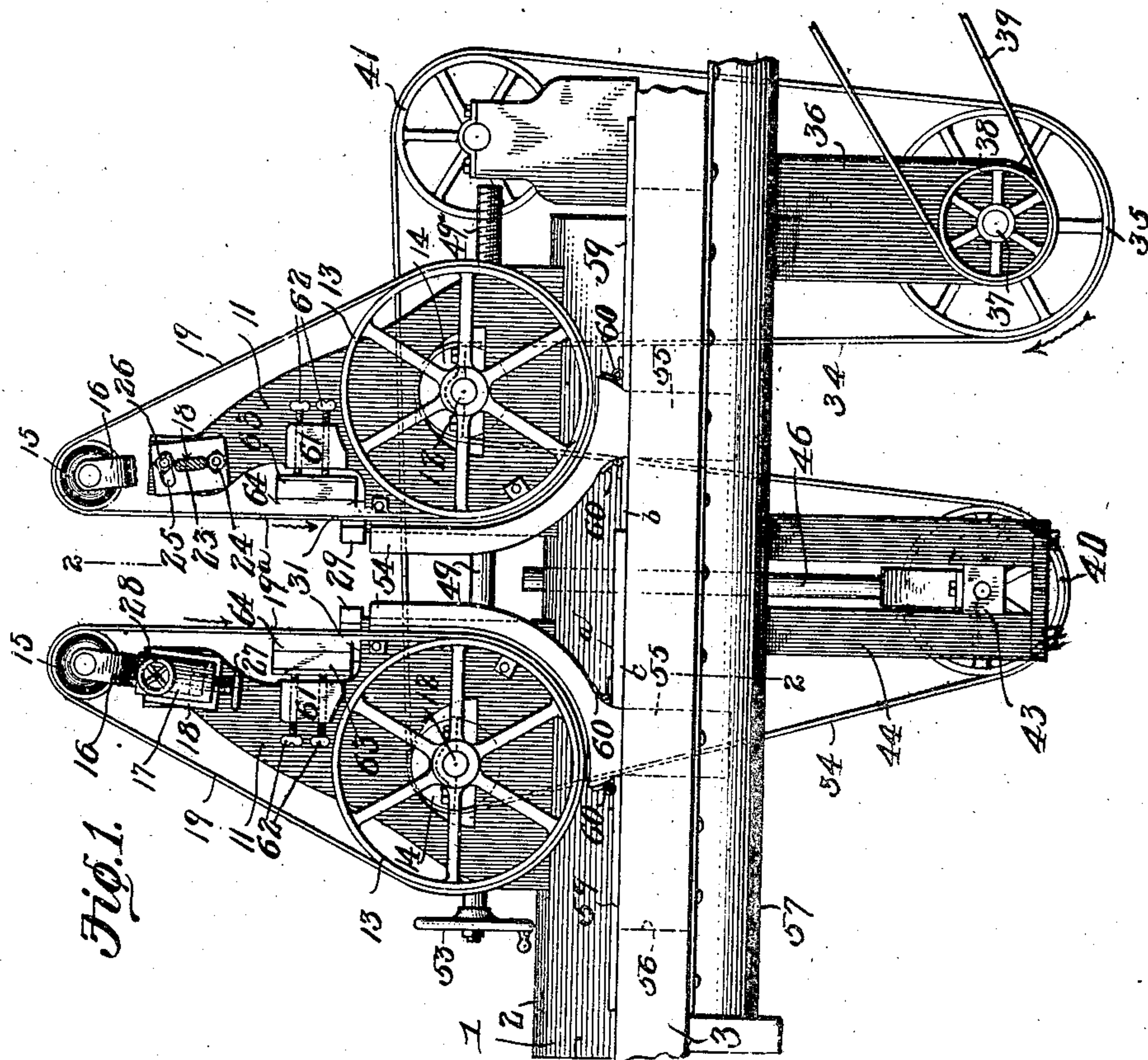
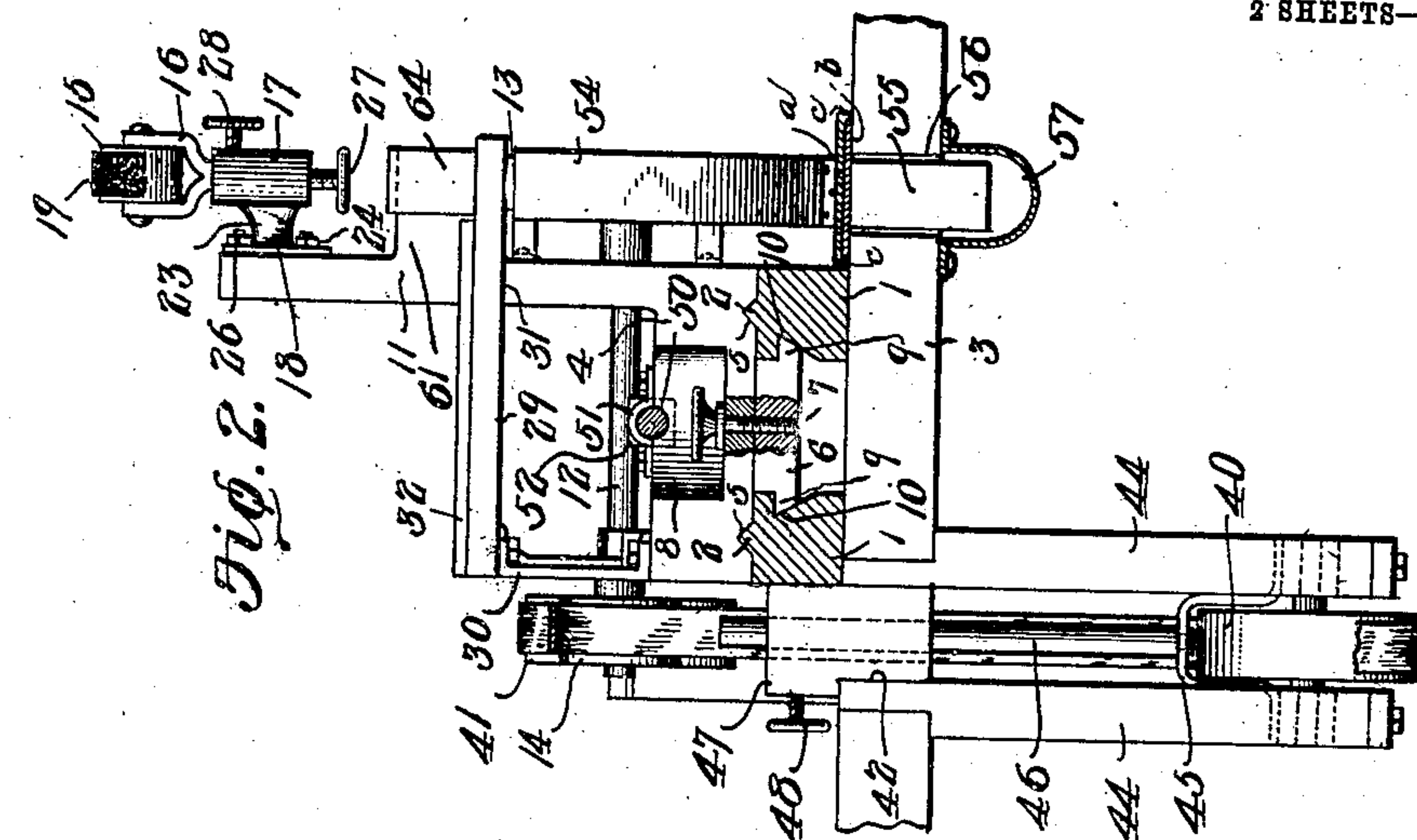


No. 843,010.

PATENTED FEB. 5, 1907.

J. GRAMELSPACHER.
SANDPAPERING MACHINE.
APPLICATION FILED FEB. 13, 1906.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 4.

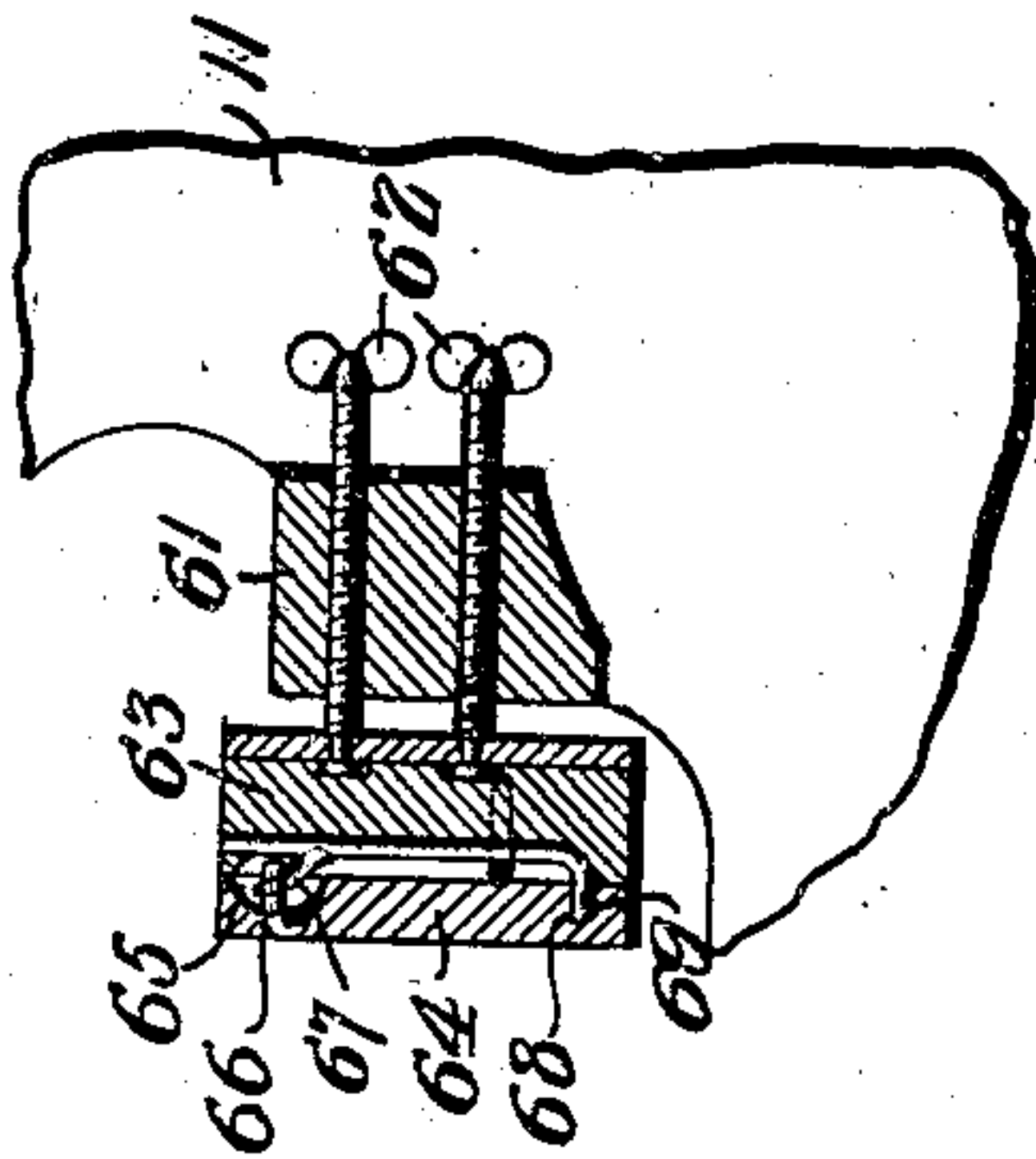


Fig. 5.

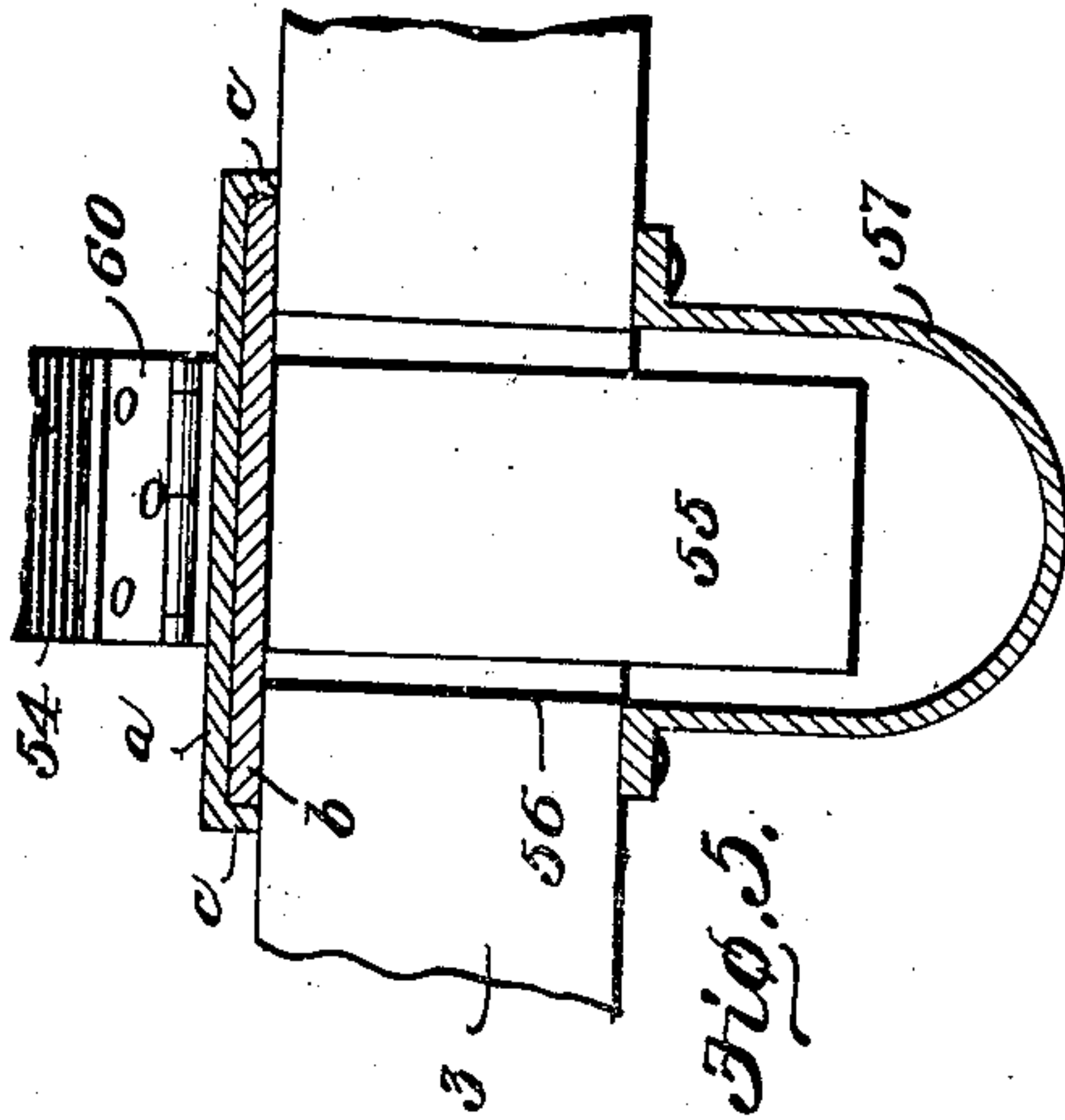
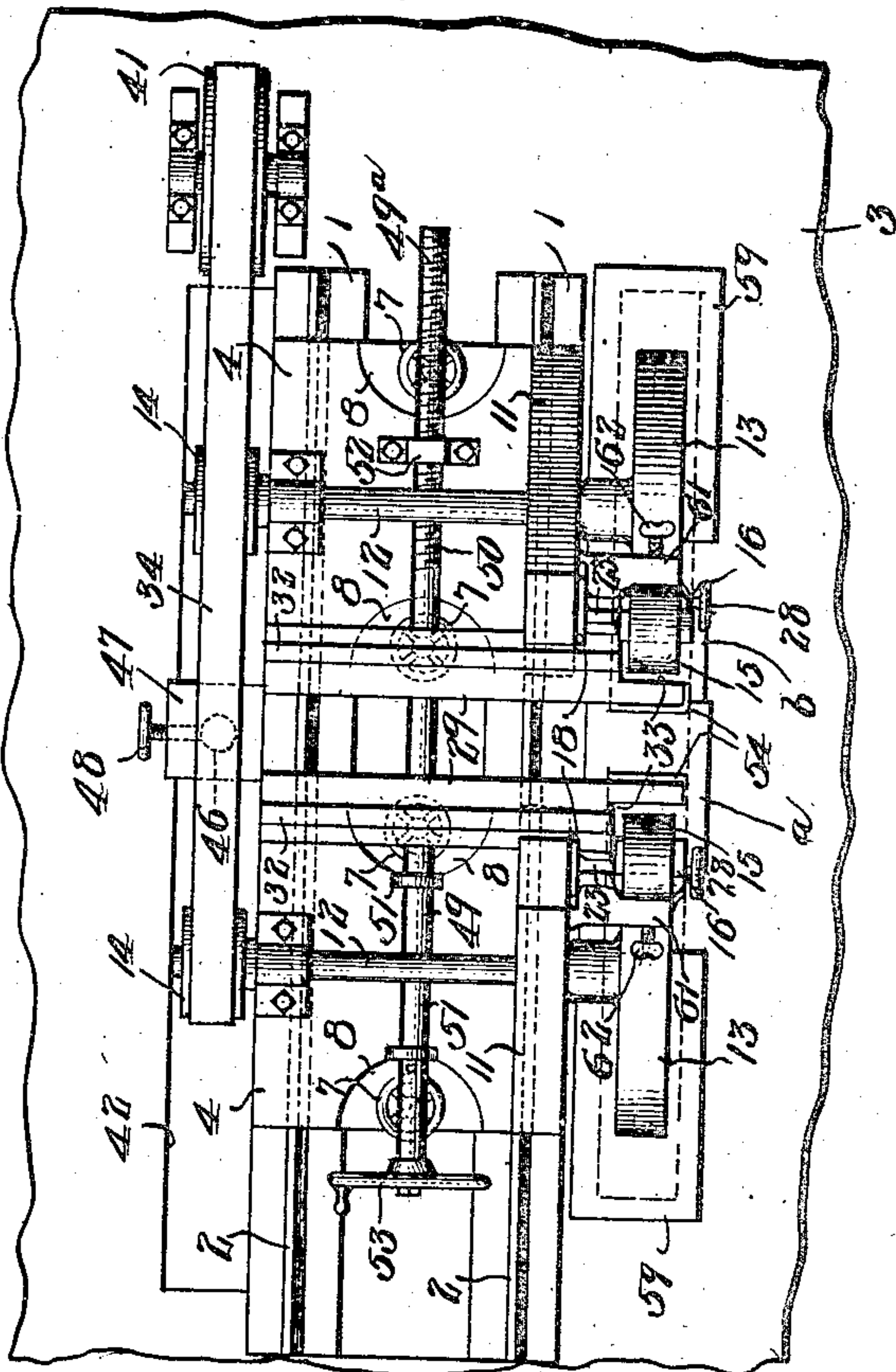


Fig. 3.



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SANDPAPERING-MACHINE.

No. 843,010.

Specification of Letters Patent.

Patented Feb. 5, 1907.

Application filed February 13, 1906. Serial No. 300,900.

To all whom it may concern:

Be it known that I, JOHN GRAMELSPACHER, a citizen of the United States, residing at Jasper, in the county of Dubois and State of Indiana, have invented a new and useful Sandpapering-Machine, of which the following is a specification.

This invention relates to polishing and sandpapering machines, and is particularly designed for sandpapering the sides of furniture-drawers, so as to fit the same to their guideways. In this connection it is proposed to employ endless abrading-belts for simultaneous engagement with opposite sides of a drawer and mounted to travel toward the work-holder, thereby to exert a tendency to hold the work to its support.

A further object of the invention is to conveniently effect adjustment of the abrading-belts so as to accommodate the machine to drawers of different widths.

With these and other objects in view the present invention consists in the combination and arrangement of parts, as will be hereinafter more fully described, shown in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that changes in the form, proportion, size, and minor details may be made within the scope of the claims without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is a side elevation of a sandpapering-machine embodying the features of the present invention. Fig. 2 is a cross-sectional view on the line 2 2 of Fig. 1. Fig. 3 is a top plan view of the machine. Fig. 4 is a detail sectional view taken through one of the presser devices for holding the abrading-belt against the work. Fig. 5 is an enlarged fragmentary sectional view taken through the suction-trough and the overlapped closures for the middle portion thereof.

Like characters of reference designate corresponding parts in all of the figures of the drawings.

For the support of the operating parts of the present machine there is provided a pair of substantially parallel sills 1, having their upper faces provided with tracks or guideways 2, (preferably longitudinal ribs of inverted-V shape in cross-section,) the sills be-

ing laid upon a suitable support, such as the floor 3 of the building in which the machine is located.

Slidably mounted upon the sills are duplicate carriages carrying duplicate mechanism for actuating the respective abrading-belts, wherefore a description of one carriage and the mechanism mounted thereon will suffice for both of them. Each carriage includes a base 3, resting upon the tops of the sills and having grooves 5 in its under side receiving the guideways 2. To the under side of the base there is secured a plate 6 by means of a threaded fastening 7 piercing the base and the plate, there being such a fastening for each end of the plate, and the upper side of each end of the base is reduced or recessed, as at 8, so as to permit the upper end of the fastening 7 to lie below the top face of the base. The plate 6 is provided at opposite edges with flanges 9, working in grooves 10 in the inner faces of the sills 1, thereby to prevent upward displacement of the carriage.

An arched standard 11 rises from the front of each carriage and straddles one end of a shaft 12, which projects in front and rear of the carriage and carries upon its front end a relatively large wheel 13 and at its rear end a small pulley 14. Above the wheel 13 there is a pulley 15, mounted in an upright fork 16, having its stem received in a socket 17, carried by a bracket 18, which is secured to the front face of the upper end portion of the adjacent standard. Around the wheel 13 and pulley 15 there runs an abrading-belt 19, having its working face sanded or otherwise roughened for operation upon

woodwork. In Fig. 1 of the drawings one of the sockets 17 has been broken away to show the mounting of the bracket 18. This bracket is in the nature of a plate having a web 23, which connects the socket 17 and the plate. A fastening 24 pierces the bottom of the bracket and the standard to form a pivotal support for the bracket, there being an arcuate slot 25 formed in the upper end of the bracket and struck from the pivotal support 24 as a center. A clamping-bolt or the like 26 is carried by the standard and projects through the slot 25, whereby the bracket may be adjusted to bring the active portion of the abrading-belt into a true vertical

position. Vertical adjustment of the bracket 16 is accomplished by means of an adjusting-stem 27 piercing the bottom of the socket 17, and a suitable set-screw 28 pierces one side 5 of the socket at the top thereof for engagement with the stem of the fork 16, so as to hold the latter against looseness when adjusted. By this means the abrading-belt may be maintained in the desired taut condition. 10

For the support of the work each carriage is provided with a work-holder made up of a substantially horizontal bar 29, extending from front to rear of the carriage at the inner 15 edge thereof and supported at its rear end by a post 30, rising from the carriage, and at its front end upon a shoulder 31, provided upon the adjacent standard 11, as best shown in Fig. 1 of the drawings. Upon the top of the 20 bar and spaced from its inner longitudinal edge is an upstanding rib 32, constituting a guideway for the work. By reference to Fig. 3 of the drawings it will be understood that a drawer is placed upon the work-holders of the two carriages and located between 25 the guide-ribs 32 and is pushed forwardly upon the support, and thereby guided between the adjacent-vertically-disposed active portions 19^a of the abrading-belts. It 30 will be noted that the outer corner of the forward end of each bar 31 is cut away, as at 33, to accommodate the adjacent abrading-belt, and the guide-rib 32 terminates at the inner end of the cut-away portion, whereby that 35 portion of each side of the drawer which lies in front of the rib 32 is exposed to the action of the adjacent abrading-belt.

A single drive-belt 34 is employed to drive the two abrading-belts. This drive-belt embraces a drive-pulley 35, preferably mounted 40 below the floor, from which it is supported by one or more hangers 36. The shaft 37 of the drive-pulley is driven in any suitable manner—for instance, by a clutch-pulley 38, engaged by a power-belt 39. The drive-pulley 35 45 is rotated in the direction of the arrow applied thereto, and the drive-belt leads upwardly from the pulley to and around the pulley 14 upon the adjacent shaft 12, thence down and 50 around a belt-tightening pulley 40 below the floor, thence up and around the other pulley 14, thence back and above the first-mentioned pulley 14, around an idler 41, and down to the drive-pulley 35. It will of 55 course be understood that the floor or other support 3 is provided with a slot 42 in parallelism with the back of the machine to accommodate the up and down portions of the drive-belt 34.

60 The pulley 40 of the belt-tightener has its shaft mounted in boxes 43, slidable vertically in slotted hangers 44, depending from the floor. A fork or yoke 45 straddles the top of the pulley and is connected to the

boxes, while its stem 46 rises through the 65 bore of the guide member 47, secured within the slot 42. A set-screw 48 pierces the guide and engages the stem 46, so as to hold the latter rigid when adjusted to tighten the belt. It will here be noted that the top of the mem- 70 ber 46 and the set-screw 48 are conveniently accessible for adjustment, while the belt-tightening pulley 40 is located some distance below the floor.

For the purpose of adjustably moving the 75 carriages toward and away from one another there is provided a rotatable adjusting-rod 49, received within grooves 50 in the tops of the carriages. One of the carriages is provided with smooth bearings 51, and the other carriage is provided with a threaded bearing 52 80 for the reception of the threaded portion 49^a of the rod, the opposite end of the rod being provided with a hand-wheel or crank-handle 53. By rotating the rod 49 the carriages 85 may be simultaneously drawn together and separated, so as to gage the same for drawers of different widths. When setting the carriages, the set-screw 48 of the belt-tightener is released, in order that the pulley 40 may rise 90 or fall according as the carriages are being separated or drawn together, and after the carriages have been set the stem 46 of the belt-tightener is pushed down to properly tighten 95 the drive-pulley, and then the set-screw 48 is tightened, so as to hold the belt-tightener in its set position.

It will here be explained that the drive-belt travels in such a direction as to work the upright parallel active portions 19^a of the abrading 100 belts downwardly, as indicated by the arrows applied thereto, whereby the dust has a tendency to travel downwardly and is caught in a chute 54, which embraces that portion of the belt which leads downwardly from the 105 work-support, the top of the chute being open, so as to receive the dust. The lower portion of the chute conforms to the periphery of the adjacent wheel 13 and terminates at the bottom of the latter in a downwardly-extending spout 55, passing through a slot 110 56, formed in the floor. Below the slot 56 there is a suction-trough 57, open throughout its upper side and through which the chute 54 travels during adjustment of the 115 carriage. By this arrangement the dust is sucked down through the chute 54 and the spout 55 into the suction-trough 57 and is thereby carried away from the machine. The slot 56 is closed at its top between the 120 chute 54 by overlapped slides *a* and *b*, hinged to the respective spouts and slidably supported upon the floor. The slidable closure *a* is provided at opposite edges with longitudinal flanges *c* to embrace the member *b* 125 and rest upon the floor, so as to close the space between the edges of the slide and the floor. A suitable closure 59 rests upon the floor and

covers the adjacent end portion of the opening 56, with its inner end hinged to the adjacent spout, as at 60.

It is proposed to press each abrading-belt against the work, and this is accomplished by means of the presser. (Shown in detail in Fig. 4 of the drawings.) Each standard 11 has an arm 61, overhanging the adjacent wheel 13 and pierced by a pair of adjusting-screws 62, which have their inner ends swiveled to the back member of the adjacent presser, which also includes a removable face member 64. The face of the presser is set against the back of the adjacent belt by adjusting the screws 62 until the belt is held against the work with the desired pressure. As the presser-face soon becomes worn under the action of the abrading-belt, it is proposed to enable the convenient removal of the face member. To accomplish this feature, the rear side of the face member is provided with a recess 65, in which is a loop 66 to engage an upturned hook 67, projecting forwardly from the upper portion of the back member 63, the lower end of the member 64 having a socket or seat 68 for the reception of a pin or projection 69, carried by the back member 63.

In practice the carriages are set by manipulation of the hand-wheel 53 to receive the drawer between the guideways 32 of the work-holder members 29, whereupon the belt-tightener is set and the presser devices are adjusted to hold the abrading-belts against the drawer. The closure 58 for the middle portion of the opening 56 is then adjusted, and the machine is in condition for operation. When the machine is set in operation, the abrading-belts work downwardly against opposite sides of the drawer, and as the drawer is worked back and forth upon the work-holder it is effectually dressed and smooth, all of the dust being carried down through the chute 54 and the spouts 55 into the suction-trough 57.

Having thus described the invention, what is claimed is—

1. In a machine of the class described, the combination of carriages which are adjustable toward and away from one another, upright abrading-belts carried by the carriages with their inner active plies traveling downward, an adjustable presser-foot mounted on each carriage adjacent the abrading-belt thereof, substantially horizontal work-holding supports mounted upon the carriages and leading inwardly between the active plies and the belts, and means to simultaneously adjust the carriages toward and away from one another.

2. In a sandpapering-machine, the combination with a support having a slot therein, of a guideway upon the support in parallelism with the slot, carriages upon the guideway, shafts mounted upon the carriages trans-

versely of the slot and overhanging the same, drive-pulleys upon the shaft over the slot, a drive-belt working through the slot and engaging the pulleys, a belt-tightener working through the slot, upright abrading-belts driven by the respective shafts, work-holder elements upon the carriage and leading inwardly between the abrading-belts, and means for simultaneously adjusting the carriages toward and away from one another.

3. In a machine of the class described, the combination of a substantially horizontal work-holder, a belt-wheel having a fixed position below the work-holder, a pulley located above the work-holder, an abrading-belt engaging the wheel and the pulley, means for simultaneously moving the wheel, pulley, and belt, a bracket carrying the pulley and pivotally mounted upon the support, and means to adjust the bracket upon its pivotal support to set the active ply of the belt with respect to the work-holder.

4. In a machine of the class described, the combination of spaced carriages, means to adjust the carriages toward and away from one another, work-holding elements upon the carriages, a belt-wheel upon each carriage below the work-holder, a pulley upon each carriage above the work-holder, an abrading-belt engaging a wheel and pulley of each carriage, means for simultaneously moving the wheel, pulley, and belt, and means to adjust each pulley to set the active ply of its belt with respect to the work-holder.

5. In a machine of the class described, the combination with an abrading-belt, of a presser therefor having a hook and a projection upon its front face, and a removable wear-face having a loop to receive the hook and a socket to receive the projection.

6. In a sandpapering-machine the combination with opposite carriages, and means at one end of the machine for simultaneously adjusting the carriages toward or from each other; of an abrading-belt carried by and movable with each carriage, said belts being movable bodily toward and from each other with the carriage, a work-holder upon each carriage, said holders projecting between the belts, and a presser-foot adjustably mounted upon each carriage and bearing upon the belt adjacent the work-holder.

7. In a sandpapering-machine the combination with sills, carriages slidably mounted thereon, means upon each carriage for engaging the sills to prevent displacement of the carriage, and means operated from one end of the machine for simultaneously adjusting the carriages toward and from each other; of an abrading-belt upon each carriage, the adjoining plies of said belt moving in the same direction, a drive-shaft, a flexible element operated by said shaft for actuating the abrading-belts independently of the adjustment of

the carriage, means for maintaining said element normally taut, a work-holder upon each carriage, said work-holders extending between the adjoining plies of the abrading-belts, and
5 an adjustable presser-foot upon each carriage and adjacent the work-holder.

In testimony that I claim the foregoing as

my own I have hereto affixed my signature in the presence of two witnesses.

JOHN GRAMELSPACHER.

Witnesses:

LOUIS T. KOERNER,
ANTHONY LANGE.