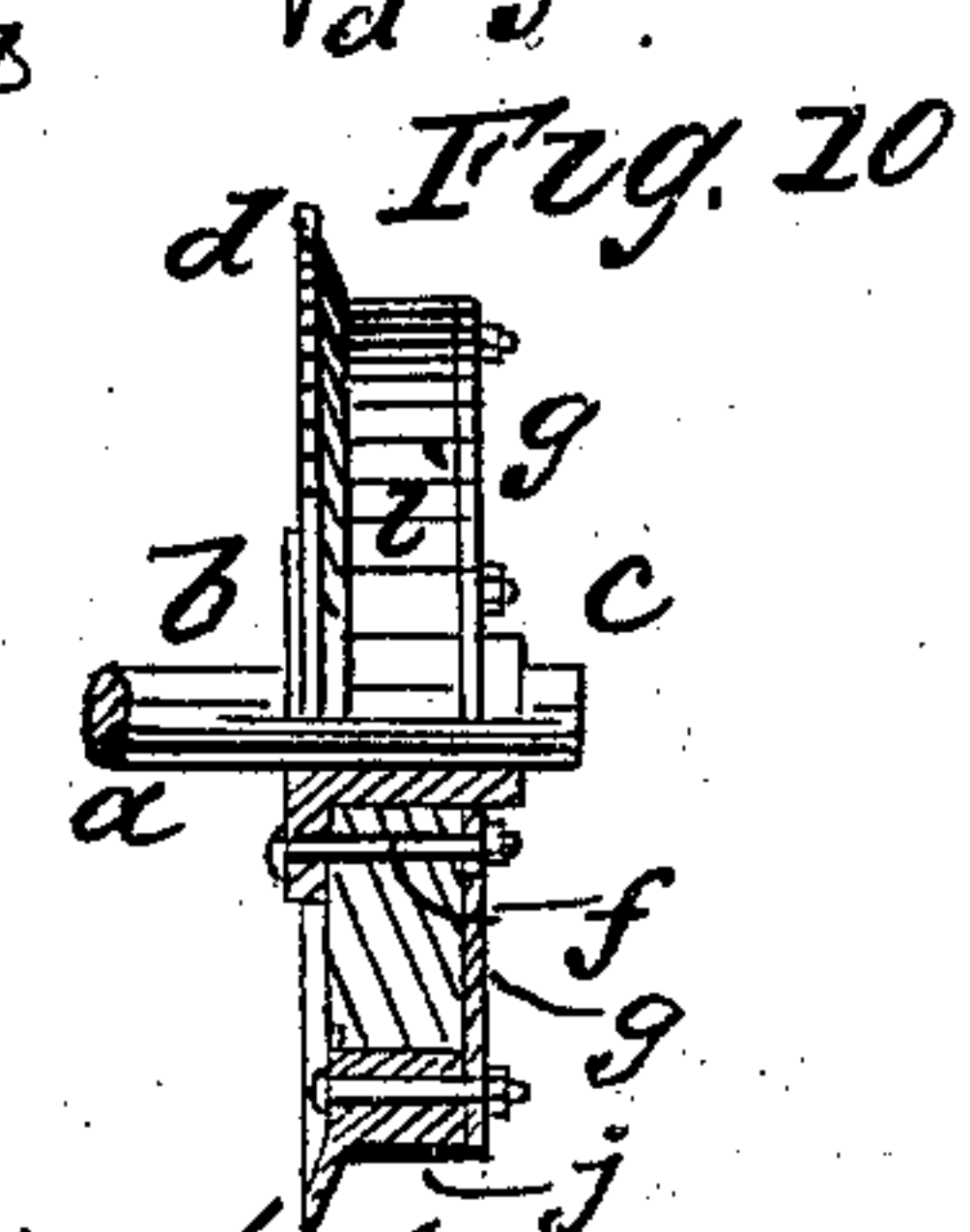
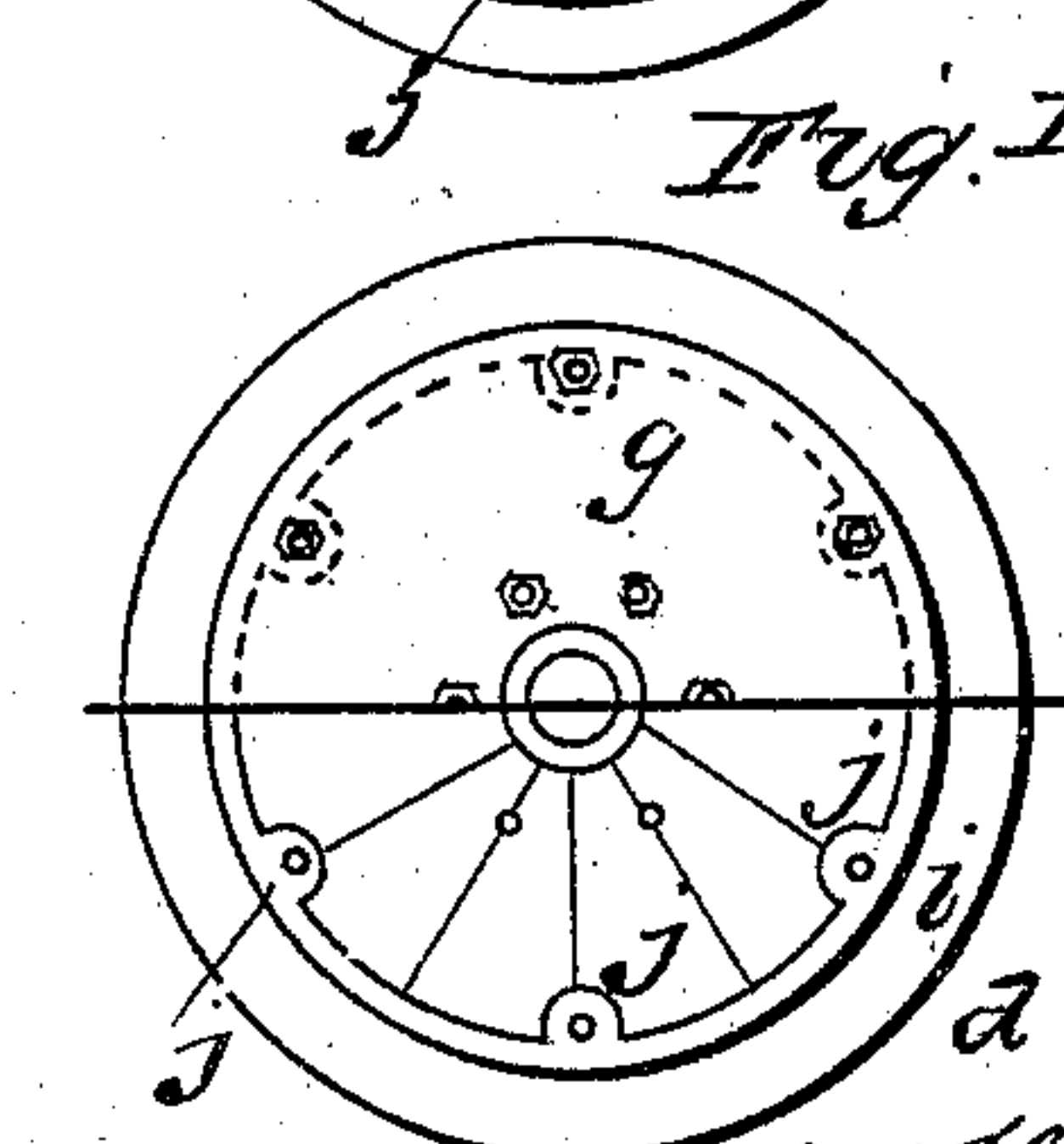
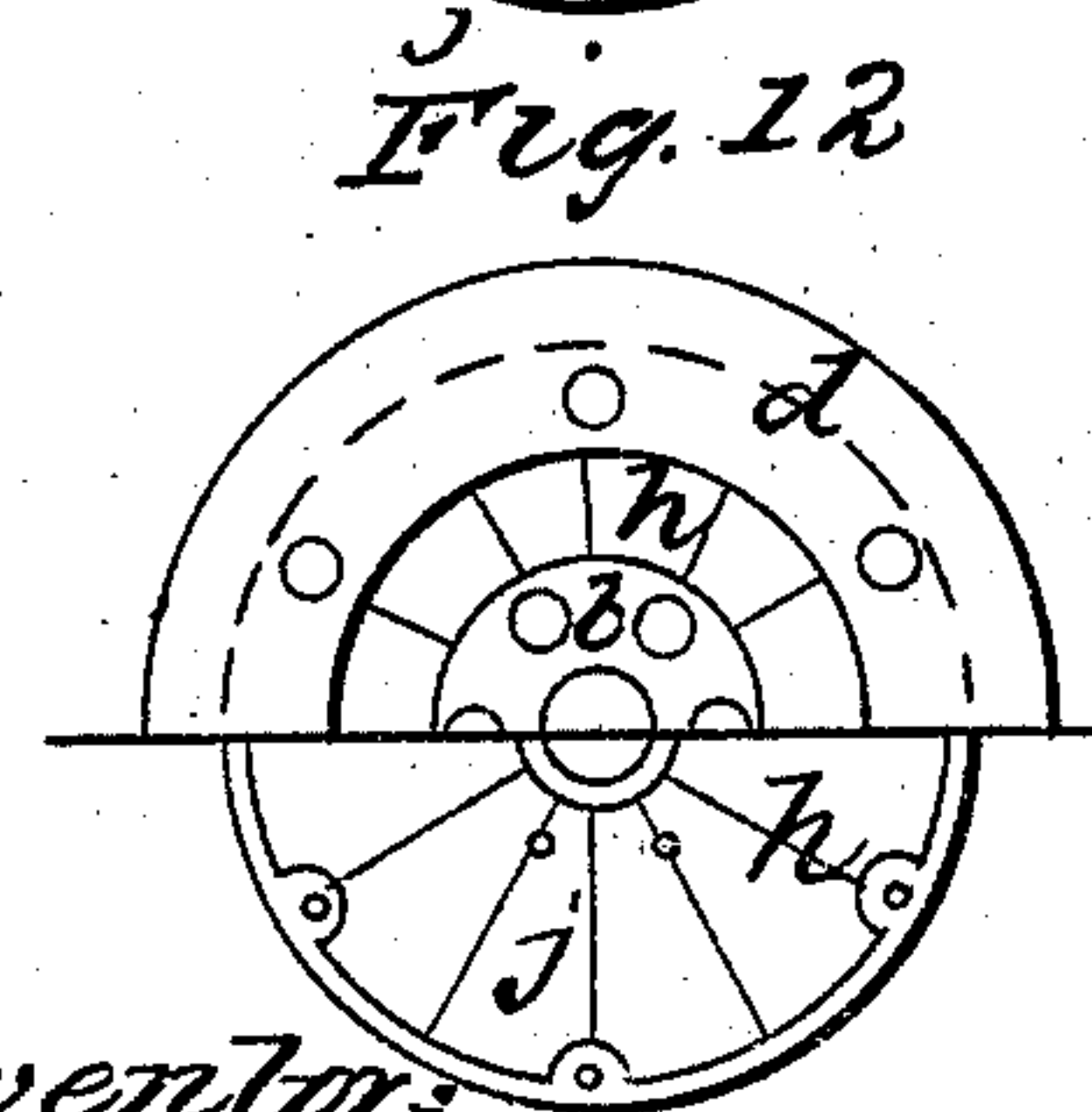
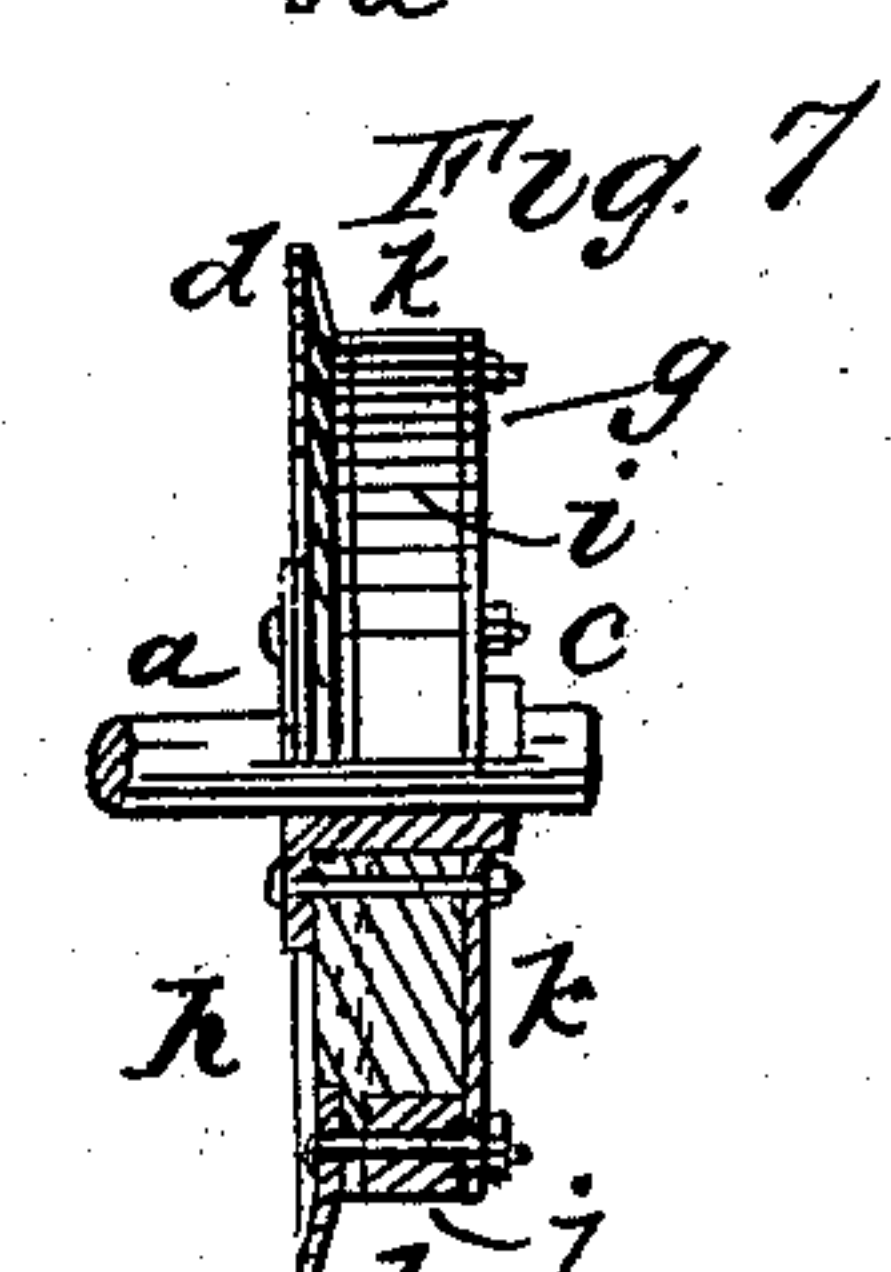
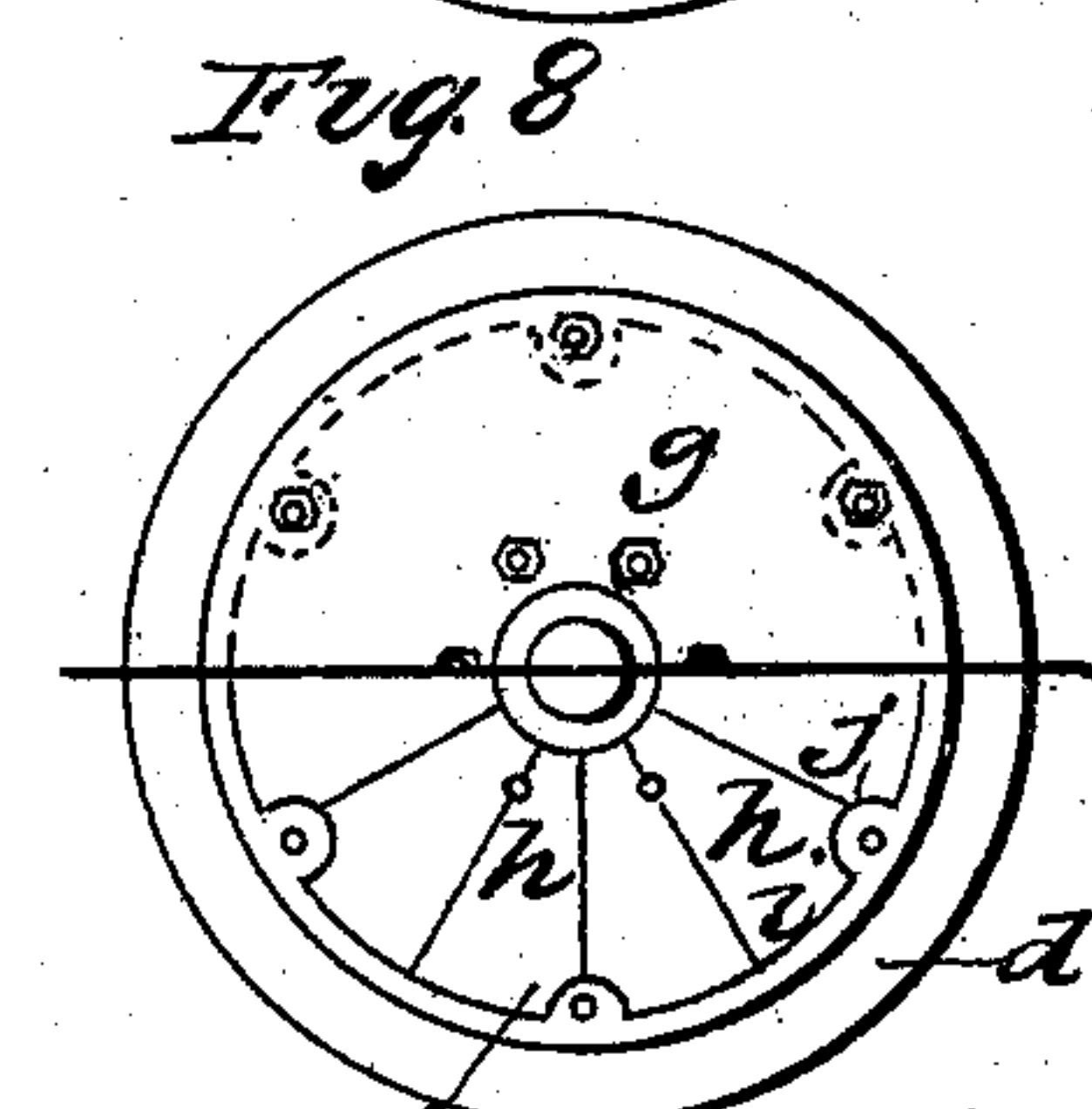
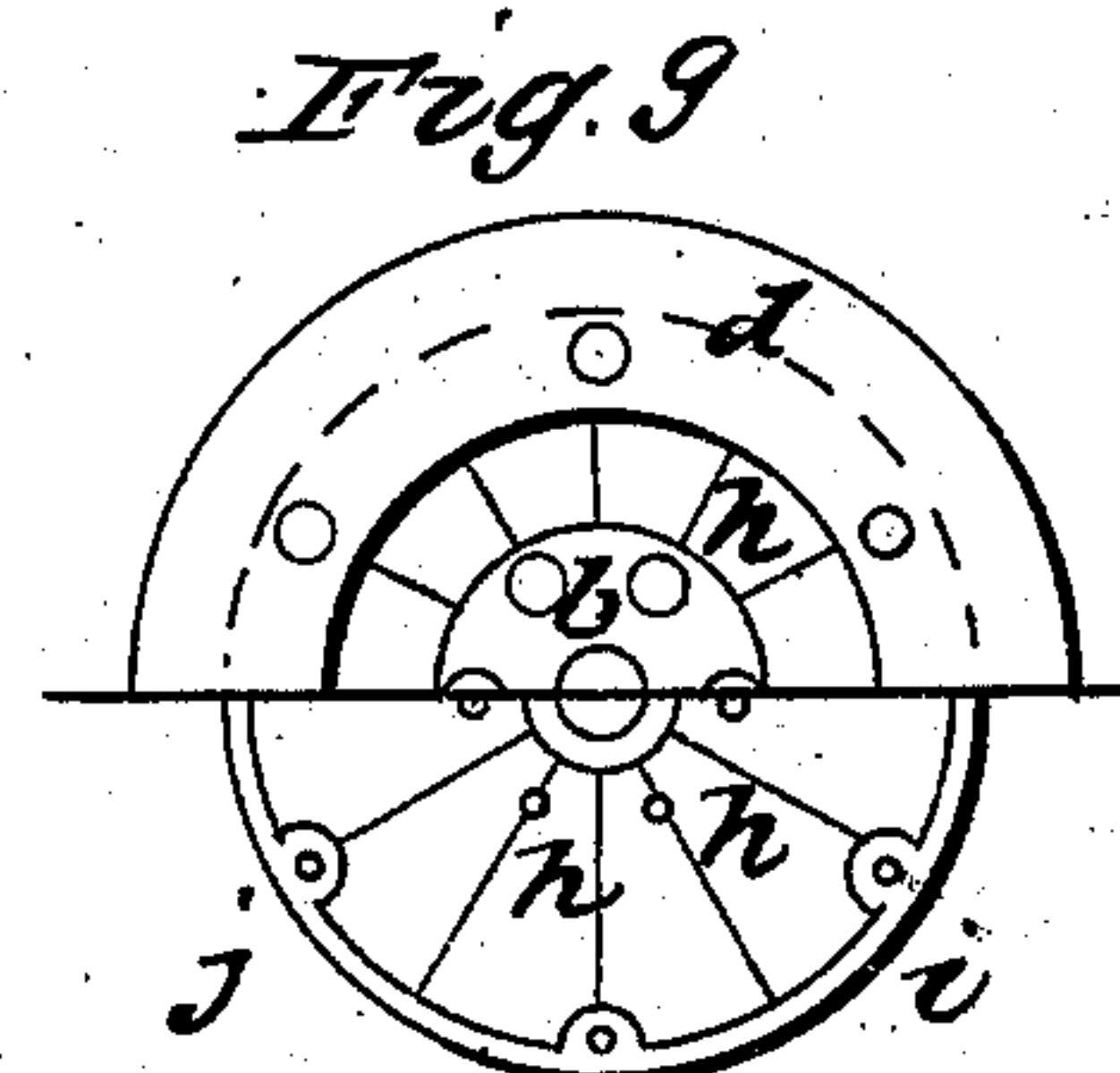
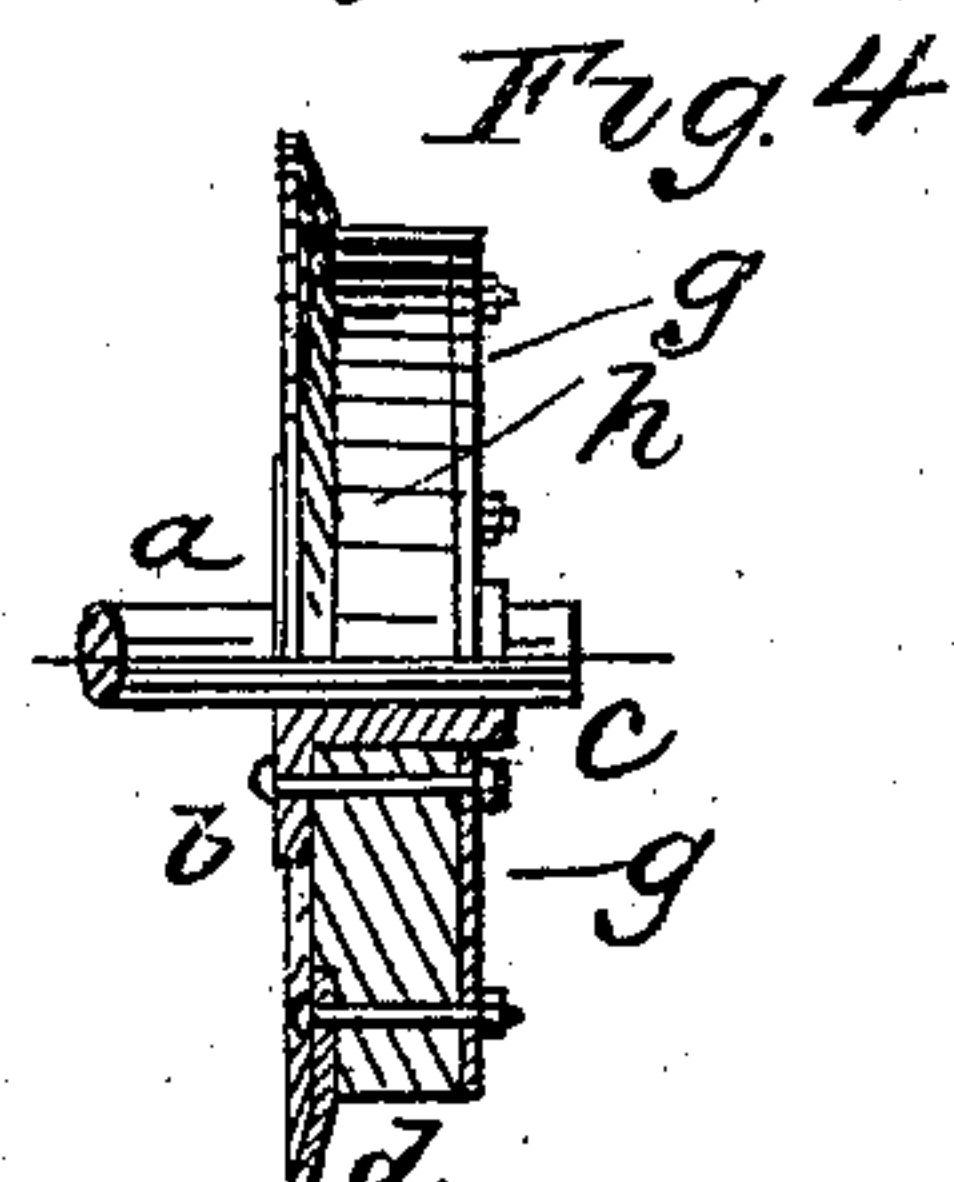
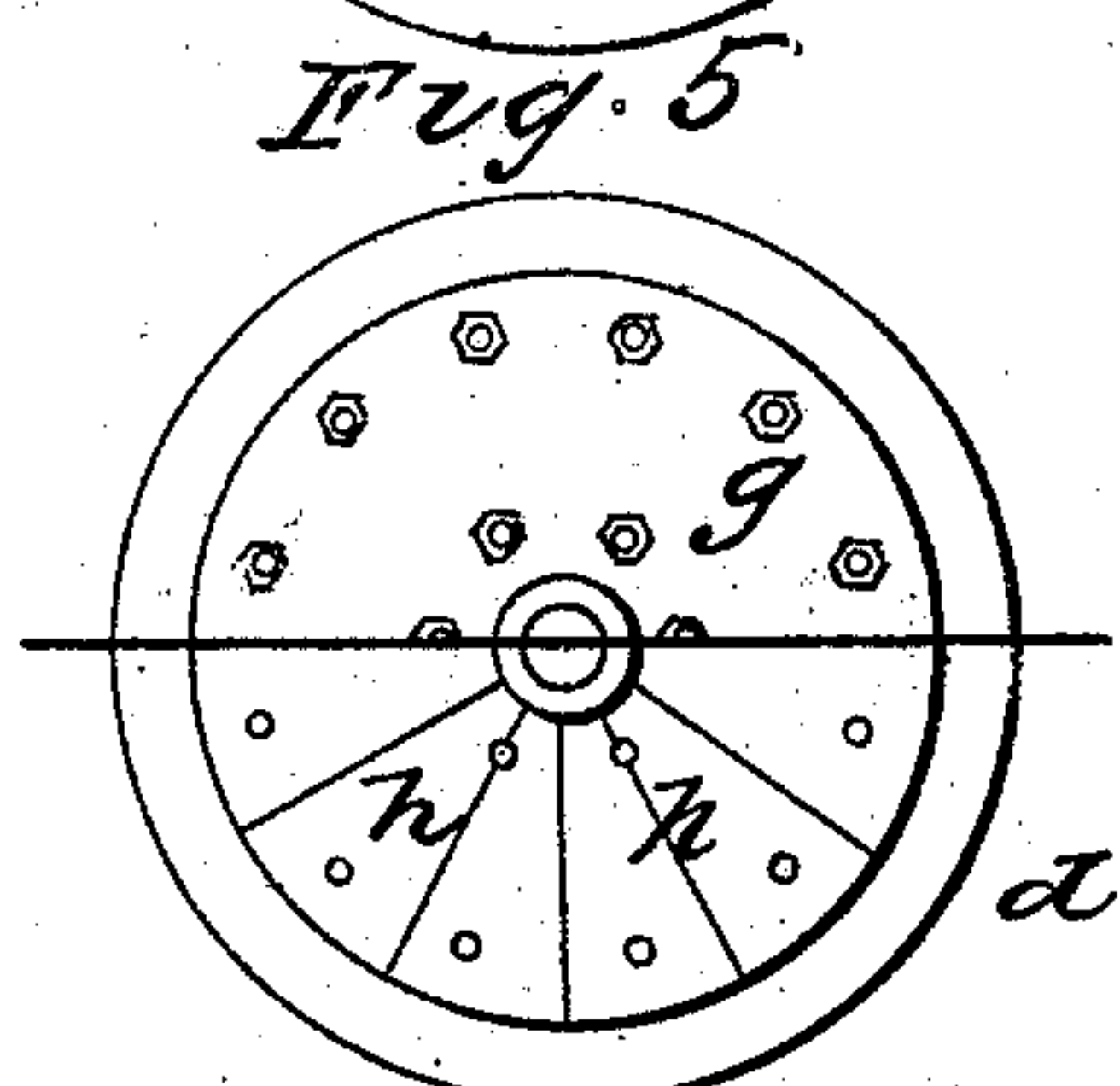
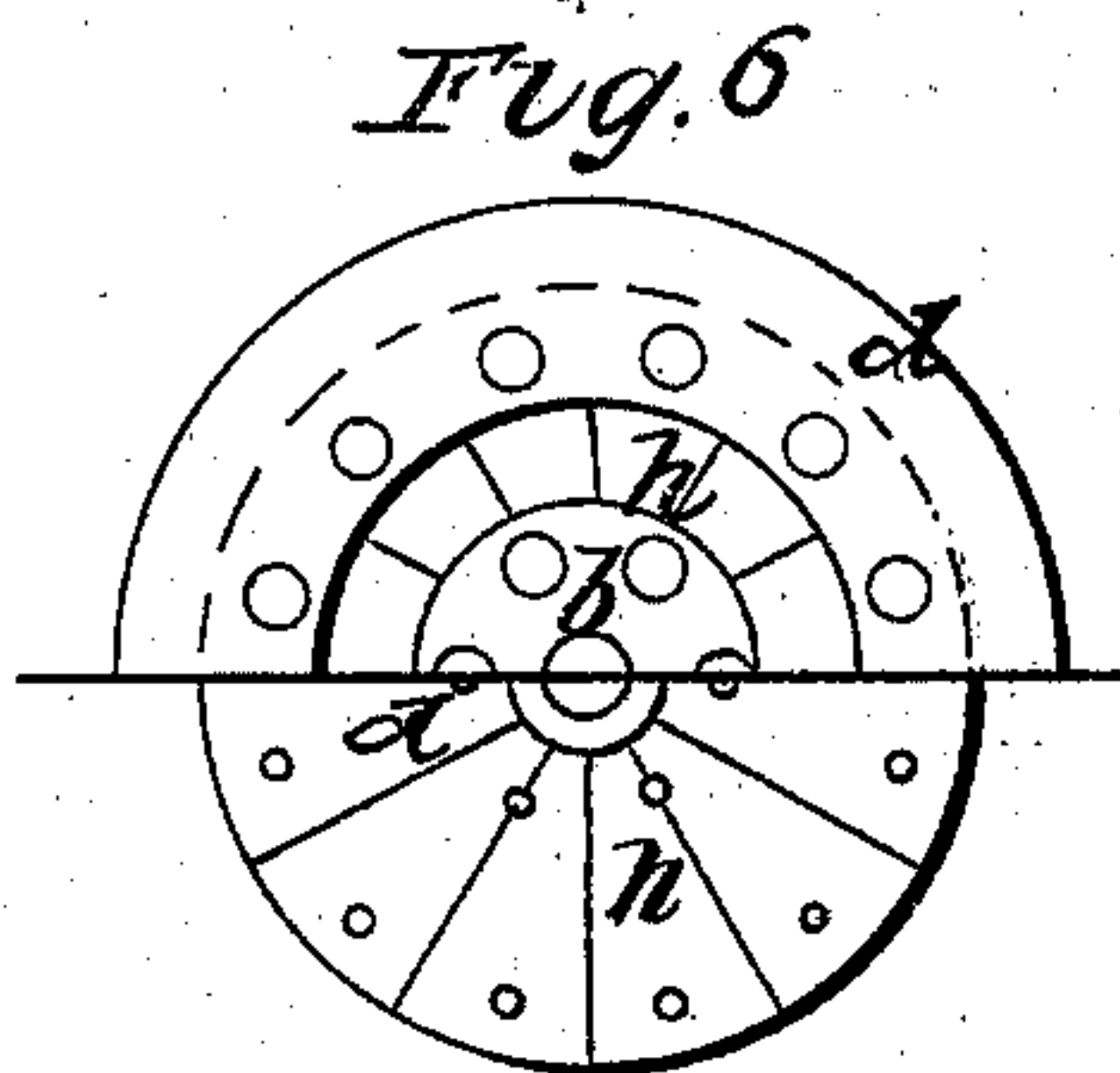
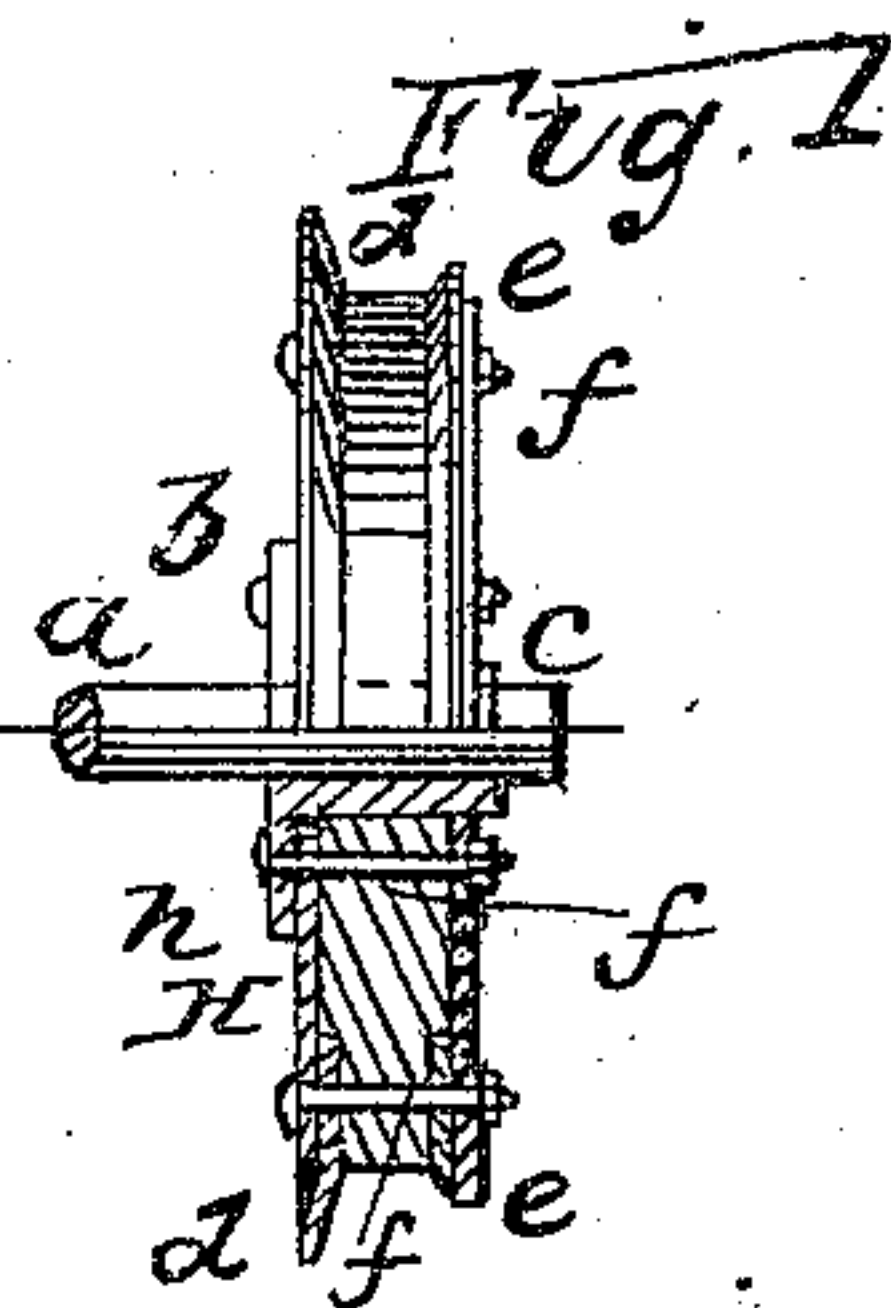
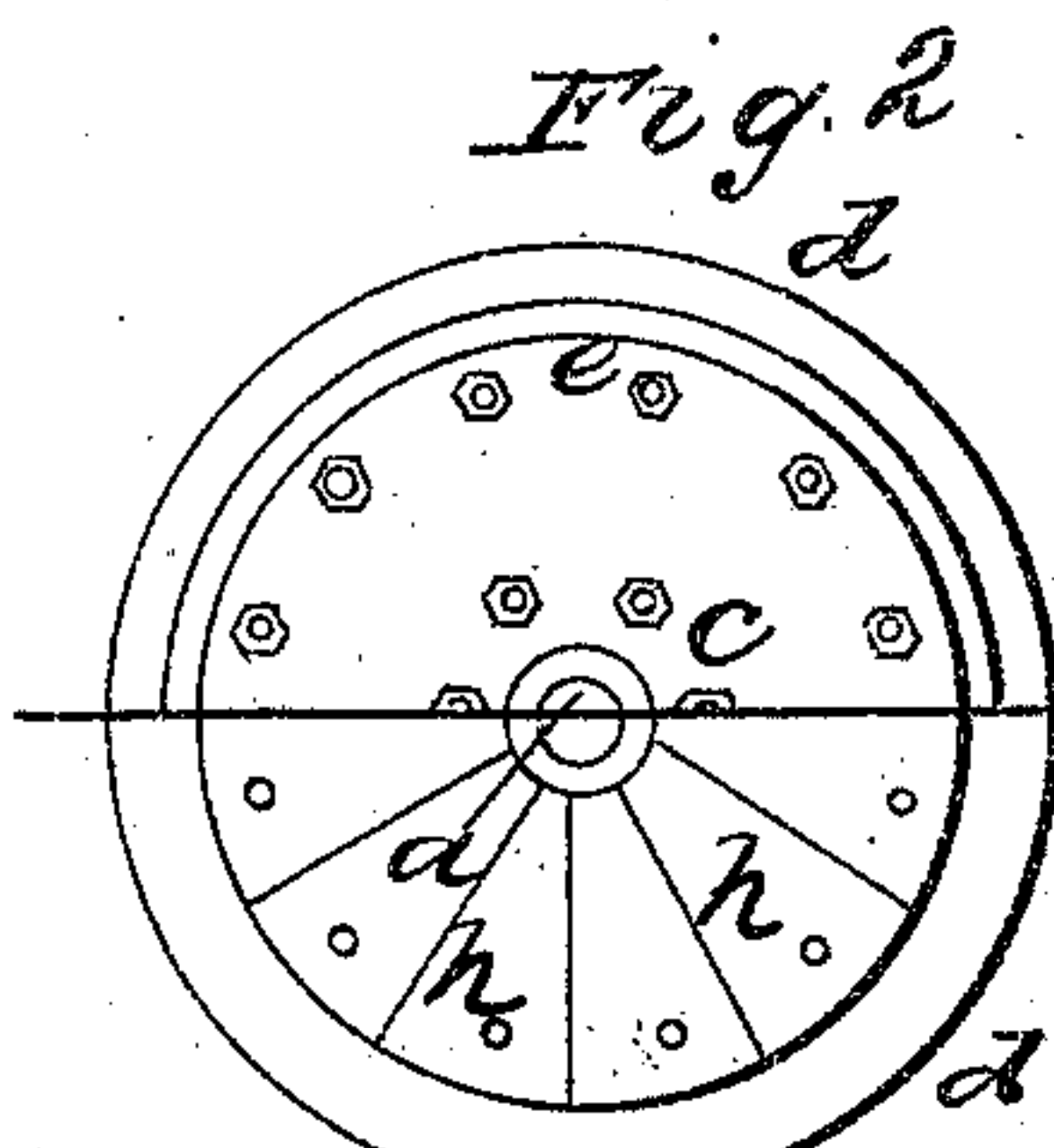
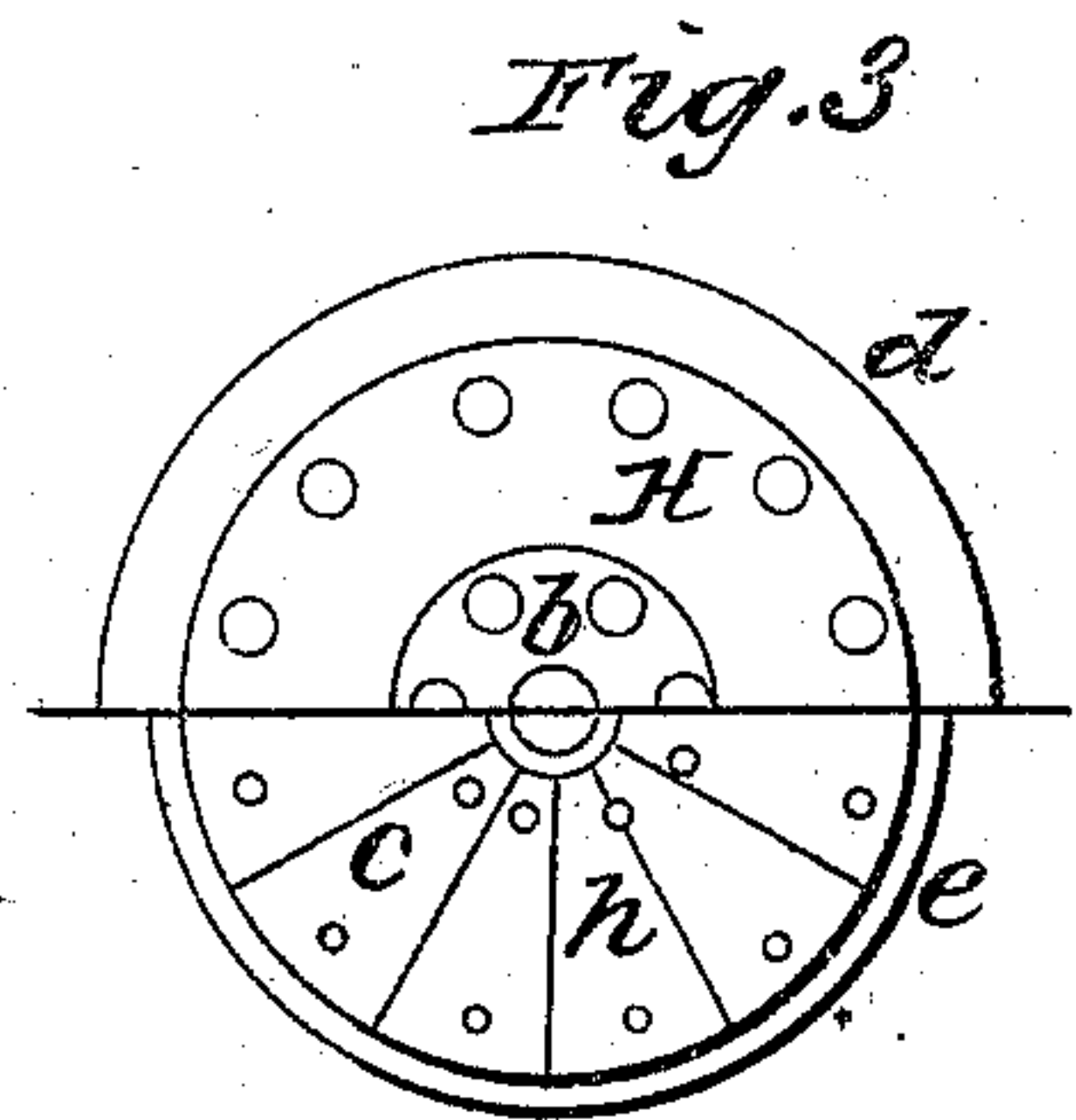


C. T. HARVEY.

Car Wheel.

No. 79,757.

Patented July 7, 1868.



Inventor

C. T. Harvey  
By Van Dantone & Mauls  
his Atty

E. F. Kadenhuber  
J. B. Poller witnesses



# United States Patent Office.

CHARLES T. HARVEY, OF TARRYTOWN, NEW YORK.

*Letters Patent No. 79,757, dated July 7, 1868.*

## IMPROVED CAR-WHEEL.

*The Schedule referred to in these Letters Patent and making part of the same.*

### TO ALL WHOM IT MAY CONCERN:

Be it known that I, CHARLES T. HARVEY, of Tarrytown, in the county of Westchester, in the State of New York, have invented a new and useful Improvement in Car-Wheels; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing, forming part of this specification, in which drawing—

Figure 1 is a front elevation, partly sectional, of a car-wheel made on the principle of my invention.

Figure 2 is a side elevation, partly sectional, looking towards the right-hand side of fig. 1.

Figure 3 is a side elevation, partly sectional, looking towards the left-hand side of fig. 1.

The succeeding figures, 4 to 12, both inclusive, represent different features of my invention, and also several modifications of parts thereof.

This invention relates to car-wheels, and consists in a peculiar method of construction, whereby wood is combined with metal to produce a wheel which possesses great endurance, and can be repaired and renewed in its several parts as occasion requires.

One of the objects of my invention is to provide, to as great a degree as possible, against danger of fracture from frost and cold, and from shocks and jars.

The letter *a* designates the axle of the wheel, and *o* is the hub, which consists of a hollow shaft that goes through the wheel, and has on its inner end a strong flange, *b*, which projects from the cylindrical part of the hub at a right angle.

This flange performs an important office in holding together the central parts of the wheel which are arranged immediately around the hub, such parts being connected to each other and to the flange by bolts, *f*, which go through from one face of the wheel to its opposite face. Around and next to the hub, I place a series of radial wooden blocks, *h*, whose outer ends are curved concentrically to the hub, so as to form a circular periphery.

These blocks are so prepared and arranged that the grain of the wood will be transverse to the circumference of the wheel, or to its tangents, so that they will be in the strongest and most enduring position for wear and service. The sides of said blocks are straight, and fit snugly to each other, so that when they are all in place, they form a solid annular body or filling circumjacent to the hub.

The letters *d e*, referring to the wheel shown in fig. 1, and to the face views thereof.

Figs. 2 and 3 designate annular protecting and enclosing-plates, which enclose the wooden blocks *h* at their outer ends, at the circumference of the wheel, said plates being fitted into rebates formed along both edges of such circumference, as is clearly shown in fig. 1, so that the bottoms of the rebates form shoulders for the inner circumferences of the plates *d e* to fit up to, and the blocks are thereby confined in their places, compressed together, and firmly held against the hub.

In the example of my invention shown in fig. 1, both these annular plates *d e* are arranged in such a manner that their outer circumferences project beyond the periphery of the wheel so as to form flanges thereto, the flange formed by plate *d* being the wider of the two.

These flanges perform the usual office of retaining the wheel on the track where it is running, by projecting downwards on both sides of the rail. The said plates *d e* and the interposed blocks are held and secured together by bolts, *f*, which also go through the outside disks *g x*, when such disks are added to the wheel. I have shown both these disks in figs. 1, 2, and 3, and my object in providing them is to confine the wooden parts more securely, also to confine and support the annular edge-plates *d e*, and to give additional strength and stiffness to the wheel.

The bolts *f* are more or less numerous, according to the size of the wheel.

The wheel is secured to the axle by driving it on and keying it in any proper manner.

In fig. 4 and the succeeding figures, I have shown other features of my invention and modifications, which I will next describe.

In said fig. 4, (see also figs. 5 and 6,) I have dispensed with the covering-disk *x*, on the inside face of the

wheel, and have also dispensed with the annular edge-plate *e*, retaining the covering-disk *g*, whose circumference coincides, or nearly so, with the circumference of the wheel. The wheel, as thus modified, has but one flange, and that is formed on its inner edge by the annular plate *d*.

In figs. 7, 8, and 9, I have shown the periphery of the wheel covered by a metal tire, *i*. The said tire has inside ears *j*, six or more in number, according to the size of the wheel and the judgment of the maker, which fit into recesses made for them in the circumference of the wooden body, in such a manner as to lock the tire, and prevent it from slipping or moving on the wheel. The tire is further locked in place by the bolts *f*, which also go through the ears, as is shown in the drawing.

In order to prevent wear and noise, and to prevent the access of moisture in the joints between the protecting edge-plate *d* and the tire *i*, I interpose a packing of rubber, *k*, between them, as is shown in fig. 7.

In fig. 10, I have made the tire *i* and the protecting edge-plate *d*, with its flange, in one piece, the locking-ears *j* being formed on the inner circumference of the tire, in the same manner as above explained.

The tire *i*, in both modifications shown in figs. 7 and 10, is covered by the disk *g*, and is firmly clamped thereto, and also to the wooden filling *h*, by the bolts *f*.

It will be observed that the several parts of my wheel, to wit, the hub, the central body, the annular edge-plates, and the disks which cover the sides of the wheel, are made in separate pieces independently of each other, so that the wear or destruction of one does not necessarily involve the loss of the other parts. The tire, when a metal tire is used, can be made part of one of the annular edge-plates, or be made separate, as preferred. This principle of constructing wheels is applicable to wheels for vehicles of any class or kind, and also to pulleys; and the wheels on which the cable-heads or spurs are carried in the cable-guide can also be made on the same plan.

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

1. The combination, with the wooden central body of a car-wheel, of a removable metallic flange or flanges, substantially as described.

2. In combination with the above, the removable metallic tire *i*, substantially as described.

3. The combination of the central body of a car-wheel, as described, and the removable metallic tire *i*, with the elastic packing *k*, as and for purposes set forth.

CHARLES T. HARVEY.

Witnesses:

J. VAN SANTVOORD,  
E. F. KASTENHUBER.