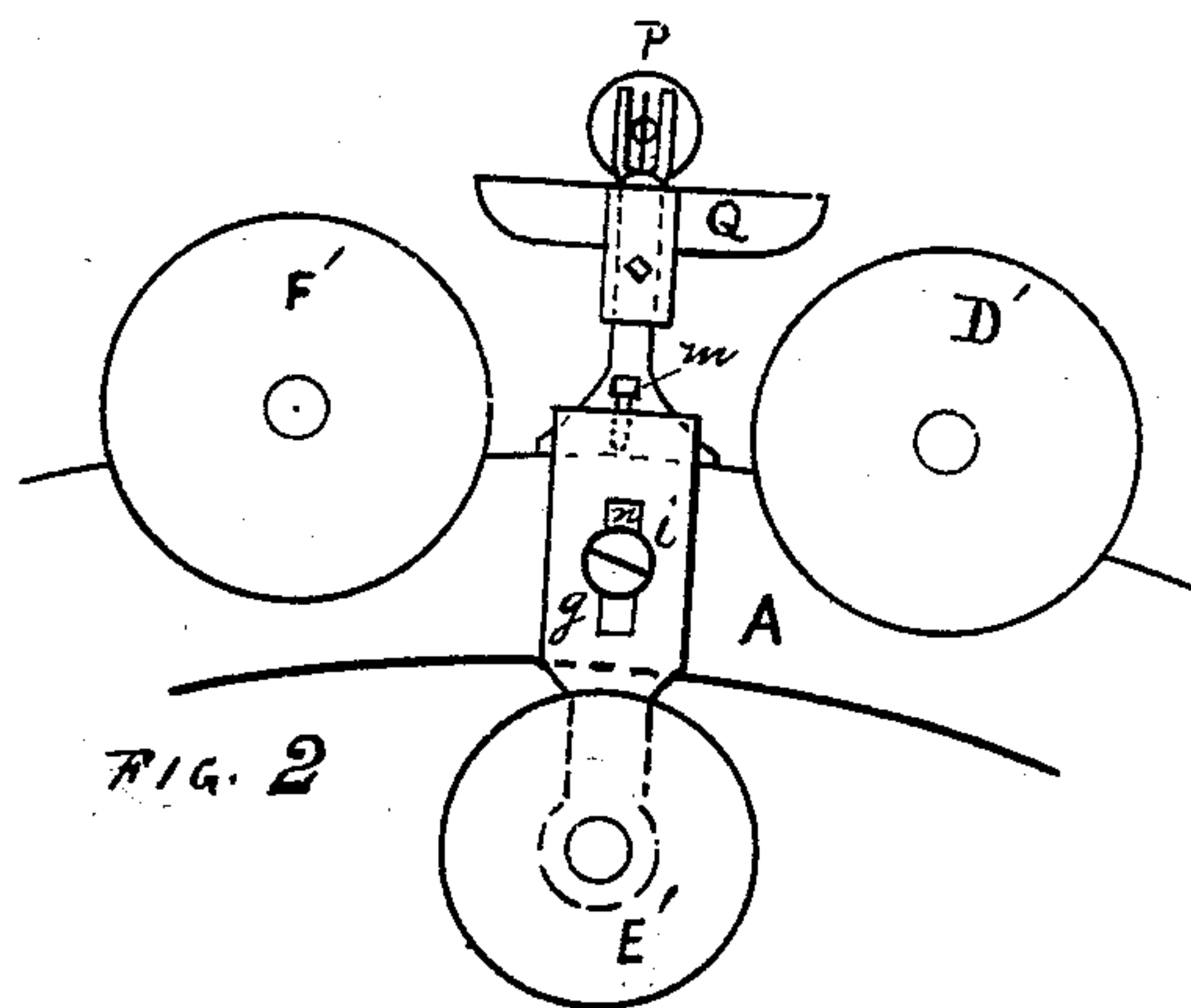
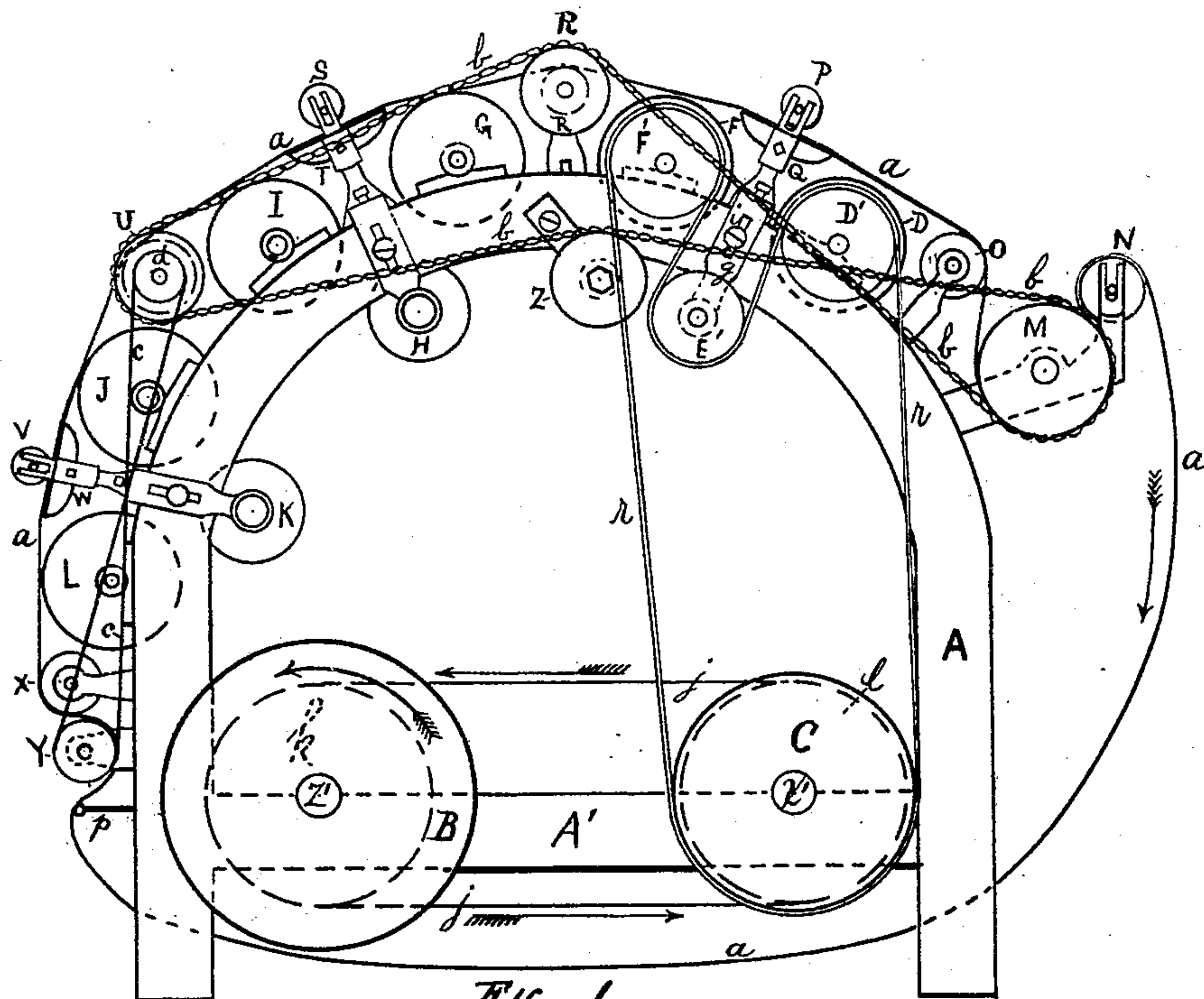


C. W. BROWN.
Cloth-Napping Machines.

No. 151,957.

Patented June 16, 1874.



Witnesses,
C. A. Shaw,
H. E. Metcalf.

Inventor,
Charles W Brown.

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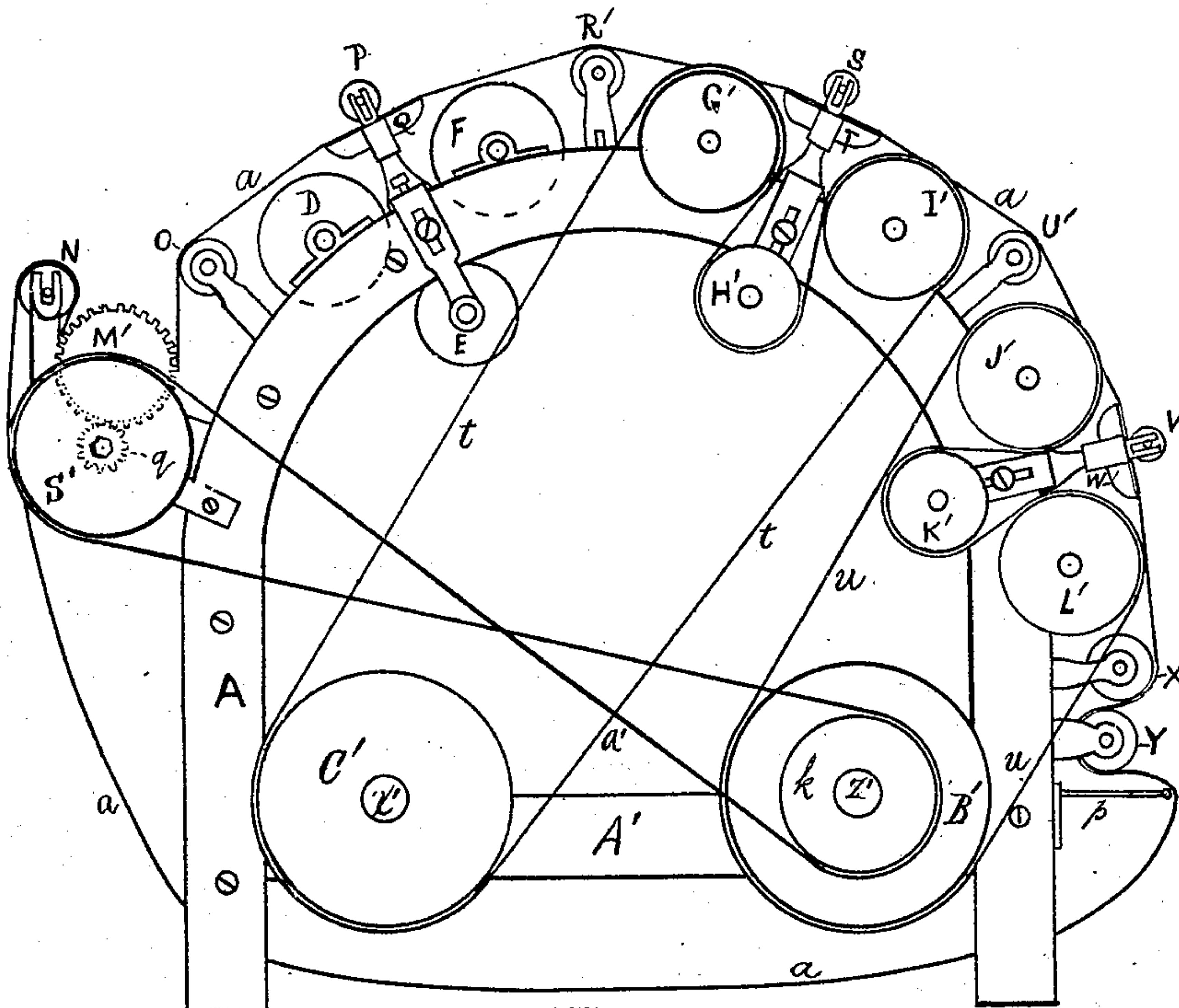


FIG. 3

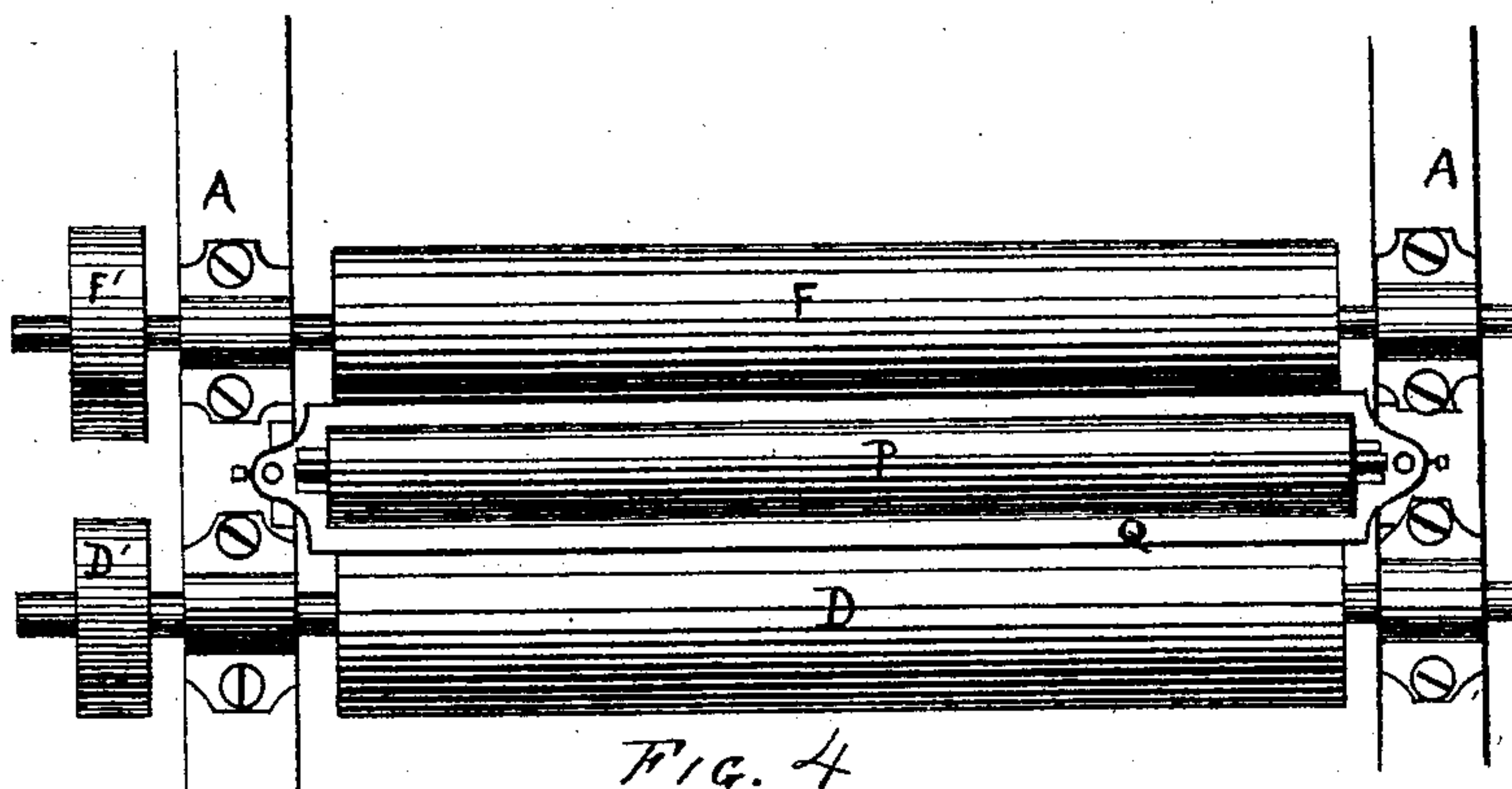


FIG. 4

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CHARLES W. BROWN, OF TROY, NEW HAMPSHIRE.

IMPROVEMENT IN CLOTH-NAPPING MACHINES.

Specification forming part of Letters Patent No. **151,957**, dated June 16, 1874; application filed April 30, 1874.

To all whom it may concern:

Be it known that I, CHARLES W. BROWN, of Troy, in the county of Cheshire, State of New Hampshire, have invented a certain new and useful Improvement in Cloth-Napping Machines, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which my invention appertains to make and use the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is an end elevation of my improved cloth-napping machine; Fig. 2, an end view of a section of the same; Fig. 3, an elevation showing the end of the machine opposite to that represented in Fig. 1; and Fig. 4, a plan or top view of the section shown in Fig. 2.

Like letters indicate corresponding parts in the different figures of the drawings.

My invention relates to that class of cloth-napping machines in which the nap is raised by means of toothed cylinders; and consists in a novel construction and arrangement of the parts, as hereinafter more fully set forth and claimed, the object being to produce a machine of greater capacity, and which is more effective in its operation than those now in common use.

The main frame-work of the machine consists of two arched end pieces, A, Figs. 1 and 3, properly connected by side rails, (not shown,) and having the cross rails or beams A'. The main shaft Z', carrying the main driving-pulley B upon its outer end, and the counter-shaft x' provided with the pulley C, are supported in suitable boxes resting upon the beams A'. Interiorly disposed upon the shaft Z' there is a pulley, K, which is connected with the counter-pulley l upon the shaft x' by the belt j. A series of napping-cylinders, L J I G F D, are arranged in the arc of a circle around or upon the frame A, and journaled to run in proper boxes fitted to the frame. These cylinders are covered with ordinary napper-card clothing, and provided respectively upon the outer ends of their shafts with the driving-pulleys L', J', I', G', F', and D', being actuated by the belts r t u and pulleys C, C', and B'. In the frame

A there are also three cylinders, K H E, covered with long toothed card clothing, and suspended in the lugs or hangers g. These cylinders, which I denominate grinders and clearers, are rendered adjustable by the slot n and screws i m, Fig. 2, and work in connection with the cylinders first named, each of the inner cylinders being driven by the same belt as, and arranged to operate in connection with, two of the outer cylinders, or so that the teeth will intersect, thus forming a series of sets of cylindrical cards around the periphery of the machine—that is to say, the cylinders L J are provided with the clearing and grinding cylinders K, the three working together and forming the first set, the cylinders I G H forming the second set, and D F E the third set. Outside of and arranged midway between the cylinders F D, there is a bridge or support, Q, corresponding in length with the cylinders and having a flat upper surface. This bridge is supported by and rendered adjustable upon standards projecting from the frame A, as in Fig. 2. Projecting outwardly from each end of the bridge there is a slotted guide or support, in which the gravitating tension and smoothing roller P is journaled, the cylinders G and I and J L being respectively provided with corresponding bridges and rollers T S and W V. The main feeding-roller M and the auxiliary feeding-rollers R U Y are mounted upon the frame A in adjustable supports, and covered with Belgian or very short toothed card clothing. Between the cylinder D and main feed-roller there is a guiding-roller, O, and between the cylinder L and auxiliary feed-roller Y there is a guiding-roller, x. A cloth-guide, p, projects from the frame A below the roller Y, and a gravitating tension-roller, N, is journaled in slotted supports, to work in connection with the feeding-roller M. Projecting from the frame A, Fig. 3, there is a stud, upon which the pulley S' is journaled, to the inner side of which pulley the pinion q is attached. This pinion engages with the gear M', which is disposed upon the same shaft with the main feeding-roller M. Outside of the pulley B', upon the shaft Z', there is a smaller pulley, k, which is connected with the pulley S' by means of

the belt *a'*. The auxiliary feeding-rollers R, U, and Y, are connected with the main roller M by the belts *b c*, the belt *b* passing over the rotary lug or grooved supporting-pulley Z on its way to the roller U.

From the foregoing the nature and operation of my invention will be readily understood by all conversant with such matters.

The cloth (represented by the line *a*, Fig. 1) upon which a nap is to be raised is passed into the machine over the guide *p*, under the feeding-roller Y, over the roller *x*, between the roller V and bridge W, over the feeding-roller U, between the roller S and bridge T, over the feeding-roller R, between the bridge Q and roller P, over the guide-roller O, under the main feeding-roller M, over the tension-roller N, and out in the direction indicated by the arrow, to be wound upon a cylinder or folded, as the case may be, in any convenient manner. In the drawing the cloth is represented in a continuous strip, but it will be understood that cuts of cloth are to be sewed together, or connected end to end, in the usual manner, as they are passed through the machine. The object of the bridges W T Q is to prevent the cloth from sagging between the cylinders, and to determine the degree of pressure with which it shall be brought into contact therewith. The object of the cylinders K H E is to clear the teeth of the cylinders L J I G F D of the short fibrous particles removed from the cloth in the process of napping, and which would otherwise wedge in the interstices between the teeth and prevent the perfect operation of the machine. They also act to sharpen the teeth of the napping-cylinders, and obviate, in a great measure, the necessity of using the ordinary emery cylinder for that purpose. It will be readily obvious that the napping-cylinders F D, clearer E, bridge Q, and roller P, as shown in Figs. 2 and 4, when mounted and used in connection with the proper feeding and guiding rollers, consti-

tute a complete napping mechanism in and of themselves, but it is preferable, in order to increase the capacity of the machine and render it more effective, that it should be organized or formed by arranging a series of sets in the arc of a circle, as specified. It is also obvious that a series of sets, substantially such as specified, may be arranged horizontally without departing from the spirit of my invention; but it is preferable to arrange them in the arc of a circle to economize space, and also for the reason that the feeding-rollers and bridges will act more effectively, and the machine can be belted up with less trouble. Each of the cylinders D F may also be furnished with a clearing-cylinder, if desired.

Having thus described my invention, what I claim is—

1. In a cloth-napping machine, the napping-cylinders D F, clearing-cylinder E, bridge Q, and roller P, combined to operate substantially as and for the purpose specified.

2. In a cloth-napping machine, the feeding-roller M, tension-roller N, and guiding-roller O, combined and arranged to operate with the cylinders D F E, bridge Q, and roller P, substantially as and for the purpose set forth.

3. In a cloth-napping machine, the feeding-roller *y*, combined to operate with the cylinders D F E, bridge Q, and roller P, substantially as and for the purpose described.

4. In a cloth-napping machine, the cloth-guide *p* combined with the cylinders D F E, bridge Q, and roller P, substantially as and for the purpose specified.

5. In a cloth-napping machine, the feeding-roller *y*, guide *p*, and roller *x*, arranged to operate in combination with the cylinders D F E, bridge Q, and roller P, substantially in the manner and for the purpose set forth.

CHARLES W. BROWN.

Witnesses:

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