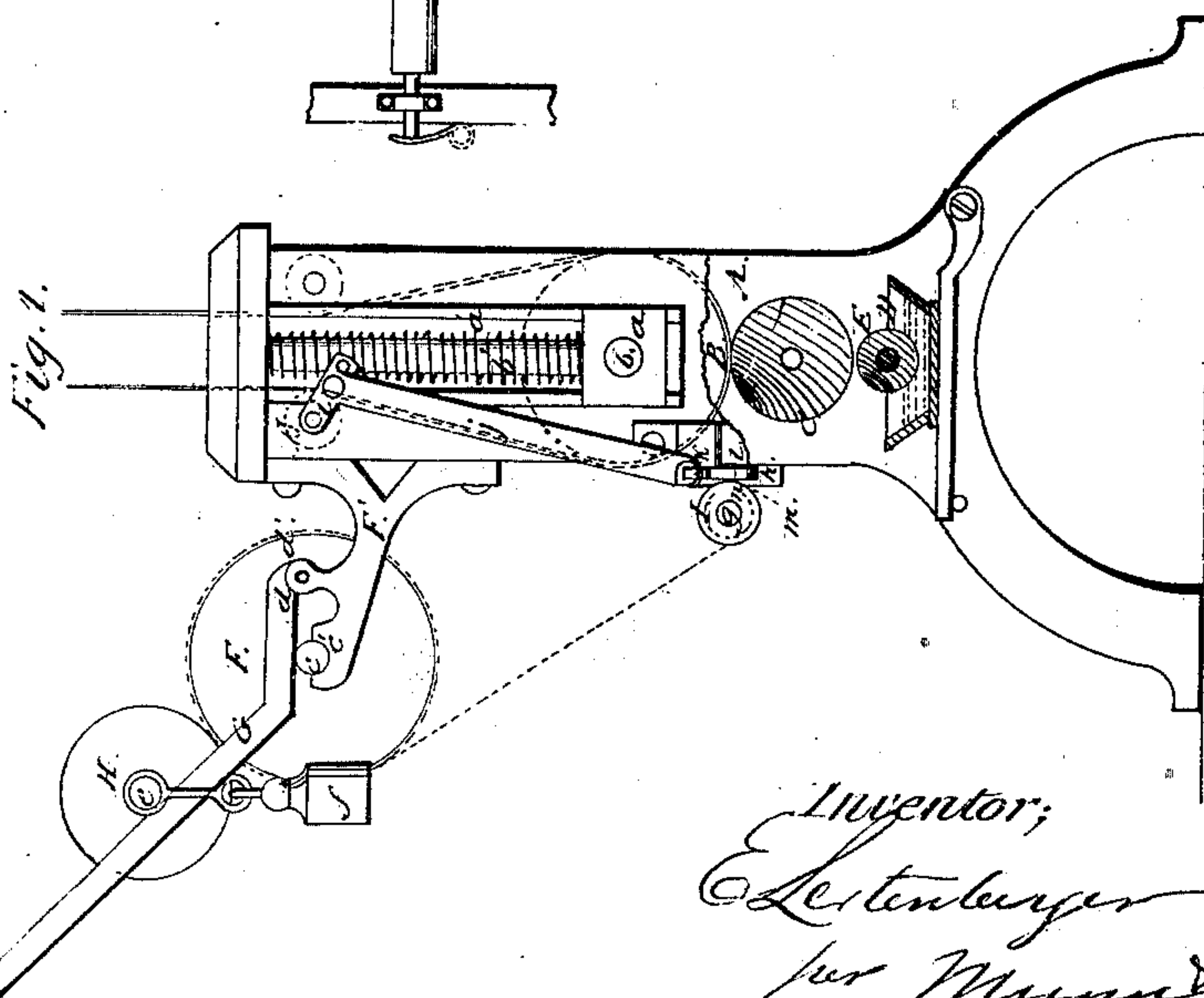
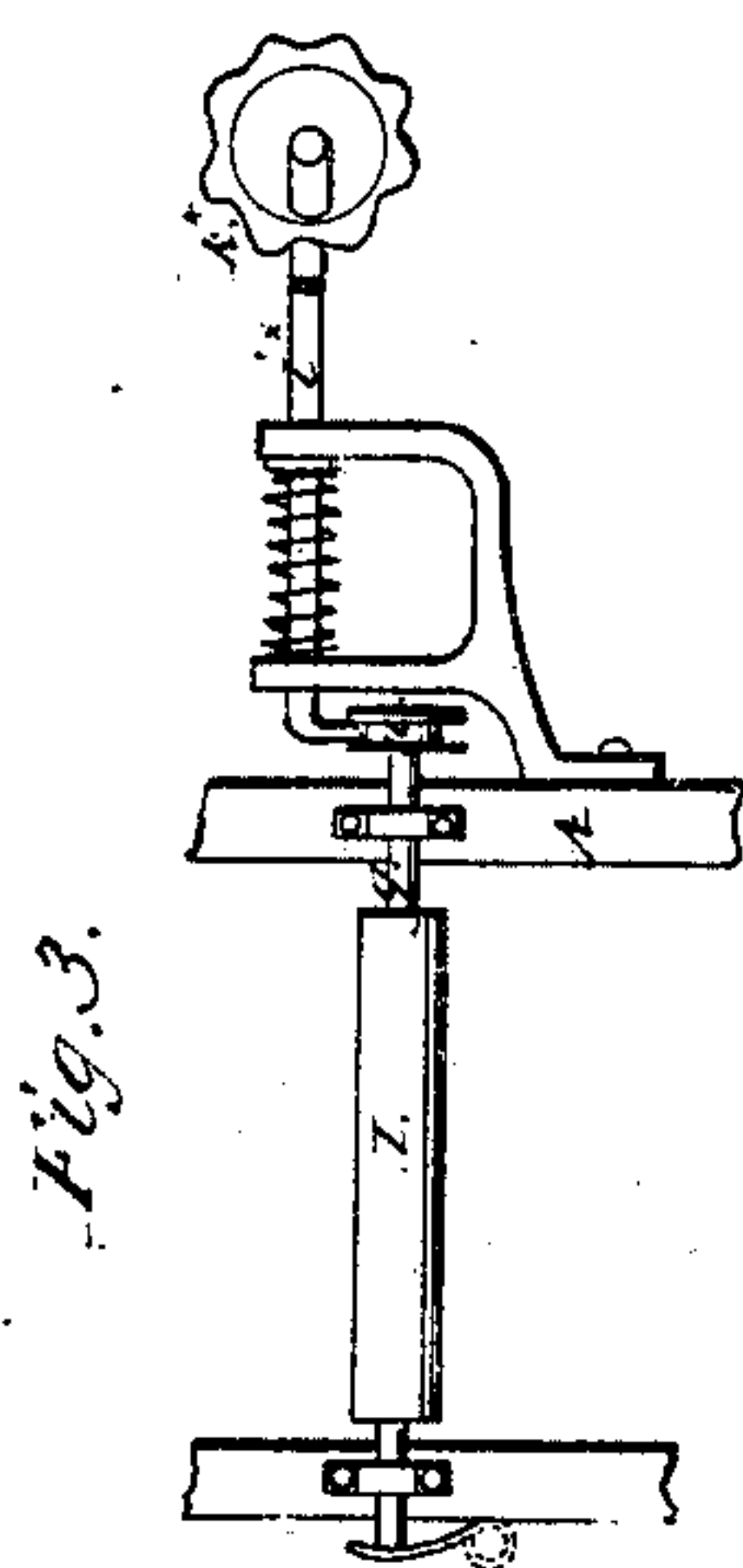
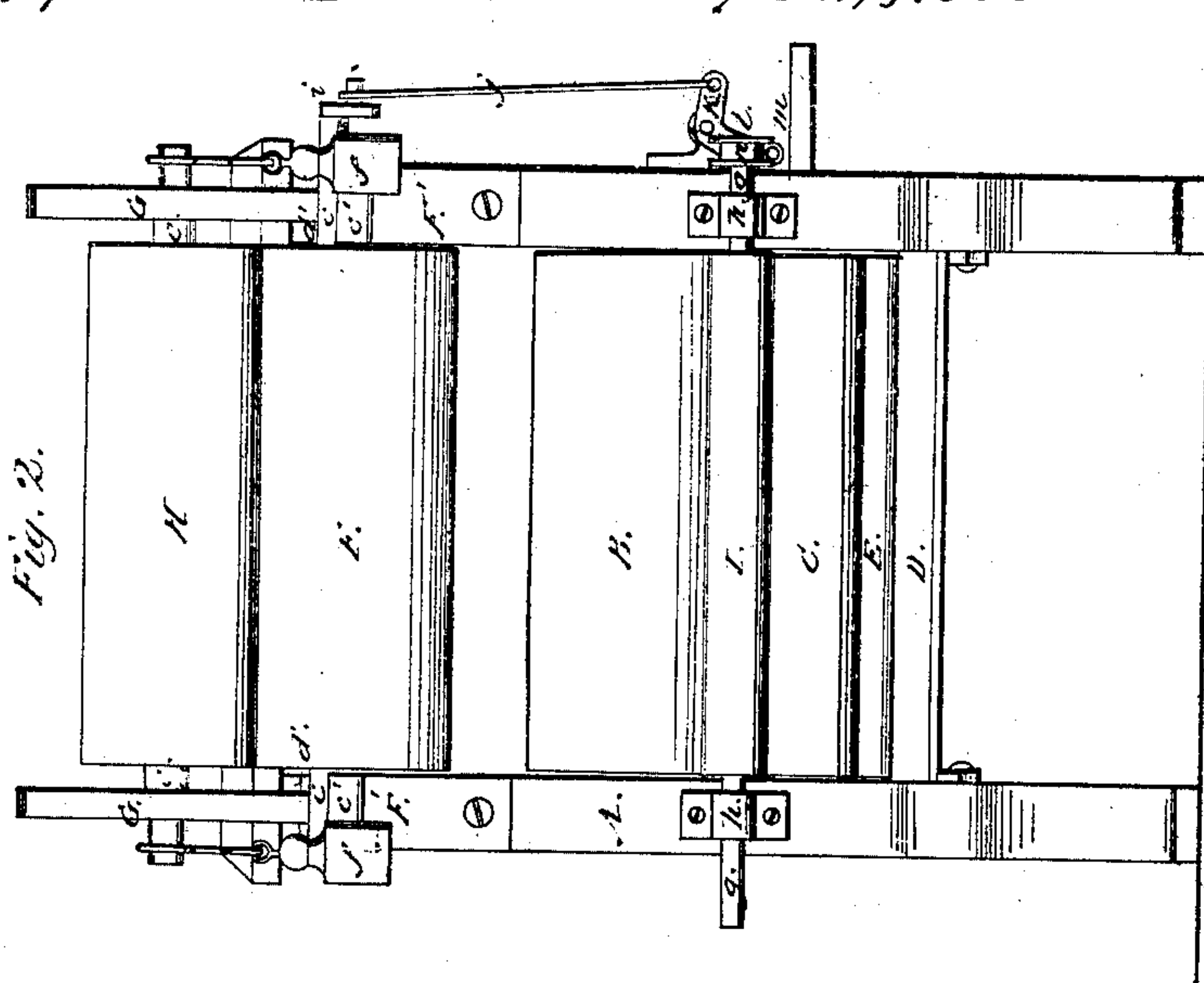


E. Leitenberger
Calico Printing

N^o 38,198.

Patented Apr. 14, 1863



Witnesses:
Jno. Coombs
L. W. Reed

Inventor;
E. Leitenberger
per Munn & Co.
attys.

UNITED STATES PATENT OFFICE.

EDUARD LEITENBERGER, OF REICHSTADT, BOHEMIA, ASSIGNOR TO
AUGUSTUS G. SCHELLER, OF NEW YORK, N. Y.

MODE OF PRODUCING DESIGNS ON TEXTILE FABRICS, &c.

Specification forming part of Letters Patent No. 38,198, dated April 14, 1863.

To all whom it may concern:

Be it known that I, EDUARD LEITENBERGER, of Reichstadt, in the Kingdom of Bohemia, have invented a new and Improved Machine for Printing and Producing Designs on Textile Fabrics, &c.; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a sectional side elevation of my invention. Fig. 2 is a rear elevation of the same. Fig. 3 is a detached elevation of a modification of the same.

Similar letters of reference in both views indicate corresponding parts.

This invention consists in imparting to the material to be printed a lateral vibrating motion during the operation of printing in such a manner that the printed surface assumes a watered appearance of different patterns, according to the rapidity of the vibrating motion when compared with the rotary motion of the printing and pressing rollers.

It consists, further, in the combination, with the printing and pressing rollers, of a vibrating roller, the lateral motion of which is or can be regulated by means of cranks, pattern or eccentric wheels, or any other suitable device, in such a manner that the vibrating motion of the cloth or other material passing over said roller to and between the printing-rollers can be regulated according to the desired pattern.

It consists, finally, in the arrangement of two hinged angular levers, in combination with the let-off roller from which the fabric to be printed unwinds, and with a weighted roller in such a manner that the pressure exerted by the weighted roller on the gudgeons of the let-off roller regulates itself according to the varying diameter of said roller and consequent increase or decrease in the power required for turning the same, and that by these means a perfectly uniform tension of the fabric during the operation of printing is effected.

To enable those skilled in the art to make and use my invention, I will proceed to describe it with reference to the drawings.

A represents a frame, of wood or any other suitable material capable of supporting the working parts of the printing mechanism. This frame is provided with the sliding boxes

a, which move up and down in slots *a'*, and which form the bearings for the gudgeons *b* of the large pressing-roller B. Springs *b'*, or suitable set-screws or weights, act on the boxes *a*, and force the surface of the pressing-roller toward the surface of the printing-roller C, the axle of which runs in rigid bearings in the frame A, and to which coloring-matter is delivered from the vat D by the action of the roller E.

The cloth or other material to be printed is wound tightly on the roller F, in the ordinary manner. The gudgeons *c* of this roller have their bearings in journal-boxes *c'* in arms F', which extend from the rear side of the frame A. In order to unwind the material with a uniform tension, two levers, G, are applied, which are fulcrumed on pivots *d*, secured in lugs or standards *d'*, rising from the arms F', and which are bent at angles of about one hundred and thirty-five degrees, (more or less,) as clearly shown in Fig. 1 of the drawings. The horizontal arms of said angular levers bear on the gudgeons *c* of the let-off roller F, and the inclined arms of the same support a large light cylinder, H, of sheet metal or other suitable material, which rests on said arms with its gudgeons *e*. The surface of this sheet-metal cylinder bears on the material that is or may be wound on the let-off roller, and by reason of its gravity it forces the angular levers G down upon the gudgeons *c* of the let-off roller, so as to produce the requisite friction, and consequently the desired tension of the material, as the same unwinds. The friction is regulated by weights *f*, suspended from the gudgeons of the cylinder H. If a large quantity of cloth or other material is wound on the let-off roller F, thereby increasing its diameter, the cylinder H is pushed far out on the inclined arms of the angular levers, and the weights *f* bear on the gudgeons *c* with an increased leverage. As the operation of printing proceeds, and the material unwinds from the let-off roller, the cylinder H, with its weights, sinks down and acts on the gudgeons *c* with a continually-decreasing leverage, thereby regulating the friction according to the diameter of the roll of cloth or other material. By these means a perfectly uniform tension of the material unwinding from the roller F is insured.

In passing from the let-off roller to the print-

ing and pressing rollers the cloth or other material is conducted under the vibrating roller I. The shaft *g* of this roller, which must be perfectly parallel with the printing-roller, has its bearings in boxes *h*, and it extends beyond this roller, so that a lateral motion in the direction of its axis can be imparted to said roller. This roller ought to be covered with coarse webbing or cords, so as to prevent the cloth or other material from slipping on its surface. By imparting to the roller I a lateral vibrating motion different patterns can be produced on the printed surface of the cloth or other material, according to the velocity of the printing-roller, as compared with said vibrating-motion of the roller I. The simplest mode of producing said vibrating motion is by means of a crank, *i*, on the end of the shaft of a roller, J, which receives the rotary motion through the endless apron passing around the pressing-roller or by the belt which drives said roller. This crank connects by a rod or pitman, *j*, with the arm *k* of a bell-crank lever, *k l*, the arm *l* of which is provided with a pin, *m*, projecting into a groove on the circumference of a pulley, *n*, which is firmly secured to the shaft of the roller I. For each revolution of the crank *i* the roller I receives one full stroke backward and forward, and the amount of the stroke is regulated by shifting the wrist pin in the crank rearer to or farther from its center of rotation. Instead of the crank *i*, however, any other suitable device might be employed for the purpose of producing the vibrating motion of the roller I—such, for instance, as represented in Fig. 3 of the drawings. A hooked spring-bar, *i**, catches with one end into the pulley *n*, and its other

end is forced by the action of the spring against the circumference of a scalloped wheel, *n**. This wheel may be adjustable so that it runs eccentrically or concentrically with its shaft, and by these means a great variety of patterns can be produced, and by changing the shape of the circumference of the wheel the variety of patterns may be still further increased. By these means a lateral vibrating motion is imparted to the cloth or other material just as it passes between the printing and pressing roller, and the printed surface is watered in the most beautiful and simple manner.

It is obvious that this device is equally applicable to printing textile fabrics or paper or leather, or any other material fit to be printed.

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

1. Imparting to the material to be printed a lateral vibrating motion during the operation of printing, substantially as and for the purpose specified.

2. The combination, with the printing-roller C and pressing-roller B, of the laterally-vibrating roller I, constructed and operating substantially as and for the purpose shown and described.

3. The arrangement of the angular levers G and weighted cylinder H, in combination with the gudgeons of the let-off roller F of a printing-machine, constructed and operating substantially as and for the purpose set forth.

EDUARD LEITENBERGER.

Witnesses:

ANTON STECKER,
ALOIS BULLMANN.