

No. 631,309.

Patented Aug. 22, 1899.

F. R. KEYES.
CIGAR WRAPPING MACHINE.

(Application filed Sept. 13, 1897. Renewed Apr. 20, 1899.)

(No Model.)

2 Sheets—Sheet 1.

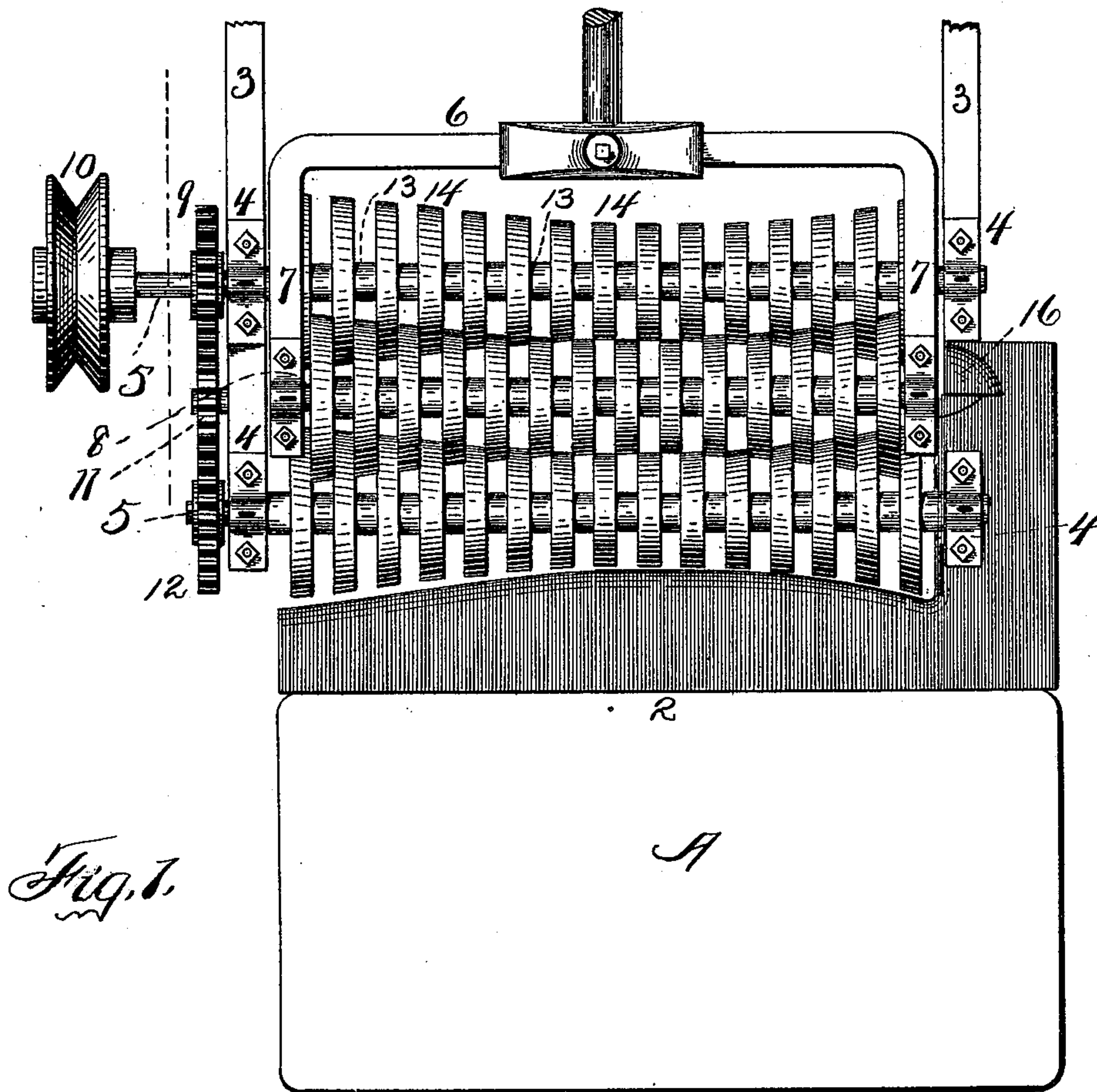


Fig. 1.

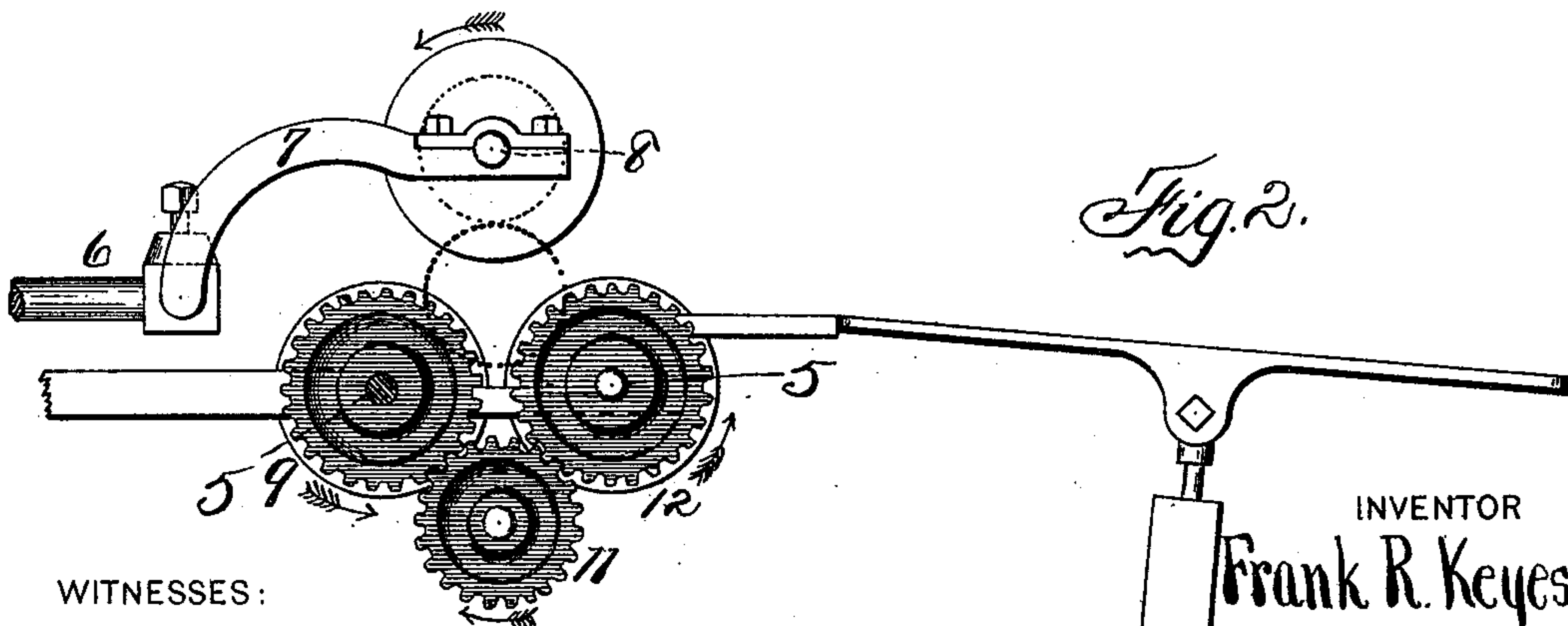


Fig. 2.

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2 Sheets—Sheet 2.

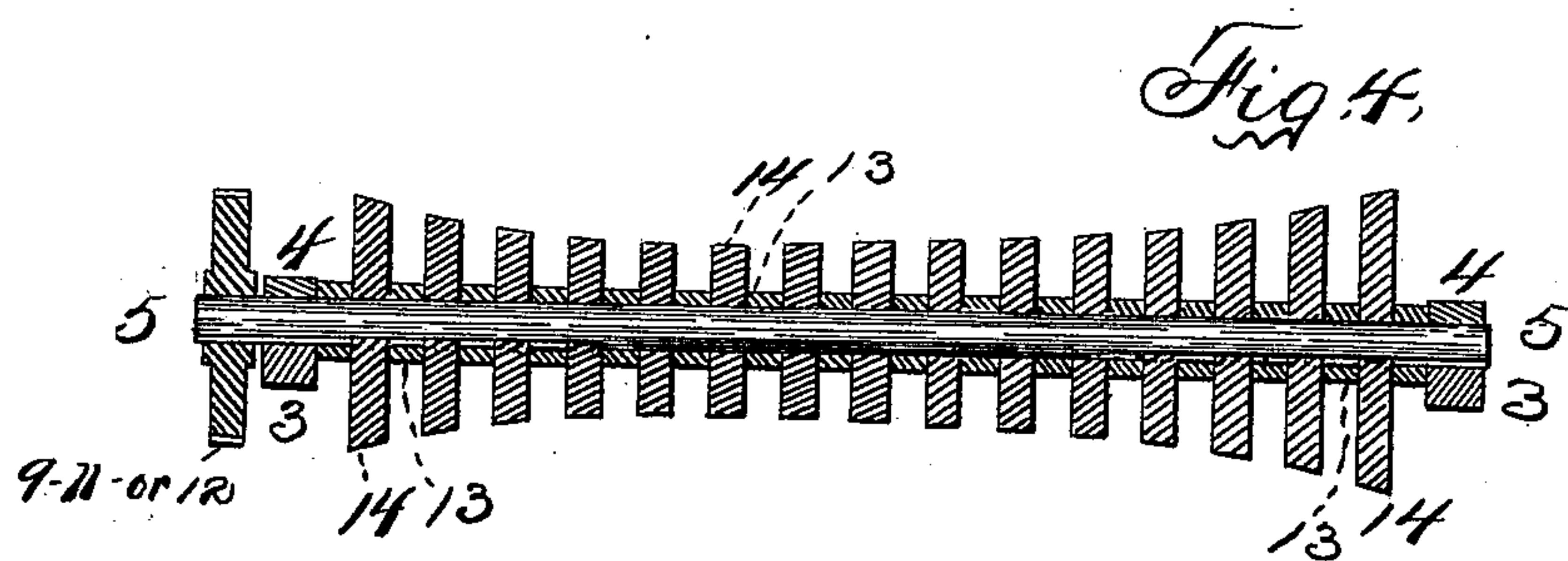
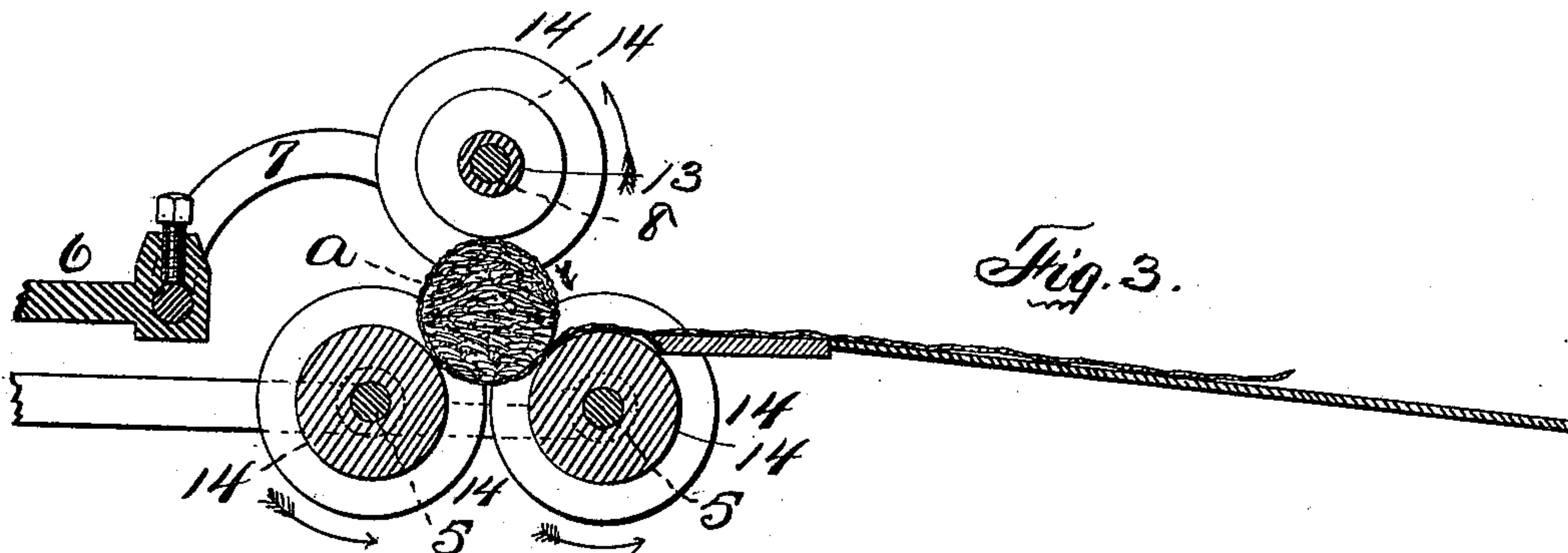
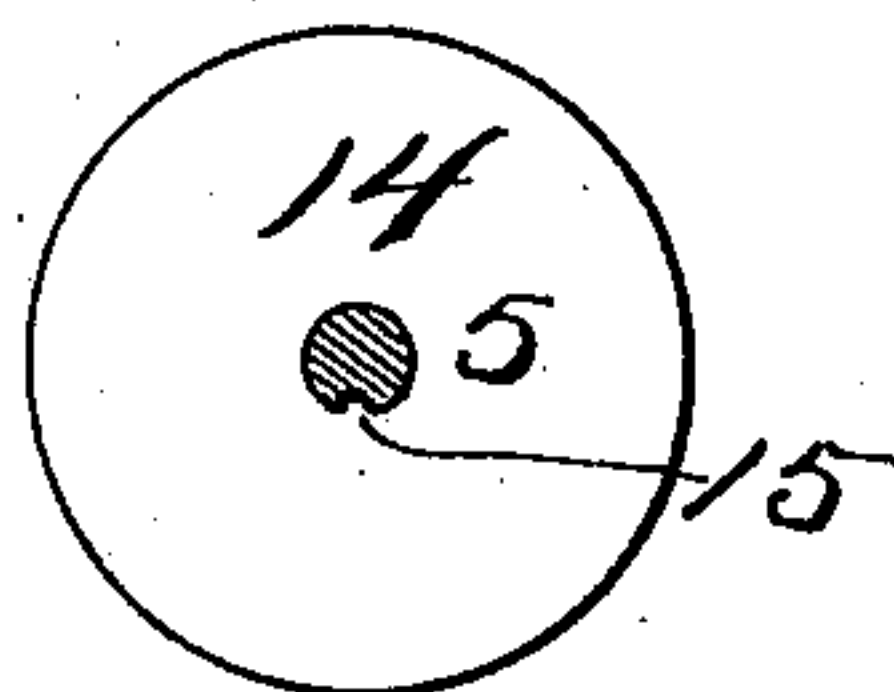


Fig. 5.



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UNITED STATES PATENT OFFICE.

FRANK R. KEYES, OF BINGHAMTON, NEW YORK, ASSIGNOR TO THE KEYES-BAKER CIGAR ROLLING MACHINE COMPANY, OF SAME PLACE.

CIGAR-WRAPPING MACHINE.

SPECIFICATION forming part of Letters Patent No. 631,309, dated August 22, 1899.

Application filed September 13, 1897. Renewed April 20, 1899. Serial No. 713,758. (No model.)

To all whom it may concern:

Be it known that I, FRANK R. KEYES, of Binghamton, in the county of Broome, in the State of New York, have invented new and
5 useful Improvements in Cigar-Wrapping Machines, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to cigar-bunch-rolling
10 machines, and particularly to the mechanisms for rotating the bunch and rolling it into the wrapper or winding the wrapper thereon.

My object is to provide a rolling mechanism
15 dispensing with an endless apron, embodying a pair of rollers concaved longitudinally for the bottom of the rolling-chamber and also constituting its front and back and a third similar roller above the space between the
20 others, all of said rollers being mounted upon parallel shafts and suitable means being employed to raise the upper or pressure roller to open said chamber to receive a bunch or for the removal of a cigar and to lower it to
25 bear upon the bunch while being revolved, each roller consisting of a shaft and a series of roller-disks spaced apart and graduated in size mounted upon said shafts, more or less
30 of them being loose and free to revolve thereon, enough of them being secured to insure the rotation of the bunch.

Heretofore efforts have been made to employ solid concave rollers to rotate a bunch; but they proved impractical on account of the fact that the differences in the radius of the
35 roller at its ends and central portion caused the peripheries of the enlarged ends to travel faster than the central portion, and thereby twisted the bunch in a manner analogous to the twisting of the strands of a rope, and thus
40 destroyed the cigar, because it would not draw. Experience has also shown that an endless-apron machine is of much more utility in rolling hard or molded bunches than those which are soft or hand-made.

It is to remedy the above difficulties that
45 this mechanism was invented, designed especially for soft bunches, the concavity of the roller being substantially equal to the convexity of the cigar to be made, so that the rolling-chamber is substantially of the outline of
50 the cigar. It is constructed as follows, refer-

ence being had to the accompanying drawings, in which—

Figure 1 is a top plan part of the machine, including the rollers, wrapper stretcher and
55 table and omitting the other accessories. Fig. 2 is an end elevation thereof. Fig. 3 is a vertical cross-section thereof. Fig. 4 is a longitudinal section of one of the rollers. Fig. 5
60 is a cross-section showing one of the disks secured onto the roller-shaft. Fig. 6 is an elevation of a cigar.

A is an ordinary wrapper-table; 2, an ordinary or suitable wrapper-stretcher, and 3 3,
65 suitable bars or beams parallel to each other and provided with suitable journal-bearings 4, in which the parallel shafts 5 are journaled. A suitable frame 6 carries in its arms 7 a suitably-journaled shaft 8. A gear 9 upon one
70 of the shafts 5 is driven by power suitably applied to a pulley 10 and through an intermediate gear 11 drives the gear 12 on the other shaft 5, whereby both shafts 5 are revolved in the same direction. The frame 6 is operated in the same manner.

75 Upon each of the shafts 5 and upon the shaft 8 a series of alternate washers 13 and disks or sections 14 are mounted. The greater part of these are loose and free to revolve upon their shafts. A few of the disks are
80 mounted upon each shaft by means of a spline or feather-joint 15, as in Fig. 5, so as to be removable, but driven by the shaft in order to rotate the bunch α , as hereinafter explained. At 16 is a suitable header. Ordinarily some
85 of the central disks are the ones so connected to the shaft, or some on either side of the center and of equal size. These disks are spaced apart in order to prevent them from becoming gummed up and stuck together by
90 the liquor which exudes from the tobacco, as would be the case if they were close together and their meeting faces were of equal radii. As the bunch is rotated at a fixed rate by
95 a few of said disks, the other disks simply perform the function of an antifrictional support or bearing for the bunch and are revolved by the bunch at different rates of
100 speed, according to their size and the ratio of the radius of the bunch to that of the disk at any point of engagement, whereby all twisting of the bunch at the ends and consequent

hard rolling and spoiling of cigars are avoided, it being a fact that a solid roller having a concaved face will twist a bunch on account of the fact that the largest parts of such a roller engage with the smaller parts of the bunch and the peripheries of the large ends of the roller must travel faster than the smaller central portions.

The washers being small and of uniform size, the frictional resistance against the free rotation of the lower disks is reduced and equalized throughout the roller.

Any roller can be readily removed for the insertion of another one or for changing the disks thereon when it is desired to roll cigars of different form.

This mechanism is especially adapted to the rolling of soft or hand-made bunches, although it is capable of use upon hard or molded bunches, and with either kind it preserves the longitudinal alinement of the parts or pieces composing the filler.

It will be seen that it is entirely optional which of the disks are splined onto the shaft, it only being essential that enough of them are in order to insure the rotation of the bunch, it making no difference whether they are at one or both ends or at any intermediate point or points, and it is probable that the location of the splined disks will necessarily be varied more or less, according to the shape of the cigar being rolled.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a cigar-bunch-rolling machine, a bunch-rotating roller, comprising a shaft, and disks mounted loosely thereon and spaced apart substantially as shown and described.

2. In a cigar-bunch-rolling machine, a bunch-rotating roller, comprising a shaft and disks thereon, part of which are secured thereto and part are rotatable thereon and means to space them apart, substantially as shown and described.

3. In a cigar-bunch-rolling machine, a bunch-rolling chamber comprising longitudinally-concaved rollers upon parallel shafts each consisting of spaced disks part of which revolve loosely upon, and the remainder revolve with a shaft, and composing the bottom and front and rear sides of said chamber, and a presser-roller of like construction composing the top thereof.

4. In a cigar-bunch-rolling machine, the combination with a pair of rollers consisting of parallel shafts and spaced disks thereon, part of which are non-revoluble thereon, of a presser-roller upon a shaft parallel with the

other shafts and having spaced disks loosely mounted thereon, and a header in alinement with the center of the bunch-rolling chamber between said rollers.

5. In a cigar-bunch-rolling machine, a concaved roller comprising a shaft, and a body composed of loose disks of varying radii spaced apart on said shaft and creating alternate ridges and grooves constituting its working face.

6. In a cigar-bunch-rolling machine, a concaved bunch-rotating roller comprising a central shaft, and a body composed of disks of varying radii spaced apart upon, and part loose upon, and part secured upon said shaft creating alternate ridges and grooves constituting its working face.

7. In a cigar-bunch-rolling machine, a plurality of concaved rollers, each comprising a shaft and spaced disks part of which are loose and part are splined thereon, creating a bunch-rolling chamber between them, combined with a header, and a wrapper table and stretcher.

8. In a cigar-bunch-rolling machine, a plurality of rollers each composed of a shaft and spaced disks part of which are rotatable thereon creating the bed of the bunch-rolling chamber, combined with an upper roller constituting the top of said chamber and consisting of a shaft and loose disks thereon arranged in alternation with those of the bed-rollers.

9. In a cigar-bunch-rolling machine, a bunch-rotating roller comprising a shaft, and a body thereon composed of fast and loose sections spaced apart by loose washers between them.

10. In a cigar-rolling machine, a roller comprising a shaft, and a concaved body consisting of spaced disks of varying radii, loosely mounted part of them revolving with the shaft thereon.

11. In a cigar-rolling machine, a roller comprising a shaft, and a concaved body consisting of spaced disks of varying radii, part of which are secured upon said shaft, and the others are loose thereon.

12. In a cigar-rolling machine, a concaved body composed of disks of spaced varying radii, having their peripheries beveled in varying degrees, and a shaft upon which they are mounted.

In witness whereof I have hereunto set my hand this 7th day of September, 1897.

FRANK R. KEYES.

In presence of—

F. B. NEWELL,

G. O. WADSWORTH.