



No. 743,470.

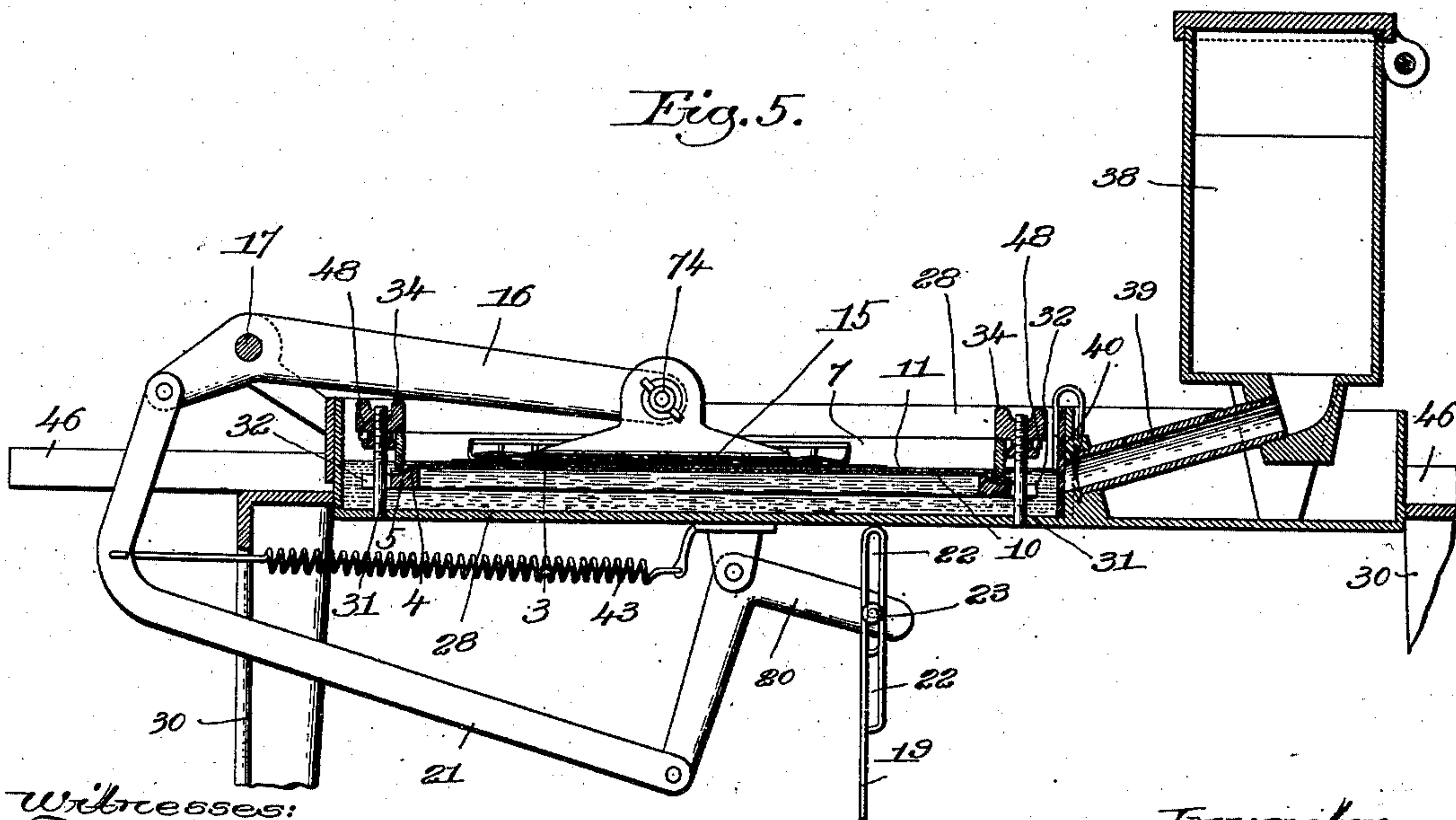
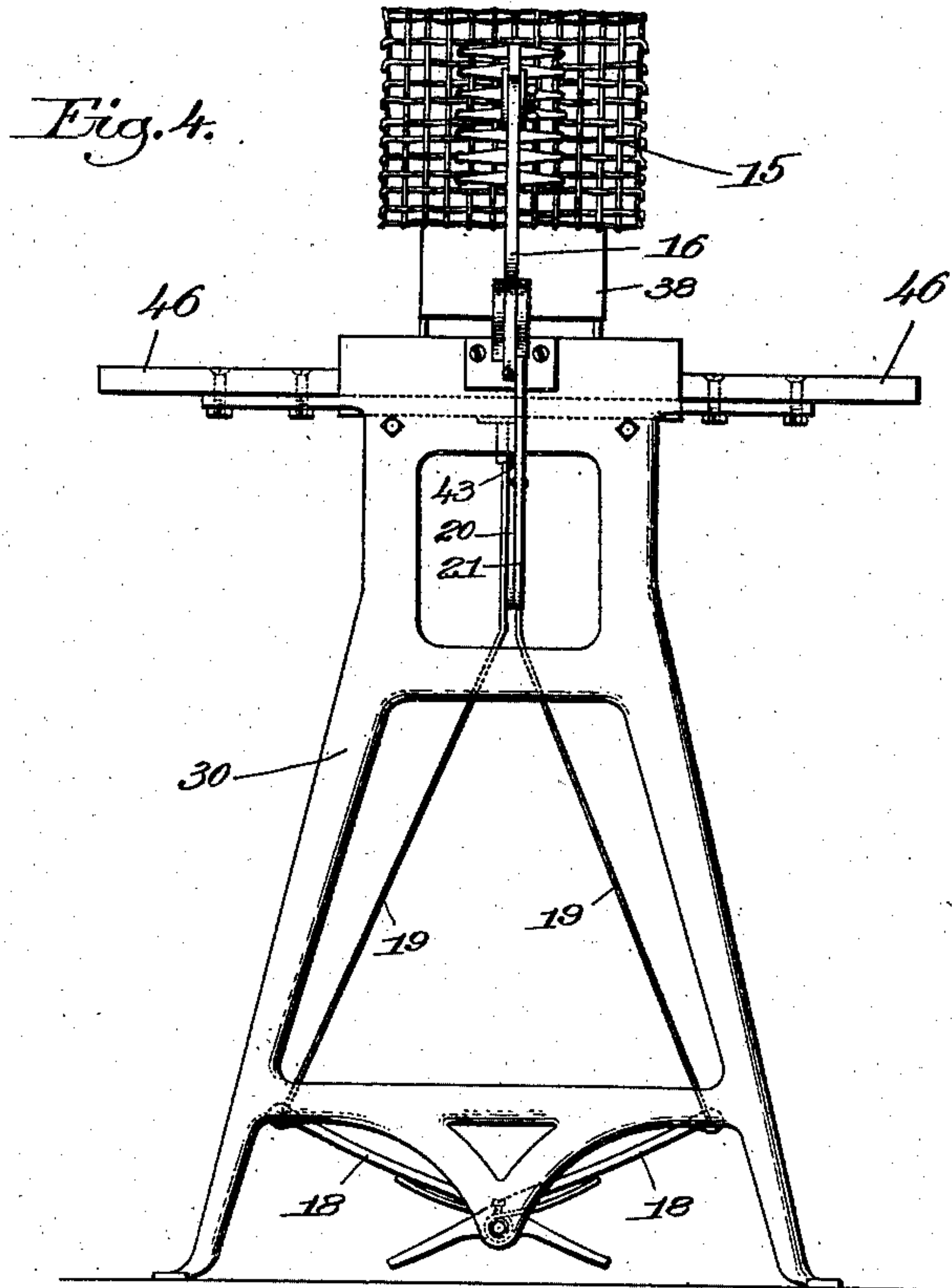
PATENTED NOV. 10, 1903.

W. J. DIX.  
PASTING MACHINE.

APPLICATION FILED DEC. 29, 1902.

NO MODEL.

3 SHEETS—SHEET 2.



Witnesses:  
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Fig. 6

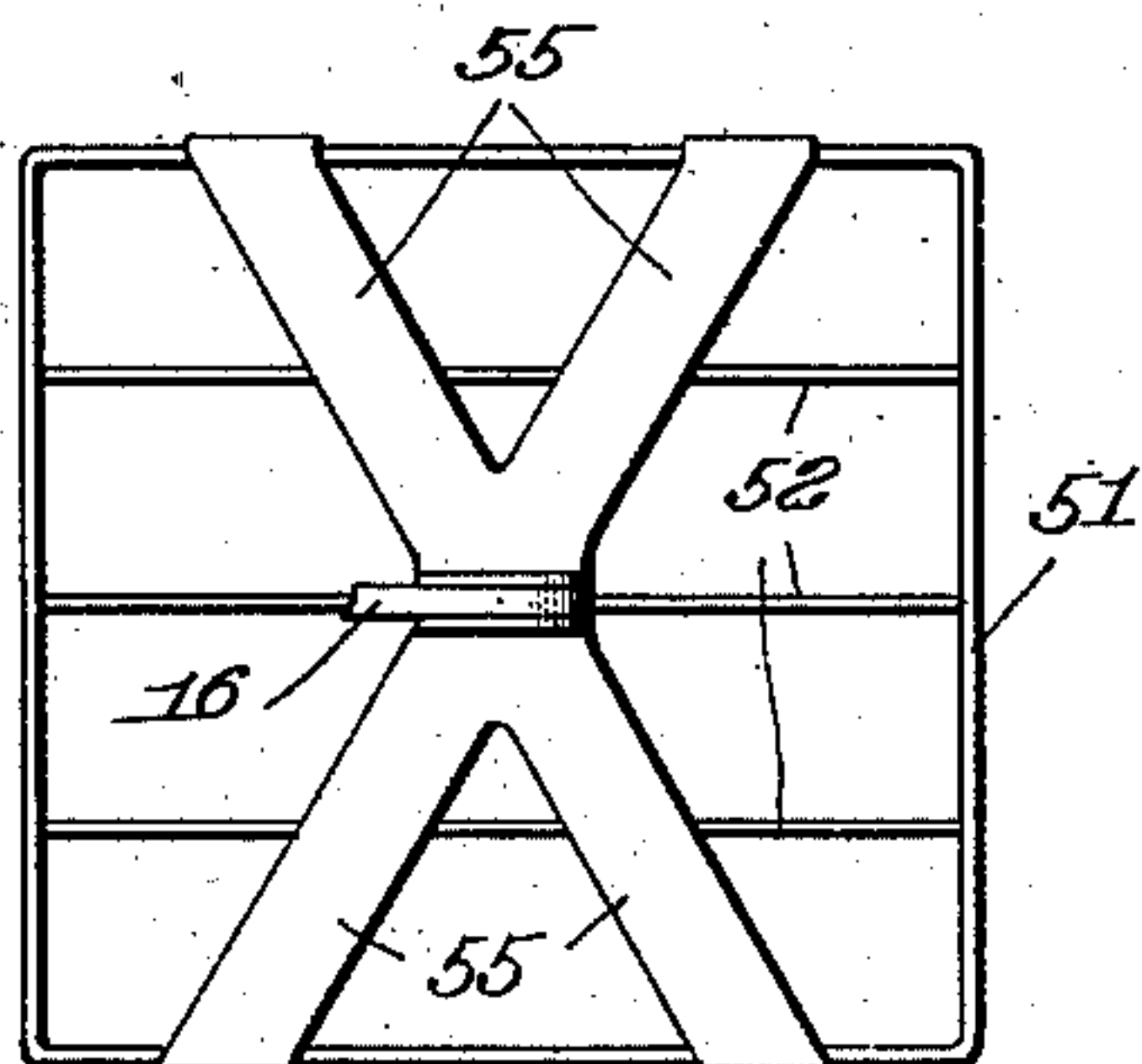


Fig. 7.

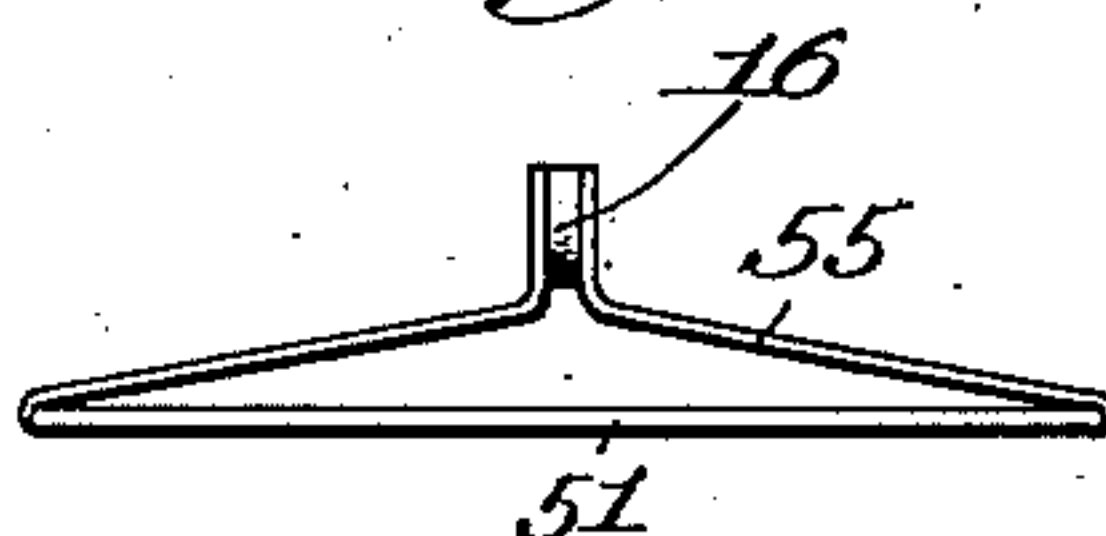


Fig. 8.

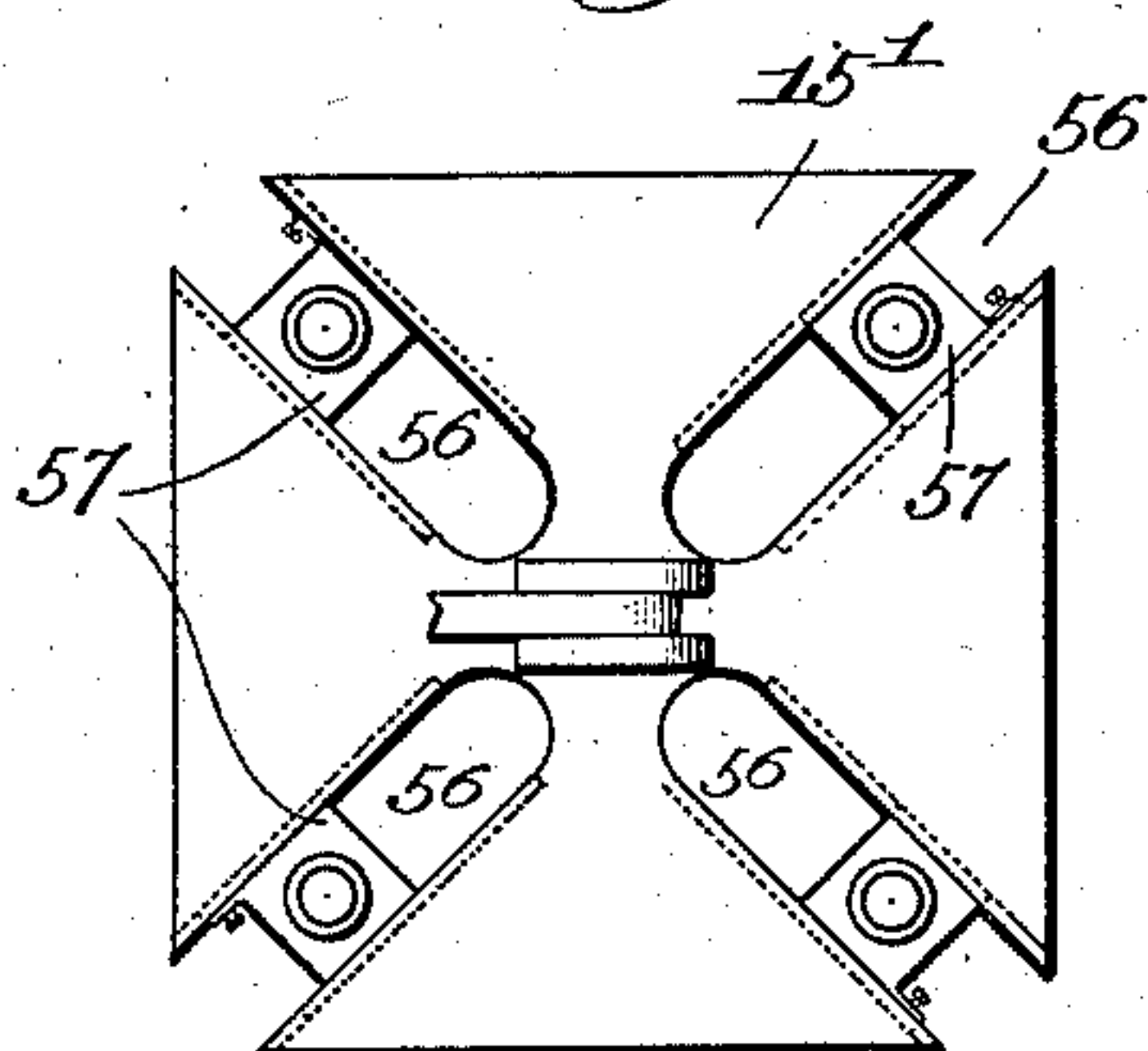


Fig. 9.

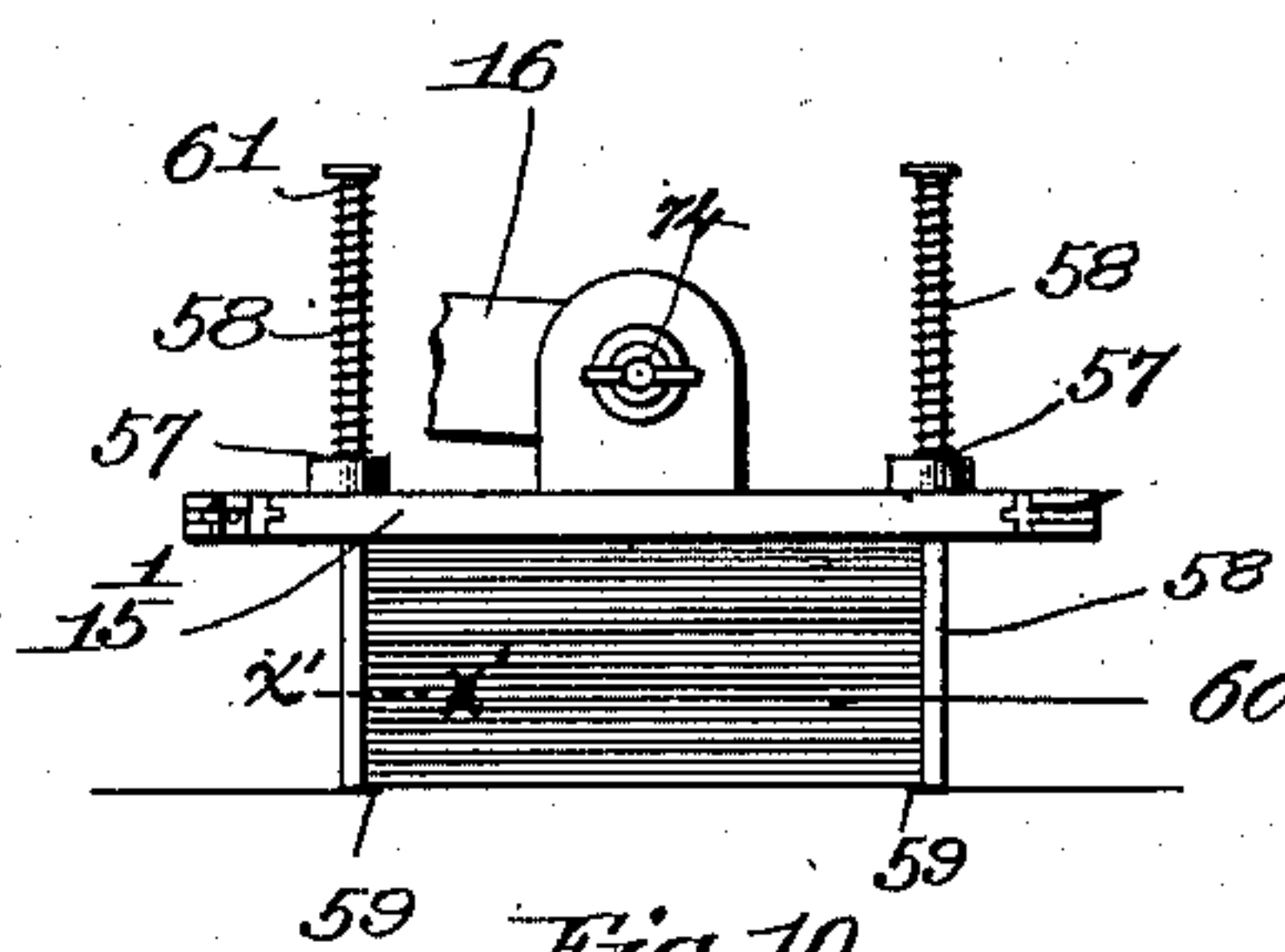


Fig. 10.



Fig. 11.

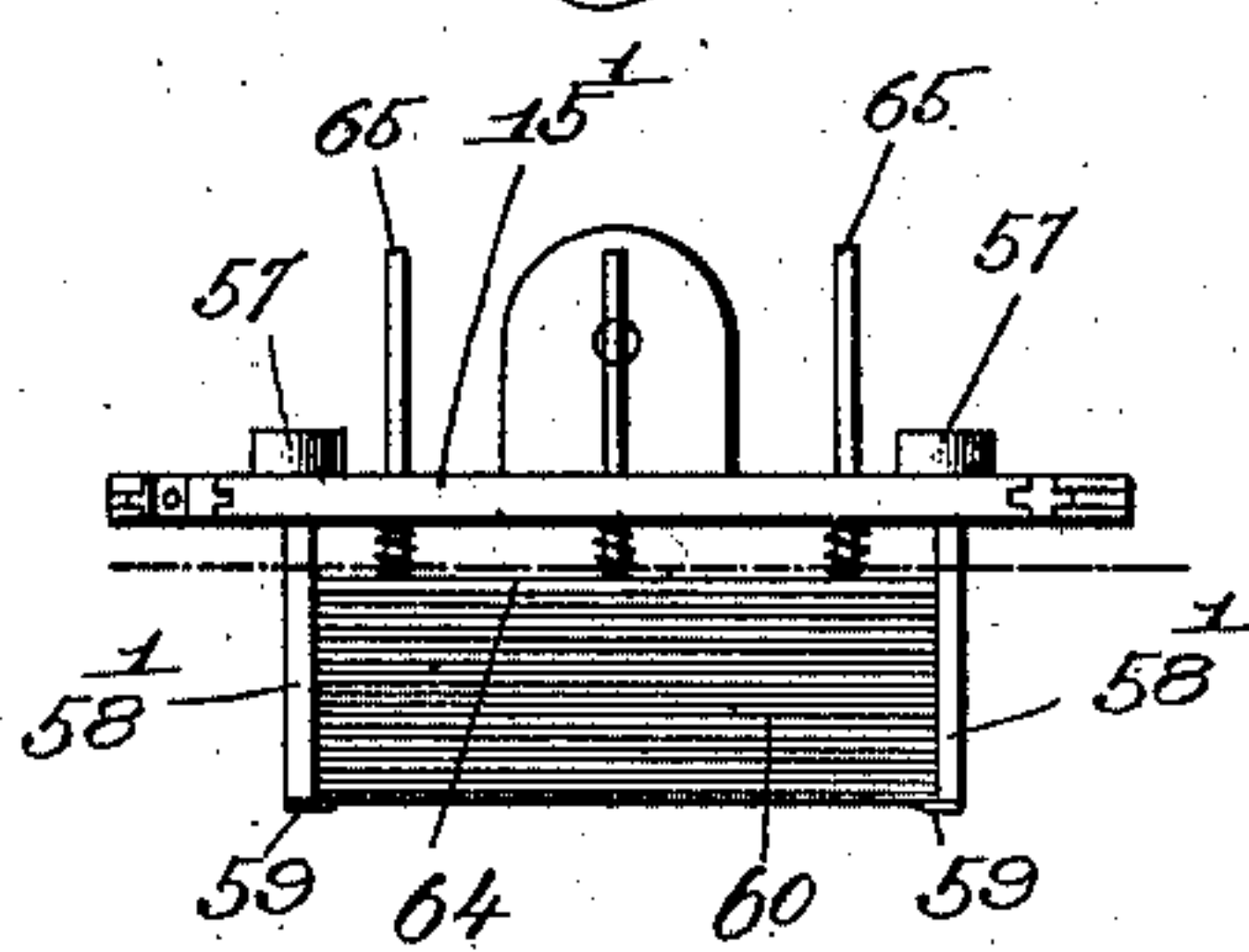
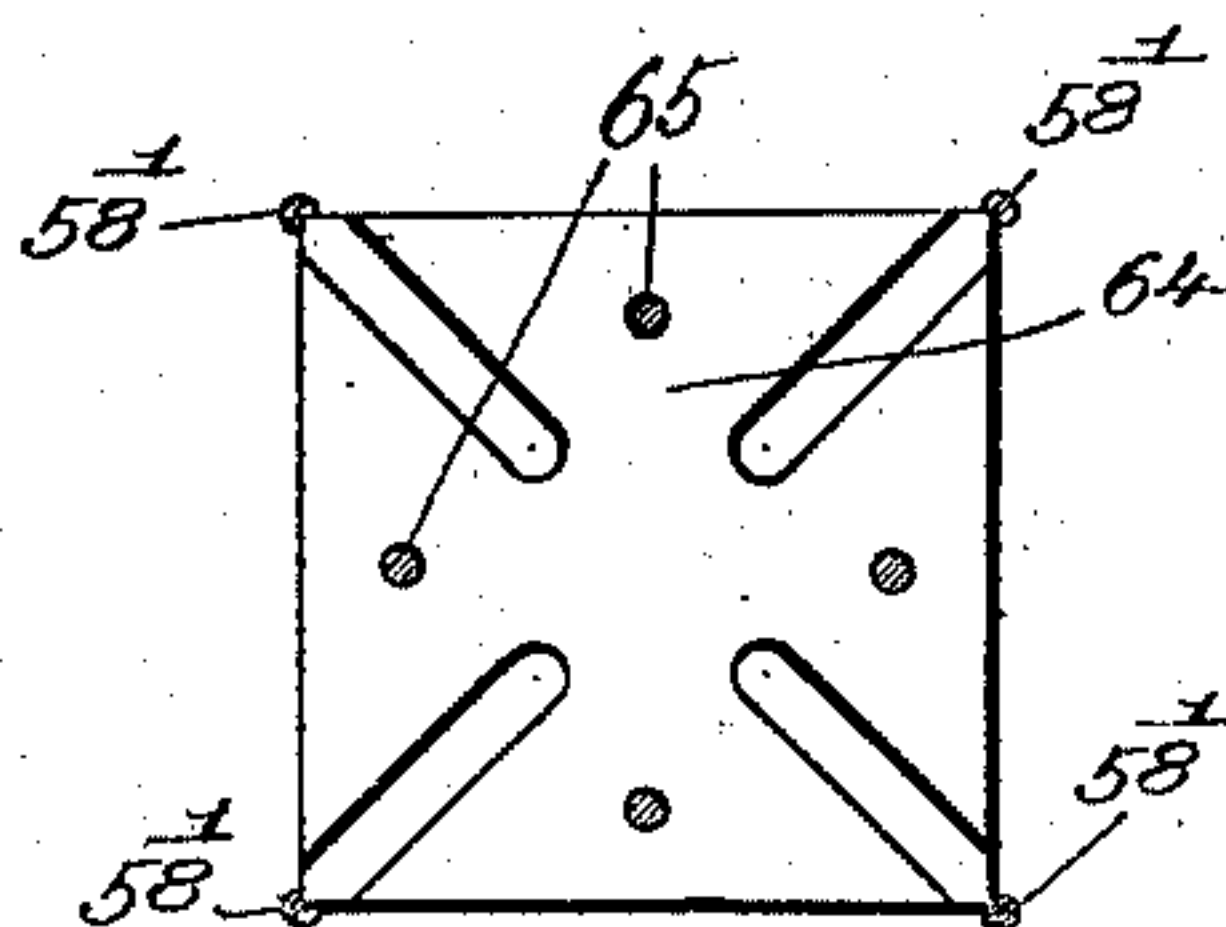


Fig. 12.



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# UNITED STATES PATENT OFFICE.

WILLIAM J. DIX, OF MILFORD, MASSACHUSETTS.

## PASTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 743,470, dated November 10, 1903.

Application filed December 29, 1902. Serial No. 136,921. (No model)

*To all whom it may concern:*

Be it known that I, WILLIAM J. DIX, a citizen of the United States, residing at Milford, county of Worcester, State of Massachusetts, have invented an Improvement in Pasting-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

10 This invention relates to machines which are adapted to apply a film of paste, glue, or other adhesive to part or all of one side of one of two sheets of material which it is desired to glue or paste together; and it is the object of  
15 the invention to provide a novel form of machine which is adapted to thus apply the film of adhesive without the use of brushes or rolls. To accomplish this, I provide a bed of porous material, such as fabric or fine wire-  
20 gauze, which is saturated with adhesive material, and employ a striker which is adapted to strike the piece of material on which adhesive is to be applied against the bed with a more or less sharp blow, whereby the whole  
25 or a part of the under side of the said piece of material becomes coated with a thin film of the adhesive.

In the drawings, Figure 1 is a side elevation of my improved machine. Fig. 2 is a  
30 top plan view. Fig. 3 is a detail of the manner of supporting the porous bed. Fig. 4 is an end view of the machine. Fig. 5 is a central sectional view on the line  $x x$ , Fig. 2. Fig. 6 is a plan view of a modified form of  
35 striker which is especially adapted for certain kinds of work. Fig. 7 is an end view of the striker shown in Fig. 6. Fig. 8 is a top plan view, and Fig. 9 a side view, of a form of striker which is designed to carry a quan-  
40 tity of the sheets of material to which it is desired to apply the adhesive and to feed the individual sheets off as they are operated on. Fig. 10 is a section on line  $x' x'$ , Fig. 9, showing a detail of the holder for the sheets; and  
45 Fig. 11 is a side elevation, and Fig. 12 a top plan, of a slightly-modified form of striker.

The porous bed is designated by 3, and while it may be made or supported in any suitable way I have chosen in this embodiment of my invention to illustrate it as forming the bottom of a tray or frame 4. This  
50 frame is herein illustrated as being substan-

tially rectangular, although its shape is entirely immaterial to the invention. It is essential that the bed be maintained perfectly  
55 flat in order that the striker may properly cooperate therewith, as hereinafter described, and therefore I have constructed the frame with a base-ring 5, over which the porous bed is stretched, said ring having a flange 6, as  
60 best seen in Fig. 3. The frame also comprises a gripping-ring 7, which forms the side wall of the frame or tray and which bites or grips the outer edge of the porous material between the same and the base-ring 5, the  
65 said ring being situated outside of the flange 6. The gripping-ring is secured to the base-ring by any suitable means, such as screws or bolts 8, which pass through ears 9 on the gripping-ring. By placing the gripping-ring  
70 outside the flange 6 it will be observed that when securing the two rings together it will operate to stretch and hold the porous bed 3 perfectly taut.

The bed 3 may be made in various ways  
75 so long as it has the requisite porosity to admit of the adhesive oozing through under pressure. I have found that a bed having a bottom layer 10 of wire net or gauze and a top layer 11 of porous fabric, such as burlap,  
80 answers all the purposes. The wire-gauze gives the bed sufficient strength, and the burlap or other porous fabric gives to it the requisite porosity. Fine wire-gauze may be substituted for the fabric, or the bed may be  
85 composed entirely of fabric, without departing from the invention. I have found from practice that for some classes of work a bed made of a single thickness of closely-woven fabric may be advantageously used.  
90

Coöperating with the bed is a striker 13, which may be constructed in various ways. In Figs. 1 to 5 it is shown as having a flat face which is adapted to be brought squarely against the bed 3, and in Figs. 6 to 12 various modified forms of strikers are illustrated.  
95 The form of striker shown in Figs. 1 to 5 will first be described. It has a face composed of wire netting or fabric 15, and is carried by an arm 16, pivoted at 17 to the frame of the machine, and is adapted to be brought against the bed 3 by means of treadles 18. For this purpose each treadle is connected by a link 19 to an elbow-lever 20, also pivoted to the  
100



frame, said lever 20 having a link connection 21 with the projecting arm of the lever 16. Each of the links 19 has a slot 22 in its end, which receives a pin 23 on the end of the lever 20, this construction permitting the lever 20, and consequently the striker, to be operated by either of the treadles 18 as desired. The striker will preferably be adjustably secured to the arm 16, as at 74, so it may be turned relative to the arm to bring its face into the correct position to strike the bed squarely.

My invention contemplates some suitable means for maintaining the bed 3 saturated with adhesive, and in the embodiment of the invention herein disclosed this is accomplished by forcing the adhesive against the under side of the bed 3 with sufficient pressure so that it oozes through the interstices in said bed, whereby a thin film of the adhesive material is formed on the upper side of the bed. This result is attained by setting the frame or tray 4 in a reservoir 28, containing the adhesive material, and providing means for partially immersing said frame in the adhesive material. The tank 28 is supported upon and forms part of the frame 30 of the machine, and is herein illustrated as having two screw-threaded pins 31 projecting from the bottom thereof. The frame 40 has at each end two guiding-lugs 32, between which the pins 31 are received, this construction serving to position the frame in the reservoir.

I have herein provided means for regulating the amount which the frame is immersed in the adhesive material, thus regulating the pressure of such material against the bottom of the frame. The means herein shown for accomplishing this comprises two nuts 34, which have screw-threaded engagement with the rods 31 and which are provided with grooves in which fingers 48, projecting from the tray-like frame, are received. By turning the nuts 34 up or down the frame may be raised or lowered, as will be obvious. It will also be obvious that the farther the frame is immersed in the adhesive material the greater will be the pressure of such material against the porous bottom of the frame, and that the greater such pressure the faster the adhesive material will ooze through the bed. With this construction, therefore, it is possible to regulate the amount of adhesive material which accumulates on the top of the bed according to the requirements of the material being pasted. The special form of nut 34 employed has the advantage that it prevents the tray-like frame from being forced into the body of adhesive under the influence of the blow of the striker.

It will be noted that the ring 7 of the frame is of such a thickness that its upper edge is some distance above the bed. This ring therefore acts as a side wall for the tray-like frame and prevents the adhesive material

from flowing over onto the top of the bed when the frame is partially immersed. This is essential, because it is the purpose of my invention to have the necessary quantity of adhesive material supplied to the bed slowly by forcing it through said bed from beneath.

38 designates a suitable supply-tank, which is connected to the reservoir by means of a pipe 39, normally closed by a gate or valve 40. By raising the valve or gate the supply of adhesive material in the tank 28 may be increased.

The operation of the device thus far described is as follows: The striker is normally maintained in its elevated position, as shown in Figs. 1 and 4, by means of the spring 43. The operator takes a piece or sheet of material on one side of which it is desired to apply the adhesive and lays said sheet on the bed 3 with the face to which the adhesive is to be applied down or against the bed. The operator then manipulates one of the treadles 18, thus bringing the striker down against the upper face of the material and giving the latter a quick blow. Since there is more or less of a film of paste or adhesive on the upper face of the bed 3, such quick blow given to the material results in covering the under side thereof with a film of adhesive material, this result being accomplished much better than could be done by means of a brush or a roll. Upon removing the foot from the treadle the striker is raised and the coated sheet may be removed.

I have employed in connection with my machine tables or platforms on which the two sheets of material may be pasted together. The machine herein illustrated is especially designed for use by two persons at once, and accordingly I have mounted on the frame 3, either side of the reservoir 28, a table 46, on which the parts may be pasted together. It will be noted that the treadles 18 face in opposite directions, so that a person may work on each side of the machine. Where two persons are working, one of them will place one of the two sheets of material to be pasted together on the bed and then operate his treadle to bring the striker against said sheet, as above described, and after he has removed said sheet from the bed and while he is placing said sheet over and sticking it to its companion sheet upon one of the tables 46 the other operator places one of his two sheets on the bed 3 and operates his treadle, as above described. This special arrangement of parts, however, is only a preferable one and may be varied without departing from my invention.

It is within my invention to employ a striker of any construction, though for operating as described above it is preferable that the striker have an open-work or skeleton form, for this construction admits of striking a sharper blow than if the face of the striker were solid, because with the latter construction the air-cushion which would be formed



between the striker-face and the bed as the former approached the latter would materially cushion the blow.

The form of striker illustrated in Figs. 1 to 4 has such a construction that the blow given the sheet of material would result in coating substantially its entire under side with adhesive. In some classes of work it is unnecessary or even undesirable to spread a film of adhesive over the entire extent of the under face of the sheet of material, as it is sufficient to merely apply the adhesive to a few places on said material. In such cases I will employ a striker which has an extremely open skeleton-work face—such, for instance, as shown in Fig. 6. This form of striker has the exterior frame 51 and the cross-bars 52, making a construction which would result in forcing the sheet of material against the bed only at those places where the parts 51 and 52 struck the said sheet.

It is sometimes desirable that the blow of the striker against the bed be a yielding one, and in such case I will provide a yielding connection between the body of the striker and the arm 16. I have shown one form of such connection in Figs. 6 and 7, though it will be obvious that many other ways of yieldingly connecting the striker-body to its arm than that illustrated may be employed without departing from the invention. The yielding connection shown in said figures comprises members 55, of some suitable resilient material, such as spring-brass, which are connected at one end to the arm 16 and at the other to the outer edges of the striker. The connection between the members 55 and arm 16 may be an adjustable one, as in Figs. 1 to 4, if desired.

In all the above forms of my invention the pasting operation is performed by first placing on the bed the piece of material to be coated with adhesive and then bringing the striker against such piece of material with a sharp blow. My invention, however, is broad enough to include any machine which comprises a bed saturated with adhesive and a striker to force the sheet of material against the bed whether the said sheet is placed on the bed by hand, as above described, or is carried by the striker, and in Figs. 8 to 12 I have illustrated the latter form of the invention. In the embodiment of my invention shown in Figs. 8 and 9 the body 15' of the striker has a series of diagonal slots 56, in each of which is slidably mounted a block 57, carrying a holding-finger 58. These fingers project below the bottom of striker and have holding-lips 59 at their lower ends, which are adapted to project under the edges of the lower one of a plurality of sheets 60 of material. In Figs. 8 and 9 the fingers are shown as being slidably mounted in the blocks 57, and the sheets 60 are held between the lips 59 and the body of the striker by means of springs 61. With this construction whenever the striker is brought against the bed the

under face of the lower sheet of material becomes coated with adhesive, and as the striker is raised the adhesion between the bed and said sheet is sufficient to withdraw the latter from the holding-fingers. The operator then removes the coated sheet from the bed in any suitable way and the striker is again depressed to coat the under side of the next sheet. By this construction the feeding of the sheets or pieces of material to the bed is performed automatically. In Figs. 11 and 12 I have shown a slightly-different way of accomplishing the same object. In this embodiment of my invention the fingers 58' are rigid with the blocks 57, and the sheets of material are held against the lips 59' by means of a spring-pressed follower 64, which is shown as having guiding-pins 65 playing through apertures in the striker-body 15'. This latter construction has the advantage that the under face of the lower sheet has a fixed position relative to the striker, and consequently a more uniform blow can be given.

While I have above suggested two ways in which the feeding of the separate sheets to the bed can be performed, it will be obvious that many other ways of supporting the sheets 60 on the striker could be employed without departing from the invention.

The above describes a few of the ways in which my invention can be embodied in practical machines; but as I believe I am the first to devise a machine of this character in which a striker is employed to force the material to which the adhesive is to be applied against a bed saturated with adhesive I desire to claim this idea broadly.

Many features of my invention could be embodied in a machine which is operated by power instead of manually, as will be obvious.

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

1. In a pasting-machine, a bed adapted to be saturated with adhesive material, a striker, and striker-operating mechanism constructed to move the striker toward the bed with a quick movement, whereby said striker forces the piece to which adhesive is to be applied against the bed by means of a sharp blow.

2. In a pasting-machine, a porous bed adapted to be saturated with adhesive material, a striker normally supported above the bed, and striker-operating mechanism constructed to move the striker toward the bed with a quick movement, and to force the piece to which adhesive is to be applied squarely against said bed by means of a sharp blow.

3. In a pasting-machine, a porous bed saturated with adhesive, combined with a striker and striker-operating mechanism, said striker being adjustably supported by the striker-operating mechanism whereby the plane of the face of the striker may be adjusted.

4. In a pasting-machine, a porous bed saturated with adhesive, a striker having a face



shaped to correspond to the contour of the bed, and means to move the striker toward and from the bed, whereby the latter in its movement toward the bed operates to force the material to be pasted against the bed.

5 5. In a pasting-machine, a flat porous bed saturated with adhesive material, a striker having a flat face, and striker-operating mechanism to bring the striker against the bed  
10 with a sharp blow.

6. In a pasting-machine, an adhesive-containing reservoir, a frame held in said reservoir and having a bottom of porous material, which allows the adhesive material to ooze  
15 through the same, and a striker movable toward and from the frame.

7. In a pasting-machine, an adhesive-containing reservoir, a frame having a porous bottom sustained in said reservoir, means to  
20 adjust the frame in the reservoir whereby the depth to which it is immersed in the adhesive material may be regulated, and a striker movable toward and from the frame.

8. In a pasting-machine, a bed of porous  
25 material, adapted to be saturated with adhesive material, and means to regulate the amount of material passed through the bed.

9. In a pasting-machine, a reservoir to contain adhesive material, a tray-like frame  
30 adapted to be partially immersed in said material, said frame having a porous bottom which allows the adhesive material to ooze through the same, and means to regulate positively the depth to which the frame is im-

mersed in the adhesive material, whereby the  
35 pressure of such material against the bottom of the frame may be varied.

10. In a pasting-machine, a bed of porous material, saturated with adhesive material, an arm pivoted to a fixed support, a striker  
40 secured to the free end of the arm whereby the striker may be moved toward and from the porous bed.

11. In a pasting-machine, a porous bed saturated with adhesive material, a reticulated  
45 striker, and means to move the striker toward and from the bed.

12. In a pasting-machine, a porous bed saturated with adhesive material, a striker, means to move the latter toward and from  
50 the bed, and a table or platform at either side of the bed.

13. In a pasting-machine, a porous bed, means to force adhesive material there-  
55 through, a striker movable toward and from the bed, a pair of independently-operative treadles by means of which the striker may be manipulated, and a table or platform on  
60 each side of the bed, whereby the machine may be used by two persons at the same time.

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

WILLIAM J. DIX.

Witnesses:

M. ESTELLE PROUTY,  
Mrs. WILLIAM DIX.