

(No Model.)

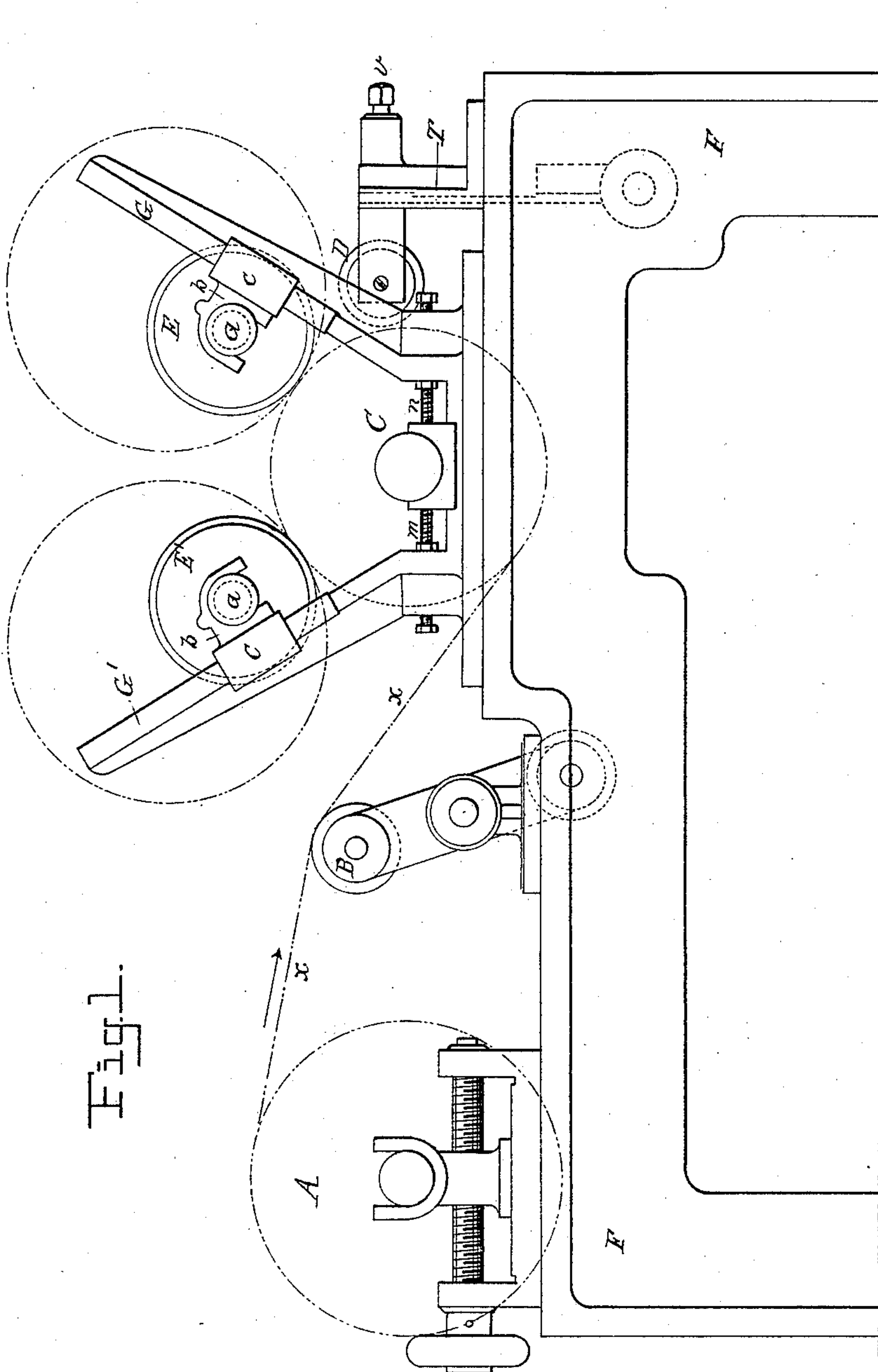
5 Sheets—Sheet 1.

L. LACROIX, Fils.

MACHINE FOR CUTTING AND WINDING STRIPS OF PAPER FOR
CIGARETTES OR OTHER PURPOSES.

No. 409,408.

Patented Aug. 20, 1889.



Witnesses:

E. J. Griswold
John Revell

Inventor:

Leonide Lacroix fils
by his attorneys
Howson and Howson

(No Model.)

5 Sheets—Sheet 2.

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Fig. 2.

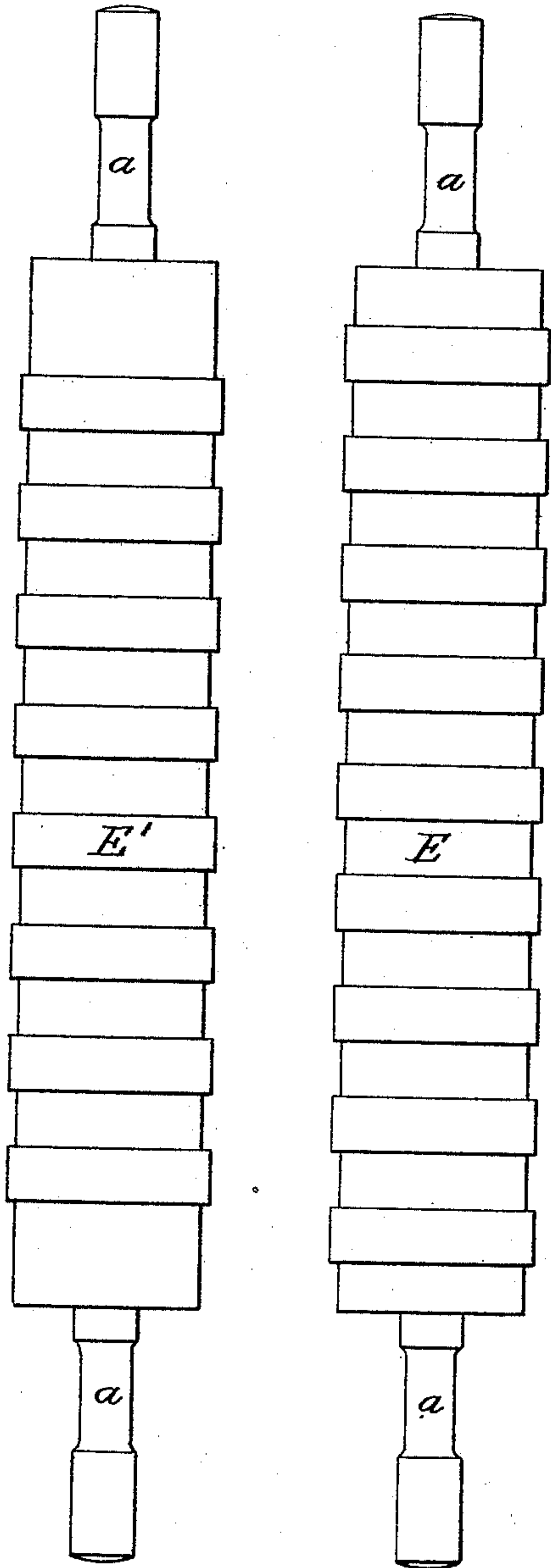


Fig. 3.

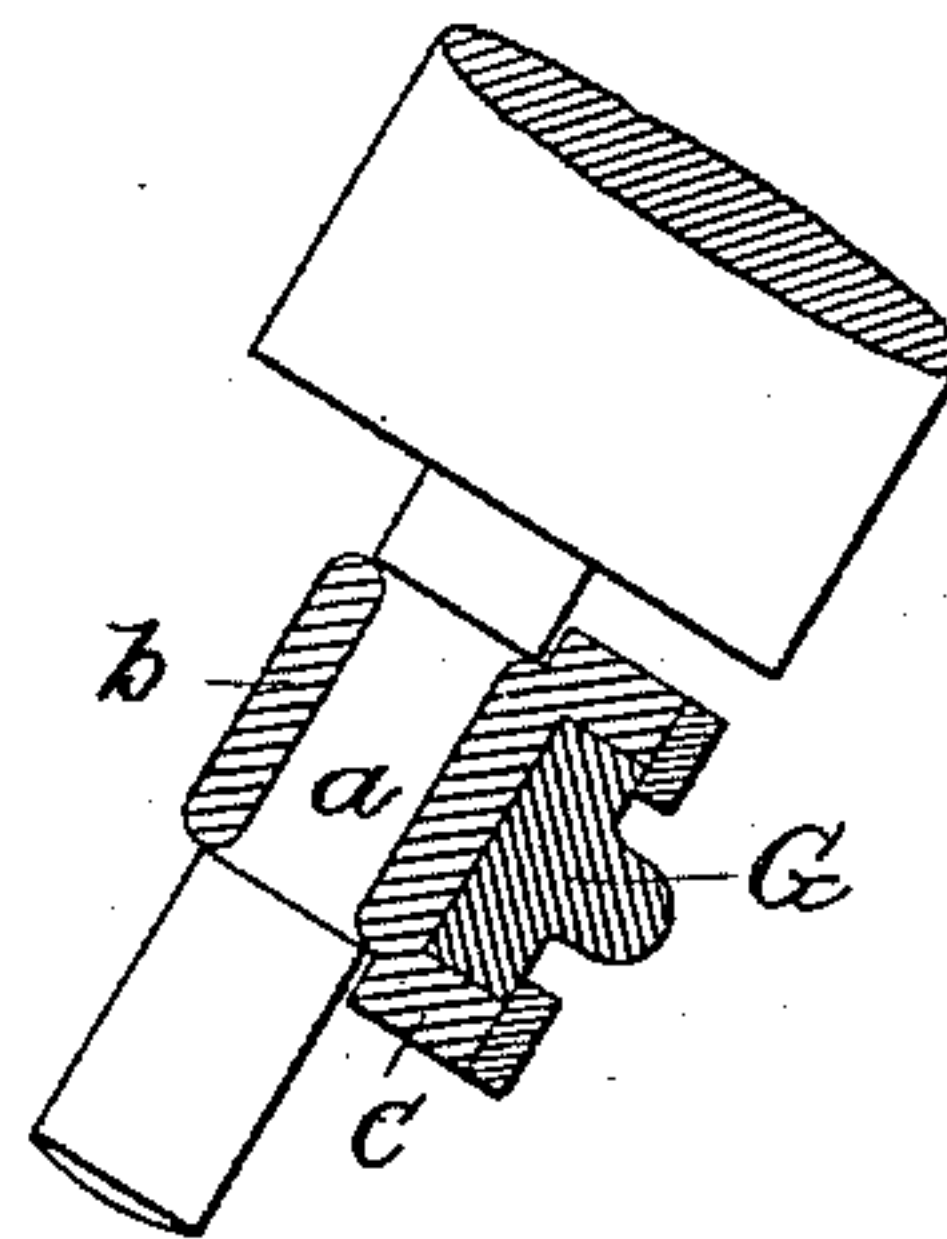
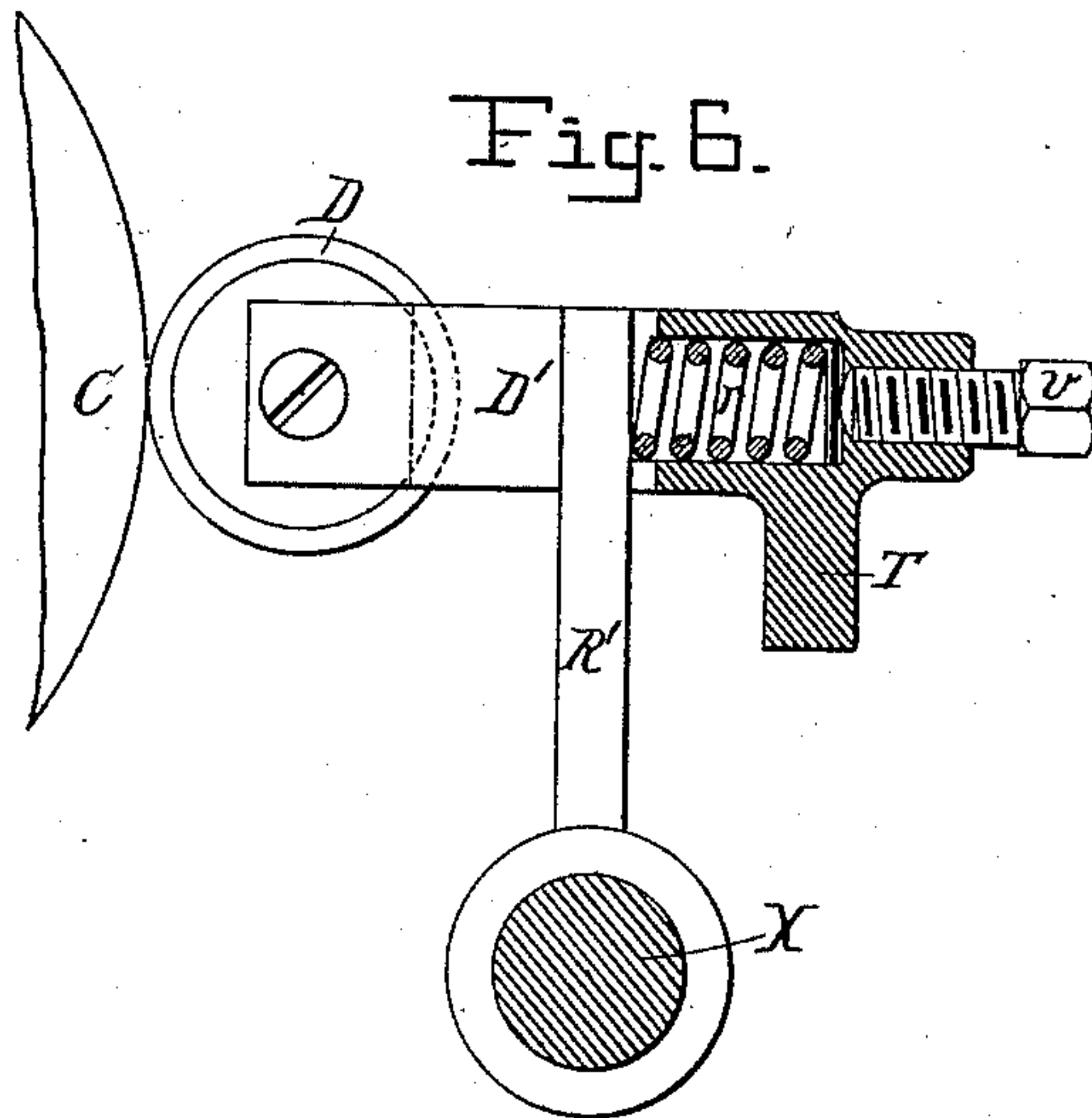


Fig. 6.



Witnesses:

E. J. Griswold
John Revell

Inventor:

Leonide Lacroix fils
by his attorney
Horsman and Horsman

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Fig. 4.

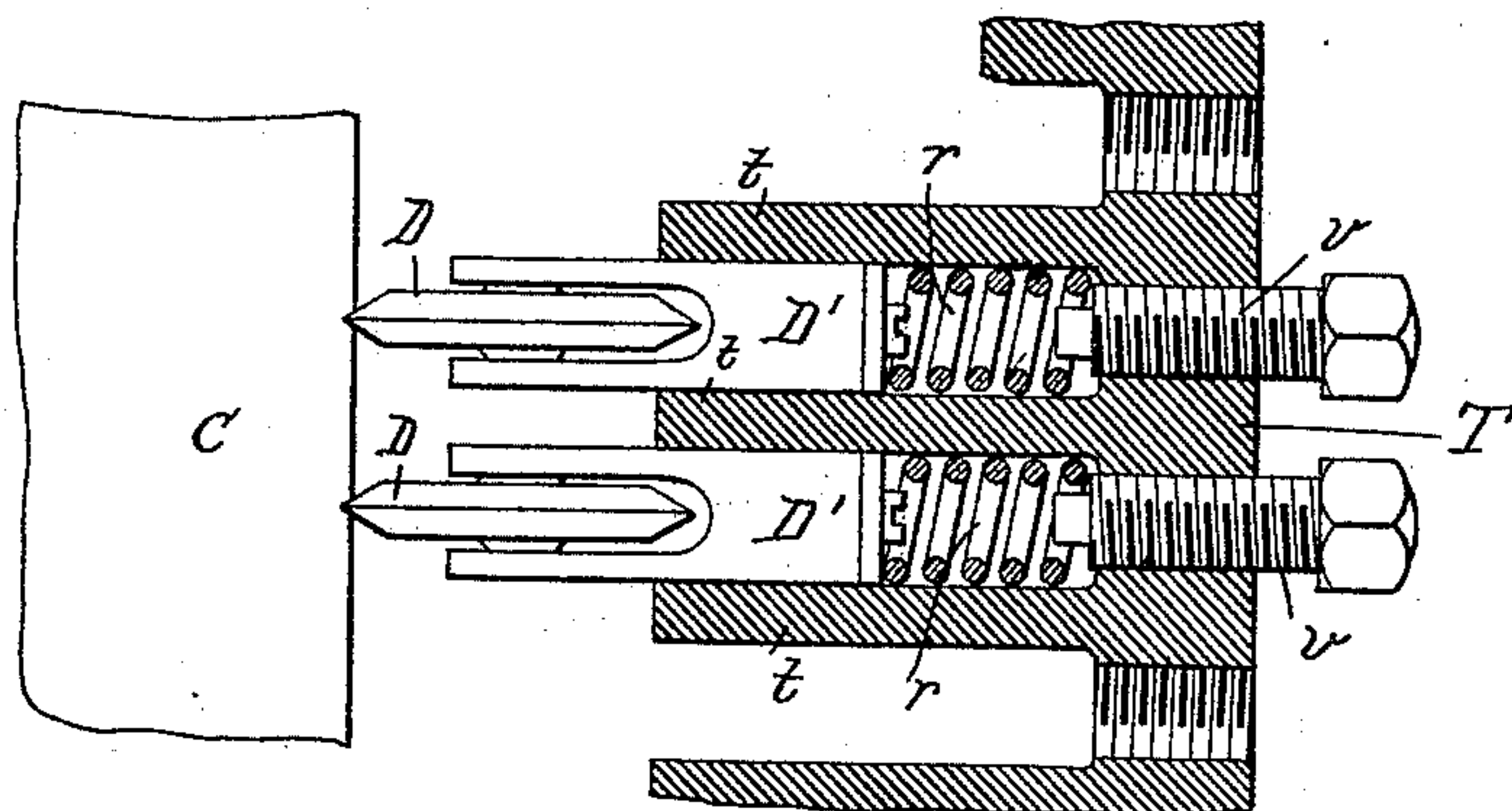
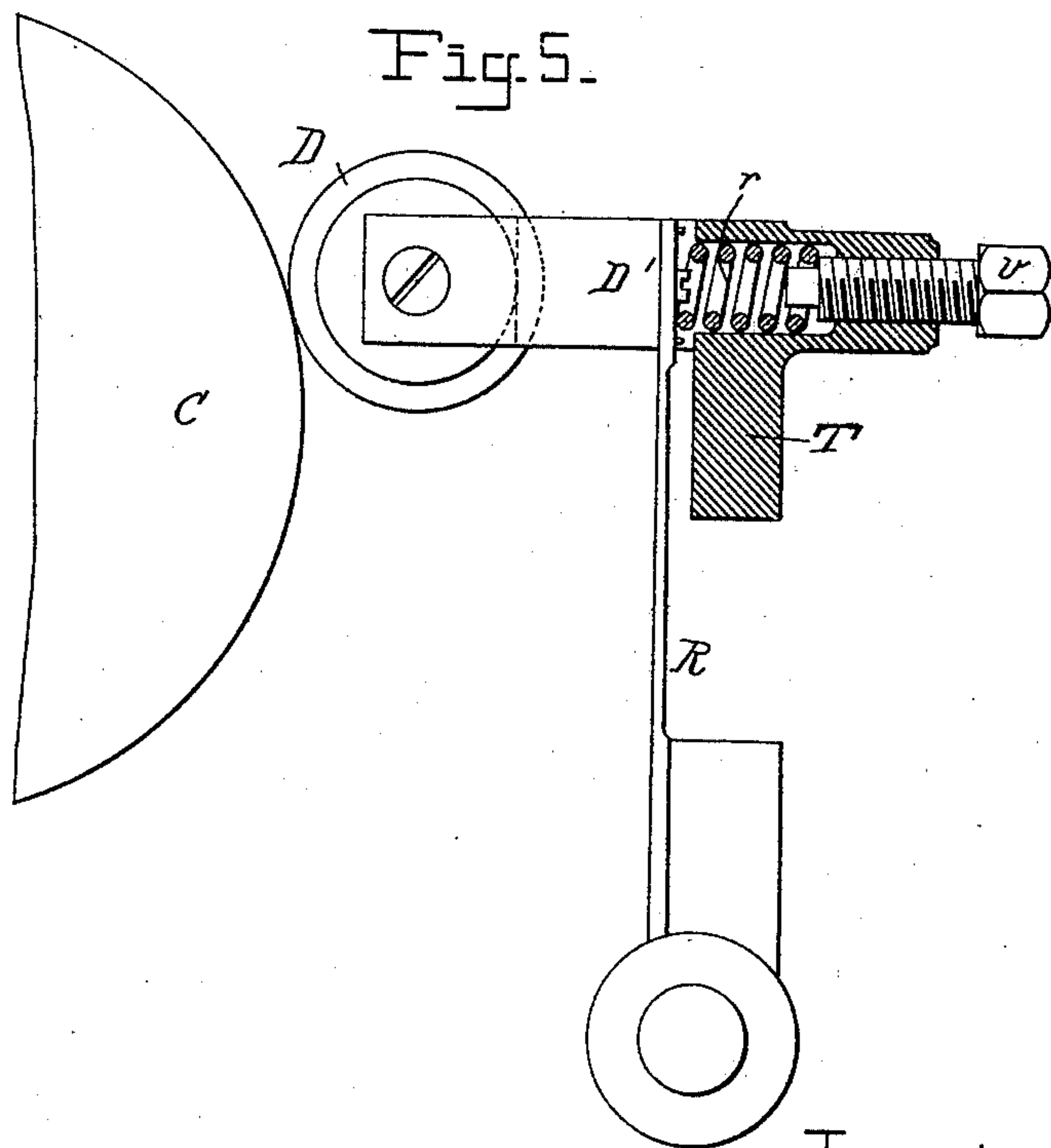


Fig 5.



Witnesses:

E. J. Griswold.
Albert Popham.

Inventor:

Inventor:
Leonide Sicroix fils
by his attorneys
Howson and Howson

(No Model.)

5 Sheets—Sheet 4.

L. LACROIX, Fils.

MACHINE FOR CUTTING AND WINDING STRIPS OF PAPER FOR
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Fig 7.

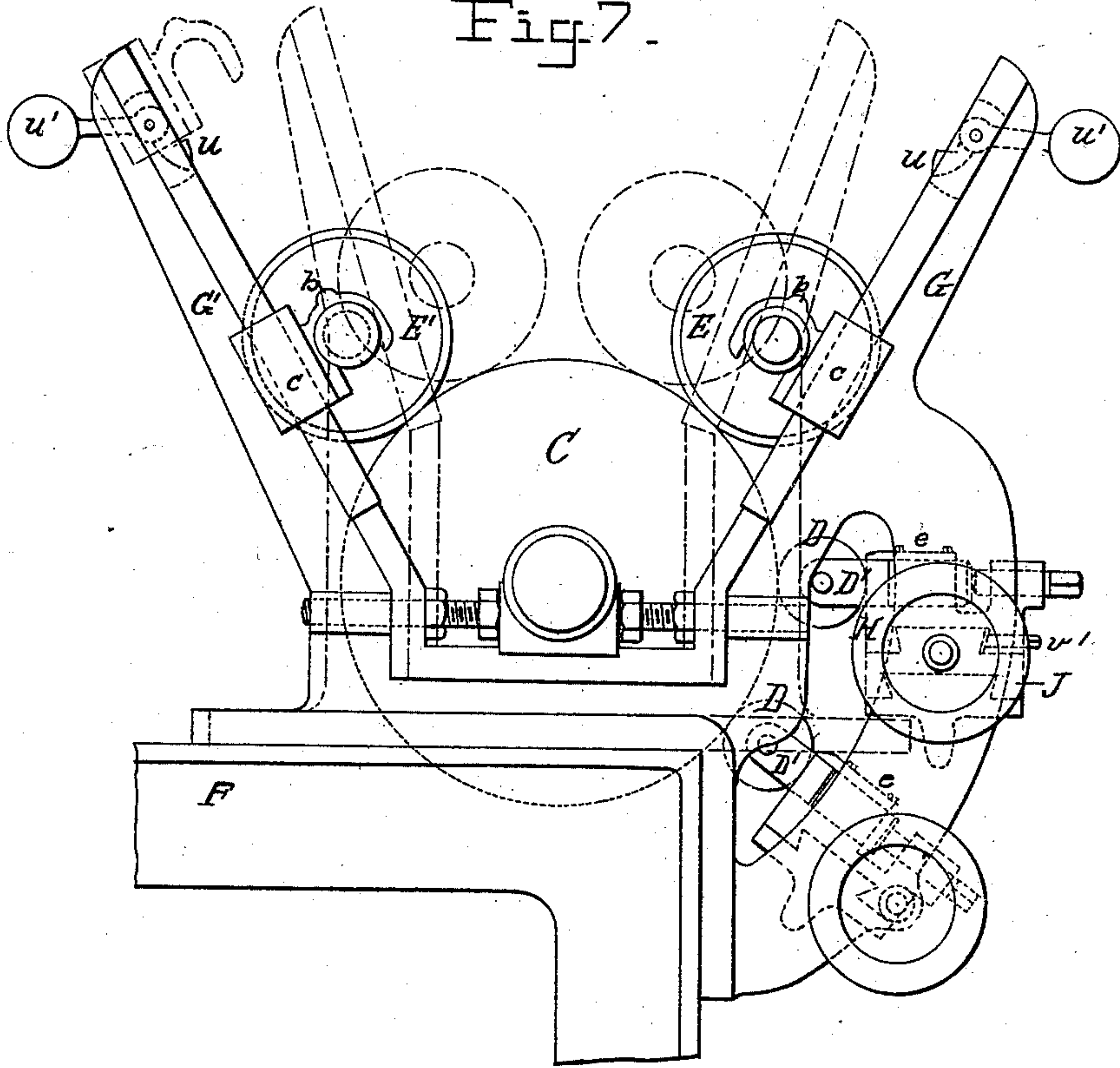


Fig. 11.

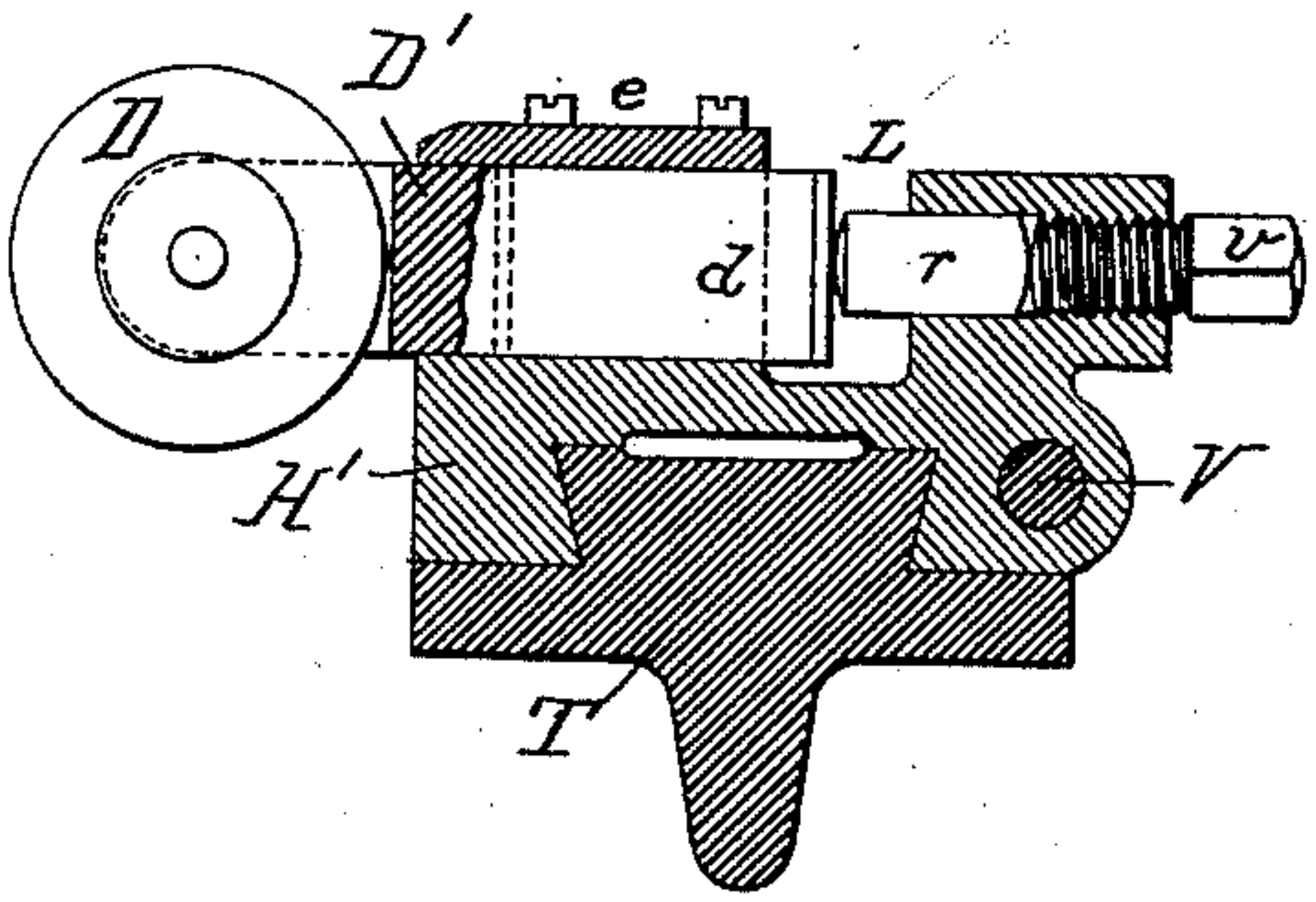
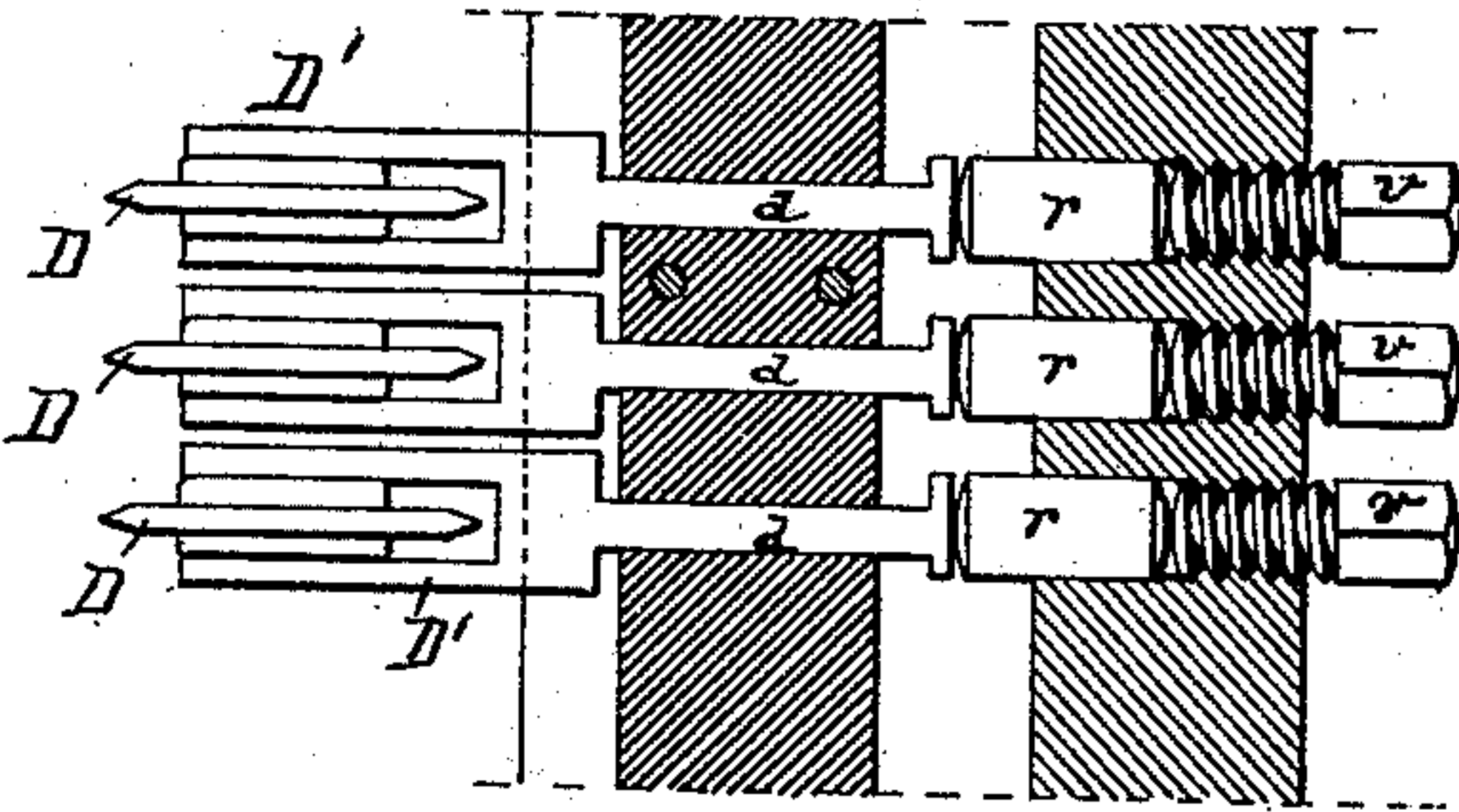


Fig 12.



Witnesses:

E. J. Griswold.
John Revell

Inventor:

Inventor:
Leonide Sacraz files
by his attorneys
Horton and Horton

(No Model.)

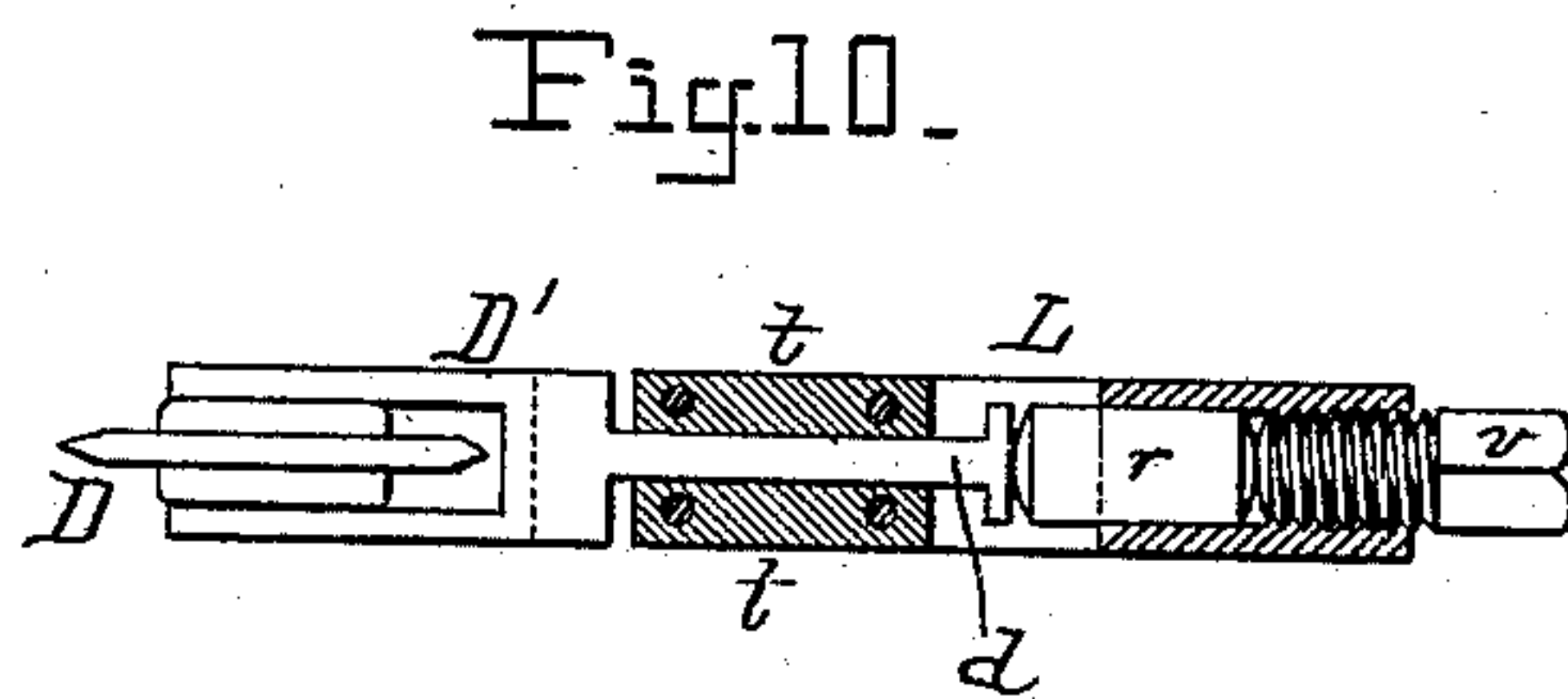
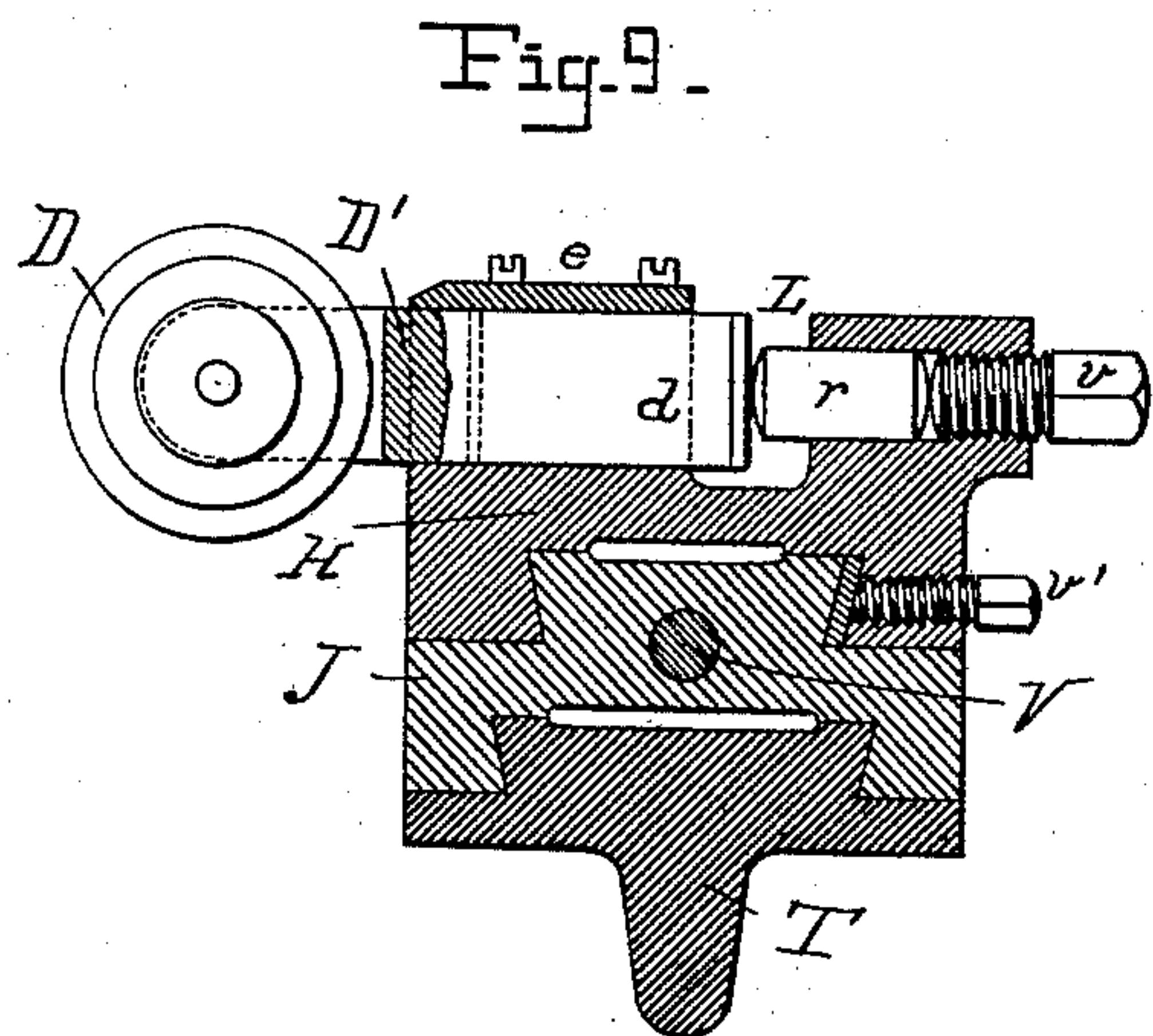
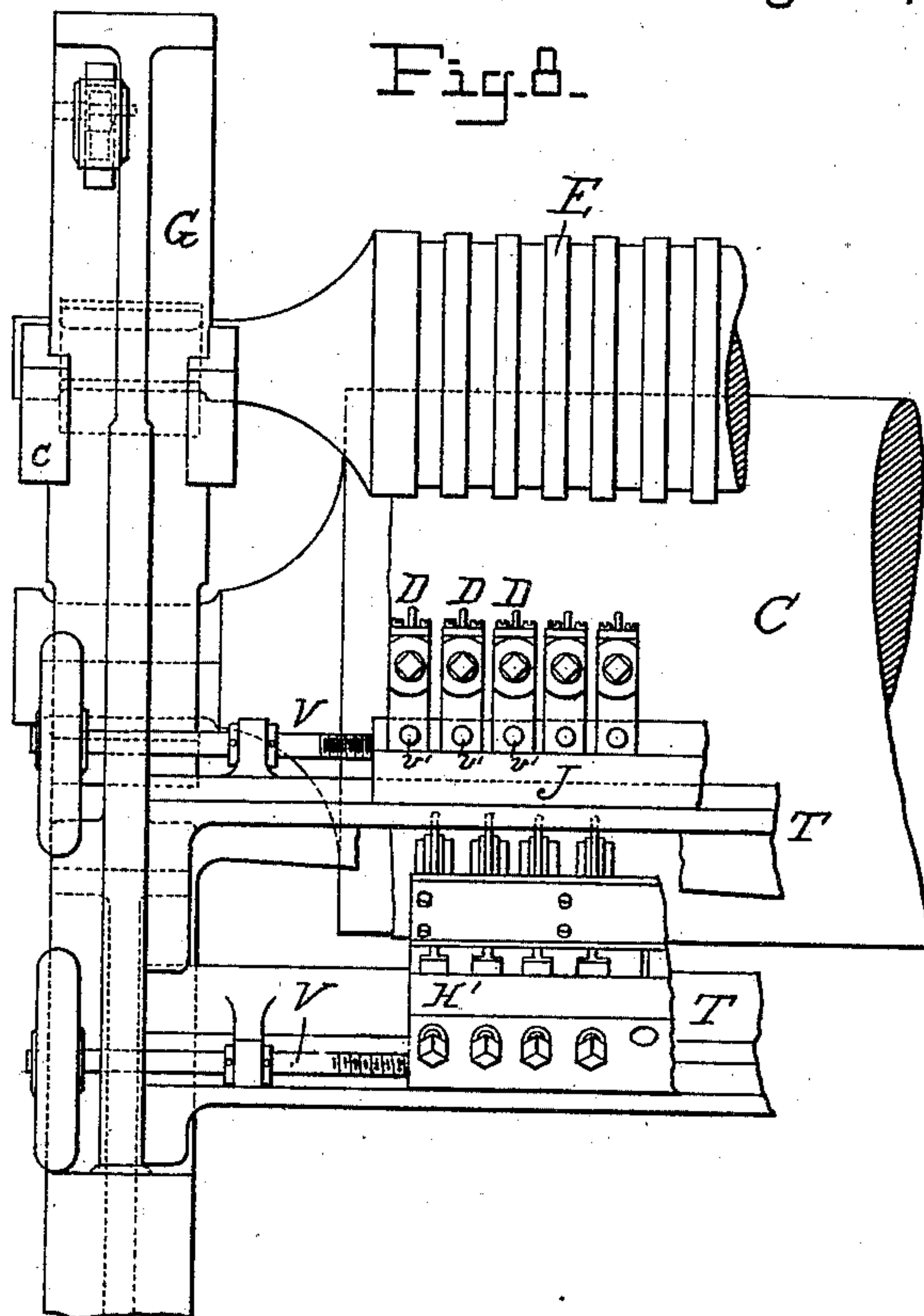
5 Sheets—Sheet 5.

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MACHINE FOR CUTTING AND WINDING STRIPS OF PAPER FOR
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No. 409,408.

Patented Aug. 20, 1889.



Witnesses:

E. J. Griswold
John. Revell

Inventor:

Leonide Lacroix fils
by his attorney
Horsman and Horsman

UNITED STATES PATENT OFFICE.

LÉONIDE LACROIX, FILS, OF MAZÈRES SUR SALAT, FRANCE.

MACHINERY FOR CUTTING AND WINDING STRIPS OF PAPER FOR CIGARETTES OR OTHER PURPOSES.

SPECIFICATION forming part of Letters Patent No. 409,408, dated August 20, 1889

Application filed March 22, 1888. Serial No. 268,165. (No model.) Patented in France January 5, 1887, No. 180,709; in Germany July 14, 1887, No. 42,283; in Spain August 25, 1887, No. 11,251, and in Austria-Hungary December 3, 1887, No. 27,604.

To all whom it may concern:

Be it known that I, LÉONIDE LACROIX, Fils, manufacturer, of Mazères sur Salat, (Haute Garonne,) in the Republic of France, have
5 invented Improvements in Machinery for Cutting and Winding Strips of Paper for Cigarettes or other Purposes, (for which I have obtained Letters Patent in France, No. 180,709, January 5, 1887; in Germany, No. 42,283, July
10 14, 1887; in Spain, No. 11,251, August 20, 1887; and in Austria-Hungary, No. 27,604, December 3, 1887,) of which the following is a specification.

My invention of improvements in machinery for cutting and winding strips of paper for cigarettes or other purposes relates more particularly to, first, the cutting-disks, which are guided with great precision laterally, and are caused to act with an elastic or
20 yielding pressure on a cylinder furnished or not with circular grooves; second, the bobbin or reel, which is composed of two independent cylinders, on which the cut strips are wound separately without injury to the edges.

And in order that the said invention may be fully understood I shall now proceed to particularly describe the same, and for that purpose shall refer to the several figures on the annexed sheet of drawings, the same letters of reference indicating corresponding
30 parts in all the figures.

Figure 1 is a side elevation of my invention. Fig. 2 shows the reels in plan, and Fig. 3 the journal for the same. Figs. 4, 5, and
35 6 are details of the means for supporting the cutting-disks. Fig. 7 is a side view of a modification, and Figs. 8, 9, 10, 11, and 12 show various modifications in detail.

The paper x , coming from a beam or reel
40 A, first passes over a stretcher or tension-roller B, then under a feed-cylinder C with or without circular grooves, where it is submitted to the action of cutting-disks D, which cut it into strips of the desired width. These
45 strips or bands are wound partly on a reel E and partly on a reel E', one reel receiving the even-numbered, and the other reel receiving the odd-numbered, strips. The axle ends $a a$ of these reels or cylinders, Figs. 1, 3, and 7,
50 are mounted in bearings $b b$, attached to a support c , sliding on guides $G G'$, which are

fixed at an angle suitable to the nature of the paper. The surfaces of the reels E E' are provided (see Fig. 2) with rings of cardboard or other material of a breadth equal to
55 the breadth of the bands and distant from each other by the same amount. These rings form cores on which to wind the cut bands. According as the paper is wound on and fills the reels or cylinders E E' their bearings
60 slide up their respective guides $G G'$, the paper on the reels still keeping in contact with the feed-cylinder C and their centers moving farther from each other, as shown by the dotted lines in Fig. 1. Arrived at the top of the
65 guides $G G'$, the bearings $b b$ can be held in position by clicks or catches u , connected to counter-weights u' , to facilitate the subsequent manipulation of the reels E.

The method of winding the cut strips on
70 two separate cylindrical bobbins or reels, and arranging them to deviate from each other, as described above, presents a great advantage with regard to the subsequent manipulation of the strips, which can be
75 easily unrolled without danger of tearing or rubbing the edges in consequence of their overriding each other.

The cutting-disks D (shown in detail on a larger scale, Figs. 4, 5, and 6) are mounted in
80 forks D', fixed at the end of steel springs R, Fig. 5, or at the ends of rigid rods R', Fig. 6. Each disk acts independently of the others, and is acted on by helical springs r , which can be adjusted by means of screws v .
85 The springs, which may be replaced by elastic blocks, are constructed to act in the same plane as the disks and to maintain the latter in constant contact with the paper to be cut, the spring-plates R or the rods R'
90 merely acting as supports. The disks are very accurately maintained in their cutting-plane and any lateral deviation is rendered impossible by the forks D', placed between the projecting-guides t on a cross-piece T,
95 presenting suitable recesses or cavities for the reception of the springs r .

Instead of supporting each disk on a plate R or rod R', the forks D' may engage in the sockets or recesses in the cross-piece T, which
100 in this case is pivotally supported by rigid rods—such as R', Fig. 6—vibrating on the

center X. Each fork may be supported in an independent hollow guide or support carried by the rod R'. In this case the cross-beam T is dispensed with. The forks D' which
 5 carry the disks may be provided with a tail-piece *d*, Figs. 9 and 10, guided between projecting vertical partitions *t*, being retained by a cap-plate *e*, and subject to the action of spiral springs or elastic blocks *r*,
 10 regulated by a screw *v*. The sockets or recesses for the springs *r* and the partitions *t* are supported by a movable beam or carrier H. Each fork D' may work in an independent carrier H, Figs. 9 and 10, or all the forks
 15 may work in one carrier H', Figs. 11 and 12, cast with a series of partitions and sockets acting as guides. In the first case the carriers are arranged upon a bed J and their relative position may be regulated by means
 20 of a screw V'. In the second case the relative position of the disks is unchangeable. The bed J of the independent carrier H and the carrier H' are dovetailed on a fixed cross-beam T. A set-screw V enables the cutters
 25 D to be shifted laterally and adjusted at any desired distance apart. When it is desired to cut strips of paper for cigarettes, for example, a single row of disks is employed, Fig. 1.
 When it is desired to cut very narrow strips
 30 of paper—such, for example, as the strips or tapes employed in telegraphy—two series or rows of cutting-disks are employed, Figs. 7 and 8, taking care to arrange them in such a way that the second row subdivides the strips
 35 produced by the disks of the first row. In this last case independent disks can be employed for the first row and disks without lateral adjustment for the second. In all cases the disks cut the paper, which is passed
 40 between them and the cylinder C, into strips of uniform width, and the said cylinder may be constructed with or without circular grooves corresponding with the cutters. The guides G and G' of the reels E and E', and the cross-
 45 beam T, when it is employed, can be cast in a single piece, bolted to a frame F of suitable shape and dimensions. The guides can be independent of the cross-beam T and form a separate piece, as shown in the drawings, re-
 50 ceiving the bearings which support the cylinder C, and being adjusted with precision rela-

tively to the reels E E' by means of screws *m* and *n*.

Having now particularly described and ascertained the nature of this invention and in
 55 what manner the same is to be performed, I declare that what I claim is—

1. In a paper-cutting machine, the combination of a feed-cylinder and cutting-disks with two winding-reels bearing on the feed-
 60 cylinder, and having on their peripheries rings at a distance apart equal to the width of the rings, and the rings on one reel being in line with the spaces on the other, substantially as described. 65

2. In a paper-cutting machine, the combination of a feed-cylinder with a cutting apparatus consisting of a cross-piece having guiding-partitions, forks movable therein toward
 70 and from the feed-cylinder, screws for adjusting the forks, springs between the forks and screws, and cutting-disks journaled in the forks, as and for the purpose set forth.

3. In a paper-cutting machine, the combination of the feed-cylinder and a series of
 75 cutting-disks with the two reels, upon which alternate strips are wound, and both cutting-disks and reels bearing upon the feed-cylinder, and movable bearings for the reels allowing movement away from the cylinder. 80

4. In a paper-cutting machine, the combination of a feed-cylinder with cutting apparatus consisting of a guide-piece, forks movable therein toward and from the feed-cylinder, movable plates or rods supporting the
 85 forks, and springs in the guide-piece bearing against the forks, and cutting-disks journaled in the forks.

5. In a paper-cutting machine, the combination of a feed-cylinder with cutting apparatus consisting of a guide-piece, forks movable in recesses therein, cutting-disks journaled
 90 in the forks, and spring-plates vibrating on a center and supporting the said forks, all substantially as described. 95

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

L. LACROIX, FILS.

Witnesses:

RAVUT E. LOMBEST,

PIERRE ADOLPHE DURANDEAU.