

No. 670,020.

Patented Mar. 19, 1901.

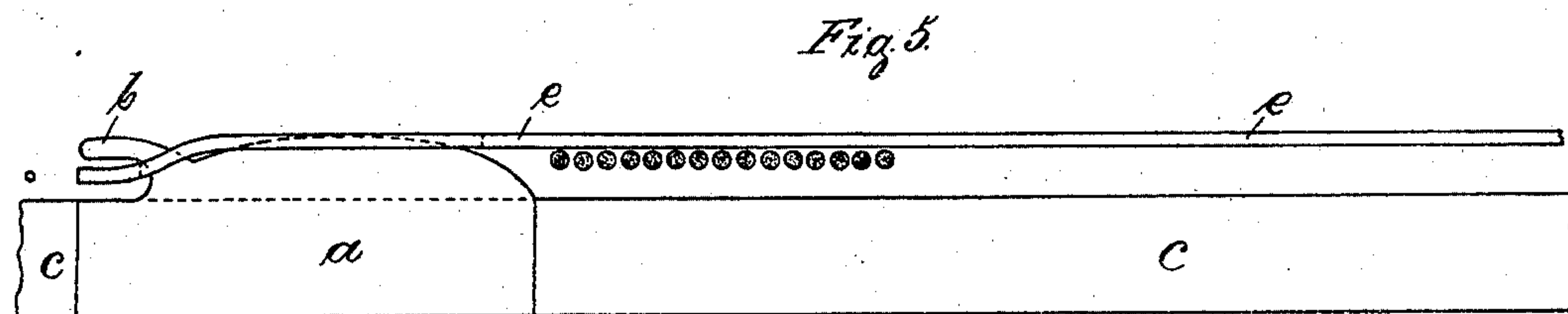
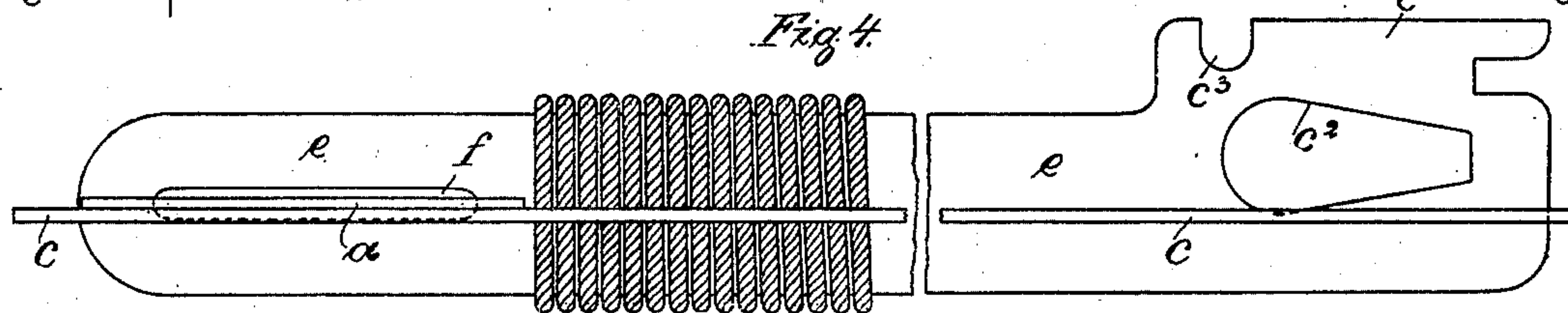
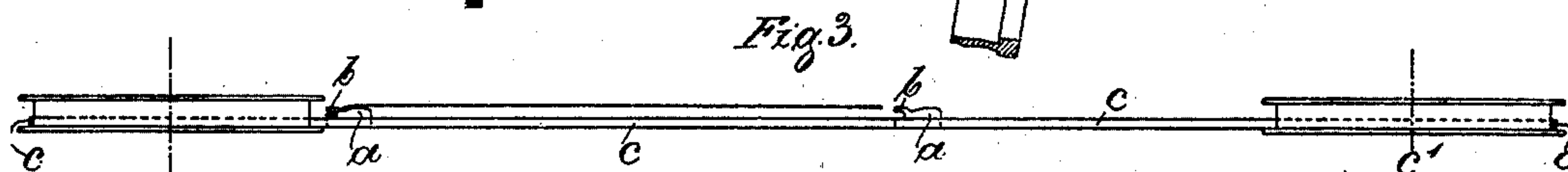
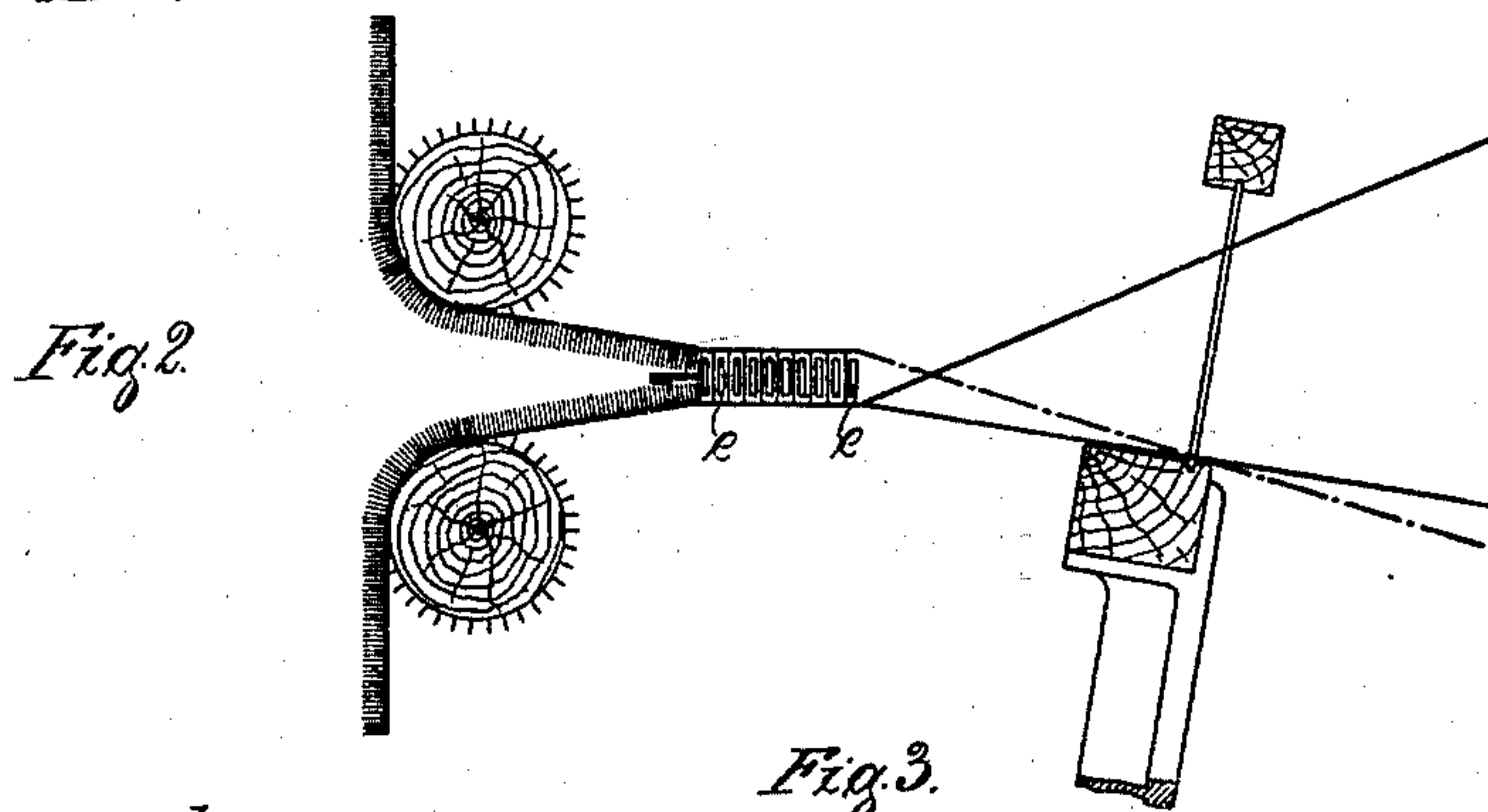
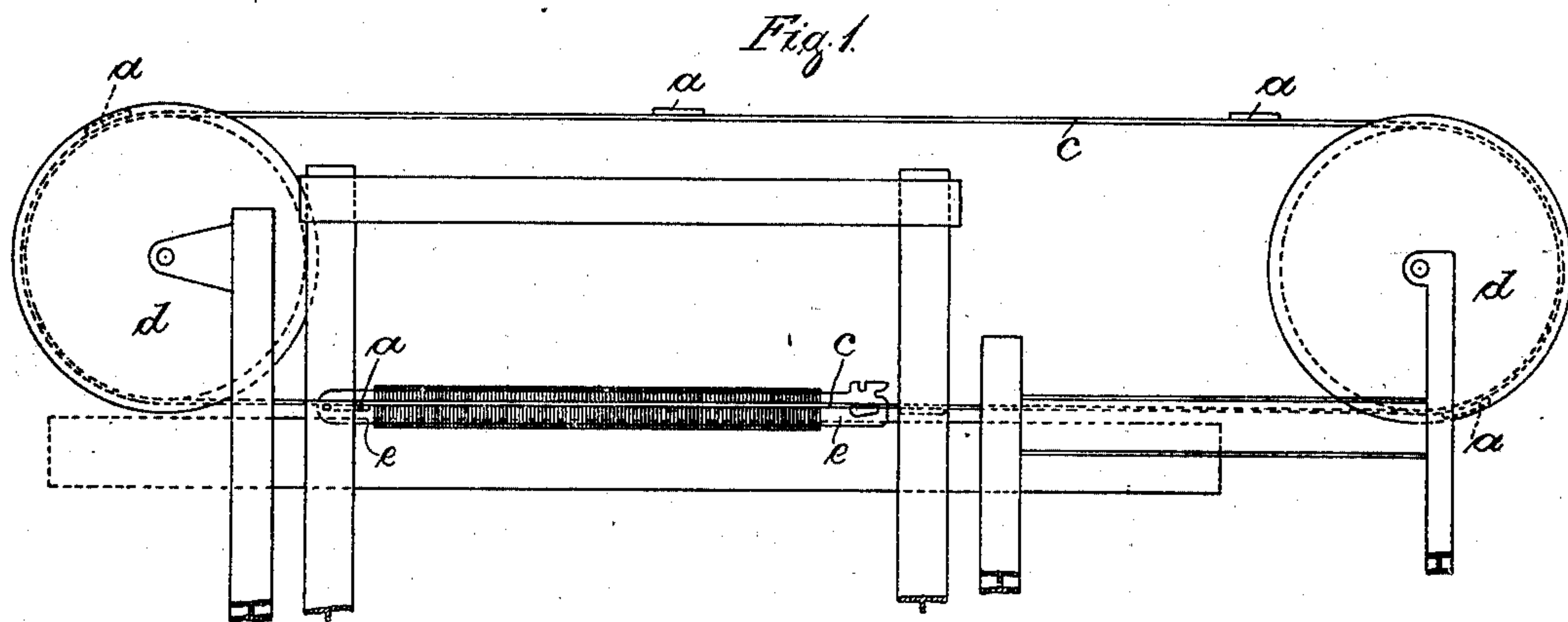
O. HALLENSLEBEN.

DEVICE FOR CUTTING DOUBLE PILE FABRICS.

(Application filed Jan. 24, 1900.)

(No Model.)

3 Sheets—Sheet 1.



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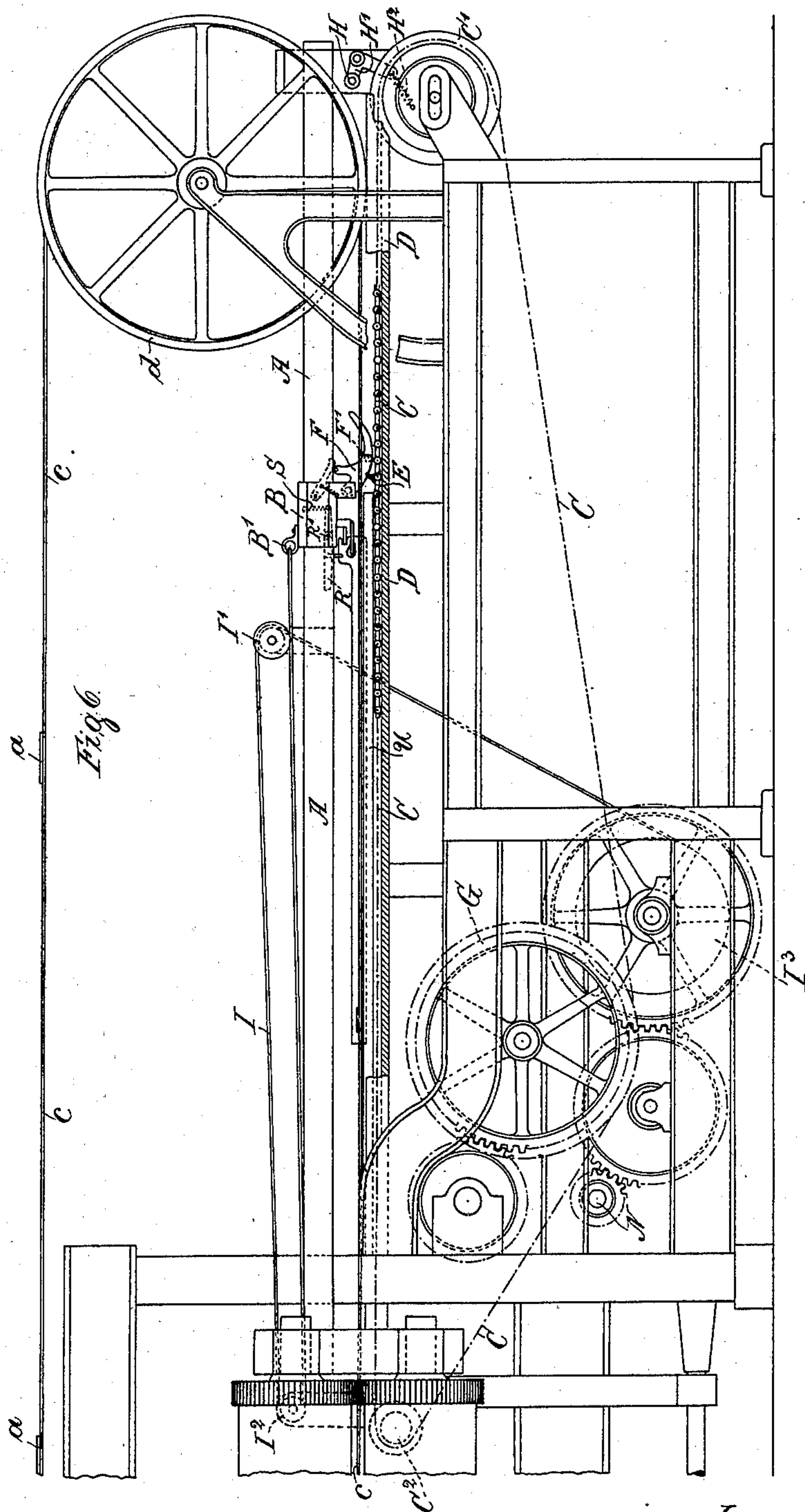
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DEVICE FOR CUTTING DOUBLE PILE FABRICS.

(Application filed Jan. 24, 1900.)

(No Model.)

3 Sheets—Sheet 2.



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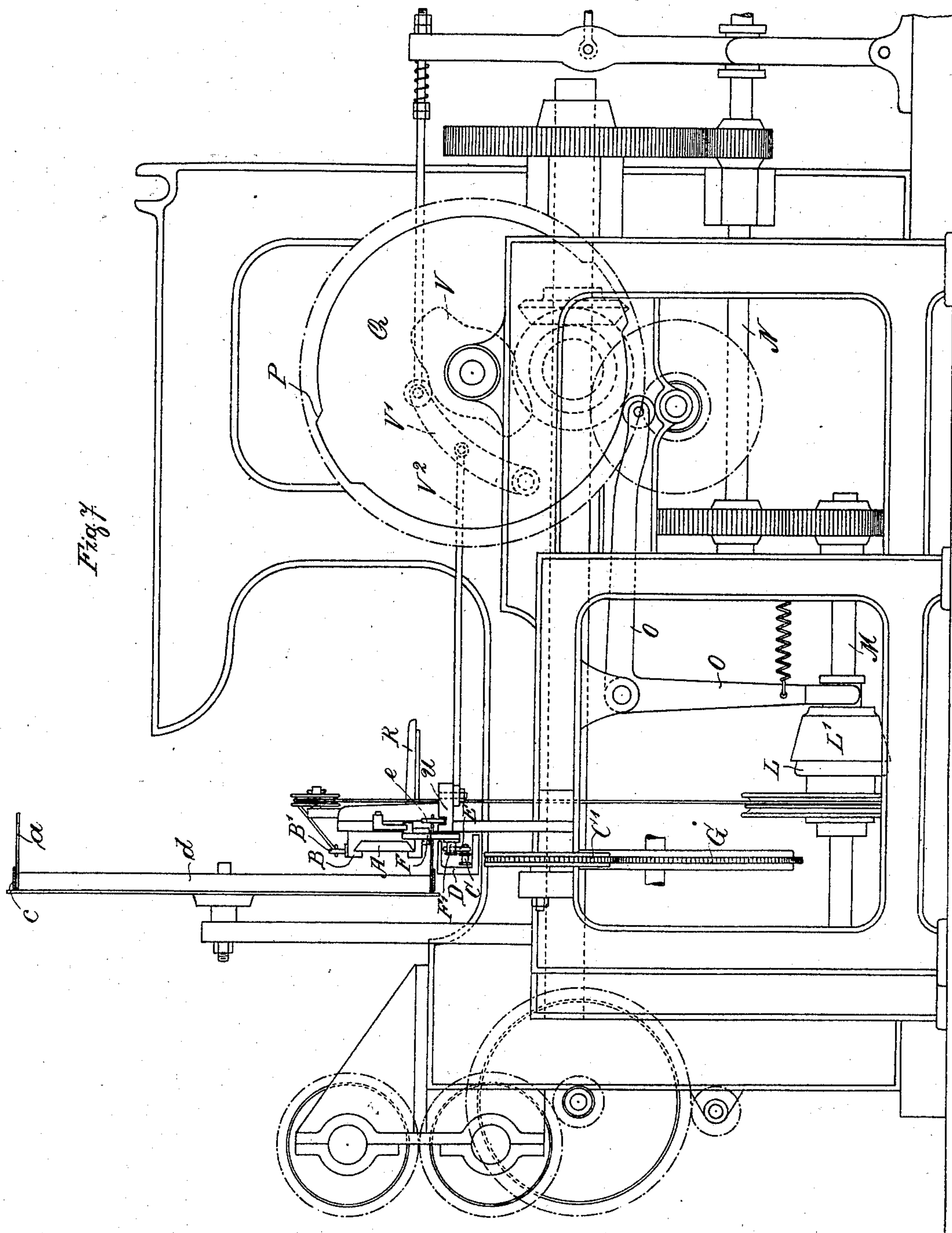
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DEVICE FOR CUTTING DOUBLE PILE FABRICS.

(Application filed Jan. 24, 1900.)

(No Model.)

3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

OTTO HALLENSLEBEN, OF HILDEN, GERMANY.

DEVICE FOR CUTTING DOUBLE-PILE FABRICS.

SPECIFICATION forming part of Letters Patent No. 670,020, dated March 19, 1901.

Application filed January 24, 1900. Serial No. 2,691. (No model.)

To all whom it may concern:

Be it known that I, OTTO HALLENSLEBEN, a subject of the King of Prussia, German Emperor, and a resident of Hilden, in the Province of the Rhine, German Empire, have invented certain new and useful Improvements in Devices for Cutting Double-Pile Fabrics, of which the following is an exact specification.

During the last years many experiments have been made to manufacture pile fabrics upon double-pile looms employing rods having at one extremity blades for cutting the pile-threads. In fabrics having long naps there is the objection that the naps constantly are shrinking, owing to the varying tension of the pile-threads.

The object of the present application is a combination of an ordinary pile-loom with bars, by which means even in webs with very long naps it is possible to obtain a plush or a pile fabric with naps of uniform height.

The arrangement of the double-pile loom which I employ remains the same as in the one already known, and any apparatus known for actuating the rods of the ordinary pile-loom can be employed, so that I will not enter into details about these parts.

The characteristic feature of my invention consists in the fact that by the weaving in of broad steel bars both ground webs are constantly kept in a uniform distance from each other and that by the combination of the bars with the blade the naps are cut exactly in the middle of the height of the bars when the same are withdrawn. In the ordinary pile-loom hitherto employed the blade was fixed to the rod. This arrangement cannot be made in my invention—viz., to fix the blades in the middle of the bars—for the reason that the blades come to lie against each other, and consequently bend the bars; and owing to the friction become blunt.

My invention will be more fully understood with reference to the accompanying drawings, in which the same is clearly illustrated.

In the drawings, Figure 1 shows a front view of a loom having the cutting-blades arranged according to my invention. Fig. 2 illustrates the position of the bars between the rows of pile-threads. Figs. 3, 4, and 5

represent detail views of the cutting mechanism. Fig. 6 shows a longitudinal view of the mechanism for actuating the bars. Fig. 7 is a side view of the same.

As can be seen from Fig. 1, the cutting device consists of small cutting-blades *a*, provided with hooks *b*, Figs. 3 and 5. The latter are fixed to a steel band *c* at a distance corresponding to the breadth of the web. The steel band *c* is conducted over two disks *d*, fixed to the side walls of the looms. The latter arrangement allows the employment of a band as long as possible, whereby consequently many blades can be kept working alternately.

The mechanism for operating the bars is illustrated in Figs. 6 and 7. Sideward of the loom a guide-rail *A* is fixed, upon which a block *B* is adapted to move forward and backward. For moving the block to the right there is an endless chain *C*, guided over pulleys *C'* *C''*, over a chain-wheel *G*, geared to the main driving-shaft *N*, and along a U-shaped rail *D* and caused constantly to run. A nose *E* is attached to one of the chain-links. A bolt *F*, provided with a pin *F'*, is pivoted to the block *B*. This bolt in normal position is turned down, so as to be located in the U-shaped rail *D* and to allow the nose of the chain to engage the pin, and thus to cause the block to travel with the chain. As soon as the block is moved far enough, so that the bolt touches the roller *H* of a double lever, the arm *H'* of said lever is pressed down until the block has reached the end of the rail. At this moment the bolt is thrown up by the arm *H'*, owing to the spring *H''* influencing the double lever, so that the bolt is freed from the nose of the chain and the block *B* is stopped. For moving the block to the left there is a rope *I*, attached with one end to the block at *B'* and guided over pulleys *I'* and *I''*, and with its other end it is attached to a drum *I'''*. The latter is freely mounted upon a shaft *M*, geared by toothed wheels to the main driving-shaft *N*, Fig. 7, and is only at certain intervals coupled with the shaft *M* by means of a friction-coupling. The latter consists of a male cone *L*, rigidly connected to the drum, and of a female cone *L'*, the latter being splined to the shaft *M* and adapted to

be longitudinally moved upon and rotated with the shaft. This female cone is pressed onto or removed from the male cone by means of a double lever O, pivoted to the frame of the loom and influenced by a projecting part P of the toothed wheel Q. If now the drum is coupled with the shaft M, the rope will be wound upon the drum and the block caused to move to the left upon the rail A. The coupling and the uncoupling of the bars to the block is obtained automatically. For this purpose the bars e, as shown in Figs. 4 and 5, have each on their right-hand extremity a head c' , provided with a slot c^2 and a recess c^3 . A pin attached to a double lever R, capable of rotating around a pivot R', Fig. 6, and influenced by a spring S, engages the recess c^3 and a hook T the slot c^2 , thus coupling the bar with the block. In order to reinsert the withdrawn bar, the rail U, in which the bar is guided, is arranged upon a pivot and is influenced by a peculiarly-shaped eccentric disk V, a lever V', and a connecting-rod V², so that at certain intervals—that is, when the withdrawn bar is to be reinserted between other double-pile webs not yet cut—the rail, together with the withdrawn bar, is turned around at a certain angle with respect to its normal position, Fig. 7.

The bar e, as illustrated in Figs. 4 and 5, at the left extremity is provided with a slot f, and at this part is bent somewhat, Fig. 5. As soon as the hook b of the blade has taken into the slot f, provided in the left-hand side, and the bar has commenced to be drawn out, the blade a and thus the band d are carried with it, so that the cutting part of the blade separates the pile-threads just in front of the bar. When the latter commences to be reinserted, the blade becomes separated from the bar to be inserted. When the blade is drawn over to the right-hand side, the band c has moved so far that before the next bar there is placed again another blade which when withdrawn cuts the next layer

of pile-threads in the manner heretofore described.

Evidently the arrangement might be improved by providing a sharpening mechanism sharpening automatically the blades during the work.

Having thus fully described the nature of this invention, what I desire to secure by Letters Patent of the United States is—

1. In double-pile looms, the combination of an ordinary pile-loom with bars inserted between the double-pile webs, a cutting device consisting of blades applied to a band, said band being guided over pulleys and constantly moved, the blades passing in front and in the middle line of the bars, for the purpose as set forth.

2. In double-pile looms, the combination of an ordinary pile-loom with bars inserted between the double-pile webs, and each having a recess on its one extremity, a cutting device consisting of blades applied to a band, said band being guided over pulleys and constantly moved, the blades passing in front and in the middle line of the bars, and being provided with hooks adapted to engage said recess, for the purpose as set forth.

3. In double-pile looms, the combination of an ordinary pile-loom with bars inserted between the double-pile webs, and each having a recess on its one extremity, a cutting device consisting of blades applied to a band, said band being guided over pulleys and constantly moved, the blades passing in front and in the middle line of the bars, and being provided with hooks adapted to engage said recess, each of said bars provided with a head on its other extremity the head having a recess and a slot, for the purpose as set forth.

In witness whereof I have hereunto set my hand in presence of two witnesses.

OTTO HALLENSLEBEN.

Witnesses:

WILLIAM ESSENWEIN,
EMIL HOETTE.