

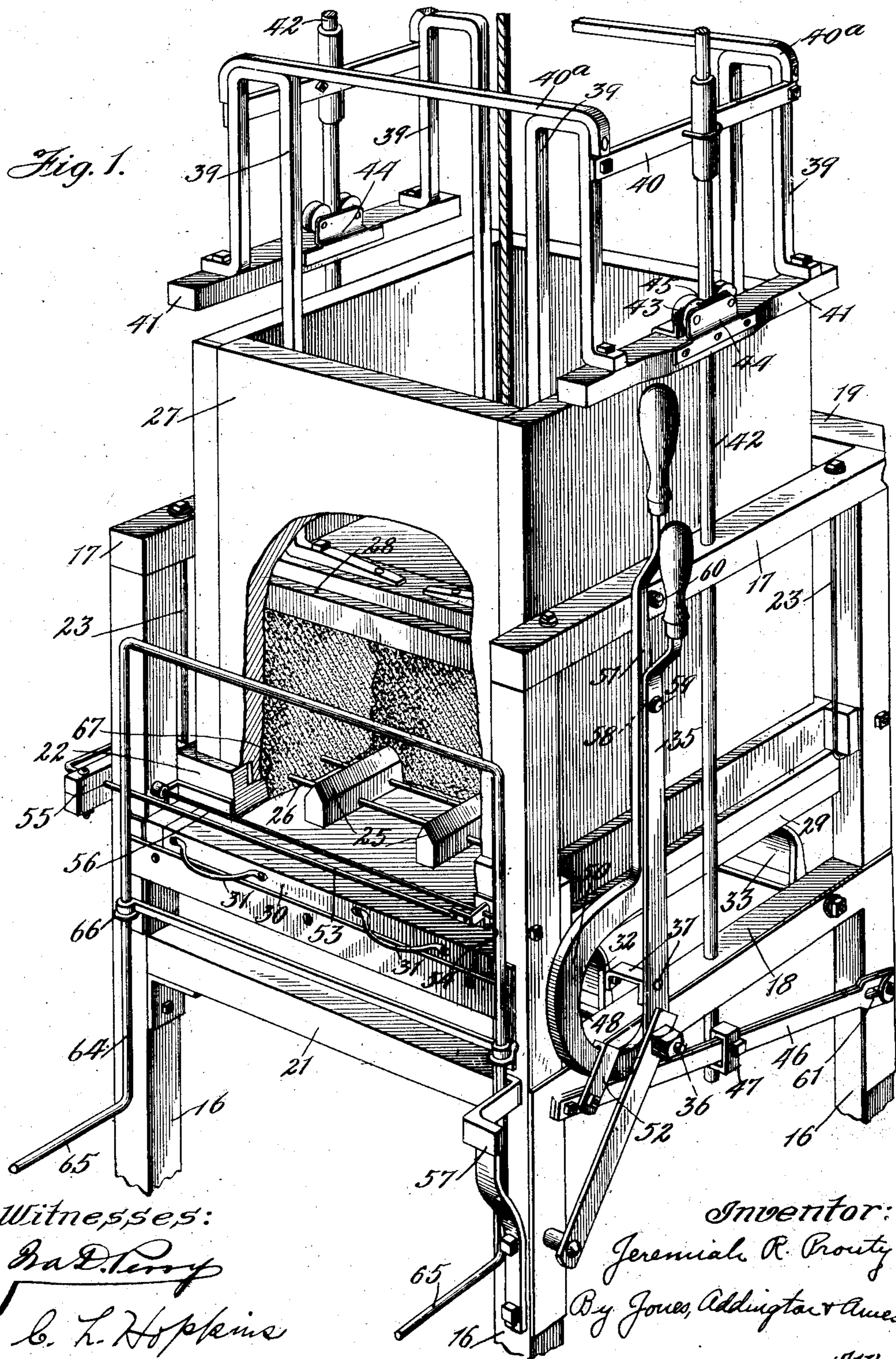
No. 883,345.

PATENTED MAR. 31, 1908.

J. R. PROUTY.
BUTTER PRINTING MACHINE.

APPLICATION FILED NOV. 18, 1907.

6 SHEETS—SHEET 1.



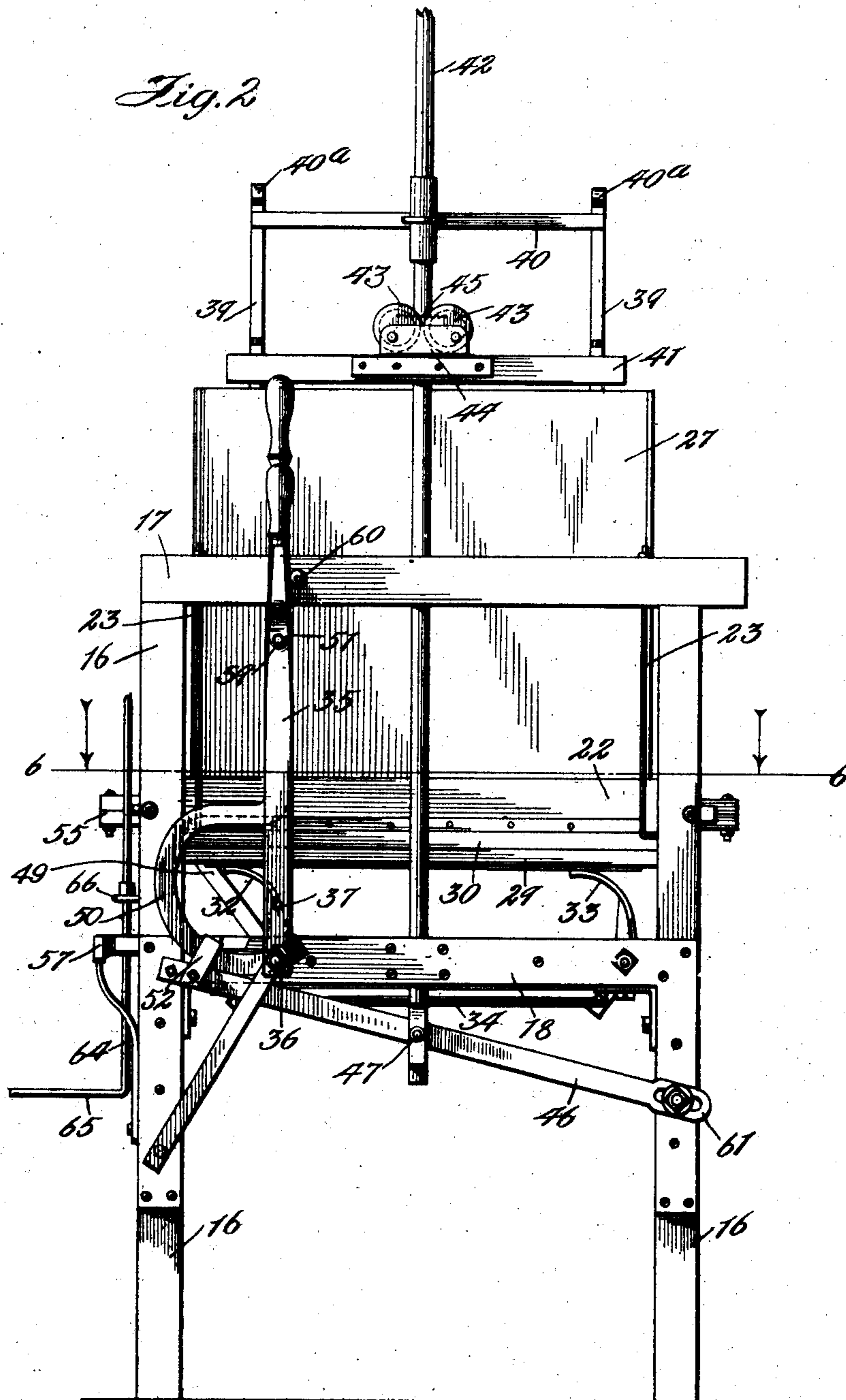
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6 SHEETS—SHEET 2.



Witnesses:

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Attys.

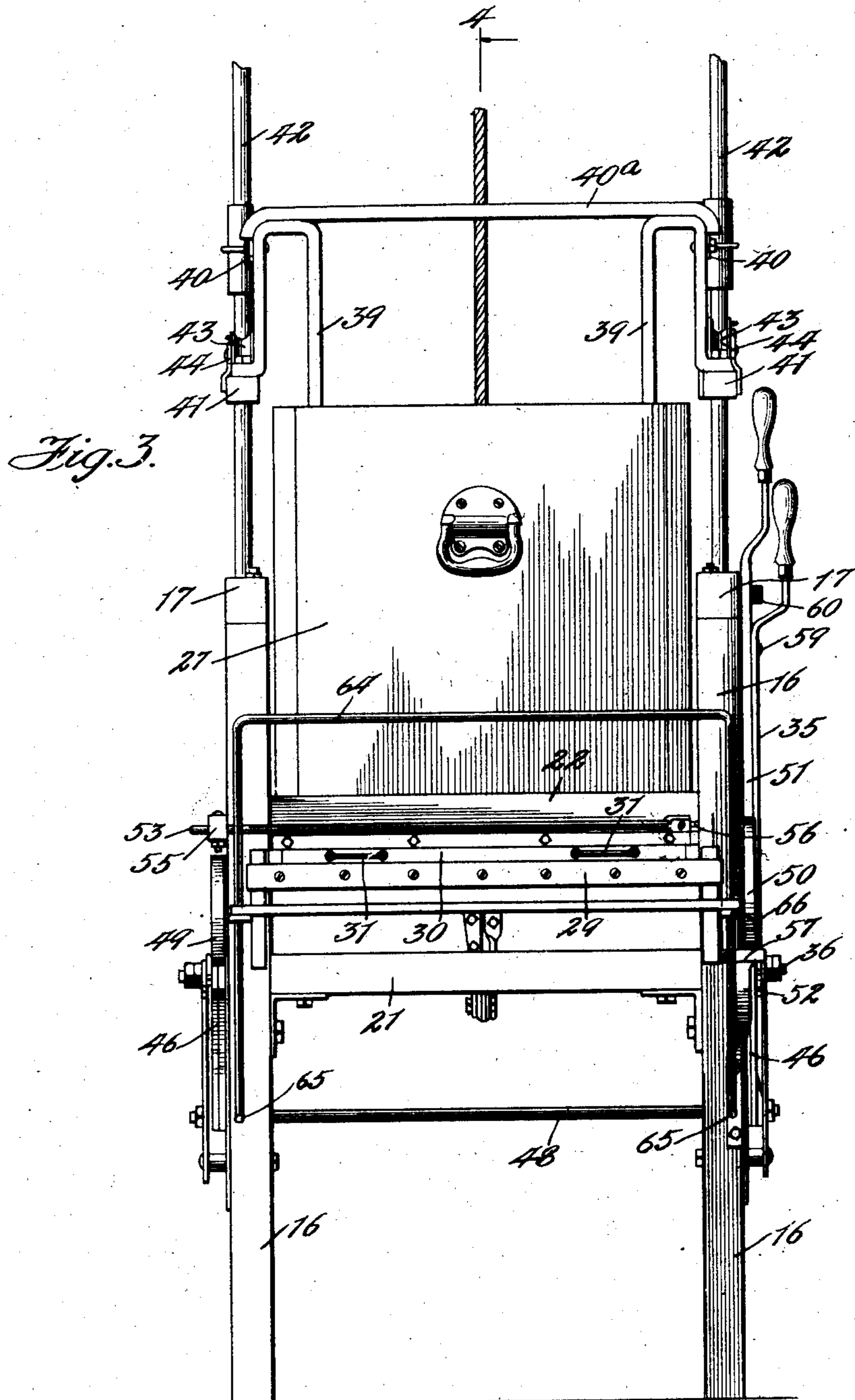
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6 SHEETS—SHEET 3.



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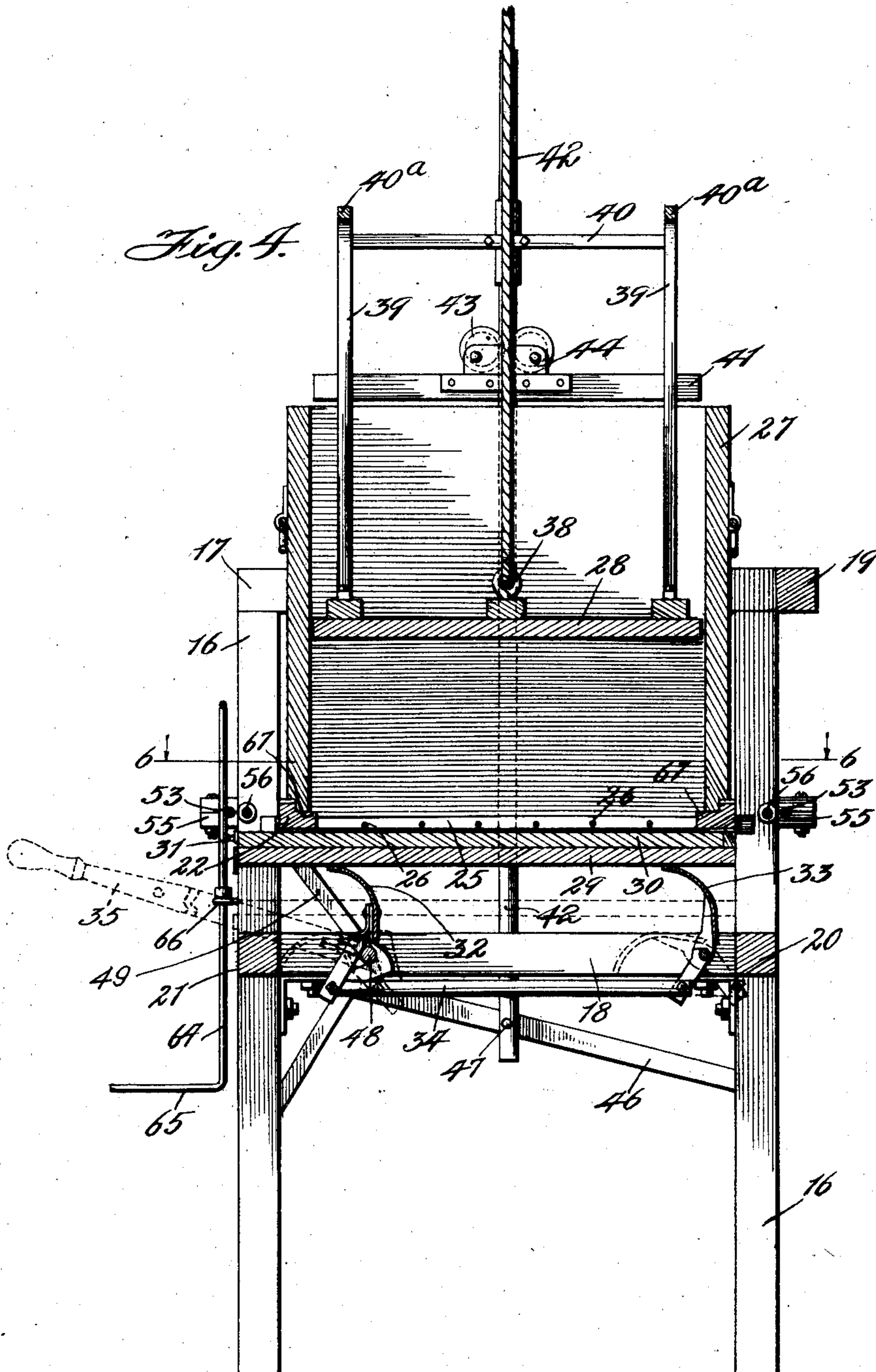
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6 SHEETS—SHEET 4.



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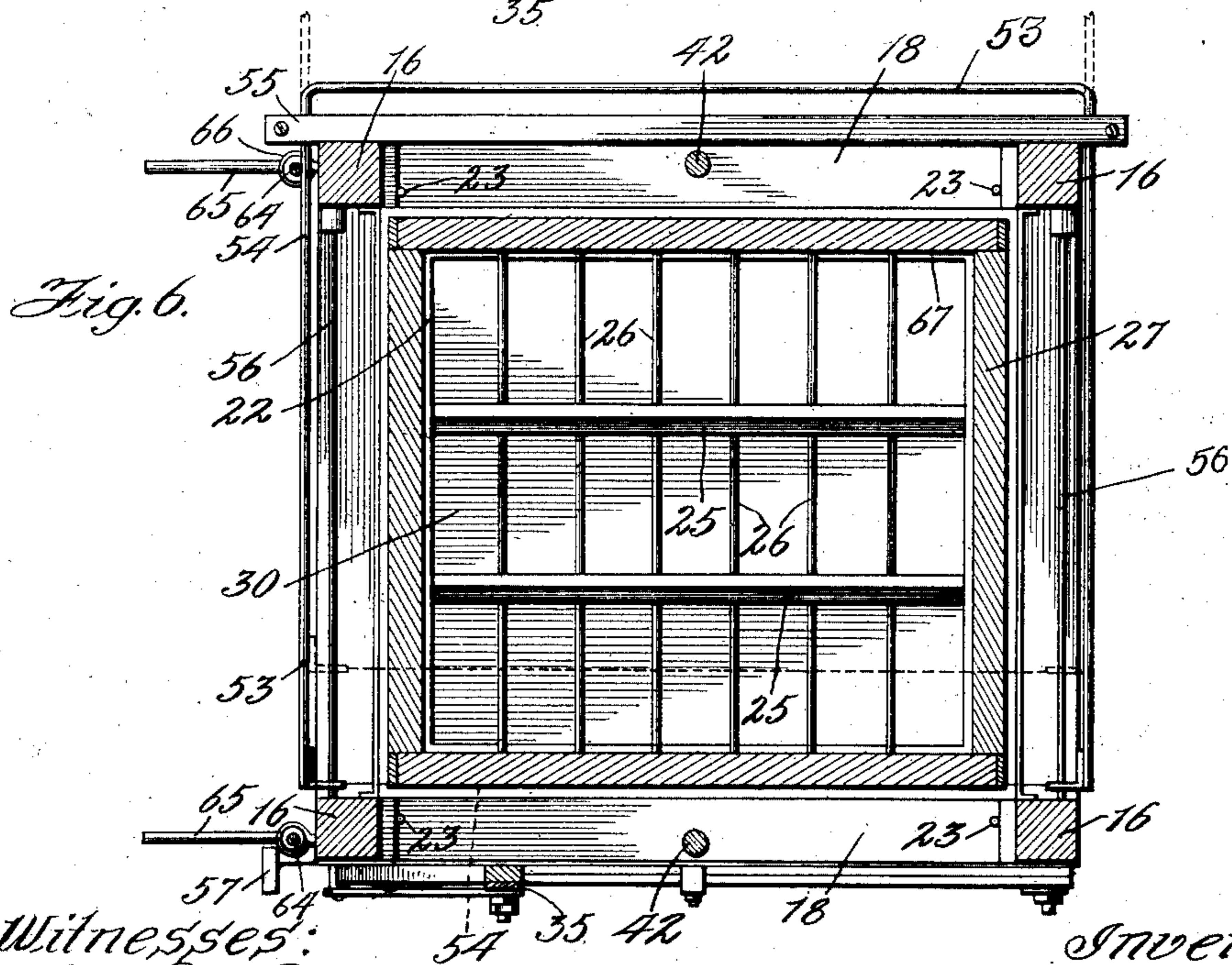
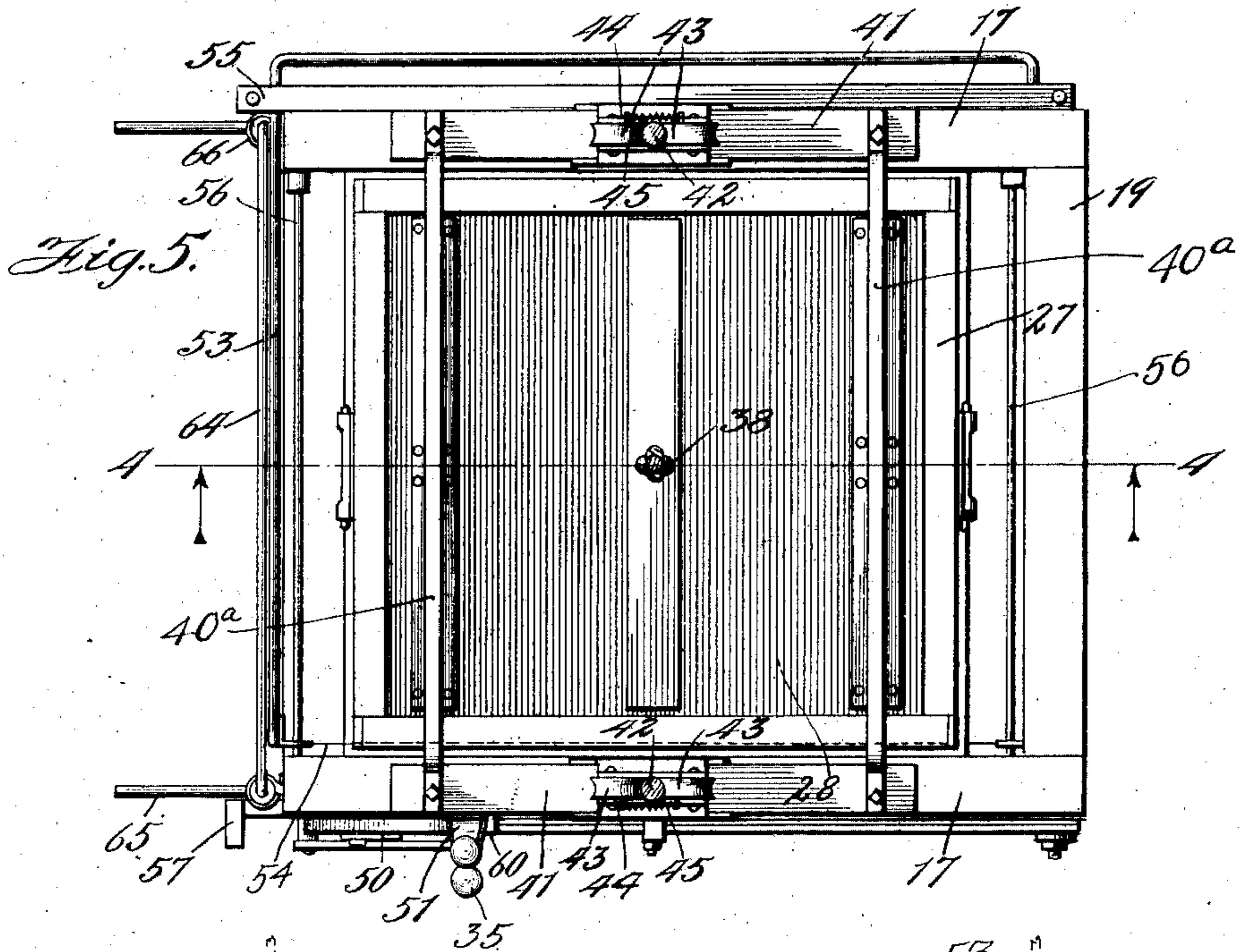
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6 SHEETS—SHEET 5.



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No. 883,345.

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6 SHEETS—SHEET 6.

Fig. 7.

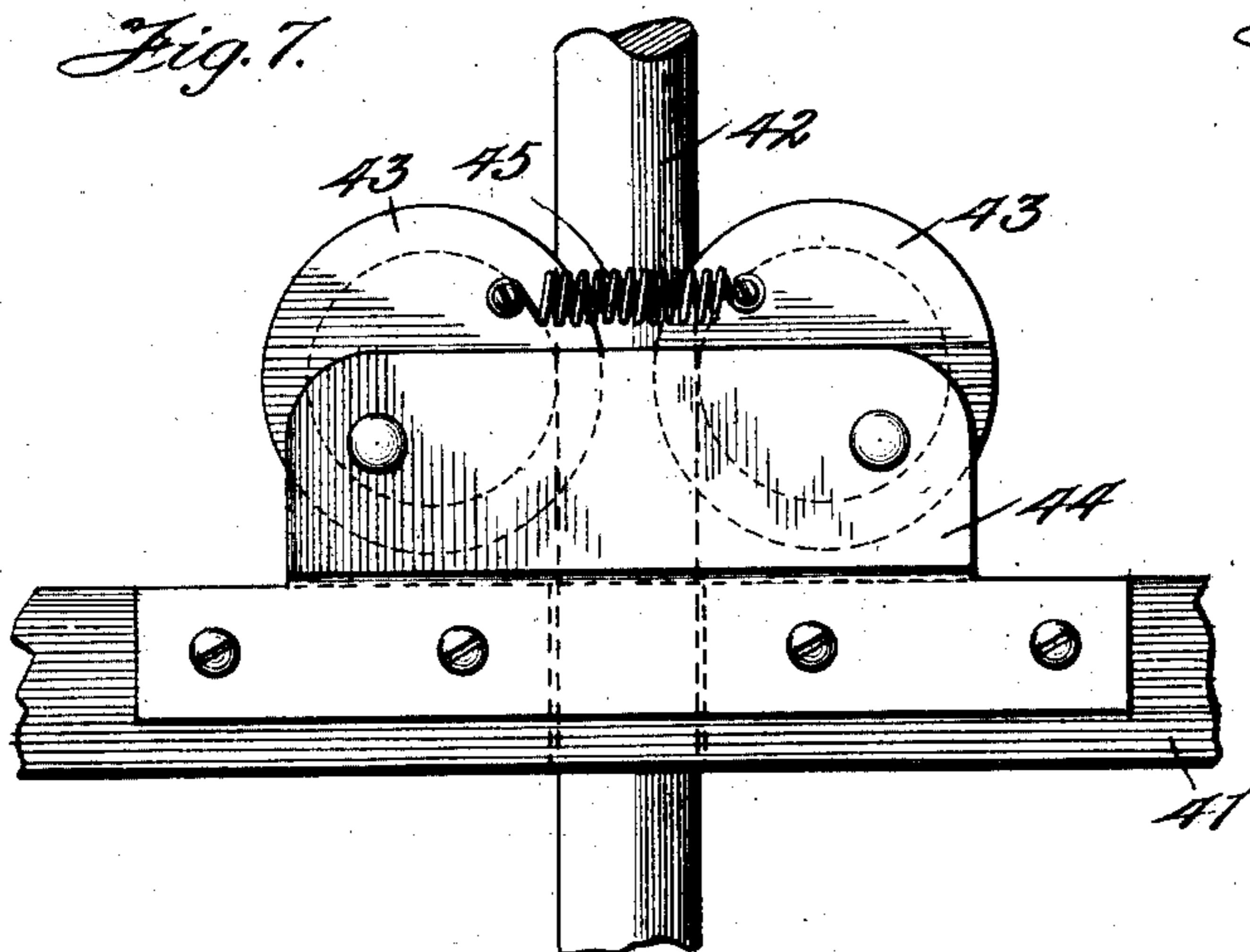


Fig. 8.

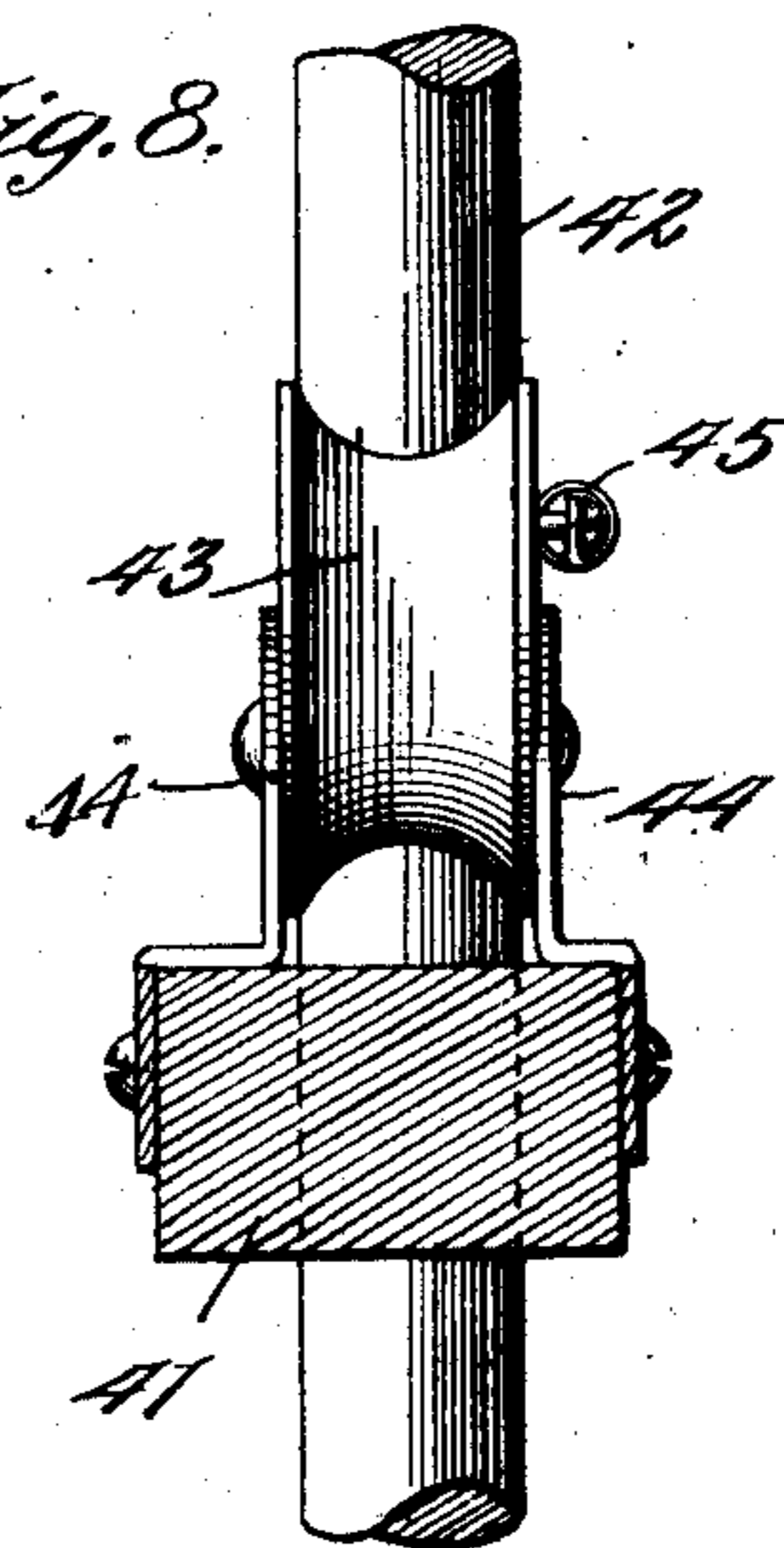


Fig. 9.

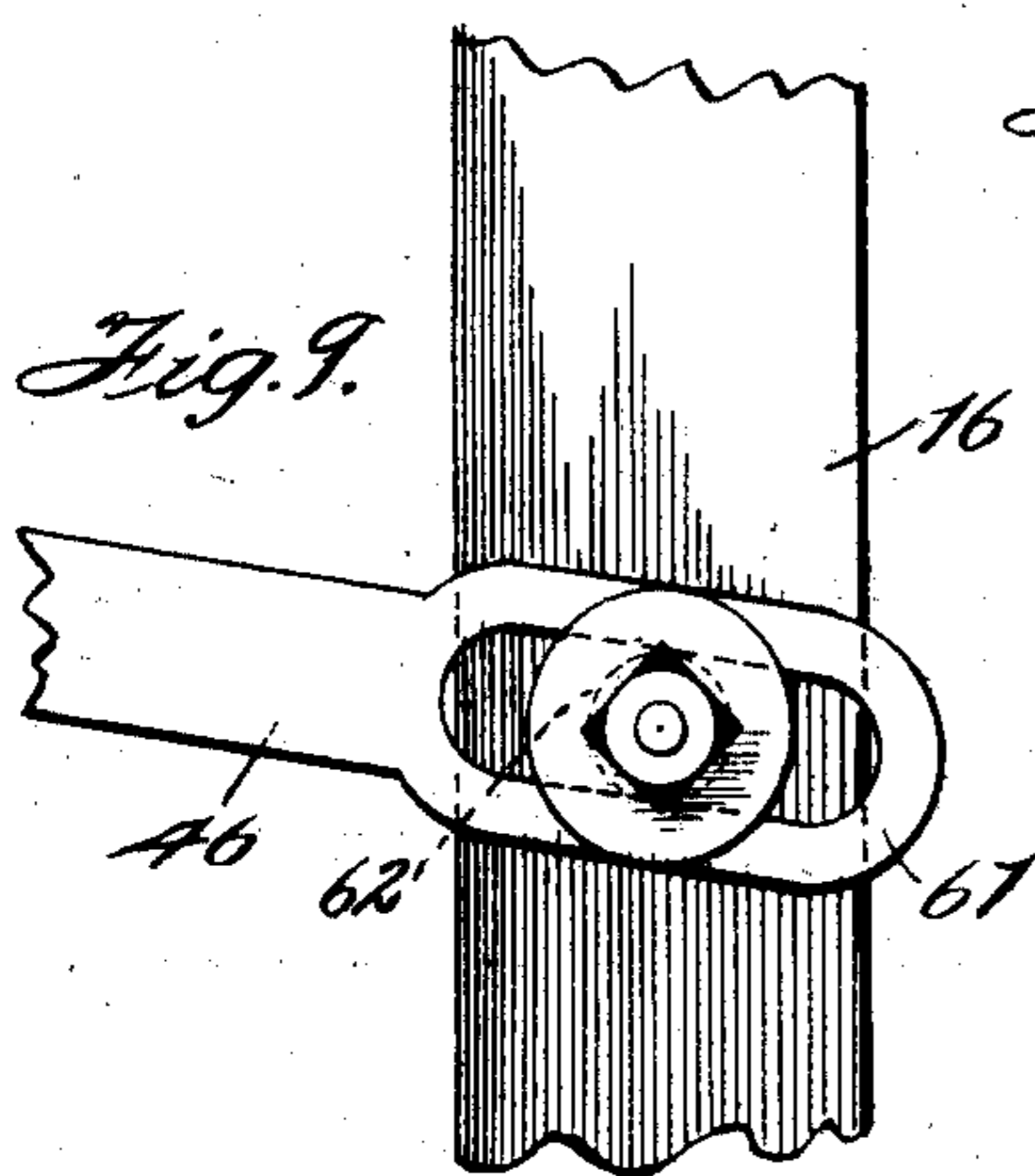
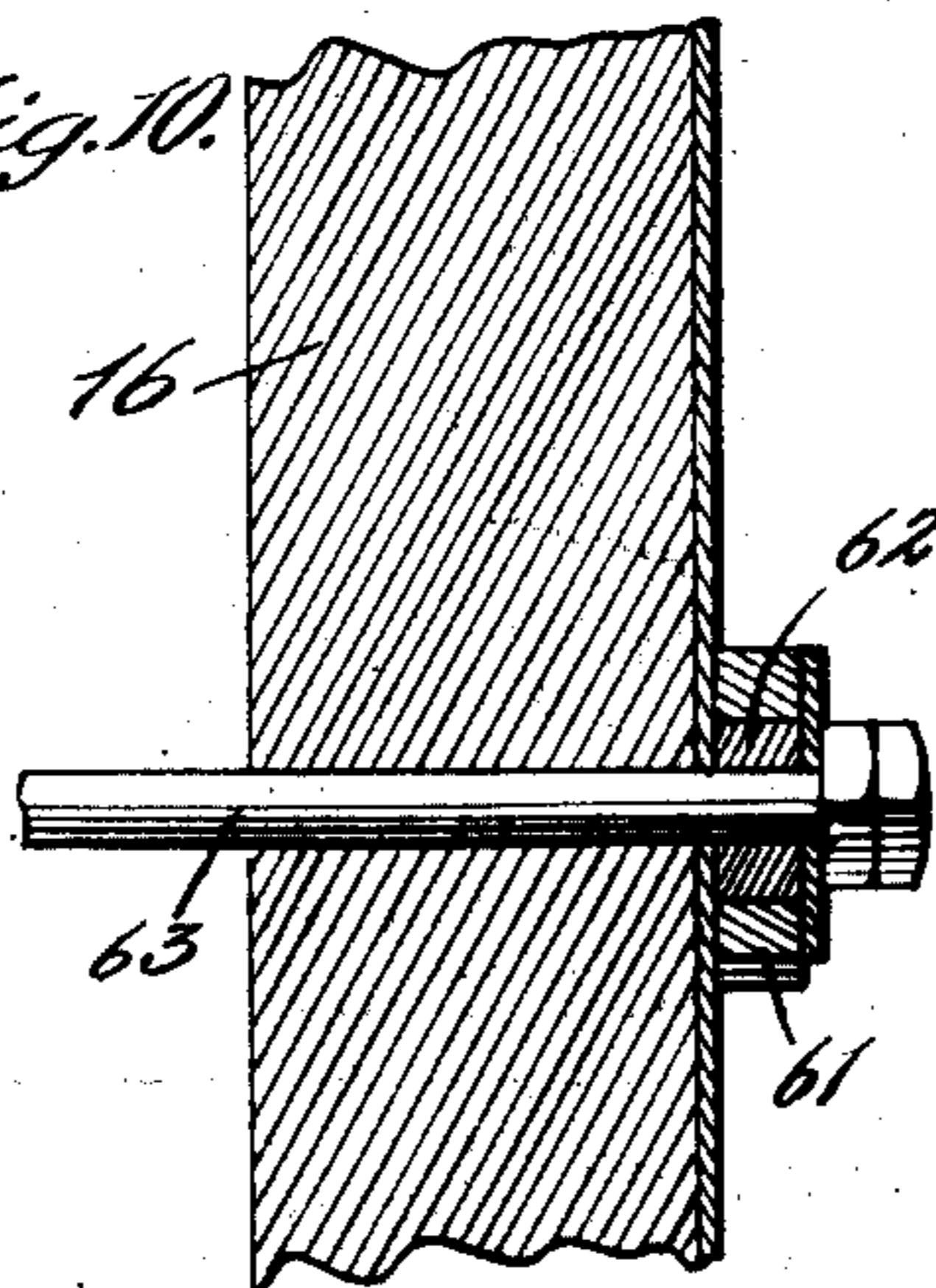


Fig. 10.



Witnesses:

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C. L. Hopkum

Inventor:

Jeremiah R. Prouty

By Jones, Addington & Ames

Atty.

UNITED STATES PATENT OFFICE.

JEREMIAH R. PROUTY, OF REEDSBURG, WISCONSIN.

BUTTER-PRINTING MACHINE.

No. 883,345.

Specification of Letters Patent.

Patented March 31, 1908.

Application filed November 18, 1907. Serial No. 402,673.

To all whom it may concern:

Be it known that I, JEREMIAH R. PROUTY, a citizen of the United States, residing at Reedsburg, in the county of Sauk and State of Wisconsin, have invented new and useful Improvements in Butter-Printing Machines, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawing, forming a part of this specification.

This invention relates to improvements in machines for printing butter, and particularly to a machine for this purpose in which the operation of printing or bricking is accomplished by forcing the butter through a frame and thereby dividing it into bricks or prints of the required form.

The principal object of my invention is to provide a butter printing machine which is capable of operating upon "green" butter, that is, freshly churned butter, not yet solidified by compressing and cooling. The practice heretofore has been to place the butter in a suitable cooler and permit it to remain there until partly hardened, after which it is compressed, then divided into prints, and then returned to the cooler for further hardening. By the use of my invention I am enabled to take the freshly churned butter, compress the same, and then form it into bricks, all prior to the cooling, the necessity for rehandling being thereby done away with.

Another object of my invention is the provision, in the same machine, of means for first compressing and afterward bricking the butter, without the necessity of accomplishing these two operations in separate machines.

A still further object of my invention is the provision of means whereby the contents of the individual bricks may be accurately gaged, and all the moisture and texture in the butter retained.

In carrying out my invention I provide a receptacle in which the butter is placed and in which the same is first compressed by suitable means provided for that purpose. This receptacle is provided with a bottom, preferably removable, consisting of a cutter frame through which the butter is forced after being compressed, by means of which that part of the mass of butter which has passed therethrough is divided into portions having the required length and width of

the finished bricks. Suitable cross-cutting means are provided by the operation of which these portions are then severed from the mass, the contents of the resulting bricks or prints being accurately determined by gaging the thickness of these prints.

Referring to the accompanying drawings, Figure 1 is a perspective view of a machine embodying my invention, a portion of the receptacle being broken away to expose to view some of the interior construction; Fig. 2 is an elevational side view of the machine; Fig. 3 is an elevational front view of the same; Fig. 4 is a vertical sectional view of the machine, the section being taken on the line 4—4 of Figs. 3 and 5, looking in the direction indicated by the arrows; Fig. 5 is a top plan view of the machine; Fig. 6 is a cross sectional view on the line 6—6 of Figs. 2 and 4; Fig. 7 is an enlarged detail elevational view of a portion of the device; Fig. 8 is a side elevational view of the portion shown in Fig. 7; and Figs. 9 and 10 are enlarged detail views of parts of the machine.

In the several figures of the drawings, like reference numerals indicate the same parts throughout.

The machine is supported by a frame comprising four upright legs 16; upper and lower side rails 17 and 18 on each side; an upper and a lower rear rail 19 and 20, and a lower front rail 21. Supported by the upper side rails 17 is a cutting-frame 22, this cutting-frame being suspended from the rails 17 by a bar 23 at each corner, these bars having hooked lower ends in which the frame rests. The rods 23 have their upper ends threaded and are provided with suitable nuts, by the rotation of which these bars are raised and lowered to afford adjustment in leveling the frame. The cutting frame 22 is provided with a suitable number of bars 25, 25 extending thereacross and having their upper sides wedge-shaped for a purpose hereinafter set forth. Extending at right angles with the bars are smaller bars 26, preferably formed of small round rods. By means of the bars 25 and 26 the area within the frame is divided into sections having the form which it is desired to give to the butter prints.

Resting upon the frame 22 is the receptacle consisting of a box 27 of which the cutting-frame 22 forms the bottom, and in this box fits a vertically movable plunger 28. This plunger is designed to rest upon the

mass of butter within the box, means being provided whereby the plunger may be forced down to either compress the butter or force the same through the cutting frame as desired. In operating the machine with "green" butter the latter will be compressed in the receptacle before it is permitted to pass through the frame.

Arranged below the cutting-frame, and vertically movable toward and away from said frame, is a bed member 29 upon which rests a withdrawable slide or tray consisting of a board 30 provided with suitable handles 31. This bed rests upon curved cam plates 32 and 33 pivoted at their ends to the lower side bars 18 of the frame, and connected with each other below the bed of the machine by a link rod 34 to cause them to move in unison. An operating handle-lever 35 is pivoted to the frame at 36 and is secured at 37 to the forward cam 32, whereby when this lever is raised to an upright position, as shown in Fig. 1, the bed will be elevated into engagement with the under side of the cutting-frame. When this lever is dropped to the position shown in dotted lines in Fig. 4 the bed descends, carrying with it the draw tray 30. Means are provided whereby this movement may, when desired, be made to occur simultaneously with a downward movement of the plunger so that the butter will be forced through the cutting-frame and will be divided into blocks by the bars of the latter.

Resting upon the contents of the receptacle is the follower or plunger 28 consisting of a board having suitable means, such as a screw-eye 38, for the attachment of a rope or the like. This rope may extend upward to and over a suitable pulley and carry upon its opposite end a weight to counterbalance the plunger and thus facilitate handling of the same. This plunger has secured to its upper side a pair of structures, each of which consists of two U-shaped rods 39, 39 having legs of unequal length, the longer of which is secured to the upper side of the plunger, a stiffening bar 40 connecting the highest parts of these rods, and a cross-piece 41 spanning the ends of the shorter legs of these U-shaped bars. Other stiffening bars 40^a extend at right angles with the bars 40. Each of the cross pieces 41 is formed with an opening through which vertically extends a pull-rod 42, these pull-rods being arranged to be simultaneously moved up or down in proper slide bearings provided in the upper and lower side rails 17 and 18. Means are provided whereby when these rods are moved downward in their bearings the plunger will be locked thereto and will be moved therewith, while upward movement of these rods is permitted to take place without corresponding movement of the plunger. This means consists of a suitable clutch mechanism,

which may comprise a pair of cams 43 carried by bearing plates 44 secured to the cross-piece 41 and adapted to grip the pull-rod 42 at opposite points when this pull-rod is moved downward. When the rod is moved upward the cams relax their hold and permit such movement to take place independently of the plunger. To assist the cams in gripping the rod a spring 45 is provided having its ends secured to the cams and tending to draw them toward each other and into contact with the pull-rod 42.

The means for actuating the pull-rods comprises a lever 46 upon each side of the frame, these levers being pivoted at their rearward ends to the rear legs. The lower end of each of the pull rods is pivoted to the corresponding lever 46 at 47. Extending across the machine below the bed, and supported in suitable bearings in the lower side rails 18, is a rock-shaft 48 having upon one of its ends a cam 49, secured to and turning with the shaft 48. The opposite end of this shaft is also provided with a cam 50 and with a handle 51, this last-named cam and the handle being conveniently made in one piece as shown in Figs. 1 and 2. Each of the cams 49 and 50 is connected, by means of a strap 52, serving as a cam follower, with the free end of one of the side levers 46. When the handle 51 is raised the side levers are raised to the position shown in Fig. 1, the pull-rods 42 ascend with these levers, and the cams 43 release their grip upon the rods, permitting them to move upward without raising the plunger from the contents of the box. When the handle is depressed the cams operate to grip the rods, thereby locking the plunger thereto, the plunger being forced downward upon the contents of the box and thereby either compressing the butter or forcing the same through the cutting-frame. By raising and lowering the handle 51 while the bed 29 is elevated the butter is compressed until the desired degree of solidity is acquired.

It will be observed that the manipulation of the handle 35 raises and lowers the bed of the machine independently of any other portion of the machine and that the manipulation of the handle 51 raises and lowers the pull-rods 42, the lowering of the pull-rods being accompanied by the lowering of the plunger. When the desired degree of solidity has been imparted to the butter by raising and lowering the handle 51, with the handle 35 and bed 29 in the raised position, as above described, the handle 51 will also be raised to the upright position. The plunger is now resting upon the butter and the bed is in contact with the under side of the cutting-frame, with the butter resting upon the draw board or tray carried by the bed. If both handles be now depressed, the plunger and bed will descend at the same time and with the same rate of movement,

the butter being by this operation forced through the frame and cut by the bars of the same into bricks of the required size.

Means are provided by the operation of which the butter below the frame may now be severed from the mass above the frame, such means conveniently consisting of a cutting-off slide comprising a U-shaped bar 53 extending around three sides of the machine and having its ends connected by a wire 54. This frame is supported in suitable slide bearings 55, and by means of slide rods 56 upon which the ends of the bar run. After the butter has been forced through the cutting-frame in the above described manner the cutting-off slide 53 will be withdrawn to carry the cutting wire across the machine from side to side. This operation severs the butter below the frame from the mass of butter above the same, leaving the cut-off portions in the form of bricks or prints of the required size.

A suitable stop is provided for limiting the downward movement of the handle 51, and thereby gaging the thickness of the print, this stop consisting of a vertically-adjustable bracket 57 secured to one of the front legs 16. When the handle 51 has been depressed into engagement with this stop and the cutting-off slide 53 has been drawn to sever the bricks from the butter above the screen the handle 35 may be further depressed independently of the handle 51, whereby the bed, draw board or tray and prints carried thereby are lowered slightly to separate the prints from the mass of butter and permit the draw board and prints to be withdrawn from the machine. Suitable means are provided whereby the handles may be locked together when they are to be simultaneously depressed, such means comprising a stud 58, on the handle 51, which, when these handles are in alinement, occupies a hole or depressed portion in the handle 35, as indicated at 59. When the handle 51 has been depressed to the limit imposed by the gage-stop 57, and it is desired to further depress the handle 35 to free the prints from the mass as explained above, the handle 35 will be sprung away from the handle 51 and thereby released therefrom.

A suitable stop 60 is provided upon the upper rail 17 with which the handle 51 engages when in its raised position. The method which I adopt for connecting the pivoted end of the lever 46 to the frame is such as to permit this lever to have a sliding endwise movement, this being required because of the fact that the pull-rod 42 is forced to move in a right line in its slide bearings. This method of connecting these parts consists in enlarging the end of the lever, as shown at 61, slotting this enlarged portion, and disposing within the slot a roller 62 arranged to turn on a pivot 63.

A suitable shelf is provided for receiving the draw board or tray 30 when the latter, with the prints, is drawn off the bed 29. This shelf consists of a metallic frame 64 having side rods with bracket ends 65 extending at a right angle with the side rods and hooked into screw-eyes 66 or the like on the front of the frame of the machine. This construction provides a form of shelf which may be folded up against the machine when not in use so as to economize space.

The butter will usually, when put into the machine, be in a "green" condition, consequently lacking consistency. Such butter would not be properly supported by a frame consisting simply of wires or rods of small diameter when the bed and prints carried thereby are lowered to take them out of contact with the mass of butter in the machine. To overcome this difficulty the sides and ends of the frame 22 are made to extend inwardly from the inner surface of the box 27 to form a shoulder 67 extending therearound. To further assist in supporting the mass of butter while the prints are being taken from the machine I make the bars 25 of substantial width. Giving to these bars 25 a considerable width results also in the finished prints being spaced sufficiently apart on the draw board or tray to admit between them the fingers of a person and thus facilitates the removal of the prints from the board. The bars 25 have their upper sides beveled or made wedge-shaped to guide the butter into the spaces between the bars and prevent the lodgment of butter thereon which would result if the bars were formed with flat upper surfaces.

The small rods may be made removable so that they may be spaced at desired distances apart whereby bricks containing any desired quantity of butter may be produced. Or, if preferred, frames variously divided may be kept on hand, a proper frame for making bricks of the required size being selected and placed in position in the machine.

By the use of the machine herein described, and shown in the drawings, the work of compressing and bricking butter may be carried out with facility and rapidity. When a draw board or tray with prints thereon has been taken from the machine it may be put into the cooler and another board may be inserted into the machine ready to receive the next succeeding layer of prints. These operations may be repeated until all of the butter in the receptacle has been passed through the cutting-frame, whereupon the plunger will be raised and the receptacle refilled.

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

1. In a butter-printing machine, the combination with a stationary cutting-frame, of

a movable bed below said cutting-frame, a follower above said cutting-frame, movable in the same direction as said bed and means for operating said bed and said follower independently of each other.

2. In a butter-printing machine, the combination with a stationary cutting-frame, of a movable bed below said cutting-frame, a follower above said cutting-frame, means for operating said bed and follower independently of each other, and means for operatively locking together the operating means for said bed and follower, respectively.

3. In a butter-printing machine, the combination with a stationary cutting-frame, of a vertically movable bed disposed below said cutting-frame, means for operating said bed, a receptacle disposed upon said cutting-frame, a vertically movable follower operating within said receptacle, and means for operating said follower.

4. A butter-printing machine comprising a receptacle having a grated bottom, a plunger adapted to move vertically in said receptacle, and a bed adapted to move simultaneously with said plunger.

5. A butter-printing machine comprising a receptacle, a bottom for said receptacle having openings for the passage of butter therethrough, a plunger for forcing the butter through said bottom, and a bed adapted to move in unison with said plunger.

6. In a butter-printing machine, a cutter frame, means for supporting said frame, a vertically movable bed below said frame, removable means carried by said bed for receiving the prints, and means movable in unison with said bed for forcing the butter through said frame.

7. A butter-printing machine, comprising a vertically adjustable cutting frame, a vertically movable bed below said cutting frame, vertically movable means for forcing the butter through said cutting frame, an operating lever for each of said vertically movable parts, and means for locking said handles together whereby said bed and forcing means may be simultaneously lowered.

8. In a butter-printing machine, the combination with a receptacle, of a bottom therefor having openings for the passage of butter therethrough, a vertically movable follower above said bottom, a vertically movable bed below said bottom and means for moving said follower and bottom at the same time and with the same rate of travel.

9. In a butter-printing machine, the combination of a cutting frame, vertically movable means for forcing the butter through said frame, vertically movable means below said frame for receiving the butter, said follower and receiving means being adapted to move simultaneously and with the same rate of movement, said receiving means being adapted also to continue movement after

said follower has reached the limit of its movement.

10. In a butter-printing machine, the combination of a receptacle, a bottom therefor having openings for the passage of butter therethrough, a vertically movable follower above said bottom, a vertically movable bed below said bottom and means for moving said follower and bottom at the same time and with the same rate of travel, means for limiting the downward movement of said follower, and means for limiting the downward movement of said bed, said last-named means being adapted to permit further movement of said bed after said follower has reached the limit of its movement.

11. In a butter-printing machine, the combination with a stationary horizontal cutting frame, of a movable bed disposed below said frame, means for operating said bed, a follower above said cutting frame, means for operating said follower, and a horizontally movable cutting-off member below said frame.

12. In a butter-printing machine, a cutting frame, a movable follower for forcing the butter through the frame, a movable bed for receiving the butter, means for severing the butter which has passed through the frame from the bulk of the butter, said bed being arranged to recede after the bricks have been severed from the bulk of the butter.

13. A butter-printing machine comprising, in combination, a receptacle having a bottom provided with openings, means for forcing the butter through said bottom, a bed movable toward and away from said bottom, and means for gaging the amount of travel of said bed.

14. In a butter-printing machine, the combination with a stationary cutting frame, of a vertically movable bed below said frame, cams engaging said movable bed, means for actuating said cams, and a stop for determining the limit of movement of said actuating means.

15. In a butter-printing machine, the combination with a stationary cutting frame, of a movable bed disposed therebelow, a follower disposed above said frame, vertically-movable operating mechanism, and clutching mechanism for operatively connecting said follower with said operating mechanism upon downward movement thereof.

16. In a butter-printing machine, the combination with a cutting frame, of a movable bed disposed below said frame, cams for engaging the under side of said bed, lever mechanism for moving said cams, a follower disposed above said cutting frame, vertically movable pull-rods, clutch mechanism for operatively connecting said follower and said pull-rods, and lever mechanism for operating said pull-rods.

17. In a butter-printing machine, the combination with a stationary cutting frame, of a

vertically movable bed below said frame, means for operating said bed, a follower above said cutting frame, vertically reciprocating rods for operating said follower, means
5 for operating said rods, and means for operatively connecting said follower with said rods upon the downward stroke thereof, said means being adapted to permit free upward movement of said rods.
10 18. In a butter-printing machine, the combination of a receptacle, a bottom therefor comprising a removable frame, cutting means carried by said frame, means for forcing butter through said frame, a bed movable
15 toward and away from said bottom, and

means for relatively alining said bottom and bed.

19. In a butter-printing machine, a receptacle, means below said receptacle for dividing the butter; means for forcing the butter
20 through said last-named means, a bed movable relative to said receptacle, and a draw-board carried by said bed.

In witness whereof, I have hereunto subscribed my name in the presence of two witnesses.
25

JEREMIAH R. PROUTY.

Witnesses:

A. F. KRUEGER,
H. S. ANDERSON.