thereof to engage the ratchet wheel 31, in order to rotate the nut 24 in a direction to climb upwardly on the screw 21 when the lever 32 is oscillated.

The levers 32 of each section of the apparatus are connected by a bar 34 so that the levers of one set may be oscillated simultaneously, to cause all of the nuts 24 of one section of the apparatus to climb simultaneously upwardly on the screws 21.

The oscillation of each lever 32 is limited by means of a stop bar 35 extending below the lever 32 and having depending stop lugs 36 at its ends to contact with the yoke 12, said bar 35 being secured to the lever 32 by means of bolts 37.

In order to prevent the reverse rotation of the nuts 24, a hole 38 is drilled in each bearing 26—27, preferably in the section 26, and a ball 39 is disposed in said hole so as to wedge between the nut 24 and opposite wall of the hole 38, as seen in Fig. 6, to prevent the reverse rotation of the nut, but permitting said nut to rotate in a direction to move upwardly on the screw 21. A coiled spring 40 is confined beween the ball 39 and an adjusting screw or plug 41 screw-threaded into the hole 38, thereby holding the ball 39 in place.

The apparatus is used as follows: The lower ends 22 of the screws 21 are inserted in recesses or holes provided in the base or foundation 42, as seen in Fig. 4. The screws 18 are then rotated so as to move the plates 10 to vertical position, and the screws 21 are then adjusted so as to be plumb or vertical with careful accuracy, in order that the wall will be started upwardly plumb. The concrete or grout is then poured between the plates 10, with the form or mold held firmly in position, thereby producing the first course 43 on the base or foundation 42. With the form in starting position as seen in Fig. 4, the plates 10 contact at their lower edges with the base or foundation and the nuts 24 are located intermediate the ends of the screws 21, with the screws projecting upwardly above the yokes 12. When the first course 43 has been poured and has set sufficiently so as to firmly support the screws 21, the form is then raised so as to enable the next course about to be formed. The nuts 24 are rotated by reciprocating the bar 34, so that said nuts climb upwardly on the screws 21, said screws having their lower portions embedded in the course 43. The bars or yokes 12 and plates 10 will be raised with the nuts 24, the screws 18 having been previously rotated so as to swing the plates 10 away from the opposite surfaces of the course 43. This permits the form to be raised conveniently with the plates 10 spaced from the concrete. When the nuts 24 reach the heads or stops 23, the screws 18 are rotated so as to swing the plates 10 toward one another, as seen in Fig. 2, with the lower edge portions of said plates overlapping the upper portion of the course 43. The concrete, plastic composition or grout for the second course is then poured between the plates 10 of the form, thereby producing the second course 44 on the course 43, with the screws 21 embedded in both courses 43 and 44. After the course 44 has set or hardened sufficiently, the form is again raised to position it for the third course. The screws 18 are first rotated to swing the plates 10 away from one another out of contact from the course 44, and the bar 34 is then reciprocated to rotate, through the ratchets, the nuts 24. Said nuts contacting with the stops or heads 23 will prevent

the nuts from climping upwardly further on the screws 21, and the screws are therefore compelled to rotate with the nuts. The screws 21 being rotated will be unscrewed partially from the wall which is under construction. Thus, as seen in Fig. 3, the screws 21 are unscrewed from the course 43 but remain in the course 44 when the plates 10 have been raised sufficiently to position them for the production of the next or third course. The plates 10 are then again swung toward one another to bring their lower edges into overlapping relation with the course 44, and the operation is repeated as hereinbefore described. The screws 21 remaining in the course 44 will support the screws and form from said course. In this way, the screws are always supported by the last course and remain therein until the next course has set sufficiently, at which time the screws are unscrewed for the next operation. The screws thus travel upwardly in the wall under construction to continually support the form from the wall, to move the form upwardly, and to guide it for vertical movement so that the wall will be plumb. It will be noted that the screws have at least their lower halves embedded in the concrete in order to prevent the screws from inclining out of plumb, and the wall will therefore be built up vertically provided the screws 21 are started in true plumb positions. As the screws move upwardly with the building up of the wall course after course, vertical holes or passages 45 are left in the wall. These passages are not objectionable and may be used for ventilation, electric wires, or the like, inasmuch as inlets and outlets may be drilled in the wall to said passages 45. By completely unscrewing the screws 21 from the last course the apparatus is quickly removed from the wall. It will also be noted that as the wall progresses upwardly it is entirely unobstructed below the form, the apparatus being confined to the upper edge portion of the wall. This enables other work to be done on or adjacent to the wall as the wall is built up.

The screws 18 at each side of the form or mold may be operably connected so as to be operated simultaneously. Thus, as shown in Figs. 7 and 8, sprocket wheels 46 are secured on the upper ends of the screws, and an endless chain 47 passes over said sprocket wheels for simultaneously rotating said wheels and the screws 18. Guards 48 for the chain straddle the wheels 46 and are pivotally mounted on the screws 18, to prevent the chain slipping off the wheels.

Having thus described the invention, what is claimed as new is:—

1. In a wall molding apparatus, a supporting member having a circular head with a diametrical opening, a side plate mounted for swinging movement, a member extending loosely through said opening and having portions bearing against the head to swivel said member in said opening for oscillatory motion, and a member pivotally connected with said plate, said members having a screw connection.

2. In a wall molding apparatus, a yoke to extend over a wall under construction, opposite side plates below and hingedly connected to said yoke, the yoke having downwardly extending arms at opposite ends provided with circular heads having diametrical openings therethrough, screws swivelled in said openings for oscillatory motion and having portions bearing against said heads, and elongated socket nuts pivotally connected with said plates and receiving said screws.

3. In a wall molding apparatus, a supporting member having a circular head with a diametrical opening, a side plate mounted for swinging movement, a screw extending loosely through said opening and having portions bearing against said head to swivel the screw in said opening for oscillatory motion, and an elongated socket nut pivotally connected with said plate and receiving said screw.

4. In a wall molding apparatus, a screw to engage in the upper portion of a wall under construction, a yoke to extend across said wall and having a bearing between its ends, a nut on the screw and mounted for rotation in said bearing, opposite side plates carried by said yoke and movable toward and away from one another, a lever swivelled on said nut, the nut having a ratchet wheel, a pawl carried by said lever to engage said ratchet wheel, and stop lugs carried by said lever to contact with said yoke to limit the oscillation of the lever.

5. In a wall molding apparatus, a screw to engage in the upper portion of a wall under construction, a yoke to extend across said wall and having a bearing between its ends, a nut movable on the screw and mounted for rotation in said bearing, a lever mounted for oscillation on said nut, the nut having a ratchet wheel, a pawl carried by the lever engaging said ratchet wheel, opposite side plates carried by the yoke and movable toward and away from one another, and a ball mounted in said bearing and arranged to wedge between the nut and bearing to prevent reverse rotation of said nut.

In testimony whereof I hereunto affix my signature.

WALTER THEODOR FELS.