

No. 776,338.

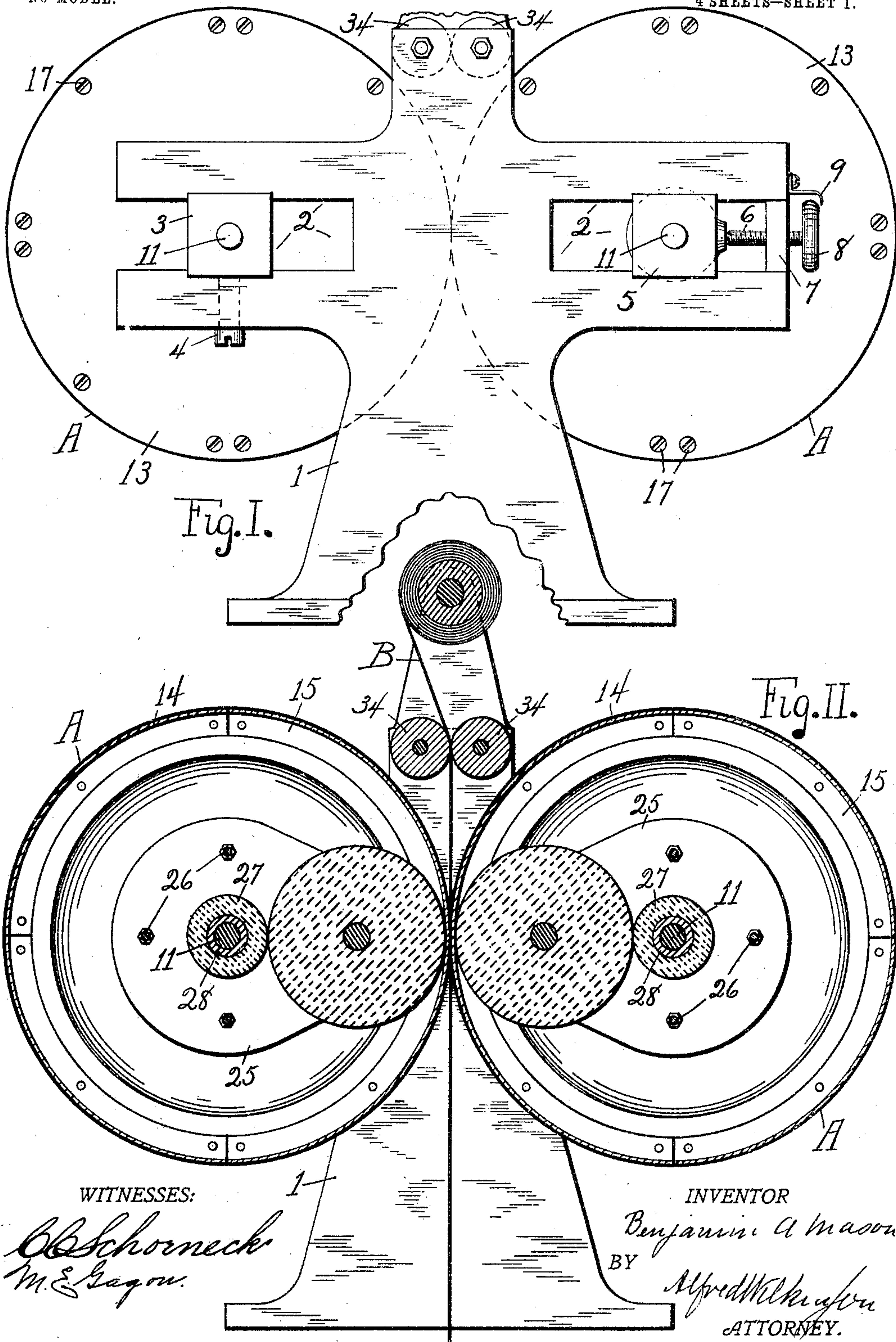
PATENTED NOV. 29, 1904.

B. A. MASON.
DUPLEX STENCIL PRINTING MACHINE.

APPLICATION FILED APR. 21, 1903.

NO MODEL.

4 SHEETS—SHEET 1.



WITNESSES:

O. Schorneck
M. E. Gagon

INVENTOR

Benjamin A. Mason
BY *Alfred W. Kington*
ATTORNEY.

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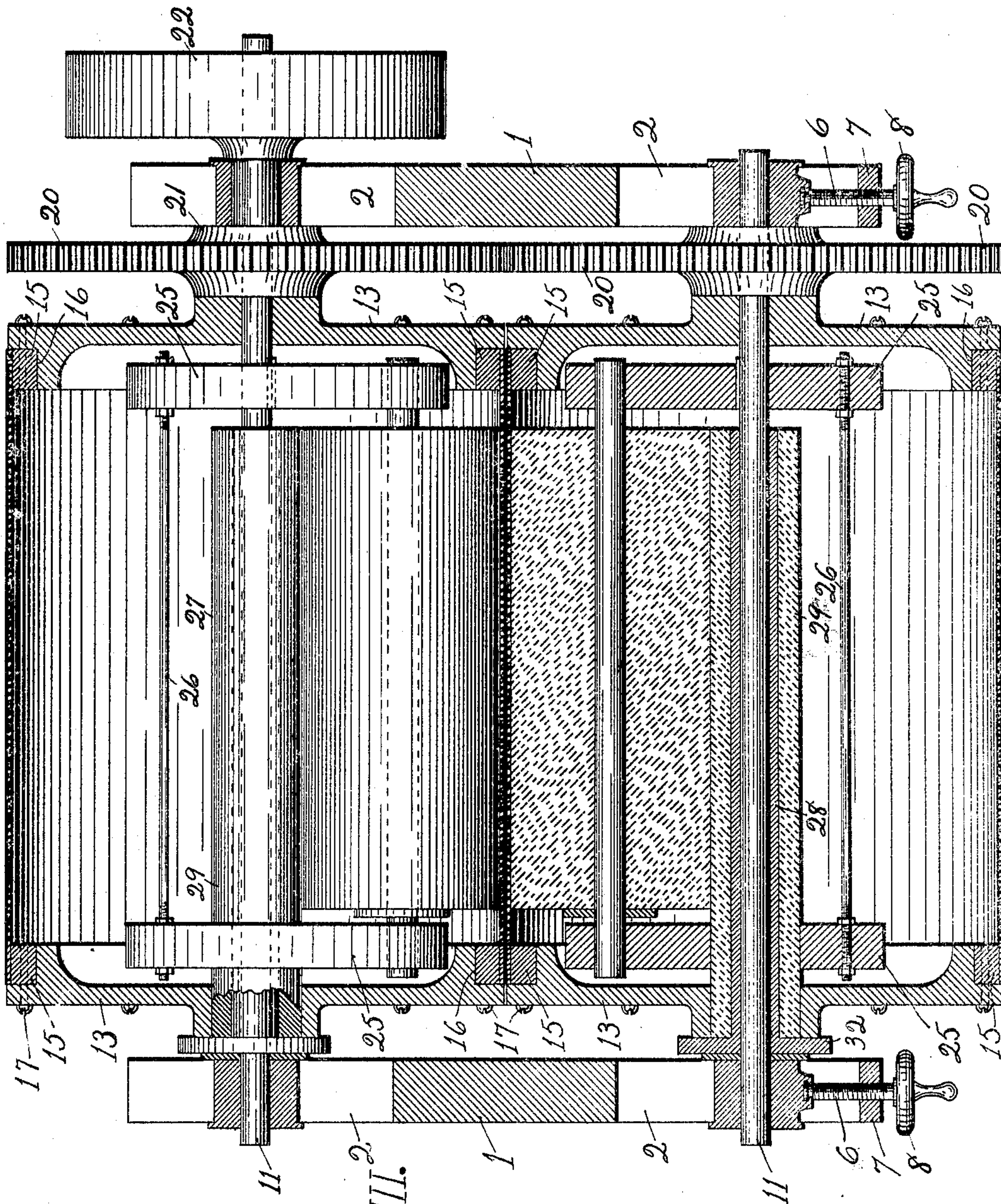


Fig. III.

WITNESSES:

Obstchornack
M. E. Gagon

INVENTOR

Benjamin A. Mason
BY *Alfred Wilkinson*
ATTORNEY.

No. 776,338.

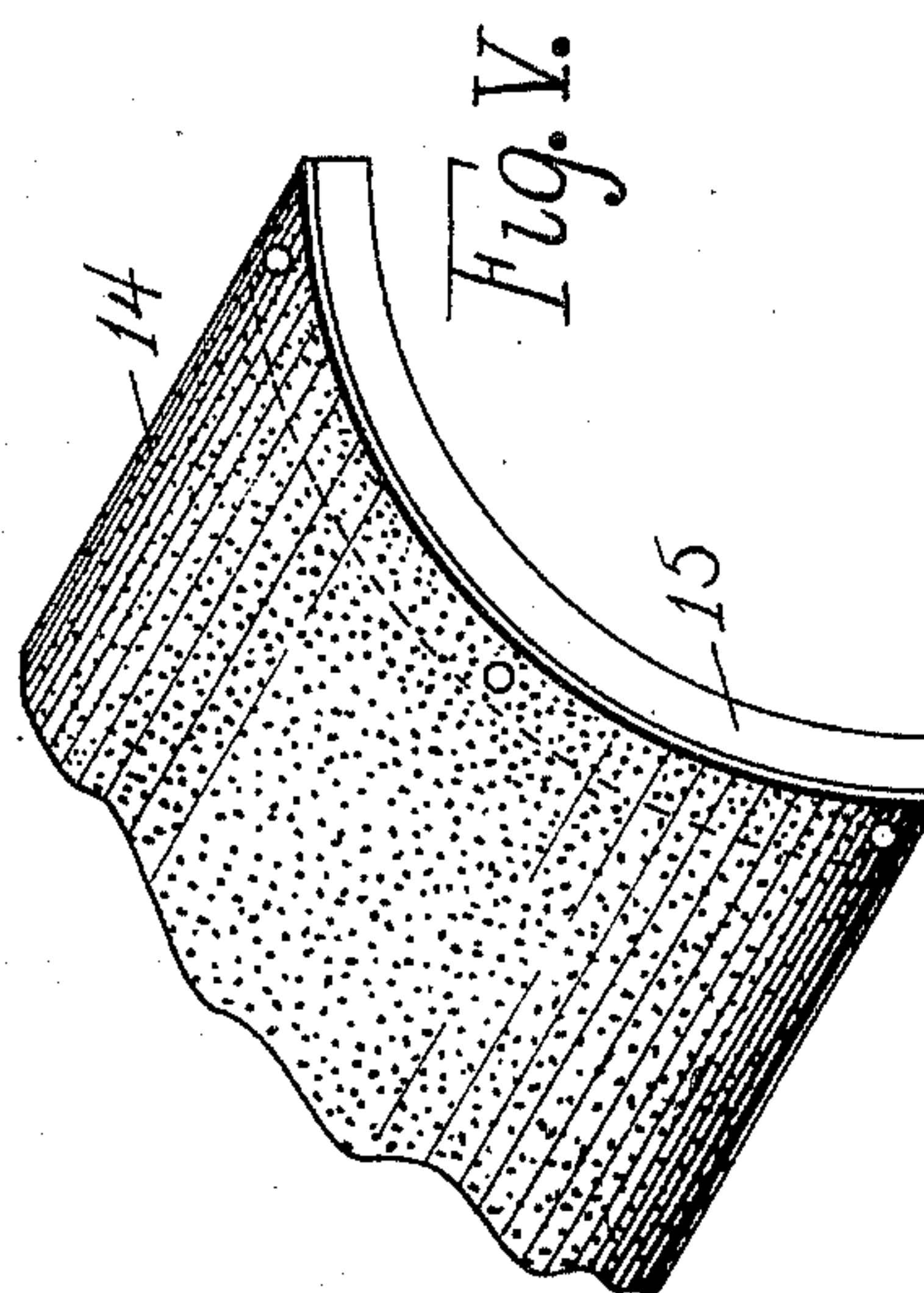
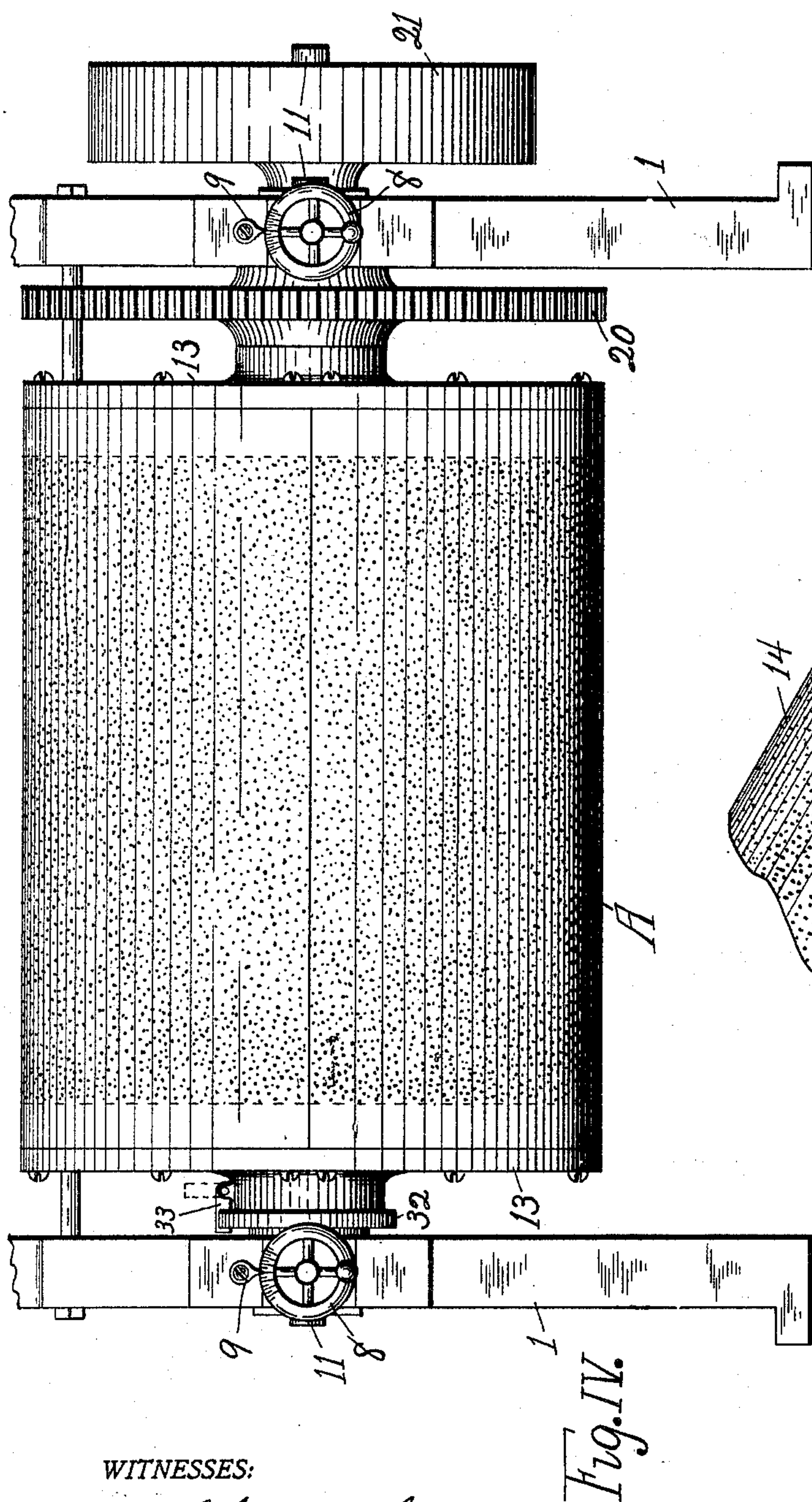
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M. Eragon.

INVENTOR

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BY
Alfred Wilkinton
ATTORNEY.

No. 776,338.

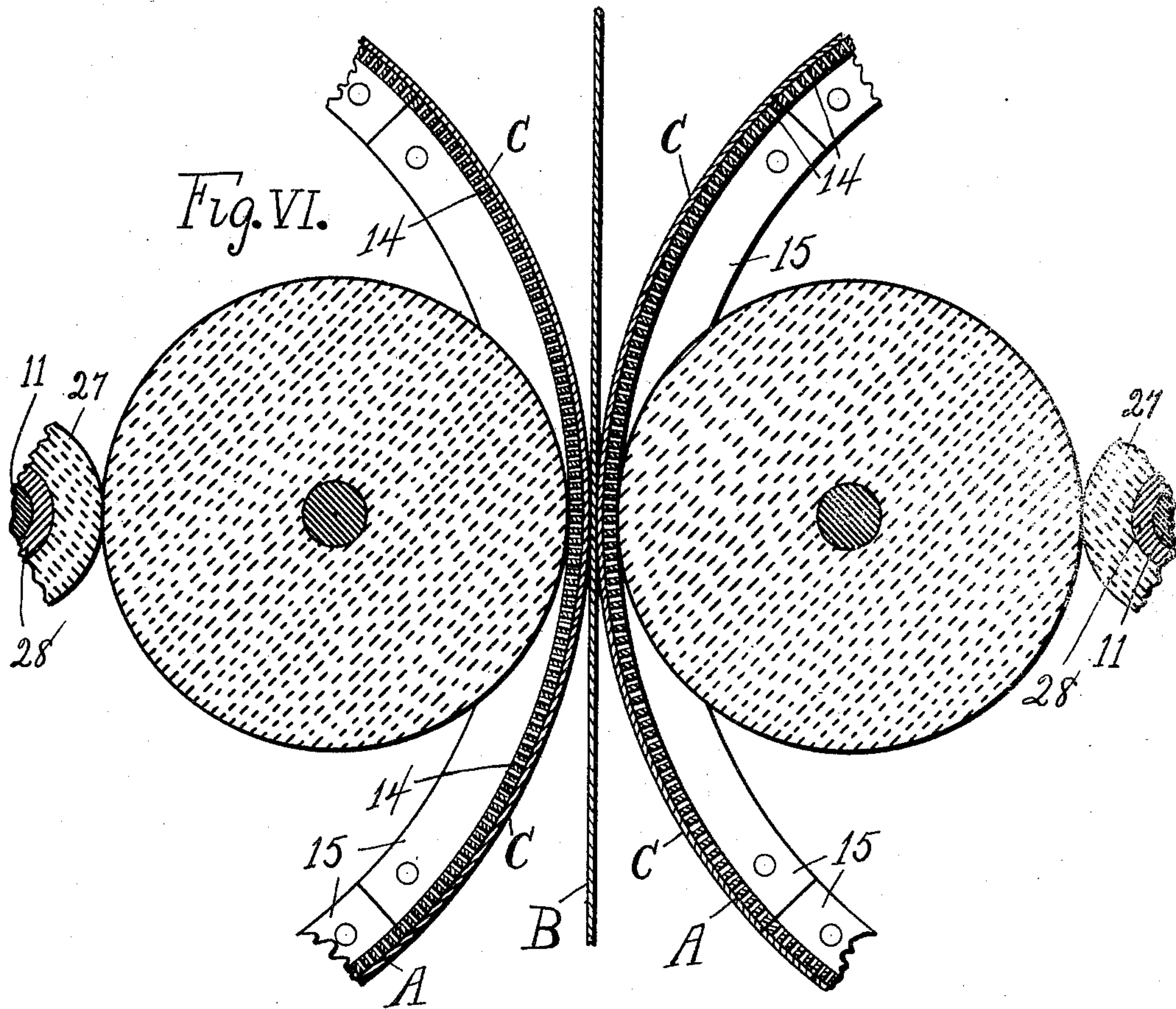
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4 SHEETS—SHEET 4.



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O. Schorneck.
M. Elragon.

INVENTOR

Benjamin A Mason
BY
Myra Wilkerson
ATTORNEY.

UNITED STATES PATENT OFFICE.

BENJAMIN A. MASON, OF BROOKLYN, NEW YORK.

DUPLEX STENCIL-PRINTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 776,338, dated November 29, 1904.

Application filed April 21, 1903. Serial No. 153,606. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN A. MASON, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Duplex Stencil-Printing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention consists in a stencil-printing machine for simultaneously printing the sheet on both sides; and it consists, essentially, in two corresponding surfaces to which the stencils are secured, means to ink the stencils, and means to force the surfaces together when the sheet is arranged between them. I prefer to construct my machine with two cylinders having their peripheries thickly perforated with fine perforations and adapted to rotate substantially in contact, so that when the sheets of paper or a continuous sheet is passed between them it is simultaneously printed on both sides, the ink being applied by suitable inking-rollers to the inner surfaces of the cylinders.

My invention will be understood by reference to the drawings herewith, in which the reference characters of the specification indicate the corresponding parts in all the figures.

Figure I is a front elevation of my machine. Fig. II is a corresponding vertical section. Fig. III is a horizontal cross-section. Fig. IV is a side elevation. Fig. V is an isometric view of a portion of one of the peripheral sections detached. Fig. VI is a portion of Fig. II enlarged, showing the stencils in position and a sheet of paper passing between the cylinders.

In the figures, 1 indicates the end plates of the frame slotted on each side at 2 2 to receive on one side the box 3, secured in position by set-screw 4, and on the other side the box 5, adjustably retained in position by adjusting-screw 6, fitted to head 7 and having the hand-wheel 8 provided with suitable gage and pointer 9. In these boxes are fixed the shafts 11 11, on which are fitted to turn the printing-cylinders A A, having circular heads

13 13 and finely-perforated peripheries formed of sections 14 of comparatively thin metal secured to segments 15, (or rings,) fitted to the rabbets 16 and there secured by screws 17. To the heads are secured the meshing gears 20 20, to the hub 21 of one of which is secured the driving-pulley 22, by which the cylinders are turned in reverse direction from the side on which the paper is fed in toward the opposite side. In the interior of the cylinders are keyed to the shafts at each end the suspender plates or hangers 25 25, braced by rods 26 26. The first, preferably the smaller, inking-rollers 27 27 are journaled on the shafts and formed, if desired, with metallic cores 28 and composition surfaces 29. From these inking-rollers the ink is transferred to the larger inking-rollers, journaled in the hangers and arranged to make contact with the first inking-rollers and with the inner surfaces of the cylinders. The first inking-rollers may be supplied with ink in any suitable way; but I prefer to ink them by hand before the sections are all set in, by which enough ink may be supplied for many hundred impressions. They are arranged to be frictionally rotated by contact with the larger rollers, but may, if desired, be positively rotated by locking to the cylinders by their notched collars 32 and latches 33 on the cylinders. Guide-rollers 34 34 are also journaled in the frame above the cylinder to guide the sheet or strip of paper B between the printing-surfaces from a reel suitably journaled in the upper part of the frame.

The stencils may be formed in any suitable way, as of bamboo-fiber paper covered on one side with paraffin or wax and printed on the type-writer, so that the wax is removed when struck by the type. These stencils C C may be secured to the cylinders in position or first secured to the separate sections in any suitable way, which are then secured to the cylinders after the rollers have been inked, as aforesaid. The power being applied, the sheet which is fed between the cylinders is simultaneously printed on both sides, and a large number of impressions are produced quickly and economically, the ink passing out through the perforations and penetrating the stencils

where the wax has been removed by the contact of the type. By means of adjusting-screws the cylinders are very delicately adjusted, so as to bear on the paper with a sufficient amount of pressure, and this tension may be released until the paper is inserted, so that the stencils may not be injured by being brought into contact with each other. It will be understood that while the printing is going on other sections, with their stencils, may be prepared to be quickly substituted when a sufficient number of the previous impressions have been produced.

I have described a desirable construction of machine; but I do not limit myself thereto, because the frame and arrangement of the parts may be much varied without departing from my invention.

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

1. In a stencil-printing machine, the combination with two stencil-carrying cylinders arranged substantially in contact and having their peripheries formed in detachable sections thickly perforated with small perforations, means to apply ink to the cylinders and means to rotate the cylinders in opposite directions.

2. In a stencil-printing machine, the combination with a frame and shafts fixed thereon, of cylinders composed of circular end plates and sectional peripheries detachably secured to the end plates and thickly perforated, the cylinders being journaled on the shafts, means to rotate the cylinders in opposite directions, hangers supported in the interior of the cylinders, smaller inking-rollers journaled on the shafts, larger inking-rollers journaled in the hangers in contact with the smaller inking-rollers and the inner peripheries of the cylinders, and means to lock the smaller inking-rollers to the cylinders.

3. In a stencil-printing machine, the combination with two similar stencil-carrying cylinders arranged parallel and substantially in contact and having their peripheries thickly formed in detachable sections provided with a multiplicity of small holes, of means to rotate the cylinders in opposite directions so as to apply the stencil to both sides of a sheet of paper passed between the cylinders, and means arranged in the interior of the cylinders to apply ink to their inner surfaces.

4. In a stencil-printing machine, the combination with the frame, of two similar cylinders journaled thereon composed of opposite circular head-plates and detachable sections secured to the head-plates and thickly perforated with small holes, of means to rotate the cylinders, means to apply ink to their inner peripheries, and stencils secured to the exterior of the cylinders.

5. In a stencil-printing machine, the combination with the end plates of the frame and brace-rods therefor, of similar cylinders jour-

naled in the end plates so as to rotate substantially in contact, means to rotate the cylinders in opposite directions and means to apply ink to their inner surfaces, the peripheries of the cylinders being formed of detachable sections, thickly studded with small holes.

6. In a stencil-printing machine, the combination with two similar cylinders, journaled in a frame substantially in contact, and having perforated peripheries, of means to rotate the cylinders in opposite directions, a smaller inking-roller journaled in the interior of each of the cylinders, and a larger inking-roller journaled in the interior of each of the cylinders, said larger inking-roller being arranged to make contact both with the smaller inking-roller and the inner surface of the cylinder periphery.

7. In a stencil-printing machine, the combination with a suitable frame, of parallel shafts fixed therein, two similar cylinders journaled on the shafts with their surfaces substantially in contact and having perforated peripheries, means to rotate the cylinders in opposite directions, hangers supported on the shafts in the interior of the cylinders, a first inking-roller journaled on each shaft in the interior of each cylinder, and an intermediate inking-roller journaled in the hangers in each cylinder and arranged intermediate of the first inking-roller and the inner surface of the cylinder.

8. In a stencil-printing machine, the combination with a frame, of two parallel shafts fixed therein, pairs of circular heads journaled on said shafts and provided with circumferential rabbets on their inner edges, segmental rings fitted to said rabbets and thickly-perforated segments secured to said rings, the heads, rings and segments forming similar cylinders arranged substantially in contact, means to rotate the cylinders in opposite directions and means to apply ink to the inner surfaces of the cylinders.

9. In a stencil-printing machine, the combination with two similar stencil-carrying cylinders journaled parallel and substantially in contact and having their peripheries formed of detachable sections thickly perforated with small holes, of means to rotate the cylinders in opposite directions so as to print both sides of a sheet of paper passed between the cylinders, and inking-rollers arranged in the interior of and in contact with the inner surfaces of the cylinders.

10. In a stencil-printing machine, the combination with two similar stencil-carrying cylinders journaled parallel and substantially in contact and having their peripheries formed of detachable sections thickly perforated with small holes, of means to rotate the cylinders in opposite directions, smaller inking-rollers journaled in the interior of the cylinders and larger inking-rollers also journaled in the interior of the respective cylinders, said larger

inking-roller being arranged to make contact both with the smaller inking-roller and with the inner surface of the cylinder periphery.

11. In a stencil-printing machine, the combination with the two frame end plates having horizontal extensions on each side, said extensions being horizontally slotted, of boxes fitted in pairs to the slots on each side, set-screws for securing the boxes on one side in a fixed position, cross-heads fitted to the slots on the opposite side, adjusting-screws fitted to said cross-heads and adapted to engage with the adjacent boxes to retain them adjustably in position, parallel shafts fixed in both pairs of boxes, similar cylinders with their peripheries substantially in contact journaled on the shafts, said cylinders being composed of corresponding circular heads at each end having circumferential rabbets on their inner edges, of segmental rings fitted to said rabbets and detachably secured therein and of peripheral segments secured to said rings and thickly perforated with small holes, means to rotate the cylinders in opposite directions and means to apply ink to the inner surfaces of the cylinders.

12. In a stencil-printing machine, the combination with the frame, of parallel shafts fixed in the frame, similar cylinders with their peripheries substantially in contact journaled on the shafts, said cylinders being composed of corresponding circular heads at each end having circumferential rabbets on their inner edges, of segmental rings fitted to said rabbets and detachably secured therein and of peripheral segments secured to said rings and thickly perforated with small holes, gears in mesh connected to the respective cylinders, a power-pulley connected to one of said gears, a smaller inking-roller journaled in the interior of each cylinder on the shaft, opposite hangers fixed in pairs on each shaft in the interior

of the cylinder and an intermediate inking-roller journaled in each of said pairs of hangers intermediate between the smaller inking-roller and the inner surfaces of the cylinder.

13. In a stencil-printing machine, the combination with the two frame end plates having horizontal extensions on each side, said extensions being horizontally slotted, of corresponding boxes fitted in pairs to the slots on each side, set-screws for securing the boxes on one side in a fixed position, cross-heads fitted to the slots on the opposite side, adjusting-screws fitted to said cross-heads and adapted to engage with the adjacent boxes to retain them adjustably in position, corresponding parallel shafts fixed in both pairs of boxes; similar cylinders with their peripheries substantially in contact journaled on both shafts, said cylinders being composed of corresponding circular heads at each end having circumferential rabbets on their inner edges, of segmental rings fitted to said rabbets and detachably secured therein and of peripheral segments secured to said rings and thickly perforated with small holes; gears in mesh connected to the respective cylinders, a power-pulley connected to one of said gears, a smaller inking-roller journaled in the interior of each cylinder on the shaft, opposite hangers fixed in pairs on each shaft in the interior of the cylinder; an intermediate inking-roller journaled in each of said pairs of hangers intermediate between the smaller inking-roller and the inner surfaces of the cylinder, and a pair of guide-rollers for the paper journaled in the frame about the cylinders.

In testimony whereof I affix my signature in presence of two witnesses.

BENJAMIN A. MASON.

Witnesses:

HENRY E. TOBEY,

M. E. GAGON.