

(No Model.)

2 Sheets—Sheet 1.

W. SILVER.
WOOL OR HAIR CLIPPING MACHINE.

No. 440,902.

Patented Nov. 18, 1890.

Fig. 1.

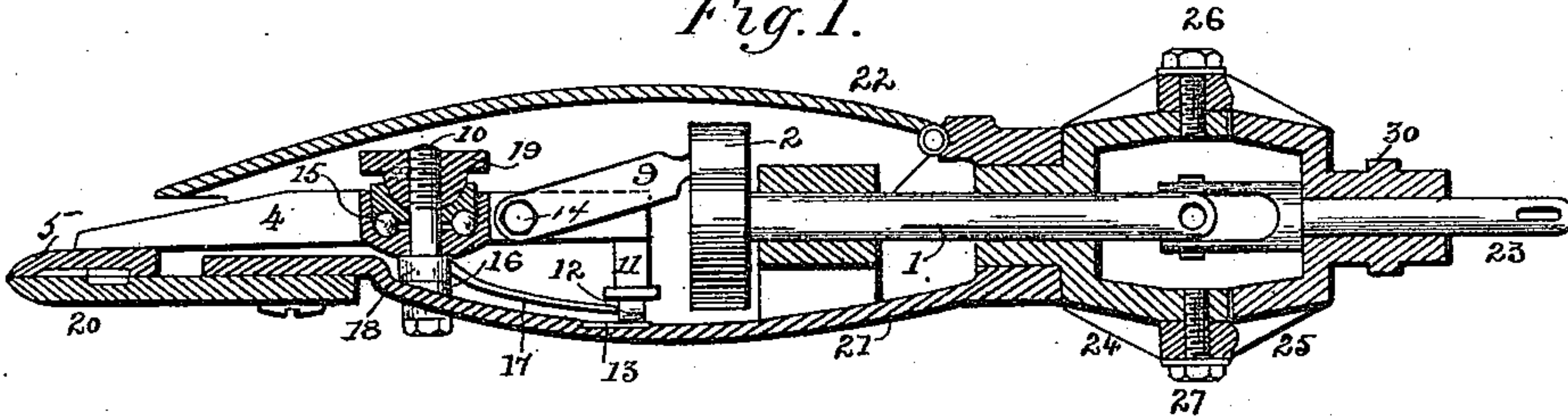


Fig. 2.

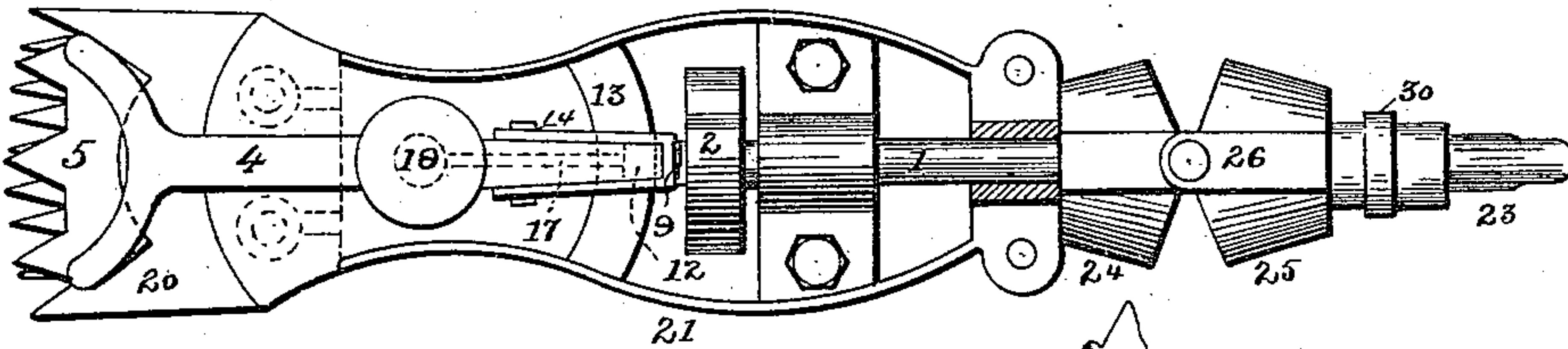
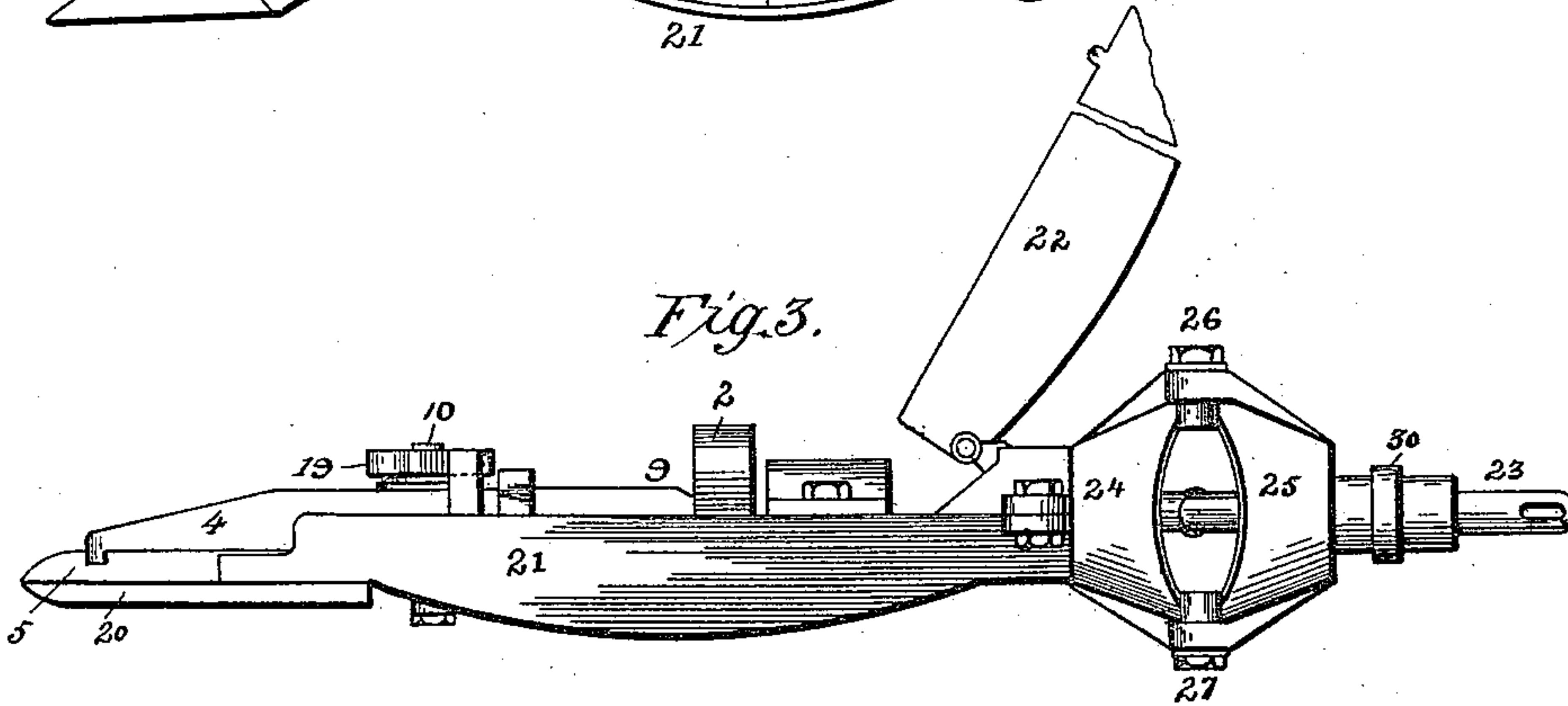


Fig. 3.



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Fig. 6.

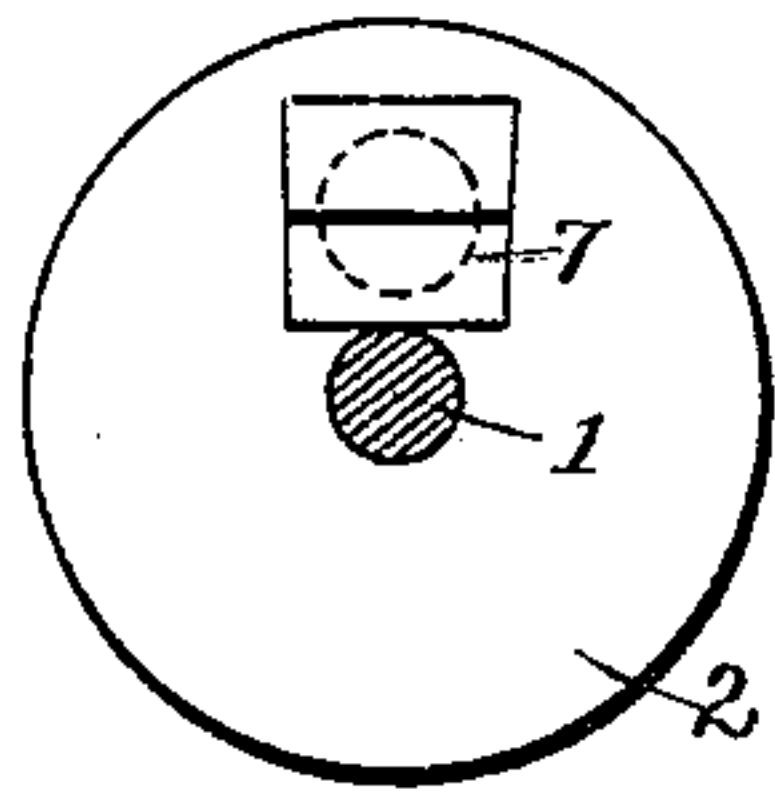


Fig. 5.

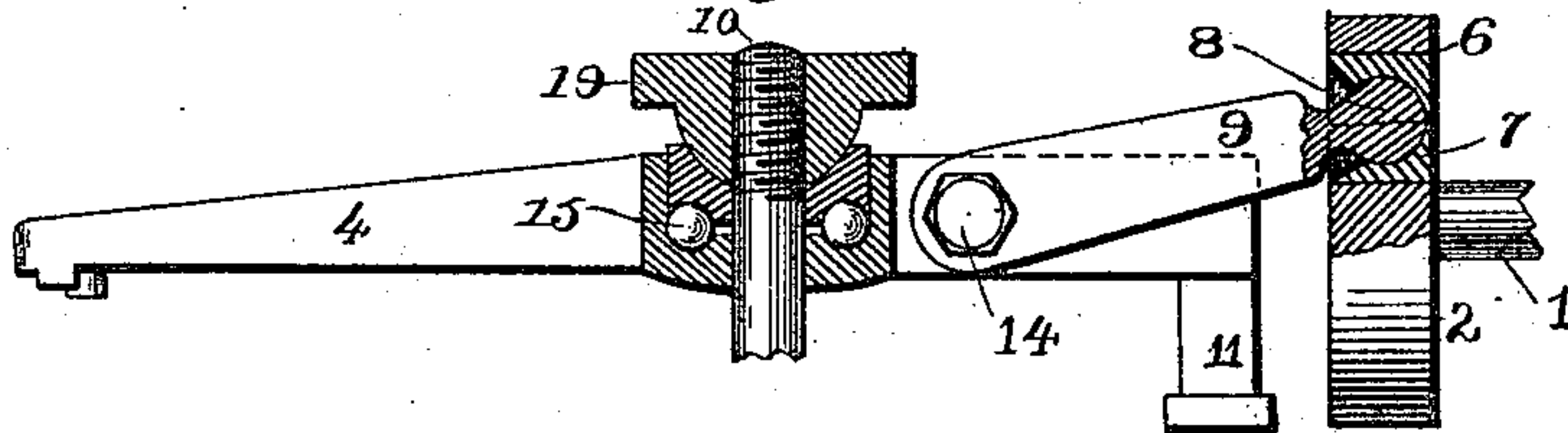


Fig. 4.

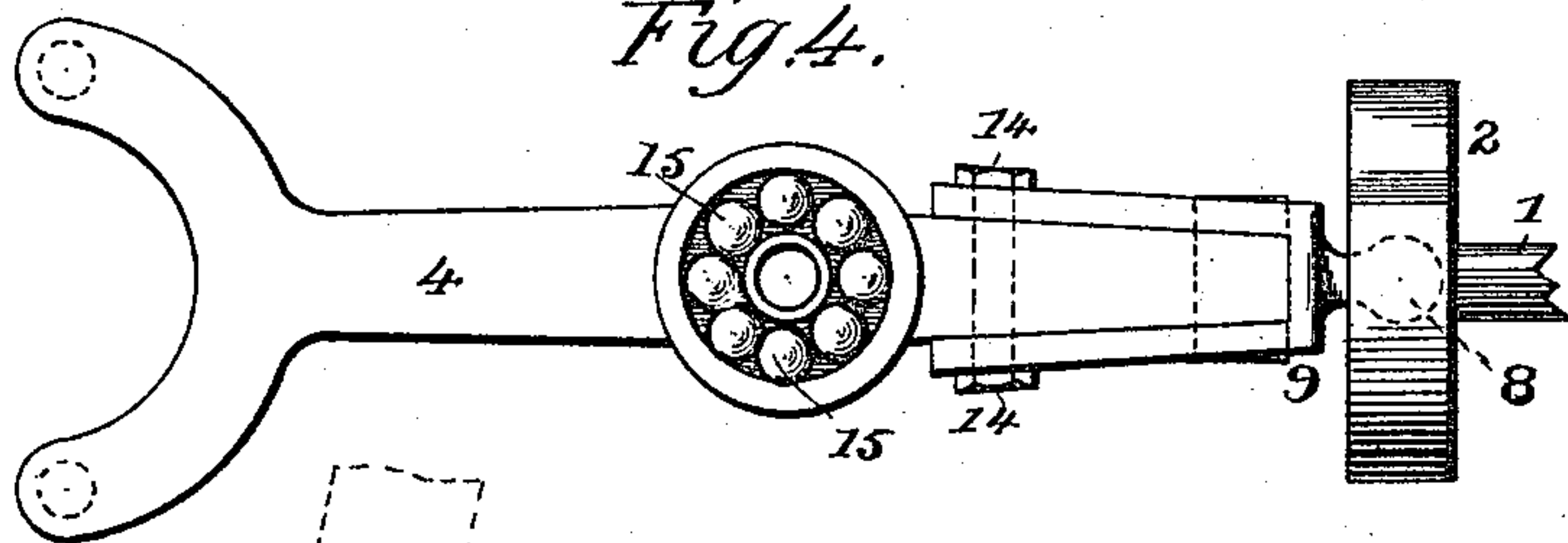


Fig. 7.

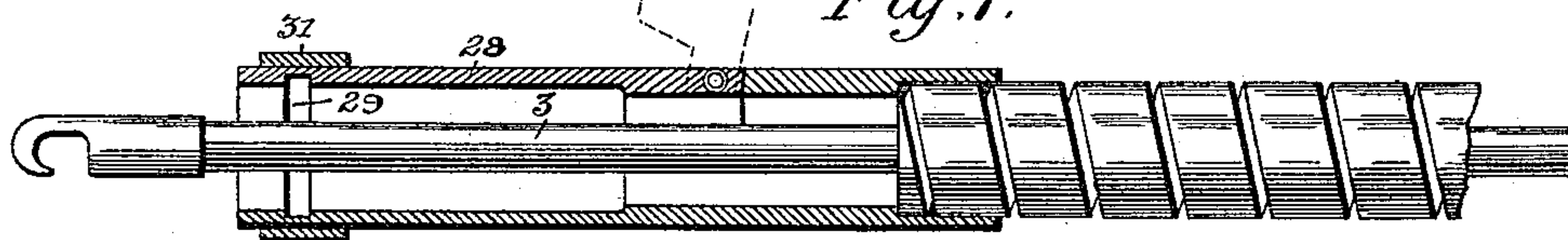


Fig. 8.



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WILLIAM SILVER, OF TAMWORTH, NEW SOUTH WALES.

WOOL OR HAIR CLIPPING MACHINE.

SPECIFICATION forming part of Letters Patent No. 440,902, dated November 18, 1890.

Application filed November 11, 1889. Serial No. 329,889. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM SILVER, a subject of the Queen of Great Britain, residing at Tamworth, in the Colony of New South Wales, have invented a new and useful Apparatus for Shearing or Cutting Wool and Hair and Flexible Shafting for use in Connection therewith, of which the following is a specification.

My invention relates to improvements in apparatus for shearing wool and cutting hair, the parts of said apparatus being operated by external power conveyed to them through the medium of a flexible rotating shaft.

The objects of the invention are to provide improved means for transforming the rotary motion of the shaft into reciprocating motion to be applied to the cutter and to provide a simple, safe, and effective construction of flexible shaft and means for coupling the same to the shearing-machine.

In the drawings annexed hereto, Figure 1 is a central vertical section of the shearing-machine. Fig. 2 is a plan of the same, the cover being removed. Fig. 3 is a side elevation, the cover being lifted. Fig. 4 is a plan view illustrative of the construction and arrangement of the disk, knife-bar, and connecting-arm. Fig. 5 is a side elevation and part section showing the same. Fig. 6 is a rear elevation of the disk. Fig. 7 is a part section and elevation of the flexible shafting and coupling, and Fig. 8 is a detail view of the coupling for the several links of the flexible shaft.

1 represents a spindle having suitable bearings in the case, and 2 is a crank-disk secured to the end of said spindle.

4 is the knife-bar pivoted on the center pin 10 and having at its front end suitable pins for entering recesses in the knife-plate 5, and at its other end entering the forks of the bifurcated vibrating arm 9, the vibrating arm being connected to said knife-bar 4 by means of the wrist-pin 14. The end of the vibrating arm 9 has a spherical head 8, which enters a socket formed in the divided sliding block 7, said sliding block being fitted to the seating 6 in crank-disk 2. The connection of the vibrating arm 9 to the knife-bar 4 by means of the wrist-pin is such that the knife-

bar partakes only of the horizontal movement of said vibrating arm, the vertical movements of said arm being taken up in the space between the forks thereof. At the extreme rear end of knife-bar 4 is a downwardly-projecting T-piece 11, and underneath this T-piece is a way or track 13, between which and the bottom of the T-piece is an anti-friction roller 12, carried by the end of the arm 17, said arm having a sleeve-connection with the pin 10. Ball-bearings are provided, consisting of a series of balls 15, arranged in a circular track in bar 4 around the pin 10. A washer is placed between said balls and the thumb-nut 19. Upon tightening thumb-nut 19 the pressure on the bar 4 is conveyed to the knife-plate 5 and the T-piece 11.

20 represents the comb-plate secured to the under case 21 in any suitable manner.

22 is a cover of the case hinged to allow access to the mechanism for repairs and oiling. The rear end of the spindle 1 passes out through the tail of the machine and is connected by means of the universal joint with a wrist-section 23. This joint is inclosed in a case formed of the two collars 24 and 25, pivotally connected with one another at two opposite points 26 and 27 and made capable of inclining toward one another in either direction at right angles to the plane of the shaft. Both collars are free to rotate the one on the tail of the spindle 1, the other on the wrist-section 23. The kind of flexible shaft which I prefer to employ consists of a cat-gut core incased in a protective covering, said covering being formed of steel ribbon wound in a continuous helix or of a steel tube split helically. The extremities of this protective covering terminate in collars. That at the driving end is of any form and adapted to be held opposite the extremity of the shaft, communicating motion in the flexible shaft. That at the machine end is of special form, being made with a flap-piece 28 and groove 29 to engage with the ring 30, carried by one bearing of the shearing-machine, and thus unite the shaft to the machine. When the flap 28 is closed, so that the groove 29 will engage the ring 30, it is secured by means of the slip-ring 31.

In Fig. 7 I illustrate the hook-and-eye connection, which is simply for uniting the different sections of the cat gut core, which I preferably use in the flexible shaft.

5 What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a machine for shearing or cutting wool and hair, the combination, with a vibrating or oscillating knife-bar and a rotating disk
10 having a divided recessed block, of a bifurcated arm having one end provided with a spherical head entering the recess of the block and having its forked end connected to said knife-bar, substantially as described.

15 2. In a machine for shearing and cutting wool, the combination, with a casing having a pivot, of a knife-bar vibrating on said pivot and having an anti-friction bearing, a crank and a connecting-arm between said crank and
20 knife-bar, a bearing-plate at the rear end of the knife-bar, a track on the casing, and an arm sleeved on the pivot of the knife-bar and carrying a roller at its free end to engage the said bearing-plate and track, substantially as
25 described.

3. In a machine for shearing or cutting wool, the combination, with the casing and the spindle 1, having a universal-joint connection with a shaft and carrying the crank 2, of the
30 bifurcated arm 9, the knife-bar 4, carrying knife-plate 5 and operated by said bifurcated arm 9, the rear end of the arm 4 having the T-piece 11, and the sleeved arm 17, carrying the anti-friction roller 12 between said T-
35 piece and the casing of the machine.

4. In combination with wool-shearing mechanism having a casing and a shaft for operating said mechanism, the casing being provided with a ring 30, a shaft-coupling having
40 a groove 29, engaging said ring, the flap-piece 28, and the slip-ring 31, substantially as described.

WILLIAM SILVER.

Witnesses:

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Clerk to Jno. Patterson, Notary Public, Tamworth.