

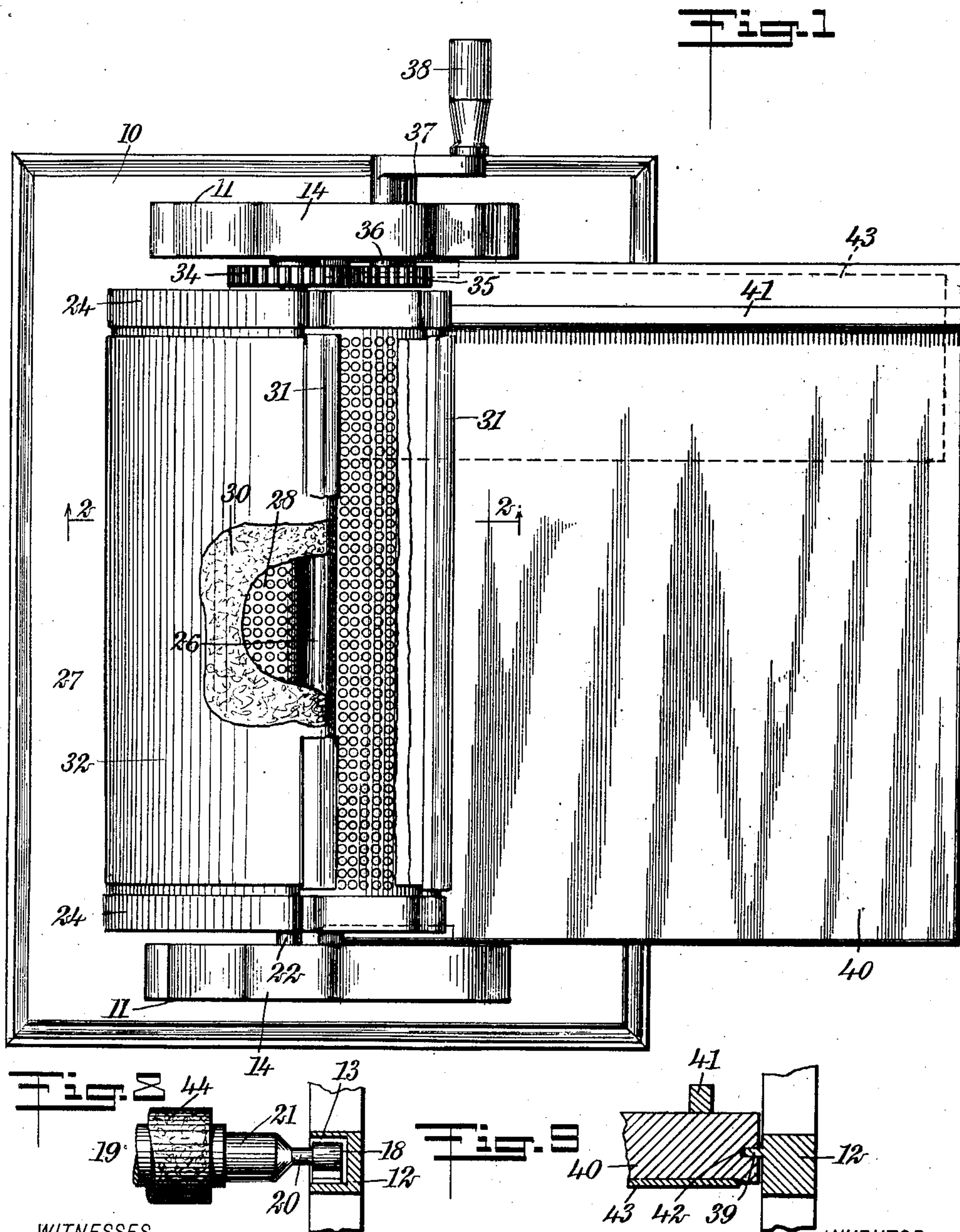
No. 896,490.

PATENTED AUG. 18, 1908.

L. W. VON BEHREN.  
STENCIL PRINTING MACHINE.

APPLICATION FILED MAR. 17, 1908.

2 SHEETS—SHEET 1.



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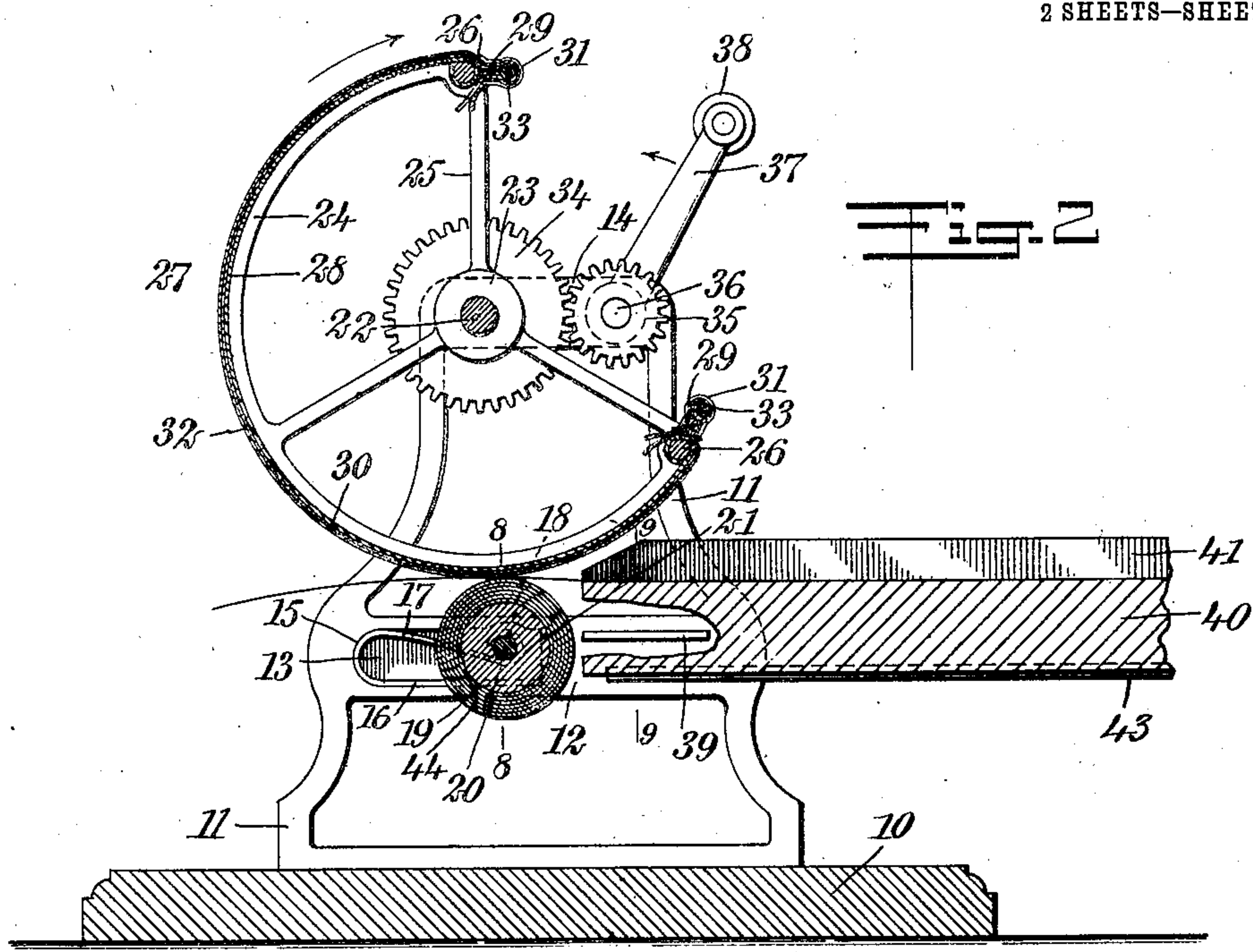


Fig. 2

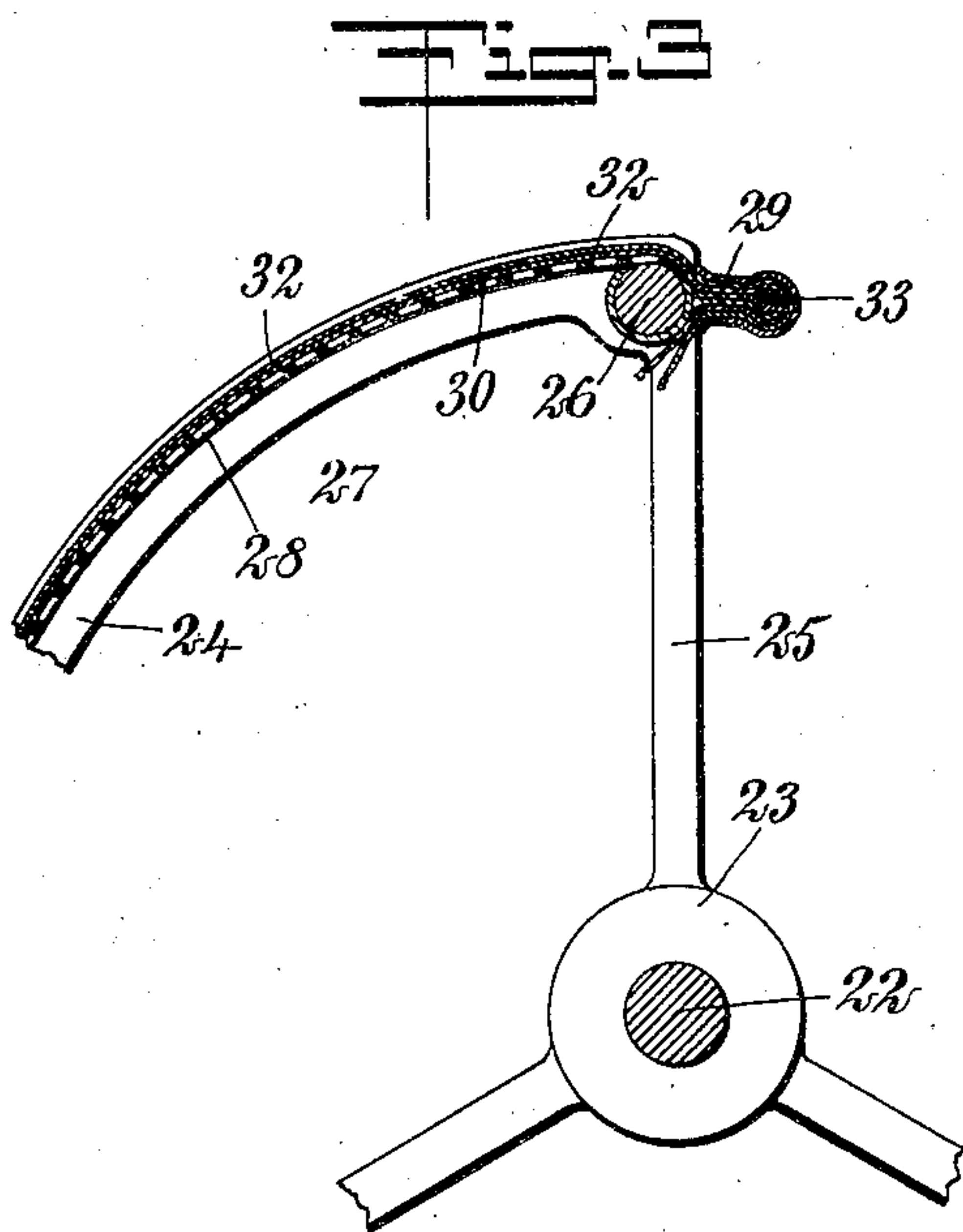


Fig. 3

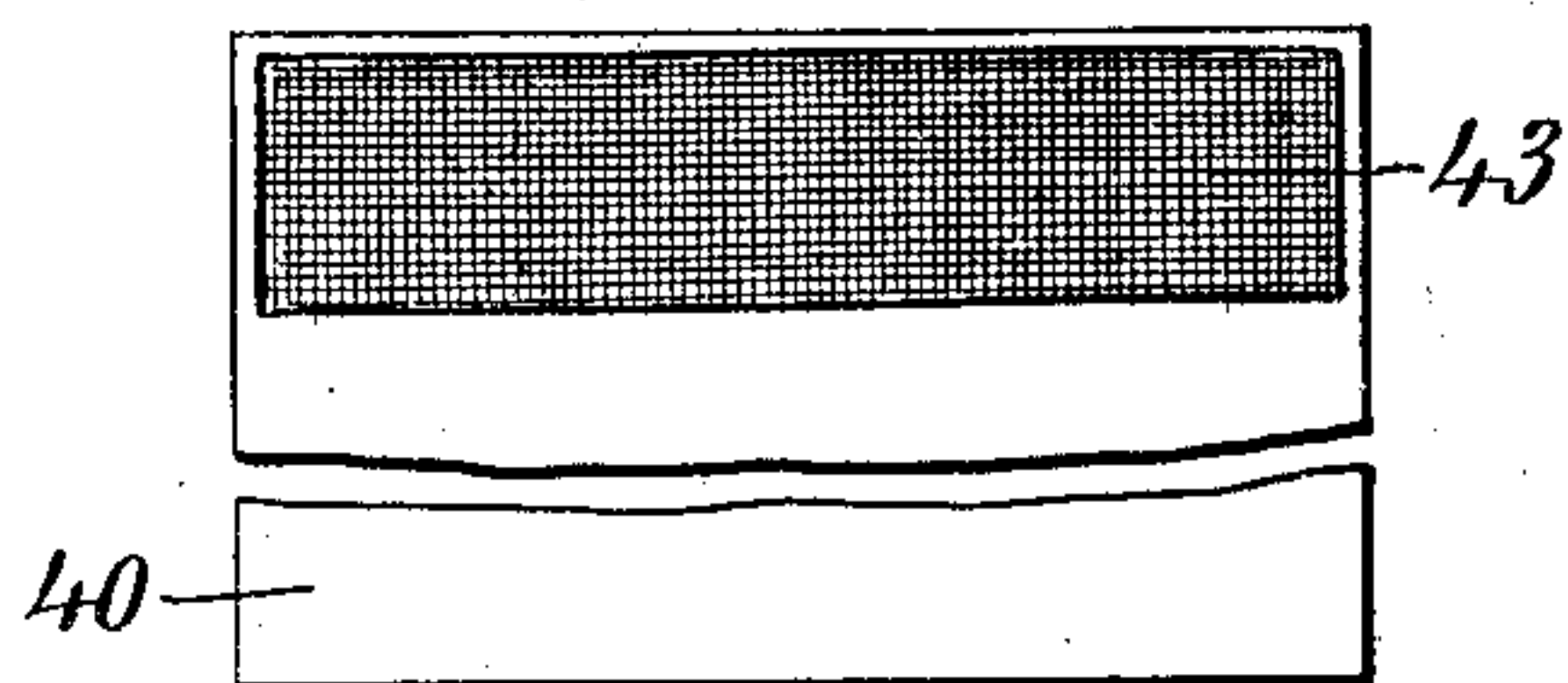


Fig. 4

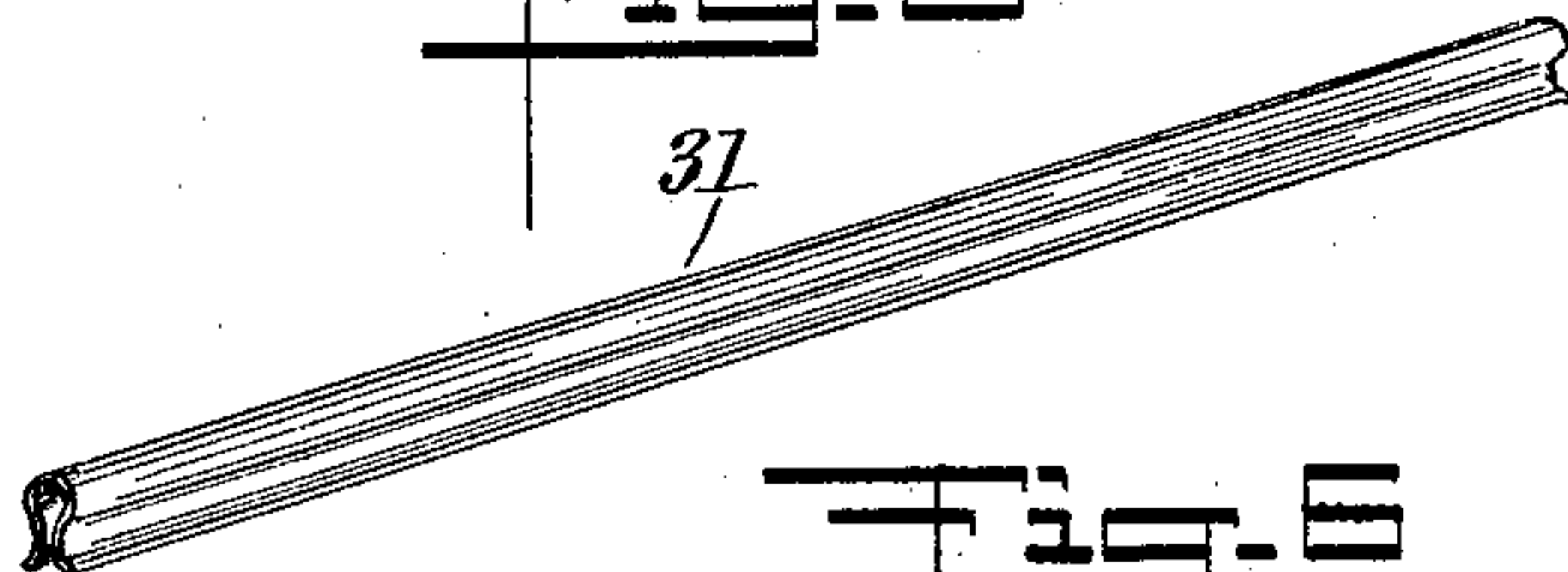


Fig. 5

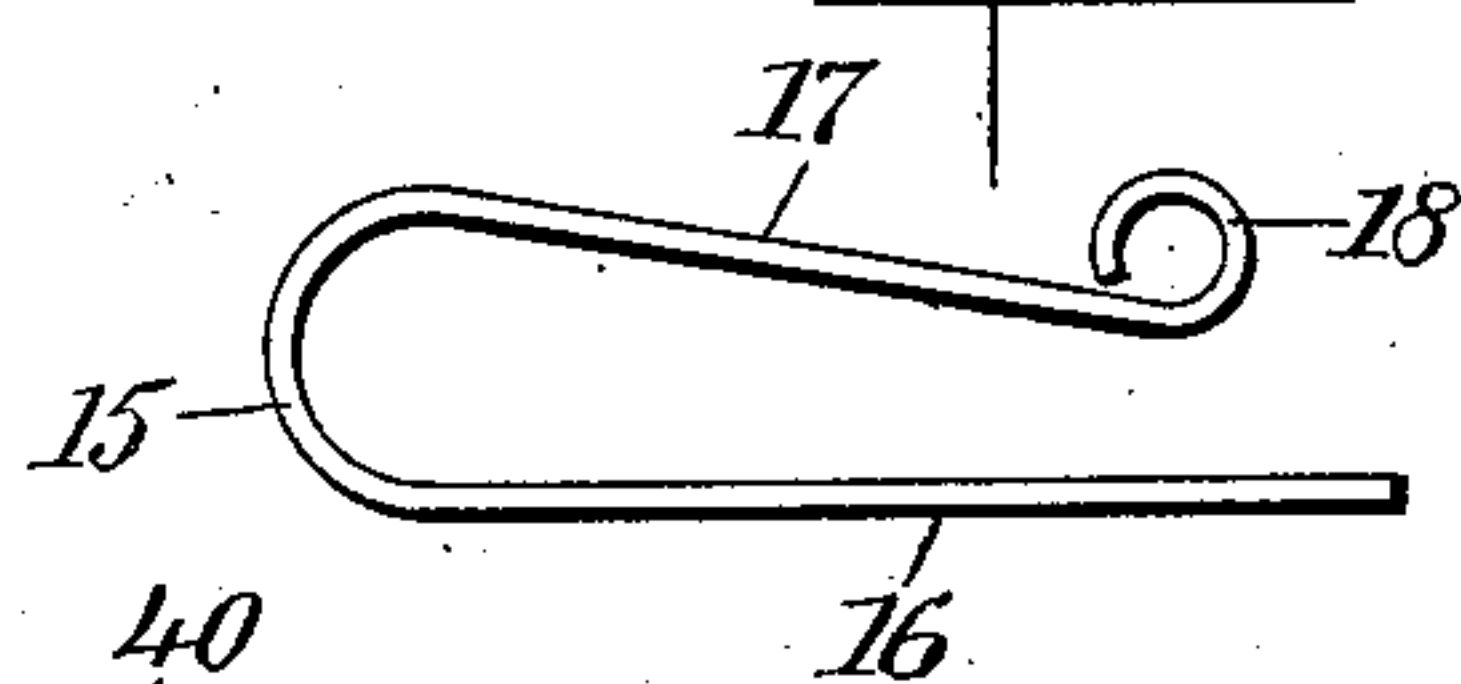
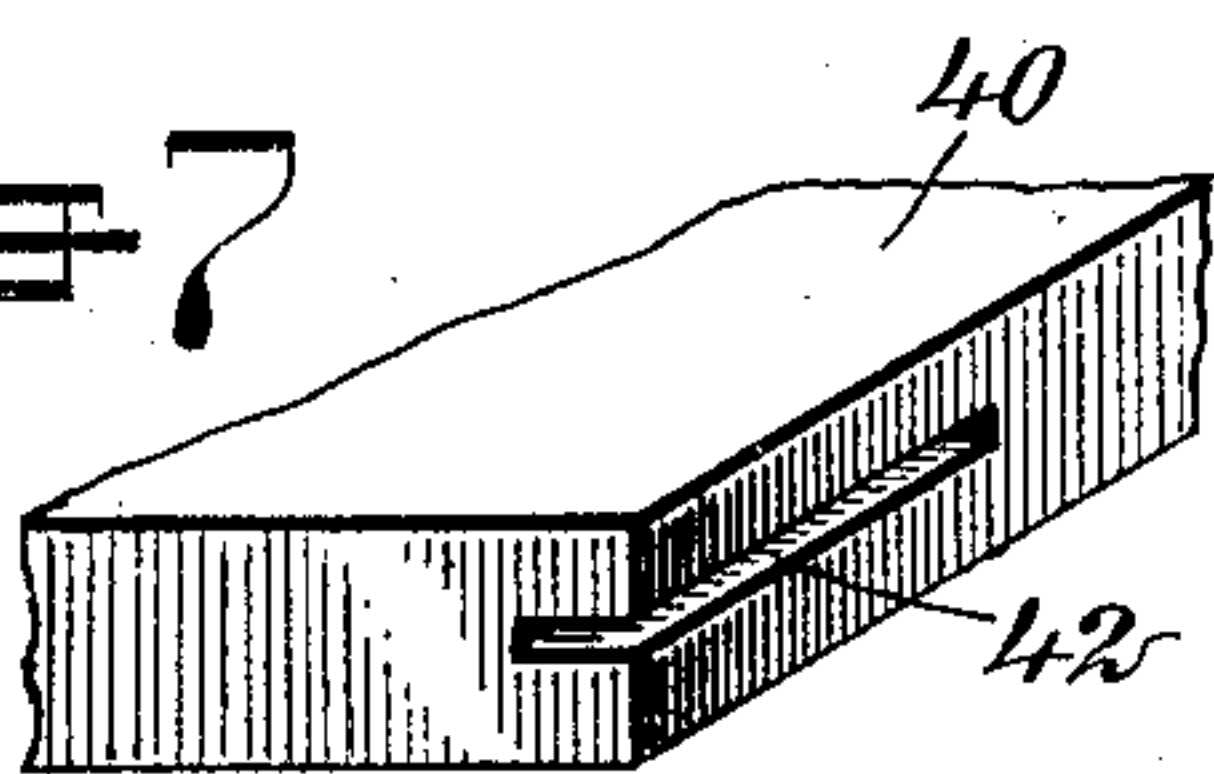


Fig. 6

Fig. 7



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# UNITED STATES PATENT OFFICE

LOUIS WILLIAM VON BEHREN, OF EVANSVILLE, ILLINOIS.

## STENCIL-PRINTING MACHINE.

No. 896,490.

Specification of Letters Patent.

Patented Aug. 18, 1908.

Application filed March 17, 1908. Serial No. 421,641.

*To all whom it may concern:*

Be it known that I, LOUIS WILLIAM VON BEHREN, a citizen of the United States, and a resident of Evansville, in the county of Randolph and State of Illinois, have invented a new and Improved Stencil-Printing Machine, of which the following is a full, clear, and exact description.

This invention relates to stencil printing machines for reproducing, which are employed for the purpose of making fac-simile duplicates of typewritten or other autographic matter from paper or other stencils which have been coated with substances impervious to ink, and from which, portions of the substances have been removed by the impact of a type face as in writing upon a sheet in a typewriter, or by traversing the surface of the sheet with the point of a stylus or the like.

More specifically, the invention relates to a stencil printing machine having a stencil-carrying drum of segmental cross section and provided with simple and efficient means for removably holding the stencil thereupon, a pressure roller arranged to cooperate with the drum and having spring bearings which hold it against the drum with a normally constant pressure, and a removable feed table for directing the sheets to be printed, to the mechanism, and having means for forming the stencil.

An object of the invention is to provide a machine of the class described which is simple and durable in construction, efficient in operation, and inexpensive to manufacture.

A further object of the invention is to provide a stencil printing machine which can be easily operated, the parts of which are compactly arranged, and in which various constructive details have been so simplified that the machine can be constructed and marketed at a cost within the reach of all.

The invention consists in the construction and combination of parts to be more fully described hereinafter and particularly set forth in the claims, and in which

Figure 1 is a plan view of my stencil printing machine showing parts of the stencil drum broken away; Fig. 2 is a transverse section on the line 2—2 of Fig. 1; Fig. 3 is an enlarged transverse section showing a part of the stencil drum; Fig. 4 is an inverted plan view of the removable feed table having a part broken away; Fig. 5 is a perspective

view showing one of the clamps for holding the stencil upon the stencil drum; Fig. 6 is an enlarged side view showing one of the spring bearings in which the pressure roller is journaled; Fig. 7 is a perspective view showing a portion of the removable feed table; Fig. 8 is a transverse section on the line 8—8 of Fig. 2, showing a part of a support or standard and the means for journaling the pressure roller; and Fig. 9 is a transverse section on the line 9—9 of Fig. 2.

Before proceeding to a more detailed explanation of my invention it should be clearly understood that I can use in connection therewith, stencils of any preferred or common form such as are used in machines of this character. The stencils generally consist of sheets of waxed paper, from which portions of the wax have been removed by abrasion or in any other suitable manner, for example, by writing or printing thereon with a stylus. The waxed paper is normally impervious to ink, but by removing portions of the wax the ink can penetrate at those portions where the wax has been removed, so that if a sheet of paper or the like is placed against the stencil and ink forced through the latter, it penetrates to the paper and forms an impression thereon, of the matter written or inscribed upon the stencil. The stencils are often formed by placing a waxed sheet upon a matrix of steel or the like having the surface suitably roughened, and then writing upon the paper with a stylus. This manner of forming the stencil is a simple one, and for the purpose I have provided a removable feed table, having at the under side a matrix plate so that by displacing the feed table and inverting it, efficient stencil forming means are available.

Referring more particularly to the drawings I provide a base 10 of any suitable form having mounted thereupon uprights or standards 11. The latter are preferably fashioned from cast iron, and have intermediate the upper and lower ends cross bars 12 provided at their inner sides with elongated recesses 13 arranged substantially horizontally. At the upper ends, the supports 11 have further cross-bars 14 for a purpose which will appear hereinafter. In each of the recesses 13 is arranged a substantially U-shaped member 15 formed from elongated spring material and having the sides 16 and 17 converging. Each side 17 at the end, is bent upon itself to



form a bearing 18. When the members 15 are located in the recesses 13, the sides 16 and 17 are substantially horizontal, as is shown most clearly in Fig. 2.

3 A pressure roller 19 is arranged intermediate the cross bars 14 and consists preferably of a spindle 20 of steel or the like, having a body 21 thereon of wood or other suitable material. The ends of the spindle project beyond ends of the body and are jour-  
10 naled in the bearings 18 of the spring members 15.

The upper cross bars of the supports 11 have suitable bearings formed therein in  
15 which is journaled a shaft 22 having near the supports 11, end frames or spiders 23, comprising rims 24 and spokes 25. The rims 24 are segmental and are connected at the ends by means of rods 26 forming elements of the  
20 partially cylindrical stencil drum 27. The surface of the latter is formed by a suitably curved sheet 28 of perforated metal or the like and is mounted upon the rims 24 and the rods 26 of the drum frame and is secured in  
25 position in any suitable manner.

Along the rods 26 are located elongated flanges 29 which are, substantially, elements of the drum. A layer 30 of fabric such as flannel or the like, is arranged upon the per-  
30 forated sheet 28 and has the ends folded over the flanges 29, where they are secured by means of suitable spring clips 31. The latter consist of channel shaped elongated mem-  
35 bers fashioned from spring steel or the like, and having the edges disposed toward each other and then bent outwardly so that they can slip resiliently over the bead edges 33 of the flanges 29, and securely clamp in position the layer 30 of fabric as well as the stencil sheet 32, which is arranged upon the  
40 layer 30 as is shown most clearly in Fig. 1.

The shaft 22 has a gear wheel 34, in mesh with a pinion 35 located upon a spindle 36, journaled in one of the supports 11 and hav-  
45 ing a crank 37 provided with a handle 38, by means of which it can be manually operated. In this way, the stencil drum can be easily rotated for the purpose of duplicating letters and other written matter.

50 Each of the cross bars 12, at the inner side has a laterally extending rib 39. A feed table 40 having sheet-guiding means 41, can be arranged between the supports 11, and at the opposite sides has slots or grooves 42,  
55 which receive the ribs 39, thereby permitting the table to be removably mounted in position. At the under side, the feed table has a steel or other matrix plate 43 for the purposes of forming the stencils.

60 The pressure roller 19 may be provided with an outer surface of rubber or other resilient material. I prefer however, to wrap thereupon a plurality of layers 44 of fabric such as flannel or the like, which is then  
65 steam-shrunk to render it uniform in texture,

regardless of temperature changes. A layer thus formed will not puncture or crack, is inexpensive to manufacture, and is durable. The pressure roller is held against the pressure drum with a substantially constant  
70 pressure, by the spring-bearing members 15, and is thus capable of automatic adjustment. The recesses 13 limit the movement of the arms 17 of the spring members and thus, when the surface of the drum is out of en-  
75 gagement with the roller the latter cannot be displaced accidentally.

The operation of the machine is as follows: The stencil sheet which has been previously formed, is placed smoothly upon the stencil  
80 drum and has the ends clamped in position by means of the clips 31; ink is then applied by means of a brush or other implement, at the inside of the drum and passes through the openings of the perforated sheet 28 through  
85 the fabric layer which serves uniformly to spread it, and through the abrasions or openings of the stencil sheet. The drum is then rotated and a sheet of paper fed between the drum and the pressure roller from the feed  
90 table. The movement of the drum draws the paper through the machine and as the latter comes in contact with the stencil sheet, the ink passes through the abraded portions of the latter and forms the impression there-  
95 upon, duplicating the matter inscribed upon the stencil. The operation is substantially continuous, and sheet after sheet of paper can be fed between the drum and the roller with great rapidity, depending upon the  
100 rate of rotation of the same.

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

1. In a device of the class described, separated supports, a stencil drum rotatably  
105 carried thereby, said supports having recesses at the adjacent sides, U-shaped springs arranged in said recesses, each of said springs having one of the arms formed into bearings,  
110 and a pressure roller journaled in said bearings, the arms of said springs being arranged in planes substantially tangential to said drum.

2. In a machine of the class described, a  
115 stencil drum of segmental cross section and having flanges at the elemental edges, and removable, elongated sheet-holding clips arranged upon said flanges and each of said clips being substantially U-shaped in cross-  
120 section.

3. In a machine of the class described, a stencil drum of segmental cross section and having flanges at the elemental edges, said  
125 stencil drum having a surface formed from a perforated material, and removable elongated spring clips adapted to be arranged upon said flanges to hold a stencil upon said drum.

4. In a machine of the class described, a  
130



stencil drum of segmental cross section and having a surface formed from perforated sheet material, said drum having at the elemental edges flanges having beads, a fabric layer arranged upon the surface of said drum and having the edges folded over said flanges, a stencil sheet arranged upon said layer and having the edges folded over said flanges, and elongated spring clips removably

arranged upon said flanges and serving to hold said layer and said stencil in position.

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

LOUIS WILLIAM VON BEHREN.

Witnesses:

J. E. WEBER,

J. P. GERLACH.