

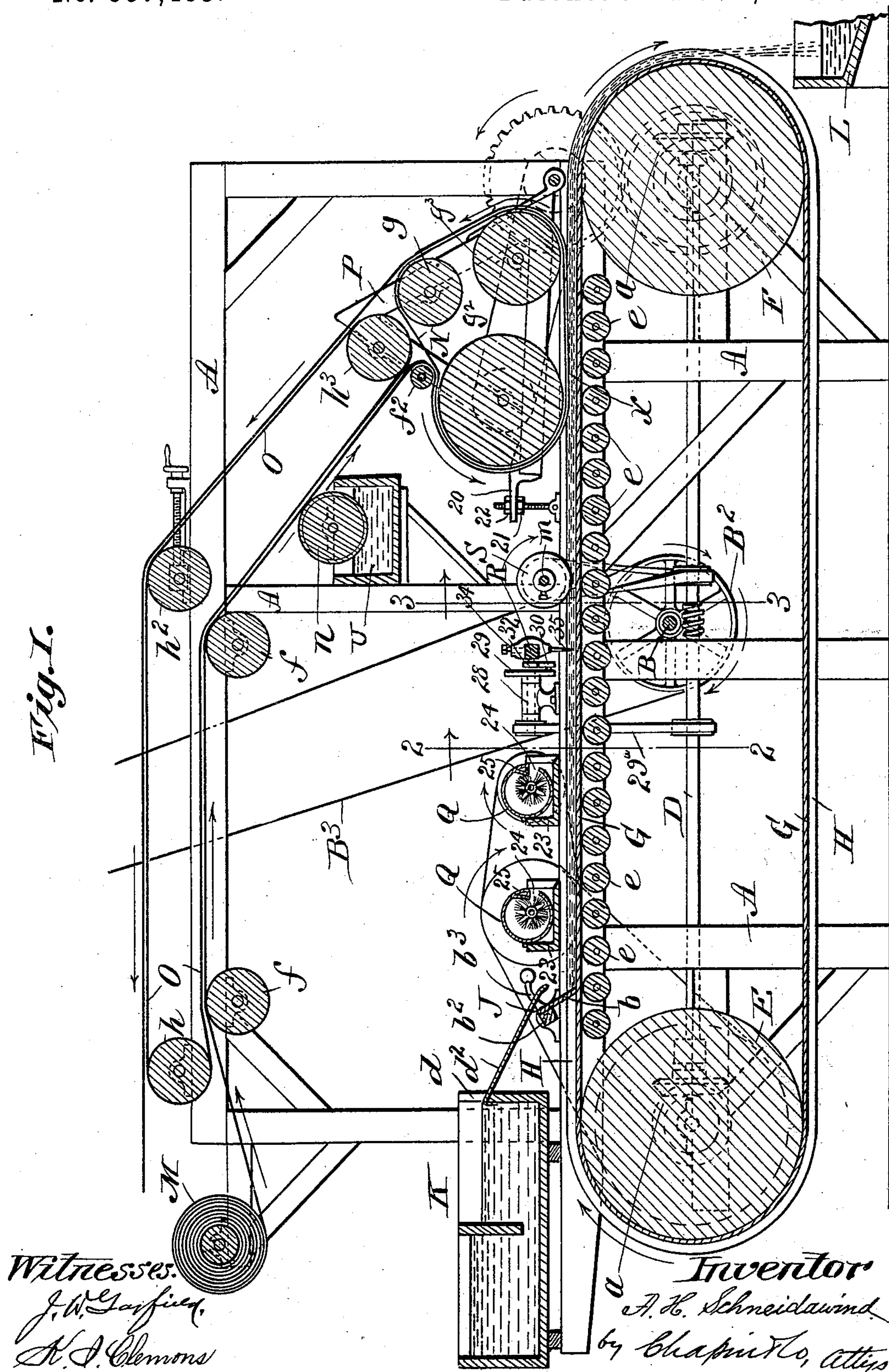
(No Model.)

2 Sheets—Sheet 1.

A. H. SCHNEIDAWIND.
MACHINE FOR MARBLING PAPER.

No. 557,433.

Patented Mar. 31, 1896.



(No Model.)

2 Sheets—Sheet 2.

A. H. SCHNEIDAWIND.
MACHINE FOR MARBLING PAPER.

No. 557,433.

Patented Mar. 31, 1896.

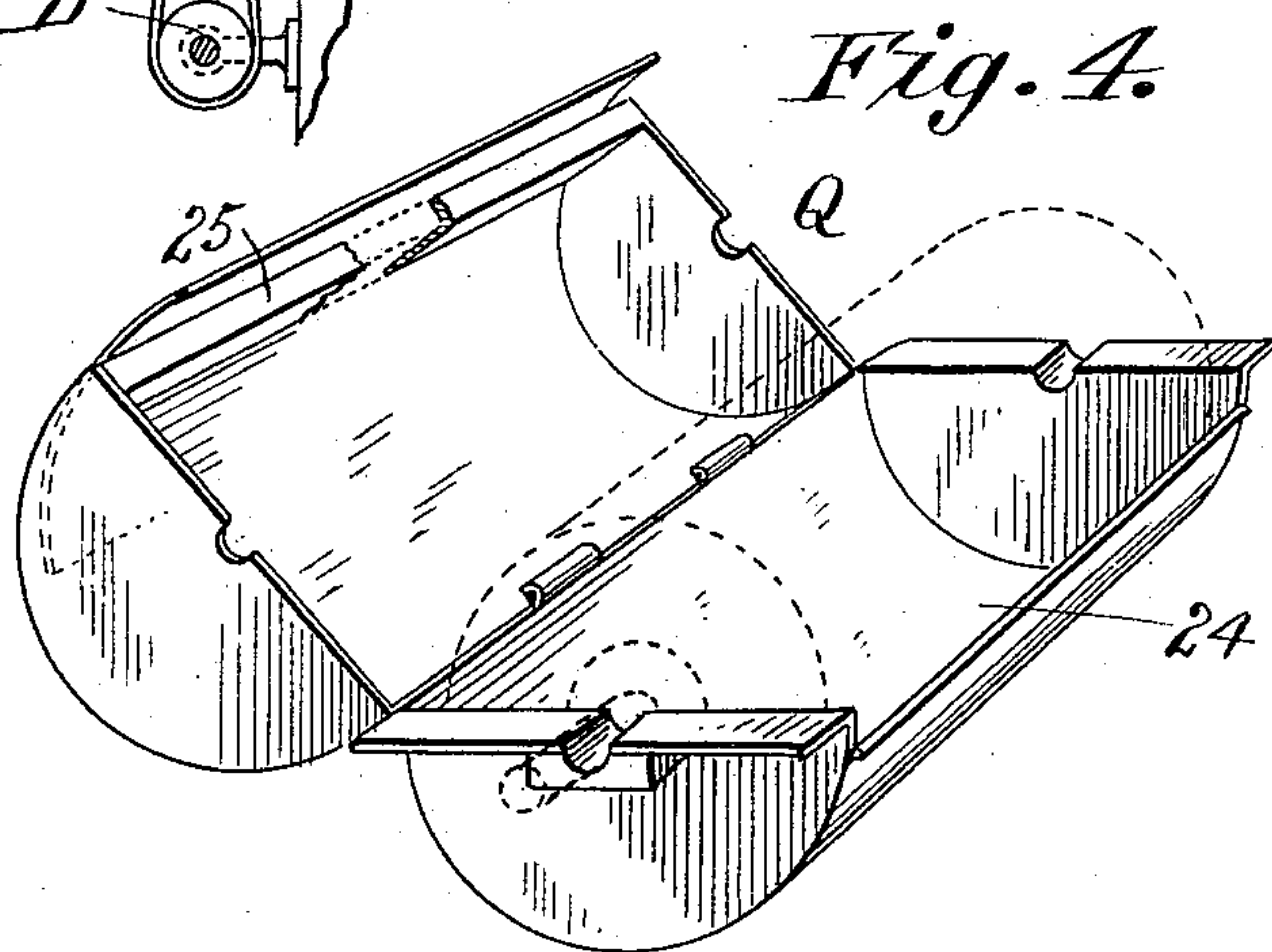
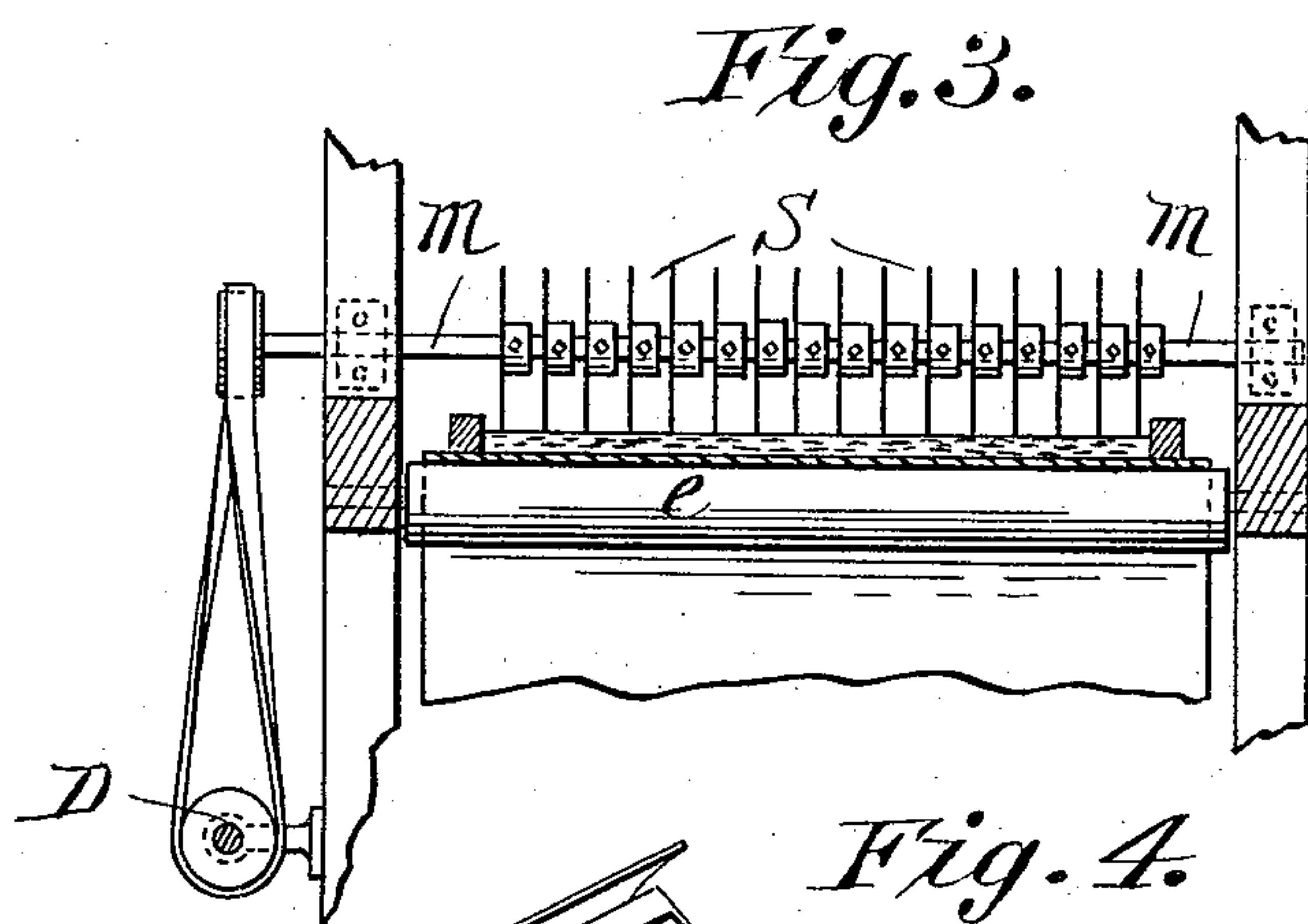
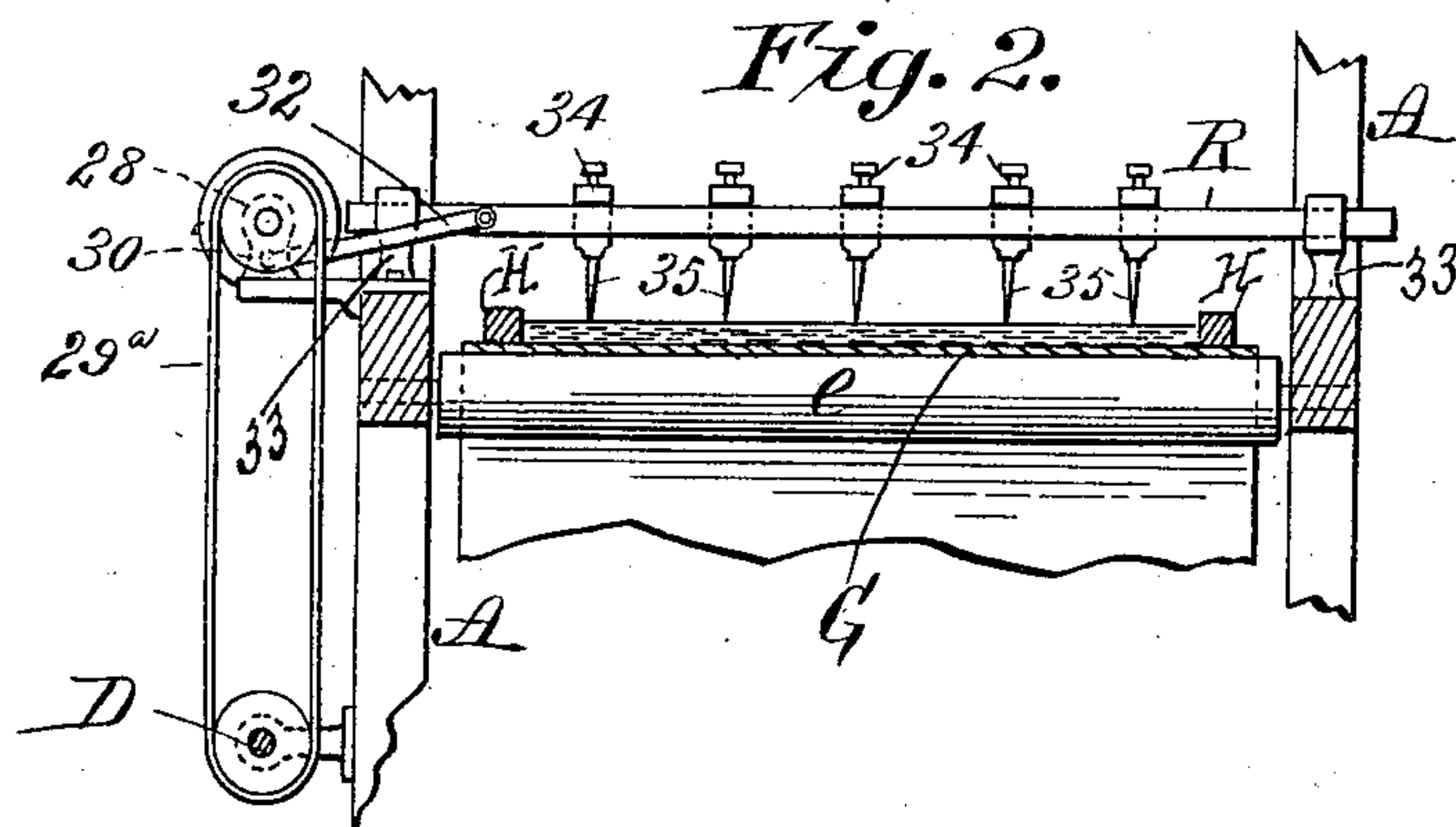
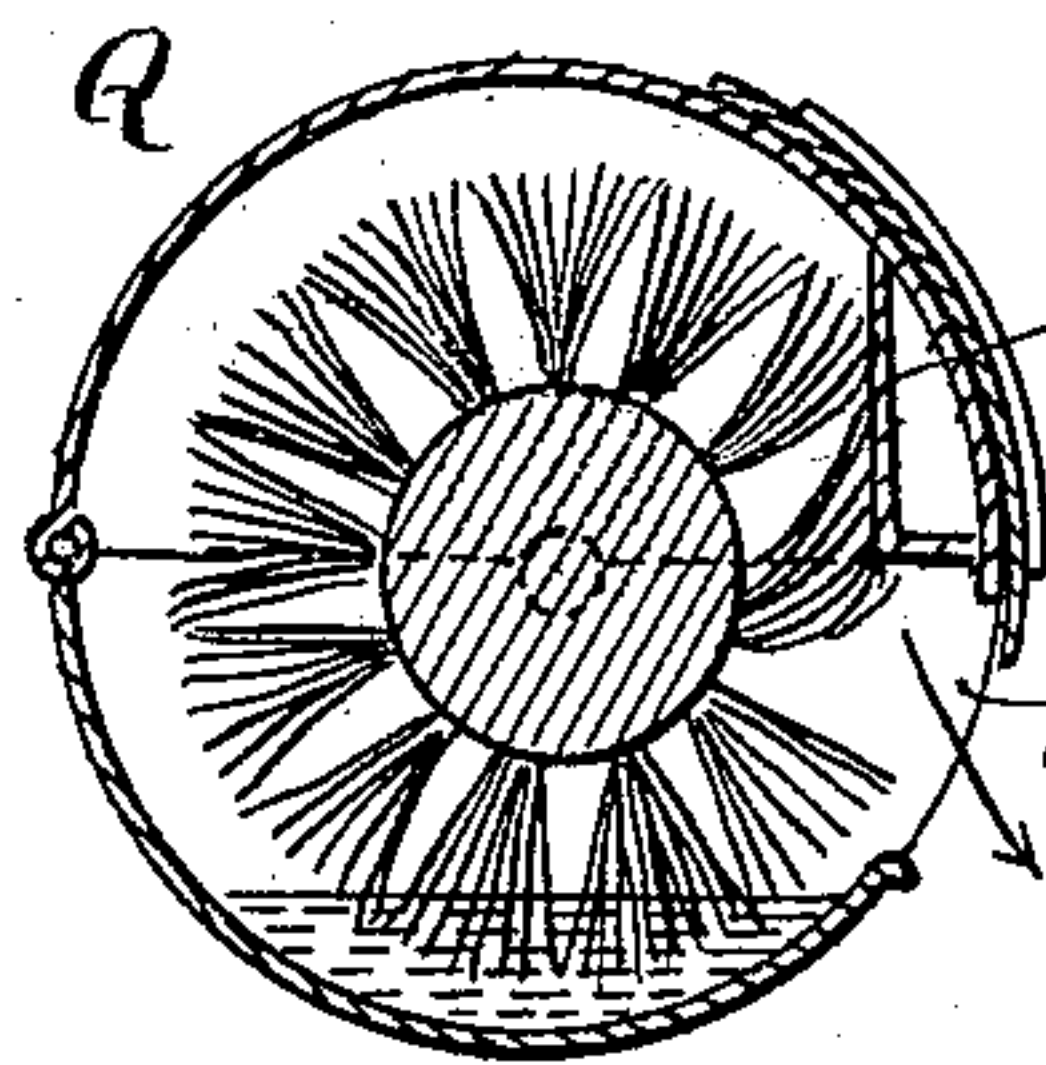


Fig. 5.



Witnesses:
J. H. Garfield
H. J. Clemons

Inventor:
A. H. Schneidawind
by Chapin & Co.
Attys

UNITED STATES PATENT OFFICE.

ANDREW H. SCHNEIDAWIND, OF SOUTH HADLEY FALLS, MASSACHUSETTS.

MACHINE FOR MARBLING PAPER.

SPECIFICATION forming part of Letters Patent No. 557,433, dated March 31, 1896.

Application filed May 23, 1894. Serial No. 512,180. (No model.)

To all whom it may concern:

Be it known that I, ANDREW H. SCHNEIDAWIND, a citizen of the United States of America, residing at South Hadley Falls, in the county of Hampshire and State of Massachusetts, have invented new and useful Improvements in Machines for Marbling Paper, of which the following is a specification.

This invention relates to improvements in machines for marbling paper.

The object of the invention is to simplify and improve the apparatus or machinery, to the ends of assuring economy and efficiency.

The invention consists in constructions and combinations of parts, all substantially as will hereinafter fully appear, and be set forth in the claims.

Reference is to be had to the accompanying drawings, in which—

Figure 1 is a sectional elevation of the machine. Fig. 2 is a partial vertical cross-sectional view taken on line 2 2, Fig. 1. Fig. 3 is a partial vertical cross-sectional view taken on line 3 3, Fig. 1. Fig. 4 is a perspective view of one of the color-holders. Fig. 5 is a cross-sectional view of one of the color-holders and distributors.

Similar characters of reference indicate corresponding parts in all of the views.

In the drawings, A represents the framing, which may be of any suitable form or design.

B is the transverse driving-shaft having the driving-pulley B^2 , around which is the driving-belt B^3 . The shaft D is horizontally and longitudinally mounted on the side of the frame and has various gearing and belt-and-pulley connections with operative portions of the apparatus, as will be apparent or hereinafter respectively referred to.

Near the ends of the machine-framing and supported thereby are drums E F, around which steadily travels the endless apron G, by reason of the bevel-gear connection seen at a , between the shaft D and the arbor or journal of each drum.

Running around with and at the margins of the apron G are the bands H H, of rubber or other suitable flexible material, which have flat bases to lie firmly and evenly upon the apron and having sufficient bulk and height or thickness to form side walls for the apron. These bands may merely lie upon or against

the apron, or they may be cemented or otherwise secured thereto or rendered as parts thereof.

Near the rear upper course of the apron is a gate or dam J, which consists of the gate proper, b , the journal-bearings b^2 at the ends therefor supported by the framing, and the weighted arm or arms b^3 , which tend normally to hold the bottom edge of the gate with a yielding pressure down upon the upper surface of the endless apron.

At the rear and above the upper course of the apron is a tank K, into which is a continual flow from a suitable running supply of the solution of gum or other liquid commonly employed in marbling apparatuses for supporting the colors used in marbling. This tank K has at its forward side the opening d and chute d^2 to insure the constant flow of the gum liquid onto the apron.

The apron is supported between the drums E F by the bed constituted by the plurality of cross-rollers $e e$, journaled at the opposite sides of the framing.

The inflow of the liquid onto the apron-carrier is regulated relatively to the speed of travel of the apron so that there is a level body of the liquid upon the apron extending from the gate to its portion which passes down around the forward drum, and at this place there is necessarily no gate or dam for the liquid, which latter has practically no flow, but which is carried forward bodily and runs off just in advance of the forward drum into the receptacle L, corresponding to the outflow at the rear gate.

M indicates the supply-roll of the paper which is located at a rear upper part of the framing, it being drawn therefrom over the rollers $f f$, and downwardly over and around the roller f^2 , where it passes upon and into contact engagement with the endless apron N, which runs around the drums g , g^2 , and g^3 , the two lower ones of which have their peripheries in proximity to the liquid-carrying apron. The paper running around and carried by this apron N thence is moved to the second endless carrier-apron O supported by the rollers h , h^2 , f , and h^3 , and the outgoing paper is wound upon a drum or taken care of in any suitable manner.

The aforementioned rollers g , g^2 , g^3 , f^2 , and

h³ are all mounted in the framing P, which at its forward lower corner is hung to swing for a vertical adjustment, so that the under course of the paper at *x* may be given its movement through a plane which may be slightly below the top of the color-supporting liquid carried by the apron.

The rear end of the frame P has the lug 20, which is perforated or forked so as to pass freely over the vertical screw-threaded stem having the support-nut 21 and the lock-nut 22.

The travel is imparted to the endless aprons N and O through suitable means, as common in machines embodying such carriers, and while an arrangement of the aprons and the supporting-rollers therefor here shown is practical and desirable other arrangements may be made by the constructor, the precise number of support-rolls and the disposition thereof being largely dependent upon such circumstances as the size and length of the machine, the space in which it may be accommodated, and the facilities for power, it only being essential that there be an apron upon which the paper may be received which has a course thereof to insure the surface of the paper, which lies upon the outer side of the apron, to be carried upon and against the surface of the liquid which has a corresponding rate of travel upon the apron G, and that there shall be an apron, or an effectual equivalent thereof, having a continuous travel for carrying the paper away from the appliances which insure its presentation for the reception of the marbling-color upon the face thereof.

The color is automatically thrown or spat-tered upon the surface of the gum liquid at places suitably to the rear of the apron N, to lie in spots or blotches thereupon in very much the same manner as in the process of marbling by hand operations, and as a means for this distribution of the colors I provide upon the horizontal supports 23 23, which range above and across the framing just over the apron G, the axially-horizontal cylindrical cases Q Q, with longitudinal openings 24 through their front side. In the lower portions of these cases are contained the colors, one color being provided in each case, and there is mounted longitudinally in each case the arbor of a rotary brush the bristles of which are of sufficient length and stiffness to enter the body of the liquid color in the cases and to carry quantities of the color taken up thereby around until it impinges against the longitudinal internal lip or wiper 25, whereupon the bristles will be deflected and the major portion of the color will be wiped off from the bristles, and then as the rotation of the brush continues the bristles, in snapping free from the said lip, will throw the residue of the color thereupon downwardly and forwardly through the opening 24 upon the gum liquid supported upon and carried forwardly by the apron. In the present illustrations only two of these color-spraying devices are provided, but it will be manifest that as many color

compartments or cases with the spraying instrumentalities may be provided as necessary to suit the multicolored marble paper which it is desired shall be produced.

In practice it is found that the slower the spraying-brushes are rotated the larger will be the globules of the liquid color delivered upon the gum liquid thereby, and therefore it has been found desirable to have the brushes successively in the advancing arrangement toward the apron N geared or belted up so that each will have a higher speed than the one next to the rear. This is especially desirable in view of the use of a class of colors which are without capability of blending one with another, for in the best marbling work one color will lie directly upon and entirely hide, in part of the area, those previously deposited.

The marbled paper has, in many designs, a combing—that is, the different colors have the form and arrangement of a succession of U's or half-loops, and these loops have also systematic zigzag lines of arrangement, and the effect of the combination of half-loops and of the zigzag courses which have their trends across the lines of the combing is produced by devices which will be now described; and there is, therefore, between the foremost color-casing Q and the apron N the short longitudinally-arranged counter-shaft 28, which is belted, as seen at 29^a, to the long shaft D. This counter-shaft 28 has a face-plate 29 with the crank-pin 30. The pitman-rod 32 has by one end a connection with the crank-pin and by its other a connection with the bar R, which is transversely guided in standards 33 at the opposite sides of the machine-frame, and this bar has the adjustably-confined slide-blocks 34, which have the depending pins 35, which may be of wood or other material and of such length as to project down below the surface of the liquid carried forwardly upon and by the apron G. These pin-carrying slide-blocks 34 may be set at regular intervals of separation or at irregular intervals, according to the variation required in the zigzag system to be seen in the design of the marbled paper. The zigzag effect is insured by dragging off or streaking the color by the movement of the bar, through the pitman-rod, at right angles to the line of movement of the color, as conveyed with and upon the gum liquid by the edge-walled apron G.

The longitudinal combing is performed by a series of circular blades or disks S, which are arranged in parallel planes longitudinally of the machine upon the cross-shaft *m*. This shaft is belted to the long shaft D, so as to rotate the disks in the direction the reverse of the line of travel of the apron G. The disks are adjustable, so that the distance between the combing-lines may be variable at pleasure. It may be possible to have the rotation of the combing-disks in the same direction as the travel of the apron; but this would necessitate an excessive speeding of

the shaft *m*, which is not necessary in the first-specified arrangement.

The paper, preparatory to being brought down by the apron *N* to bear upon and take 5 the color floated upon the liquid carried along with the apron *G*, may have its surface coated or prepared with a layer of liquid chemical solution, so that it will be non-porous and will receive the color in a permanent man- 10 ner and as desirable and well known by skilled paper-marblers, and therefore the tank *U* is provided and supported by the framing, which has the roller *n* journaled on said box. A portion of the bulk of the roller is immersed 15 in the chemical solution contained in the tank *U*. The periphery of this roller has a running bearing against the paper as the latter is led from the forward roll *f* downwardly forwardly to and around the roller *f*² in its 20 course to the engagement with the endless apron, and therefore the chemical solution which adheres to the said roller *n* is imparted to the surface of the paper.

Having thus described my invention, what 25 I claim, and desire to secure by Letters Patent, is—

1. In a paper-marbling machine, the combination with the drums, *E*, *F*, and apron, *G*, with the edge bands, *H*, *H*, of the receptacle, 30 *K*, and gate mounted for a rocking movement on stationary supports of the frame, substantially as described.

2. In a paper-marbling machine, the combination with the edge-walled apron for the 35 color-supporting liquid, and means for depositing color upon the apron-carried liquid, of the transverse bar, the crank and pitman-rod and the pins supported by, and depending from, the bar, and terminating near the level 40 of the apron, substantially as described.

3. In a paper-marbling machine, the combination with the edge-walled apron for the color-supporting liquid, and means for depositing color upon the apron-carried liquid, 45 of the transverse bar, the crank and pitman-rod and the slide-blocks carrying the depending pins, 35, which blocks are adjustably confined on said transverse bar, substantially as described.

50 4. In a paper-marbling machine, the combination of apron, long shaft, *D*, a color-distributing device, short counter-shaft, 28, hav-

ing belt-and-pulley connections with the shaft, *D*, and having the crank-pin, the transversely supported and guided bar, *R*, having 55 the adjustable pin-carrying slide-blocks and the pitman-rod connecting said bar with the crank-pin, specifically as set forth.

5. In a paper-marbling machine, the combination with the edge-walled apron for the 60 color-supporting liquid, and means for depositing color upon liquid carried by the apron, of the horizontal bar having the series of depending pins, 35, and the series of disk-plates mounted on an axis transversely of the 65 travel of the apron, substantially as described.

6. The combination and arrangement of drums, *E*, *F*, edge-walled apron, rear gate, *J*, across the upper course of apron, receptacle, 70 *K*, for continual liquid delivery onto the apron, means for imparting the forward movement to the apron to bodily carry the liquid forwardly and to allow it to fall beyond the forward periphery of the drum, *F*, into the 75 receptacle, *L*, which is thereunder, and the apron, *N*, and drums therefor, substantially as described.

7. In a paper-marbling machine, the combination of apron, *G*, equipped to carry color-supported liquid substantially as and for the 80 purpose set forth, of the apron, *N*, and supporting-drums therefor, arranged to have the course of the apron, *N*, adjacent and approximately parallel with the plane of the apron, *G*, and means for effecting an up-and-down 85 swinging adjustment of the apron, *N*, and its carrier-rolls, whereby its lower course may be very slightly and variably angular to the level of apron, *G*, substantially as described.

8. In a paper-marbling machine, the combination with apron-carrier for the liquid and 90 the apron, *N*, for the paper, and means for leading the paper to said apron, *N*, of the tank, *U*, and roller running therein which has also a peripheral movement in contact 95 with the paper running to the apron, *N*, for the purpose of imparting to the surface of the paper the treating solution, preparatory to presenting the paper to the take-up of the color, substantially as described.

ANDREW H. SCHNEIDAWIND.

Witnesses:

WM. S. BELLOWS,
J. D. GARFIELD.