

No. 661,605.

Patented Nov. 13, 1900.

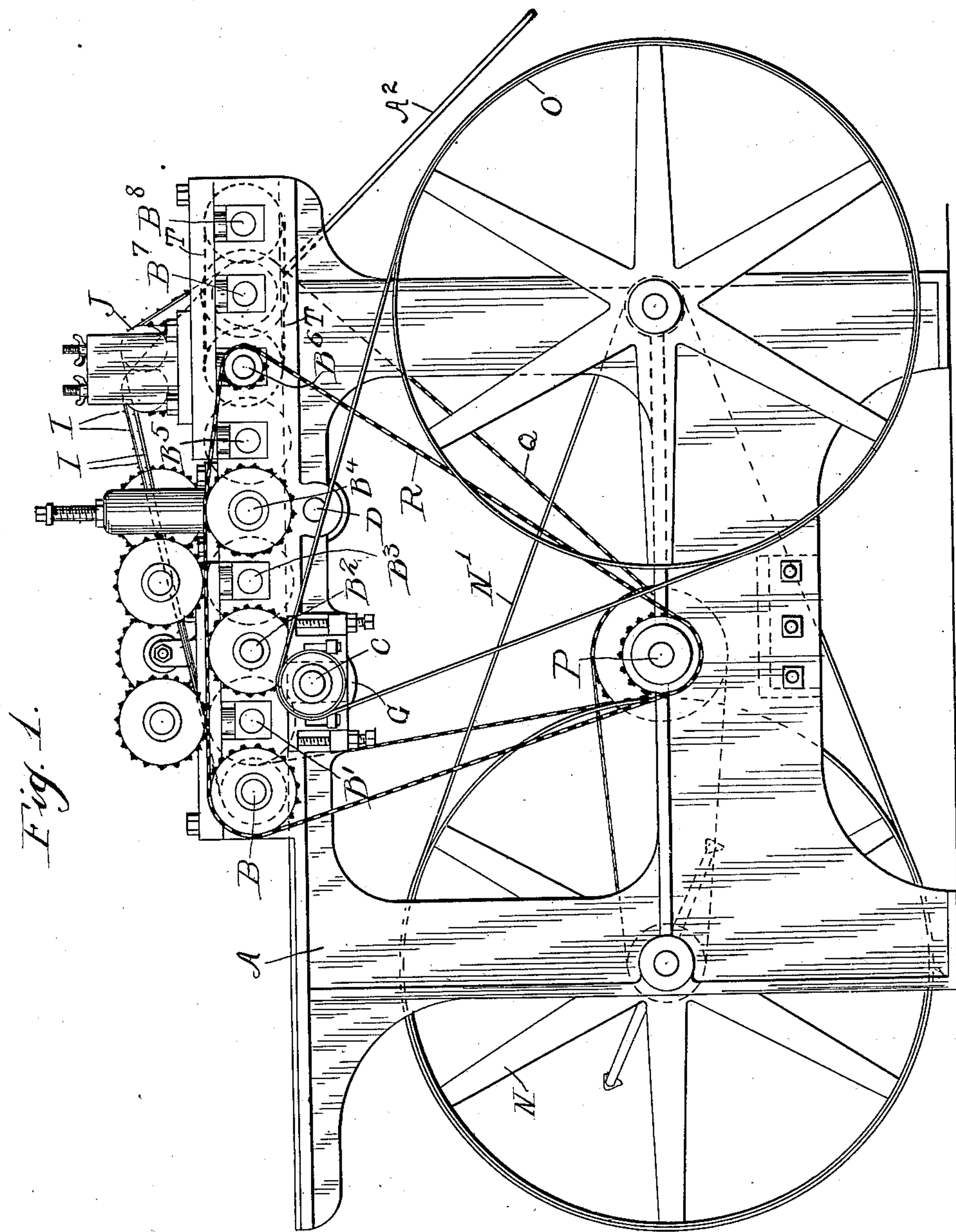
A. HAFTER.

MACHINE FOR CUTTING, RAVELING, AND CLEANING CARPET STRIPS.

(Application filed Nov. 27, 1899.)

3 Sheets—Sheet 1.

No Model.)



Witnesses:

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Inventor:

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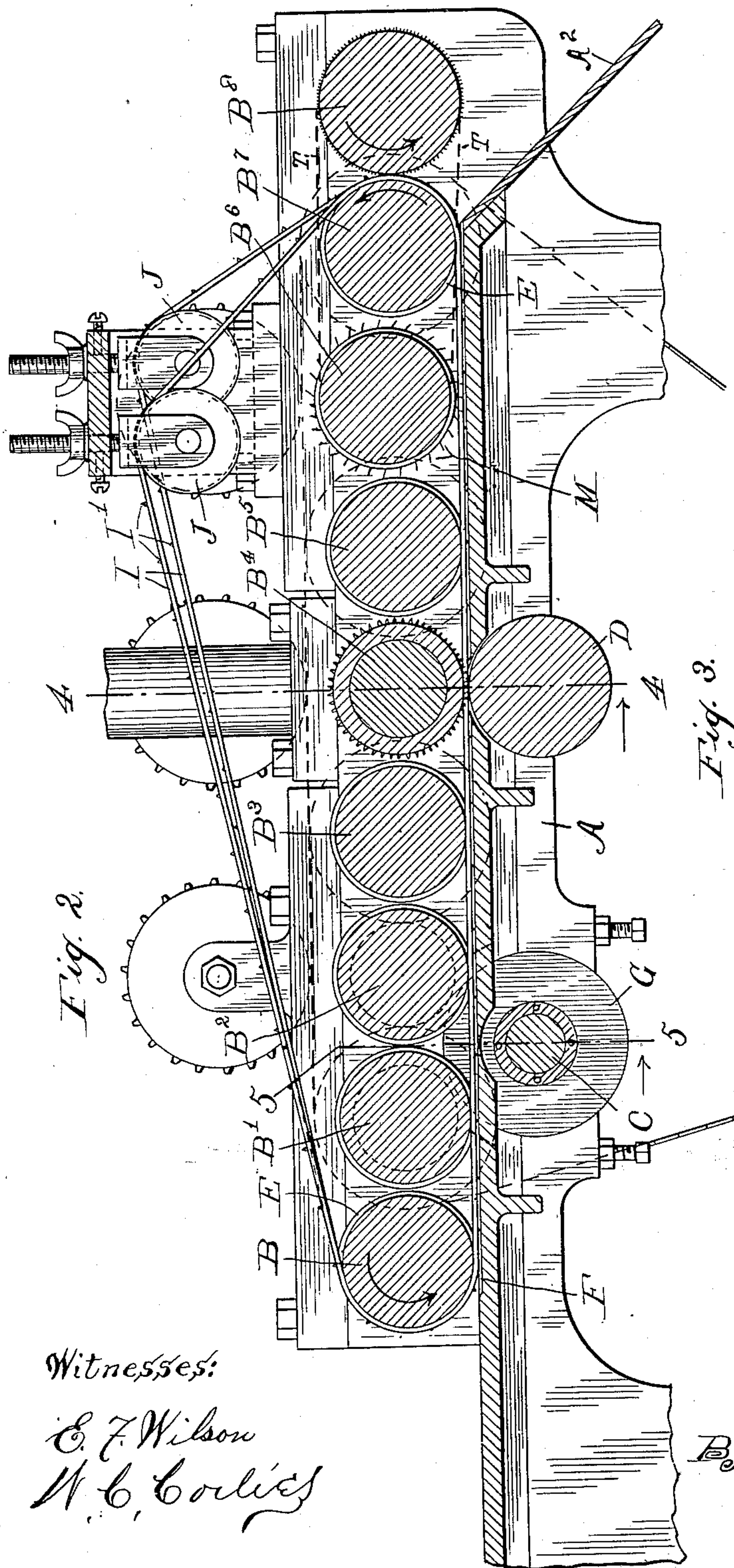
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3 Sheets—Sheet 2..



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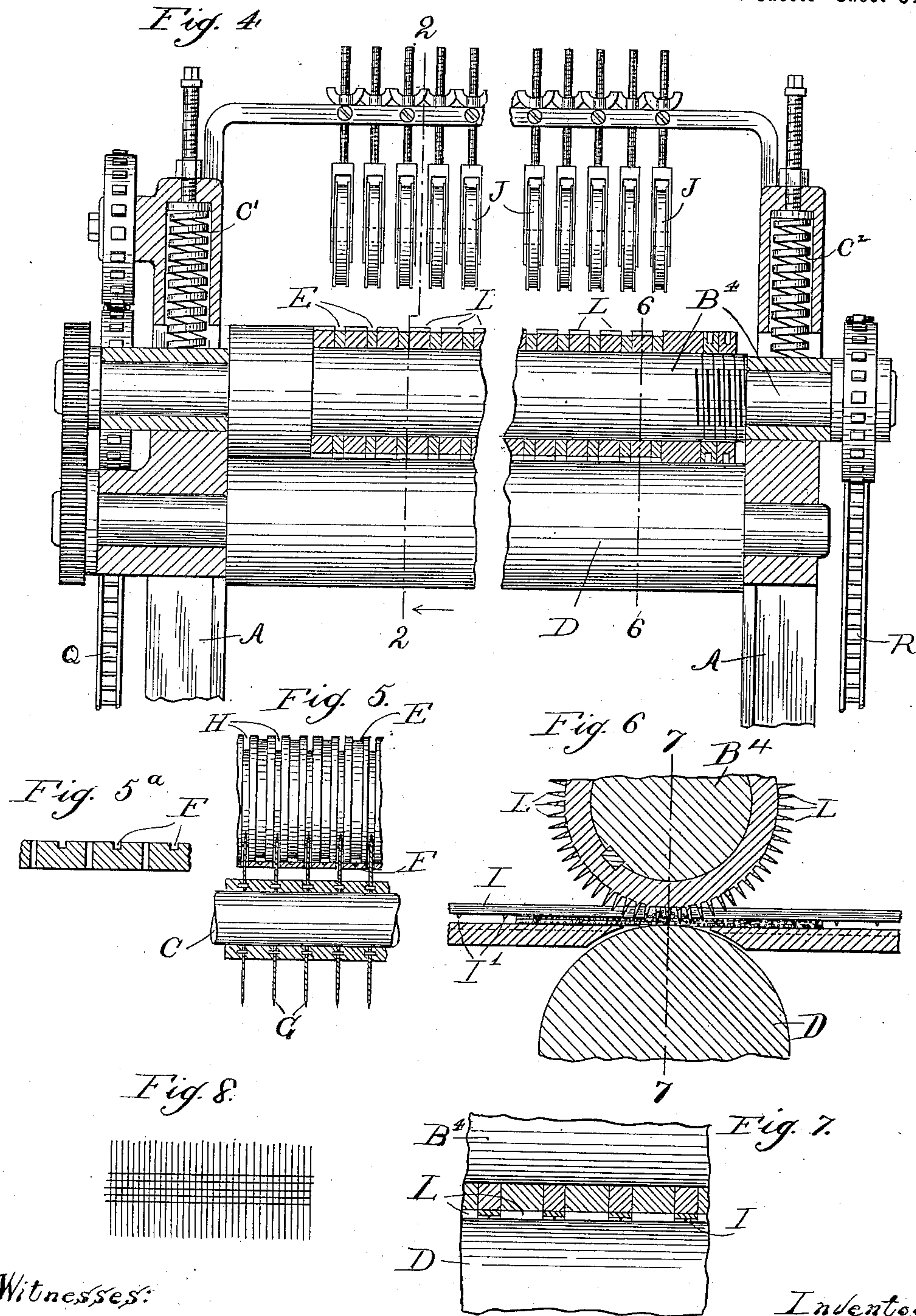
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# UNITED STATES PATENT OFFICE

ADOLPH HAFTER, OF CHICAGO, ILLINOIS.

MACHINE FOR CUTTING, RAVELING, AND CLEANING CARPET-STRIPS.

SPECIFICATION forming part of Letters Patent No. 661,605, dated November 13, 1900.

Application filed November 27, 1899. Serial No. 738,431. (No model.)

*To all whom it may concern:*

Be it known that I, ADOLPH HAFTER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have  
5 invented a new and useful Machine for Cutting, Raveling, and Cleaning Carpet-Strips, of which the following is a specification.

My invention relates to means for cutting  
10 a portion of the warp-threads at the sides of the strips, so as to produce raveled or fimbriated edges, which adapts the strips to a variety of uses in the manufacture of many kinds of fancy goods; and my object is to  
15 produce a machine for this purpose which is more particularly adapted to be operated upon carpet or other similar heavy fabrics, as is hereinafter more fully described, and illustrated in the accompanying drawings, in  
20 which—

Figure 1 is a side elevation showing the manner of mounting and gearing together the principal operative parts. Fig. 2 is a vertical longitudinal section on broken line 2 2 of Fig.  
25 4. Fig. 3 is a plan of a piece of carpet, showing a cut and an uncut portion and also a portion which has been raveled and cleaned, so as to show fimbriated edges. Fig. 4 is a cross-section on broken line 4 4 of Fig. 2. Fig.  
30 5 is a detail section, on broken line 5 5, Fig. 2, of the rotary cutting or slitting knives which cut the carpet into strips, and this section also shows a portion of the bed-plate and a portion in front side elevation of one of the  
35 rollers above the bed-plate, which is provided with narrow circumferential grooves into which the edge portions of the rotary slitting-knives operate. Fig. 5<sup>a</sup> is a vertical cross-section of a small portion of the bed-plate, on  
40 a larger scale than what is shown in Fig. 5, to plainly illustrate the grooves and slots therein, for the purpose as is more fully described hereinafter. Fig. 6 is a detail section, on line 6 6, Fig. 4, to illustrate the roller-cut-  
45 ters for cutting out the warp-threads at each edge of the strips of carpet. Fig. 7 is a detail on broken line 7 7, Fig. 6. Fig. 8 is a plan of a portion of a finished strip of carpet, showing the remaining longitudinally-disposed warp-

threads and the laterally-projecting woof- 50 threads which form the fimbriated edge.

Similar letters indicate like parts throughout the several views.

Mounted in bearings at each side of the top portion of the main supporting-frame A of the machine and above the bed-plate are nine  
55 rollers B, B', B<sup>2</sup>, B<sup>3</sup>, B<sup>4</sup>, B<sup>5</sup>, B<sup>6</sup>, B<sup>7</sup>, and B<sup>8</sup>. Below bed-plate A' are mounted in bearings one transverse shaft C and a roller D. Each of the rollers from B to B<sup>7</sup>, inclusive, is grooved  
60 circumferentially, as at E, Figs. 2, 4, and 5. Registering with each groove in the rollers are longitudinal grooves F in bed-plate A, as shown in Figs. 2, 5, and 5<sup>a</sup>. The rollers above  
65 bed-plate A' from B to B<sup>8</sup>, inclusive, with the exception of roller B<sup>4</sup>, are mounted in boxes at each end, which are yieldingly held from rising from the bed-plate by means of  
70 short rubber springs B<sup>9</sup>, Fig. 1, the general faces of the rollers being held in close proximity to the bed-plate. Roller B<sup>4</sup> is mounted in boxes, which are yieldingly held from lifting by the springs C' and C<sup>2</sup>. Transverse  
75 roller D is mounted directly under roller B<sup>4</sup> and in contact with it. Transverse shaft C is mounted below the bed-plate and on a vertical line between rollers B' and B<sup>2</sup>. Upon  
80 transverse shaft C are mounted several disk or rotary knives G, Figs. 1, 2, and 5, and these knives project above and through slots in the bed-plate A' and into narrow grooves H, dis-  
posed circumferentially in rollers B' and B<sup>2</sup>.

Rotary knives G are separated a distance equal to the width of the narrow strips of  
85 carpet to be cut.

In Figs. 1, 2, and 6 are shown flexible belts I, which after passing over adjustable tension-pulleys J at the top of the machine-frame are  
90 disposed in grooves E in the front roller B, thence along the top of the bed-plate and under and in all the grooves E of the several rollers from B to B<sup>7</sup>, inclusive, and thence upwardly to the guide-pulleys. Each one of the  
95 belts I is provided with a series of sharp projections I', which project downwardly into the longitudinal grooves F of the bed-plate.

Roller D below the bed-plate has a smooth surface, but roller B<sup>4</sup> directly above is pro-



vided with several series of longitudinal cutters L, which contact the lower roller at each side of each of the belt-grooves E.

Roller B<sup>6</sup> is provided with a series of fine spring-teeth M at each side of the belt-grooves.

In this instance the machine is shown as driven by means of a bicycle pedal-crank movement operated by the feet, the operator's seat not being shown, but is located at the front or left-hand end of the machine (illustrated in Fig. 1) at the proper distance and height relative to the pedals. On the pedal-shaft is securely mounted a large drive-pulley N, which is connected by means of a belt N' to a small pulley upon a shaft, upon which is also mounted a large pulley O, and this latter pulley is geared by a belt to drive the transverse shaft C and the knives G at a high rate of speed. A transverse shaft P is geared by means of a chain and chain-wheels to the pedal-shaft, and by other chains Q and R shaft P is connected to drive the series of rollers from B to B<sup>7</sup>, inclusive. Roller B<sup>6</sup>, with its fine spring-teeth, is driven at a higher rate of speed than the other rollers, as is shown in Fig. 1, where a smaller chain-wheel is shown mounted at the end of the roller-journal B<sup>6</sup> than at the ends of the journals of the other rollers.

In operation power may be applied in the manner hereinbefore indicated or in any other manner, so that all the rollers from B to B<sup>7</sup>, inclusive, and the rotary knives G are revolving in the direction indicated by the arrow on roller B, Fig. 2. If now the end of a piece of carpet or other fabric to be operated upon is inserted under the first roller B, it will be engaged by the teeth I' of the belts I and carried longitudinally along the bed-plate A and under all the rollers from B to B<sup>7</sup>, inclusive. During the passage of the fabric over the bed-plate the series of rapidly-revolving knives G accurately slit the carpet into strips of a width equal to the space between the edges of the knives. The carpet in its longitudinal movement over the bed-plate passes between lower smooth roller D and the several series of longitudinal cutters on roller B<sup>4</sup>, and since these cutters have the outer ends projecting far enough to contact the surface of roller D the warp-threads at each side edge of each of the strips, according to the length of the cutters, are cut into short lengths equal to the pitch of the outer ends of cutters L, Figs. 2 and 7. After the side warp-threads are cut the rearward movement of the carpet-strips causes them to pass under the several series of spring-teeth on roller B<sup>6</sup>, and since the outer ends of these teeth travel faster than the movement of the carpet-strips the teeth serve as brushes to sweep out from among the laterally-projecting uncut woof-threads all the short fibers of the cut warp-threads and leave the strips with the fimbriated edges. (Shown in Fig. 8,

which plainly illustrates the desired result to be attained.) When the strips have been cut and the edges raveled, as described, they pass out of the machine from under roller B<sup>7</sup> and down upon apron A<sup>2</sup> and into any desired receptacle.

To prevent the prepared strips from being carried up from the bed-plate or apron by the action of the teeth I' of belts I when the strips are being ejected from the machine, the roller B<sup>8</sup> is provided with a peripheral brush-covering, and since roller B<sup>8</sup> is disposed close to roller B<sup>7</sup> and the brush-face of roller B<sup>8</sup> revolves in a contrary direction to the adjacent face of roller B<sup>7</sup> and the belts thereon the strips, if they should rise with teeth I', would be brushed downwardly upon apron A<sup>2</sup>.

The roller B<sup>8</sup> is made to revolve at a higher rate of speed than roller B<sup>7</sup> by being geared to roller B<sup>6</sup> by means of a chain belt, in this instance on the opposite side of the machine, (shown in Figs. 1 and 2 and indicated by the letter T in both these figures.)

I claim as my invention—

1. In a machine for cutting, raveling and cleaning carpet-strips, a feeding mechanism therefor comprising a bed-plate provided with a series of longitudinal grooves, a series of rollers mounted transversely above the bed-plate and provided with circumferential grooves registering with the longitudinal grooves of the bed-plate, belts adapted to travel above the bed-plate and having projections which jut into the longitudinal grooves, the said belts being located in the grooves of the rollers, and having motion imparted thereto by contact therewith, whereby a strip of carpet is carried along the bed-plate under the rollers, and parallel with the grooves in the bed-plate, for the purpose stated.

2. In a machine for cutting, raveling and cleaning carpet-strips, a slitting mechanism therefor comprising a bed-plate having a series of parallel longitudinal slots therethrough, a revoluble shaft mounted below the bed-plate, circular knives mounted on the shaft and projecting upwardly through the slots and above the surface of the bed-plate, rollers mounted transversely of and above the bed-plate, there being circumferential grooves in the rollers, feed-belts in the grooves of the rollers in contact with the surface of the bed-plate, and other circumferential grooves between the first-named grooves in which edge portions of the circular knives are disposed, substantially as stated.

3. The combination in a machine for cutting, raveling and cleaning carpet-strips, having a feed mechanism comprising a bed-plate provided with a series of longitudinal grooves, a series of rollers mounted transversely above the bed-plate and provided with circumferential grooves registering with the longitudinal grooves of the bed-plate, belts adapted to travel above the bed-plate and having projec-



tions which jut into the longitudinal grooves, the said belts being located in the grooves of the rollers, and having motion imparted thereto by contact therewith, of a series of  
5 rotary knives adapted to cut the woof-threads of the carpet, and thereby slit the same longitudinally into strips, and a series of transverse knives adapted to cut the warp-threads at the marginal side edges of the strips, and a

rotary spring-toothed cleaning-wheel adapted to remove the warp-thread cuttings, in the manner and for the purpose substantially as hereinbefore stated.

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Witnesses:

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