J. W. BRAGSTAD.

CONCRETE BLOCK MOLDING MACHINE.

APPLICATION FILED NOV. 28, 1908.

951,723. Patented Mar. 8, 1910.

3 SHEETS—SHEET 1.

Fig. 1.

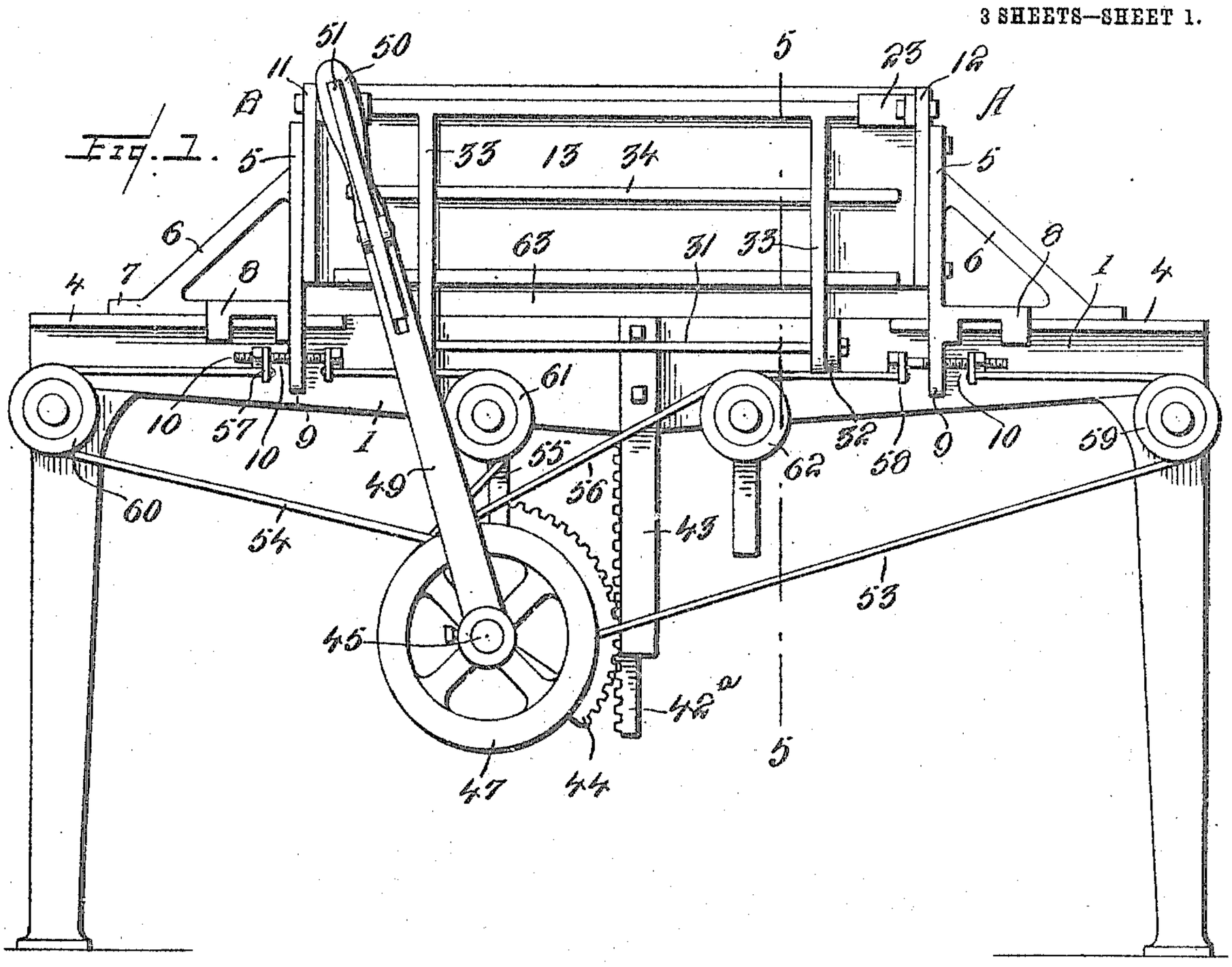
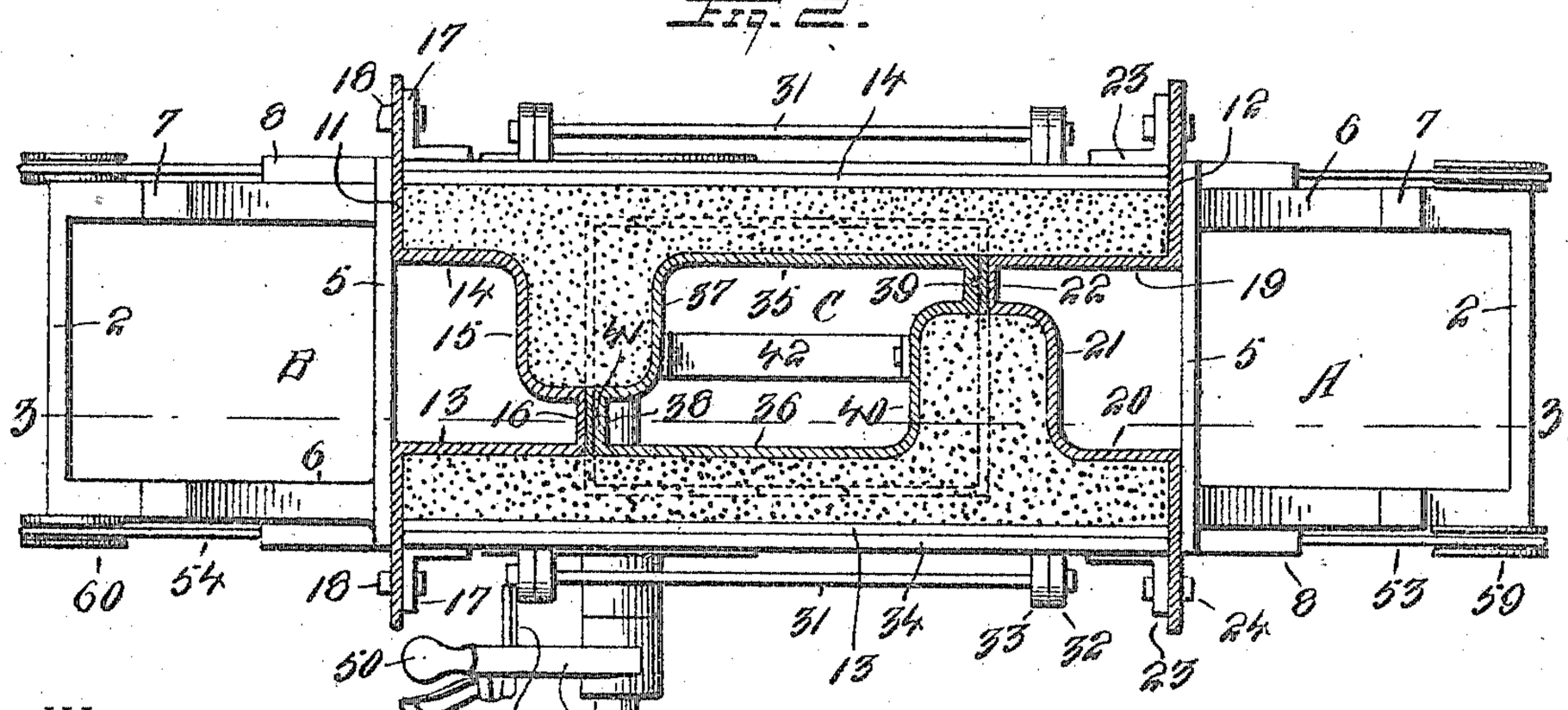


Fig. 2.



WITNESSES:

Wm. F. Hoge.

M. E. Looney

INVENTOR

J. W. Bragstad

BY

A. C. Ewerth Co.

Attorneys

J. W. BRAGSTAD.

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3 SHEETS—SHEET 2.

Fig. 3.

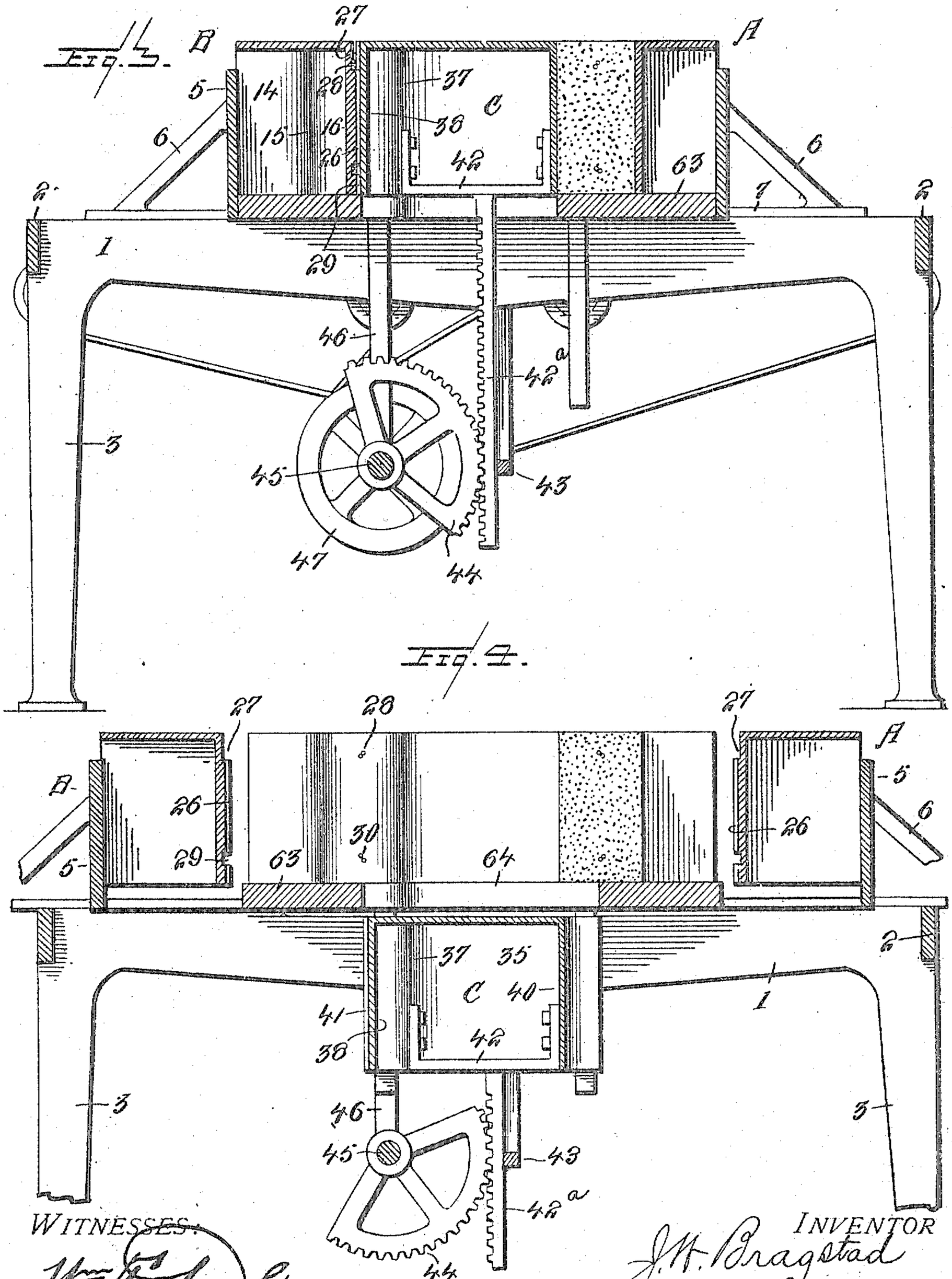

Fig. 4.

WITNESSES:

Wm. F. Hoge

M. E. Lourey

INVENTOR

J. W. Bragstad

BY

H. C. Evert & Co

Attorneys

J. W. BRAGSTAD.

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3 SHEETS—SHEET 3.

Fig. 5.

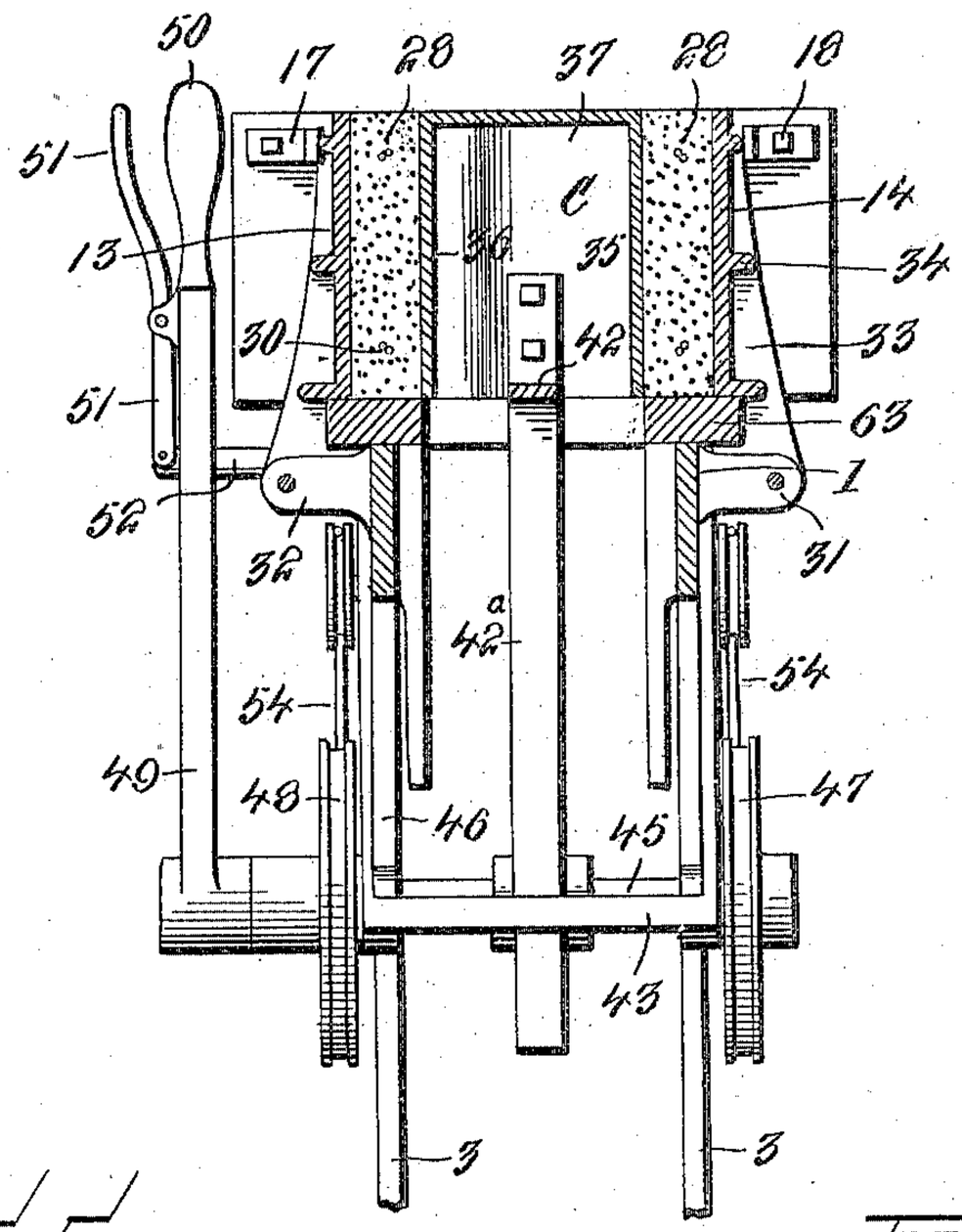


Fig. 6.

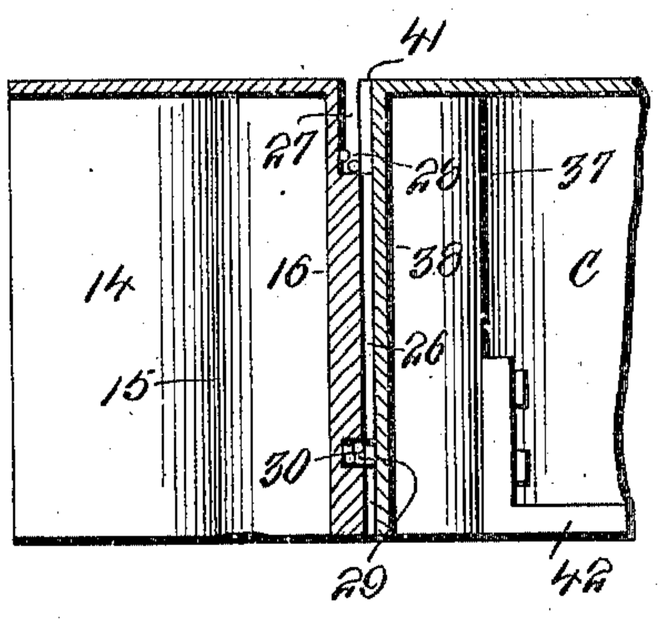


Fig. 7.

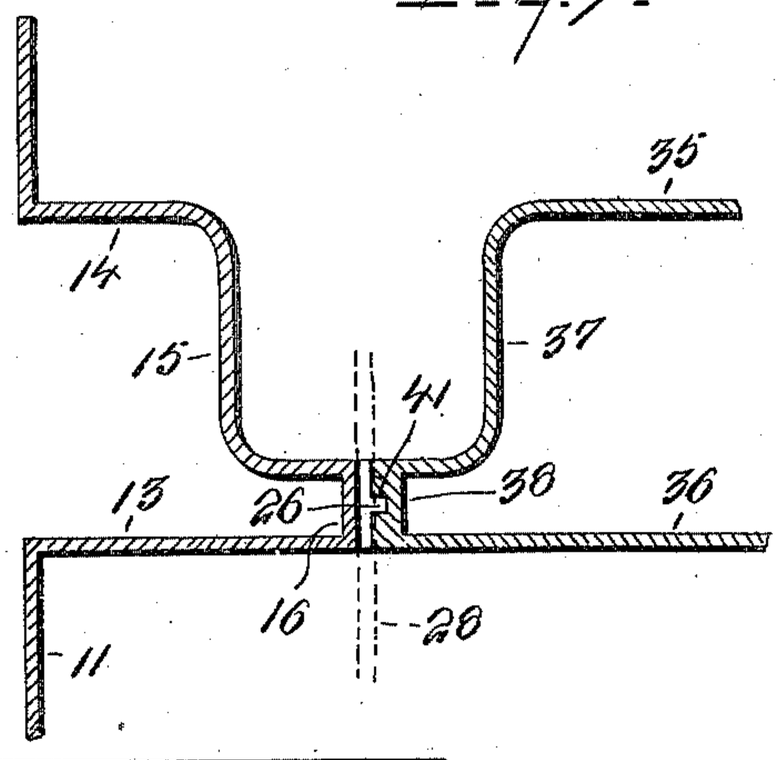
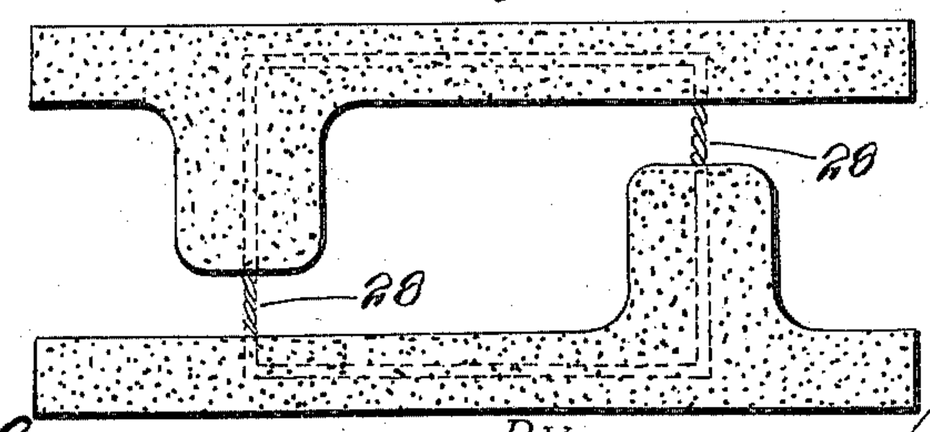


Fig. 8.



WITNESSES:

Wm. F. Noble.

M. E. Lowry.

INVENTOR

J. W. Bragstad

BY

W. C. Evert & Co.

Attorneys

UNITED STATES PATENT OFFICE.

JOSEPH W. BRAGSTAD, OF CANTON, SOUTH DAKOTA.

CONCRETE-BLOCK-MOLDING MACHINE.

951,723. Specification of Letters Patent. Patented Mar. 8, 1910.

Application filed November 28, 1908. Serial No. 464,810.

To all whom it may concern:

Be it known that I, JOSEPH W. BRAGSTAD, a citizen of the United States of America, residing at Canton, in the county of Lincoln and State of South Dakota, have invented certain new and useful Improvements in Concrete-Block-Molding Machines, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to concrete block molding machines and has for its object to provide a machine of such class in a manner as hereinafter set forth, for molding what may be termed a sectional block having a continuous air space, with the sections of the block spaced from each other and connected together by one or more continuous anchors.

A further object of the invention is to provide a machine of such class with means in a manner as hereinafter set forth whereby the continuous anchor or anchors can be readily positioned and retained in such position during the molding of the block, said anchor or anchors when the block sections harden holding the sections together.

Further objects of the invention are to provide a concrete block molding machine which shall be simple in its construction, strong, durable, efficient in its use, conveniently operated, readily set up, and inexpensive to manufacture.

With the foregoing and other objects in view, the invention consists of the novel construction, combination and arrangement of parts hereinafter more specifically described and illustrated in the accompanying drawings wherein is shown the preferred embodiment of the invention, but it is to be understood that changes, variations and modifications can be resorted to which come within the scope of the claims hereunto appended.

In the drawings wherein like reference characters denote corresponding parts throughout the several views, Figure 1 is a side elevation of a concrete block molding machine in accordance with this invention. Fig. 2 is a sectional plan. Fig. 3 is a longitudinal section on line 3—3, Fig. 2. Fig. 4 is a longitudinal section with the core lowered and the end walls of the molds shifted from the ends of the block. Fig. 5 is a transverse section on line 5—5, Fig. 1. Fig. 6 is a sectional detail broken away of the core and an end wall. Fig. 7 is a sectional plan broken away of the core and an end wall, and, Fig. 8 is a top plan of one form of a sectional block made with a machine in accordance with this invention.

Referring to the drawings in detail, the machine comprises a base supported upon uprights 3 and consisting of longitudinally extending members 1 and horizontally extending members 2, the said members being formed integral or connected together in any suitable manner. Each of the members 1 at one end is provided with a laterally extending flange 4 which constitutes means for connecting the carriers for the end walls of the mold to the base. The carriers are indicated generally by the reference characters A, B, and each consists of a vertically extending plate 5 which is fixed to an end wall of the mold and formed integral with the plate 5 is a pair of downwardly extending inclined arms 6 which at their lowered terminus are formed integral with longitudinally extending arms 7 mounted upon the members 1 and shiftable thereon. The longitudinally extending arms 7 are formed integral with the plate 5 and depending from each of said arms 7 is an L-shape projection 8 which takes over the flange 4 whereby the carrier is connected to the members 1. Depending from the plate 5 at each side thereof and exteriorly of the members 1 is an extension 9 provided with an opening through which projects a longitudinally extending screw-threaded tensioning bolt 10.

The mold comprises a pair of end walls 11, 12, and a pair of side walls 13, 14, the carrier A being attached to the end wall 12 in any suitable manner and the carrier B is attached to the end wall 11. The shape of the end walls 11, 12, is illustrated by way of example, as these walls can be of any suitable shape depending upon the contour of the inner face of the sections of the block or whether it be desired to mold corner blocks. As shown, the end walls are reversed with respect to each other and the end wall 11 consists of an outer angle-shaped portion 13, an inner angle-shaped portion 14, a transversely extending portion 15 of compound curvature which terminates in the angle-shaped portion 14, and a straight transversely extending portion 16 which terminates in the portion of compound curvature and the angle-shaped portion 13. The longitudinally extending leg of the angle-shaped portion 13 is of greater

length than the longitudinally extending leg of the angle-shaped portion 14. The horizontally extending leg of the angle-shaped portion 13 and of the angle-shaped portion 14 projects from each side of the plate 5 and each has secured to its inner face at its outer end an angle iron 17 through the medium of a holdfast device 18. The end wall 12 consists of an inner angle-shaped portion 19, an outer angle-shaped portion 20, a transversely extending portion 21 of compound curvature which at one end terminates in the longitudinally extending leg of the angle-shaped portion 20 and at its other end terminates in a straight transversely extending portion 22, the latter terminating in the longitudinally extending leg of the angle-shaped portion 19. The longitudinal leg of the angle-shaped portion 20 is of less length than the longitudinally extending leg of the angle-shaped portion 19. The horizontally extending legs of the angle-shaped portions 19 and 20 project beyond the sides of the plate 5 and to the inner face of each of said horizontally extending legs is secured an angle iron 23 through the medium of the hold fast device 24. The transversely exending portion 16 of the end wall 11 as well as the transversely extending portion 22 of the end wall 12 is provided with a tongue 26 and each of the said portions 16 and 22 and its respective tongue 26 is cut away as at 27 to provide an opening for the reception of a continuous anchor 28 which is rectangular in contour. Each of the transversely-extending portions 16 and 22 as well as its respective tongue is cut away at 29 to provide an opening for the reception of an anchor 30, which when the block is molded, is positioned below the anchor 28. The anchor 30 is continuous and rectangular in contour. The side walls 13, 14, of the mold are hinged to the members 1 through the medium of the rods 31 which are connected to the laterally extending apertured lugs 32 formed integral with the members 1 and extend through the lower projecting apertured portions 32 of the vertical ribs 33 which are formed integral with the periphery of the side walls 13, 14. These latter are furthermore provided with longitudinally extending reinforcing ribs 34. When the mold is closed, the side walls 13 and 14 are retained in a vertical position through the medium of the angle irons 17 of the end wall 11 and the angle irons 23 of the end wall 12, the said angle irons engaging the periphery of the side walls 13, 14, near the top thereof and as clearly shown in Figs. 1 and 2.

Adapted to extend within the mold is a reciprocatory core referred to generally by the reference character C and which in connection with the end walls forms the inner face of the block sections. The said core C comprises a pair of longitudinally extending portions 35, 36, the former at one end terminating in a transversely extending portion 37 of compound curvature which merges into a straight transversely extending portion 38, the latter terminating in one end of the longitudinally extending portion 36. The longitudinally extending portion 35 also merges into a transversely extending straight portion 39 which terminates in a transversely extending portion 40 of compound curvature, the latter merging in said longitudinally extending portion 36. The transversely extending curvilinear portion 37 of the core opposes the transversely extending portion 15 of the wall 11, the transversely extending curvilinear portion 40 of the core opposes the transversely extending portion 21 of the wall 12. Each of the transversely extending portions 38, 39, of the core is provided with a vertically extending groove 41 for the reception of a tongue 26, the portion 38 of the core opposes the portion 16 of the end wall 11, in fact the portion 38 abuts against the portion 16 when the core is in position and the portion 39 of the core also abuts against the portion 22 of the wall 12 when the core is in position.

Arranged within and connected to the core C is a vertically extending yoke 42 having depending therefrom a rack bar 42ª which is interposed between the abutment 43 and the toothed segment 44, the segment 44 having its teeth engaging with the teeth of the rack bar and by such an arrangement, it is evident that when the segment is shifted in one direction, the core will be elevated to a position within the mold and that when the segment is operated in the opposite direction, the core will be lowered. The segment 44 is mounted upon the transversely exending shaft 45 journaled in the hangers 46 which depend from the members 1. The shaft 45 is of a length as to project from each of the hangers 46 and carries on one projecting end a grooved pulley 47 and on its other projecting end a grooved pulley 48. That projecting end of the shaft 45 which carries the grooved pulley 48 has fixed thereto a shifting lever 49 having a handle 50, a pivoted latch arm 51, to the lower end of which is connected an inwardly extending latch 52, the latch extending through the lever 49 and being adapted when in normal position, that is to say, when the mold is closed, to engage one of the ribs 33 to arrest the shifting movement of the lever in one direction, if an attempt should be made to open the mold. The length of the latch is such that to shift the lever 49 to open the mold, it will necessitate the rocking of the arm 51 on its pivot so as to withdraw the latch 52 to clear the lower portion of the rib 33 as clearly shown in Fig. 5.

The shifting of the lever downwardly

through the medium of the segment 44 and rack 42ª lowers the core, also actuates a duplex shifting mechanism to move the carriers A, B, outwardly carrying the end walls therewith and opens the mold. Two duplex shifting mechanisms are employed, one at each side of the machine. The grooved pulley 47 forms an element of the duplex shifting mechanism at the rear side of the machine and the grooved pulley 48 forms an element of the shifting mechanism at the front of the machine. As each duplex mechanism is similar in construction, but one will be described, the description of one applying to the other. Each of said duplex shifting mechanisms for the carriers consists of a pair of cables 53, 54 for shifting the carriers outwardly and a pair of cables 55, 56, for shifting the carriers inwardly. One end of each of the cables 53, 54, is connected to a bolt 10 as at 57 and the other ends of the cables 53, 54 are connected to a grooved pulley. One end of each of the cables 55, 56, is attached to a bolt 10 as at 58 and the other end of the cables 55, 56, are attached to a grooved pulley. The bolts 10 are adapted to tension the flexible members. The cable 53 travels over a pulley 59, the cable 54 over a pulley 60, the cable 55 over a pulley 61 and the cable 56 over a pulley 62. The pulleys 59 to 62 are suitably supported upon the longitudinal members 1. The reference character 63 denotes a removable pallet which constitutes the bottom of the mold and which is supported upon the members 1. The pallet is formed with an opening 64 for the passage of the core C.

It is thought that the operation of molding the block will be thoroughly understood from the foregoing description taken in connection with the accompanying drawings but it will be assumed that the core C and end walls 11 and 12 are in the position as shown in Fig. 4, under such conditions the lever 49 will be in its lowermost position. The lever 49 is then shifted in an upward direction which causes the end walls to move toward each other and which also imparts a vertical movement to the car. This operation is continued until the closing of the mold is completed and the core raised to its highest position. During the closing of the mold, the lower anchor is held manually in proper position and the mold closed upon it. After the mold has been completely closed, a portion of the material from which the block is to be formed is placed in the mold below and above the lower anchor. More material is placed in the mold, the upper anchor is then positioned, and then the remaining portion of the material from which the block is formed added. After the block has been formed and it is desired to remove it from the mold, the lever 49 is moved downwardly which rocks the shaft 45, the latter carrying the segment 44 therewith and owing to the engagement of the latter with the rack 52, the core is lowered. Simultaneously with the lowering of the core C, the cables 53, 54, of each duplex shifting mechanism winds upon the grooved pulleys 47, 48 and moves the carriers A, B, outwardly which carry the end walls 11, 12 therewith. The moving outwardly of the end walls releases the side walls which can be dropped down and the pallet 63 with the block thereon removed. Owing to the shape of the end walls with respect to the core, the block is formed with two sections with a continuous air space therebetween and owing to the positioning of the anchors, the two inner faces of the block are connected together near their ends instead of at the middle.

Now, it will be assumed that it is desired to mold another block, the side walls are elevated, the lever shifted in the opposite direction and the carriers A, B, will then be moved inwardly through the medium of the cables 55, 56 as said cables will wind upon the grooved pulleys 47, 48. During the shifting of the lever 49 upwardly, the core will be moved into the mold. Prior to the closing of the mold the pallet is placed in position.

What I claim is:

1. A sectional block molding machine comprising a base, a mold embodying inwardly extending side walls hinged to each side of the base, inwardly extending end walls slidably mounted upon the base and a bottom fixed to the base, said bottom provided with an opening, a vertically movable hollow core adapted to extend through said opening and into said mold, said end walls and core provided with means for supporting anchors for coupling the sections of the block together, a pair of longitudinally shiftable carriers straddling the base and fixed to the end walls, a yoke secured within said core, a vertically disposed rack depending from said yoke, an oscillatory shaft arranged below said base, means depending from the base for supporting the shaft, a toothed segment mounted upon the shaft and engaging the rack for shifting it whereby the core is moved to and from the mold, a lever connected to one end of the shaft for operating it, a pulley mounted on each end of the shaft, idler pulleys supported at each side of the base, two sets of flexible connections, each set traveling over the idler pulleys at one side of the base and connected to a pulley upon one end of the shaft, and a pair of tensioning devices interposed in each set of flexible connections and connected to the carriers.

2. A sectional block molding machine comprising a base, a mold mounted thereon and embodying hinged side walls, longitudi-

nally-shiftable end walls and a bottom, a vertically movable core adapted to extend in the mold and coöperate with the walls of the mold to form the block sections, said end walls and core provided with means for supporting anchors for coupling the block sections together, a pair of longitudinally-shiftable carriers mounted upon the base and fixed to the end walls, a vertically disposed rack depending from the core, an oscillatory shaft suspended from the base, a toothed segment carried by the shaft and engaging the rack for shifting it whereby the core is moved to and from the mold, a lever connected to the shaft for operating it, a pulley mounted on each end of the shaft, idler pulleys supported at each side of the base, two sets of flexible connections, one set arranged at one side and the other set at the other side of the base and each set traveling over the idler pulleys at one side of the base and connected to a pulley upon one end of the shaft, and a pair of tensioning devices interposed in each set of flexible connections and connected to the carriers.

In testimony whereof I affix my signature in the presence of two witnesses.

JOSEPH W. BRAGSTAD.

Witnesses:
P. A. Overseth,
E. M. Dean.