

J. C. F. Salomon.

Brick Machine.

N^o 10,831.

Patented Apr. 25, 1854.

Fig. 3.

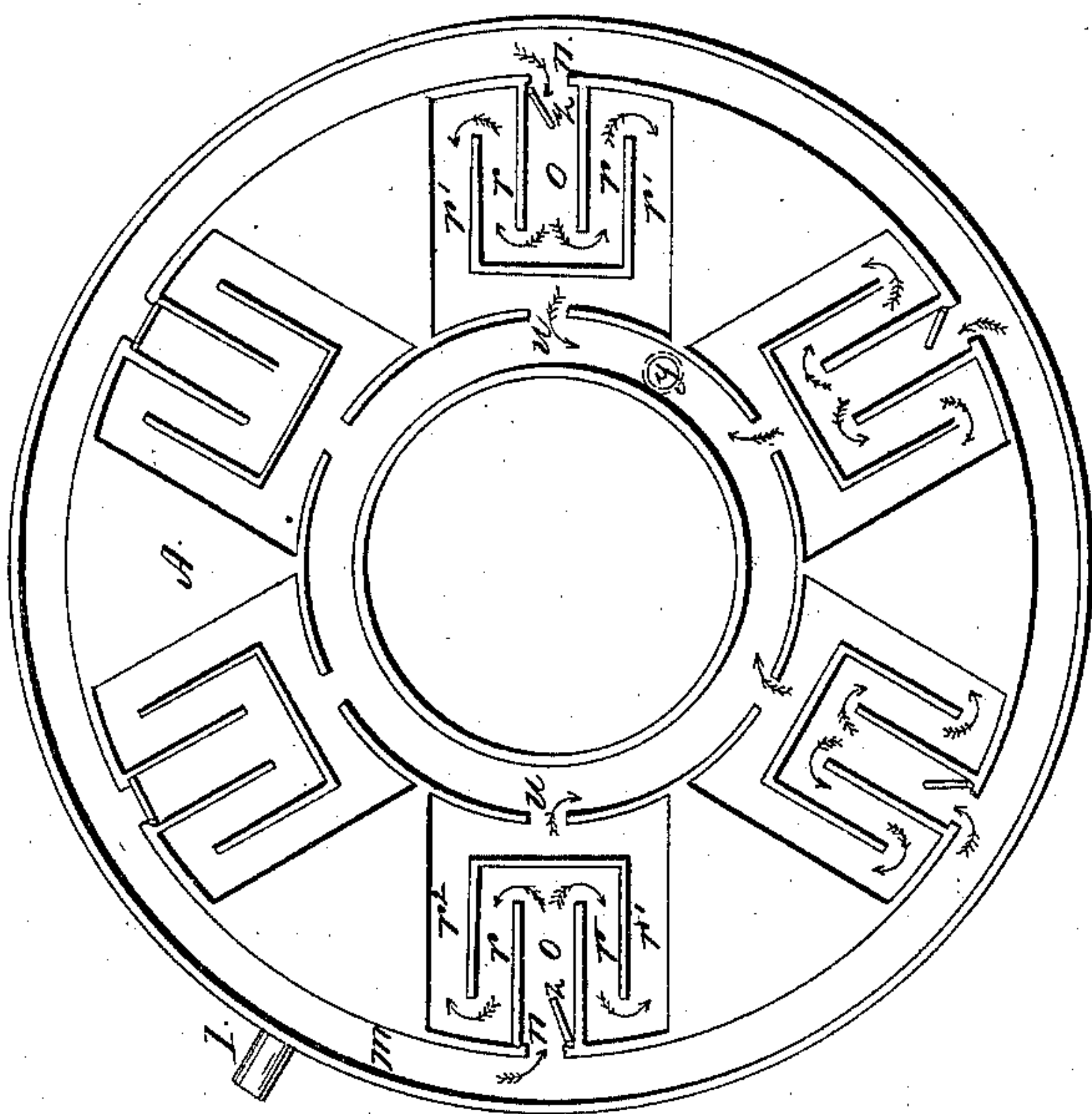


Fig. 4.

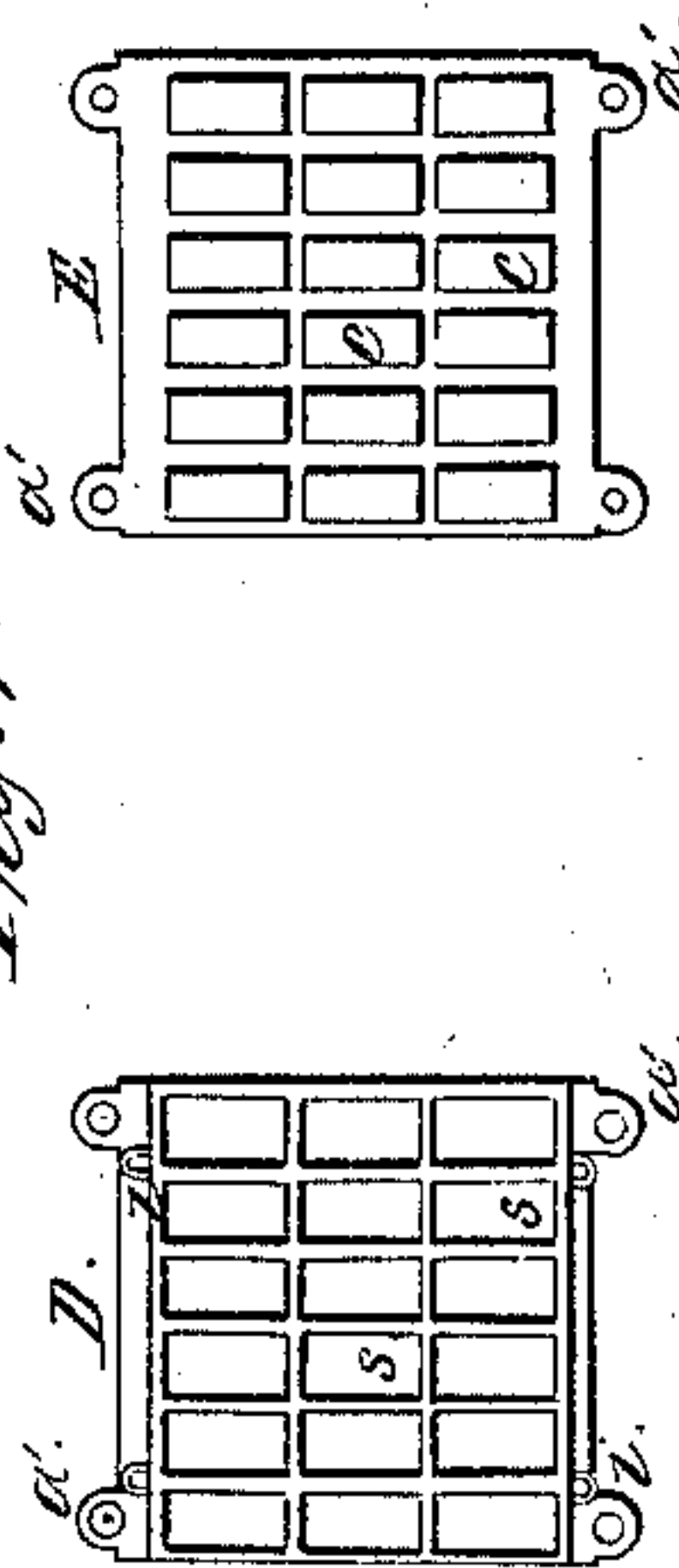


Fig. 5.

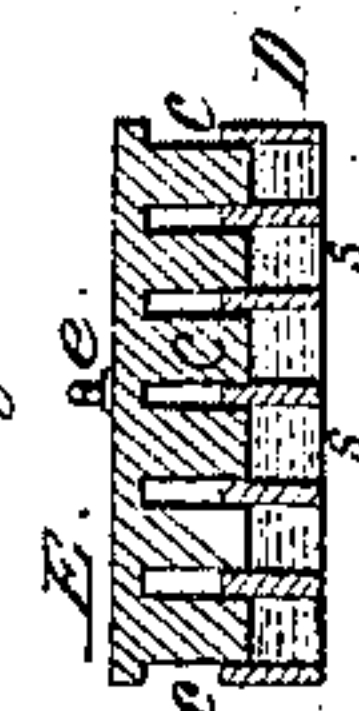


Fig. 1.

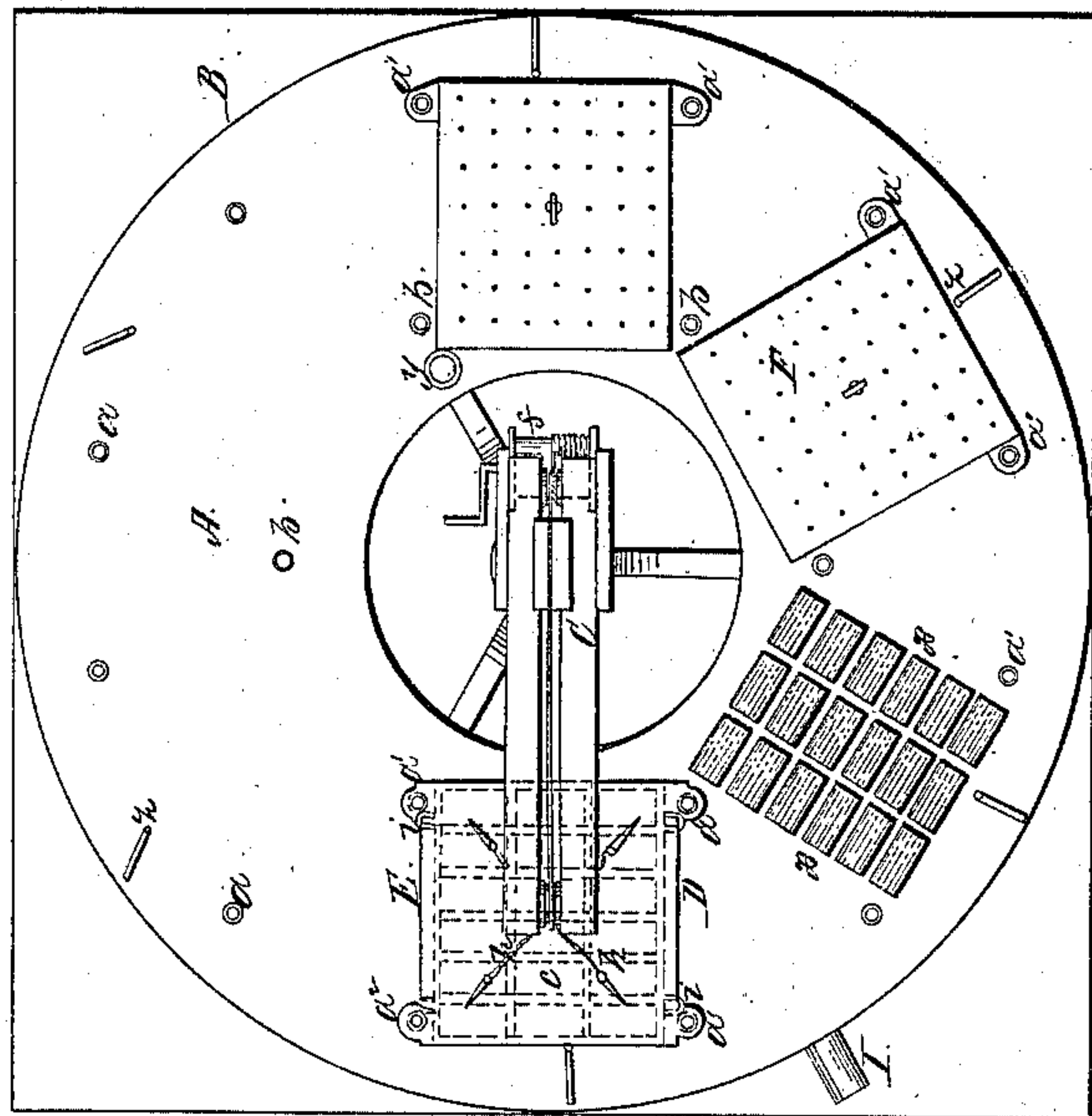
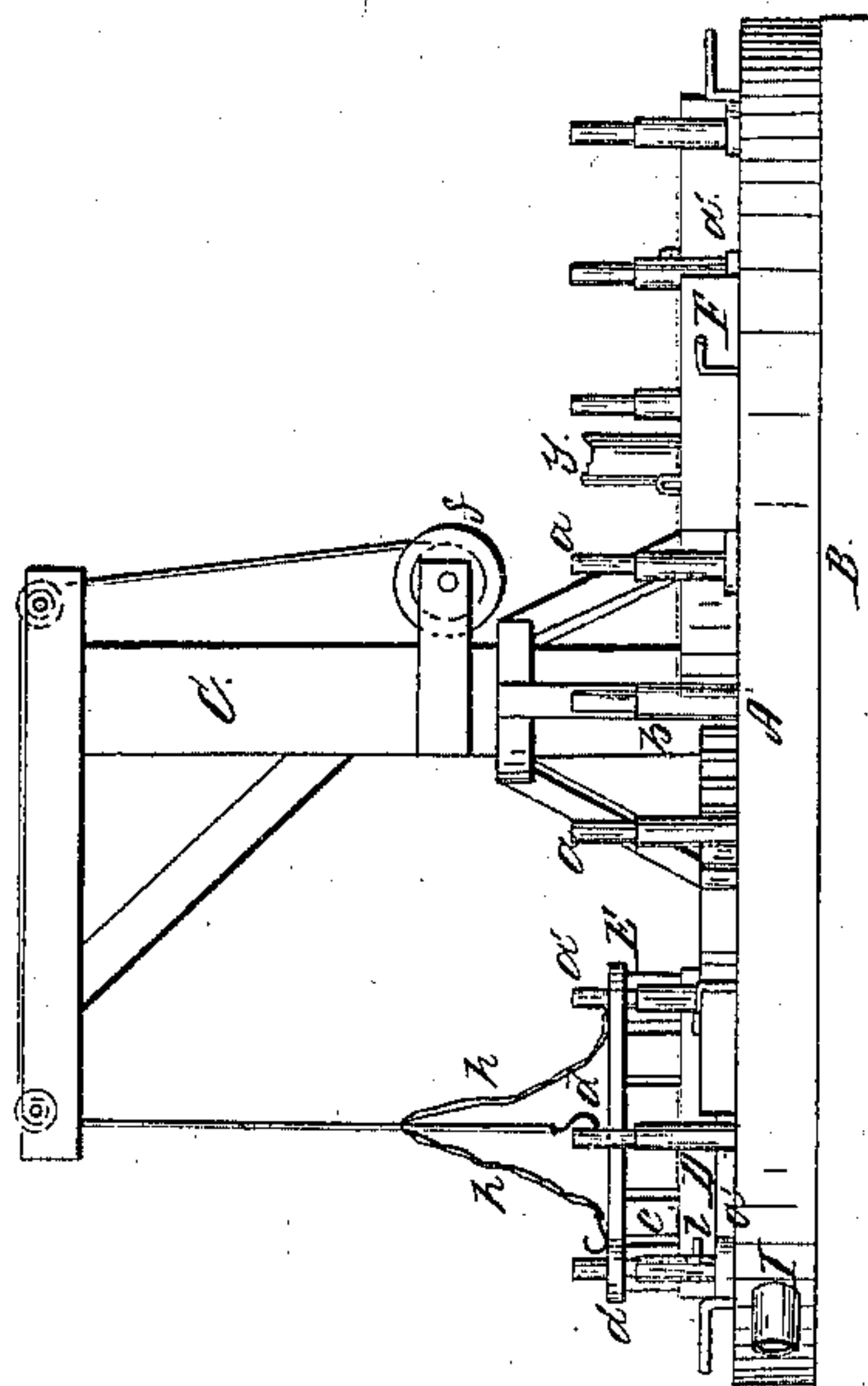


Fig. 2.



UNITED STATES PATENT OFFICE.

JOHN C. FR. SALOMON, OF WASHINGTON, DISTRICT OF COLUMBIA.

BRICKMAKING.

Specification of Letters Patent No. 10,831, dated April 25, 1854.

To all whom it may concern:

Be it known that I, J. C. F. SALOMON, of the city of Washington, in the District of Columbia, have invented certain new and
5 useful Improvements in Brickmaking, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, which forms part of this specification, and in which—

10 Figure 1 represents a plan of the apparatus I employ for making bricks, showing the same in course of operation; Fig. 2, a side elevation thereof; Fig. 3, an inverted plan of the flue table or bed forming part of
15 my apparatus, detached; Fig. 4, a horizontal view or plan of the mold box and an inverted plan or under horizontal view of the pressing plate, detached; and Fig. 5 a vertical transverse section of the mold box
20 and pressing plate in connection while forming brick.

It is generally admitted that the several attempts heretofore made to manufacture bricks automatically by machinery have, all
25 of them, been more or less unsuccessful, and the old hand process continues, in a general way, to be adopted. This failure of mechanical skill has been owing in a great measure to the complication of parts which
30 has characterized the several presses employed and the uncertainty of action and liability to breakage which in practice has been found to attend all or most of such devices.

35 To remove these defects is the object of my invention which consists in an arrangement of mechanical devices for assisting manual labor in the formation of the brick.

In the apparatus represented in the accompanying drawing, a circular bed (A) of large-diameter is seated horizontally upon a foundation surface or table (B). A crane (C) is erected centrally within the circular bed and hung so that its jib may
45 be made to perform a circular horizontal travel over the said bed. An inner and outer row or circle of vertical guides (*a* and *b*) are inserted in the bed so as to project above it. These guides are of reduced
50 diameter from their top downward for a portion of their length so as to form a step or shoulder midway (more or less) of their length. The arrangement of these guides around the bed is such, that, upon a radial
55 line being drawn from the center of the crane post centrally between any two of the

inner row of guides (*b*), the width or distance apart of the two outer guides (*a*) intersected by an extension of the said radial line will be the same as the width or distance
60 between the two specified inner guides (*b*), thereby forming a succession or series of quadrangular sets of vertical guides for the reception over or on them of a quadrangular mold box (D), pressing plate or platen (E)
65 and cover (F), as represented in Fig. 1, the said mold box, platen and cover being provided with perforated snugs (*a'*) that receive the vertical guides through them.

The mold box (D) is formed of vertical
70 rectangular sides united by partitions or cross ties that divide the box into five hundred (more or less) molds (*s*) open top and bottom, the upper surface of the circular bed (A) serving as the bottom to the molds
75 when the box is situated as in Fig. 1 when it is ready for filling with clay which may be deposited by hand or otherwise into the molds: a platen (E) is then brought to bear
80 down upon the clay in the molds as represented in Figs. 1 and 2. This platen is formed of a top plate with under projecting
85 pressers (*c*) that fit into the molds and that, by their weight and that of the top plate as also by any loose additional weight that may
be put thereon, serve to compress the clay to the required dimensions of the brick. The
90 platen is lifted to its situation over the mold-box by a hook (*d*) attached to the main chain or cord of the crane and hitching into
a loop (*e*) on the top plate of the platen, the crane chain being raised or lowered as required by turning in a suitable direction the
95 winch barrel (*f*) of the crane.

The perforations through the snugs of
95 the mold box are of the requisite diameter to admit of the box being dropped over the enlarged lower portions of the vertical guides (*a* and *b*), while the holes through the
100 snugs of the platen are of the same diameter as the reduced upper portions of the said guides, so that the shoulders formed at the junction of the large and small diameters of the guides will serve to arrest the motion of the platen when it has been lowered suffi-
105 ciently to compress the clay to the required extent; by which arrangements, throughout the repeated operations of the platen as will be presently described, a uniform size of
110 brick is insured and this size may be regulated at pleasure by inserting washers over the smaller portions of the guides to rest

upon the shoulders thereof, so as to reduce the depth of the immersion of the pressers into the molds. When one set of bricks is thus formed, the crane chain is unhitched 5 from the platen and hitched to the mold box by branch hooks, and chains (*h*) united to the main chain and connecting with the mold box by loops (*i*): the winch is then turned so as to lift the mold box from the 10 bricks and leave them on the circular bed (A) as represented at *x x* in Fig. 1, the mold box in rising carrying the platen with it. The mold box and platen thus free from the molded bricks are then swung over the 15 next series or sets of vertical guides by turning the crane, and the mold box being dropped over the guides is again filled with clay, the crane hooks being unhitched from the box and the platen raised to afford room 20 for putting in the clay, when the platen is again brought to bear down upon the clay in the molds as before and the box and platen afterward removed to the next series of vertical guides and so on in succession 25 until the circular bed is covered with parallelogramic patches or ranges of bricks on the spaces covered by the mold box throughout its operations around the circular bed.

To give a gradual pressure on the clay in 30 the molds during the formation of the brick for the purpose of expelling moisture and increasing the consistency of the brick, the winch barrel is turned but slowly during the early part of the depression of the platen 35 and quicker toward the close. By this manner of operating the platen, a sounder brick will be produced, while the most complete adjustability in the operation of the platen throughout its entire stroke is afforded to 40 suit different qualities or conditions of clay.

The circular bed (A) is made hollow and has flues in it for circulating hot air for the purpose of drying the brick on the bed on which it is pressed or molded. These flues 45 consist of an outer annular induction and inner annular eduction flue with radial direct and return flues uniting them, the radial flues being so arranged as to pass the current of hot air immediately under the 50 several tiers or rows of bricks, the circular bed only intervening. Hot air is blown through a pipe (I) into the outer annular induction flue (*m*) from whence it passes through throats (*n*) into direct radial flues 55 (*o*), it is then diverted so as to return by other adjoining radial flues (*r*) and again through further radial flues (*r'*) direct to the eduction flue (*u*) from whence it escapes by a pipe (*y*). The throats (*n*) forming 60 the communication of the induction flue with the radial flues are provided with dampers (*z*) that serve to regulate the amount of hot

air to be admitted and also to shut off the flow of hot air through any one or more of the sets of radial flues over which no range 65 of bricks is situated either during the operation of covering the bed with its several ranges of bricks or during the removal of any of the ranges to the kiln. The return radial flues, it will be observed, serve to heat 70 equally the several rows of each range of bricks and any number of direct and return flues may be arranged to circulate the hot air according to the number of rows in each range, it being my intention to construct the 75 mold box and platen as large as can conveniently be made and worked so as to form a large quantity of bricks, say five hundred (more or less) by each compressing action 80 of the platen.

After the bricks are molded and during the time they remain on the circular bed to dry, each range of bricks should be covered with a bonnet (F) that is lifted over and removed from them as required by means of 85 the crane (C). This bonnet serves to retain the heat transmitted through the bed from the flues for the purpose of heating the tops and sides of the bricks to the same degree, or nearly so, as the bottoms; perforations 90 are made in the tops of the bonnets to permit of the escape of the vapor which is emitted during the process of drying.

By this method of making bricks, the various well known facilities and advantages 95 of the ordinary manual process are combined with those of the machine or press system, while many disadvantages peculiar to the action generally of the latter are avoided. The bricks are made rapidly and 100 dried and prepared for the kiln upon the bed on which they are molded with but little delay and without the labor of removal or exposure to defacement to which they are subjected in the ordinary way. 105

In the foregoing description of my improvement, reference only has been made to the plain or ordinary building brick, but it is obvious that, by a suitable construction and arrangement of the platen and mold 110 box, it is equally capable of manufacturing tile, hollow, cornice or any of the other well known forms of brick.

I claim—

The combination of the swinging crane, 115 mold-box and platen for pressing brick, arranged and operating together as herein set forth.

In testimony whereof, I have hereunto subscribed my name.

JOHN C. FR. SALOMON.

Witnesses:

V. GREGORY,
A. GREGORY.