

No. 616,595.

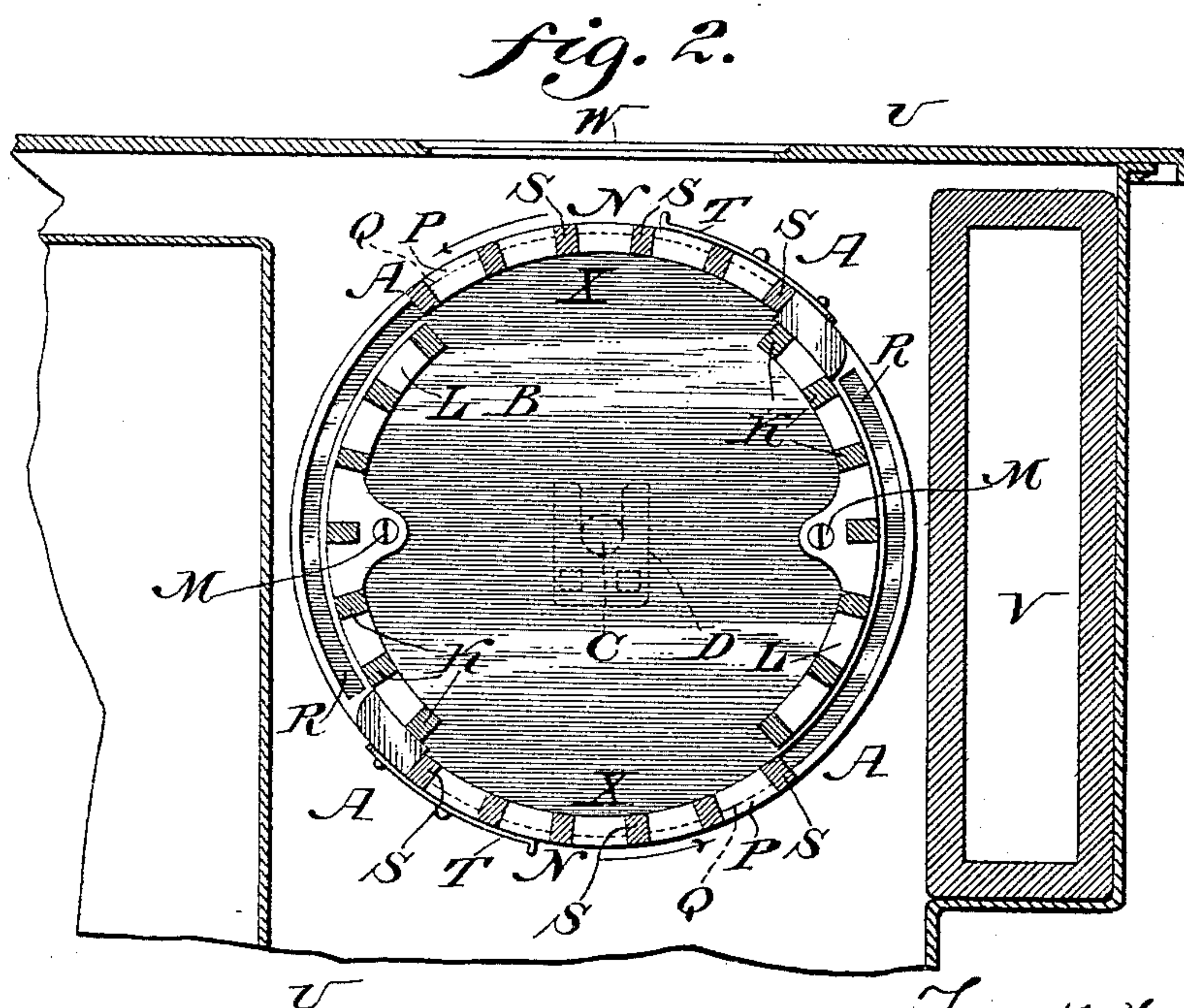
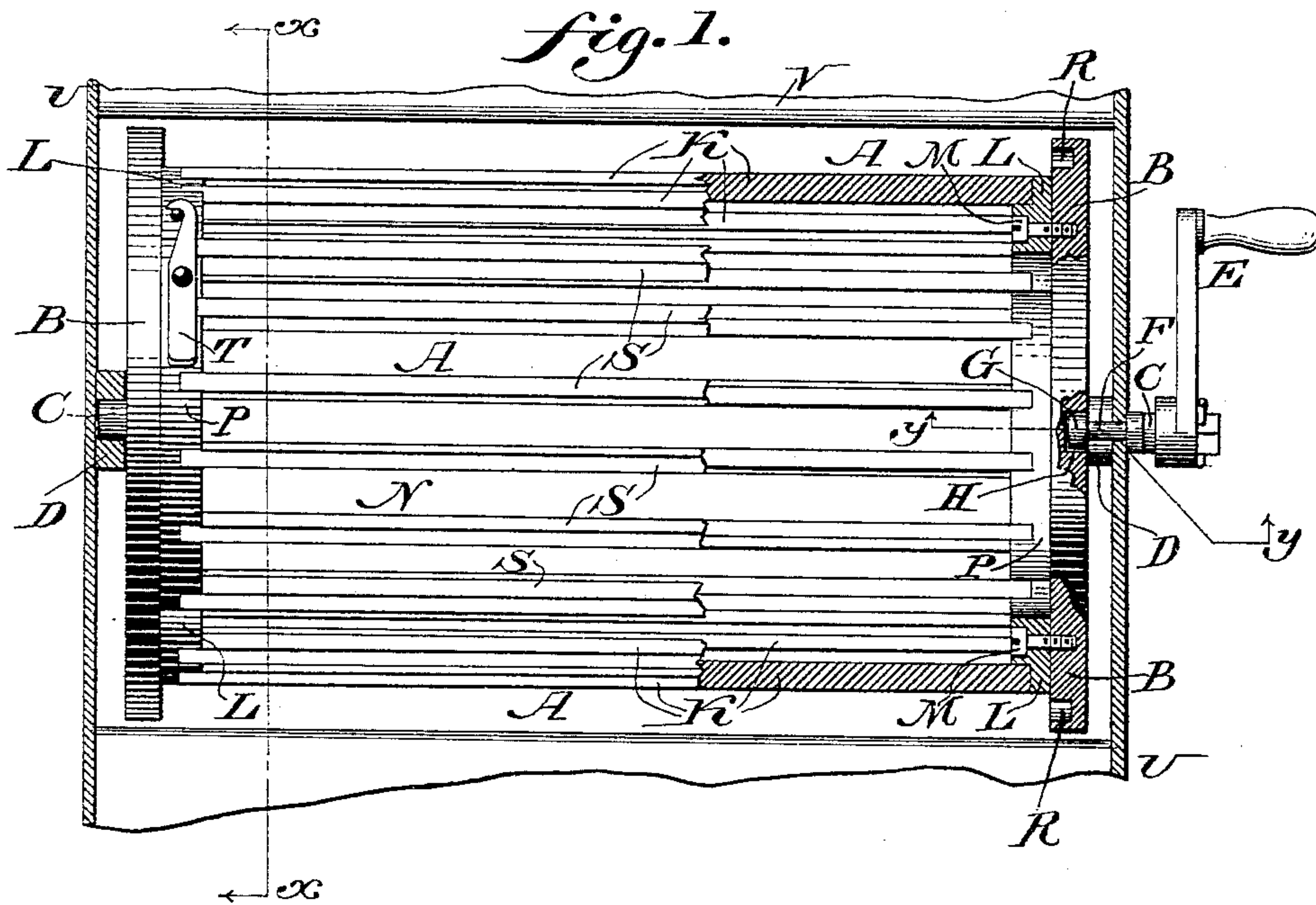
Patented Dec. 27, 1898.

F. WANDEL.
GRATE.

(Application filed Aug. 26, 1898.)

(No Model.)

2 Sheets—Sheet 1.



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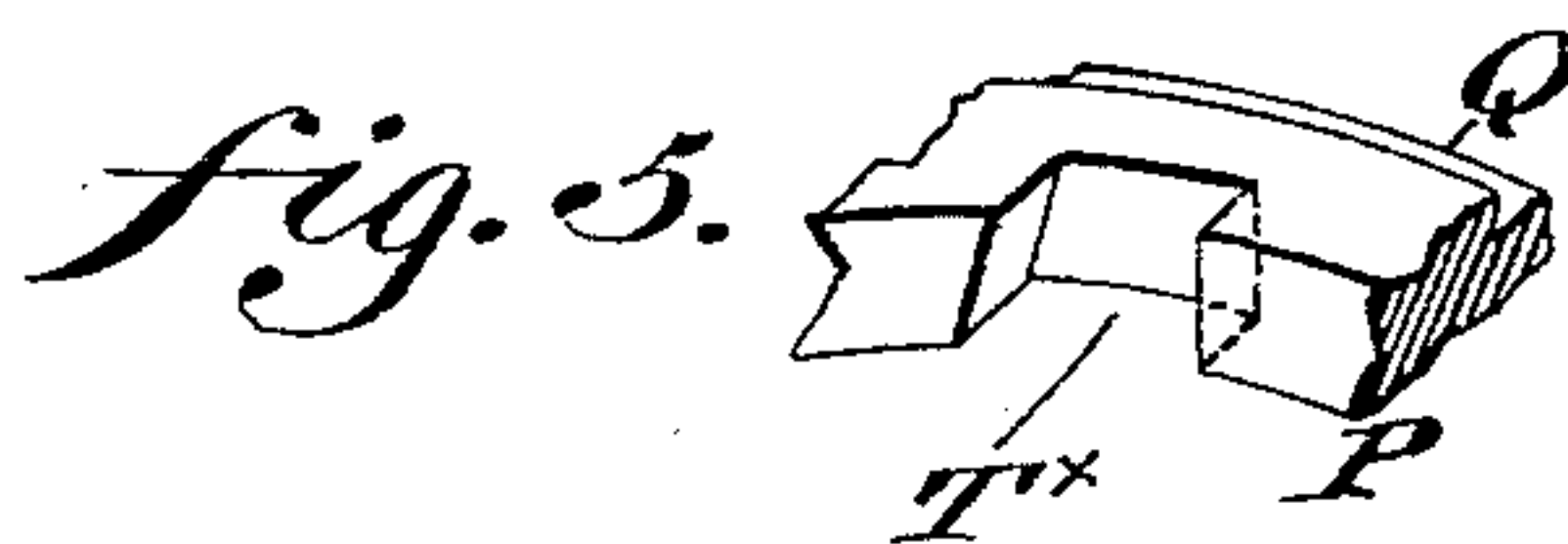
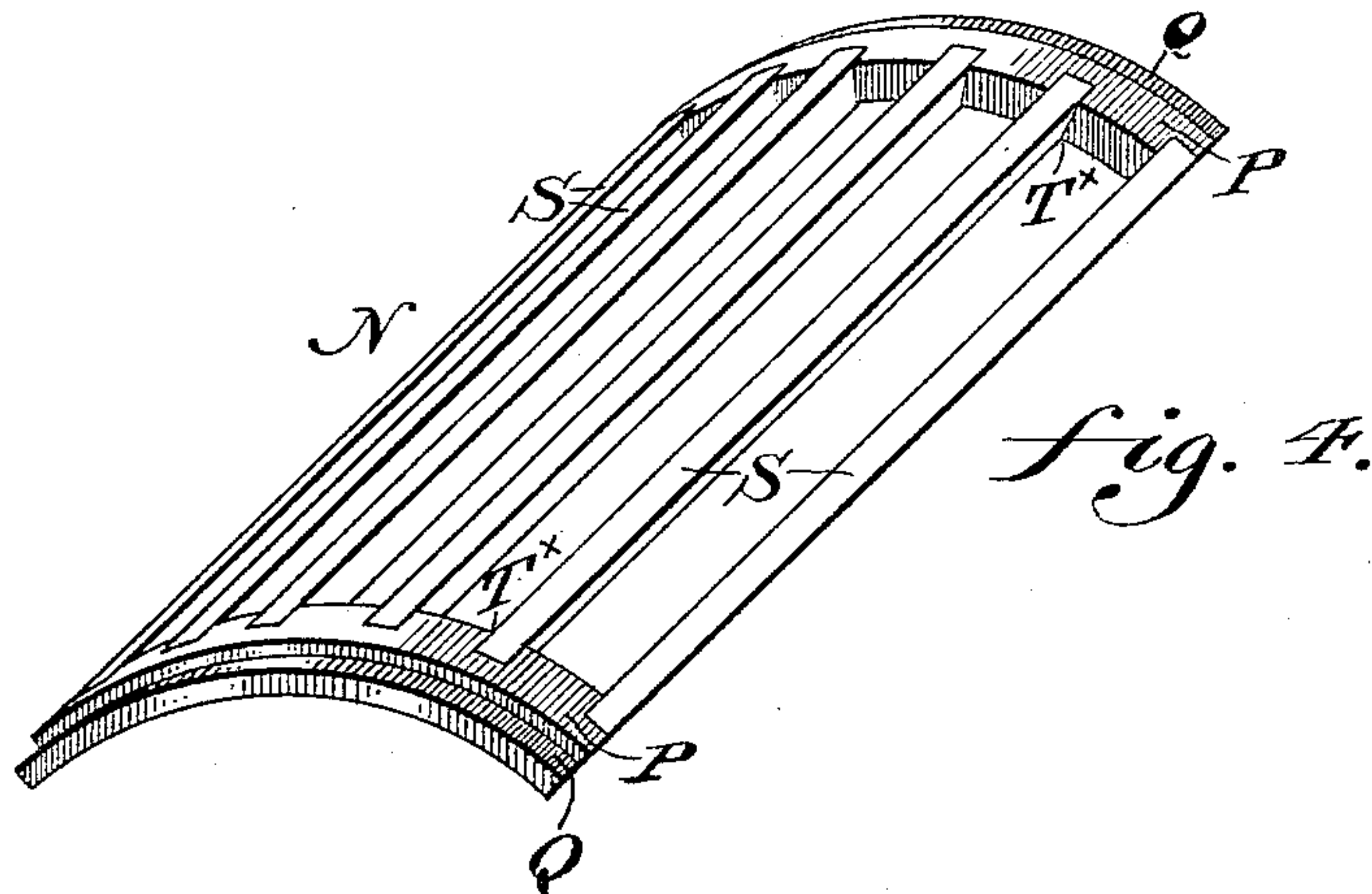
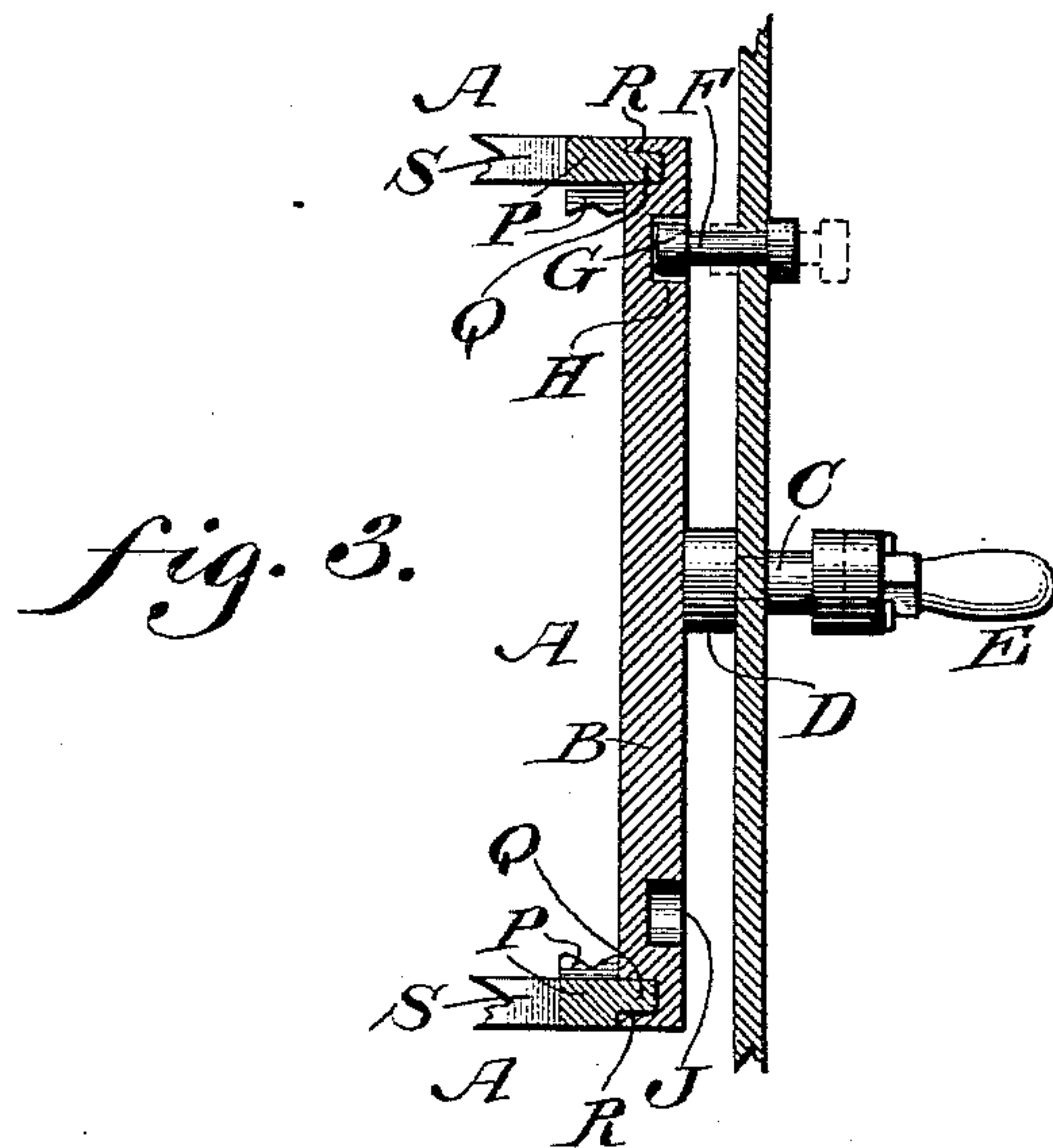
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2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

FRANK WANDEL, OF PHILADELPHIA, PENNSYLVANIA.

GRATE.

SPECIFICATION forming part of Letters Patent No. 616,595, dated December 27, 1898.

Application filed August 26, 1898. Serial No. 689,568. (No model.)

To all whom it may concern:

Be it known that I, FRANK WANDEL, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Grates, which improvement is fully set forth in the following specification and accompanying drawings.

My invention relates to grates; and it consists more especially of an improved construction of rotary grate by means of which I am enabled to readily replenish a fire with fresh fuel, to reverse the position of the fuel on the grate, and to otherwise agitate said fuel, so that a supply of oxygen can be freely admitted to every portion of the fire, provision being also made for rotating the grate and for locking the same in either of the desired extreme positions.

It also consists of an improved construction of movable apertured slides or grate-frames, which are adapted to support the fuel and in addition to provide means for obtaining access to the interior of the grate for the purpose of charging the same or for purposes of inspection or repairs.

It also consists in making certain of the grate-bars removable, so that the same can be changed or replaced, according to requirements.

It further consists of novel details of construction, all as will be hereinafter fully set forth, and particularly pointed out in the claims.

Figure 1 represents a top plan view, partially in section, of a rotatable grate embodying my invention. Fig. 2 represents a section on line $x x$, Fig. 1. Fig. 3 represents a section on line $y y$, Fig. 1, showing the manner in which the end portions of the grate are supported and retained in locked position. Fig. 4 represents a perspective view of one of the slides or movable grate-frames employed, the same being shown in detached position. Fig. 5 represents, on an enlarged scale, a perspective view of a portion of one of the curved end pieces or strips, showing especially the tapered grooves or recesses in which the bars composing the grate are received.

Similar letters of reference indicate corresponding parts in the figures.

Referring to the drawings, A designates a rotatable grate, the same consisting of the end pieces B, to which the journals or trunnions C are attached, the latter being rotatable in bearings D, which are suitably supported. One of the trunnions C extends through its support, as indicated in Figs. 1 and 3, and has a handle E attached thereto, by means of which the grate can be revolved bodily, as will be explained.

F designates a pin or bolt which has a head G, the latter being adapted to enter either of the oppositely-located recesses H or J, whereby the grate proper can be retained in either extreme position, as will be explained.

K designates a series of bars which are secured in the oppositely-located strips L, it being noted that there are preferably a pair of strips L, which are secured to either side of each of the end pieces B by fastening devices M or other means, as will be understood from Fig. 2.

N designates a sliding segmental grate or frame, the same consisting of the curved end strips P, which are provided with the projecting tongues Q, which latter are adapted to enter the grooves R of the end pieces B, said strips being connected by the grate-bars S and being held in locked or closed position by any suitable fastening devices, as T.

The end strips P of the frames N are provided with the dovetailed or tapered recesses T^x, in which the extremities of the bars S are adapted to fit, whereby it will be seen that in case of breakage or injury to any bar the same can readily be removed and a new one inserted in its place expeditiously and without necessitating the employment of skilled labor.

It will be understood that a grate constructed as above described may be employed in any desired location; but I have shown the same in the present instance in Fig. 2 as applied to a range U, which may have a water-back V and an opening W therein, whereby the fire may be replenished according to requirements.

The operation is as follows: The parts normally appear as indicated in Figs. 1 and 2, the grate being locked in the desired position by the means indicated in Fig. 3 or by similar

devices. When it is desired to start the fire, the locking device or catch T is operated, so that the frame N can be readily shifted, whereby the fuel can be introduced into the opening X, after which the parts are caused to again assume the position seen in Fig. 2. After the fuel has been ignited it will be evident that a thorough and effective draft exists through every portion thereof, and if the fire should not burn with the desired rapidity by rotating the handle E so that the lower frame N, or that portion of the grate which is lowest in Fig. 2, will complete one-half a revolution, so as to be uppermost and to assume an opposite position, as will be evident in Fig. 2, it will be seen that fresh fuel will be under the ignited fuel, and by reason of the great draft area through all portions of the grate it will burn freely.

It will of course be understood that the fuel is supported in each instance upon the lower frame N, which latter thus serves as a movable grate-bar, and in the case of injury thereto the same can be readily replaced or repaired, according to requirements, as has been explained.

The grate is held in either of its extreme positions by reason of the engagement of the head H of the bolt F with either of the recesses G or J, and it will be evident that a grate constructed by my invention can be readily operated by unskilled labor and will in every instance provide a maximum amount of draft for the ignited fuel, as will be evident.

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

1. In a grate, the combination of end pieces, a series of bars secured thereto, curved grooves in said end pieces, sliding grate-frames mount-

ed in said grooves and means for rotating said end pieces.

2. In a grate of the character named, the combination of end pieces, a series of bars rigidly secured thereto, grooves in said end pieces and sliding grate-frames movably mounted in said grooves.

3. In a grate of the character named, the combination of end pieces, a series of strips oppositely secured thereto, said strips having bars secured therein, grooves located exteriorly to said strips, and sliding frames provided with tongues movably mounted in said grooves.

4. In a grate of the character named, a plurality of end pieces, each of the latter having journals or trunnions suitably supported, a series of curved strips oppositely located and secured to said end pieces, bars common to said curved strips, grooves located in said end pieces, exteriorly to said strips, a series of sliding grate-frames having tongues movably mounted in said grooves, locking devices for said frames, recesses oppositely located in the outer portion of one of said end pieces and a bolt or other locking device adapted to engage said recesses, the openings in said movable grate-frames being made tapering, whereby the grate-bars can be readily removed and replaced according to requirements.

5. In a grate, the combination of end pieces, a series of bars secured therein, curved grooves in said end pieces, sliding grate-frames mounted in said grooves, means for rotating said end pieces and means for locking the latter in desired position.

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