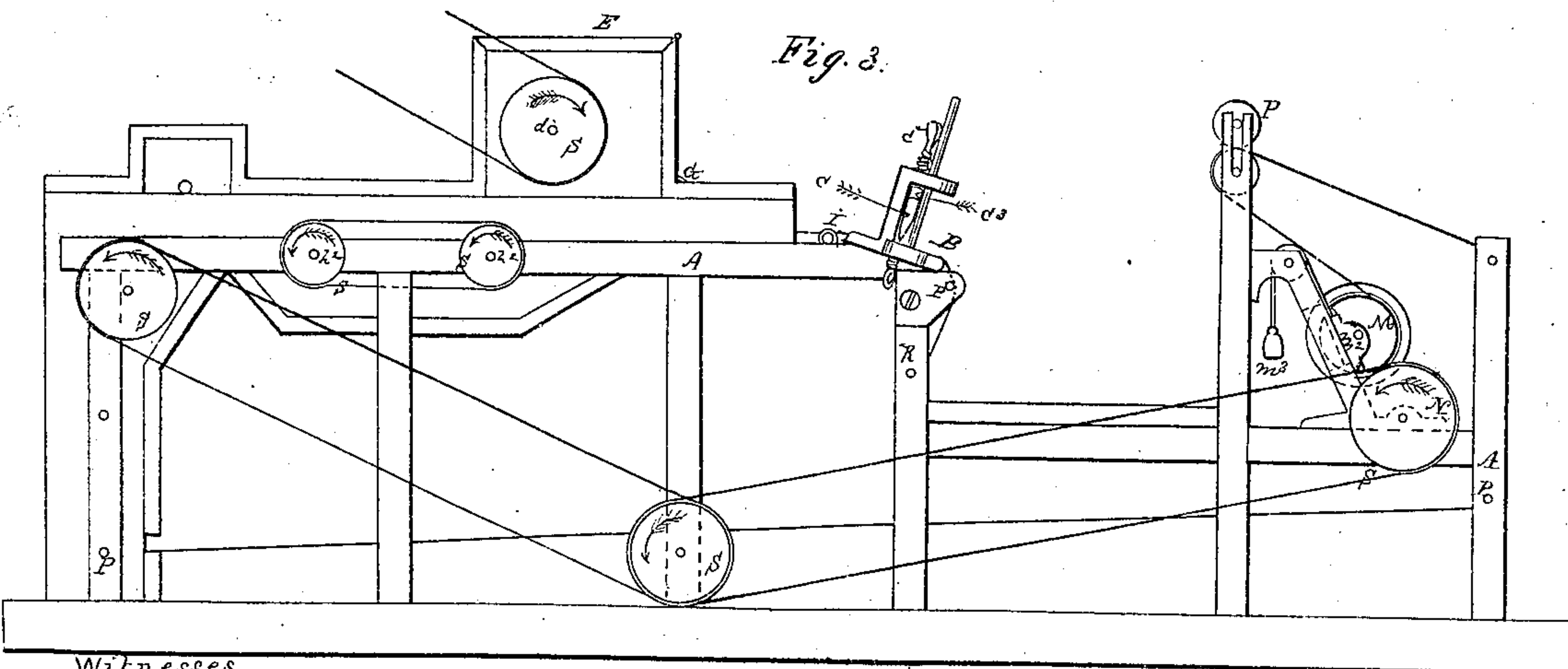
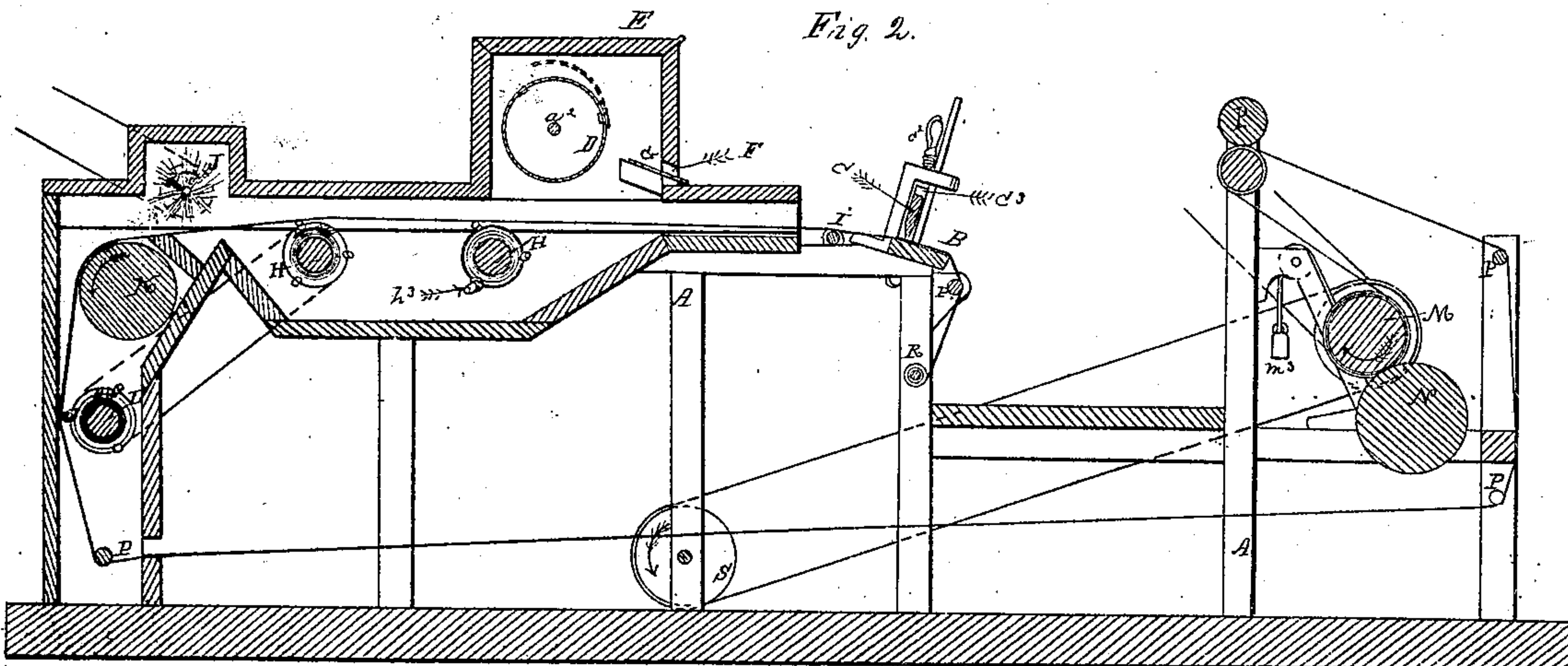
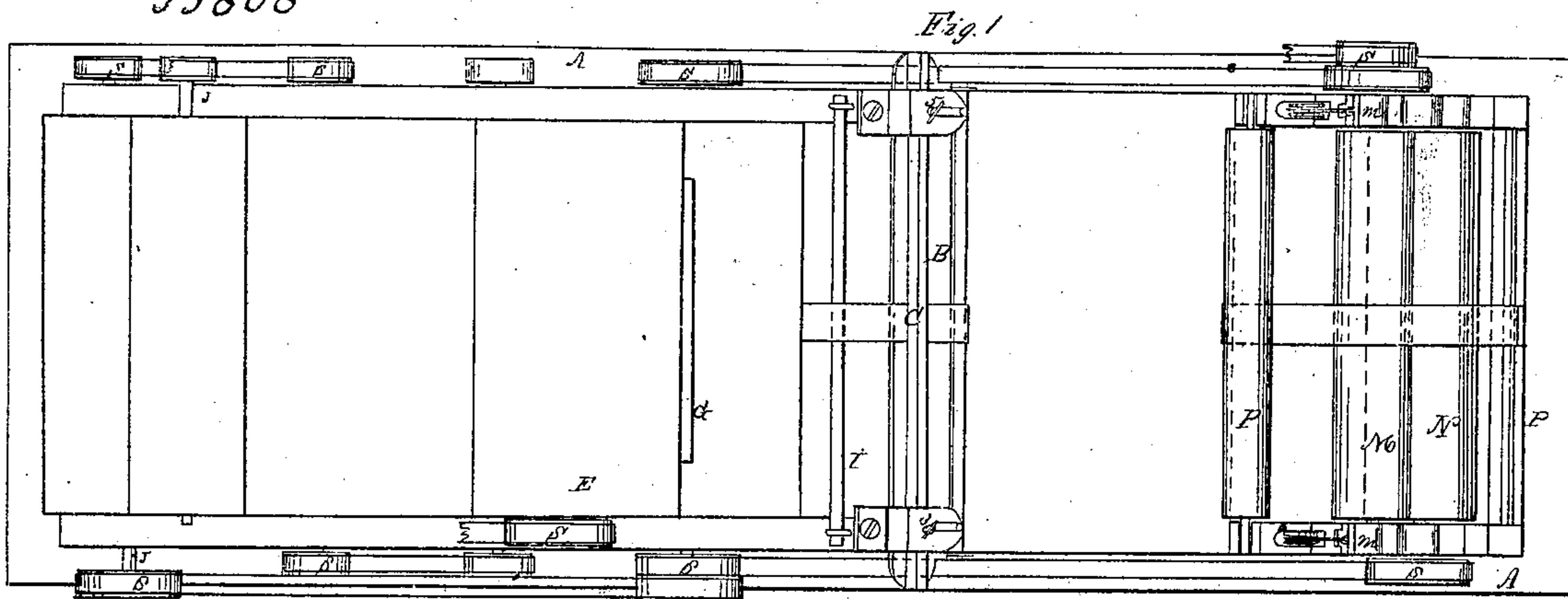


*I. F. Williams.*  
*Flocking Mach.*

*N<sup>o</sup> 2804*  
*33808*

*Patented Nov. 26. 1861*



*Witnesses.*

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# UNITED STATES PATENT OFFICE.

ISAAC F. WILLIAMS, OF NEW YORK, N. Y.

## IMPROVED MACHINE FOR APPLYING FLOCKS TO FELT RUBBER GOODS.

Specification forming part of Letters Patent No. 33,808, dated November 26, 1861.

*To all whom it may concern:*

Be it known that I, ISAAC F. WILLIAMS, of the city, county, and State of New York, have invented certain new and useful improvements in machinery for applying flocks, ground cork, or other similar substances to the surface of water-proof fabrics, for the purpose of making what is generally known in the trade as "felt rubber goods;" and I do hereby declare the following to be a full description of the same.

The nature of my improvements consists, first, in arranging the gumming-table at an inclination of about twenty-five degrees, in combination with a self-adjustable distributing-knife, so that when the solution of gum is applied to the surface of the fabric the knife-edge will cause it to flow evenly downward and laterally over the surface of the cloth to prepare it for the application of the flock; secondly, in combining with the revolving flock-duster and case surrounding it a smut-collector, so as to prevent the gummed surface of the cloth being smutched by the flock, which has a tendency to gather in masses at the front sides of the duster-case and fall in flakes upon the surface of the cloth and thus spot it, as well as to cause it to have an unevenness of surface unlike cloth-finished goods, which these goods are designed to represent; thirdly, in the improved construction of the flock or cloth beaters, by combining with them swinging arms or beaters, so as to beat the under side of the cloth by a sudden blow to cause the flock to become more thoroughly set in the wet gum than can be done by fixed arms in the revolving beaters; fourthly, in the improved method of arranging the carrying-rollers of the cloth so as to suspend it while under the action of the beaters, and thereby prevent the cloth from jerking over the gumming-table and under the edge of the distributing-knife, and thus prevent its being evenly gummed over, and, fifthly, in combining with the beaters a finishing-brush.

To describe my invention more particularly, I will refer to the accompanying drawings, forming a part of this specification, the same letters of reference wherever they occur referring to like parts.

Figure 1 is a plan view of the machine.

Fig. 2 is a longitudinal cut section through the line  $x x$ , Fig. 1. Fig. 3 is a side elevation of the machine.

Letter A is the frame of the machine, having transversely of the top of it a gumming-table B. This table is arranged at an inclination of some twenty to thirty degrees, so as to cause the solution of the gum, when applied to the cloth in passing over it, to spread more rapidly and evenly than would be the case if the table were level. Upon this table is secured a gum-distributor knife C, which rests on the surface of the cloth, and by means of set-screws  $c^2$  and a spring  $c^3$  on their lower ends is made so as to have a self-adjustable pressure on the surface of the cloth while distributing the gum over it preparatory to the flocking operation.

Letter D is a revolving flock-sifter having an opening in its face for the introduction of the flock and adjusted on suitable bearings  $d^2$  passing through the sides of a shell or inclosed case E surrounding it. In the front side of this case is cut a throat F, in which is arranged a smut-collector G, which extends into the case till nearly in contact with the sifter. The object of this arrangement is to collect the masses of flock, which have a tendency to accumulate in the front side of the case, and by falling upon the surface of the cloth as it enters the case causes a lumpy and smutched appearance, and thereby impairs the cloth-like finish aimed at by the manufacture of this kind of goods.

H H are two revolving beaters arranged on suitable bearings  $h^2$  in the lower portion of the sifter-case, so as to work at the lower side of the cloth to beat or drive the flock into the wet solution of gum on its upper surface. Attached to the periphery of the front beater is a swinging arm  $h^3$ . The object of this is to give a more sudden blow than is possible by fixed or stationary beaters, and at the same time, in consequence of the swinging arm closing upon the face of the beater-axis, not jerking the cloth, as would be the case if the stationary beaters or arms were of the same diameter as the swinging arm is when distended.

Letter I is a cloth carrying and supporting roller adjusted across the frame of the machine just behind the gumming-table, and so



as to be slightly above the back edge of it. The object of this is to support the cloth and prevent the transmission of any drawing or jerking motion of it over the gumming-table in consequence of the action of the revolving beaters.

Letter J is a finishing-brush arranged in the back end of the sifter-case, the object of which is to lay the fiber of the flock and give a smooth cloth-like finish to the goods.

K is a carrying-roller at the back end of the machine, and L a revolving beater whose duty it is to beat off any superfluous flock that may adhere to the gummed surface of the cloth.

Letter M is a cloth-roller secured at the front end of the machine in adjustable bearings  $n^2$ , having a balance-weight  $m^3$  attached to it by means of a cord running over a pulley to equalize the pressure on the cloth as it increases or decreases in quantity on the roller.

Letter N is a carrying-roller, upon which the cloth-roller rests.

Letters P P are carrying-rollers over which the cloth passes in going through the machine.

R is the cloth-beam arranged just under the gumming-table and off which the cloth unwinds in the operation of flocking, &c.

Letters S S, &c., are a series of pulleys and belts for operating the several parts of the machine, and T the piece of cloth, as represented by the blue-ink line.

Having now described my invention, I will

proceed to set forth what I claim and desire to secure by Letters Patent of the United States—

1. The arrangement of the gumming-table so as to be an incline plane, as hereinbefore described, in combination with a self-adjustable gum-distributor, for the purposes hereinbefore set forth.

2. The use of the throat F and smut-collector G or equivalent devices in the sifter-case as a method of preventing masses of falling flock from smutching the cloth, substantially as described.

3. The use of swinging arms or beaters  $h^3$ , in combination with the revolving beaters H, substantially as described, and for the purposes hereinbefore set forth.

4. The use of the cloth-tension roller I, in combination with the carrying-roller K at the back end of the machine, arranged on a line below the revolving beaters, while the roller I is arranged on a line above the gumming-table, so as to support the cloth on these two points, and thus prevent the blows of the beaters drawing or jerking the cloth over the surface of the gumming-table.

5. The combination of the finishing-brush J with the revolving beaters, substantially as described.

ISAAC F. WILLIAMS.

Witnesses:

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