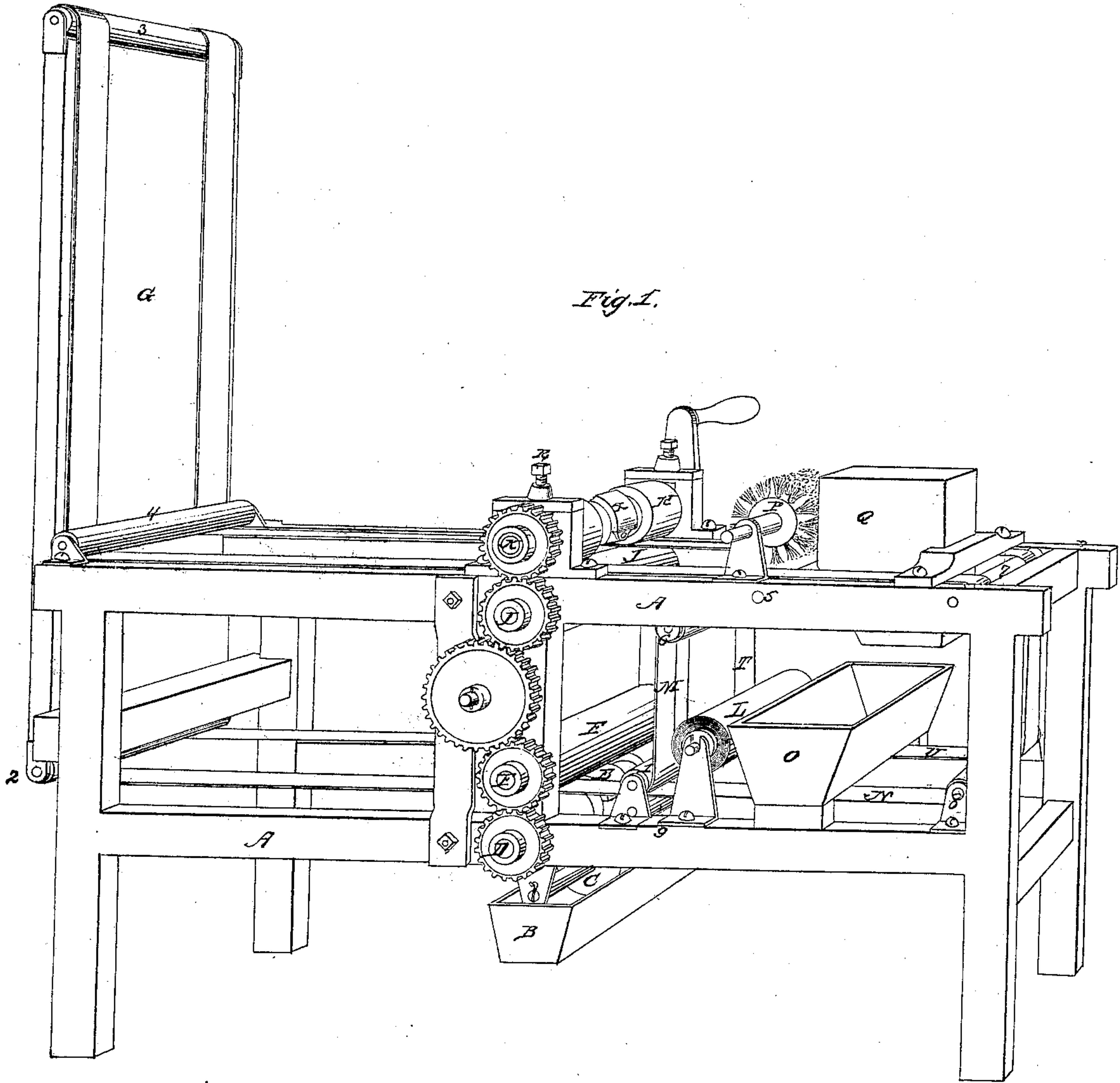


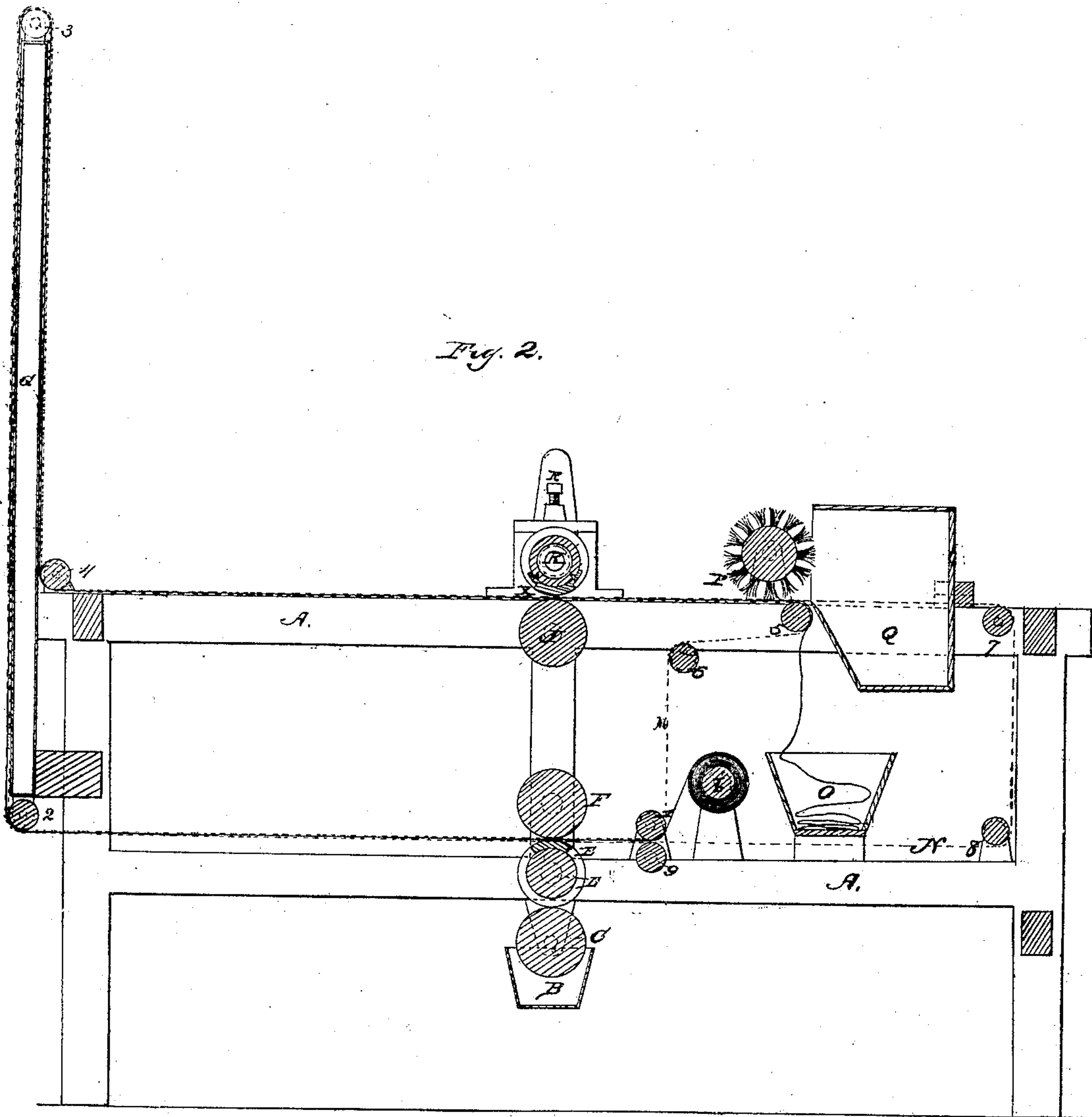
*W. Moultrie. Sheet 1 of 2 Sheets.*  
*Calico Printing.*  
*N<sup>o</sup> 16245. Patented Dec. 16. 1856.*

*Fig. 1.*



*W. Moultrie. Sheet 2. of 2. Sheets.*  
*Calico Printing.*  
*No. 16245. Patented Dec. 16. 1856.*

*Fig. 2.*





# UNITED STATES PATENT OFFICE.

WILLIAM MOULTRIE, OF NEW YORK, N. Y.

PRESS FOR PRINTING HAT-LININGS.

Specification of Letters Patent No. 16,245, dated December 16, 1856.

*To all whom it may concern:*

Be it known that I, WILLIAM MOULTRIE, of the city, county, and State of New York, have invented new and useful Improvements in Presses for the Printing and Gilding of Silk and other Material for Hat Tips, Linings, and other Purposes, of which the following is a description.

Figure 1 is a perspective view of the machine. Fig. 2 is a vertical section of the same.

It should be stated preliminarily, that in gilding silk and other materials, it is necessary to size the surface or spot to be printed and gilded, and that after the leaf of gold or other metal, or metallic powder is placed upon the sized surface, heated dies or type of the requisite pattern should be used for the purpose of printing or impression. The common mode of printing and gilding silk and other material for hat tips (which are the linings of the crown of hats) and other purposes, is by means of an ordinary lever press operated by the hand of the workman, while the sizing and drying of the silk are distinct operations, occupying much time and with unequal results. In my improved press all the necessary operations are combined and performed by the machine itself, in a rapid and effectual manner.

A, A, A, A represent the frame which supports the several parts of the machine and which may be made of wood or metal.

B, is a vessel or fountain, containing a weak solution of gum-arabic or other suitable sizing.

C, is a roller dipping slightly by its revolution into the contents of the vessel B, and acts in the manner of what is known as a fountain or distributing roller in the ordinary paper printing presses.

D, is a roller placed immediately above the roller C, having a projecting section of its circumference or surface E of the requisite size of the spot or surface to be sized and gilded. This projection in its revolution, takes up from the roller C, sufficient sizing to moisten or size the material to be printed and gilded. If necessary another roller may intervene between C and D, to equalize and distribute the sizing in a better manner, though not shown in the drawing.

F, is a roller immediately above the roller D, in the nature of an impression roller and between which and the roller D, the silk or material to be sized passes.

G is a hollow flat rectangular shaped vessel to be heated with steam, over which the sized and moistened spot is made to pass, for the purpose of drying the same. Friction rollers to facilitate such passage (and the passage of the tapes hereinafter described) are placed at the top, bottom and side of the drying vessel G as apparent in the figures and elsewhere as hereinafter described.

J is an impression roller placed immediately beneath the printing roller K, and is covered with felt, or other suitable material, so as to present a slightly yielding yet firm surface.

K, is a hollow printing roller or cylinder, on a section of whose outer surface the die or type (X) is placed. Steam for the purpose of heating this cylinder and thereby heating the die, is admitted through the axles or trunnions in a manner well known to machinists, and which therefore need not be described. The dies or type may be adjustable, so as to be removed at pleasure. Such cylinder may contain one, or any number of dies; or it may be made so as to print continuously, the die in such case extending around the cylinder.

L is a roller upon which the silk, paper or other material is wound previous to its passage through the machine.

1, 2, 3, 4, 5, 6, 7, 8 and 9 are friction or feed rollers, over which run double lines of endless tapes, placed one above the other. These tapes are shown by M and N, and carry the silk or other material between them, through its entire passage. One pair of these tapes run on one side of the machine and the other pair on the opposite side, as shown in Fig. 1. The pairs are placed sufficiently apart on each side, as to allow the sized or central portion of the silk to remain open and untouched, so as to allow the operator to place the gold leaf on the sized spot in the manner hereinafter mentioned.

The endless tape M (red line Fig. 2) passes under friction roller 1, and above friction roller 9, thence between rollers, D and F, thence over friction roller 2, at the bottom of drying vessel G, thence up the outside of said vessel and over friction roller 3 at its top, thence down its side and under friction roller 4, thence along the bed of the machine horizontally, to and between rollers J and K, thence over friction rollers



5 and 6 in the manner indicated by the red line in Fig. 2, and thence endlessly under friction roller 1 again. One or more of these friction rollers should be geared to the large rollers, so as to insure uniformity and similarity of motion.

The endless tape N is placed directly outside and above the tape M and follows the same course, save that instead of passing over friction roller 5 and turning down and passing over friction roller 6, it passes on farther, in a line with the horizontal bed or frame of the machine, to and over friction roller 7, thence down to friction roller 8, and thence endlessly under friction roller 1, as hereinbefore described.

M and N constitute one pair of tapes running on one side of the machine as shown in Fig. 1, and a similar pair moving in the same way, are placed on the opposite side as seen in the said drawing and represented by the letters T and U.

The silk to be printed (indicated by the blue line Fig. 2) having been placed on roller L, which may be weighted to prevent its delivering the silk too fast, is taken by the operator in the beginning, and its end steadily held and placed between each pair of tapes, just before their respective conjunction at the friction rollers 1 and 9, thence the silk follows the endless tapes in their passage and upon reaching friction roller 5 where the tapes separate, as hereinbefore described, drops down into the box or receptacle O, as seen by the crooked blue line in Fig. 2.

P is a revolving brush for removing the surplus unimpressed gold leaf from the silk, after it has received the action of the heated die on the printing cylinder K. This brush should be geared so as to revolve faster than the other moving parts of the machine.

Q is a vessel or box for catching and preserving the gold dust and fragments, as they are flung off by the action of the brush P.

The rollers D F J and K are of the same diameter and are geared together by cog or other suitable gearing, so as to revolve together in uniform time, and with uniform action, so that the sized spot shall come directly under the die in every instance.

The silk is moistened or impressed on its passage between the rollers D and F, with sufficient sizing to equal or cover the spot or surface thereafter desired to be gilded. The projecting section E which receives its moisture from the collar C, is about the same size as the figure or pattern on the die or type on the cylinder K. This moistened spot or surface is dried by its passage over the drying vessel G between the tapes in the manner hereinbefore described.

As the silk passes along the bed of the machine in the space between friction roller 4, and the printing roller K, the operator

places a leaf of gold upon the spot thus sized and dried, which is carried by the silk in its passage under the roller K, where it is printed and impressed against the impression roller J; if the sized spot should be imperceptible, an automatic finger, or indicator, may be attached to the machine to guide the eye and hand of the workman. The rollers may be adjusted and regulated by set screws in the manner indicated by R above the roller K.

The friction rollers used for the passage of the tapes should be made slightly convex, at such portions of their surfaces as lie immediately beneath the tapes in the manner well known on cylinder and other paper printing presses in ordinary use, so as to prevent the tapes from running off or separating, and to insure their uniform and regular progression. If the silk or other material is thick or firm, it may perhaps be fed through the machine by the rollers, and without the use of tapes. But for practical use, it will be found that the tapes are necessary, as much of the material used for the making of hat tips is of a thin, gauzy character and liable to be strained or stretched.

This machine should properly be driven by mechanical power, the motion being more firm and uniform. If moved by hand (as indicated by the crank in the drawing) a second operator will be necessary, unless moved with a treadle. It may be driven more or less rapid, according to the ability of the operator to throw on the gold leaf. The tapes should be made as wide as possible (leaving a space between equal to the size of the die) so as to keep the silk firm, and prevent it being strained or stretched throughout its entire passage.

When the machine is used for printing hat tips, the rollers D and K should be of such diameter as to print the proper figure or tip about every eight inches. This must be regulated however by the size and fashion of the hat. The silk having been printed, as hereinbefore described, may be cut into pieces of the requisite size by hand or by a cutting apparatus attached to the machine and not shown in the drawing.

A hollow drum or heated cylinder of sufficient diameter over which the silk or other material may be made to pass, may be used in lieu of the drying vessel G hereinbefore described. The last however is more simple and less expensive in construction, while it is equally efficient for the purpose intended. It may be made to stand vertically as shown in the drawings and thus occupy less space in the operating room or otherwise as may be desired. A die having vertical action, as in hand lever card or notarial presses, might be used instead of the revolving cylinder K in combination with the other parts of the machine hereinbefore described; but



in such case the motion of the machine will not be uniform or continuous, as the silk must necessarily stop a moment to receive the impression.

5 The material parts of the apparatus hereinbefore described are I. The tapes for conveying the silk in a firm and uniform manner. II. The fountain B for supplying, and the rollers C and D for distributing and  
10 pressing the sizing. III. The drying vessel G, or its equivalent. IV. The hollow heated printing cylinder holding as described, one or more dies or type. V. The revolving brush P, for removing and preserving in  
15 the box Q the surplus gold leaf or dust. VI. The friction feed rollers for conveying the tapes and silk and the impression rollers F and J.

20 The roller L, the set screws, the box O, the box Q, and the cog gearing, are obvious though necessary parts of the apparatus.

The above described various parts, some

of which when used singly, are not new, may be easily modified or altered and obvious equivalents suggested or used, without  
25 essentially impairing or affecting the principle or character of my invention.

What I claim therefore as my own invention and desire to secure by Letters Patent  
30 of the United States,

The application and employment of the printing cylinder K hereinbefore described, or its equivalents, in combination with the feed and impression rollers, the fountain B, the endless tapes M, N, T, U, the drying  
35 vessel G, and the revolving brush P, when used in the manner substantially, and for the uses and purposes hereinbefore mentioned.

WM. MOULTRIE.

In presence of—

ANSON S. PALMER,  
W. H. H. PALMER.