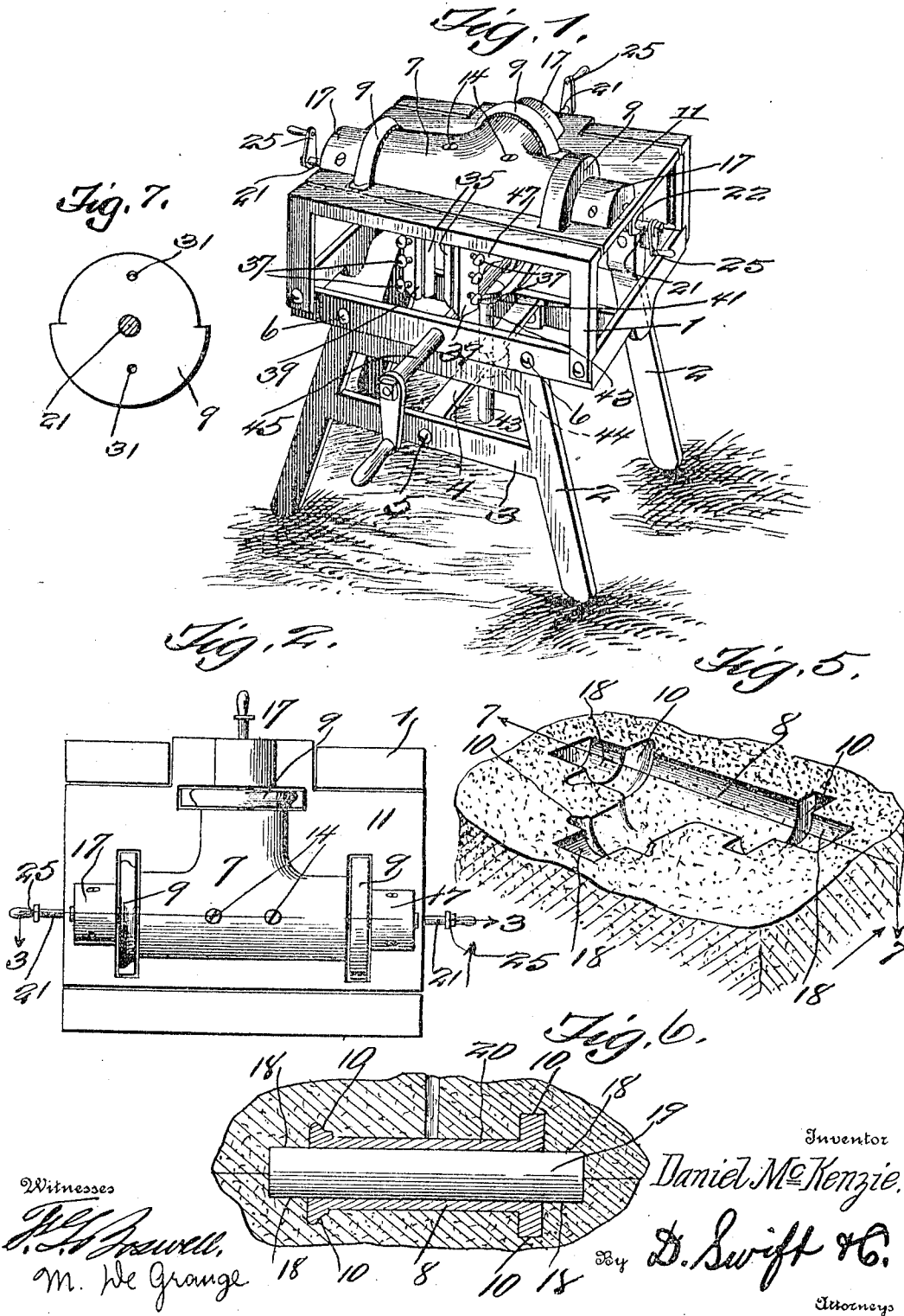


D. McKENZIE.
MACHINE FOR MAKING MOLDS.
APPLICATION FILED MAR. 26, 1909.

947,597.

Patented Jan. 25, 1910.

2 SHEETS—SHEET 1.



Witnesses

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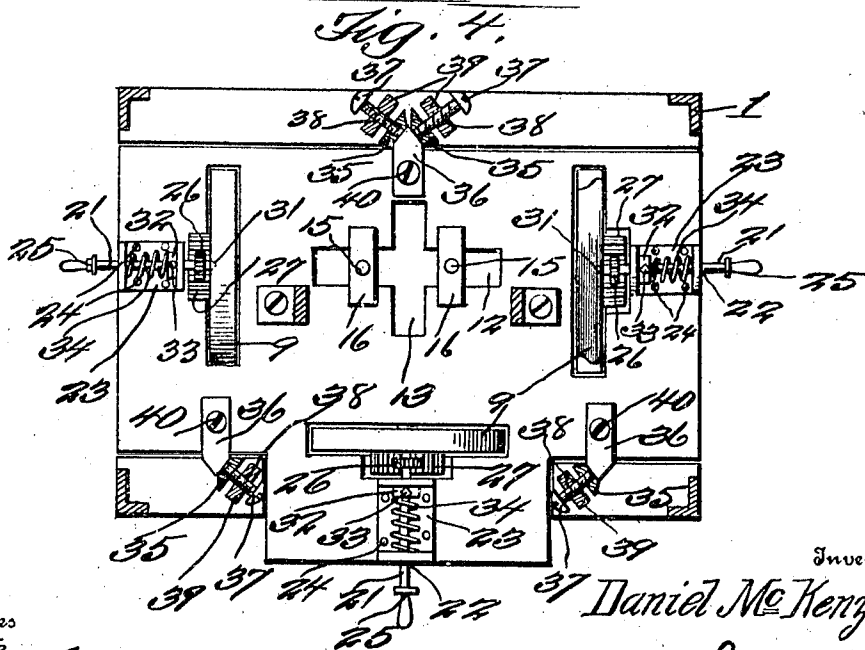
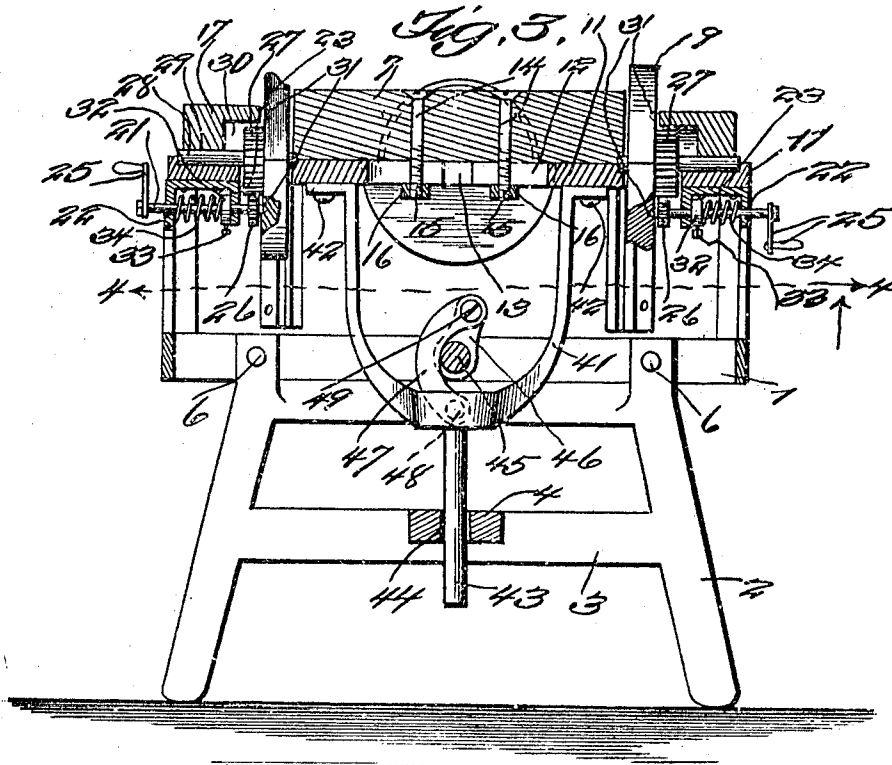
Attorneys

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UNITED STATES PATENT OFFICE.

DANIEL McKENZIE, OF WARREN, OHIO.

MACHINE FOR MAKING MOLDS.

947,597.

Specification of Letters Patent.

Patented Jan. 25, 1910.

Application filed March 26, 1909. Serial No. 485,988.

To all whom it may concern:

Be it known that I, DANIEL McKENZIE, a citizen of the United States, residing at Warren, in the county of Trumbull and State of Ohio, have invented a new and useful Machine for Making Molds; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention, about to be set forth and claimed, belongs to the art of mold making machines, and it primarily pertains to a machine by which molds for forming pipe fittings may be formed.

The object in view is the provision of a structure for forming molds by which pipe fittings may be cast of various configurations, and which may be applied to machines as are now used in practice.

Another object of the invention is the production of new and novel means for supporting and operating the several parts of such an apparatus.

Another object as aimed is to facilitate the making such molds, and to produce a structure which is simple in design and rather inexpensive to manufacture.

Another object of the invention is the provision of a frame work having a vertically movable member provided with partially rotatable members, of one or more designs for making impressions in the sand or other material of the molder's flask, for the formation of pipe fittings with or without flanges.

Another object of the invention resides in the provision of means for rotating or operating the said rotatable members.

A further object of the invention is to provide means whereby the vertically movable member may be raised and lowered, and when raised, it may be held in such position.

The features and elements which constitute the above entitled invention, may be changed and varied, that is to say, in an actual reduction to practice, if, however, the changes and variations are covered by the appended claims.

To obtain a full and correct understanding of the details of construction, combinations of features, elements and advantages, reference is to be had to the hereinafter set

forth description and the accompanying drawings in connection therewith, wherein—

Figure 1 is a perspective view of the apparatus embodying the features of the invention, and showing the vertical movable member in a raised position. Fig. 2 is a top plan view of the device. Fig. 3 is a sectional view upon line 3—3 of Fig. 2. Fig. 4 is a sectional view on line 4—4 of Fig. 3. Fig. 5 is a perspective view of plastic material showing the impressions 8, 10 and 18. Fig. 6 is a sectional view through two impressions similar to that shown in Fig. 5 placed in registration, and designed for supporting the core for forming the hollow portion of the fitting, about which the molten metal is poured. Fig. 7 is a detail view of one of the disks 9.

In regard to the drawings, wherein similar reference characters indicate corresponding parts in the several illustrations, 1 designates the frame of the apparatus, which is shown as being rectangular in contour, but the applicant desires it to be understood that any form of framework may be utilized in practice. This framework is provided with suitable supports 2, which are reinforced by suitable bracing members 3 and 4, the bracing members 3 being shown preferably as being integral with the supports 2, while the bracing member 4 is secured to the bracing member 3 by suitable screws or other means 5. The supporting members 2 and the framework 1 are secured together also by suitable screws or other means 6, as shown clearly in Figs. 1 and 3.

7 designates a body member, which forms the impression 8 in the sand or other material, in order to form the body of the fitting, as shown clearly in the drawings. The fitting, as shown in the drawings, is to be of the form of a T joint, but it is to be understood that elbow joints or other joints or fittings of any design or configuration may be readily molded.

9 designates the partial rotatable members, which are for the purpose of forming the impressions 10 in sand or other material, as shown in Fig. 5, in order to form the fittings of various configurations. The member 7 is removably attached to and carried by the vertically movable member 11. This vertically movable member is provided with slots 12 and 13, which cross one another, as shown in Fig. 4. The member 7 has screws

or other suitable means 14 penetrating there-through and extended through the slot 12, and to their threaded extremities 15, the plates 16 are attached, they being positioned at right angles to the slot 12, as shown
5 clearly in Fig. 4, so as to prevent upward displacement of the member 7.

Carried by and secured to the vertically movable member 11, are the core-prints 17, which are placed adjacent to the outer faces of the members 9. These core-prints 17 are designed for the purpose of forming the impressions 18, in the sand or other material, as shown in Fig. 5, for the support of the
15 core 19, shown in Fig. 6, about which core, the metal 20, when in a molten state, is poured.

The members 9 are disk shape, as shown, and are cut away for a slight distance toward their centers, and substantially half way about their peripheries. The purpose of forming the members 9, in this manner, is to allow their positions to be changed, in order to form impressions, by which fittings
25 may be formed with flanges of various configurations, as shown in Fig. 6. To change the positions of the members 9, shafts or rods 21 are provided, which are mounted in suitable bearings 22, of the bracket members 23. These bracket members 23 are secured to the under face of the vertically movable member 11, as shown clearly in Figs. 3 and 4, by means of screws or other suitable means 24. These shafts or rods are provided with
35 cranks and handles 25, and pinions 26. These pinions 26 mesh with the gears 27, which are carried by stub shafts 28 of the members 9, and are journaled in suitable bearings 29, between the core-prints and the
40 upper surface of the vertically movable member 11. The core-prints are hollowed out, as shown at 30, in order to make room for the gears 27. The rotatable members 9 upon their outer faces are provided with depressions 31, which are designed for the purpose of receiving the extremities of the slidable rods or shafts 21, that is to say, when the members 9 are held in one or another position. Surrounding the shafts or rods 21
50 are collars 32, which are held to the shafts or rods by screws or bolts 33, as shown clearly in Figs. 3 and 4. Interposed between the collars and one of the bearings of the bracket members are coiled springs 34, which surround the shafts or rods, and perform the functions of holding the rods or shafts in engagement with the impressions or sockets 31. By drawing the rods or shafts outwardly against the tension of the spring 34, they may be disengaged from the said impressions or sockets, as will be clearly
60 apparent.

To guide the vertically movable member, when being raised, movable guide members 35 are provided, which are adjustable with

relation to the cooperating guide members 36, by means of the screws or other suitable means 37. The screws 37 are threaded in apertures 38 of the downwardly projecting extensions 39, which are as shown as being
70 integral with the framework 1 of the apparatus. The cooperating guide members 36 are secured by screws or other suitable means 40 to the under face of the vertically movable member 11, as shown in Fig. 4. 75

To raise the vertically movable member 11, a frame 41 is secured to the under face thereof, by screws or other suitable means 42, and is provided with a downwardly extending guide rod 43. This guide rod 43
80 moves and is guided in the apertures 44, of the transverse brace member 4, as shown clearly in Figs. 1 and 2. Mounted in bearings of the frame 1, is a shaft 45, from which an arm 46 radially projects, to which
85 a link 47 is pivoted. This link 47 is pivoted to the frame 41 by means of the screw, pin or other means 48, as shown clearly in Fig. 3 of the drawings. The link 47 is so pivoted between the frame 41 and the arm 90 46, that the pivot 49, between the arm and the link, is positioned out of alignment of the center of the shaft 45 and the pivot 48, when the vertically movable member is in a raised position, in order to lock the said
95 vertically movable member in such a position, as shown in Figs. 1 and 3.

To form pipe fittings of the design shown in Fig. 6 the partially rotatable members are set or dispced in the positions shown in Fig. 1, after which one-half of a molder's flask (not shown) containing wet sand or other plastic material is placed upon the frame 1 of the apparatus. While this half of the flask is in such position, the vertically movable member 11 is moved upward, in order that the body member, the rotatable members 9 and the core-prints 17 may make the impressions 8, 10 and 18 in the said material, after which the vertically
100 movable member is again moved downward. 105

To raise and lower the vertically movable member 11, the shaft 45 is partially rotated in one direction or the other by means of the handle carried thereby, as shown in Fig. 1. 115 The shaft 45 as before stated is provided with the arm 46, which has connections with the frame 41 (which projects downwardly from and is carried by the vertically movable member 11) through the medium of the link 47, causes the vertically movable member to be raised and lowered by the rocking of the shaft 45. When the vertically movable member is being raised or lowered, the same is guided during such movement by means of the guide members 35 and 36, shown clearly in Figs. 1 and 4. 120 125

When it is desired to rotate the members 9 in order to present a periphery of a different configuration, the shafts or rods 21
130

are drawn outward, in order to disengage with the sockets 31 (the collars 32 acting against the tension of the springs 34) after which the shafts or rods 21 are partially rotated, and by the coöperation of the intermeshing gears 26 and 27 (which are carried by and rotatable with the shafts or rods 21 and the stub-shafts 28) the rotating members 9 are operated, in order to present the desired periphery. When the shafts or rods 21 are being drawn outwardly, the gears 26 and 27 remain in engagement with one another, for the reason that the gears 27 are of greater thickness, as will be clearly apparent from Fig. 3. Each time the rotatable members are changed, the vertically movable member 11 is in its lowermost position, and after the members 9 are changed the member 11 is again raised, in order to cause the flange forming members 9 to make their impressions in the sand for other plastic material. As will be observed the pattern member 7, the members 9, the means for operating the members 9, and the core-prints, as well as the frame 41 and the rod 43 are all movable with the vertically movable member 11, as one body.

To change the design of the impressions 8, 10 and 18, the partially rotatable members 9 are rotated by the handles 25, so that the portions opposite the portions shown in Fig. 1, face upward, after which impressions are formed in the material of the two halves of a molder's flask.

Any design of rotatable members may be employed in connection with the apparatus shown in the drawing, so that various forms of impressions may be formed whereby various forms of fittings may be molded.

From the foregoing, the essential features, elements and the operation of the device, together with the simplicity thereof, will be clearly apparent.

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

1. In a machine for making molds and the like, a frame, supports therefor, means for making impressions to cast the body of a fitting, said machine having rotatable means for forming impressions in material for casting flanges of various configurations, means for holding the rotatable means in adjusted positions, and means for tensioning the holding means.

2. In a machine for making molds and the like, a frame, supports therefor, means for making impressions to cast the body of a fitting, said machine having movable members for forming impressions in material for casting flanges of various configurations, means for holding the movable members in adjusted positions, and means for tensioning the holding means.

3. In a machine for making molds and the like, a frame, supports therefor, means for

making impressions to cast the body of a fitting, said machine having movable members for forming impressions in material for casting flanges of various configurations, said movable members having depressions and sliding means for engaging the depressions for holding the movable members in adjusted positions.

4. In a machine for making molds and the like, a frame, supports therefor, means for making impressions to cast the body of a fitting, said machine having movable members for forming impressions in material for casting flanges of various configurations, said movable members having depressions and slidable tensioned means for engaging the depressions for holding the movable members in adjusted positions.

5. In a machine for making molds and the like, a frame, supports therefor, means for making impressions to cast the body of a fitting, said machine having movable members for forming impressions in material for casting flanges of various configurations, said movable members having depressions, slidable tensioned means for engaging the depressions for holding the movable members in adjusted positions, and means for adjusting the tension of the tensioned means.

6. In a machine for making molds, and the like, a frame, supports therefor, means for making impressions to cast the body of a fitting, said machine having movable members for forming impressions in material for casting flanges of various configurations, said movable members having depressions and slidable tensioned means for engaging the depressions for holding the movable members in adjusted positions and adapted for rotating the movable members when disengaged from the depressions.

7. In a machine for making molds and the like, a frame, supports therefor, means for making impressions to cast the body of a fitting, said machine having movable members for making impressions in material for casting flanges of various configurations, and means for rotating and holding the movable members in adjusted positions.

8. In a machine for making molds and the like, a frame, supports therefor, means for making impressions to cast the body of a fitting, said machine having movable members for making impressions in material for casting flanges of various configurations, means for rotating and holding the movable members in adjusted positions, and means for transmitting motion from the rotating and holding means to the movable members.

9. In a machine for making molds and the like, a frame, supports therefor, a vertically movable member guided within said frame, means for raising and lowering the vertically movable member, said member having means for making impressions to mold

the bodies of fittings, and provided with rotatable means for forming impressions in material for casting flanges of various configurations.

5 10. In a machine for making molds and the like, a frame, a vertically movable member having means for making impressions to mold the bodies of fittings, and provided with rotatable members for forming impressions in material for casting flanges of various configurations.

10 11. In a machine for making molds and the like, a frame, a vertically movable member having means for making impressions to mold the bodies of fittings, and provided with rotatable members for forming impressions in material for casting flanges of various configurations, and means for raising and lowering the vertically movable member.

15 12. In a machine for making molds and the like, a frame, a vertically movable member having means for making impressions to mold the bodies of fittings, and provided with rotatable members for forming impressions in material for casting flanges of various configurations, means for guiding the vertically movable member, and means for raising and lowering said vertically movable member.

20 13. In a machine for making molds and the like, a frame, a vertically movable member having means for making impressions to mold the bodies of fittings, and provided

with rotatable members for forming impressions in material for casting flanges of various configurations, and means for rotating and holding the rotatable members in adjusted positions. 35

14. In a machine for making molds and the like, a frame, a vertically movable member having means for making impressions to mold the bodies of fittings, and provided with rotatable members for forming impressions in material for casting flanges of various configurations, and coreprints for forming impressions in the material for the support of the core of the fittings. 40 45

15. In a machine for making molds and the like, a frame, a vertically movable member having means for making impressions to mold the bodies of fittings, and provided with rotatable members for forming impressions in material for casting flanges of various configurations, means for rotating and holding the rotatable members in adjusted positions, and means for forming impressions in said material for the support of the core of the fittings. 50 55

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses. 60

DANIEL McKENZIE.

Witnesses:

MARK J. GATES,

ERNEST J. SUNDERSON.