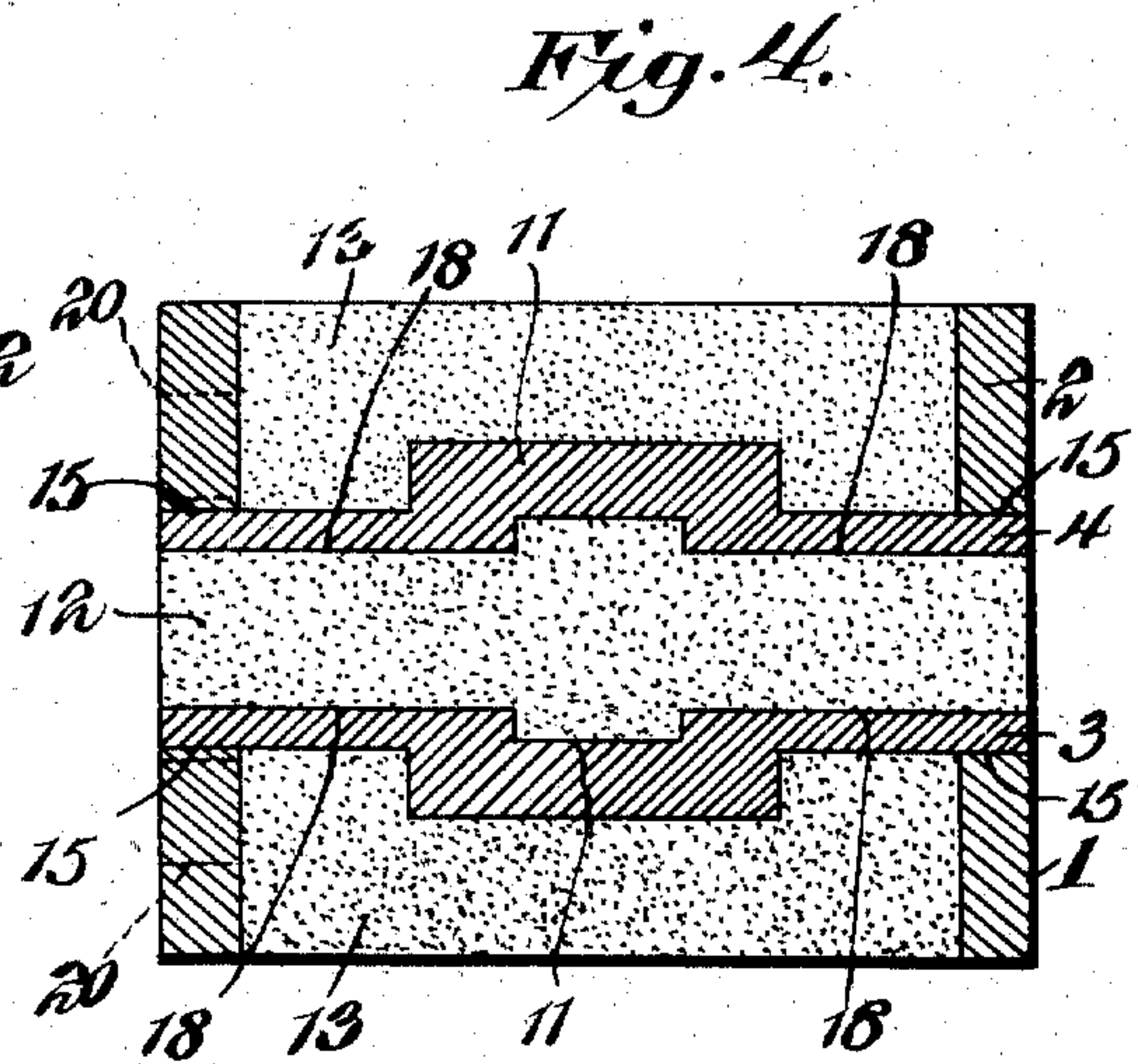
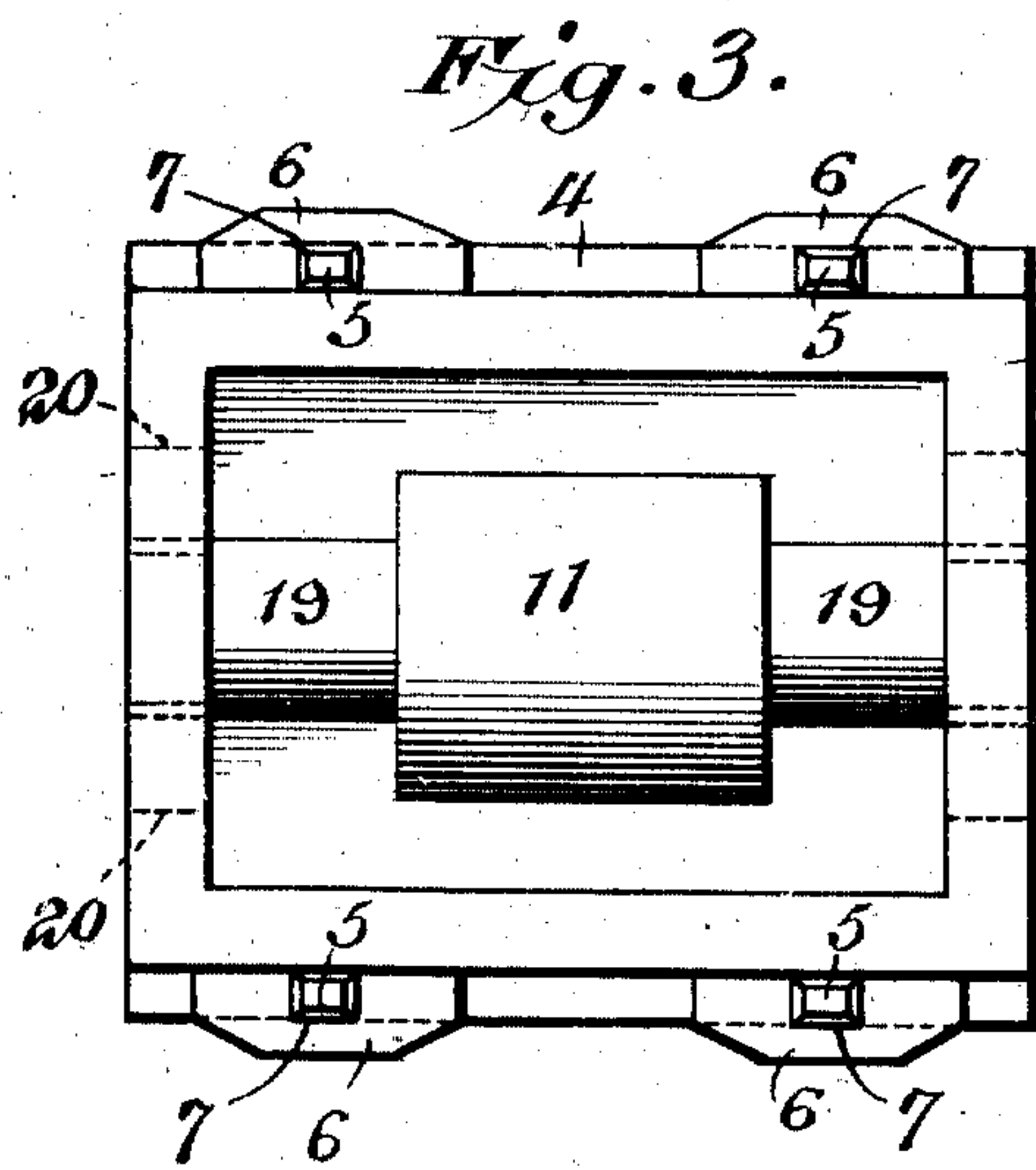
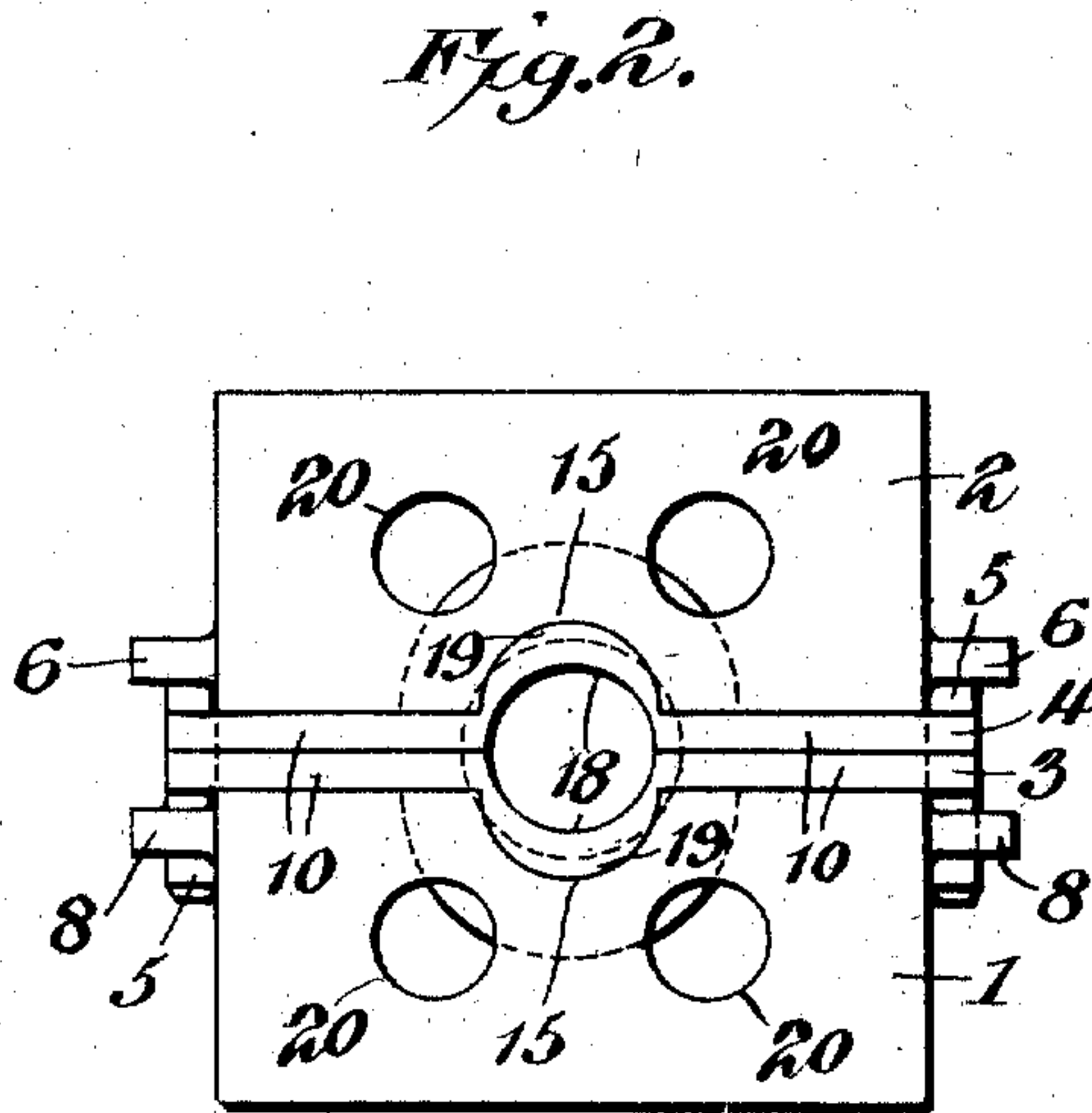
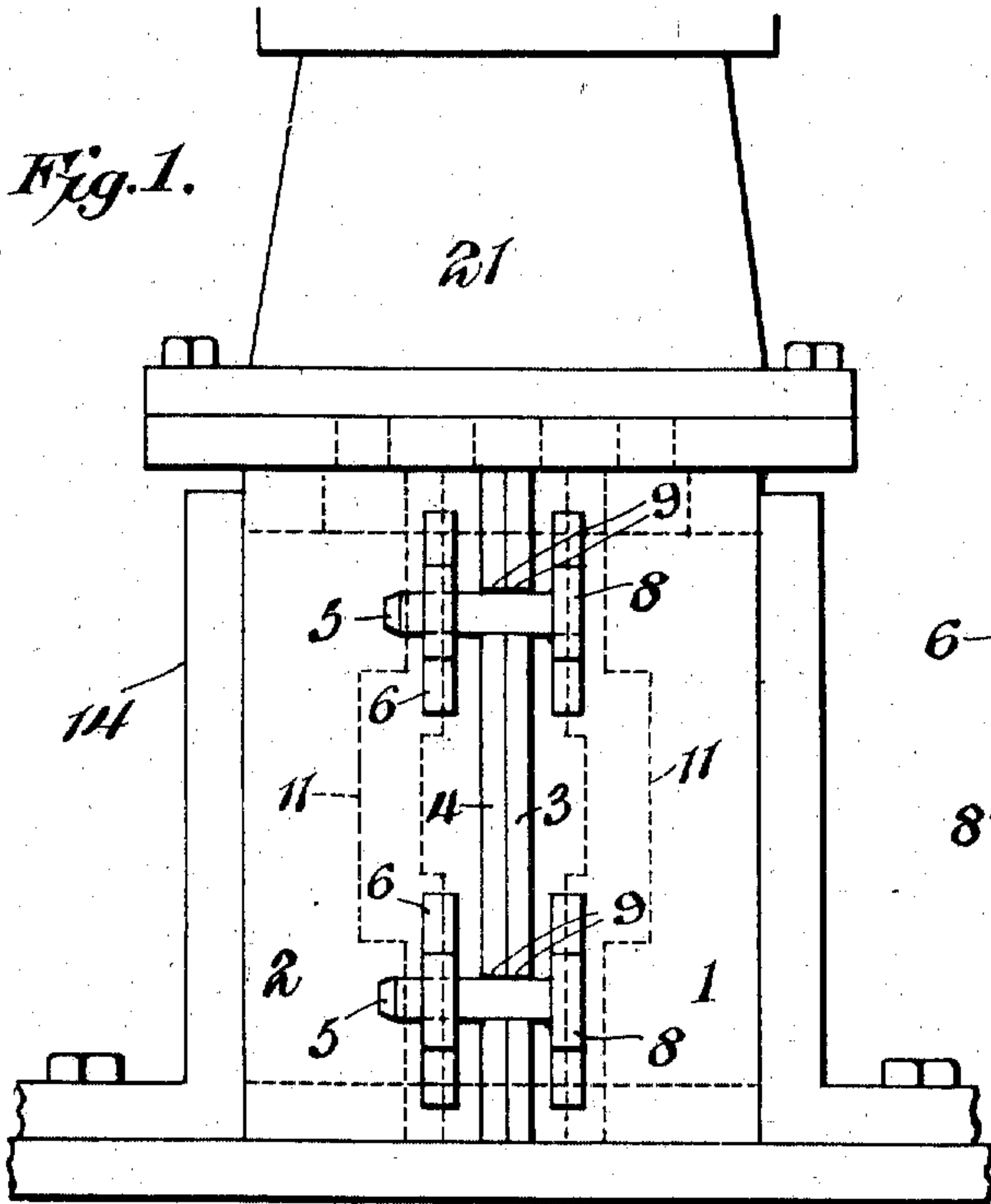


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MOLDING APPARATUS.
APPLICATION FILED JUNE 18, 1910.

993,599.

Patented May 30, 1911.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 5.

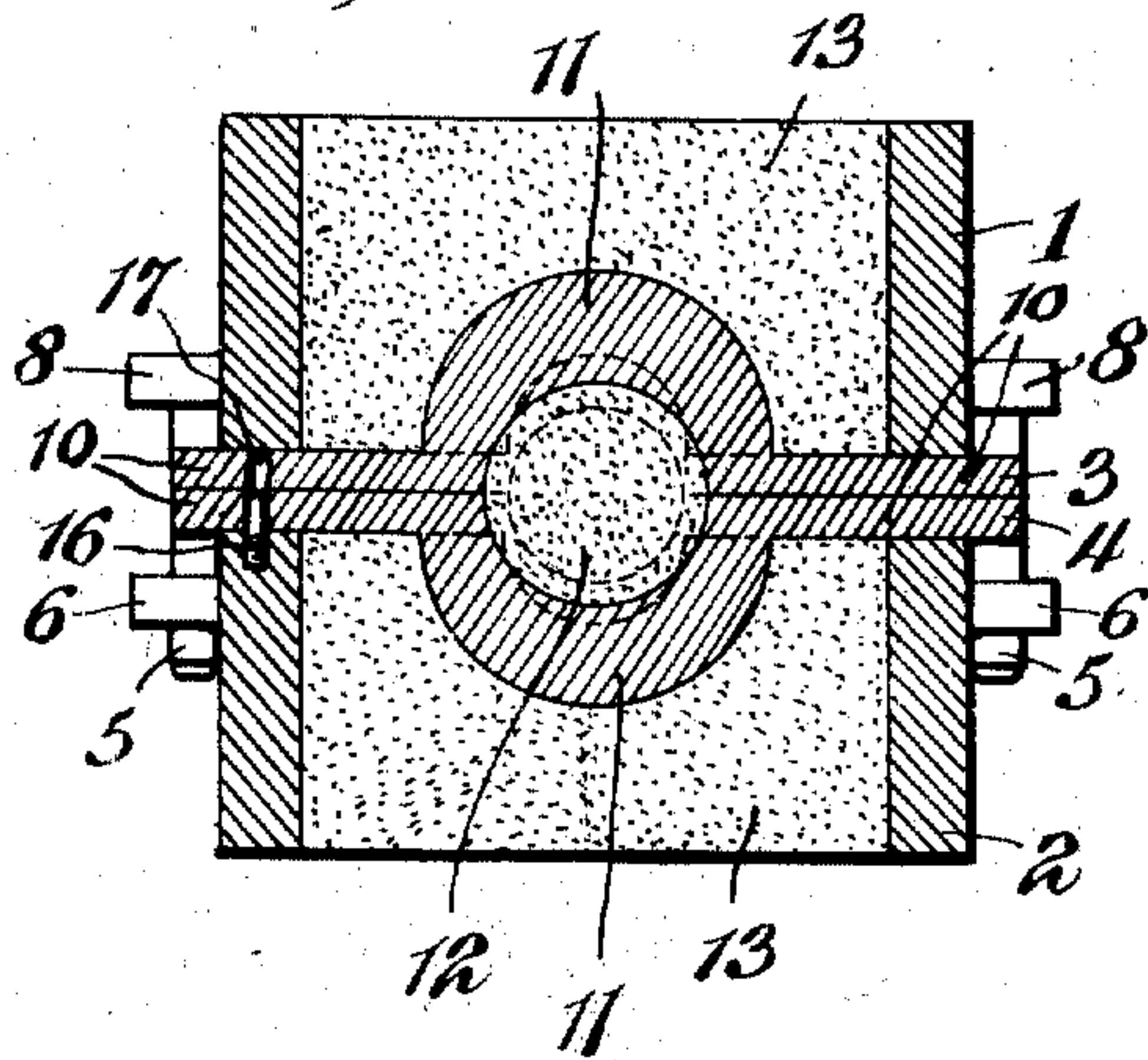


Fig. 8.

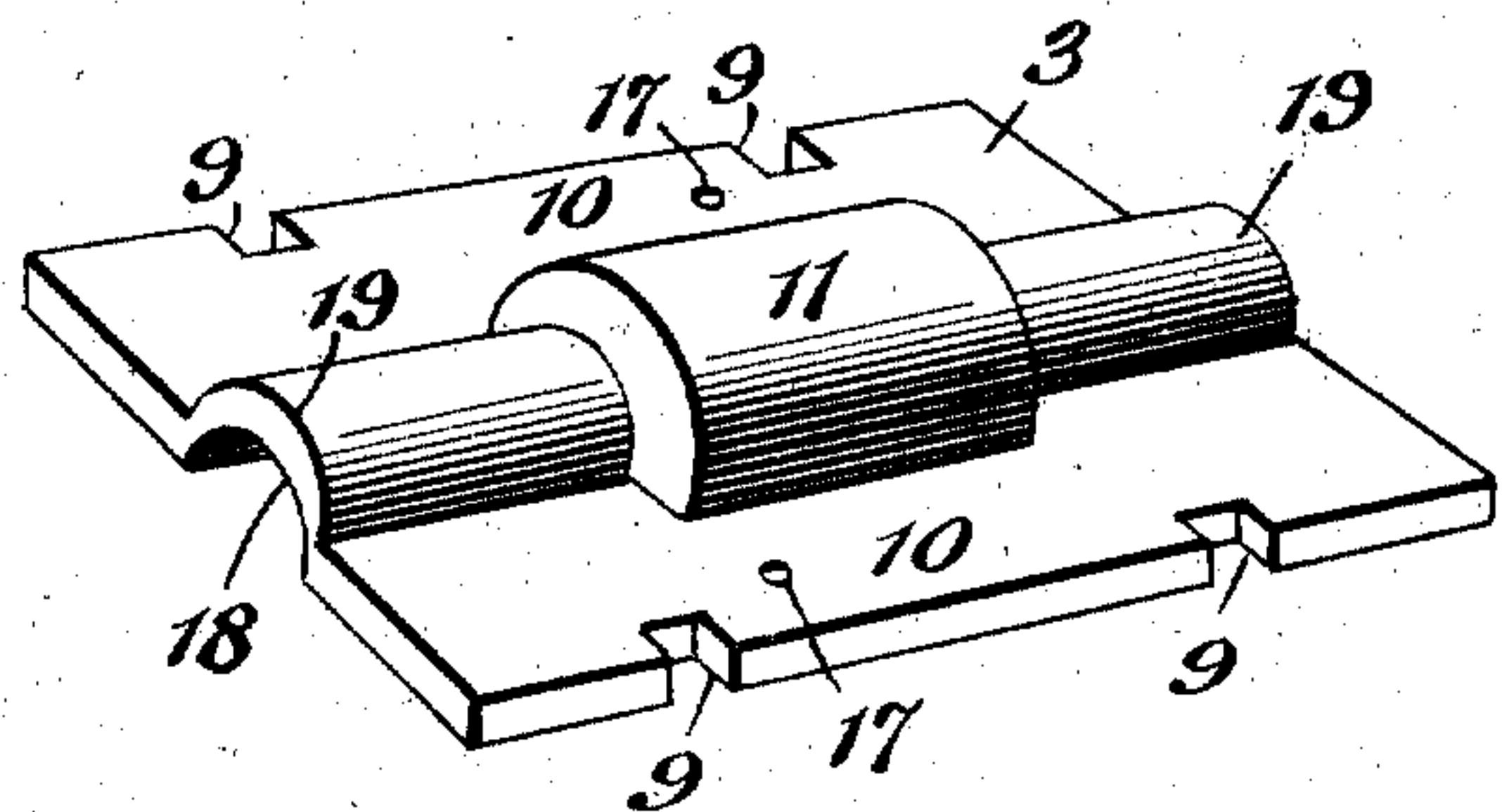


Fig. 6.

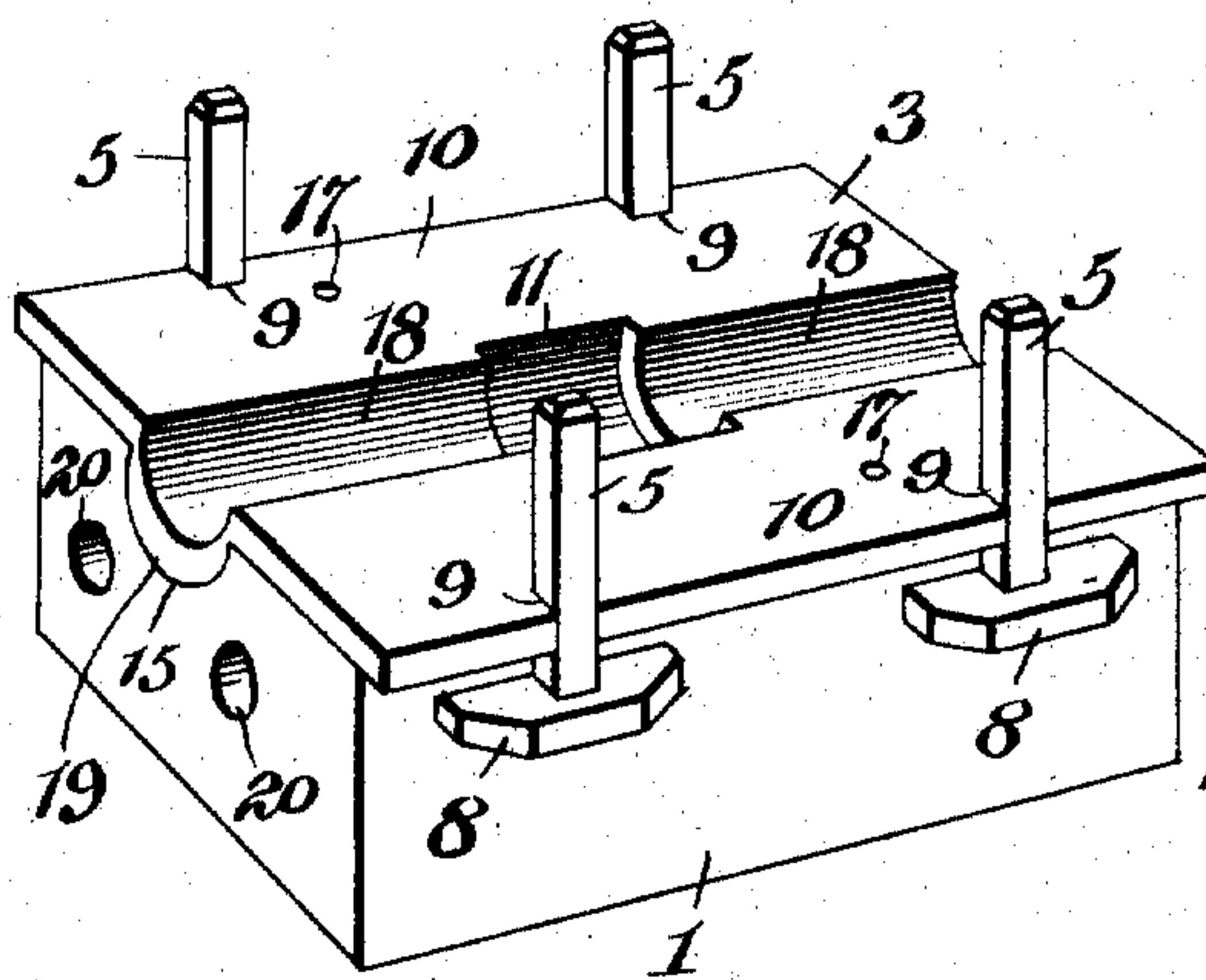
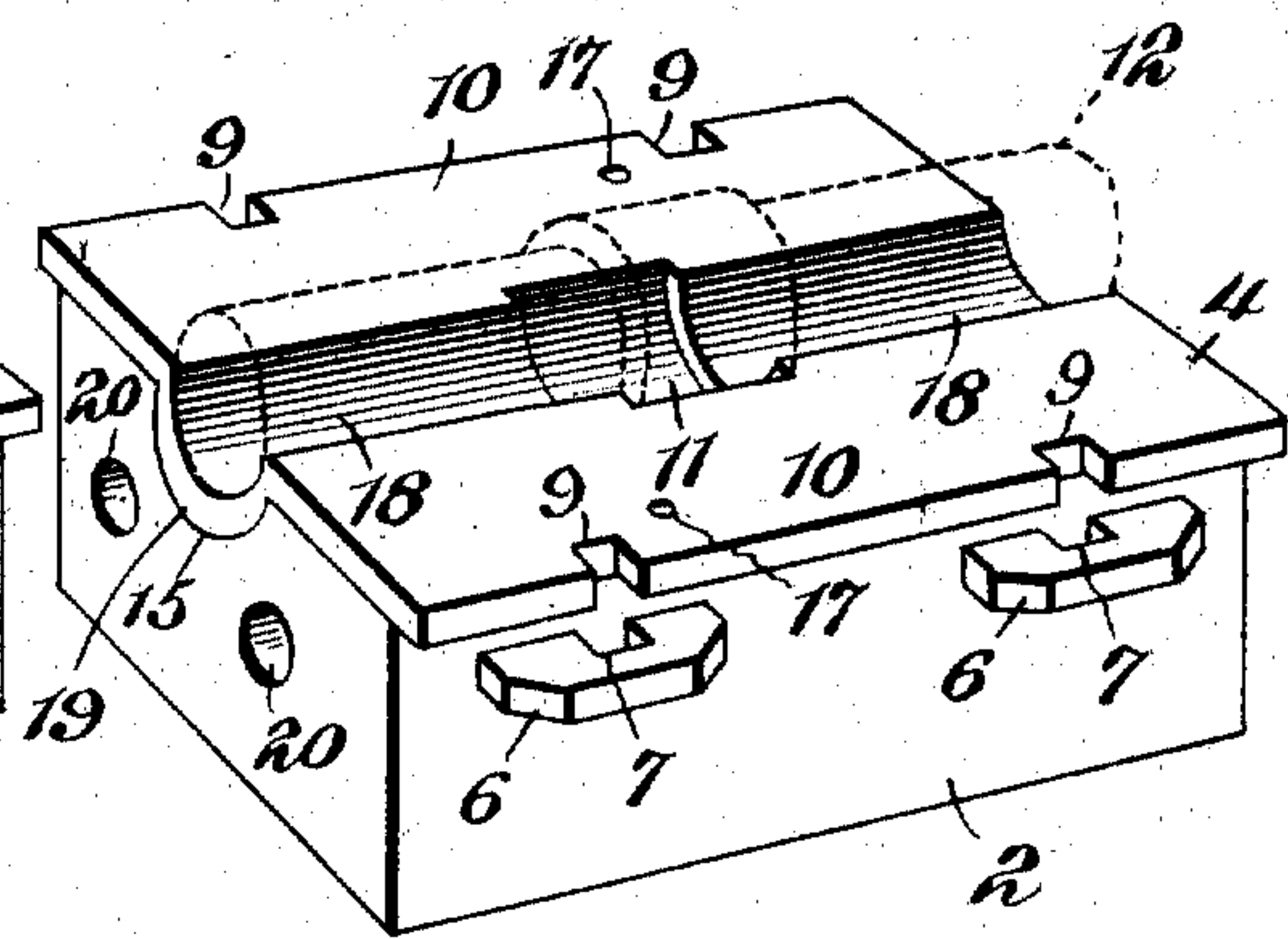


Fig. 7.



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UNITED STATES PATENT OFFICE.

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MOLDING APPARATUS.

993,599.

Specification of Letters Patent.

Patented May 30, 1911.

Application filed June 18, 1910. Serial No. 567,681.

To all whom it may concern:

Be it known that I, MADDRA J. HEWLETT, a citizen of the United States, residing at Kewanee, in the county of Henry and State of Illinois, have invented a new and useful Molding Apparatus, of which the following is a specification.

The invention relates to a molding apparatus.

Heretofore in the art of molding, cores have been made of the same material as the mold, but it has been necessary to form the core of two halves in separated pattern sections or plates, which are subsequently fitted together to unite the two halves of the core to complete the same.

The object of the present invention is to simplify and improve the making of cores and molds, and to enable a mold and its core to be formed simultaneously and of the same material without removing or changing the parts of the apparatus until both the core and the mold are completed, whereby a great saving in time, labor and expense in the making of molds and cores is effected.

With these and other objects in view, the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings:—Figure 1 is an elevation of a molding apparatus, constructed in accordance with this invention, and arranged in a machine for applying the sand to the molding apparatus. Fig. 2 is an end elevation of the molding apparatus. Fig. 3 is a plan view of the apparatus, the upper section of the flask being removed. Fig. 4 is a central longitudinal sectional view of the molding apparatus. Fig. 5 is a transverse sectional view of the same. Figs. 6 and 7 are perspective views of the sections of the two-part flasks and their respective combined pattern and core box plates. Fig. 8 is a detail perspective view of one of the combined pattern and core box plates.

Like numerals of reference designate cor-

responding parts in all the figures of the drawings.

In the embodiment of the invention illustrated in the accompanying drawings, the molding apparatus, which is designed for making a cast iron coupling, comprises in its construction flask sections 1 and 2 of a two-part flask, and a pair of combined pattern and core box plates 3 and 4. The flask sections 1 and 2 are similar in construction with the exception that the lower section or drag is equipped with vertical guide pins 5, and the upper section or cope is provided with laterally projecting ears or flanges 6, having openings 7 for the reception of the guide pins 5, but either flask section may be equipped with the guide pins or either section may be arranged at the top without affecting the operation of the apparatus. The guide pins 5 are preferably connected with the flask section 2 by means of flanges 8, corresponding with the ears or flanges 6, but the guide pins may be mounted on the section in any other desired manner.

The combined pattern and core box plates, which are provided at their side edges with notches 9 to receive the guide pins 5, are each composed of straight flat side portions 10 and a central pattern portion 11, having an exterior configuration to form one half of the pattern in the sand of the adjacent section and having an interior configuration to form the core 12. The notches 9, which are formed in the flat outer portions of the plates 3 and 4, register with the openings 7 of the ears or flanges 6, and the combined pattern and core box plates are interlocked with the guide pins 5 when the apparatus is assembled. When the plates 3 and 4 are fitted together, as illustrated in Figs. 2 and 5 of the drawings, they form a core box, which is adapted when filled with sand to produce the core 12. The core box formed by the plates is open at its ends, and both the core and the flask sections are adapted to be filled with sand to form simultaneously the core 12 and the sand mold 13. The flask sections and the core box may be rammed-up by hand, but it is preferable to apply the sand to the apparatus to form both the sand mold and the core simultaneously by means of a pneumatic machine, and in Fig. 1 of the drawings, I have shown the molding apparatus arranged in a machine 14, a portion only thereof being illustrated.

As these machines are well known in the art, a further description and illustration thereof are deemed unnecessary. After the sand has been applied to the apparatus to form the core 12 and the sand mold 13 and the ramming or sand applying operation has been completed, the parts of the apparatus are arranged, as illustrated in Figs. 4 and 5. In order to remove the plates and arrange the core and the mold for casting, the upper section 1 and the combined pattern and core box plate 3 are removed from the lower section and the plate 4 is inverted, the parts of the apparatus occupying the positions shown in Figs. 6 and 7, the completed core 12 being supported by the plate 4. The plate 3 is then removed from the flask section 1, and the latter is replaced on the lower section, it being supported by the plate 4. The apparatus is then inverted to bring the flask section 2 to the top. The flask section 2 with its plate 4 is then removed from over the section 1, the core being supported by the section 1 in end recesses 15 thereof in proper position with relation to the molding sand of the said flask section 1. The plate 4 of the flask section 2 is then removed and the flask section 2 is then replaced on the flask section 1. The sand mold and the core are then in proper relation for casting.

The sprue hole is formed in the usual manner, but as this detail is well known in the art of molding together with the manner in which the flask sections are fitted together and arranged for casting after the pattern plates have been removed, further explanation of this portion of the operation is unnecessary.

The flask section 2 is provided at its upper edge with registering pins 16 for engaging perforations 17 of the pattern plate 4, and the other flask section 1 and the pattern plate 3 may have corresponding pins and perforations. The combined pattern and core box plates are provided at the terminals of the core box with corresponding inner and outer semi-circular or approximately semi-circular faces 18 and 19. When the plates and the flask sections are assembled, the outer faces 19 fit in the recesses or seats 15 of the flask sections 1 and 2, and the inner faces 18 form or shape the ends of the core to fit the recesses of the flask sections, so that as the flask sections are successively placed over the ends of the core, the latter will be properly fitted by the flask sections so that there will be no danger of a breaking down of the core.

In the accompanying drawings, the molding apparatus is illustrated in its simplest form and arranged for making only a single article, but it will be readily apparent that the apparatus may be constructed to make a plurality of molds and cores, the number being limited only by the capacity

of the machine for applying the same when the apparatus is used in that manner.

The flask sections are provided at one end with openings 20, which are arranged at the top when the apparatus is placed in the machine 14, in order to receive the sand from the sand pocket 21 thereof, but sand may be introduced into the flask sections through any other arrangement of openings, the latter being provided to correspond with the construction of the machine with which the apparatus is employed. The core box formed by the inner faces of the plates 3 and 4 are open at the ends, and sand is readily introduced into the same to form the core.

The simultaneous formation of both the sand mold and the core of green sand through one operation and the ready removal of the combined pattern and core box plates greatly lessens the labor and expense of making cores and sand molds and results in the rapid construction of perfect cores and molds.

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

1. A molding apparatus including a sectional flask, and combined pattern and core box plates fitted together to provide a core box and arranged between the flask sections to form molds therein, said core box being open and the flask being also provided at such open portion with a filling opening to enable a complete mold and flask to be filled simultaneously without changing the apparatus.

2. A molding apparatus including a sectional flask, and combined pattern and core box plates fitted together to provide a core box and arranged between the flask sections to form molds therein, said core box being open at each end and the ends of the flask being provided with openings to enable the core box and the flask to be simultaneously filled from either end to form a complete core and mold without changing the apparatus.

3. A molding apparatus including a sectional flask, and combined pattern and core box plates fitted together to provide a core box and arranged between and supported by the walls of the sections of the flask to form a mold, said plates and the opposite walls of the flask sections being provided with corresponding core receiving seats, and the seats of the plates forming opposite openings, and the flask being provided with openings in the walls having the seats to enable a complete core and mold to be simultaneously filled without changing the apparatus.

4. A molding apparatus including flask sections, and combined pattern and core box plates interposed between the flask sections

and being of a size to extend entirely across the same from one end of the flask sections to the other end thereof to form the bottom wall of one flask section and the top wall of the other flask section, said plates being 5 provided with intermediate pattern portion having an exterior opening and the flask being also provided with an opening, whereby a complete core and mold may be simultaneously filled without changing the apparatus. 10

5. A molding apparatus including flask sections, and combined pattern and core box plates interposed between the flask sections 15 and being of a size to extend entirely across the same from one end of the flask sections

to the other end thereof to form the bottom wall of one flask section and the top wall of the other flask section, said plates having an intermediate pattern portion forming a 20 core box and open at the opposite walls of the flask, and the latter having openings to enable the core and the mold to be filled simultaneously.

In testimony, that I claim the foregoing 25 as my own, I have hereto affixed my signature in the presence of two witnesses.

MADDRA J. HEWLETT.

Witnesses:

W. E. GOULD,
JOHN FISCHER.