

(No Model.)

2 Sheets—Sheet 1.

G. W. & M. G. GILLETTE.
POWER APPLYING MECHANISM.

No. 500,710.

Patented July 4, 1893.

Fig. 1.

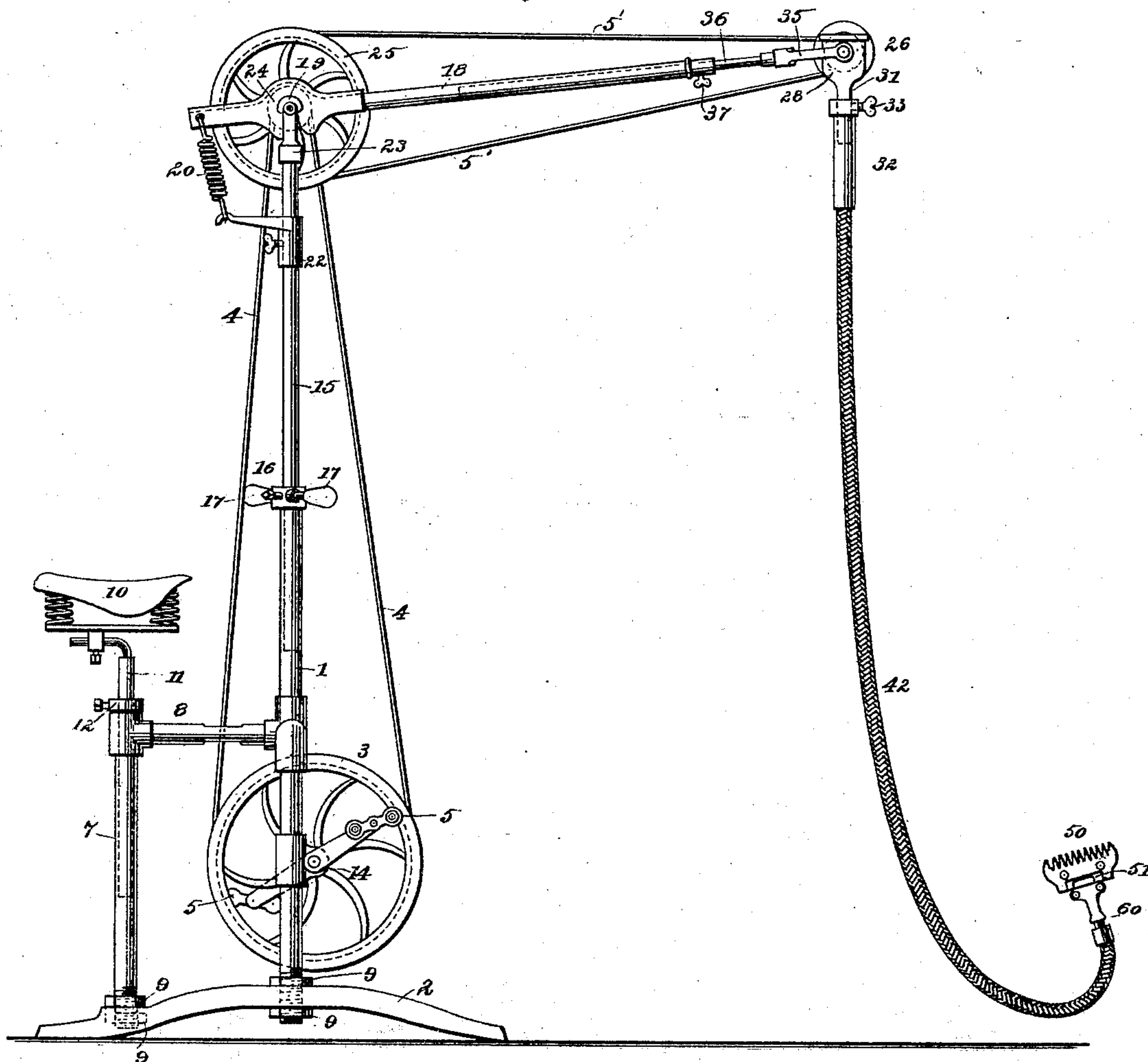
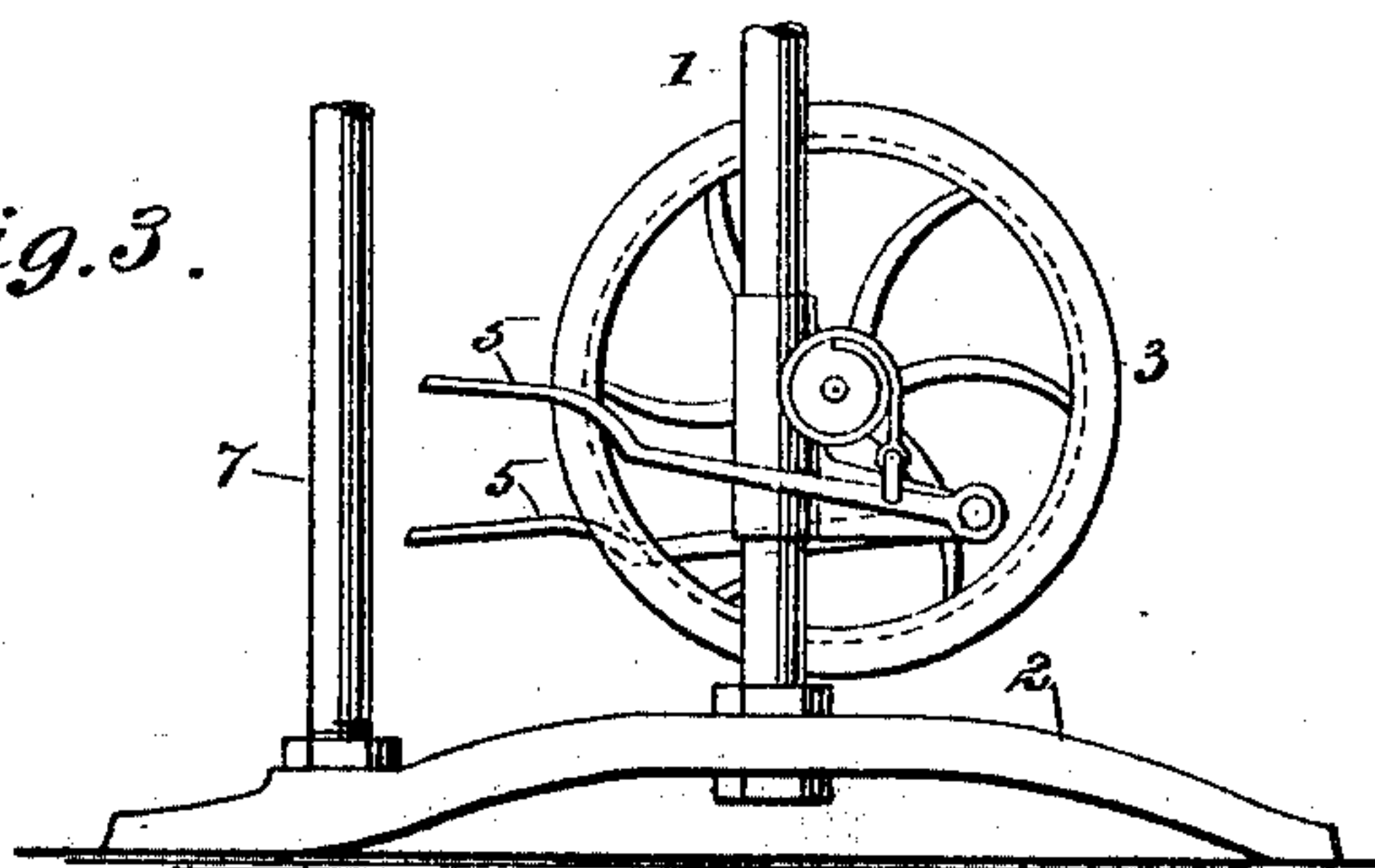


Fig. 3.



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2 Sheets—Sheet 2.

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Fig. 2.

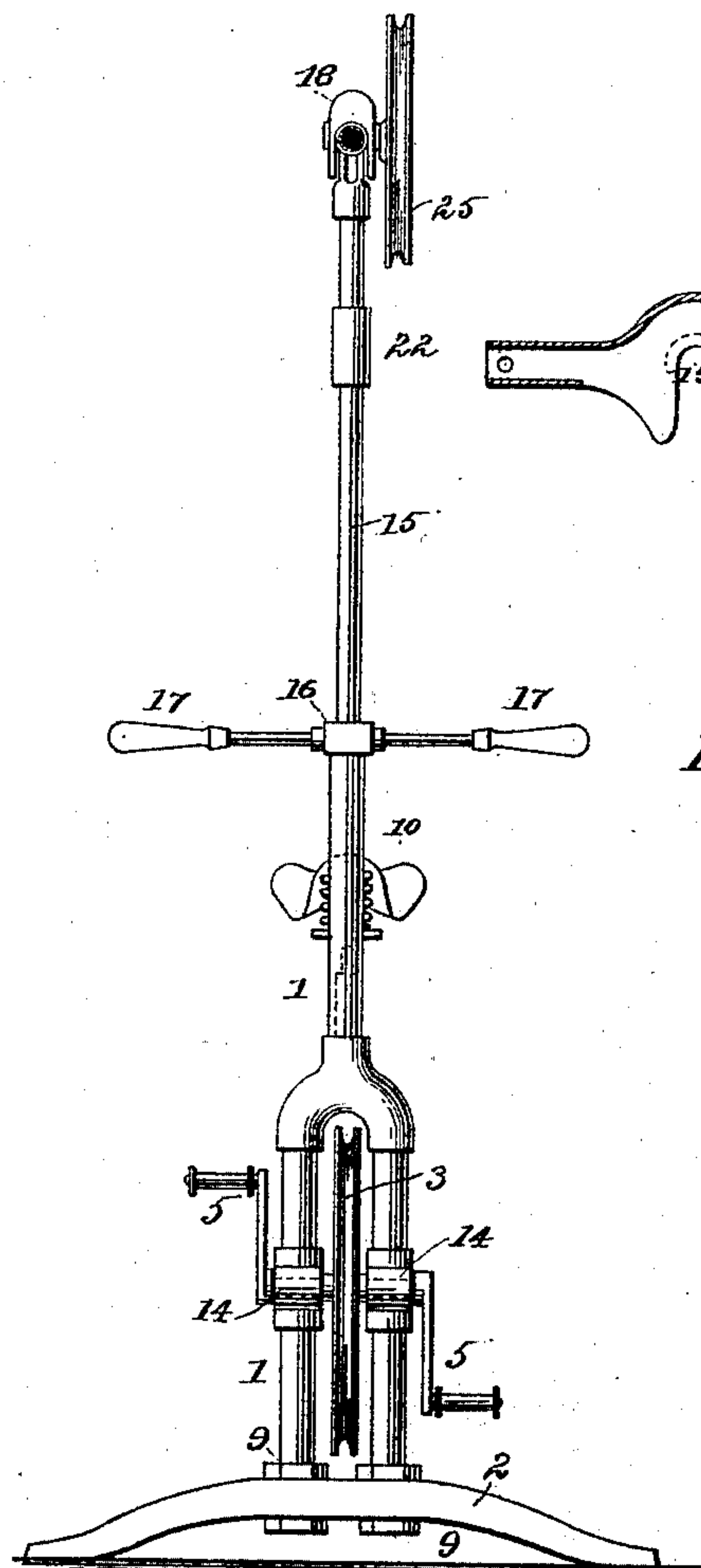


Fig. 4.

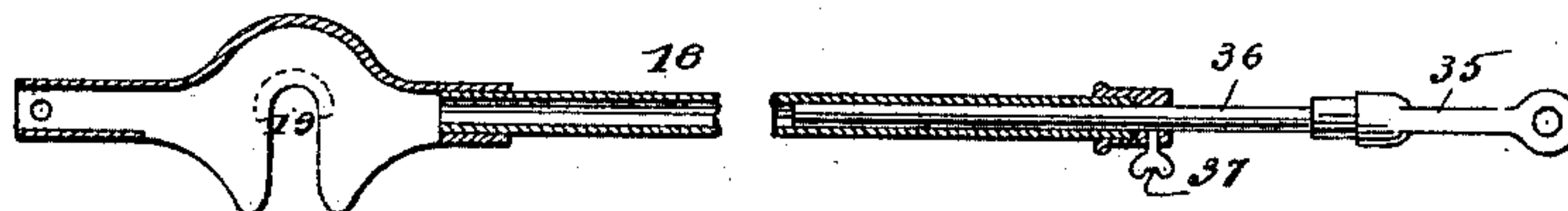


Fig. 5.

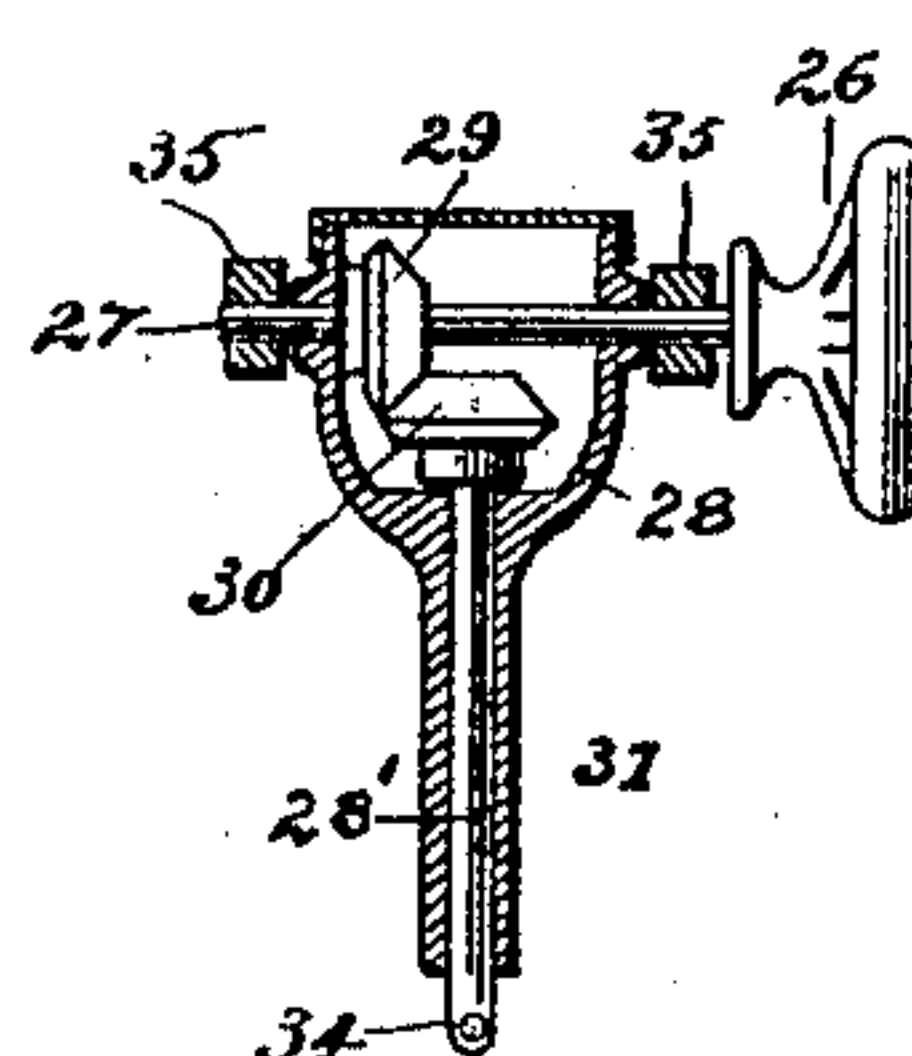
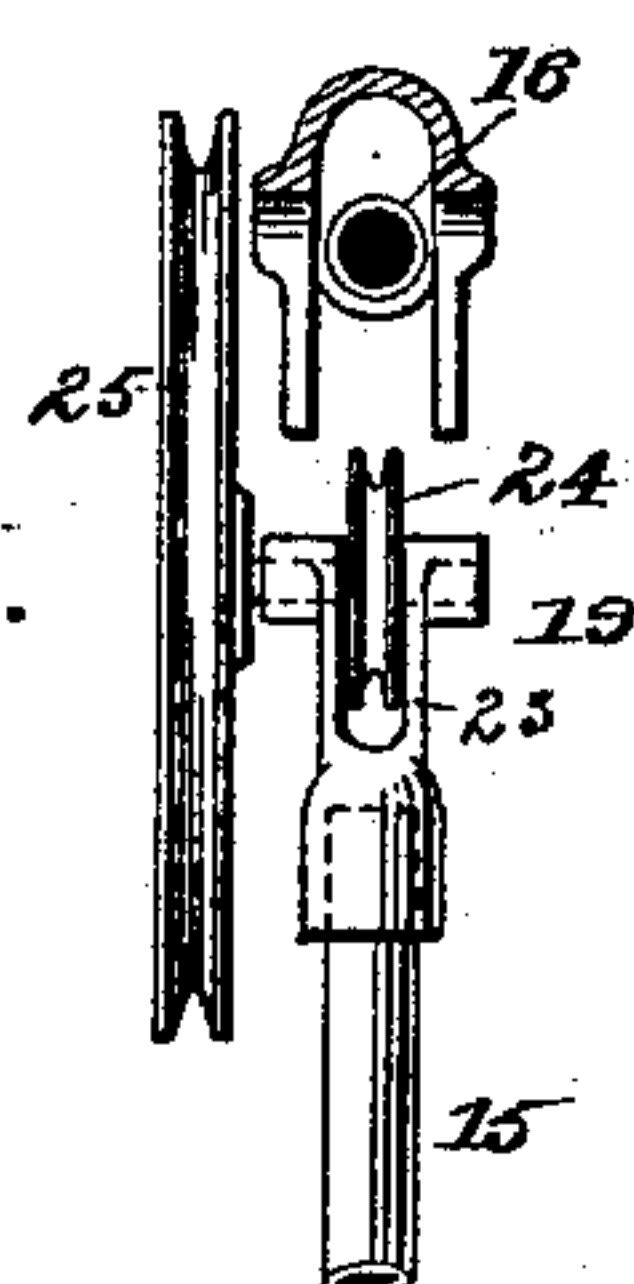
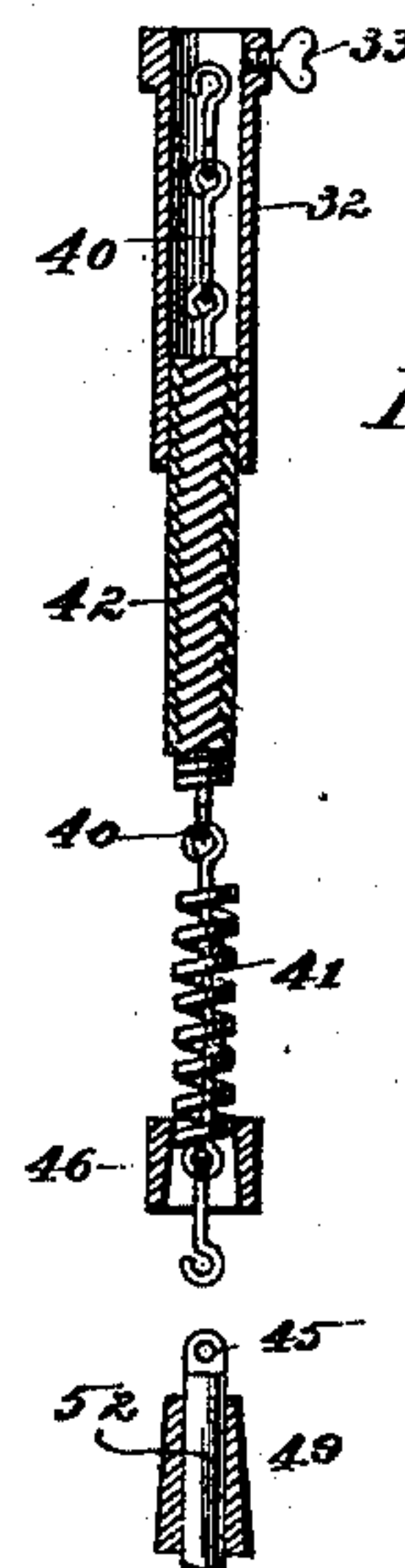


Fig. 6.



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UNITED STATES PATENT OFFICE.

GEORGE W. GILLETTE AND MOTT G. GILLETTE, OF NEW YORK, N. Y.

POWER-APPLYING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 500,710, dated July 4, 1893.

Application filed September 1, 1892. Serial No. 444,846. (No model.)

To all whom it may concern:

Be it known that we, GEORGE W. GILLETTE and MOTT G. GILLETTE, citizens of the United States, residing at the city, county, and State of New York, have invented certain new and useful Improvements in Power - Applying Mechanism, of which the following is a specification.

Our invention relates to mechanism for applying manual power for operating rotary or other hand tools, irrespective of the position of the latter, while the same are being moved about different parts of the work.

Our invention is herewith illustrated as embodied in a horse clipping machine, although applicable to other purposes, as for instance, drilling, burnishing, or cleaning various stationary objects.

Our invention consists in a mechanism for applying manual power to a rotary part occupying different positions wherein the transmission of motion by means of belting from the driving wheel to the movable part driven, may be accomplished without affecting the tension of the belts, therefore permitting uniformity of operation; and our said invention also comprises means for enabling the operator who exerts the power, to assist in guiding the instrument operated from one position to another, as hereinafter described and claimed.

Referring to the accompanying drawings in which similar characters of reference indicate corresponding parts throughout the several views: Figure 1, is a side elevation of a machine embodying the several features of our invention; Fig. 2, a front elevation of Fig. 1; Fig. 3, a detail view showing a modification of the treadle; Fig. 4, an enlarged longitudinal section of the universal supporting staff for the shafting. Fig. 5, is a detail view of the trunnion piece for the supporting staff; Fig. 6, an enlarged cross section of the gear cup, the shafting of the clipping device being disconnected.

The standard 1, of the apparatus is supported on a tripod base 2, and a suitable driving wheel 3, is trunnioned in the said standard, carrying a belt 4, extending to the mechanism to be driven. The shaft of the wheel 3, is supported in bearings 14, between the bifurcated part of the standard 1, as seen in Fig. 2. The wheel 3 is actuated by a double

treadle 5, 5, on diametrically opposite cranks connected to the shaft of said wheel 3, in a manner corresponding to that usually employed in bicycles. Other forms of bicycle treadles than that in Fig. 1, may be substituted; for instance the lever treadle in Fig. 2, is suitably adapted for the present machine. A seat standard 7, is also supported on the tripod 2, and held firmly by the cross brace 8, extending to the standard 1. The frame 1, 7, 8, is made readily separable from the tripod 2 for shipping, by means of double nuts 9, 9, which clamp the parts together. The frame is preferably composed of iron tubing. A saddle 10, of the bicycle pattern, composed of leather, mounted upon springs, is adjustably attached to the rod 11, having a set screw collar 12, by which it is rendered vertically adjustable in the standard 7, in alignment with the driving wheel 3 to suit the operator. The upper section 15 of the standard 1 is vertically adjustable therein by means of set screw and collar 16, and the said collar bears a laterally extending handle bar 17, whereby the upper frame of the machine is guided at will by the hands of the operator.

Upon the upper extremity of the standard sections 15, is mounted the supporting staff 18, trunnioned at 19 to allow of vertical angular motion; which staff is counterbalanced by the spring 20, the tension of which is adjusted by the bracket 22 having a suitable set screw as indicated. A suitable weight and means for adjusting the same may be substituted for the spring 20 at the shorter end of the staff 18, as a means of counter-balancing the same.

In the trunnion piece 23 of the standard 15, the transmitting belt sheaves 24, 25, are mounted as seen in Fig. 5, and by means of belts 4 and 5, motion is transmitted therefrom to the small belt fly wheel 26. The shaft 27 of said fly wheel 26, forms trunnions for the gear cup 28, so that the latter is adapted to oscillate about the axis of said shaft. Motion is transmitted to the spindle 28' through bevel gears 29, 30, and the said spindle is mounted in a shank 31 whereon the collar 32 of the flexible shafting is slid and adjusted by set screw 33. The spindle 28' has an eye 34 for attachment of the chain or other flexible shaft 40. The yoke 35 wherein the cup 28 is trunnioned is mounted upon a longitudinally ad-

justable rod 36, held by a set screw 37, so as to tighten the belt 5'. The belt 4 is tightened by the vertical adjustment of the standard section 15.

5 The flexible shafting 40 herewith illustrated is composed of a series of universally jointed links which are rotative within the flexible coiled wire tube 41, covered with suitable fabric or other covering 42, as appears in Fig. 6.

10 50 represents a clipping machine, the cutter of which is reciprocated by a cam or crank 51 attached to the rotary shank 52, Fig. 6.

15 The coiled tube 41, has open coils at a portion of its length, or throughout its length as the case may be, and exerts longitudinally expansive force when compressed.

In the operation of the machine the shaft 40 is first connected to the rotary spindle 28 within the shank 31 of the gear cup by hooking the end link of the shaft through the eye 34. The tube 41 with its sleeve 32 is then slid up over the shank 31 until the opposite extremity of the shaft 40 projects beyond the collar 46 from the opposite end of the said tube, when the rotary shank 52 of the clipping device is thereby connected by the eye 45. By lowering the collar 32 upon the shank 31 and adjusting it with the set screw 33, the collar 46 is caused to abut on the shank 49, of the clipper in its proper place, and by the exercise of moderate force in drawing down the sleeve 32, the coil 41, which forms a spring, is partially compressed, holding the shaft 40 moderately taut when the set screw 33 is clamped. The shaft 40 is thereby prevented from kinking and crowding, or producing undue friction when the tube 41 is perfectly straight, and when such tube is bent into various positions the open portions of its coil prevent the crowding of the same on the inside of the curve and the central elongation such as would produce longitudinal stress upon the shaft 40 with undue tension and friction. The shafting being adjusted, one operator manipulates the tool while another mounts the saddle 10, placing his hands on the handle bar 17, and his feet on the treadles 5, 5, and the driving wheel 3 is then rotated continuously with the same easy and natural motion that is employed in propelling a bicycle, while the said second operator steers or guides the universal supporting staff 18, controlling its horizontal sweep according to the movements of the first operator. The spring is adjusted to counter-balance the weight of the staff 18, and shaft 42, so that such staff automatically

adjusts itself in its vertical angular motion, according to the altitude at which the tool is operated.

Certain features herein illustrated and described with reference to the construction and adjustment of the flexible shafting, but not claimed herein, are fully described and claimed in a separate patent application filed December 3, 1892, Serial No. 453,919.

Having thus fully described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In a foot power applying mechanism, the combination of a driving wheel and double treadle, a rotary standard and transverse handle bar for controlling the rotative position of said standard, a saddle adjacent to the standard adapted to be straddled by the operator, a staff and means for counterbalancing it upon a horizontal axis at the extremity of the rotary standard, and at the extremity of said staff a flexible shafting, together with means for imparting rotation from said driving wheel to said flexible shafting irrespective of the relative positions of said standard, staff, and shafting, adapted as described.

2. The combination in a power applying apparatus of a standard, a driving belt wheel, a supporting staff jointed to the standard, a flexible shafting jointed to the supporting staff, and belt wheels having their axes of rotation coincident with the axes of said joints, and belts thereon transmitting motion irrespective of the relative positions of the said standard, staff and shafting substantially as described.

3. In a power applying apparatus, the combination of a suitable standard and driving belt wheel, a pivoted staff, two intermediate transmitting belt sheaves on a single shaft in the axis on which the staff is pivoted, a flexible shafting depending from the extremity of the staff, a final belt wheel at the extremity of said staff rotatively connected to the said shafting, and two independent belts connecting the driving wheel with one intermediate wheel, and connecting the other intermediate wheel with the final wheel, for transmission of rotation without affecting the tension of the belts, irrespective of the relative positions of said standard, staff, and shaft.

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