

(No Model.)

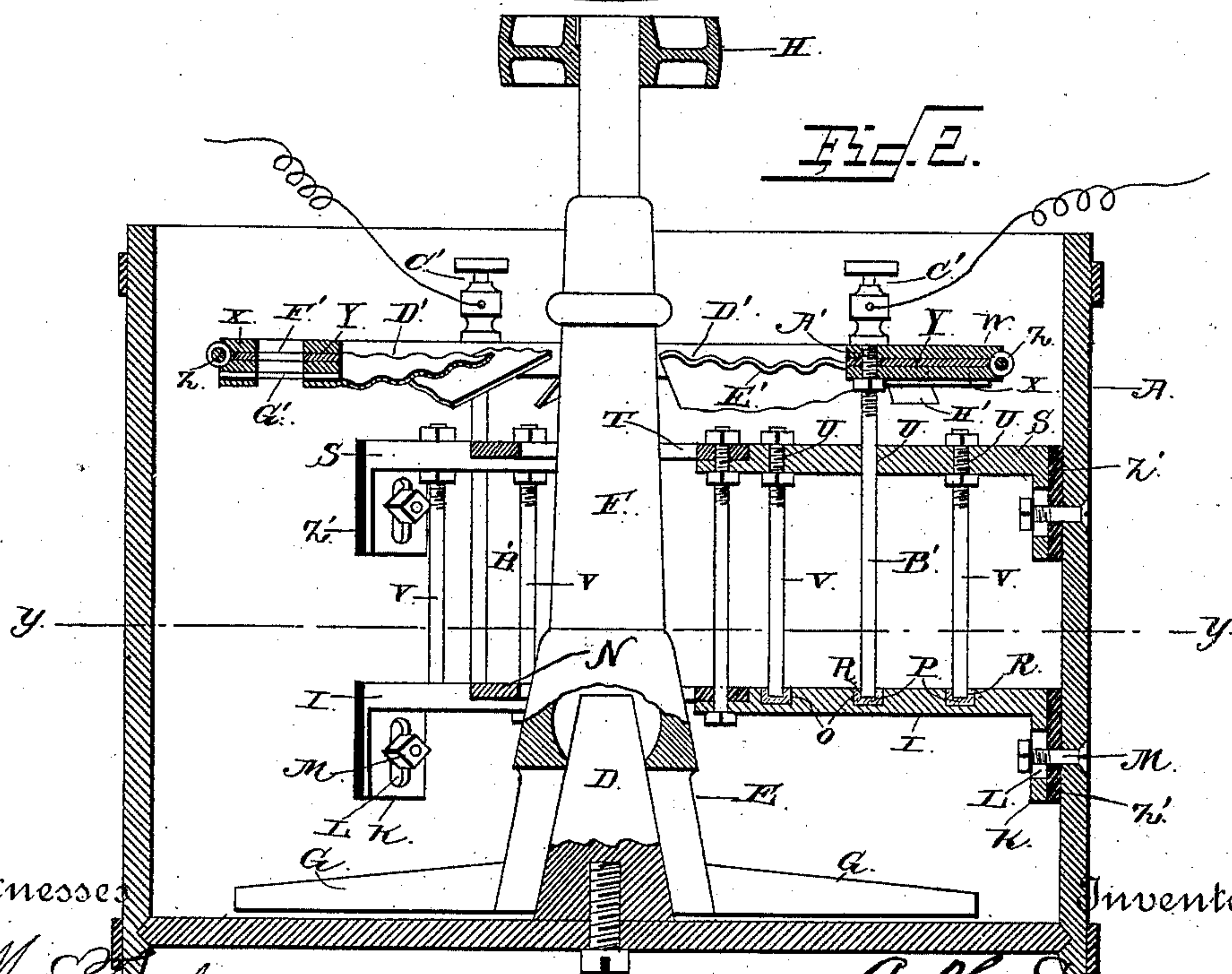
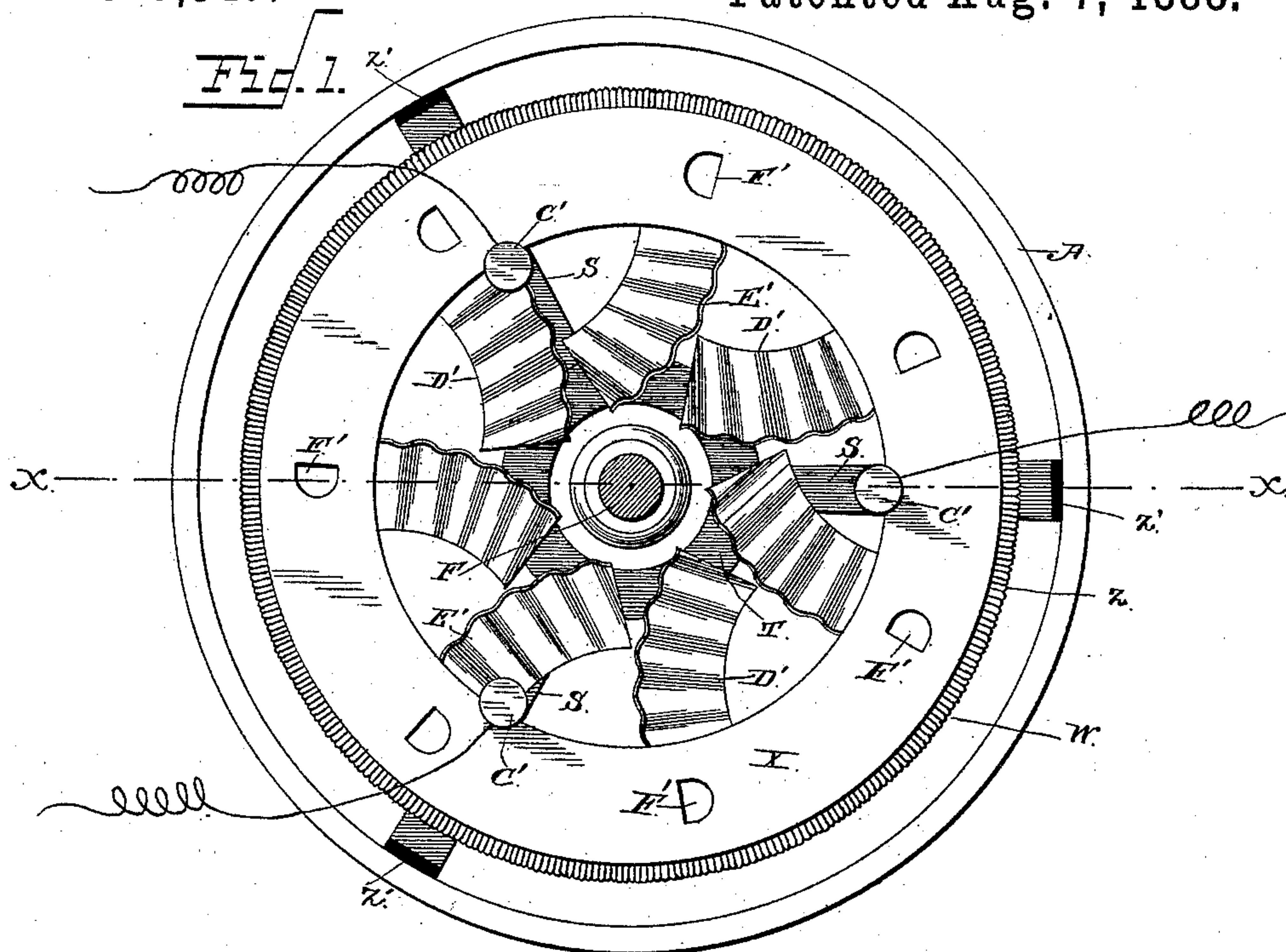
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A. H. EYSAMAN.

AMALGAMATOR.

No. 387,347.

Patented Aug. 7, 1888.



Witnesses

M. E. Fowler.
J. V. Garner

Inventor,

А. Н. Ермаков

By his Attorneys

C. A. Snow & Co.

(No Model.)

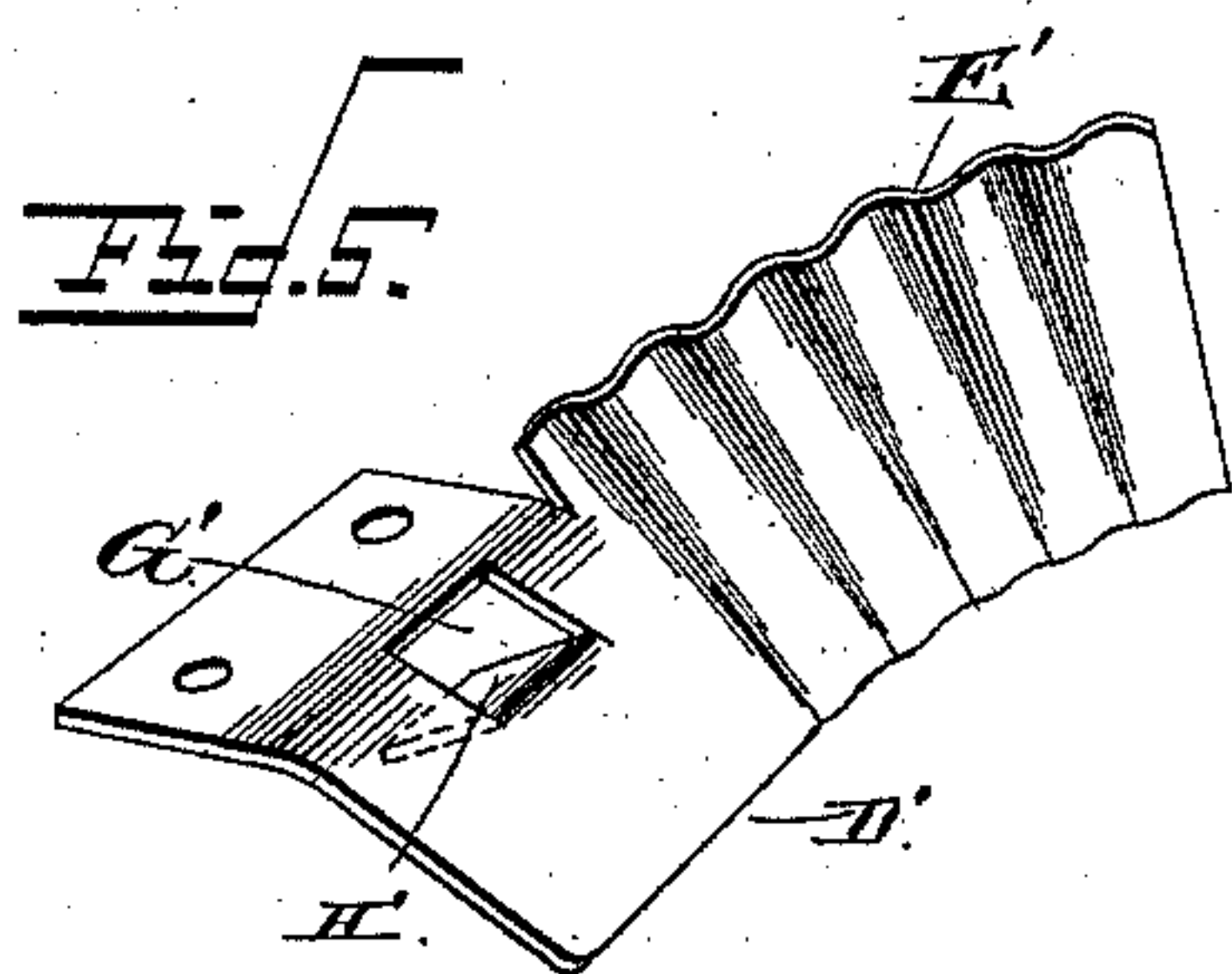
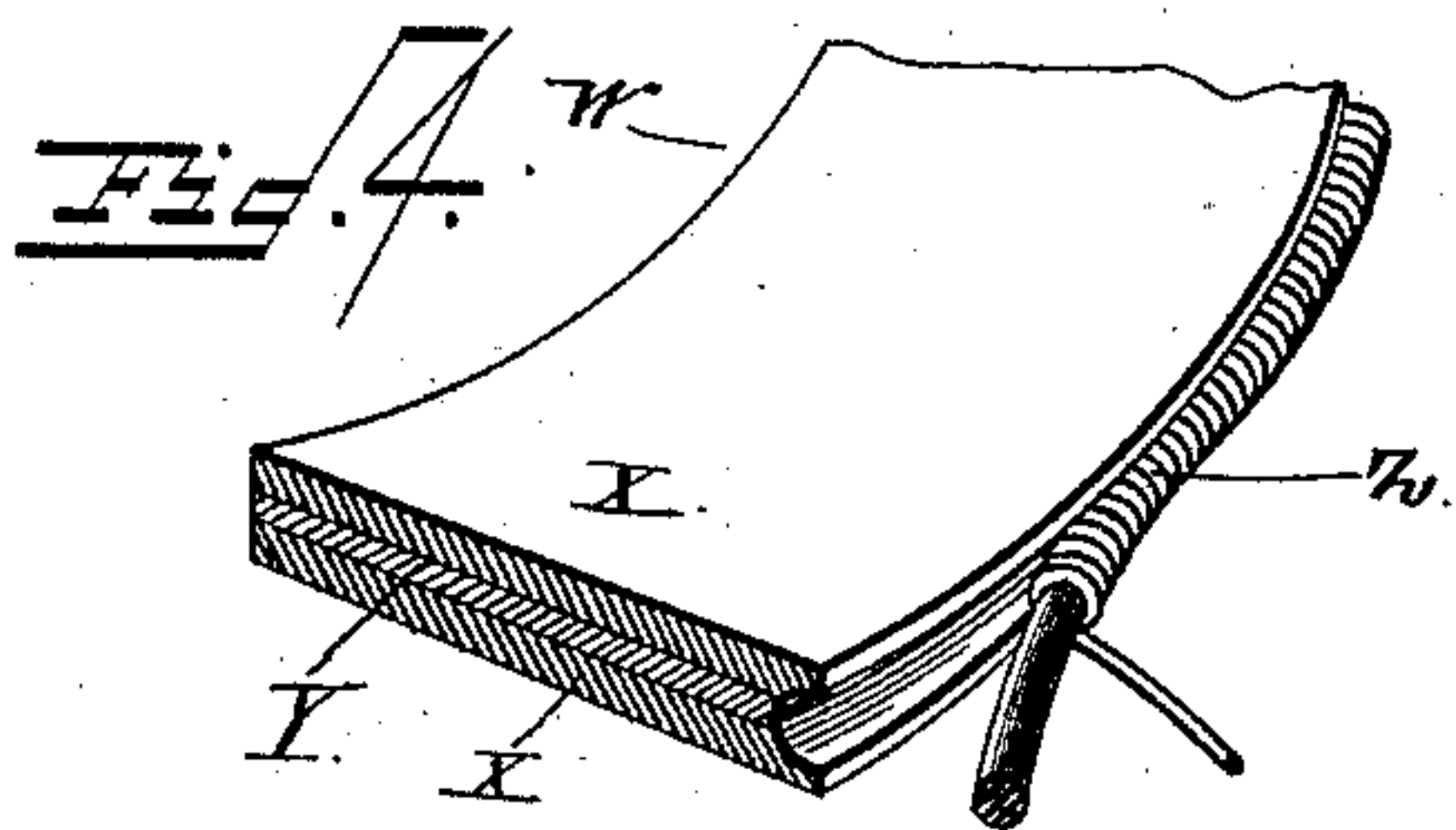
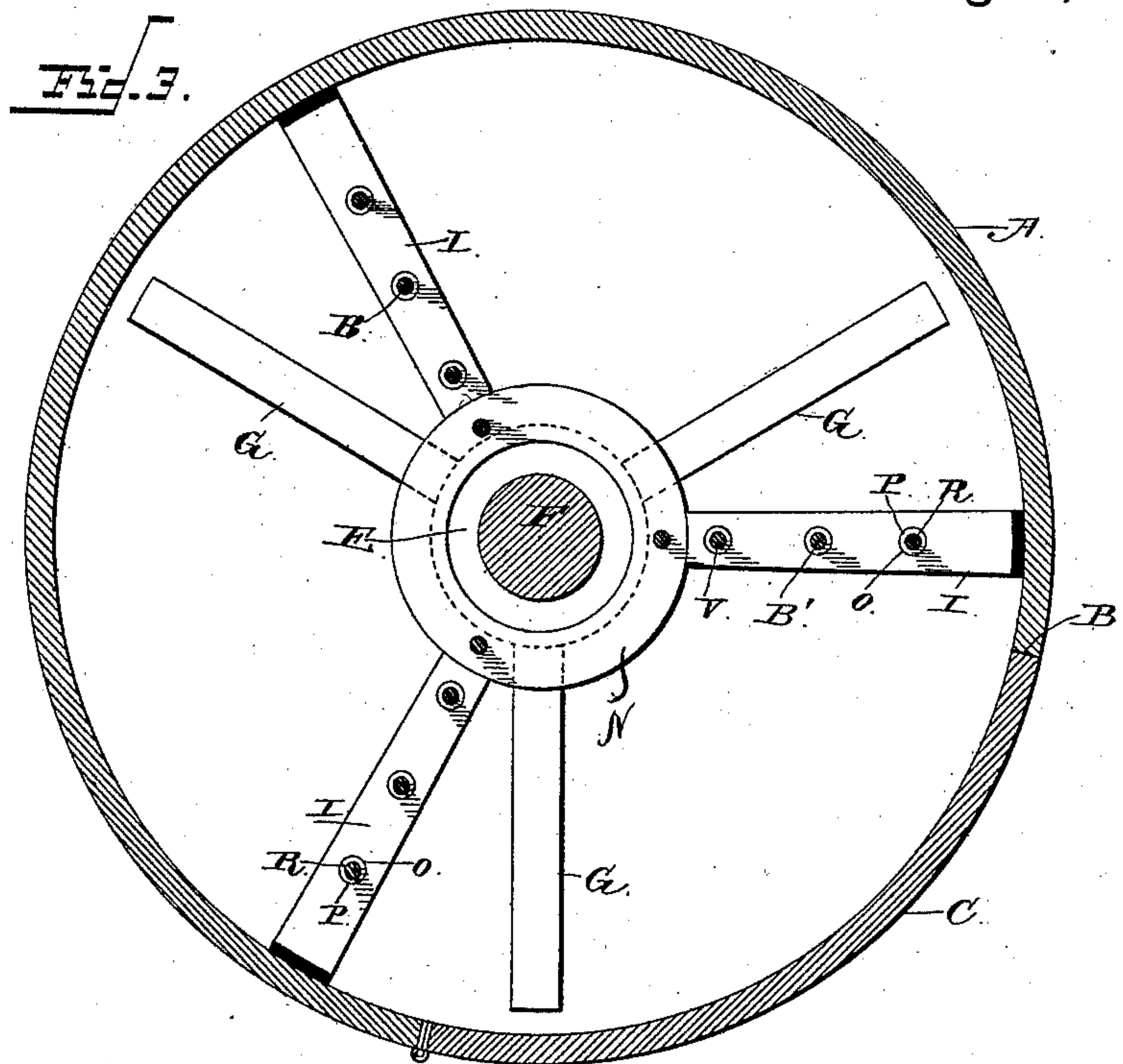
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UNITED STATES PATENT OFFICE.

ADAM H. EYSAMAN, OF DAYTON, NEVADA.

AMALGAMATOR.

SPECIFICATION forming part of Letters Patent No. 387,347, dated August 7, 1888.

Application filed June 10, 1887. Serial No. 240,914. (No model.)

To all whom it may concern:

Be it known that I, ADAM H. EYSAMAN, a citizen of the United States, residing at Dayton, in the county of Lyon and State of Nevada, have invented a new and useful Improvement in Amalgamators, of which the following is a specification.

My invention relates to an improvement in amalgamators; and it consists in the peculiar construction and combination of devices, that will be more fully set forth hereinafter, and particularly pointed out in the claims.

In the drawings, Figure 1 is a top plan view of an amalgamator embodying my improvements. Fig. 2 is a vertical sectional view of the same taken on the line *xx* of Fig. 1. Fig. 3 is a horizontal sectional view taken on the line *yy* of Fig. 2. Figs. 4 and 5 are detail views.

A represents a cylindrical tub or vessel, which constitutes a "settler," and is provided on one side with an opening, B, adapted to be closed water-tight by a hinged door, C. The bottom *a* of the settler is made of iron, and the sides *b* thereof are made of wood. From the upper side of the bottom of the settler, at the center thereof, projects a truncated conical stud, D.

E represents a stirrer, which comprises a vertical shaft, F, that has its lower end stepped on the stud D, and is provided with radial arms G, which are adapted to sweep in a circular direction on the bottom of the settler when the shaft is rotated. To the upper end of the said shaft is keyed a horizontal band-wheel or pulley, H, by means of which rotary motion may be imparted to the stirrer from any suitable motor.

I represents a series of converging radial arms, which are made of copper and have their outer ends bent downward at right angles to form vertical members K, which are provided with vertical slots L. The said members K bear against insulating-plates Z', which are inserted between them and the sides of the settler by means of bolts M, which extend through the same and engage the slots L. The latter serve to permit vertical adjustment of the arms I, as will be very readily understood. The inner converging ends of the said arms are connected to an annular plate, N, which is also made of copper and surrounds the shaft

F. Each arm I is provided in its upper side, at suitable regular distances apart, with vertical recesses O, in which are secured insulating bearing-cups P, which are made of glass and are provided at their upper sides with recesses R.

S represents a series of converging radial arms, which are also made of copper and are similar in size and shape to the arms I, and have their vertical slotted portions bolted to the settler, so that the arms S are arranged directly above the arms I. The arms S are insulated from the settler by rubber plates Z'. The inner ends of the said arms S are connected to an annular plate, T, which is also made of copper, and the arms S are provided with openings U, which register with the openings O.

V represents vertical rods, which are made of copper and extend downward through the openings U, and have their lower ends secured in the recesses R of the insulating-cups P.

W represents an annular disk, which is composed of a pair of annular plates, X, which are made of copper, and a similar plate, Y, which is made of zinc and is interposed between the copper plates. A concave groove is made in the periphery of the disk, and in the said groove is secured a band, Z, comprising a central wire of zinc, on which is coiled a copper wire, as shown. The disk is provided with a series of openings, A', which are adapted to register with some of the openings in the arms I and S, and through the said openings A' and the registering openings in the said arms are inserted rods B', which are made of copper, and are provided at their upper ends with binding-posts C' for the attachment of electric conducting-wires *d*, which are connected to the positive pole of a dynamo or voltaic electric battery. A wire, *e*, is attached to the iron bottom of the settler, as shown, and is also connected to the negative pole of the dynamo or battery, so as to complete an electric circuit through the contents of the settler when the same is filled with water, and thereby electrifying the water, as will be readily understood.

On the under side of the disk W are secured a number of inwardly-projecting curved inclined paddles, D', which are arranged at a suitable angle transversely and have their in-

ner ends provided with a series of transverse corrugations or flutes, E'.

F' represents openings, which are made in the disk W, below which the inner ends of the paddles D' are attached, the latter provided with openings G', which register with the openings F', and have depending lips H', which are inclined in the opposite direction from the paddles.

The operation of my invention is as follows: A suitable quantity of "tailings" and sand, previously mixed with quicksilver and ground until the quicksilver is reduced to a condition as fine as flour, is conducted to the settler in which a quantity of water has been previously placed. The amalgam and the floured quicksilver float on the water. After having stood about two hours the stirrer is set in motion, and the electric conducting-wires are connected to the battery or dynamo, thus causing the disk, the rods, and the water to be charged with electricity. The rotary motion of the stirrer causes the water in the settler to whirl in a circular direction, as will be readily understood, and the floured quicksilver, ores, and sand floating on the surface of the water are caused to partake of a wheeling motion, and inasmuch as the disk is submerged the said floured quicksilver, ores, and sand strike against the corrugated paddles, which serve to spread the sand and tailings and partly arrest the current of water, and thereby allow the quicksilver to settle in the flutes, globularize or reassume its original condition, and then run from the paddles into the water and drop to the bottom of the settler. The openings F' in the disk permit sand and ores to drop through, and the inclined lips H', which depend from said openings, cause the whirling water to be deflected upward in currents through the said openings and over the disk, thereby preventing quicksilver, ores, or sand from settling on the latter. The disk, being composed of zinc and copper, becomes itself a generator of electricity when submerged, and thus serves to intensify the electrical condition of the mass in the settler, and consequently assists in the process of amalgamation. After all the quicksilver has been collected from the

mass the tailings are drawn off and the settler cleaned and put in condition for another similar operation.

Having thus described my invention, I claim—

1. In an amalgamator, the disk having the inclined paddles D', substantially as described.

2. In an amalgamator, the disk having the inclined paddles provided with series of transverse corrugations or plates E', substantially as described.

3. In an amalgamator, the disk having the openings F', the inclined paddles D', and the depending lips H', inclined in the opposite direction from the paddles, substantially as described.

4. In an amalgamator, the combination of the settler, the converging conducting-arms secured to and insulated from the settler, the conducting disk having the paddles and supported upon the arms, and the battery or other source of electricity having one pole connected to the settler and the other pole connected to the disk, substantially as described.

5. The annular conducting-disk W, having the series of inclined paddles E' extending inward from the disk to the center thereof, all the paddles converging to a common center, in combination with the settler in which the disk is arranged, and the battery or other source of electricity having one pole connected to the disk and the other pole connected to the settler, substantially as described.

6. In an amalgamator, the settler, the series of arms I, secured to, but insulated therefrom, the series of arms S above the arms I, and also insulated from the settler, and the conducting-disk W, supported by the arms I, but insulated therefrom, and the battery or other source of electricity having one pole connected to the settler and the opposite pole connected to the disk, substantially as specified.

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

ADAM H. EYSAMAN.

Witnesses:

C. M. DAVIS,
W. J. HARRIS.