

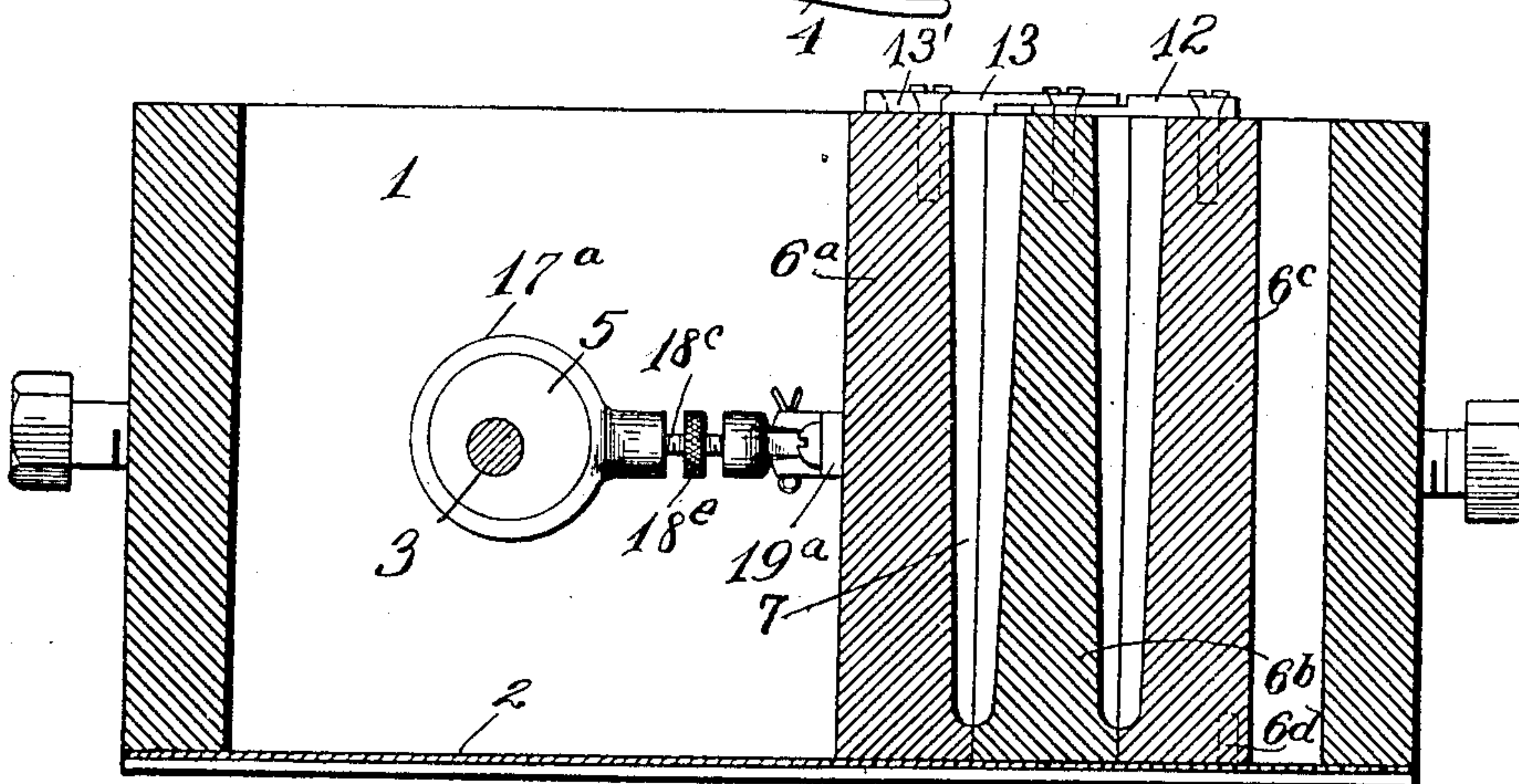
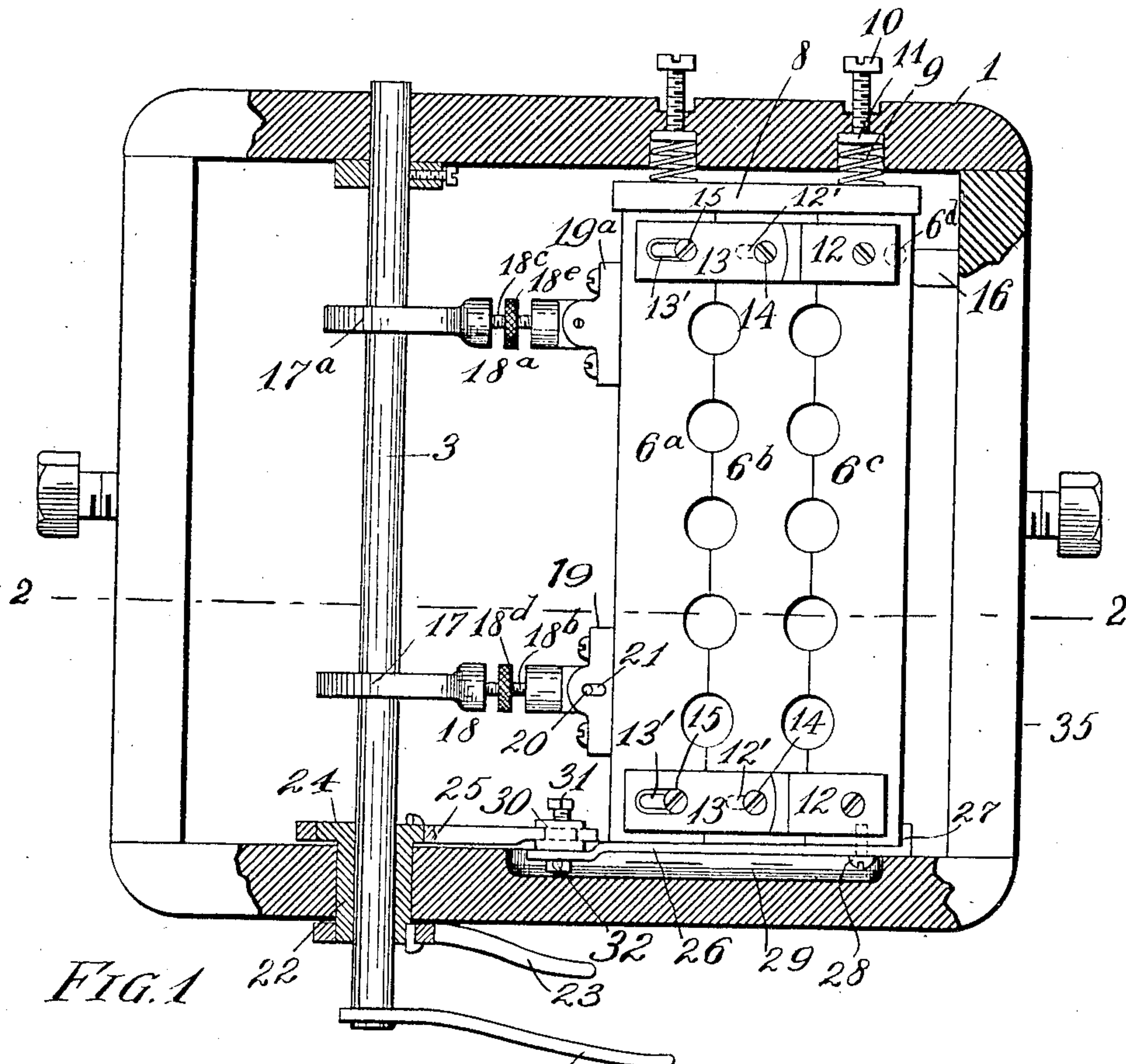
No. 869,692.

PATENTED OCT. 29, 1907.

C. E. DANIEL & W. KELLER.  
CRAYON MOLDING MACHINE.

APPLICATION FILED APR. 15, 1907.

3 SHEETS—SHEET 1.



WITNESSES:  
Brennan & West,  
Nathan F. Fretter.

FIG. 2

INVENTORS  
Charles E. Daniel and  
William Keller  
BY Bates, Fouts & Hull,  
ATTYS.

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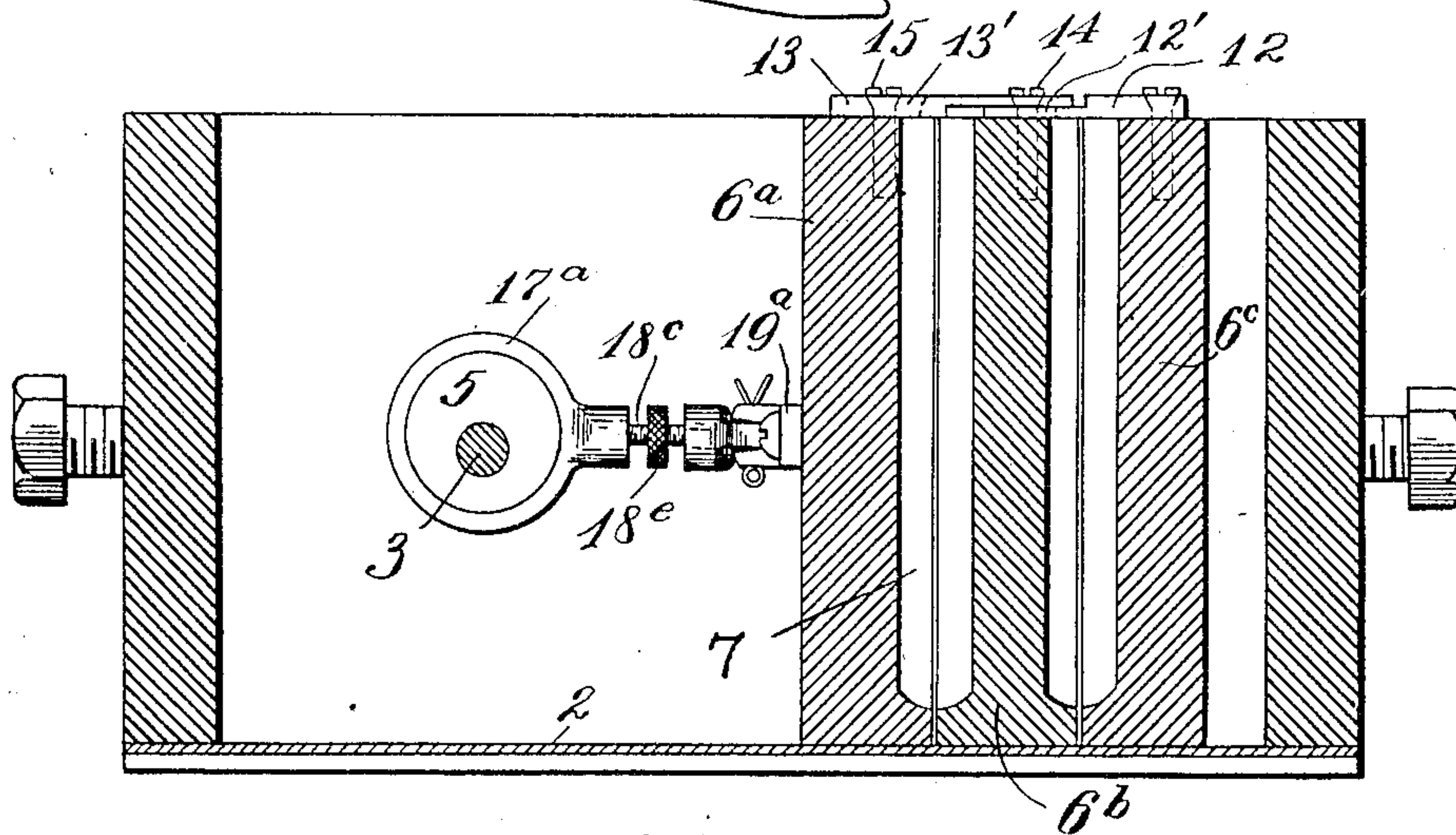
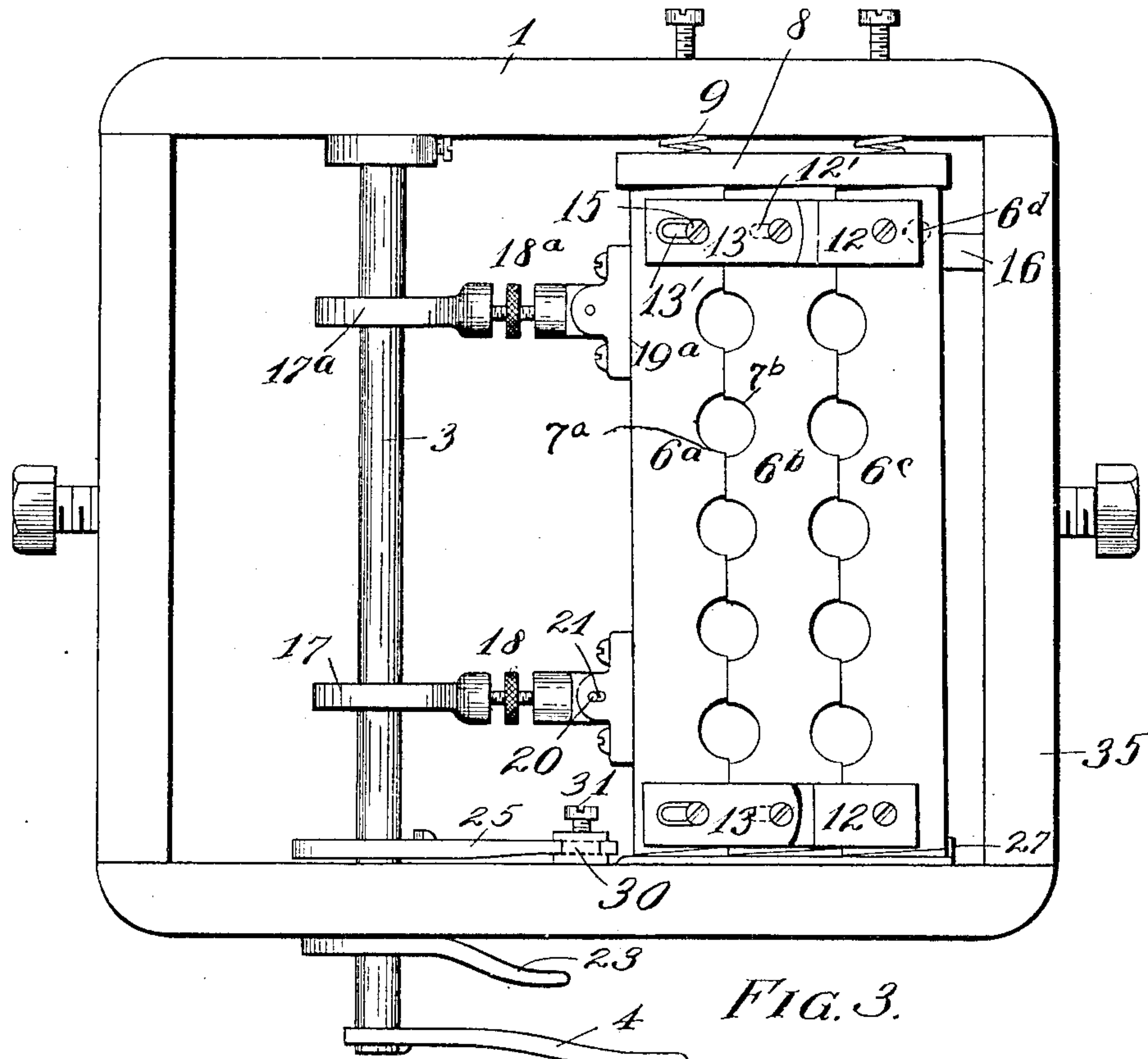


FIG. 4

WITNESSES:  
Brennan West.  
Nathan F. Fretter.

INVENTORS  
Charles E. Daniel and  
William Keller  
BY Bates, Fouts & Hull  
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3 SHEETS—SHEET 3.

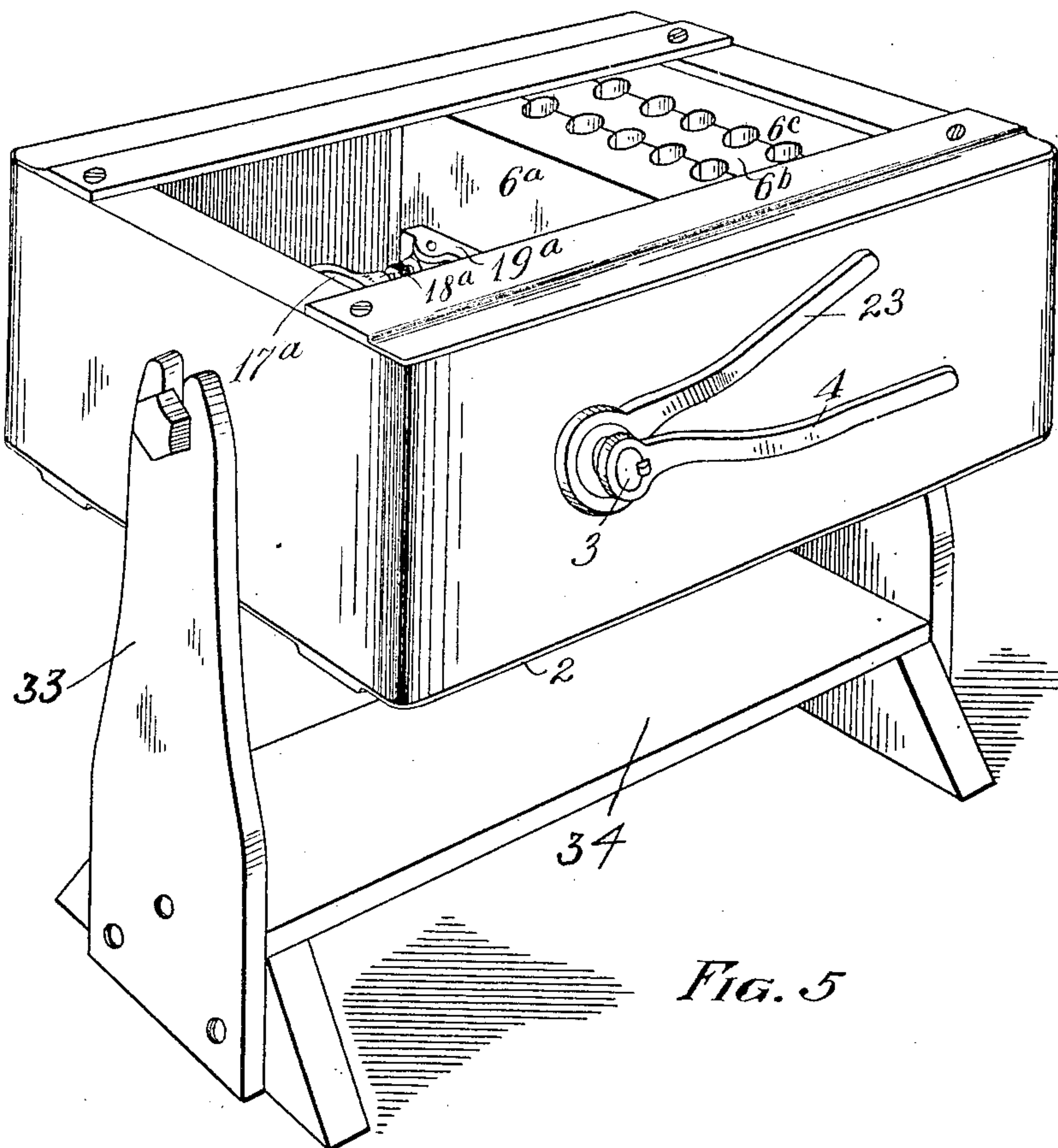


Fig. 5

WITNESSES  
Brennan B. West.  
Nathan F. Fretter.

INVENTORS,  
Charles E. Daniel and  
William Keller  
BY  
Bates, Fouts & Hull,  
ATTYS.



# UNITED STATES PATENT OFFICE.

CHARLES E. DANIEL AND WILLIAM KELLER, OF SANDUSKY, OHIO, ASSIGNORS OF  
ONE-FOURTH TO RICHARD TAYLOR AND ONE-FOURTH TO GEORGE YOUNG, OF SAN-  
DUSKY, OHIO.

## CRAYON-MOLDING MACHINE.

No. 869,692.

Specification of Letters Patent.

Patented Oct. 29, 1907.

Application filed April 15, 1907. Serial No. 368,193.

*To all whom it may concern:*

Be it known that we, CHARLES E. DANIEL and WILLIAM KELLER, residing at Sandusky, in the county of Erie and State of Ohio, have invented a certain new and useful Improvement in Crayon-Molding Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates to crayon molding machines and has for its object to provide a machine of this character that is adapted for either straight or tapered crayons, and one that will quickly and readily disengage the crayons from the mold plates after the crayon material has hardened without breaking or otherwise injuring the crayons.

A further object of the invention is to provide a machine of this kind that is economical in construction and extremely efficient in operation.

These results are accomplished by the construction illustrated in the drawings hereto annexed, wherein,

Figure 1 represents a top plan view of the machine in position to receive the material; Fig. 2 represents a transverse sectional view taken on the line 2—2 of Fig. 1; Fig. 3 represents a plan view of the machine after the same has been operated in such manner as to disengage the crayons from the mold; Fig. 4 represents a view, similar to Fig. 2, showing the mold blocks separated to permit the crayons to drop therefrom, showing the mold-cavities as adapted to produce untapered crayons; and Fig. 5 represents a perspective view of the complete machine.

Describing the parts by reference numerals, 1 represents a casing comprising sides and ends, which may be of wood or other suitable material. 2 denotes the bottom of the casing, said bottom being preferably of sheet metal. Within this casing there is journaled the shaft 3, said shaft being provided with an operating handle 4 and having thereon a pair of eccentrics 5 for operating the mold 6 which consists of a suitable number of blocks 6<sup>a</sup>, 6<sup>b</sup>, 6<sup>c</sup>. For clearness of illustration, but three such mold blocks are shown, although, in a large machine, a larger number of such blocks may be employed. The mold blocks rest on the bottom and are each provided with a plurality of fractional mold cavities 7, half of a mold cavity being provided in one block and half in an adjacent block. At the rear side, or side remote from the operating handle 4, the ends of the blocks abut against a plate 8, which is yieldingly held against the ends of said blocks by means of springs 9, having adjusting screws 10 and plungers 11 for applying a suitable and variable amount of pressure to plate 8 and said blocks. The end portions of the blocks are connected by means of plates 12, 13. Each plate 12 has a slot 12' therein through which projects a pin 14 in the overlapping

portion of plate 13. Plate 13 is also provided with a slot 13' for the reception of a pin 15, which extends through said slot and into the body of the subjacent mold block. Between the rear portions of the mold block 6<sup>c</sup> and the adjacent end of the casing there is interposed a brace or stop 16. The rear end of the complete mold 6, which comprises the three mold blocks 6<sup>a</sup>, 6<sup>b</sup>, 6<sup>c</sup>, is pivotally supported, as by means of a pin 6<sup>d</sup> projecting into the block 6<sup>c</sup>.

Eccentrics 5 are connected with the mold blocks 6<sup>a</sup> by means of the eccentric straps 17, 17<sup>a</sup>, adjustable links 18, 18<sup>a</sup>, and brackets 19, 19<sup>a</sup>. The link 18 is flexibly connected to bracket 19, as by means of pin 20 extending through slot 21 in bracket 19 and through end of link 18, thereby providing for lost motion between shaft 3 and the adjacent portion of the mold. Links 18 and 18<sup>a</sup> are made longitudinally adjustable, preferably by means of screws 18<sup>b</sup> and 18<sup>c</sup> forming part thereof and having their ends oppositely threaded whereby, by operating the milled hand wheels 18<sup>d</sup>, the lengths of the links may be varied.

The front end of the shaft 3 is journaled within a sleeve 22, which is preferably supported within and by the front side of the casing. This sleeve is provided with an operating handle 23 on the outside of the casing and with an eccentric 24 inside of the casing. This eccentric is connected by means of strap 25 and a plate 26 with the mold blocks, the end 26 being flanged at 27 to embrace the outer edge of mold block 6<sup>c</sup>, to which said plate is further secured as by means of a screw 28, a recess 29 being provided in the front side of the casing for the reception of said screw and plate 27. Strap 25 and plate 26 are connected by means of a stud 30 through which extends the end of strap 25, said stud being provided with a set screw 31 for clamping the same to the strap. The outer end of 30 is reduced and extends through an aperture in the adjacent end of plate 26, a pin 32 being employed to secure said plate on the reduced portion of said stud.

As will appear from Fig. 5, the casing is rotatably mounted on a supporting standard 33, sufficient room being provided between said casing and the cross bar 34 of said standard to permit the inversion of the machine at the time when it is desired to dump the contents thereof.

With the parts constructed and arranged as described, the operation is as follows: The crayon material, in the form of a paste, is poured into the mold cavities. As soon as the said material has hardened to the requisite extent, handle 23 is operated by moving the same to the position shown in Fig. 3. This, through the eccentric 24, strap 25 and plate 26, moves the front end of the mold to the right and to the position shown in Fig. 3, that is with the front end of said mold nearer the end of the casing than is the rear end thereof, the mold



pivoting on 6<sup>d</sup>. This results in skewing the blocks in the manner shown in Fig. 3, reducing the diameter of each mold cavity along the line of the longitudinal edges of the mold blocks. Through this action the

5 crayons are firmly gripped in said cavities between the points 7<sup>a</sup> and 7<sup>b</sup> thereof. The lost motion which is provided at 21 permits of this movement of the front ends of the mold blocks. The lever 4 is then operated, drawing the block 6<sup>a</sup> to the left, through the instru-

10 mentality of eccentrics 5 and connections therebetween and block 6<sup>a</sup>. When this block has moved a sufficient distance to the left, it picks up the block 6<sup>b</sup> through plates 13 and 12, pins 14 and 15, and slots 13' and 12' and separates block 6<sup>a</sup> from 6<sup>b</sup> and block 6<sup>b</sup> from block 6<sup>c</sup>,

15 thus opening up the mold. Lever 23 is then operated in a direction the reverse of that originally imparted thereto and moves the adjacent end of the mold toward the left, so that the blocks are in the position shown in Fig. 1, only with their edges separated. This last piv-

20 otal movement of the mold on 6<sup>d</sup> straightens up the blocks and imparts a slight rotation to the crayons in the mold cavities on the points 7<sup>a</sup>, 7<sup>b</sup> and insures the disengagement of the crayons from the mold-cavities. The machine will, prior to this last operation, be in-

25 verted, and the crayons will be freely and immediately released when the lever 23 is operated as last described. After this, lever 4 will be operated to close the mold blocks, the machine will be reversed, and will be ready for operation again.

30 By the construction hereinbefore described, the crayons are quickly and positively disengaged from the molds, the rotary movement which is imparted to the crayons during the straightening of the mold blocks insuring this action. Furthermore, a material saving

35 of time is accomplished as the crayons do not need to harden to the extent hitherto found necessary before subjecting them to the operation of the disengaging means. Furthermore, as the operation of the disen-

40 taper in the crayon, crayons which are cylindrical in shape throughout their extent may be molded by this machine.

I claim:

1. In a crayon molding machine, the combination of a

45 plurality of mold blocks, each having fractional mold-cavities therein and adapted, when the blocks are brought face to face, to form a complete mold, means for separating said plates to open the said cavities, and means for imparting to the crayons in said cavities a rotary movement to

50 facilitate their disengagement from their cavities, substantially as specified.

2. In a crayon molding machine, the combination of a plurality of mold blocks; each provided with fractional mold cavities adapted, when the blocks are brought face to

55 face, to form complete molds, means for separating said blocks, means for imparting a rotary movement to the crayons in said mold cavities to disengage the crayons therefrom, and means for reversing the mold blocks to discharge the crayons therefrom, substantially as specified.

3. In a crayon molding machine, the combination of a mold comprising a plurality of mold blocks, each having a plurality of fractional mold cavities therein adapted, when said blocks are brought face to face, to form complete mold

60 cavities, means for rocking said blocks in one direction, means for separating said blocks, and means for rocking them in the reverse direction, substantially as specified.

4. In a crayon molding machine, the combination of a mold having a plurality of mold cavities therein, means for reducing the diameters of said cavities in one direction,

70 and means for separating said blocks, and means for re-

storing said diameters to normal dimensions, substantially as specified.

5. In a crayon-molding machine, the combination of a mold having therein a plurality of mold cavities having crayon engaging surfaces, and means for obtaining relative

75 movement between the crayon-engaging surfaces in a direction transverse to the length of the cavities, substantially as specified.

6. In a crayon molding machine, the combination of a mold having therein a plurality of mold cavities having gripping surfaces adapted to engage opposite portions of the crayons in said cavities, means for obtaining relative

80 movement between the gripping surfaces in a direction transverse to the length of the cavities, and means for opening up the mold cavities, substantially as specified.

7. In a crayon molding machine, the combination of a plurality of mold blocks each having therein one or more fractional mold-cavities, adapted when the longitudinal

85 faces of the blocks are brought together to form one or more complete mold cavities, means for causing relative longitudinal movement between said blocks along the line between the fractional cavities and transversely of the length of said cavities, and means for separating said blocks, substantially as specified.

8. In a crayon molding machine, the combination of a

95 frame, a shaft in said frame, a plurality of mold blocks mounted in said frame and each having a plurality of fractional mold sections therein and adapted, when said blocks are brought face to face, to form complete mold cavities, a pair of eccentrics on said shaft, means connect-

100 ing said eccentrics with the adjacent mold block, one of such connecting means permitting lost motion between its eccentric and the said block, and means for moving one end of each of said blocks, substantially as specified.

9. In a crayon molding machine, the combination of a

105 frame, a shaft in said frame, a plurality of mold blocks mounted in said frame and each having a plurality of fractional mold sections therein and adapted, when said blocks are brought face to face, to form complete mold cavities, means connecting said shaft with the adjacent mold block,

110 one of such connecting means permitting lost motion between the shaft and the said block, and means for moving one end of said blocks, substantially as specified.

10. In a crayon molding machine, the combination of a casing, a plurality of mold blocks therein, each having fractional mold cavities therein adapted, when the blocks

115 are brought face to face, to form complete mold cavities, an operating shaft, connections between said shaft and the adjacent mold block, pin-and-slot connections between the said blocks, and means for rocking said blocks each on one

120 end thereof as a pivot to disengage the crayons from the mold sections, substantially as specified.

11. In a crayon molding machine, the combination of a casing, a plurality of mold blocks therein, each having fractional mold cavities in a longitudinal face thereof

125 adapted, when the blocks are brought face to face, to form complete mold cavities, an operating shaft, connections between said shaft and the blocks for separating the latter, and means for moving said blocks longitudinally with respect to each other to disengage the crayons from the

130 mold sections, substantially as specified.

12. In a crayon molding machine, the combination of a plurality of mold blocks having each a plurality of fractional mold cavities therein adapted, when the blocks are brought face to face, to form complete mold cavities, a

135 shaft, an operating connection between said shaft and each end portion of the adjacent mold block, pin-and-slot connections between the ends of the mold blocks, an operating handle, and a connection therebetween at one end of the mold and adapted to move said end with reference to the

140 other end to diminish the diameters of the mold cavities, substantially as specified.

13. In a crayon-molding machine, the combination of a casing, a mold therein comprising a plurality of mold blocks each having therein fractional mold cavities adapt-

145 ed, when the said blocks are brought face to face, to form complete mold cavities, an operating shaft, a connection between said shaft and one end of the adjacent mold block, a connection between said shaft and the other end of said block, the latter connection permitting lost motion, pin-

150



and-slot connections between the ends of the mold blocks, and means engaging one end of each of the mold blocks for moving the same toward and away from the shaft, substantially as specified.

- 5 14. In a crayon molding machine, the combination of a casing, a mold therein consisting of a plurality of mold blocks each having therein a plurality of fractional mold cavities adapted, when the faces of the blocks are brought together, to form complete mold cavities, a plate engaging an end of said mold, springs arranged to press against said plate, an operating plate connected with the opposite end of one of the individual mold blocks, means, as an eccentric, for operating the last-mentioned plate, a shaft, connections between said shaft and the adjacent mold block, and pin-and-slot connections between said mold blocks, substantially as specified.
- 10 15. In a machine for molding crayons, the combination of a casing, a mold therein comprising a plurality of mold blocks each having a plurality of fractional mold cavities therein adapted, when the blocks are brought face to face, to form complete mold cavities, pin-and-slot connections between said mold blocks, a sleeve mounted in said casing, said sleeve having an eccentric thereon, a connection between said eccentric and the adjacent end of the mold, an operating handle for said sleeve, a shaft extending through said sleeve and journaled in said casing, connections between said shaft and the adjacent mold block, and pin-and-slot connections between said mold blocks, substantially as specified.
- 20 16. In a machine for molding crayons, the combination of a reversible casing, a mold therein composed of a plurality of mold blocks each having a plurality of fractional mold cavities therein adapted, when the blocks are brought face to face, to form complete mold cavities, a pivotal support for one end of said mold, means connected with the opposite end of the mold for rocking said mold on said pivot, and means for separating the mold sections, substantially as specified.
- 25 17. In a crayon molding machine, the combination of a casing, a mold therein composed of a plurality of mold blocks each having therein fractional mold cavities adapted, when the blocks are brought face to face, to form com-

plete mold cavities, a shaft, connections between said shaft and opposite ends of the adjacent mold blocks, pin and-slot connections between said mold blocks, and means connected with one end of said mold blocks for moving said end toward and away from said shaft, substantially as specified.

18. In a crayon molding machine, the combination of a plurality of mold blocks, each having fractional mold cavities therein and adapted, when brought face to face, to form a complete mold, means for separating said plates to open the said cavities, a shaft, and connections whereby the rotation of said shaft will impart rotary movement to the crayons to disengage them from the mold cavities, substantially as specified.

19. In a crayon molding machine, the combination of a mold comprising a plurality of mold blocks, each having a plurality of fractional mold cavities therein adapted, when said blocks are brought face to face, to form complete mold cavities, means for separating said blocks, and means for rocking said blocks in opposite directions, substantially as specified.

20. In a crayon molding machine, the combination of a mold comprising a plurality of mold blocks, each having a plurality of fractional mold cavities therein adapted, when said blocks are brought face to face, to form complete mold cavities, a shaft extending substantially parallel with the faces of said blocks, an eccentric rotatably mounted on said shaft and provided with an operating handle, an eccentric strap on said eccentric and connected to one end of said mold blocks, an eccentric rigid with said shaft, an eccentric strap thereon and adjustably connected with the adjacent mold block, and pin-and-slot connections between the ends of the mold blocks, substantially as specified.

In testimony whereof, we hereunto affix our signatures in the presence of two witnesses.

CHAS. E. DANIEL.  
WILLIAM KELLER.

Witnesses:  
J. B. HULL,  
Mrs. M. MARKLE.