

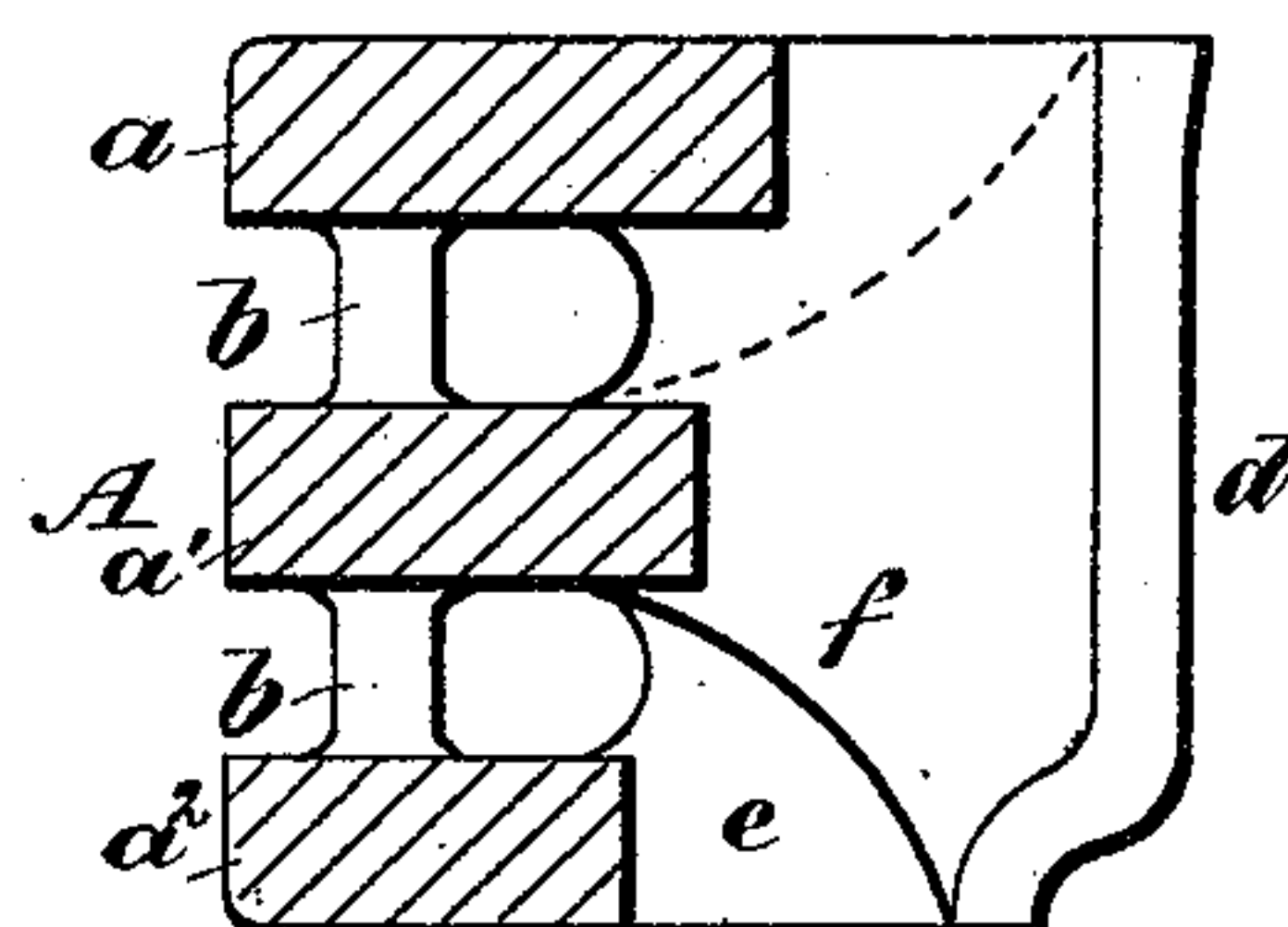
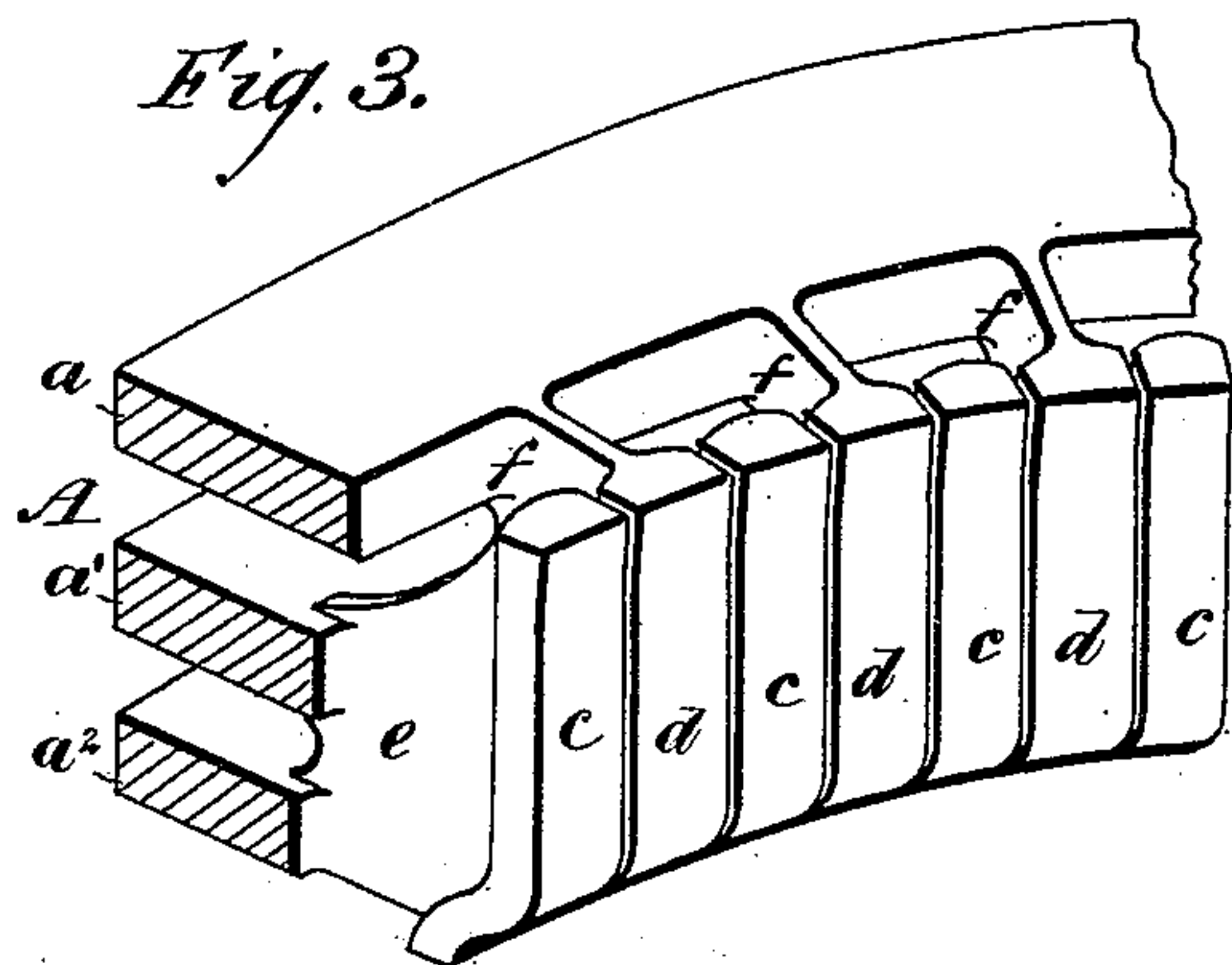
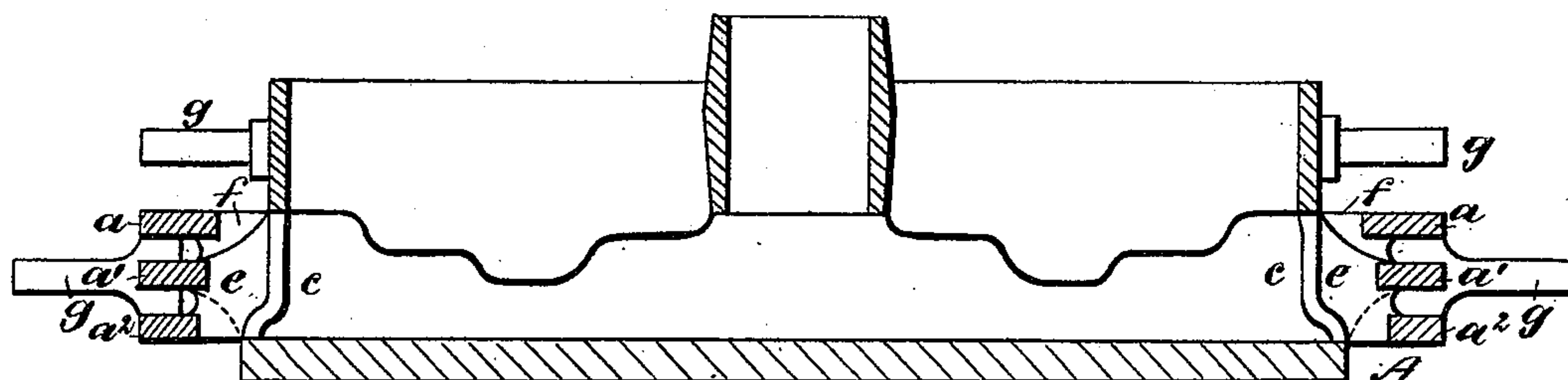
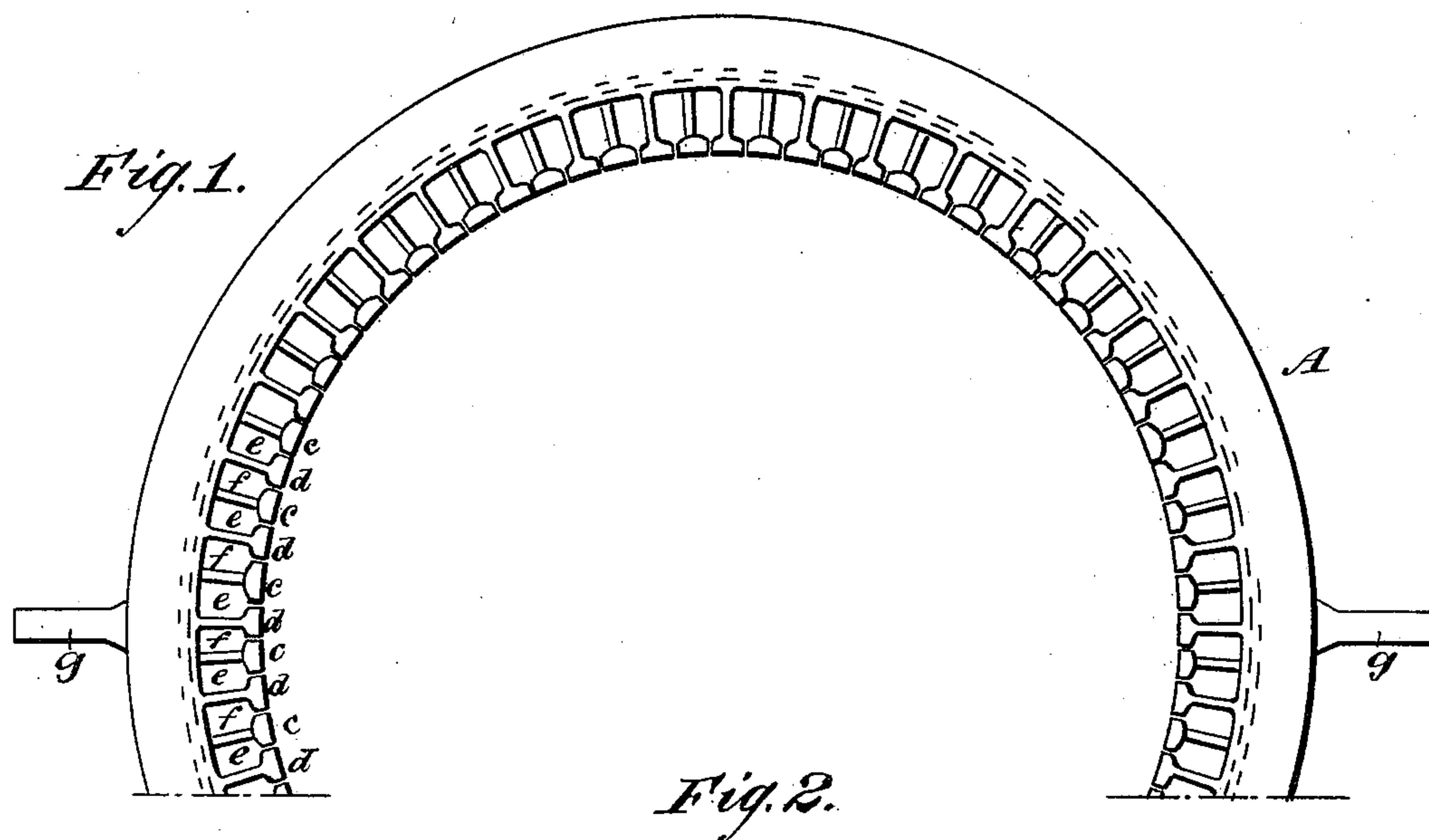
(No Model.)

2 Sheets—Sheet 1.

F. E. CANDA.
CAR WHEEL CHILL.

No. 463,940.

Patented Nov. 24, 1891.



WITNESSES:
Donno Twitchell
C. Sedgwick

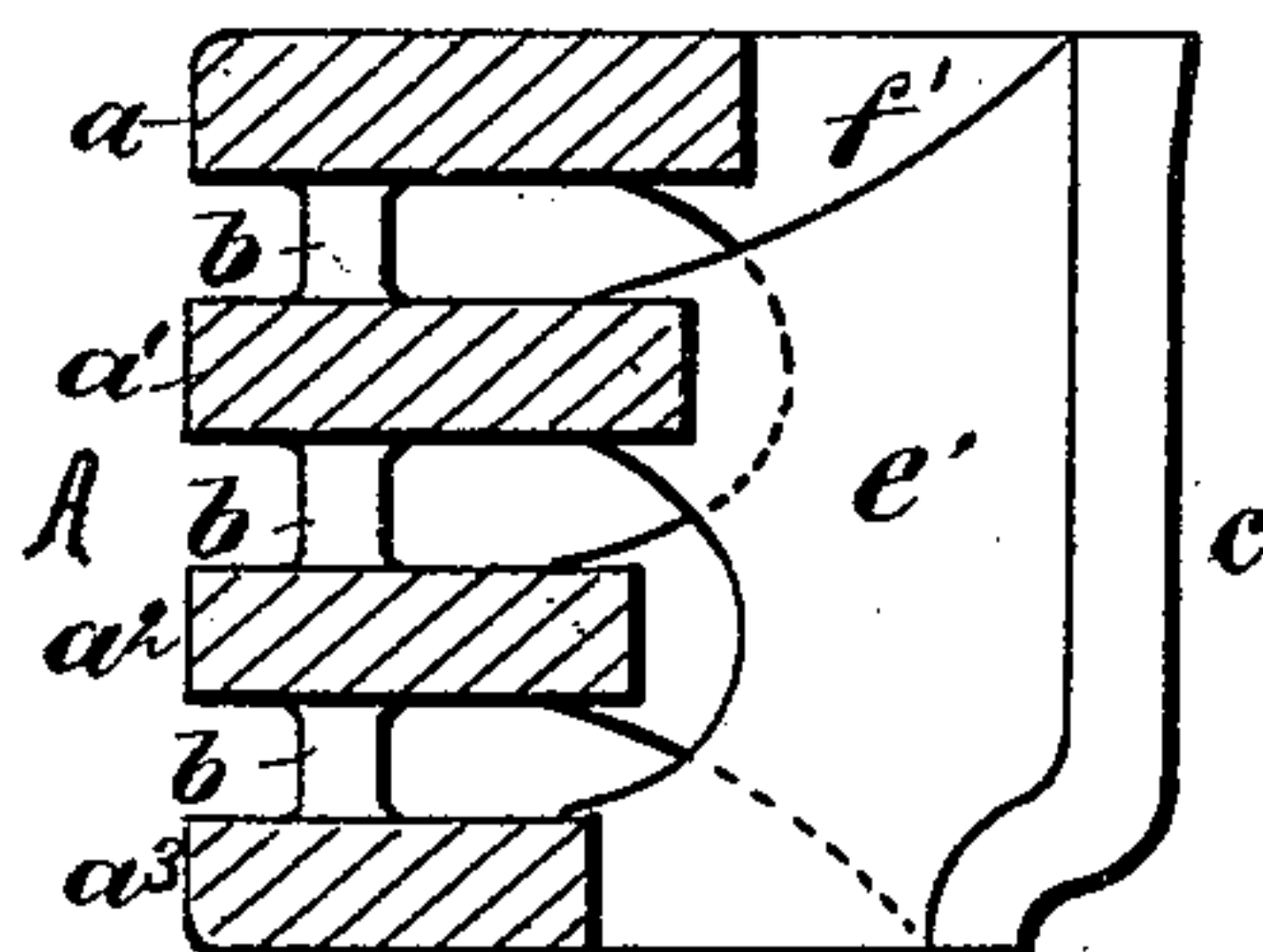


Fig. 5.

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Fig. 6.

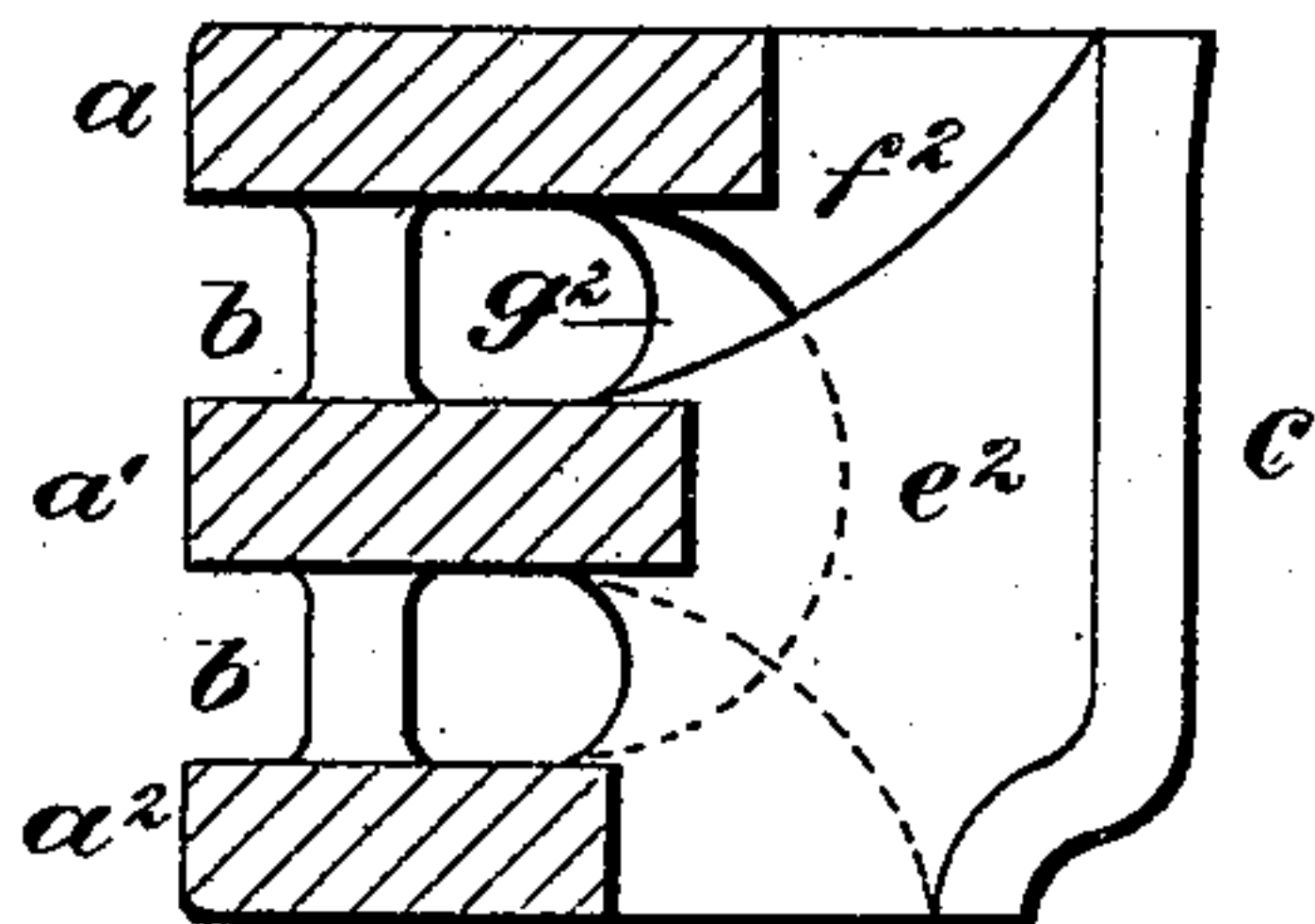


Fig. 7.

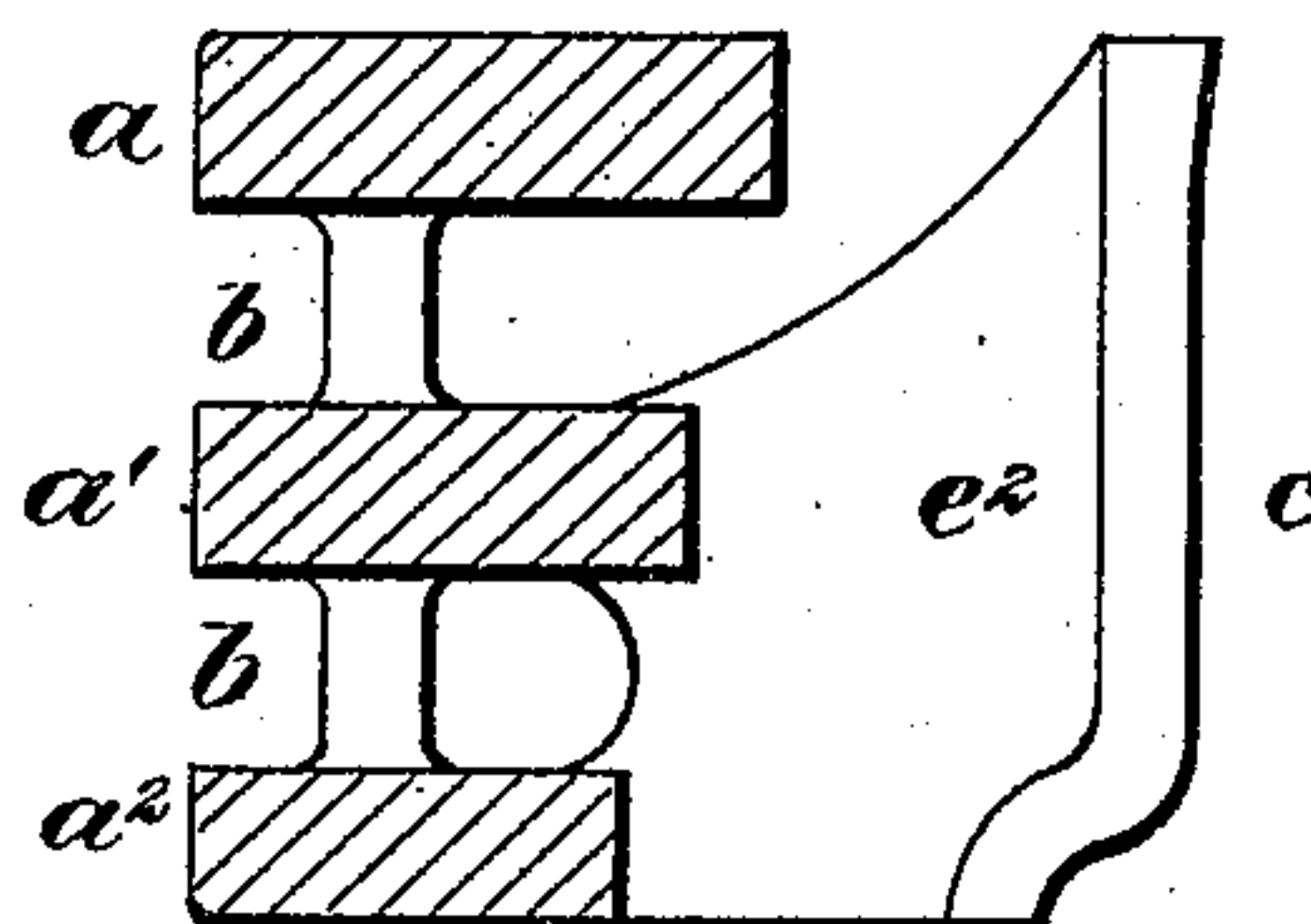


Fig. 8.

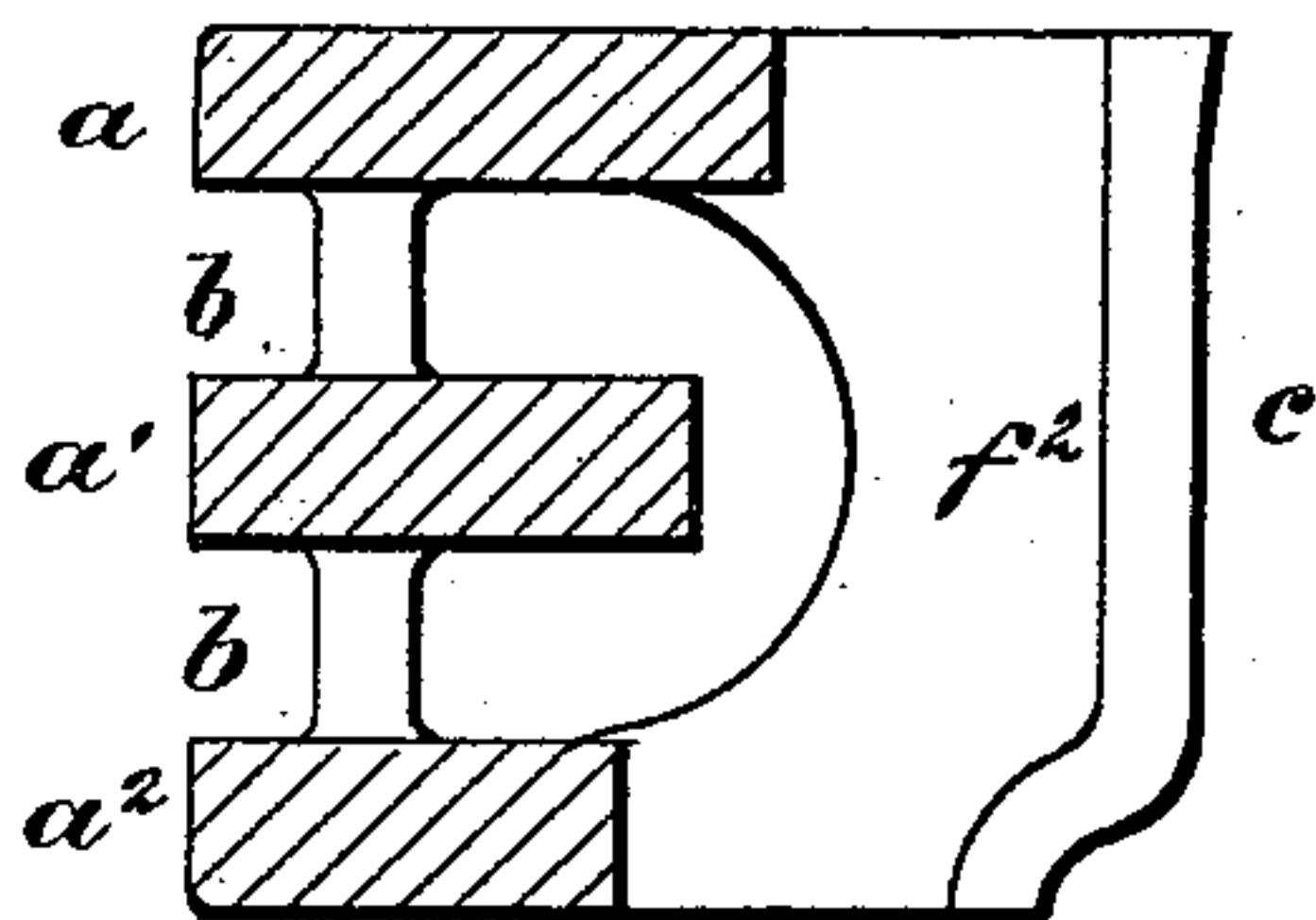
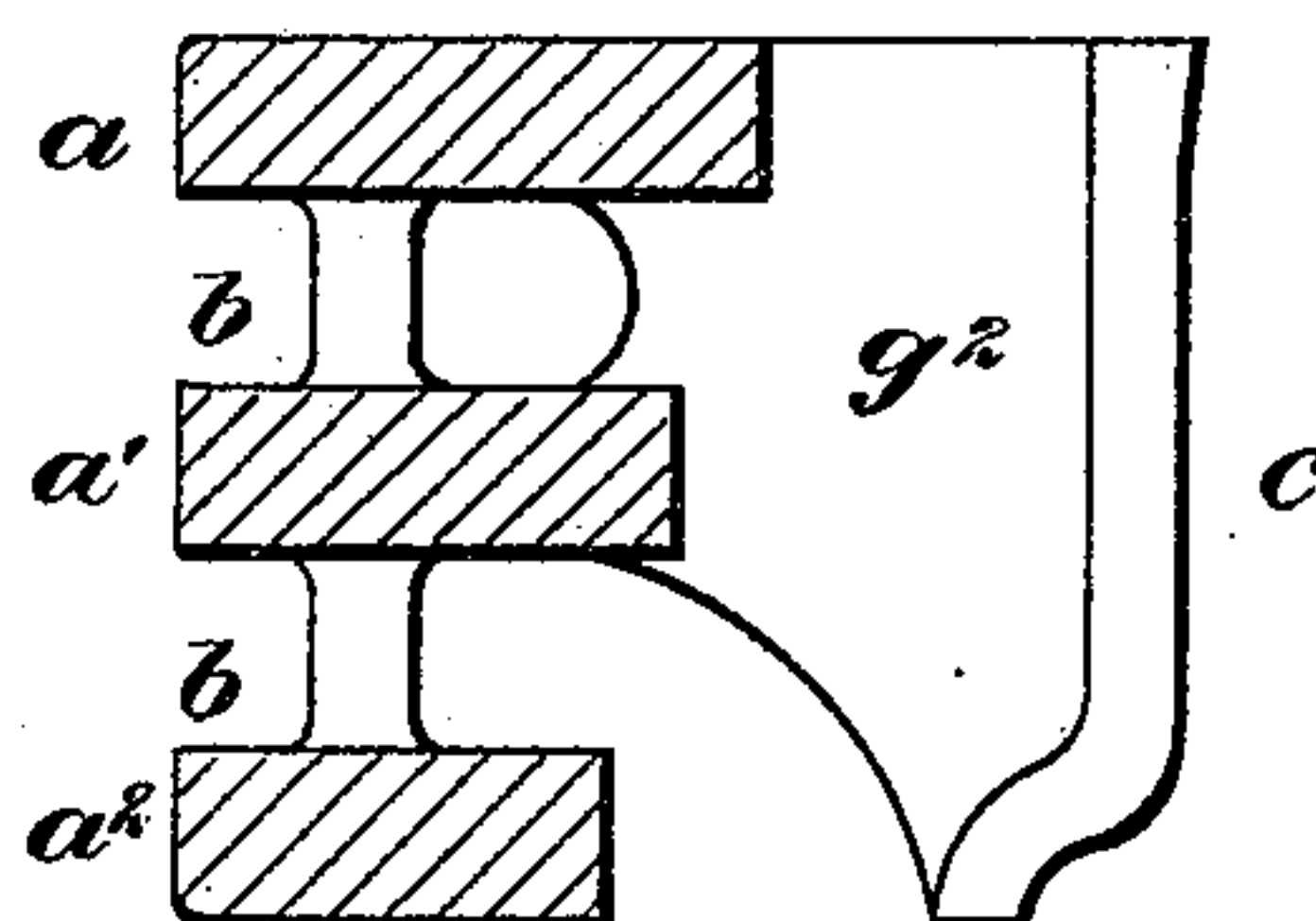


Fig. 9.



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UNITED STATES PATENT OFFICE.

FERDINAND E. CANDA, OF NEW YORK, N. Y.

CAR-WHEEL CHILL.

SPECIFICATION forming part of Letters Patent No. 463,940, dated November 24, 1891.

Application filed July 2, 1891. Serial No. 398,255. (No model.)

To all whom it may concern:

Be it known that I, FERDINAND E. CANDA, of New York city, in the county and State of New York, have invented a new and Improved Car-Wheel Chill, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is a partial plan view of a car-wheel chill constructed according to my improvement. Fig. 2 is a transverse section of the same. Fig. 3 is an enlarged detail perspective view of a segment of the chill. Fig. 4 is a transverse section. Figs. 5 and 6 are transverse sections of modified forms; and Figs. 7, 8, and 9 are transverse sections taken at different points through the form shown in Fig. 6.

Similar letters of reference indicate corresponding parts in all the views.

The object of my present invention is to improve the chill, for which Letters Patent of the United States No. 408,458 were issued to me August 6, 1889.

In the case to which reference has been made the construction of the chill was such as to cause the chilling-face to approach rather than recede from the axis of the chill and at the same time provide adequate egress for the heat, steam, and gases generated by the molten metal inclosed by the chill. The construction of that device was such as to unfit it for continued use, as the sections of the chilling-face were supported in such a manner as to allow them to twist, and thus distort the face of the chill. The aim of my present invention is to construct a chill in which this difficulty will be avoided, by supporting each segment of the chilling-face at two points instead of one, as heretofore.

The combined outer ring A of the chill, which supports the chilling-faces, is made up of three independent rings $a a' a^2$, as shown in Figs. 2, 3, and 4, or of four such rings $a a' a^2$, as shown in Fig. 5. In the process of construction these rings are connected by struts b , which are preferably removed from the casting before the chilling-face is finished. To the rings $a a' a^2$ are attached two series of segmental chilling-faces $c d$, which alternate with each other around the entire in-

ner surface of the chill. These segmental chilling-faces are connected, respectively, by webs $e f$ with the rings $a a' a^2$ in the following order: all the webs e supporting the segmental chilling-faces c being attached to the rings $a' a^2$, and all the webs f supporting the segmental chilling-faces d being attached to the rings $a a'$.

The method of constructing the chill is the same as in the former case—that is to say, the segmental chilling-faces $c d$ are formed integrally in a single casting constituting a continuous circular face. The casting is given the desired form in a lathe. Subsequently the faces are divided by means of a circular cutter or slotting machine, thereby providing a separate chilling-face for each supporting-web. In the chill thus constructed the expansion of the chilling-faces and the webs by which they are supported is inward in direction of the radii of the mold, so that the faces follow up and remain in contact with the periphery of the wheel which is cast in the chill. The double support of each chilling-face prevents it from warping or twisting out of shape, so that a wheel having its periphery formed on this chill will be truly circular.

In the modified form shown in Fig. 5 the webs e' , supporting the chilling-faces c , are formed integrally with the rings $a' a^2$, and the webs f' , supporting the chilling-face d , are formed integrally with the rings $a a^2$. In this case it is necessary to allow the struts b to remain, in order to preserve the proper relation of the rings and the chilling-faces which they support.

In the modified form shown in Figs. 6, 7, 8, and 9 the chilling-faces and their webs are arranged in series of three, each series being formed of a chilling-face c attached by the web e^2 to the rings $a' a^2$, a chilling-face c attached by the web f^2 to the rings $a a'$, and a chilling-face c attached by the web g^2 to the rings $a a'$.

The chill is used after the well-known manner in the process of casting, the spaces between the chilling-faces $c d$ serving to allow the gases generated in the chill and in the mold to escape, and the webs $e f$, as well as the rings $a a' a^2 a^3$, serve to radiate the heat

and prevent the chilling-faces from becoming unduly heated. The chill is provided with trunnions *g*, for convenience in handling.

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

1. A car-wheel chill consisting of a support
formed of three or more parallel rings, two
series of webs projecting inwardly from the
10 rings toward the center of the chill, the webs
of one series alternating with those of the
other series, one series of webs being sup-
ported by one outer ring and an inner ring,
the other series of webs being supported by
15 the other outer ring and an inner ring, and
chilling-faces formed on the inner ends of the
webs, the chilling-faces, the webs, and the

rings being formed integrally in a single casting, substantially as specified.

2. A car-wheel chill consisting of a com- 20
pound outer ring *A*, formed of the rings *a a'*
a², and chilling-faces supported in alternation
from the rings *a a'* and rings *a' a²*, substan-
tially as specified.

3. A car-wheel chill consisting of a com- 25
pound ring formed of separate rings con-
nected by struts, and segmental chilling-faces
supported in alternation from two series of
rings, substantially as specified.

FERDINAND E. CANDA.

Witnesses:

E. M. CLARK,

F. W. HANAFORD.