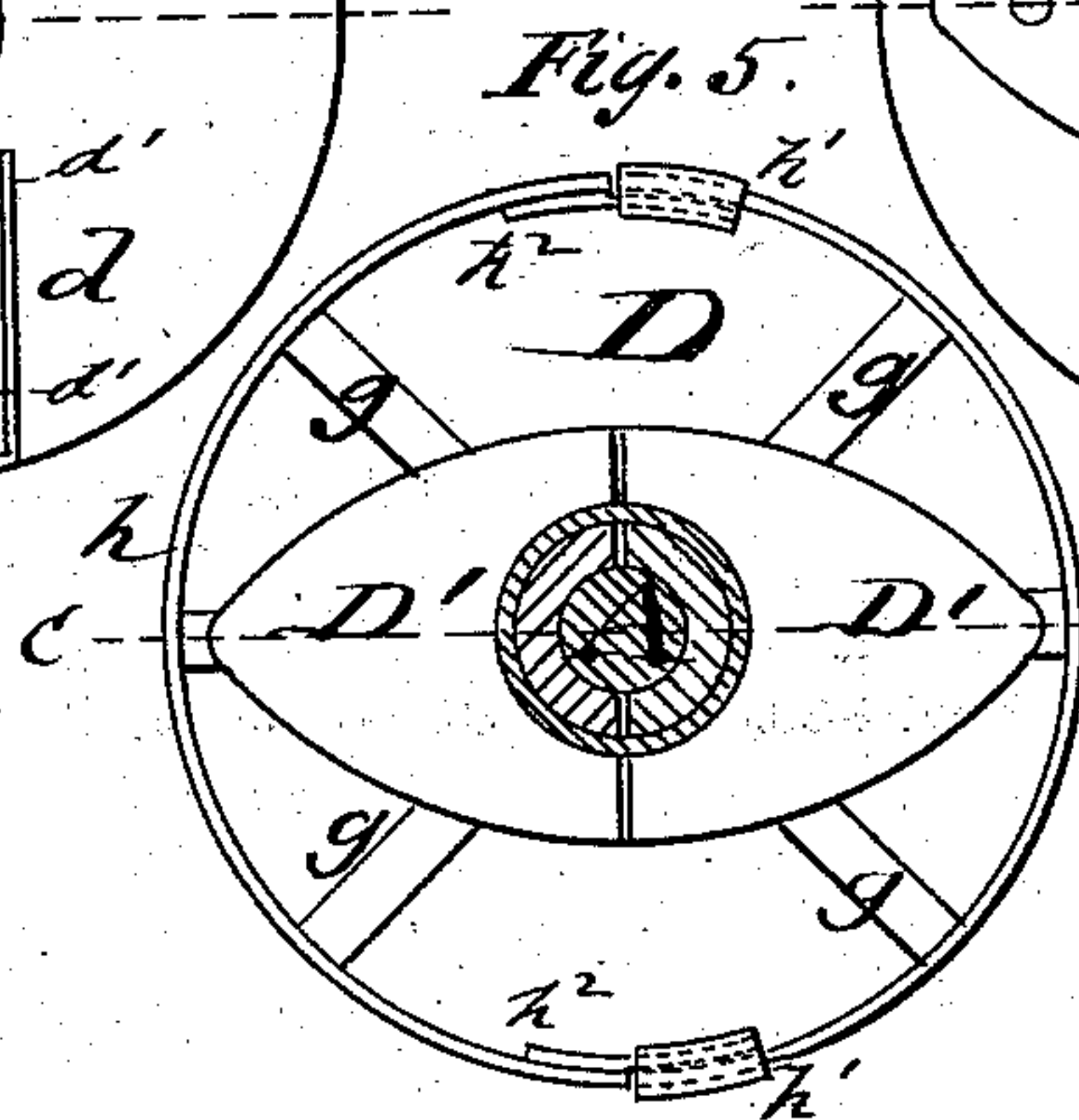
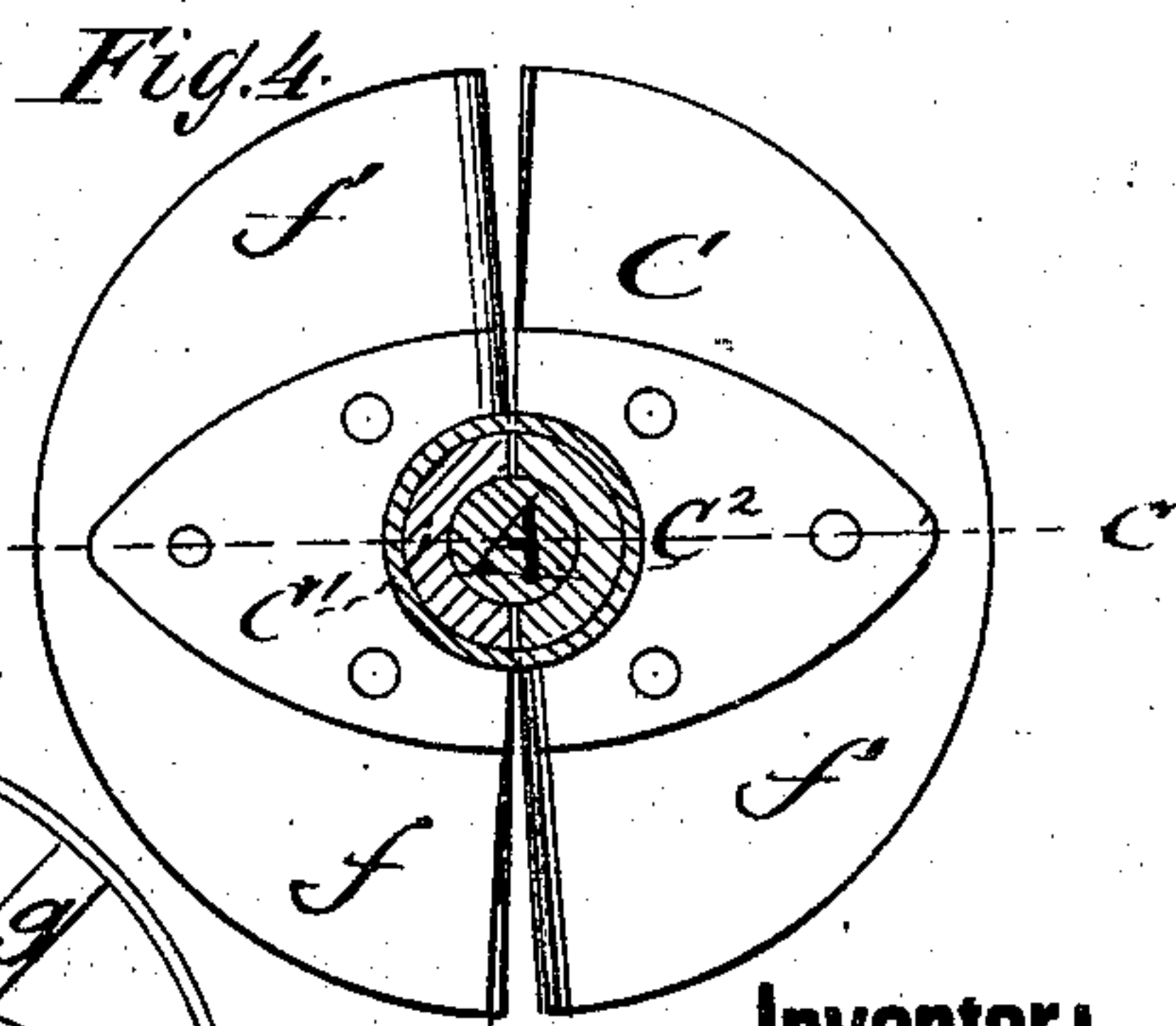
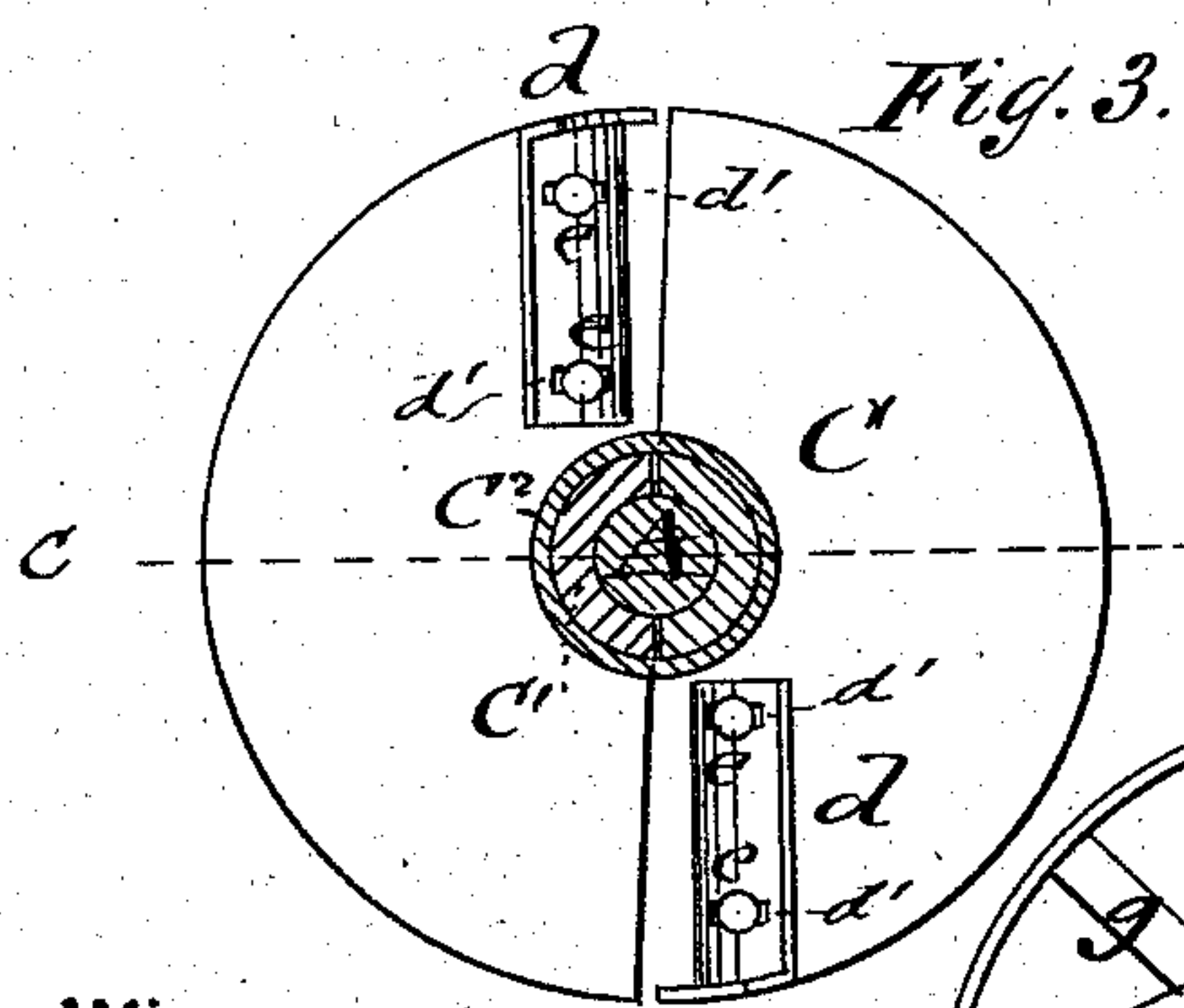
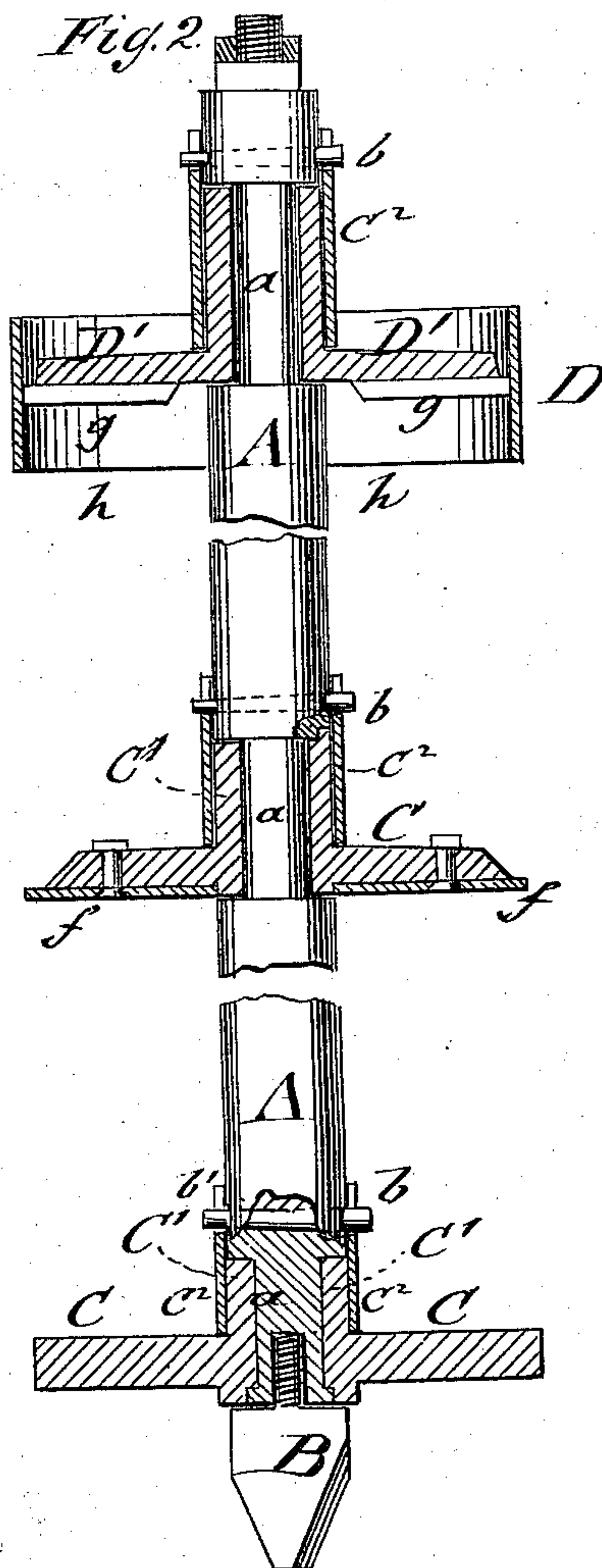
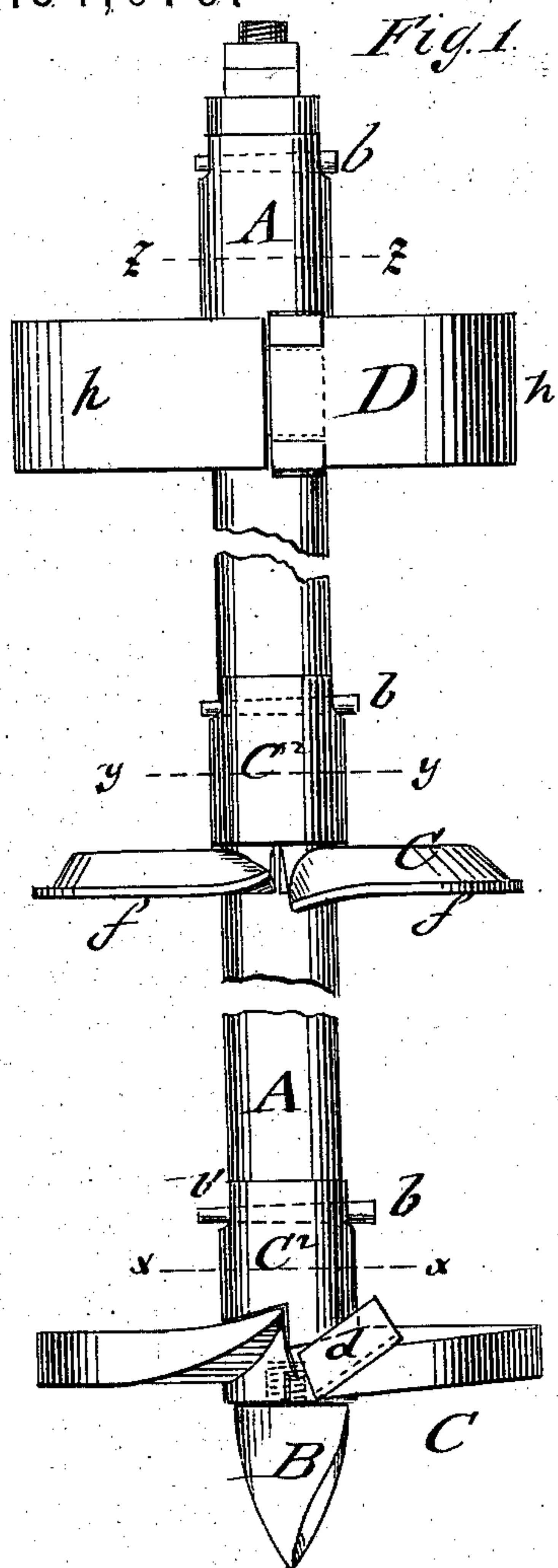


W. S. JONES.

Earth-Augers.

No. 154,679.

Patented Sept. 1, 1874.



Witnesses:

E. Wolff.
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Inventor:

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UNITED STATES PATENT OFFICE.

WASHINGTON SMITH JONES, OF MERIDIAN, MISSISSIPPI.

IMPROVEMENT IN EARTH-AUGERS.

Specification forming part of Letters Patent No. **154,679**, dated September 1, 1874; application filed January 17, 1874.

To all whom it may concern:

Be it known that I, WASHINGTON S. JONES, of Meridian, in the county of Lauderdale and State of Mississippi, have invented a new and Improved Earth-Auger, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a side elevation of my improved earth-auger; Fig. 2, a vertical central section on the line *c c*, Figs. 3, 4, and 5; and Figs. 3, 4, and 5, respectively, horizontal sections on the lines *x x*, *y y*, and *z z*, Fig. 1.

Similar letters of reference indicate corresponding parts.

The object of my invention is to construct an earth-auger for boring wells and for other purposes, which does very effective work, and allows the replacing or adjusting of the several borers and guide parts, if necessary, on account of injuries, they being at the same time firmly applied to the shaft, and of strong and durable construction.

The invention will first be fully described, and then pointed out in the claims.

In the drawing, A represents the auger-shaft, to which the borer-plates are attached. Shaft A is made of the usual size and material for boring wells, and has screwed into its lower end the borer-bit B, of any suitable shape, so that the same may be readily taken out and repaired without interfering with any other part of the auger. The bit B cuts into the ground, breaking way for the lower and upper borer-plates C, which are firmly attached to the shaft at suitable distances from each other, while the guide drum or band D serves to guide the shaft in straight direction. The lower borer-plate C is applied immediately above bit B, and formed of two symmetrical halves of cast-iron, or other suitable material, of the required strength and spiral inclination. These halves are connected around recessed part *a* of the shaft having a smaller diameter by means of semicircular collar extensions *C*¹, which embrace the recessed shaft, and are firmly attached thereto by a sleeve, *C*². The sleeve *C*² is slipped over the collars *C*¹, and keyed to the shaft by cross-pin *b*, which passes centrally through shaft A, and

over corresponding recesses *b'* at the upper end of sleeve *C*². The lower end of shaft A is made of square shape below the recessed part *a*, and the plates C cast in similar shape, by which they close around the shaft without being detachable in downward direction. A cutter bit or blade, *d*, is attached to the diametrically-opposite end of each half of plate C by slots *d'*, and set screws or taps *e* being thereby adjustable on the same to various depths, according to the nature of the strata to be penetrated. A second screw-plate, C, is attached to the shaft A at a suitable distance above the end plate, being also made of symmetrical halves, and applied firmly by a sleeve and cross-pin to a recessed part of the shaft in similar manner as the end plate. The inclination or rise of the upper screw-plate C is, however, of a less degree than that of the lower plates, and the same is provided with flat semicircular cutter bits or blades *f* extending along the lower part of the V-shaped halves of plates C, being applied to them by bolts or rivets, as shown in Fig. 4. The upper plate is not required to be of the same strength as the end or main borer-plate, as it serves mainly to take off the weight of the earth from the lower plate, and lift a greater quantity on hoisting the auger. The detachable guide drum or band D is also produced of two equal parts, constructed of V-shaped or pointed plates *D'* with collar extensions, and applied consecutively to the various recessed parts of the shaft above the plates C by sleeve and cross-pin, as shown in Figs. 2 and 5. Strong radial arms *g* are applied to each plate *D'*, and the semicircular band or drum *h*, having the same radius as that of the lower plates, suitably and firmly connected to their ends. The ends of one half-drum *h* are provided with stationary sleeves *h*¹, into which projecting parts *h*² of the ends of the corresponding half-drum *h* fit, producing thereby on the attaching of both parts a full drum for guiding the auger in the required straight direction.

The guide-drum is transferred with the increasing depth of the borer-plates to the upper part of the shaft, and the straight direction of the auger easily controlled.

The easy and convenient manner of detaching every part of the borer-plates or drum makes repairs less expensive, quickly attended to, and thereby the whole auger more serviceable and useful.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination of the screw-plate C, made of symmetrical halves, which are provided with semicircular collars C¹ with the recessed shaft A, fastening-sleeve C², and cross-pin b, for attaching the plate-sections firmly to the shaft and making them easily detachable, in the manner and for the purpose described.

2. The combination of a lower stronger

borer-plate of greater inclination, with a second lighter borer-plate of less inclination, applied at suitable distance above the former, for more effectually cutting and removing the bored earth, substantially as set forth.

3. The guide-drum D of the auger, constructed of two equal parts, D', provided with radial arms g, and semicircular bands h attached to them, which are connected by end sleeves h¹ and forward-extending parts h², substantially as and for the purpose described.

WASHINGTON SMITH JONES.

Witnesses:

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