

No. 819,345.

PATENTED MAY 1, 1906.

B. DORSTROM.
PUZZLE.

APPLICATION FILED FEB. 5, 1906.

Fig. 1.

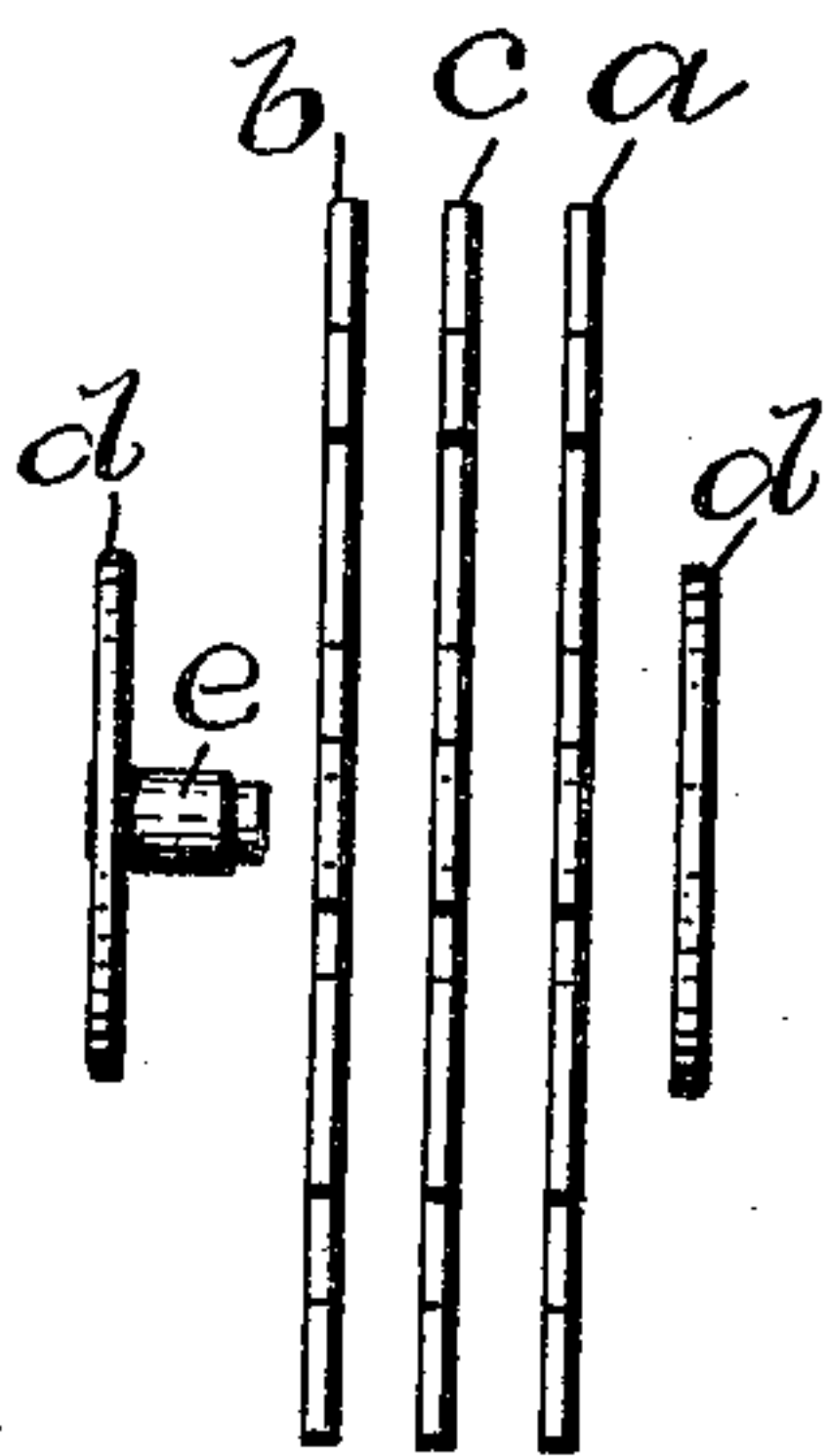


Fig. 2.

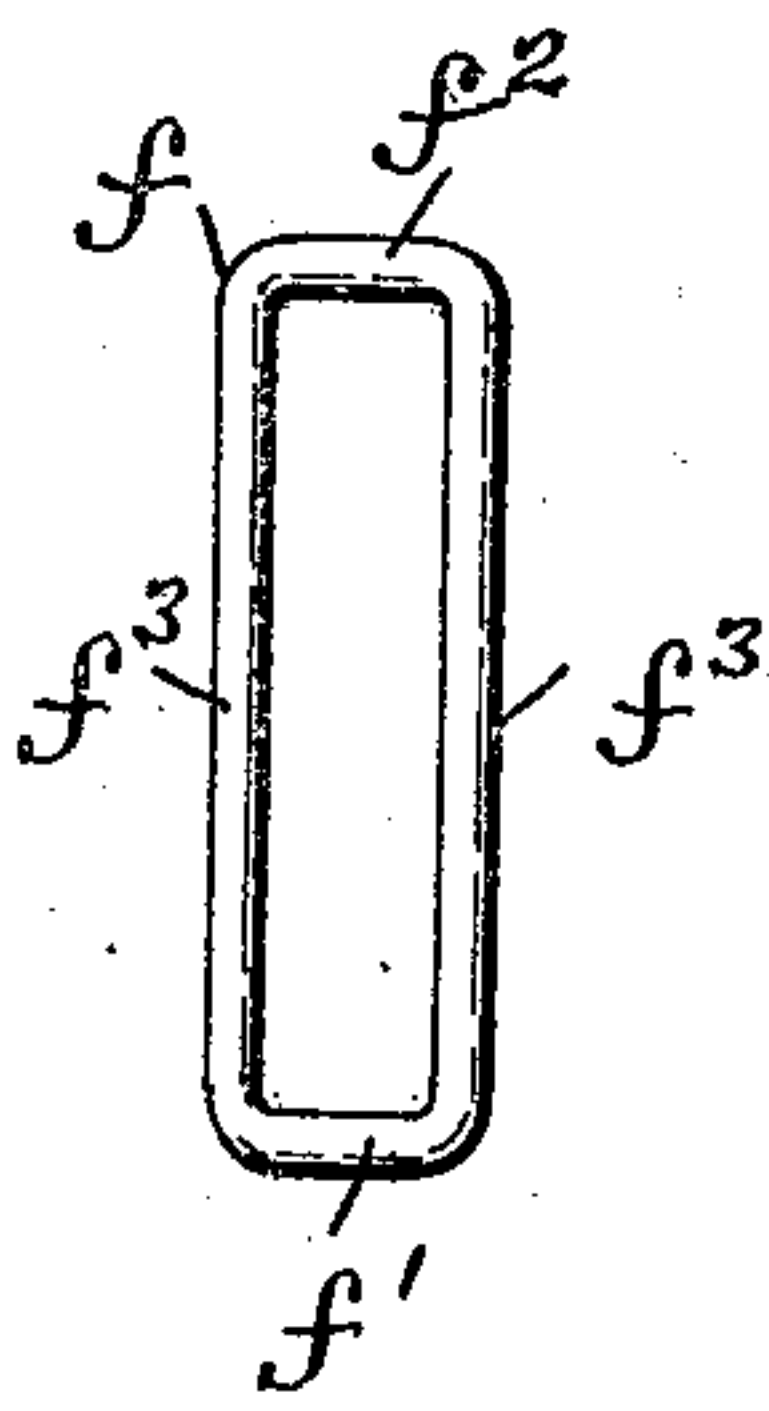


Fig. 3.

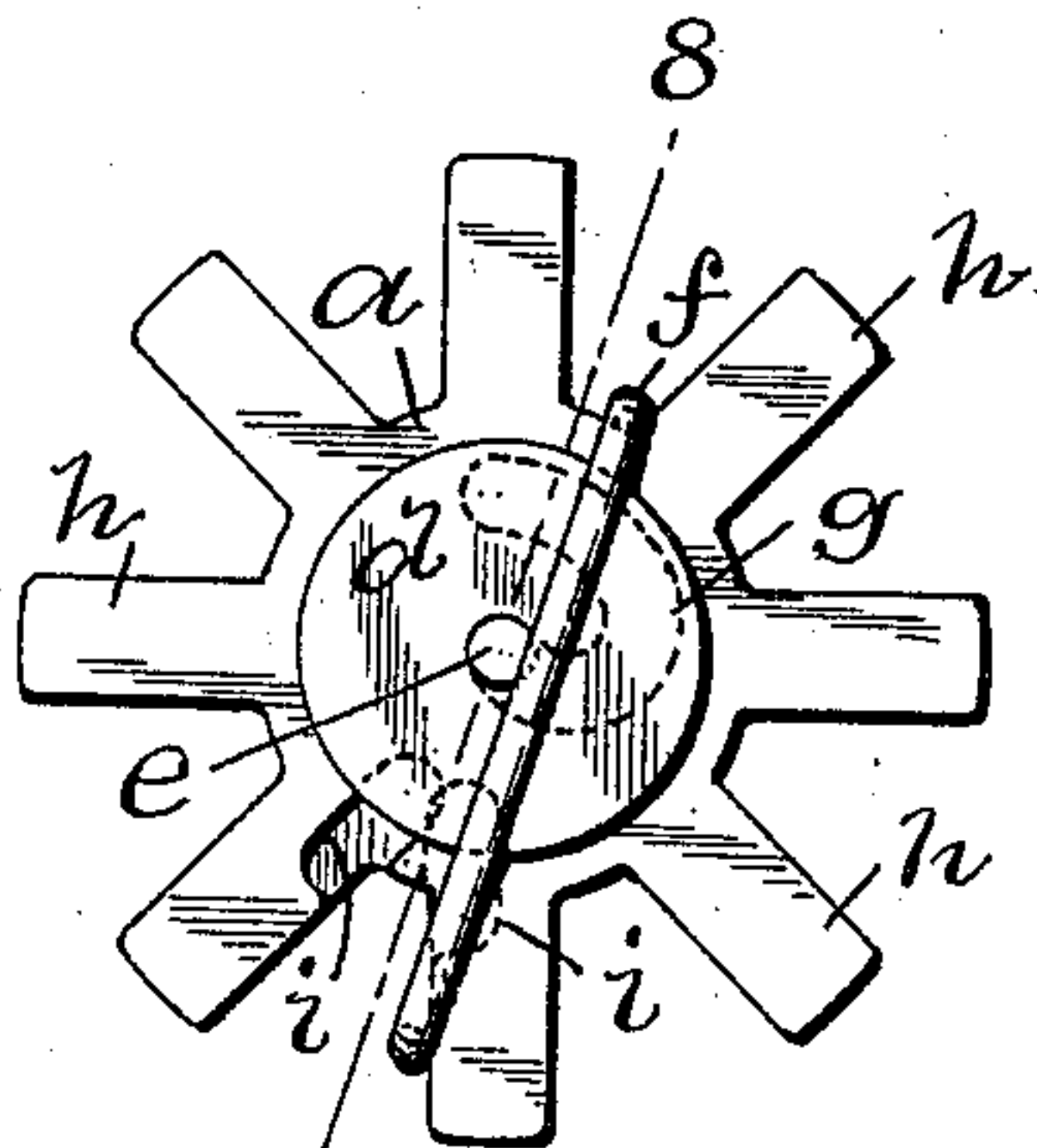


Fig. 4.

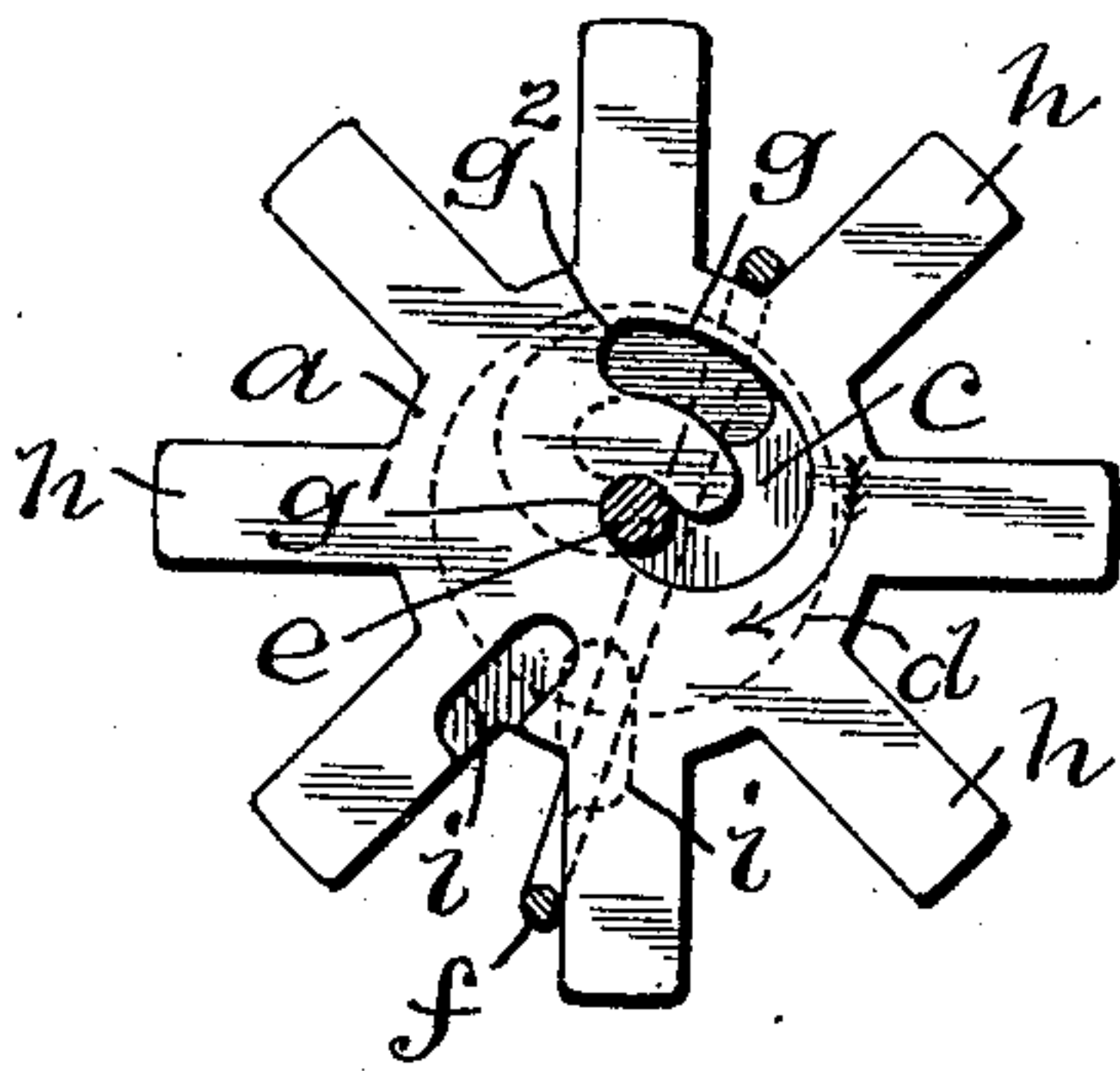


Fig. 5.

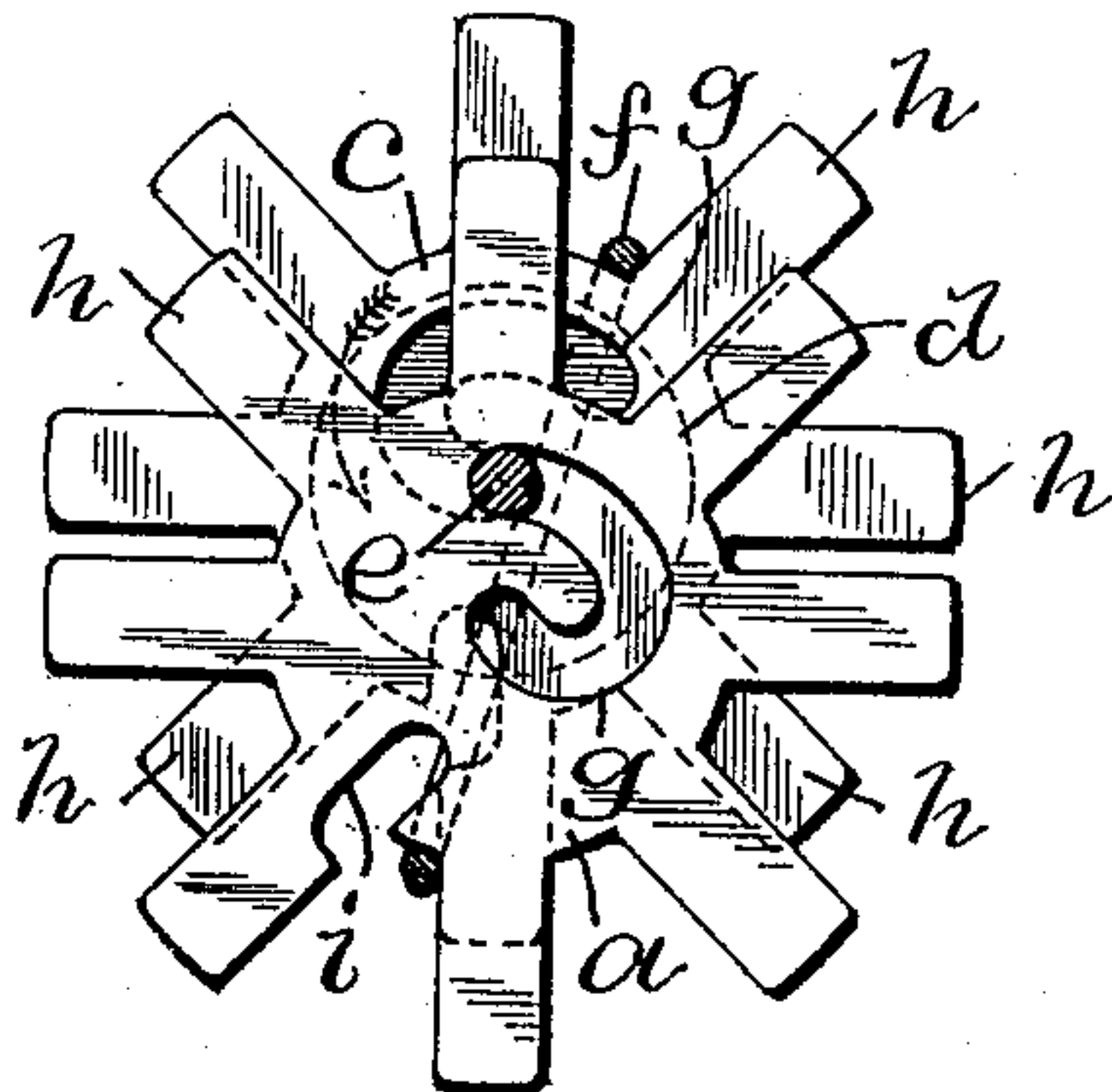


Fig. 6.

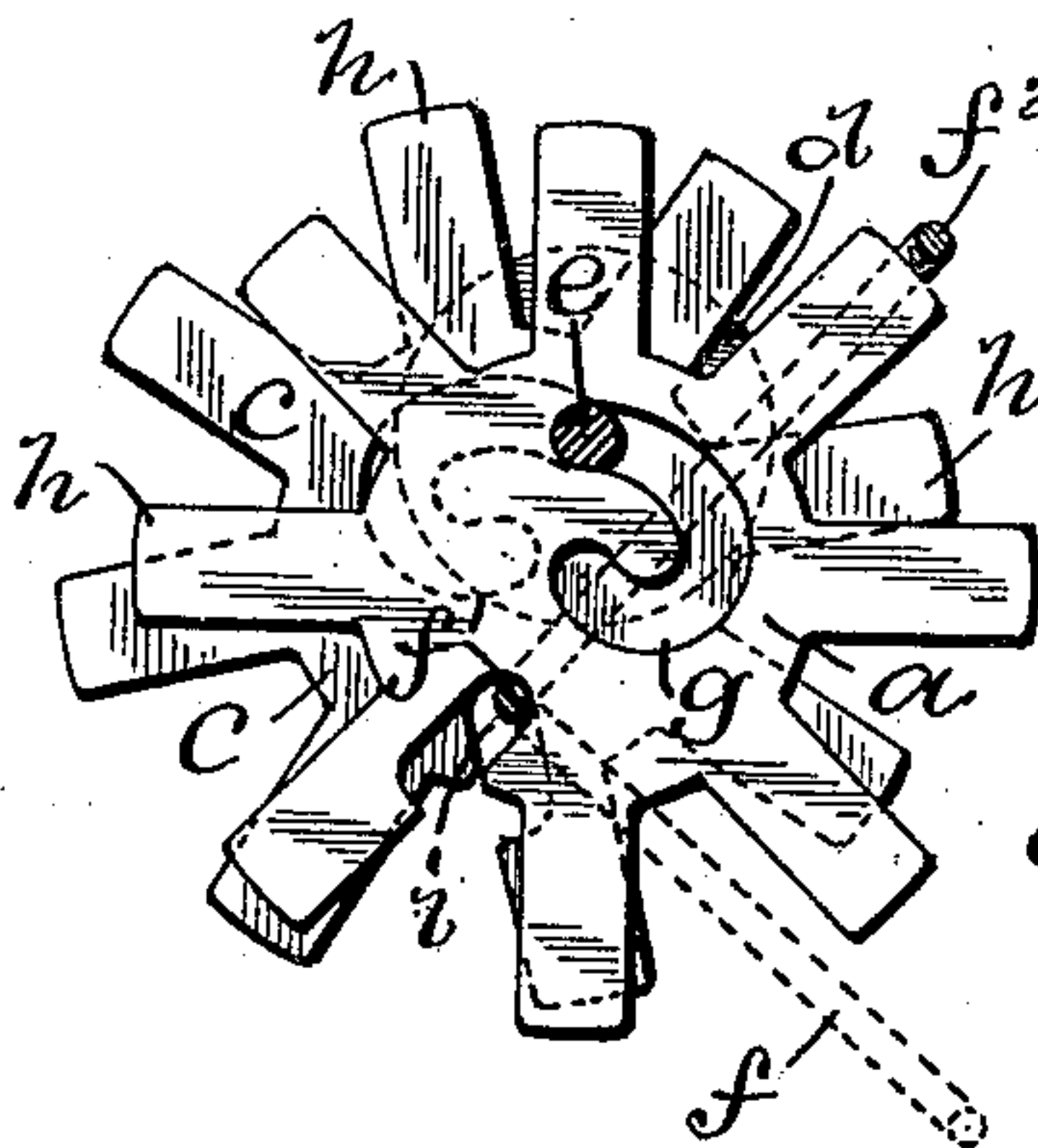


Fig. 8.

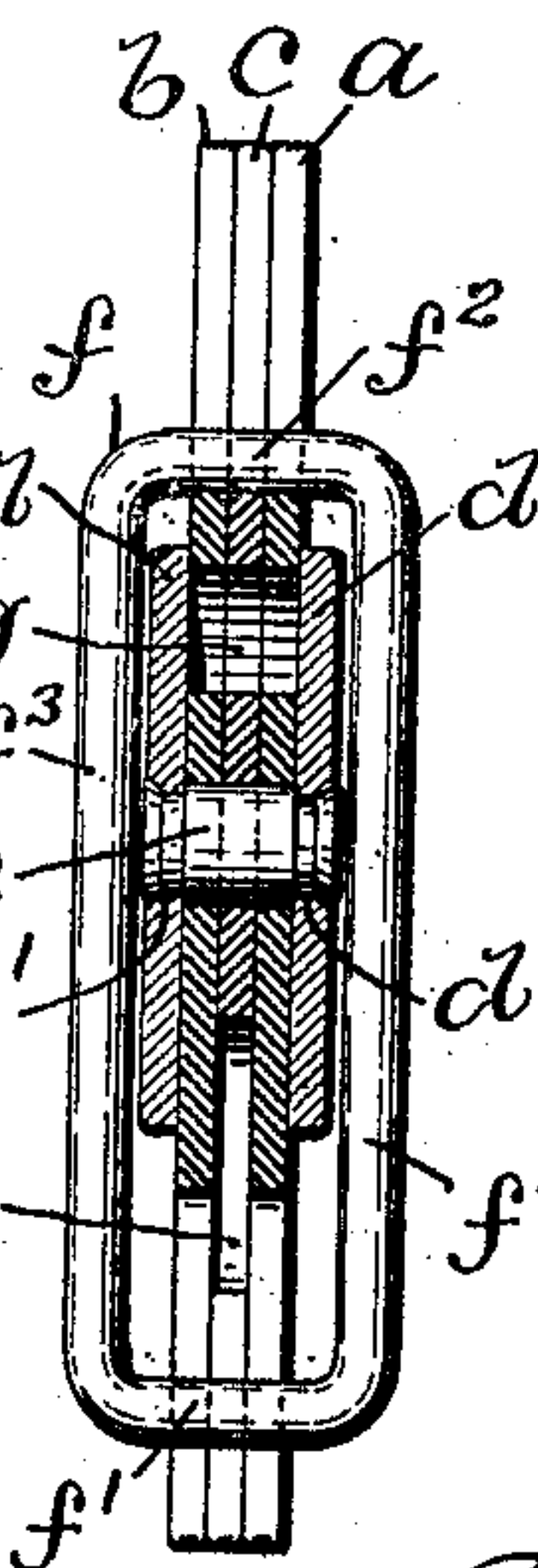
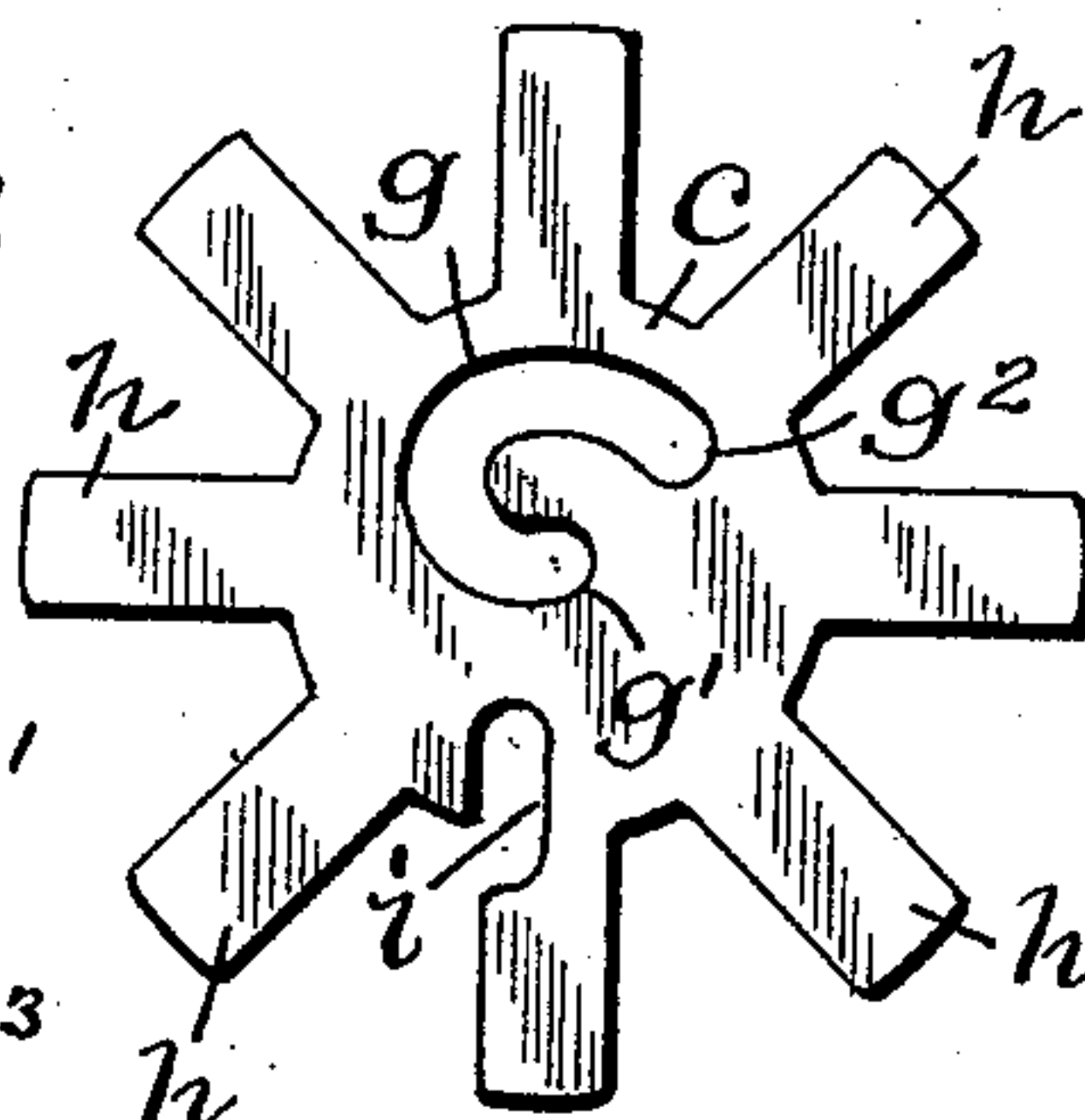


Fig. 7.



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PUZZLE.

No. 819,345.

Specification of Letters Patent.

Patented May 1, 1906.

Application filed February 5, 1906. Serial No. 299,637.

To all whom it may concern:

Be it known that I, BENJAMIN DORSTROM, a citizen of the United States, residing at Bristol, in the county of Bristol and State of Rhode Island, have invented a new and useful Improvement in Puzzles, of which the following is a specification.

This invention has reference to an improvement in puzzles, and more particularly to an improvement in that form of puzzles which requires one part of the puzzle to be separated from the other part to solve the same.

The object of my invention is to construct a puzzle which is extremely difficult to solve by the uninstructed, but which may be easily solved when the required movements are known.

A further object of my invention is to construct a puzzle having a plurality of parts for the least cost possible for manufacturing the same, and I accomplish this object by constructing the puzzle practically of sheet metal.

My invention consists in the peculiar and novel construction of a puzzle formed of a plurality of parts which require certain movements to release one part from the body of the puzzle, as will be more fully set forth hereinafter and pointed out in the claims.

Figure 1 is an edge view of the several parts forming the body of the puzzle, showing the same in the position for assembling. Fig. 2 is a side view of the link removed from the body of the puzzle. Fig. 3 is a face view of the complete puzzle, showing the link locked to the body of the puzzle between the radial arms. Figs. 4, 5, and 6 are sectional views illustrating the different movements required to separate the link from the body of the puzzle. Fig. 7 is a face view of the central disk removed from the body of the puzzle; and Fig. 8 is an enlarged sectional view through the complete puzzle, taken on line 8 8 of Fig. 3.

In the drawings, *a*, *b*, and *c* indicate the front, back, and central disks, *d d* the outside plates, *e* the central connecting-stud, and *f* the removable link, of my improved puzzle.

The disks *a*, *b*, and *c* are identically alike, each being stamped from sheet metal by suitable dies shaped to form the cam-slot *g*, the end *g'* of which is concentric and the end *g''* eccentric with the center of the disk and the series of eight arms *h h* extending radially from the edge of the disk, in one of which is the radial slot *i*, extending inwardly from the

edge of the arm at its base toward the center of the disk, as shown in Figs. 4 and 7.

The outside plates *d d* each have a central hole *d' d'* for the stud *e*, as shown in Fig. 8. The link *f* is constructed of wire in an elongated rectangular form shorter than the diameter of the disks across the radial arms *h h* and having the ends *f'* and *f''* connected together by the sides *f³ f³*, as shown in Fig. 2.

The body of the puzzle is assembled by holding the front disk *a* in the position as shown in full lines in Fig. 4, placing the central disk *c* on the back of the front disk *a* in the reverse position, as shown in broken lines in Fig. 4 and in full lines in Fig. 7, then placing the back disk *b* on the back of the central disk *c* in a position for the cam-slot *g* and the radial slot *i* to coincide with the cam-slot and radial slot in the front disk *a*, inserting the stud *e* through the ends *g'* of the cam-slot *g* in the center of the disks, then placing the outside plates *d d* in a position for the holes *d' d'* in the disk to coincide with the ends of the stud *e*, and securing the whole together by riveting the ends of the stud to the plates through the holes in the plate, as shown in Fig. 8.

The link *f* is separated from the body of the puzzle, where it is locked between the radial arms *h h*, and the puzzle solved by first moving the front disk *a* in the direction of the arrow, as shown in Fig. 4, to move the stud *e* in the cam-slot *g* from the concentric end *g'* to the eccentric end *g''* of the cam-slot and to move the disk *a* into the position as shown in Fig. 5. The back disk *b* is now given identically the same movement as the front disk *a* to bring the back disk into a position for the cam-slots *g g* in the front and back disks to coincide, for the stud *e* to extend through the eccentric ends *g'' g''* of the cam-slots, and for the radial slots *i i* to coincide outside of the edge of the plates *d d*, as shown in Fig. 5. The central disk *c* is now moved in the direction of the arrow, as shown in Fig. 5, into the position as shown in Fig. 6, bringing the stud *e* into the eccentric end *g''* of the cam-slot *g* in the central disk and the radial slot *i* in the central disk into a position to coincide with the slots *i i* in the front disk *a* and the back disk *b*, thus bringing all of the slots *i i i* outside of the plates *d d*. The end *f'* of the link *f* is now moved into the radial slots *i i i*, bringing the end *f''* of the link into a position to be easily carried over the ends of the arms *h h*

and moved into the position, as shown in broken lines in Fig. 6, when a slight outward pull will remove the link from the body of the puzzle. By reversing these movements the link may again be locked to the body of the puzzle between the arms $h\ h$, as shown in Fig. 3.

I do not wish to confine myself to the exact structure shown, as it is evident that the number of arms $h\ h$ could be varied and that the link f could be stamped from sheet metal or an endless chain substituted for the link without materially affecting the spirit of my invention.

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

1. A puzzle comprising a body consisting of a plurality of disks each disk having a series of arms extending radially from the disk and a link or its equivalent adapted to be locked to the body between the radial arms, means for holding the disks together, and means for controlling the movements of the disks, whereby on the disks being made to assume predetermined positions the link is radially detached from the body.

2. A puzzle comprising a body consisting of three disks each disk having a series of arms extending radially from the disk and a link or its equivalent adapted to be locked to the body between the radial arms, means for holding the disks together, and means for controlling the movements of the disks, whereby on giving a predetermined movement to the outer disks in the same direction and the same movement to the central disk in the reverse direction, the link is readily detached from the body.

3. A puzzle comprising a body consisting of a plurality of disks each disk having a series of arms extending radially from the disks, a cam-slot, and a radial slot, a stud adapted to extend through the cam-slots in the disks, plates secured to the end of the stud and adapted to conceal the slots in the disks, and a link or its equivalent adapted to be locked to the body between the radial arms, whereby on the disks being made to assume predetermined positions, the link is readily detached from the body.

4. A puzzle comprising a body consisting of a plurality of disks each disk having a series of radial arms, a cam-slot one end of which is concentric and the other end eccentric with the center of the disk and a radial slot extending from the edge of the disk toward the center of the disk, a stud adapted to extend through the concentric ends of the cam-slots with the body in the locked position, plates adapted to conceal the slots in

the disks and secured to the ends of the stud, a link or its equivalent adapted to be locked to the body between the radial arms, whereby on the disks being moved into predetermined positions the radial slots are moved outward beyond the plates into a position to coincide and to receive one end of the link, thus allowing the other end of the link to be carried over the ends of the radial arms and detached from the body, as described.

5. A puzzle comprising a body consisting of three disks each disk having a series of radial arms, a cam-slot one end of which is concentric and the opposite end of which is eccentric with the center of the disks and a slot extending radially from the edge of one arm toward the center of the disk, the cam and radial slots in the central disk being in a reversed position relative to the cam and radial slots in the outside disks, a stud adapted to extend through the concentric ends of the cam slots with the body in the locked position, circular plates adapted to conceal the slots in the disks and secured to the ends of the stud, and a link or its equivalent adapted to be locked to the body between the radial arms, whereby on the disks being moved to bring the stud from the concentric end to the eccentric end of the cam-slot, the radial slots in the disks are moved outward beyond the edges of the plates and into an exposed position to coincide and to receive one end of the link, thus allowing the opposite end of the link to be carried over the ends of the radial arms and detached from the body, as described.

6. In a puzzle, the combination of the disks a, b and c each disk having a cam-slot g the end g' being concentric with the center of the disk, the series of arms $h\ h$ extending radially from the edge of the disk and a radial slot i extending inwardly from the edge of one of the arms toward the center of the disk, the plates $d\ d$ each having a central hole d' , a stud e adapted to extend through the cam-slots $g\ g\ g$ in the disks and riveted to the plates $h\ h$ through the holes $h'\ h'$ in the plates, and an elongated rectangular link f having the ends f' and f'' connected by the sides f^3 adapted to be locked to the disks between the arms $h\ h$ and to be detached from the disks by predetermined movements of the disks, as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

BENJAMIN DORSTROM.

Witnesses:

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J. A. MILLER.