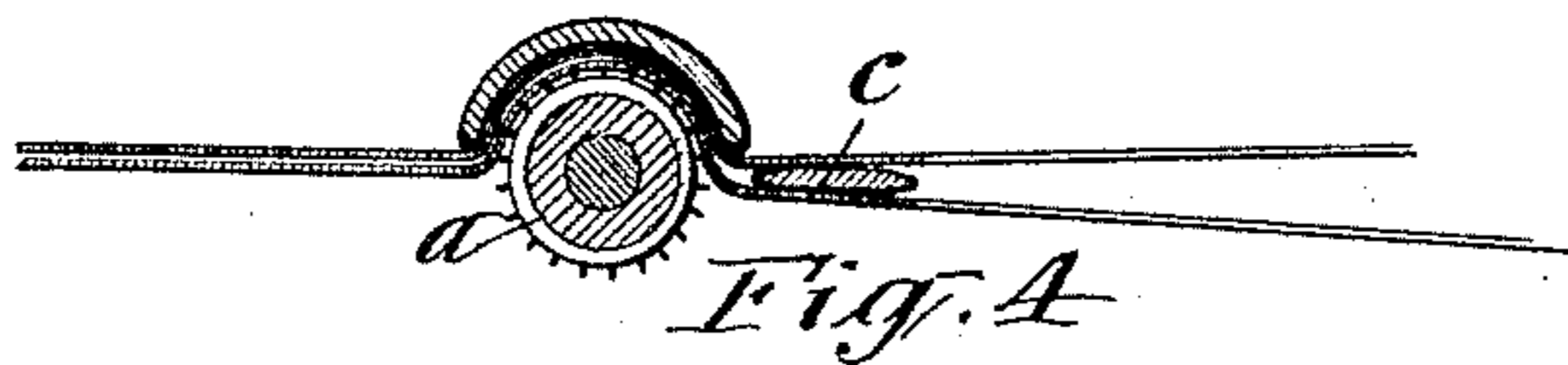
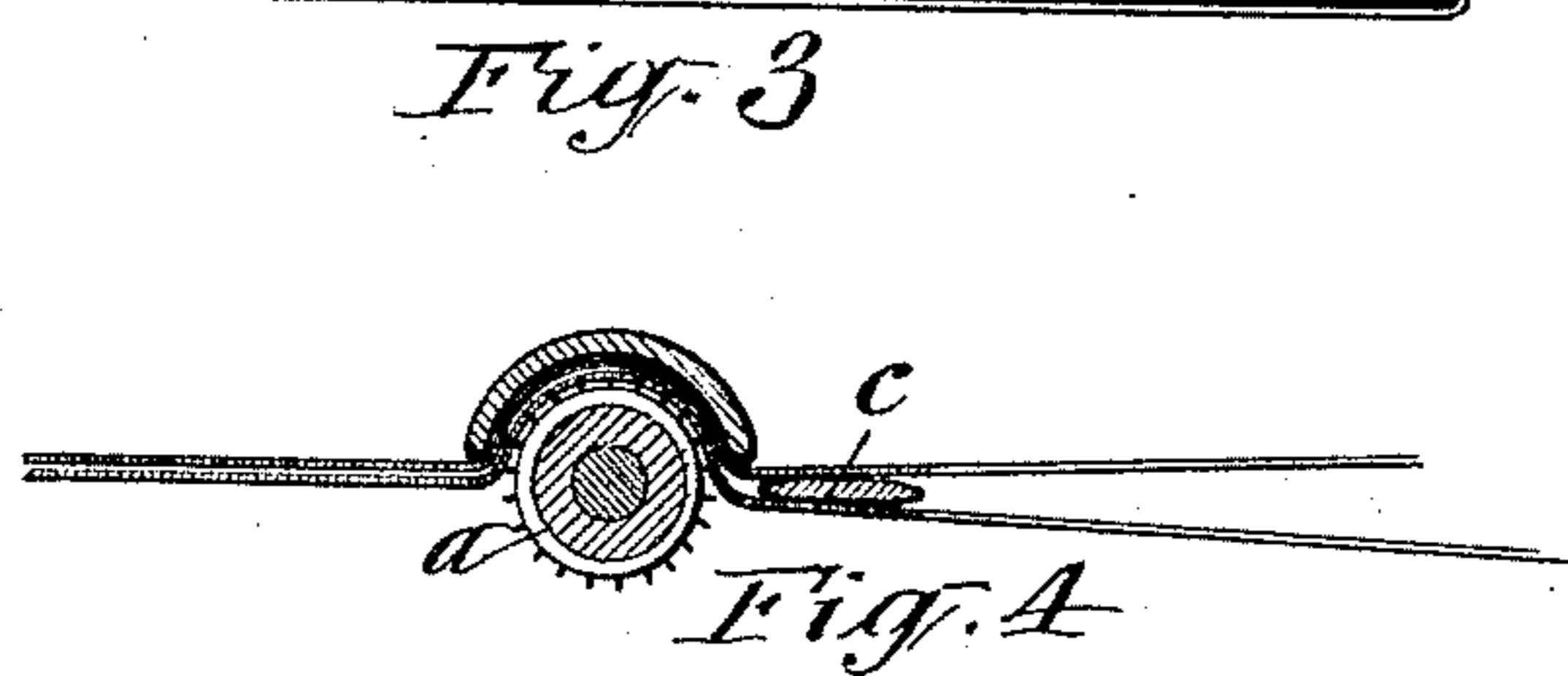
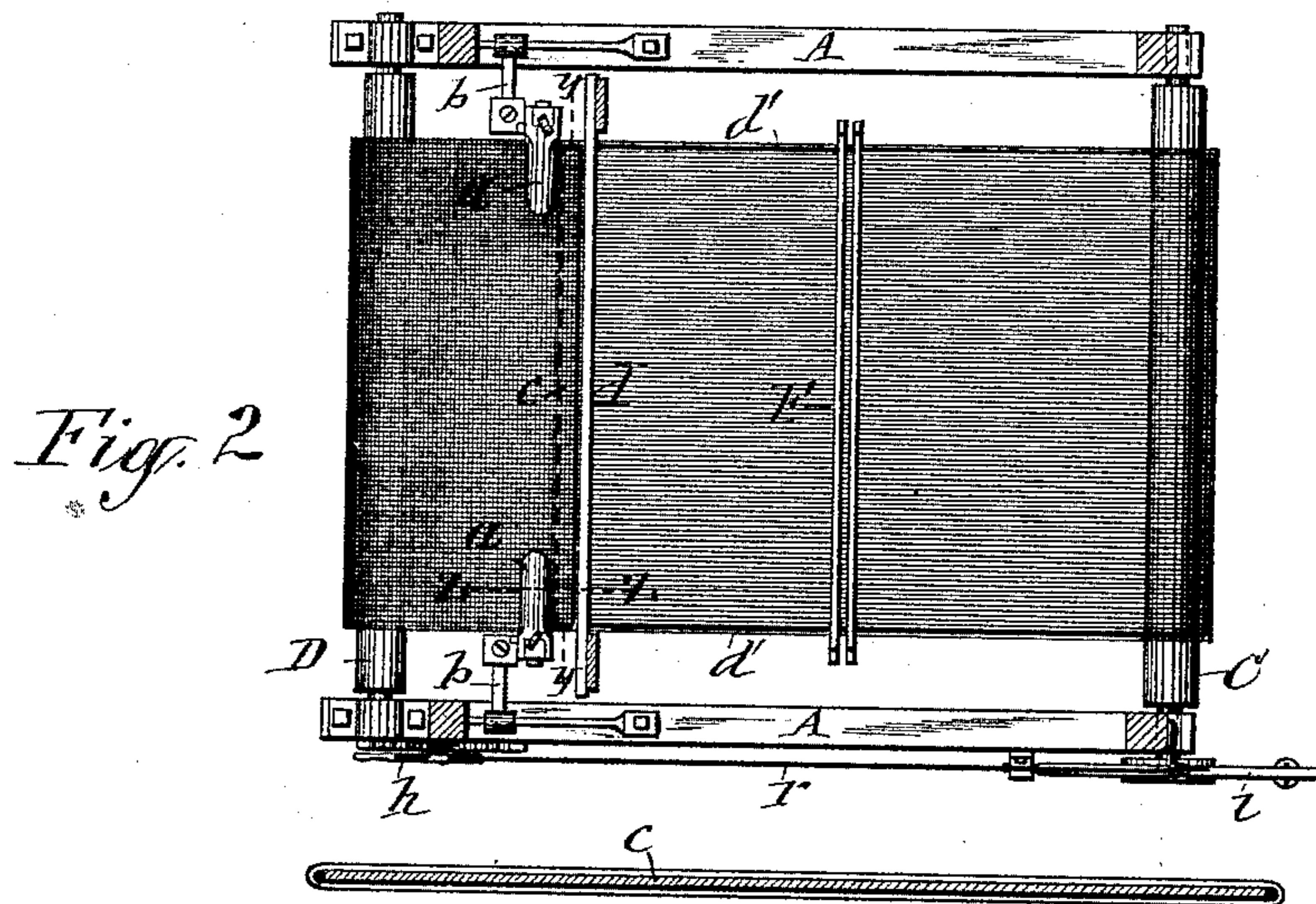
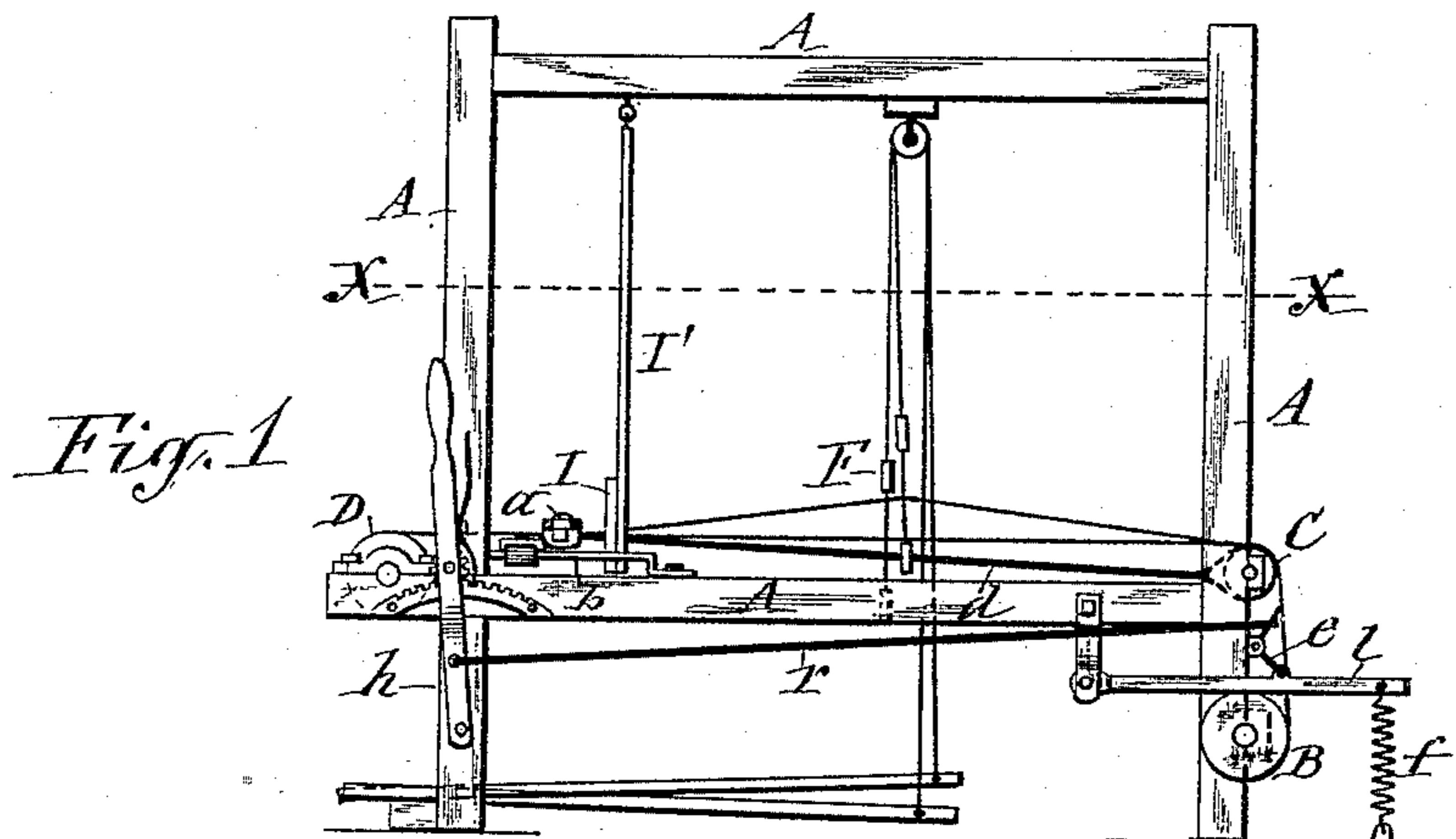


(No Model.)

G. A. & J. F. GREENE.  
LOOM.

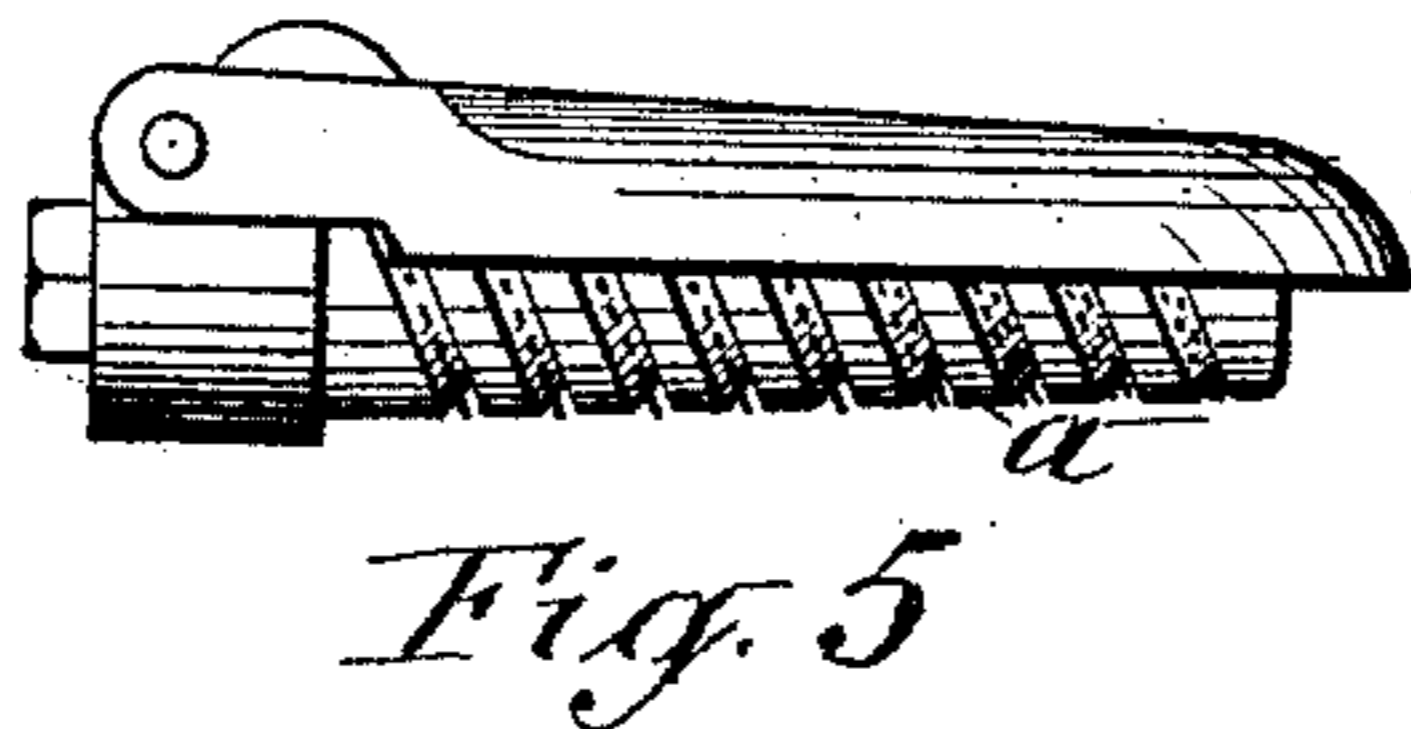
No. 436,937.

Patented Sept. 23, 1890.



WITNESSES:

C. L. Bendixon  
J. J. Laas.



INVENTORS:

George A. Greene  
Joseph F. Greene  
BY  
Hull, Laas & Dull  
ATTORNEYS

# UNITED STATES PATENT OFFICE.

GEORGE A. GREENE AND JOSEPH F. GREENE, OF CAZENOVIA, NEW YORK.

## LOOM.

SPECIFICATION forming part of Letters Patent No. 436,937, dated September 23, 1890.

Application filed February 17, 1890. Serial No. 340,803. (No model.)

*To all whom it may concern:*

Be it known that we, GEORGE A. GREENE and JOSEPH F. GREENE, of Cazenovia, in the county of Madison, in the State of New York, have invented new and useful Improvements in Looms, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to the weaving of tubular fabric, such as the aprons or felts employed in paper-making machines for carrying the pulp through the said machines. In the process of weaving the said fabric it is found that the doubled edges at opposite sides of the loom have a tendency to draw in and thus narrow the fabric and draw the warp-threads thereat out of proper alignment, and thereby vary the grade of the texture of the said portions of the fabric from that of the central or main portion thereof.

The object of this invention is to obviate the aforesaid defect; and to that end the invention consists, essentially, in sustaining a bar or rule stationary in proximity to and parallel with the reed and within the warp and fabric, as hereinafter more fully described, and set forth in the claim.

In the accompanying drawings, Figure 1 is a side elevation of a loom embodying our improvements. Fig. 2 is a plan view taken in the plane  $xx$ , Fig. 1. Fig. 3 is an enlarged vertical transverse section on the line  $yy$ , Fig. 2. Fig. 4 is an enlarged vertical longitudinal section on line  $zz$ , Fig. 2; and Fig. 5 is a detached side view of one of the temples.

Similar letters of reference indicate corresponding parts.

A represents the loom-frame; B, the warp-beam, on which the warp is wound; C, the so-called "whip-roll," over which the warp passes from the warp-beam.

D denotes the cloth-beam, upon which the fabric is wound as it is woven; F, the harness or heddles, and I the reed, which latter is carried on a swinging frame I', suspended from the top of the loom-frame. All of said parts are arranged in the usual and well-known manner.

$aa$  designate the so-called "temples," which are usually applied to the edges of the fabric at opposite sides of the loom, to counteract the tendency of the fabric being drawn in-

ward at said edges. The said temples may be either of the form designated "jaw-temples" or of the character of roller-temples, as shown in the drawings, or of any other suitable and well-known form. The said temples are supported on arms  $b b$ , secured to the loom-frame, and grip the folded edges of the endless fabric near the line of weaving. Between the reed I and temples  $aa$ , and parallel with the said reed, we place a small rod or rule  $c$ , extending across the loom and lying within the two layers of fabric, and with the inner edge in close proximity to the line of weaving, the said rod or rule being of a length to reach completely across the interior of the tubular fabric and hold the same laterally distended immediately back of the temples, which grip the folds of the fabric and retain the same distended. This rod or rule  $c$  we sustain stationary in its aforesaid position, preferably by means of wires  $d' d'$ , extending straight and parallel from the ends thereof through the reed I and harness F, and secured to the whip-roll C or to some fixed portion of the loom-frame at the rear end thereof. In passing the shuttle alternately through the upper and lower sets of warp the weft-thread passes around the exterior of the wires  $d' d'$ , and consequently the outer warp-threads are relieved of the inward strain of the weft-threads; and therefore the texture of the fabric is rendered uniform throughout.

We are aware that prior to our invention a board has been introduced into the fabric for the same purpose for which the rod or rule  $c$  is employed; but such a board has been so arranged near the reed as to cause the latter to push the said board forward, and a spring or weight has been employed to draw the board rearward during the operation of the loom. This forward-and-back moving board, however, frequently caught with its ends the threads of the fabric and thereby disarranged the same, which defect is entirely obviated by the employment of the stationary rod or rule  $c$ , as hereinbefore described.

To further insure evenness in the texture of the fabric we employ convenient means for throwing the tension from the warp-beam, when desired, the said means consisting of a bell-crank  $e$ , pivoted to the rear portion of the loom-frame and having one of its arms

connected with the tension-lever *l*, which bears on the warp-beam and has a spring *f* connected to its free end, as shown in Fig. 1 of the drawings, the other arm being connected by a rod *r* with a hand-lever *h*. By means of the said lever and its described connection with the tension-lever *l* the friction of the latter upon the warp-beam can be moderated while the loom is in motion.

10 Having described our invention, what we claim as new, and desire to secure by Letters Patent, is—

15 The combination, with the loom-frame, swinging frame suspended from the top of the loom-frame, reed carried on said frame, and the harness, of the arms *b b*, secured to

the sides of said frame, temples *a a*, supported on said arms and gripping the folds of the fabric, the rod *c*, lying within the fabric between the temples and reed and parallel with the latter, and wires *d' d'*, extending from the ends of said rod through the reed and harness and secured to the rear of the loom, substantially as described and shown.

In testimony whereof we have hereunto signed our names this 8th day of February, 1890.

GEORGE A. GREENE. [L. S.]

JOSEPH F. GREENE. [L. S.]

Witnesses:

J. W. HALL,

H. N. CLARK.