

(No Model.)

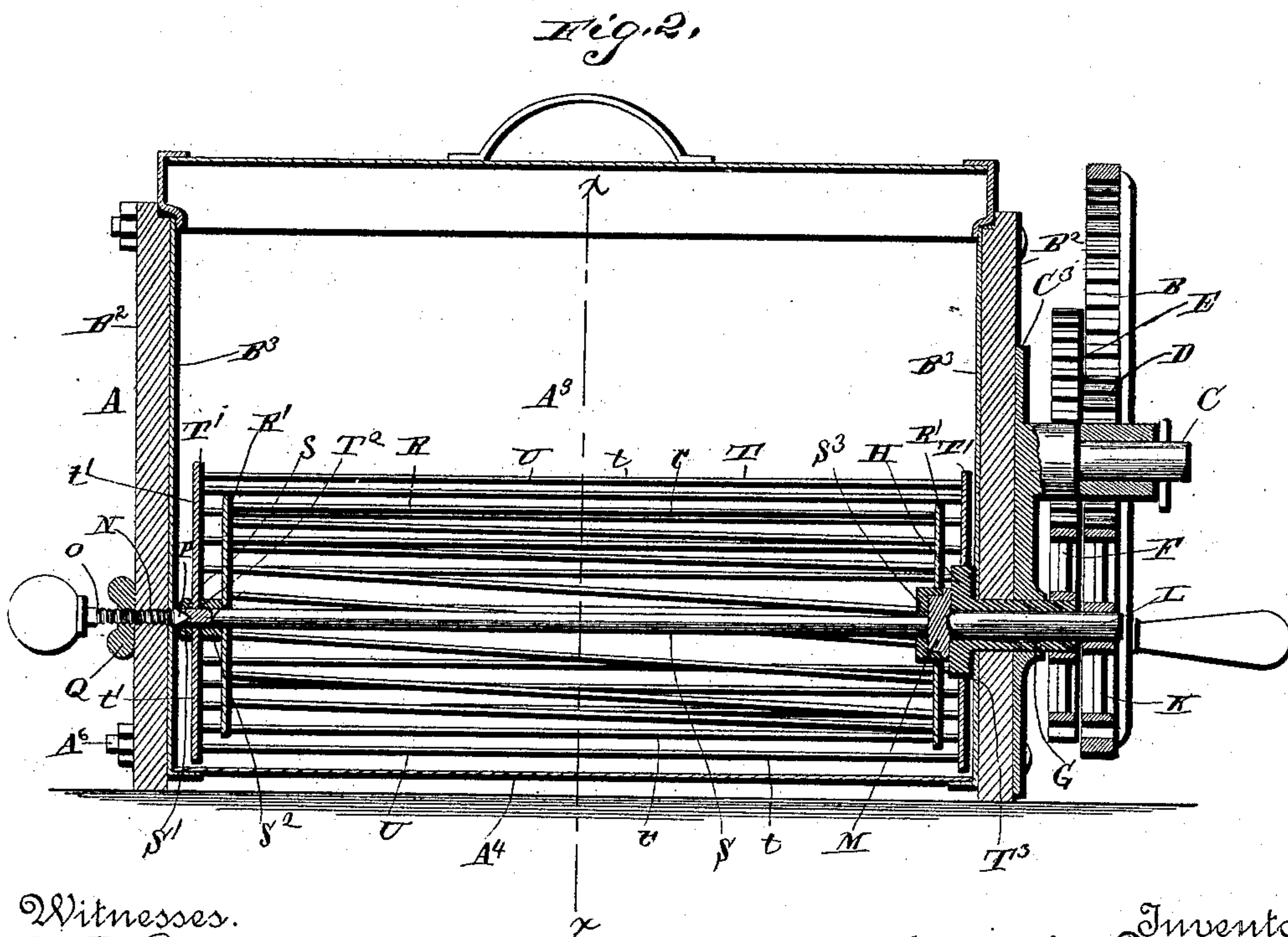
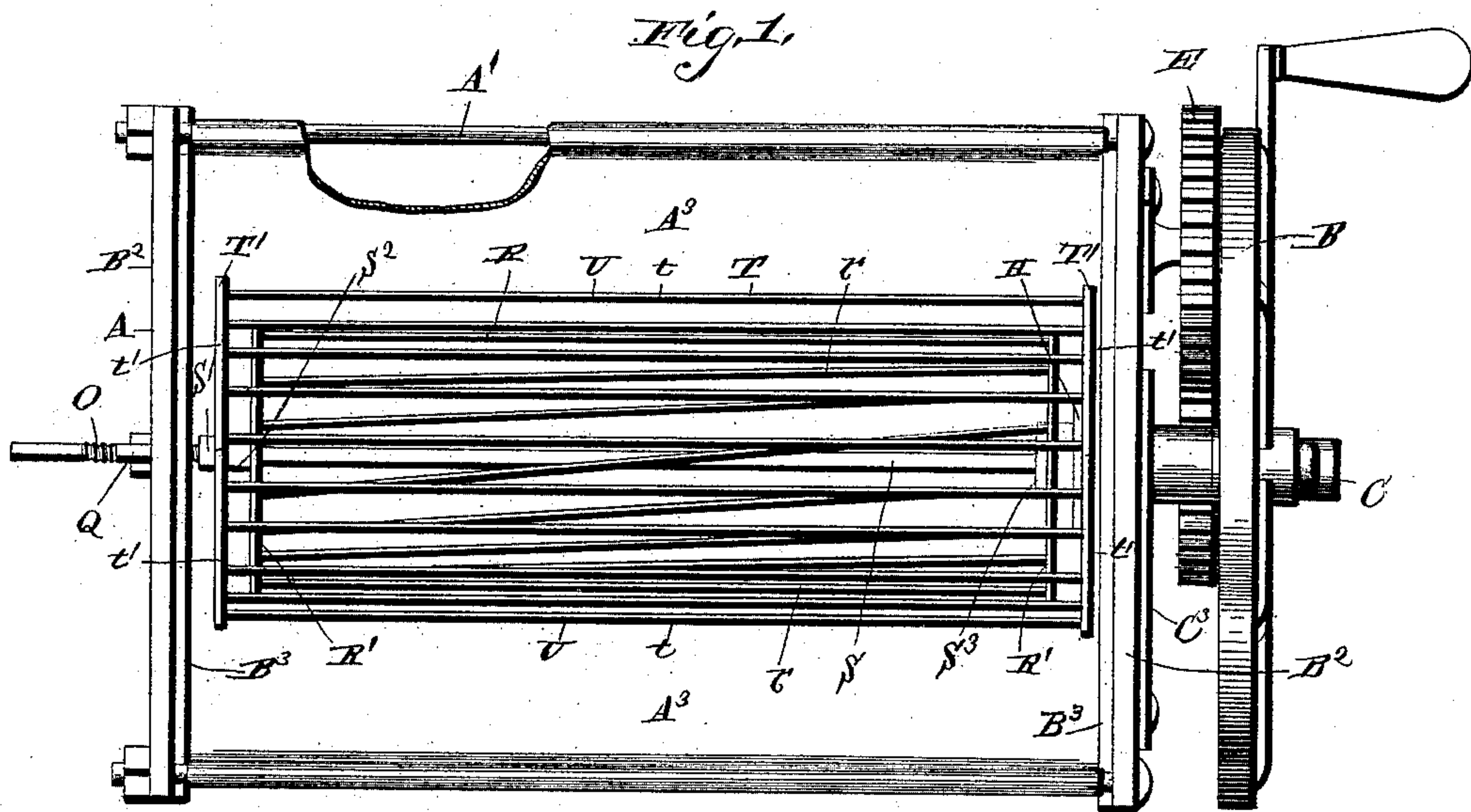
2 Sheets—Sheet 1.

J. J. DIELL.

EGG BEATER.

No. 387,214.

Patented Aug. 7, 1888.



Witnesses.

*C. L. Taylor,*  
*C. E. Doyle.*

Inventor.

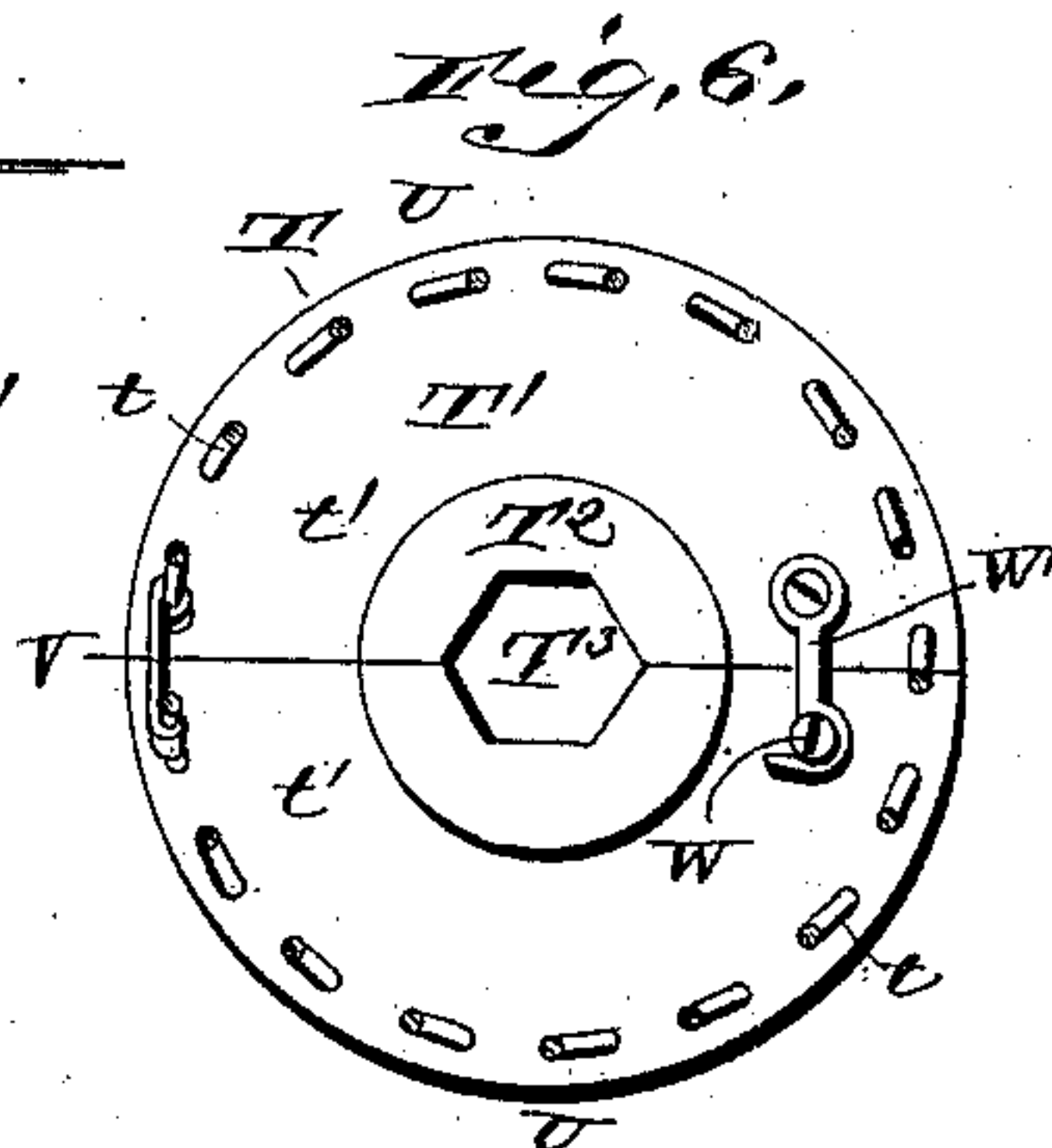
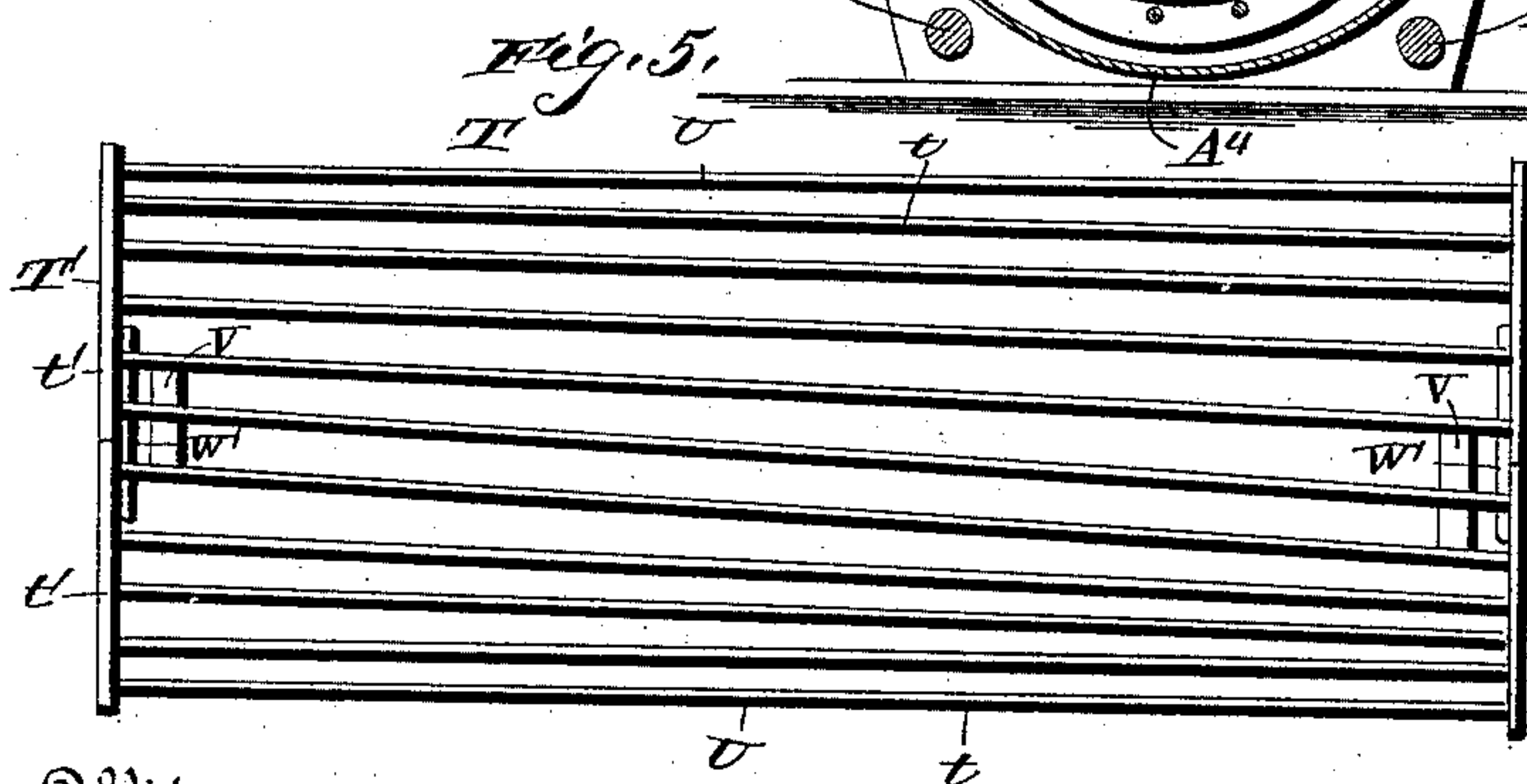
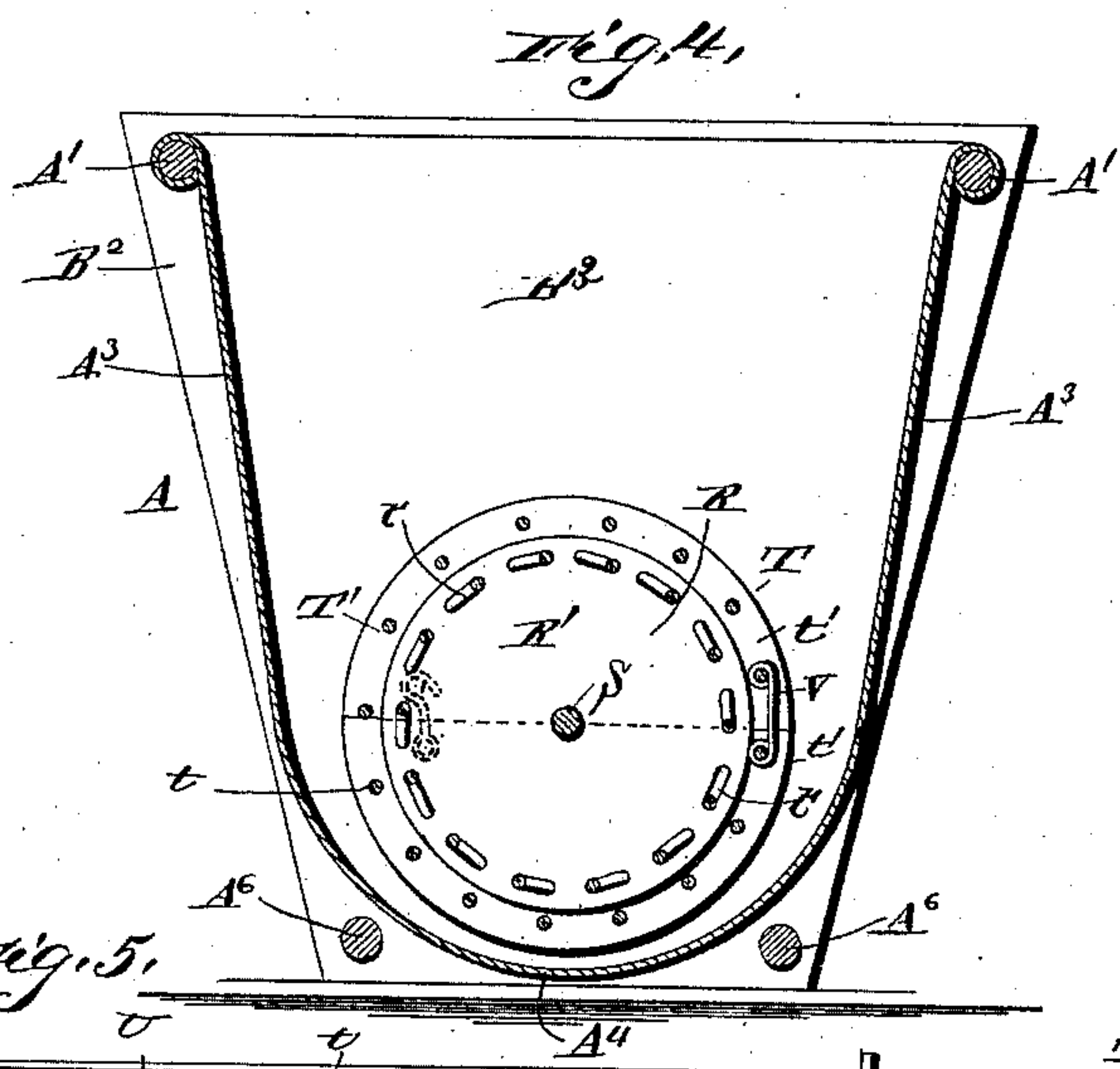
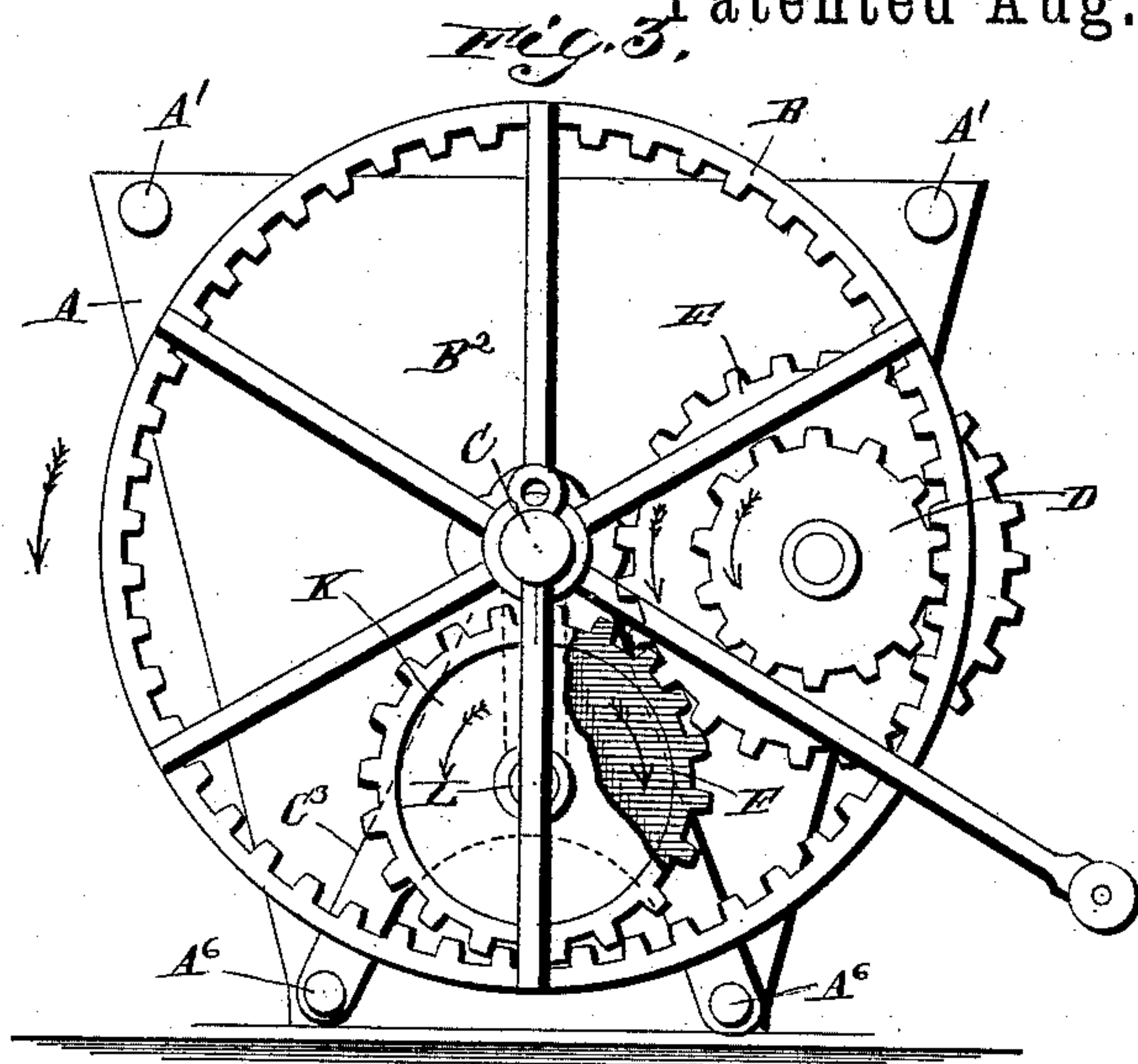
*John J. Diell*  
*by C. H. Snowdley*  
Attorney.

J. J. DIELL.

EGG BEATER.

No. 387,214.

Patented Aug. 7, 1888.



Witnesses.

*C. B. Taylor,*  
*C. E. Doyle*

Inventor,  
*John J. Diell*  
by *C. A. Snow & Co.*  
Attorneys.



# UNITED STATES PATENT OFFICE.

JOHN J. DIELL, OF MARYSVILLE, OHIO.

## EGG-BEATER.

SPECIFICATION forming part of Letters Patent No. 387,214, dated August 7, 1888.

Application filed October 25, 1887. Serial No. 253,365. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN J. DIELL, a citizen of the United States, residing at Marysville, in the county of Union and State of Ohio, have invented a new and useful Improvement in Egg-Beaters, of which the following is a specification.

My invention relates to improvements in egg-beaters; and it has for its objects the provision of a device which will rapidly and effectively beat eggs or churn milk whether in large or small quantities. Further, to provide a device which will be effective when made small enough for family use as well as when made large enough for hotels, bakeries, &c.

With these objects in view my invention consists in a certain novel construction and arrangement of parts, fully set forth hereinafter, and specifically pointed out in the claims.

In the accompanying drawings, wherein similar letters denote corresponding parts in the several views, Figure 1 is a top plan view of the device. Fig. 2 is a longitudinal section of the same. Fig. 3 is an end view to show the operating mechanism. Fig. 4 is a transverse section on line *x x*, Fig. 2. Fig. 5 is a detail view of the outer revolving beater, showing an improved form; and Fig. 6 is an end view of the same.

Referring by letter to the drawings, A designates the body of the beater, which is designed to contain the eggs to be beaten, and the same is provided with a rounded bottom and sides, which converge toward the bottom. The said body or vessel A has its sides A<sup>2</sup> and bottom A<sup>4</sup> constructed of a single piece of sheet metal, shaped as shown, the upper edges of the sides being turned or rolled over to embrace the longitudinal bolts A', which connect the ends together. The ends B<sup>2</sup> of the body are formed of cast metal with the inner faces flanged. A sheet-metal lining, B<sup>3</sup>, similar to that which composes the sides is soldered at its edges to the ends of the sides and bottom and is also riveted or otherwise secured to the flanges of the ends B<sup>2</sup>. The bolts A', as before stated, extend longitudinally of the beater and connect the ends thereof together, forming a firm and substantial structure. The body or ves-

sel rests upon the ends, and connecting-bolts A<sup>6</sup> are provided for the ends at the bottom outside of the casing. Secured to one end, B<sup>2</sup>, of the beater-body is a bracket-plate, C<sup>3</sup>, which has an outwardly-extending short shaft, C.

B designates a master-wheel having internal gear-teeth, and which is mounted on the shaft C. The said wheel meshes with a pinion, D, which is rigidly attached to a larger gear-wheel, E, mounted on the end of a stud-shaft projecting from the end of the body. The gear-wheel E meshes with a pinion, F, which is secured to the outer end of a hollow shaft, G. The shaft G passes through the end of the body and has its bearing in the bracket-plate C<sup>3</sup>. The inner end of the shaft G has an angular boss, H, which bears against the inner side of the end of the body, and thus holds the gear-pinion F in place.

K designates a pinion, which meshes with the master-wheel and is mounted upon a shaft, L, which operates in the hollow shaft G, and is provided at the inner end with a boss, M.

The master gear-wheel being an internal gear-wheel, the pinions and gear-wheels which mesh therewith are within the same, thus causing the operating mechanism to be very compact.

It will be seen from the above description that the pinion K, and consequently the shaft upon which it is mounted, will turn in the same direction as the master gear-wheel, and that the pinion F, which is attached to the hollow shaft, will turn in the opposite direction, owing to its being connected to the master-wheel by an intermediate gear. It will also be observed that the gear-wheel E is somewhat larger than the pinion F, and will consequently cause the latter to revolve more rapidly, and also that the pinion D, which meshes with the master-wheel and is attached rigidly to the pinion E, is much smaller than the latter. The result of this arrangement of gears will be to cause the hollow shaft to rotate much more rapidly than the other shaft.

A tapped opening, N, is formed in the opposite end of the body, and in the said opening is mounted a thumb-screw, O, which is reduced at the inner end and rounded to form



the spindle P. A jamb wing-nut, Q, is secured on the screw O, adapted to bear against the outer side of the body and lock the said screw in the desired position.

5 R designates a cylindrical beater comprising the end plates R' R' and the beating rods or wires *r r*.

S designates a rod, which extends between the end plates R' and serves to hold the  
10 same the proper distance apart. The beating-rods are not extended from plate to plate parallel with the said central rod, which is the axis of the cylinder, but they are arranged diagonally or obliquely on the cylinder, each rod  
15 making a partial turn around the cylinder.

The end of the rod S projects beyond one of the end plates, and is provided at the end with a socket, *s*, adapted to receive the end of the spindle P. S' is a collar secured on the said  
20 projecting end of shaft S, close to the end plate, and S<sup>2</sup> is a similar collar secured on the shaft a short distance from the end of the latter. The end of the cylinder opposite that end beyond which the shaft projects is provided with  
25 an angular socket, S<sup>3</sup>, to which the end of the shaft is secured, and the said socket receives an angular boss, M, on the end of the interior shaft L.

T designates the outer cylinder comprising  
30 the end plates T' T', each of which is divided to form the sections *t' t'*, and the longitudinal parallel beating-rods *t t*, extended between and connecting the said plates. One of the end plates is provided with a bearing, T<sup>2</sup>, to receive  
35 the shaft S on the end of the interior cylinder, between the collars S' S<sup>2</sup> thereon, and the opposite end plate is provided with an angular opening, T<sup>3</sup>, to receive the angular boss or collar H, which is on the inner end of the hollow  
40 shaft G. It will thus be seen that the concentric cylinders are journaled near the bottom of the body and operate within the said rounded bottom, and, further, that when the master gear-wheel is rotated the said cylinders will  
45 revolve in opposite directions with different velocities. As before stated, the end plates of the outer cylinder are divided to form the sections *t' t'*, thus dividing the bearing T<sup>2</sup> and the angular opening T<sup>3</sup>, to enable them  
50 to be arranged, respectively, on the shaft S (between the collars S' S<sup>2</sup>) and the angular boss or collar H. The collars S' S<sup>2</sup> hold the end plates of the two cylinders from coming in contact with each other, and thus prevent  
55 friction between the parts. The entire cylinder T is therefore divided into two sections, U U, and the sections are hinged together at one edge by the links or hinges V V, secured to adjacent beating-rods. To secure the opposite  
60 edges together, I provide on one of the sections of the end plate a stud, W, and on the other section the hook W' to engage the said stud. Thus the beaters may at any time  
65 be removed from the body A by loosening the jam-nut and withdrawing the screw O to enable them to be cleaned after using, and the

said cylinders can also be separated by disengaging the hooks W' and opening the sections of the outer cylinder.

The tendency of the contents of the body 70 is to settle to the bottom thereof, and therefore, by causing the outer cylinder (which operates closer to the bottom than the inner cylinder) to revolve more rapidly than the inner cylinder the eggs are more effectually beaten 75 and are kept from settling to the bottom.

It is desirable, and indeed necessary, that the beating rods of one cylinder should extend in a different direction from the rods of the other cylinder, for by this arrangement 80 the eggs are more effectually broken and cut and the beating more satisfactorily accomplished.

In the detail view of the outer beater I have shown the beating-rods inclined or arranged obliquely in the opposite direction to 85 the beating-rods in the inner cylinder. I prefer this arrangement, as it more thoroughly agitates the contents of the body, although I have shown the rods in the outer 90 cylinder of the other views parallel with the axis. I wish to be understood as not limiting myself to either arrangement, as they may be used interchangeably, and both with good results. 95

The effect produced by inclining the beating-rods in the respective cylinders in opposite directions is to cause a very rapid and thorough breaking and agitation of the eggs, and, as the said cylinders in addition to this 100 revolve in opposite directions, the result is eminently satisfactory.

This beater may be made of any desired size and will be found effective in all sizes.

My invention can be advantageously employed as a churn, and I therefore wish to include this use for my invention. 105

Having thus described my invention, I claim—

1. The beaters comprising end plates made 110 in sections, beater-rods between the end plates, and a hook on one section of the end plate engaging a stud on the adjacent end plate, as set forth.

2. The combination of the body, the hollow 115 shaft G, journaled in one end of the same and having an angular boss, H, on its inner end, the shaft L, inserted through the shaft G and having an angular boss, M, in its inner end, mechanism for rotating said shafts in opposite 120 directions, the inner beater comprising the end plates and the beater-rods between the same, one of said end plates having an angular socket, S<sup>3</sup>, to receive the angular boss M, and the outer beater consisting of end plates 125 and beater-rods, one of said end plates having an angular opening adapted to fit around the angular boss H, as set forth.

3. In an egg-beater or churn, the combination, with the body A, of the beater R, journaled therein and comprising the end plates 130 R' and the beating-rods *r*, and the outer

beater, T, surrounding the beater R and comprising the end plates T' T', formed in sections *t' t'*, the beating-rods *t t*, attached at the ends to the said sections, the links V V, attached at the ends to the beating-rods at adjacent edges of the sections, and the hooks W' on the opposite edges of the sections, adapted to engage studs W on the other sections, substantially as and for the purpose specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

JOHN J. DIELL.

Witnesses:

JESSE L. CAMERON,  
R. L. WOODBURN.