

No. 607,643.

Patented July 19, 1898.

E. DELETTE.
COMBING MACHINE.

(Application filed May 9, 1896.)

(No Model.)

5 Sheets—Sheet 1.

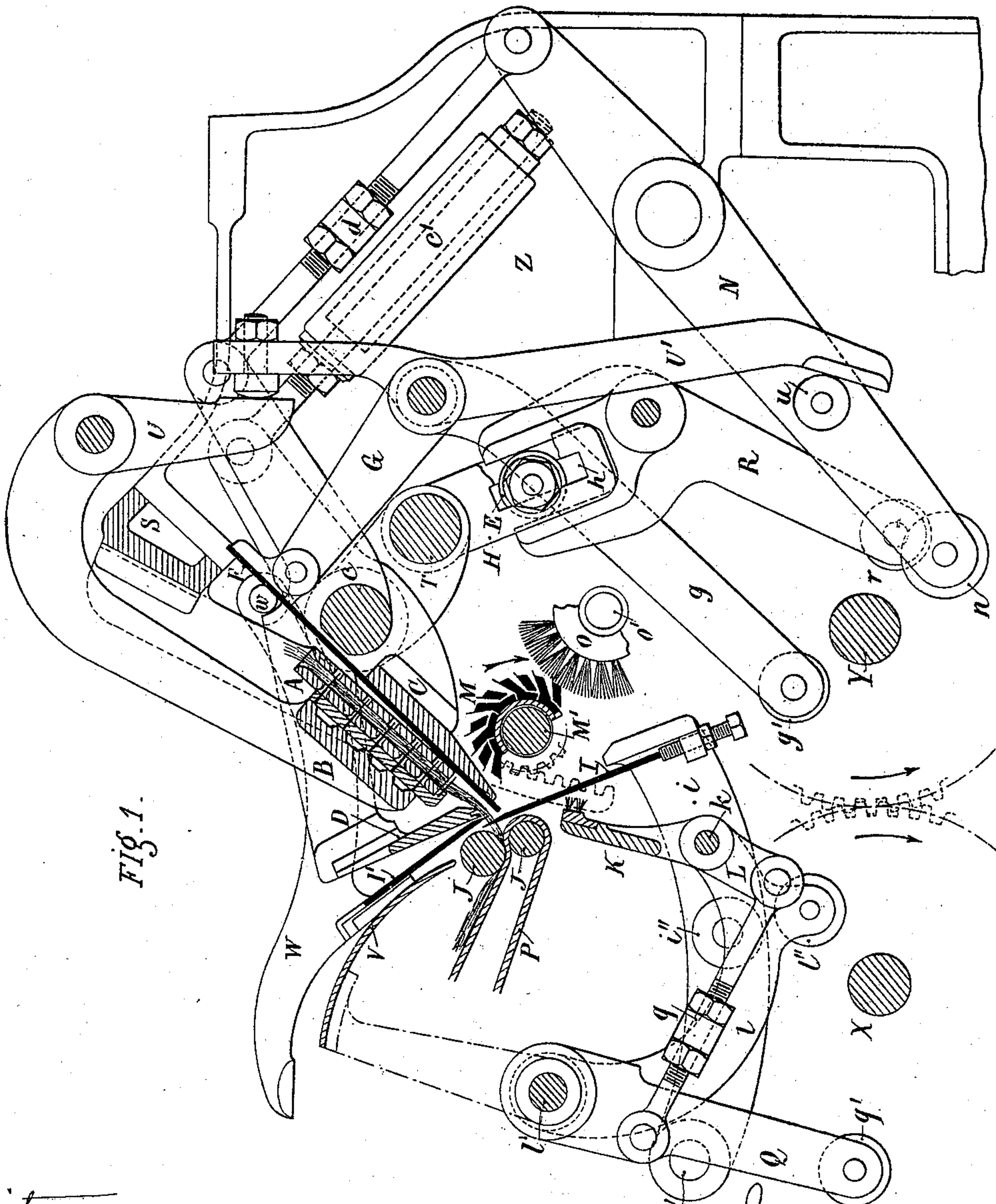


Fig. 1.

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FIG. 2.

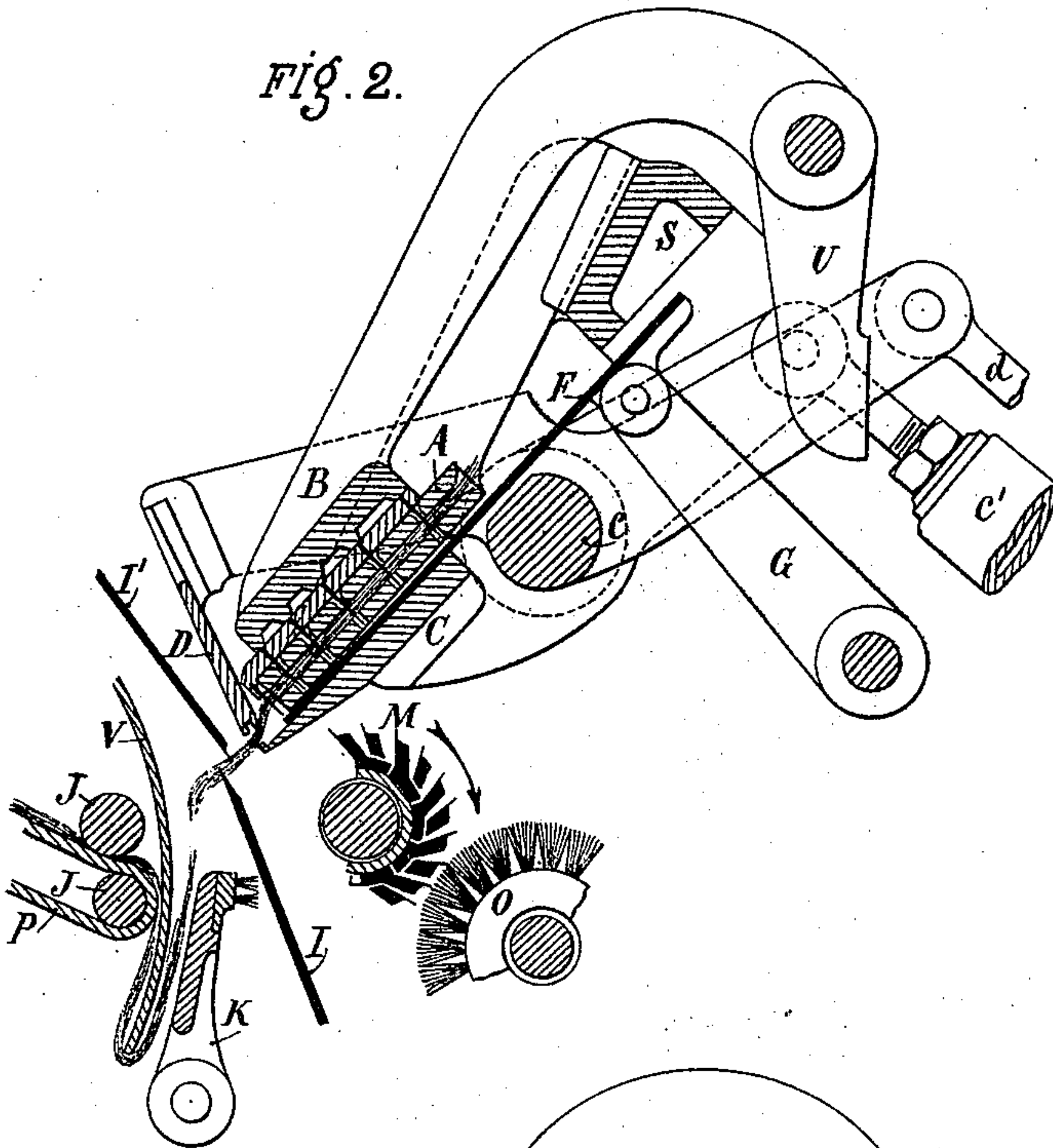
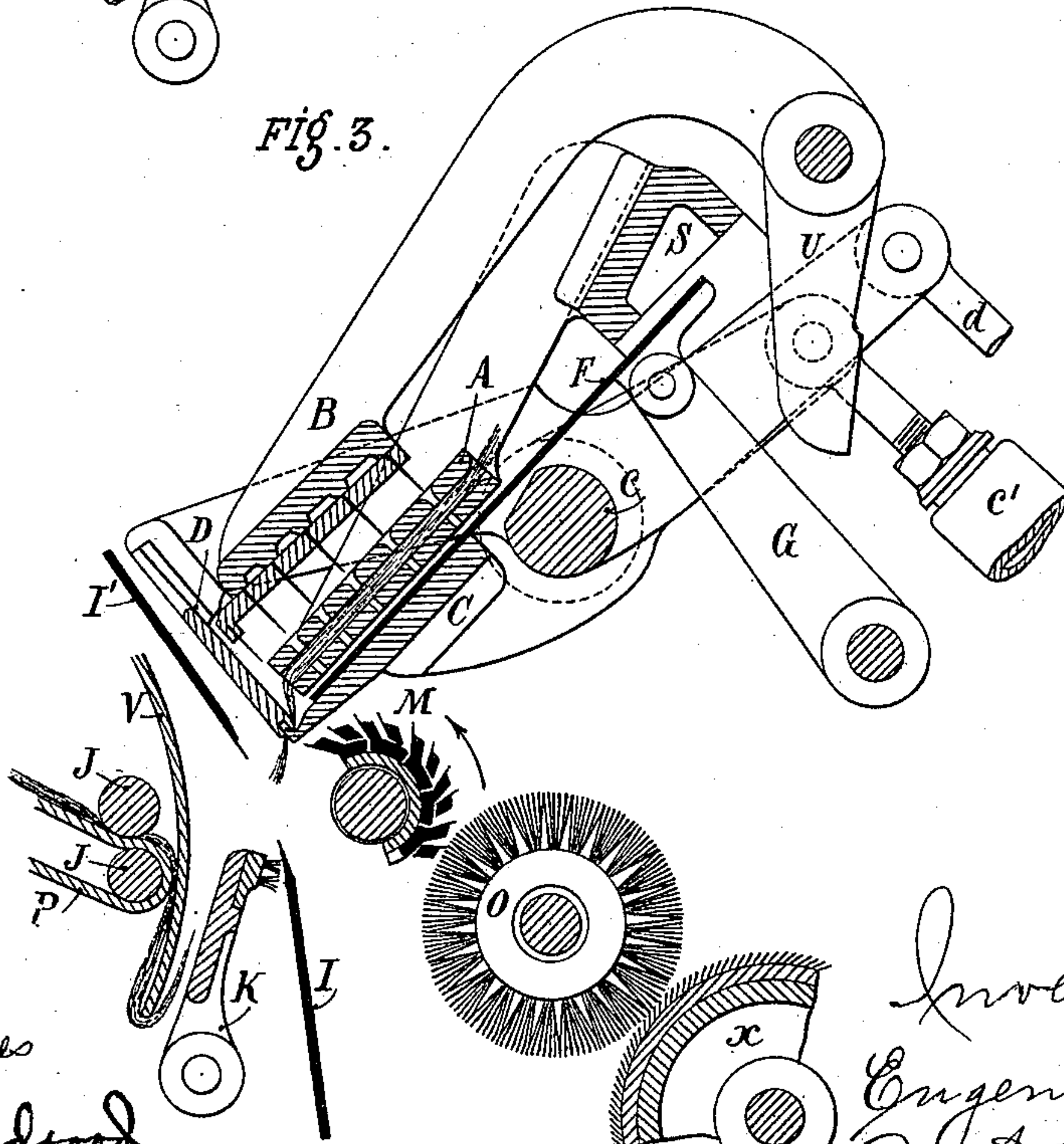


FIG. 3.



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FIG. 4.

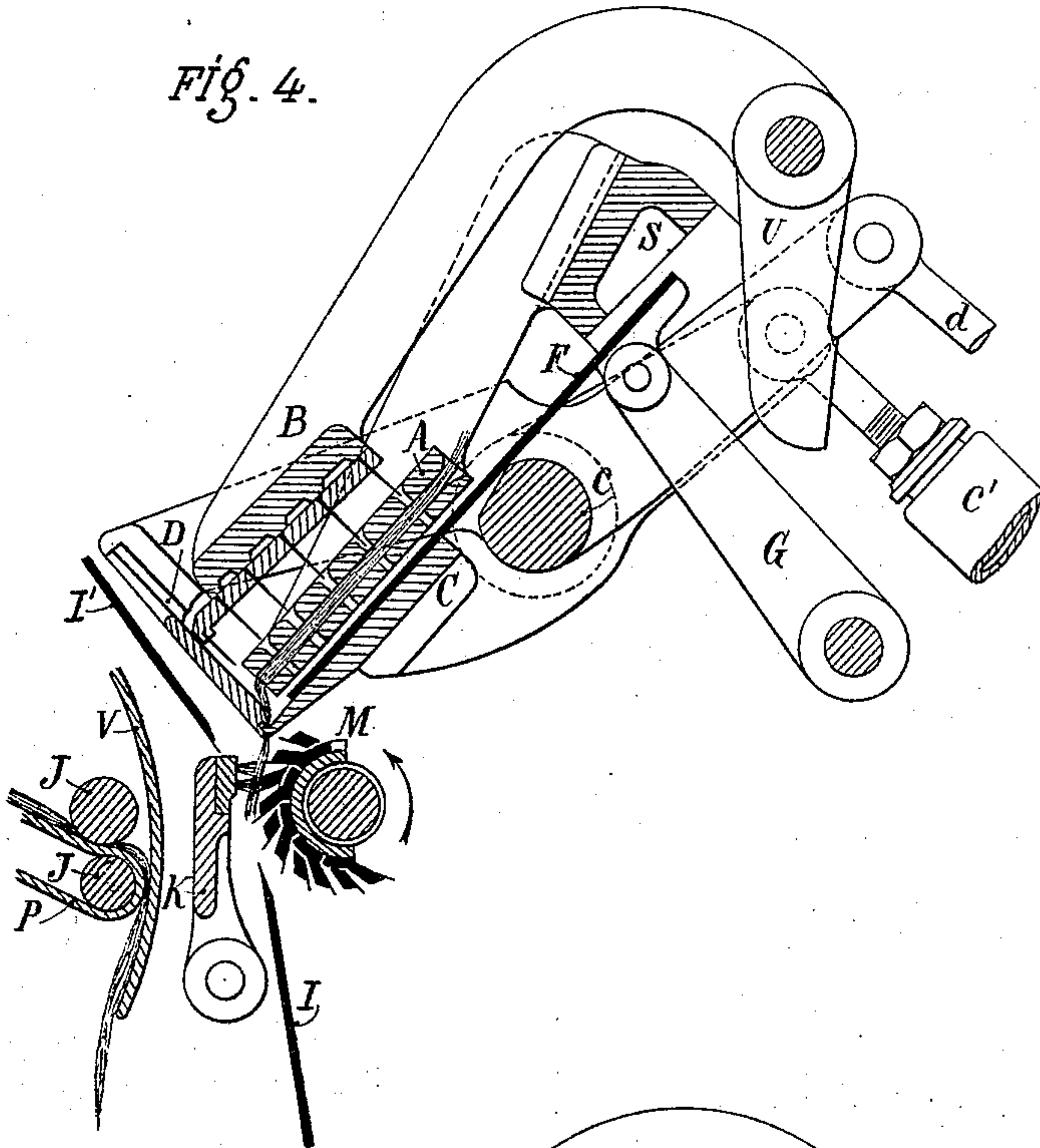
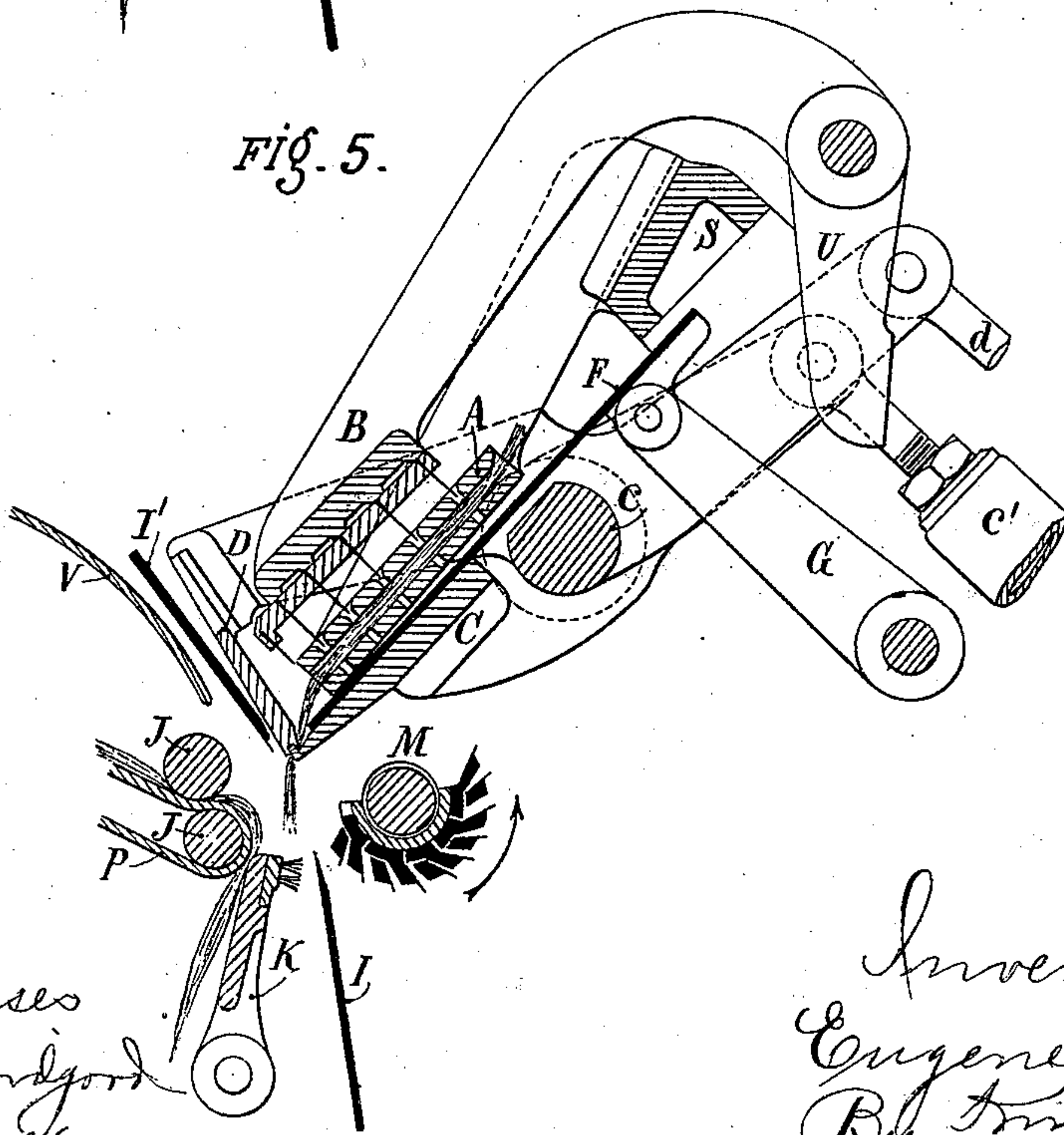


FIG. 5.



Witnesses
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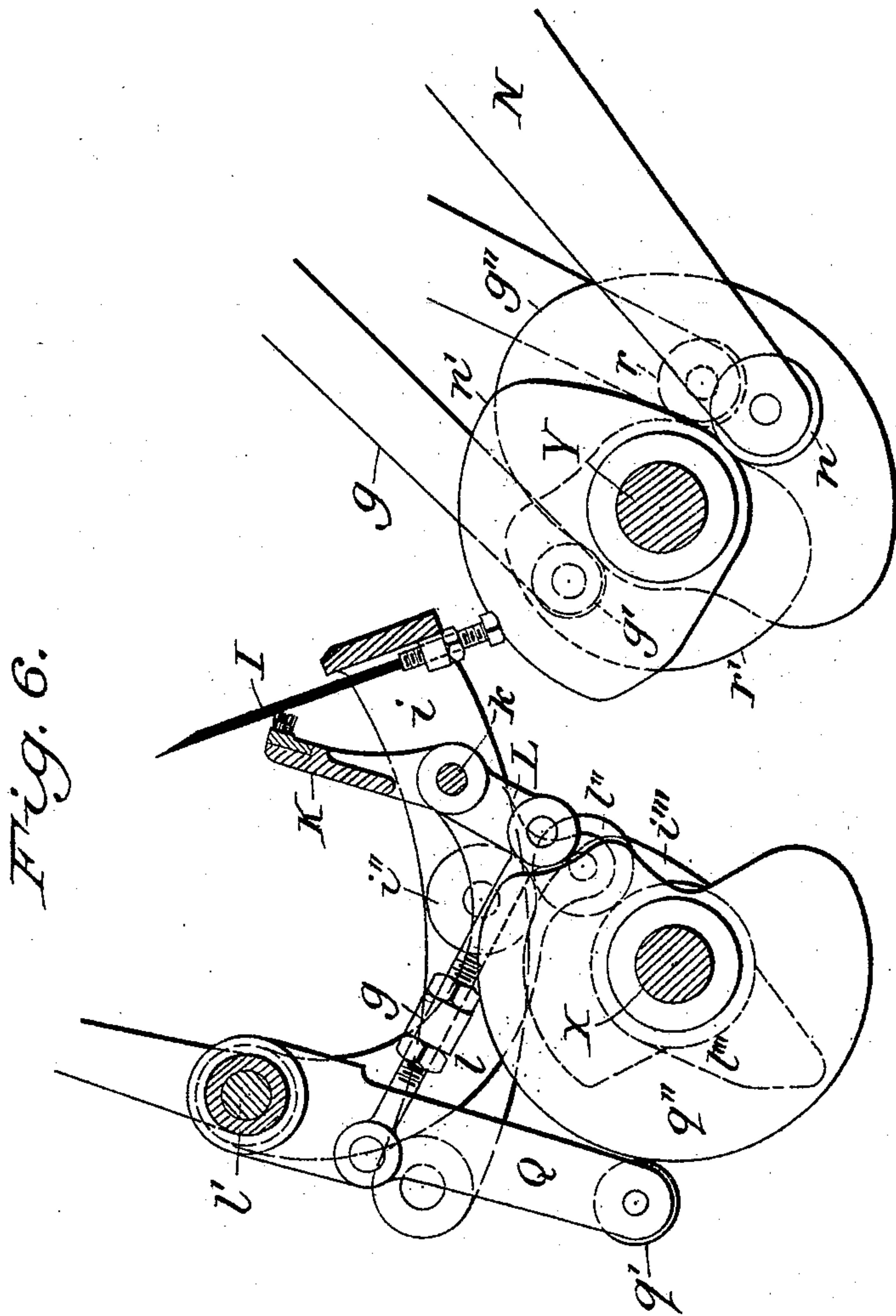
Patented July 19, 1898.

E. DELETTE.
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(Application filed May 9, 1896.)

(No Model.)

5 Sheets—Sheet 4.



WITNESSES:

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Eugene Delette
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Patented July 19, 1898.

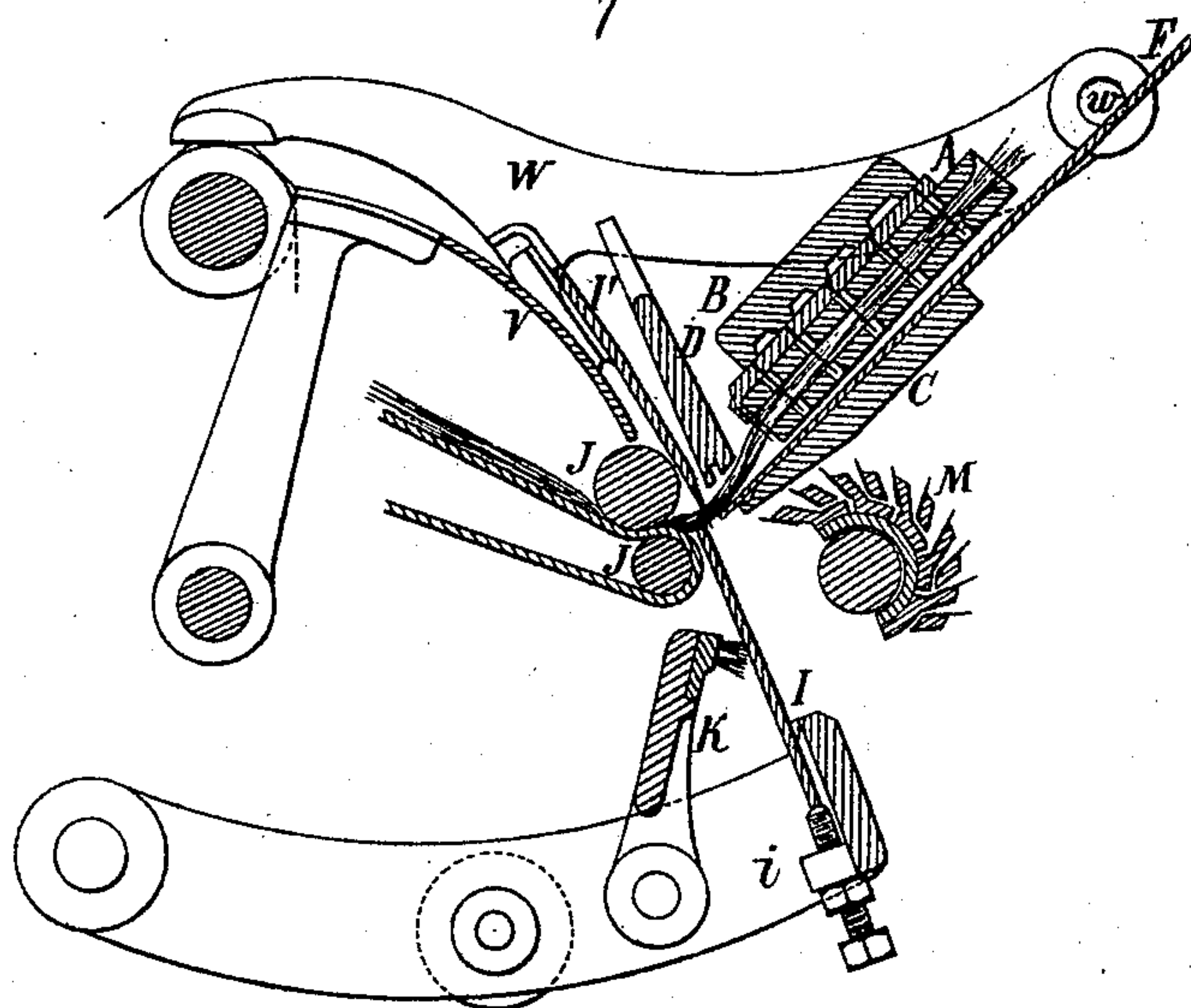
E. DELETTE.
COMBING MACHINE.
(Application filed May 9, 1896.)

(No Model.)

5 Sheets—Sheet 5.

Fig. 7.

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Witnesses
M. v. Bidgood
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UNITED STATES PATENT OFFICE.

EUGÈNE DELETTE, OF LURE, FRANCE.

COMBING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 607,643, dated July 19, 1898.

Application filed May 9, 1896. Serial No. 590,846. (No model.) Patented in France May 28, 1894, No. 238,825; in Belgium June 2, 1894, No. 110,266; in Germany June 14, 1894, No. 81,432, and in England February 26, 1895, No. 4,134.

To all whom it may concern:

Be it known that I, EUGÈNE DELETTE, engineer, a citizen of the Republic of France, and a resident of Lure, in the Department of Haute-Saône, France, have invented a new and useful Improvement in Combing-Machines, (for which I have obtained the following foreign patents: in France, No. 238,825, bearing date May 28, 1894; in Belgium, No. 110,266, bearing date June 2, 1894; in Germany, No. 81,432, bearing date June 14, 1894; and in Great Britain, No. 4,134, bearing date February 26, 1895,) of which the following is a specification.

This invention relates to combing-machines for textile materials, and has for its object to provide means for obtaining a combed material better cleansed from its impurities and the fibers of which are not injured by the operation and also of reducing the waste.

It consists, essentially, in fixing what is usually known as the "feed mechanism" and in obliging the grip to move away more or less to cause the feed movement; in employing a movable blade for the purpose of cleansing the lower jaw of the grip and also of straightening and keeping close the fibers; in employing a movable picking-comb having its teeth turned upward and a fixed picking-comb inclined downward; in employing a movable brush for the purpose of cleansing the movable picking-comb and the upper jaw of the grip and also for driving the fibers into the carding-roller, and in employing a circular carding-roller of very small diameter and alternating motion for the purpose hereinafter described. Means are described for carrying these improvements into effect.

Referring to the accompanying drawings, forming an integral part of this specification, Figure 1 is a vertical section showing the improved parts of the combing-machine. Figs. 2, 3, 4, and 5 show in elevation successive positions of the various parts during the operation of the machine. Fig. 6 is a vertical section showing the operating-cams and levers coöperating therewith. Fig. 7 is a cross-section similar to Fig. 2, showing a modification.

In Fig. 1 the machine is shown mounted on a cast-iron frame Z, and motion is imparted

to the apparatus by means of two shafts X and Y, connected by gearing and provided with eccentrics of suitable form (not represented on the drawings) and which control the actuating-levers of these organs.

The method of feeding consists, on the one hand, of securing immovably the feed-box A, fixed to the cross-piece S of the frame, the feed-comb B receiving only an up-and-down motion by means of a lever U, actuated by the pivoted lever U', controlled by a roller *u*, mounted on the lever N, hereinafter described, and, on the other hand, of causing the advance of the material to be combed by compelling the grip to move more or less away from the box A. For this purpose the jaws C and D of the grip, articulated on the axle *c*, oscillate about an axle T, connected to the axle *c*, under the action of a lever R, the roller *r* of which works on a cam *r'*, mounted on the shaft Y. It must also be stated that the lower jaw C can oscillate somewhat upon the axle *c* and receives its pressure from the spring-boxes *c'*, affixed to the frame; also, that the upper jaw D is controlled by means of the adjustable bar *d* and the lever N aforesaid, whose roller *n* works upon a cam *n'*, mounted likewise upon the shaft Y.

The operation of this mechanism is as follows: The jaws C D of the grip being open and at the lowest portion of their course, Fig. 1, they rise and approach the feed-comb B, Fig. 2. They then close completely, Figs. 3 and 4, so as to hold the material during the action of the carding-roller M. When the last tooth of this roller has passed the end of the material, Fig. 5, the two jaws C and D of the grip descend obliquely, so as to cause all the material to be combed to advance through the feed-box A, whose feed-comb B is at this moment withdrawn, as shown in the drawings. The jaws of the grip then open again and resume their original position. The feed is therefore effected by the longitudinal displacement of the grip C D and is variable at will by altering the length of the lever controlling the motion. Any felting of the material is thus avoided, which, as is well known, damages the fibers during the combing.

In order that the feed may be altered, the

axle T is fixed to an arm H, bearing a roller E, the position of which can be adjusted in the slot *h* and which can turn freely in the fork placed at this end of the aforesaid pivoted lever R.

I place below the feed-box A a movable iron plate F, the foremost end of which rests on the lower jaw C, so that when it advances to the position shown in Fig. 1 it cleans the jaw at each stroke and at the same time detaches the material to be combed and re-dresses the fibers waved by the grip C D. This device obviates any felting against the picking-comb I of the short fibers, which are liable in consequence of this felting to fall to waste during the combing of the head of the sliver. The to-and-fro movement is given to this plate F by means of the arm G, fixed to an axle controlled by the arm *g*, whose roller *g'* works on a cam *g''*, fixed to the shaft Y. The form of this cam is such that the forward motion of the plate F takes place when the upper jaw D commences to open, so that in this position, which immediately follows that shown in Fig. 5, the end of the said plate, being very close to the jaw D, closely supports the fibers during the penetration of the teeth of the picking-comb I through the material and before the combing action begins. In these conditions when the combing commences the picking-comb I, having penetrated the whole mass of fibers, retains all the impurities which are liable in the machines hitherto in use to pass into the combed material, in which machines it is practically only the tension of the fibers caused by the combing which causes these latter to pass properly into the teeth of the picking-comb.

In order to obtain a perfect combing of the end of the sliver and a good mechanical cleansing of the picking-comb I, I have placed this latter below the plucking apparatus, consisting of rolls J J, with the points of the teeth turned upward, whereas this comb is usually placed above the plucking-cylinders with its teeth turned downward. This picking-comb I is fixed adjustably upon the lever *i*, pivoted upon an axle *i'*, fixed to the frame, and which bears a roller *i''*, working upon a cam *i'''*, mounted upon the shaft X. In combination with this comb I, I make use of a second picking-comb I' the teeth of which are directed downward—that is to say, in the opposite direction to those of the picking-comb I. This second picking-comb I' receives no motion, and it is fixed adjustably upon a support W, pivoted upon an axle *w*, fixed to the frame, and which permits this comb I' to move when it is desired to clean it by hand. It is therefore obvious that the material is compelled to traverse the teeth of the two picking-combs I I', which secures a most perfect cleansing. It is also possible to do away with the teeth of one or the other of these two combs, and in this case the piece which does not possess teeth is in the form of a

plate, as shown in Fig. 7, and serves to push the fibers between the teeth of the comb which does the work.

In this apparatus I make use of a moving brush K, mounted upon a special support L, Fig. 1, and which is arranged in such a manner that on its descent after each plucking it effects the cleansing of the outer face of the picking-comb I—that is to say, of the side of the exit—as is clearly shown in Fig. 3, so that the impurities cannot detach themselves from the picking-comb I and pass into the combed material at the following plucking, and if any impurities remain they are then inside this comb—that is to say, on the arrival side. The brush K after having cleansed the exterior of the picking-comb I continues to rise. Then, redescending, it forces itself somewhat between the teeth of the carding-roller M, as shown in Fig. 4, in order to cause the fibers to enter therein, so that none of them may escape its action. Finally, during this last motion the brush K is itself cleaned by the teeth of the comb I. In order to transmit to the brush K the requisite motions, the supporting-piece L is articulated at *k* to the end of a lever *l*, which oscillates about a fixed point *l'* and which bears a roller *l''*, moving upon a cam *l'''*, mounted upon a shaft X, and which transmits to the brush an up-and-down motion. On the other hand, the lower part of the piece L is connected by an adjustable rod *q* to a lever Q, pivoted at the point *l'*, and the roller of which, *q'*, works upon a cam *q''*, mounted upon the shaft X, and transmits to the brush a backward-and-forward motion.

The carding-roller M, with alternate motion of which I make use, is mounted upon a fixed axle M'. This roller is of very small diameter (about three inches) and makes almost one turn at each pluck. In Fig. 1 is shown that the alternating motion is transmitted to it by an oscillating rack; but it may also be actuated in any other desirable manner if it be desirable. The roller M is cleansed, as usual, by a circular brush *o*, which is itself cleansed by a doffer *x*. (Shown in Fig. 3.) Moreover, in consequence of the very small diameter of the carding-roller M this cleansing is effected more completely, each tooth being successively encountered by the brush, as may be seen from the drawings. It is also obvious that the carding-roller M may have a motion of continuous rotation, if desired, and in this case, again, its small diameter will render its cleansing by means of the revolving brush *o* much easier than if its diameter was greater.

In order to make clear the operation of the combing-machine, I have indicated upon the drawings that the plucking is effected in the ordinary manner by means of two grooved cylinders J J and an endless apron P, and at the end of this the plucking is produced in the well-known manner by means of an oscillating blade V, and it should be pointed out

that the picking-comb I having its teeth turned upward the fibers cannot escape from it during the action of this blade V.

What I claim is—

5 1. In a combing-machine, the combination of a feed-box for holding the sliver, gripping-jaws and means for reciprocating said gripping-jaws to draw the sliver through said feed-box, means for opening said jaws in the
10 position farthest from the feed-box, a pivoted lever and a plate carried thereby whose free end rests on the lower gripping-jaw, and means for causing said plate to move forward relatively to said gripping-jaws when the
15 jaws are open.

2. In a combing-machine, the combination of gripping-jaws C, D, means for reciprocating said gripping-jaws to feed the sliver to the comb, a cleaning-plate F, means for re-
20 ciprocating said cleaning-plate, pivoted lever G, *g* on which said plate *f* is mounted, a fixed picking-comb I' adjustably secured to the frame of the machine, a movable picking-comb I, a lever *i*, carrying said comb I, means
25 for rocking said lever *i*, a brush K, a lever *l* on which said brush is pivotally mounted and which oscillates about a fixed center, means for oscillating said lever *l*, a lever Q oscillating about the same center as lever *l*, means for
30 oscillating said lever Q, and a link *q* connecting the brush K with the lever Q, as and for the purpose specified.

3. In a combing-machine, the combination

with the feeding apparatus comprising fixed feed-box A, movable retaining-comb B, recip- 35
rocating gripping-jaws C, D, means for reciprocating said gripping-jaws to feed the sliver, of the carding-roller M, means for giving same an alternating rotary motion, pivoted lever
40 G and cleansing and re-dressing plate F carried thereby, means for reciprocating said plate F, lever *i* and picking-comb I adjustably mounted thereon, a pair or plucking-rollers J, J and apron P, substantially as and
45 for the purpose described.

4. In a combing-machine, the combination with means for holding, feeding and carding the sliver, of picking-combs I, I', a lever *i* for supporting said picking-combs I, means for oscillating said lever, a brush K for cleaning 50
picking-comb I, a piece *l* to which said brush is articulated, a lever L carrying said piece *l*, means for oscillating said lever L to move said piece *l* and brush K up and down to
55 clean the comb I, and means for moving the piece L back and forth on lever L so as to cause it to approach or recede from the picking-comb I.

In testimony whereof I have signed my name to this specification in the presence of 60
two subscribing witnesses.

EUGÈNE DELETTE.

Witnesses:

EUGÈNE DUMAD,
JACQUES CONDSMY.