

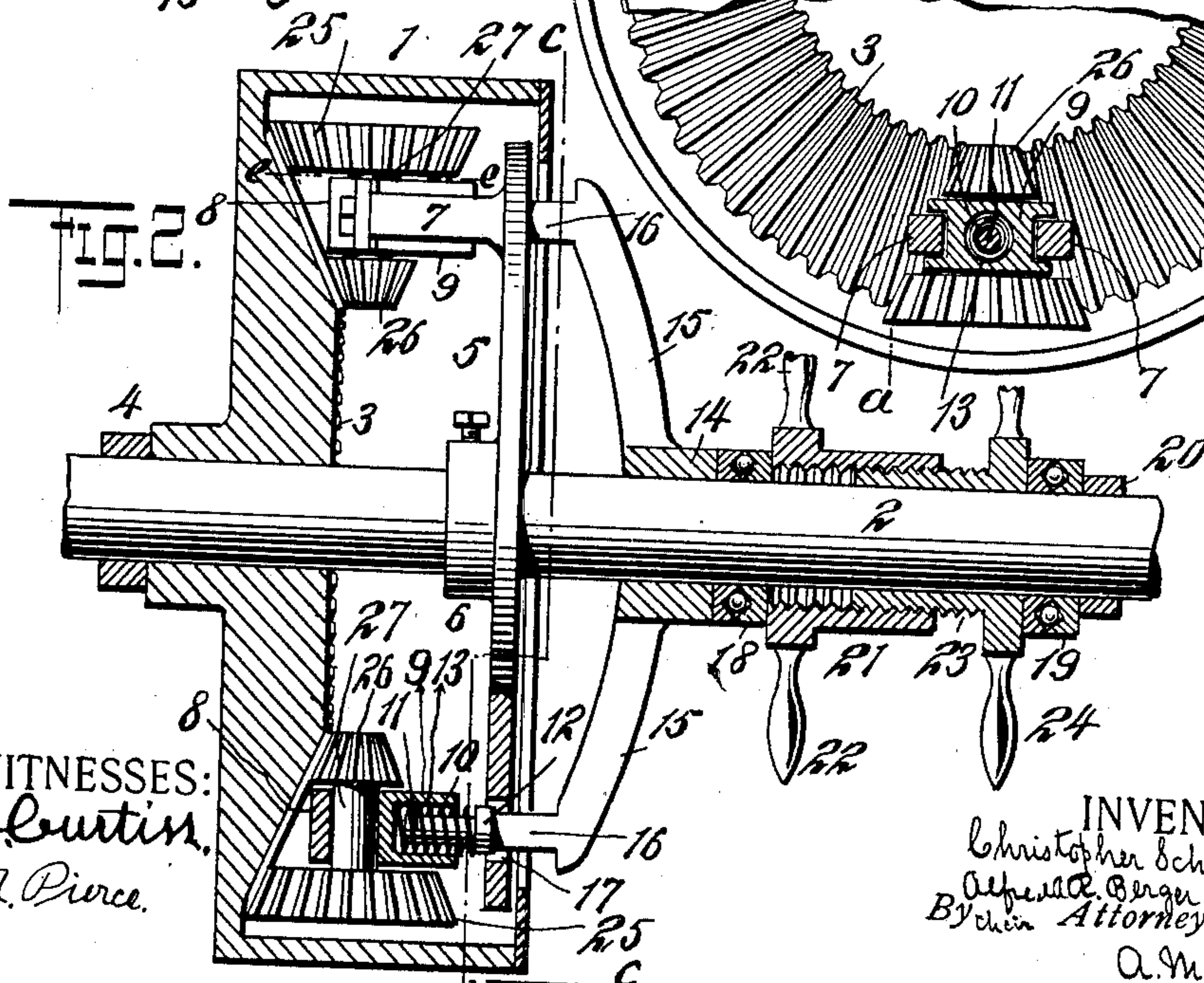
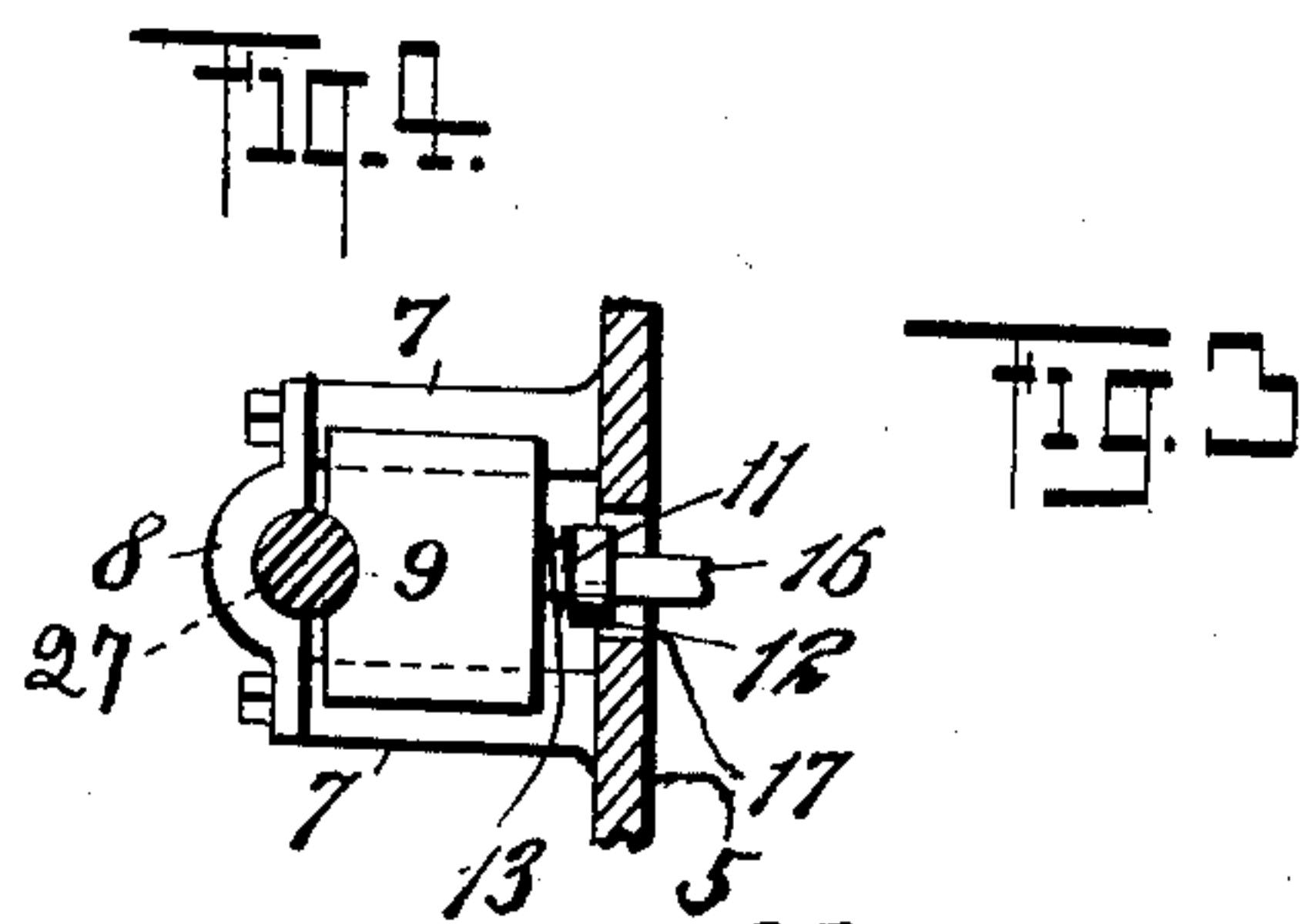
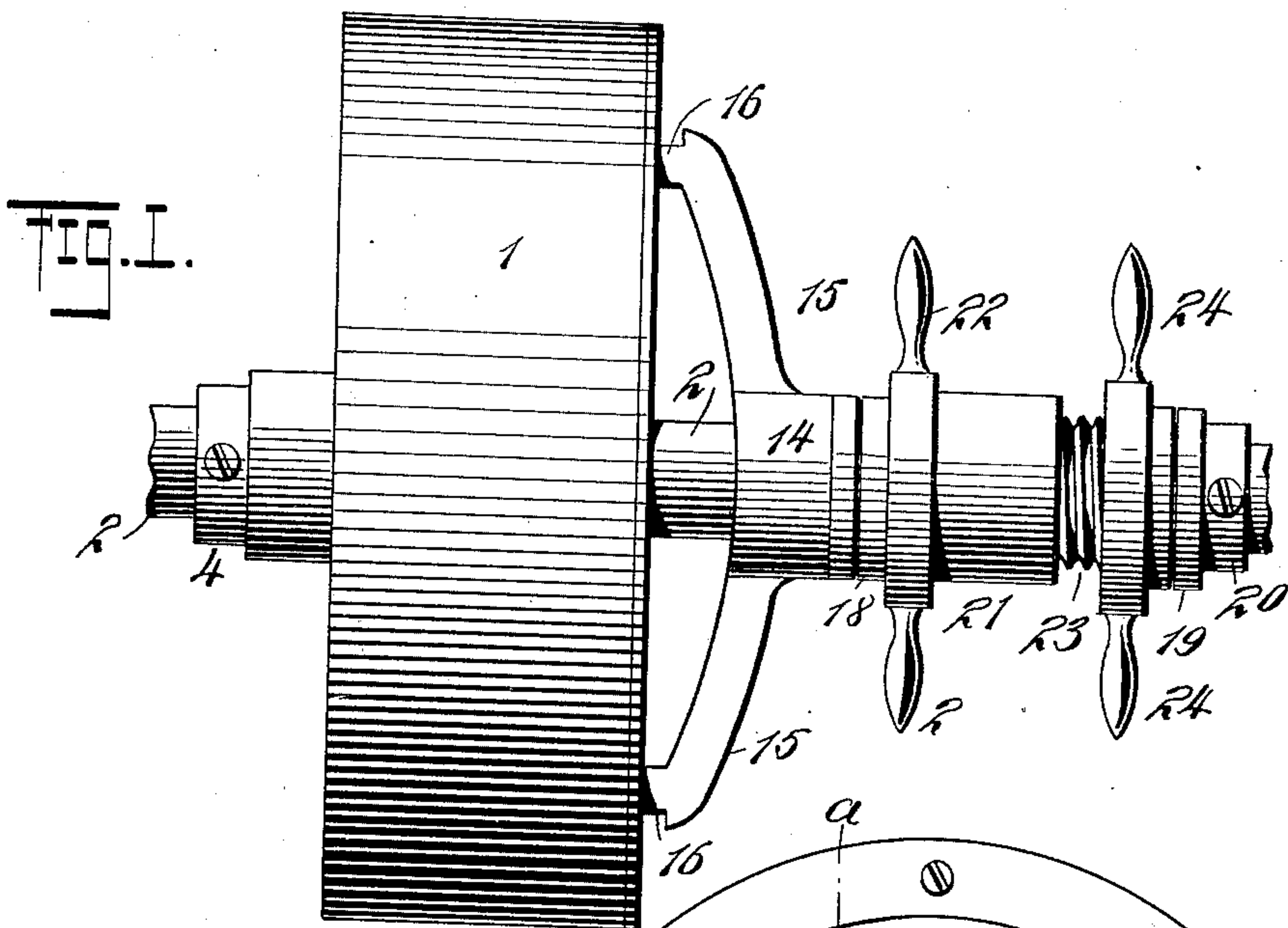
No. 829,435.

PATENTED AUG. 28, 1906.

C. SCHÖPPNER & A. A. R. BERGER.

VARIABLE SPEED GEAR.

APPLICATION FILED SEPT. 18, 1905.



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UNITED STATES PATENT OFFICE.

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VARIABLE-SPEED GEAR.

No. 829,435.

Specification of Letters Patent.

Patented Aug. 28, 1906.

Application filed September 18, 1905. Serial No. 278,835.

To all whom it may concern:

Be it known that we, CHRISTOPHER SCHÖPPNER and ALFRED A. R. BERGER, citizens of the United States, residing at New York, in the county of New York and State of New York, have jointly invented a certain new and useful Improvement in Variable-Speed Gears, of which the following is a specification, reference being had therein to the accompanying drawings.

Our invention relates especially to that class of devices employed for obtaining a variation of speed of rotation between a driving and a driven part, the speed of the driving part being uniform, and has for its object the provision of effective mechanism for such purpose.

To attain the desired end our invention consists, essentially, in a variable-speed gear in which is comprised a driving part provided with a gear or teeth; a shaft to be driven, whereon said driving part is loosely mounted; a disk or frame fixed to said shaft; a bearing-box carried by said disk or frame; a gear carried by said box and engaging the first-mentioned gear, arranged to rotate parallel to the shaft to be driven, and means for varying the friction of the bearing-box, all of which will be hereinafter first fully described and then pointed out in the claims.

In the drawings, Figure 1 is a side elevation of a device embodying our invention. Fig. 2 is a longitudinal sectional view thereof at line *a a* of Fig. 3. Fig. 3 is a cross-sectional view at line *c c* of Fig. 2. Fig. 4 is a sectional view at line *e e* of Fig. 2.

Like numerals of reference wherever they occur indicate corresponding parts in all the figures.

1 is a band-wheel or pulley constituting the driving part, loosely mounted on a shaft 2 to be driven. We have shown and described a band-wheel; but it is obvious rotation might be imparted to the driving part by means of gearing or in any other desired manner.

3 is a bevel-gear formed with or secured to the driving part and at right angles to the shaft 2.

4 is a collar fixed to the shaft 2.

5 is a disk or frame provided with a hub 6 for securing the same to the shaft 2.

Extending from the disk 5, parallel to the shaft 2, are bifurcated arms 7, the ends of the

forks thereof being connected by a part 8 of a bearing-box. The other part 9 of said box is arranged to slide between the forks, as particularly illustrated in Figs. 3 and 4 of the drawings. 10 is a cavity in part 9, and 11 is a plug entering said cavity and having a head 12.

13 is a spring surrounding the body of the plug 11.

14 is a hub mounted on the shaft 2 and provided with arms 15, bearing fingers 16, which extend through perforations 17 in the disk 5 and bear against the heads 12 of the plugs 11.

18 and 19 are ball-bearing collars on the shaft 2, and 20 is a collar fixed in place thereon.

21 is a screw-threaded sleeve provided with manipulating-handles 22, and 23 is a second screw-threaded sleeve arranged to engage the first-mentioned sleeve, and 24 are manipulating-handles.

25 and 26 are bevel-gears fixed to a shaft 27, journaled in the bearing-boxes 8 9 and engaging the gear 3.

The operation of our device is as follows: Rotary motion being imparted to the driving part or pulley 1, it revolves upon the shaft 2, which remains stationary. By forcing the hub 14 and connected parts to the left through the medium of the screw-threaded sleeves 21 and 23, the bearing-blocks 9 will be pressed against the shafts 27, retarding the movement of the gears 25 and 26 to a less speed than the gear 3, carrying the disk 5 and shaft 2 around. When the friction is increased sufficiently to stop the rotation of the shafts 27, the driving part and driven part will be locked together and revolve in unison. In accordance with the retardation of the rotation of the shafts 27 the speed of the driven part may be regulated from zero to the speed of the driving part at pleasure.

Having now fully described our invention, what we claim as new therein, and desire to secure by Letters Patent, is—

1. A variable-speed gear in which is comprised a driving part provided with a gear or teeth; a shaft to be driven whereon the driving part is loosely mounted; a disk or frame fixed to the shaft to be driven; a bearing-box carried by said frame or disk; a gear carried by said box, engaging the first-mentioned gear, and arranged to rotate at a

right angle to the shaft to be driven, and means for varying the friction of the bearing-box.

2. In a device of the character herein
5 specified, a driving part provided with a gear and loosely mounted on a shaft to be driven, in combination with a driven part provided with a plurality of gears the shafts whereof
10 are at right angles to the shaft to be driven; friction-bearings for the shafts of the last-mentioned gears, and means for varying the friction of said bearings.

3. In a device of the character herein specified, a driving part provided with a

bevel-gear and loosely mounted on a shaft to
15 be driven, in combination with a driven part provided with a plurality of bevel-gears meshing with the first-mentioned gear, friction-bearings for the plurality of gears, and means for varying the friction of said bear-
20 ings.

In testimony whereof we have affixed our signatures in presence of two witnesses.

CHRISTOPHER SCHÖPPNER.

ALFRED A. R. BERGER.

Witnesses:

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