

(No Model.)

H. E. WAITE.
FRICTION GENERATOR.

No. 405,334.

Patented June 18, 1889.

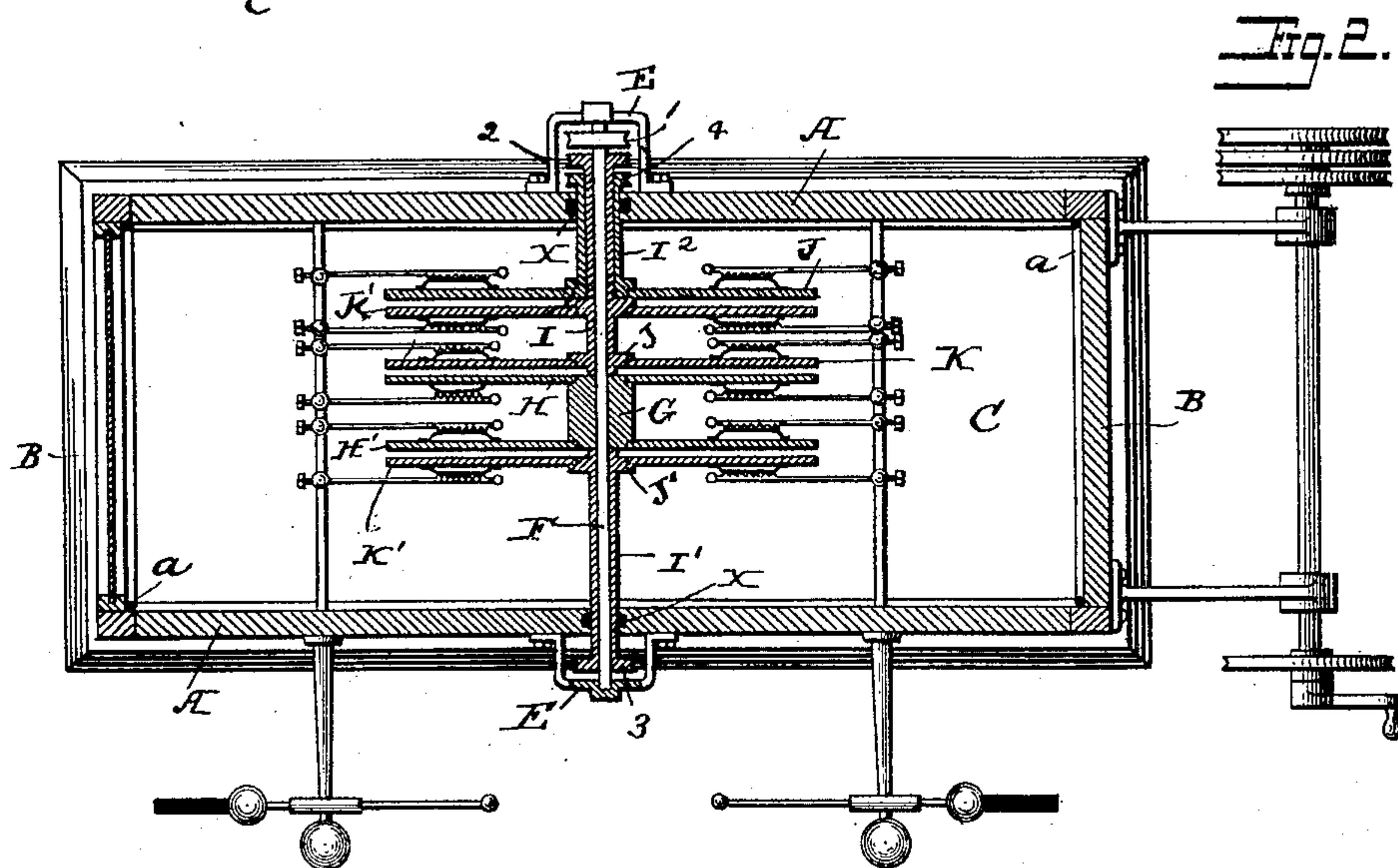
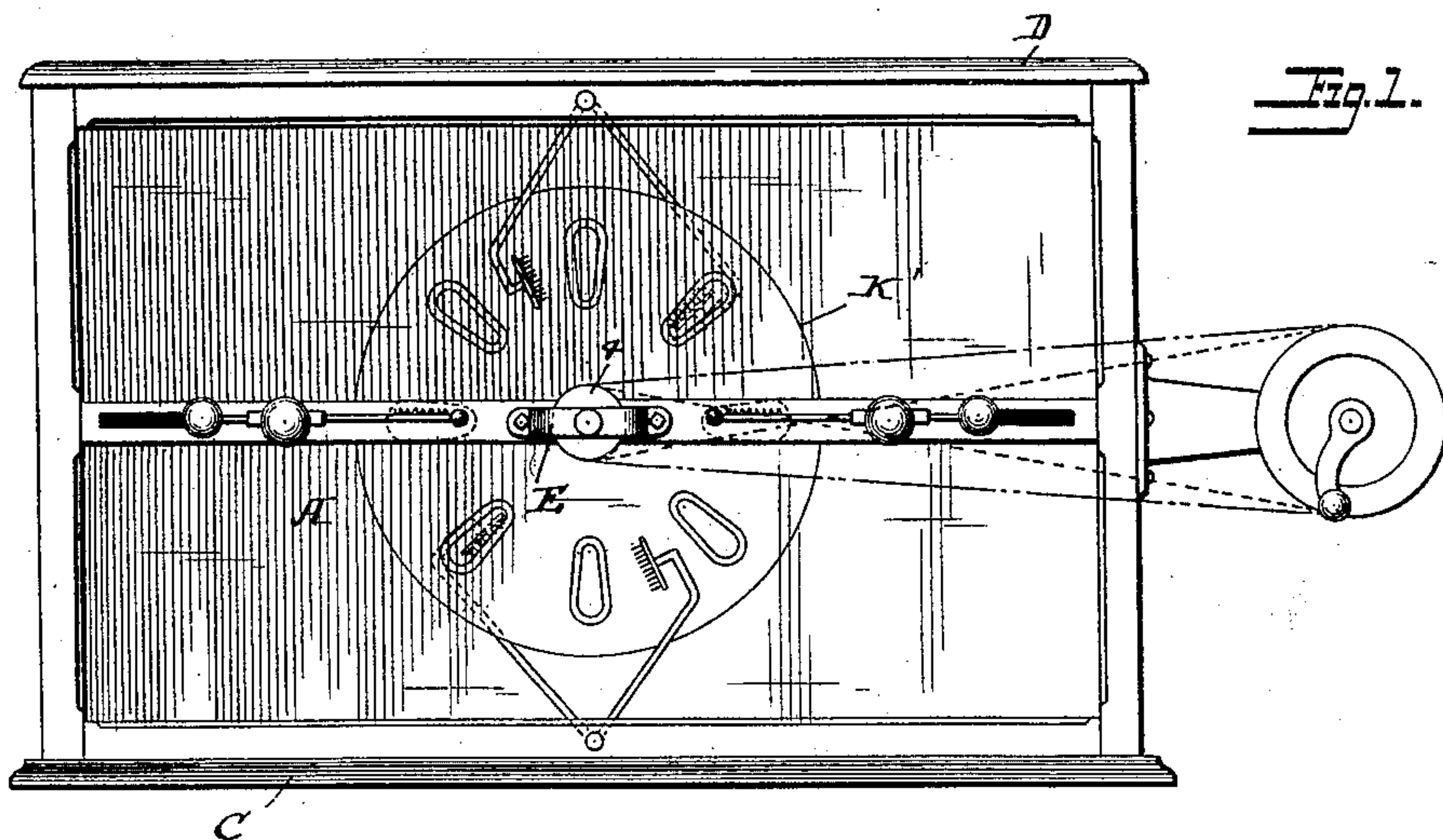


Fig. 3.

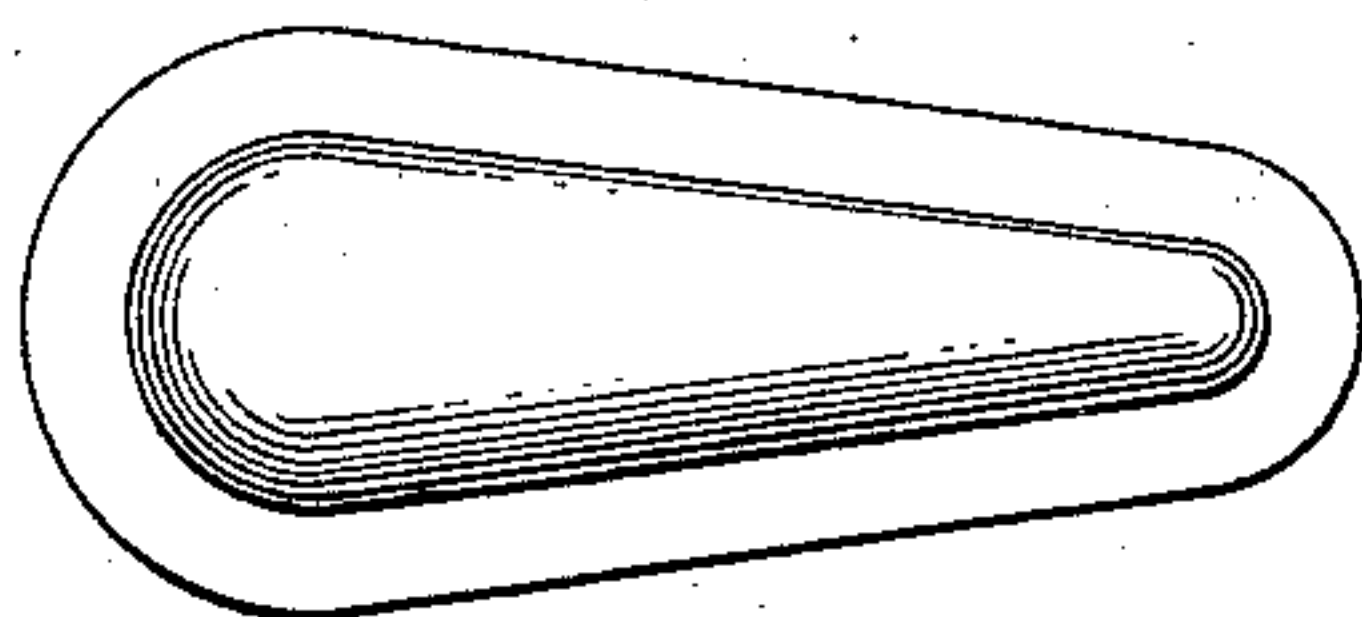
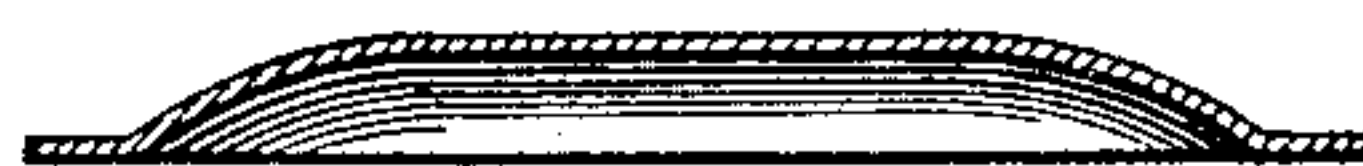


Fig. 4.



Witnesses.

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UNITED STATES PATENT OFFICE.

HENRY E. WAITE, OF NEW YORK, N. Y.

FRICITION-GENERATOR.

SPECIFICATION forming part of Letters Patent No. 405,334, dated June 18, 1889.

Application filed February 25, 1889. Serial No. 301,106. (No model.)

To all whom it may concern:

Be it known that I, HENRY E. WAITE, a citizen of the United States, residing at New York, in the county and State of New York, have invented certain new and useful Improvements in Friction-Generators, of which the following is a specification.

My invention relates to friction-generators, or what are sometimes called "influence-machines," by which static or frictional electricity is produced and used in the sciences and arts; and it has for its object to provide a machine which shall be capable of practically generating a large amount of electricity, and which shall be simple and cheap in construction and effective in operation without danger of getting out of order; and to these ends my invention consists in such a machine constructed substantially as indicated herein after.

Referring to the accompanying drawings, Figure 1 is a side view of a machine embodying my invention. Fig. 2 is a horizontal section showing the special arrangement of the shafts, and Figs. 3 and 4 are plan and cross sections of the metal plates.

I have shown my invention as applied more particularly to that class of generators or machines known in the art as "Wimshurst" machines, in which the adjacent plates rotate in opposite directions. It is well known that in all machines of this class it is desirable to maintain the conditions of the temperature in which they are rotated as uniform as possible, and especially is it necessary to avoid all moisture or humidity of the air, and for this purpose I preferably construct an air-tight case, in which the working parts of the machine are mounted. This case may be of any suitable form and construction, and has side pieces A A and end pieces B B supported between a suitable base and cover C D. The joints between the parts of the case may be made air-tight by some suitable means, as by a packing *a* of some non-conducting material.

In this particular class of machines the mechanism for rotating the operating parts in opposite directions, as heretofore constructed, has been comparatively crude and open to many objections in that it is liable to get out of order and apt to disarrange the adjustment of the parts, and, more than that, it is not

adapted to machines in which the operative parts are inclosed in a case, and one of the special objects of my invention is to overcome this difficulty. In accomplishing this result I mount upon the sides A of the case suitable brackets E, forming boxes or supports for the main shaft F, which is shown as made in one continuous piece extending through the sides of the machine and supporting one or more disks or plates. In the present instance I have shown a hub G, securely mounted on the center of said shaft carrying the plates H H'. Mounted upon this shaft, so as to turn freely thereon, are one or more hollow shafts I I', preferably carrying at their ends disks or hubs J J', upon which are mounted the plates K K', respectively, and which are arranged in proper relation to the plates H H'. These hollow shafts pass through and fit openings in the sides A A of the case, and are preferably supplied with a suitable packing X, to prevent the admission of air to the case. In order to rotate these shafts, they are each provided with pulleys, the shaft F, for instance, having a pulley 1 secured to one end, the pulley 2 being secured to the shaft I, the pulley 3 being secured to the hollow shaft I', and the pulley 4 to shaft I², and so on, and these pulleys are arranged outside of the case and connected in any suitable way to the multiplying or driving pulley and geared or belted, so that the various shafts and their connected plates will rotate in proper direction with relation to each other.

It will be evident that, if desired, other hollow shafts, with their corresponding pulleys, may be mounted upon those shown in the same way, and thereby the number of plates can be increased so as to produce the desired generating capacity of the machine. In this arrangement it will be seen that not only are the operating parts of the machine securely inclosed in the case, where they may be maintained with a practically-uniform atmosphere and protected from the elements, but that by arranging the driving-pulleys upon the outside of the case access may be had to them and their connecting gears or belts, so that they can be readily kept in proper condition to produce the best results.

It has been usual to attach to the surface of the plates a number of pieces of flat metal

cut in various outlines or figures; but I have found that the capacity of the machine can be increased by the use of metallic plates substantially in the form of a sector, as indicated in Fig. 3, which sector has a raised or projecting center, as indicated in Fig. 4. These sectors can be applied in any of the usual ways, and when so applied the raised portions, of course, extend slightly beyond the surface of the plate to which they are attached and in the line of the brushes. Heretofore these brushes have usually been made comparatively small; but I find by the use of my improved sector I can make the brushes longer, so as to bring them in contact with substantially all of the raised portions of the metal plates at one time without touching the disk or plate itself. In this way the machine can be more quickly and more highly excited, and consequently produce more pronounced effects.

I have not herein shown or described the specific means for collecting and distributing the electricity generated, as they form no part of my present invention, but have indicated in the drawings a general arrangement that is well known to those skilled in the art.

What I claim as my invention is—

1. In a friction-generator, the combination,

with a case, of bearings mounted upon the outside of the case, a shaft carrying one or more plates supported in said bearings, and hollow shafts mounted upon the first shaft and carrying other plates, substantially as described.

2. In a friction-generator, the combination, with an air-tight case, of bearings mounted upon the outside of the case, a shaft mounted in said bearings and carrying one or more plates, and also provided with a pulley outside the case, and two or more hollow shafts mounted upon said first shaft and carrying plates, and each provided with a pulley outside of the case, substantially as described.

3. In a friction-generator, the combination, with the rotating plates, of a series of metallic sector-pieces secured thereon, each sector having a projecting center portion, and a brush arranged to contact with said plates throughout the length of the projecting portion, substantially as described.

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

HENRY E. WAITE.

Witnesses:

EDWIN A. YARNAL,
D. GOODBREAD.