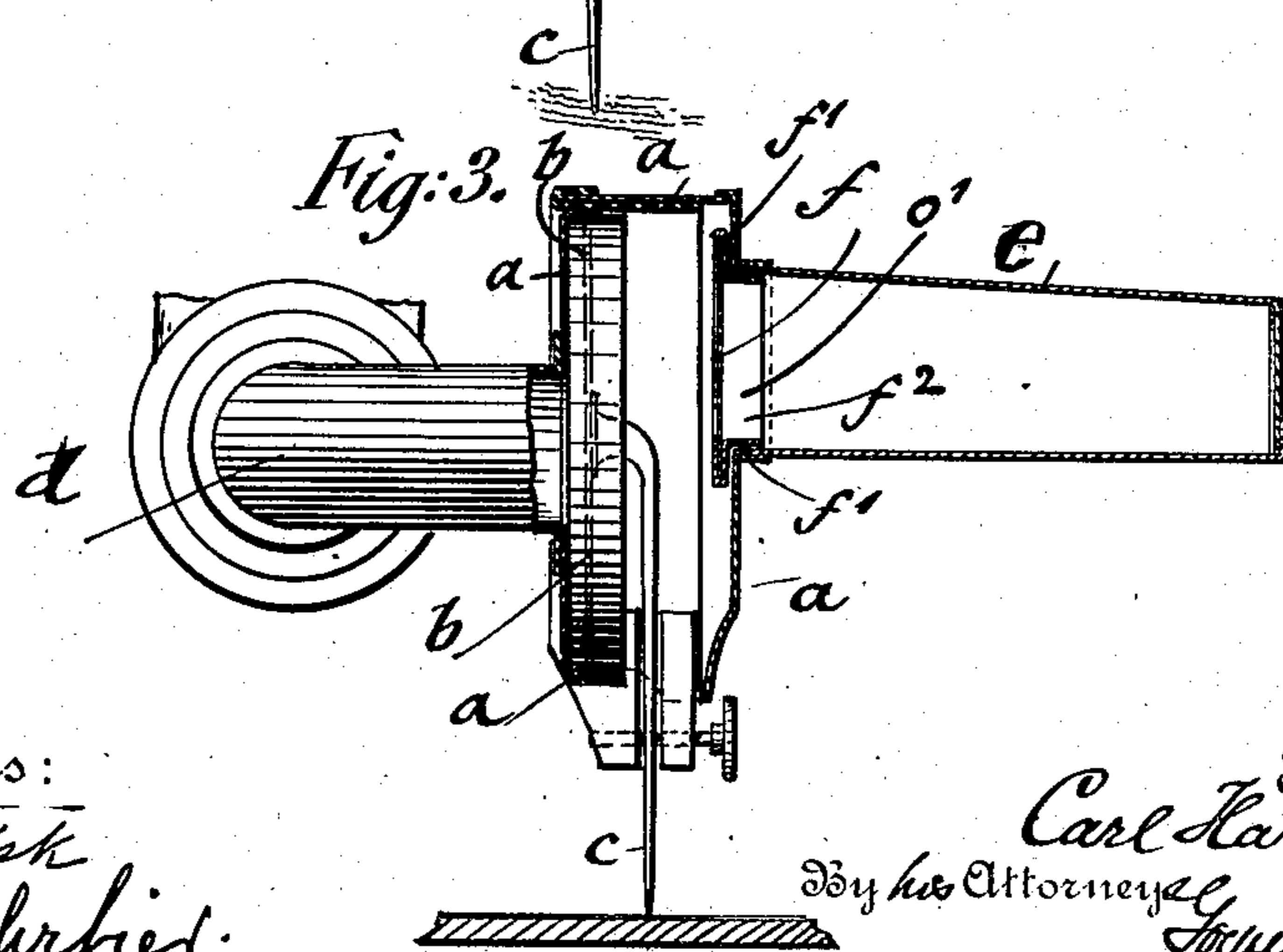
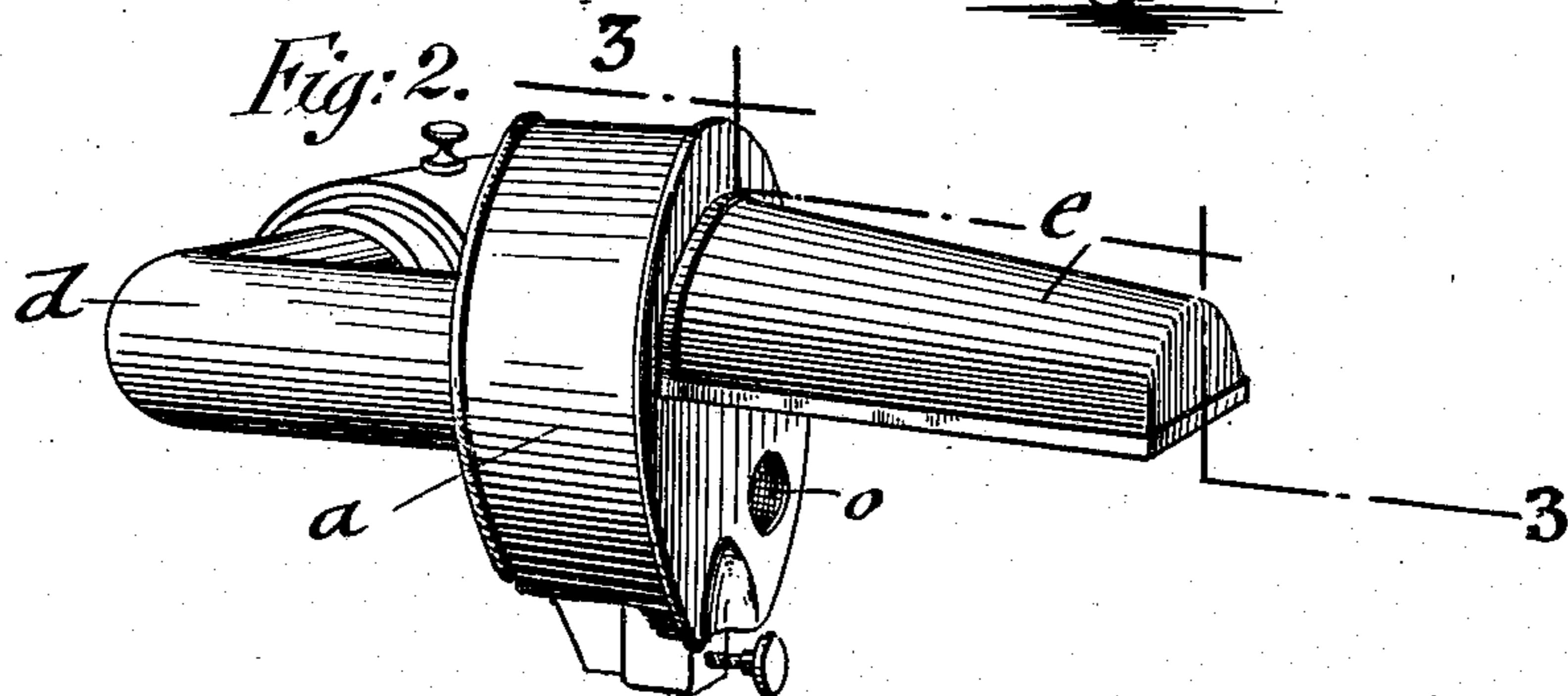
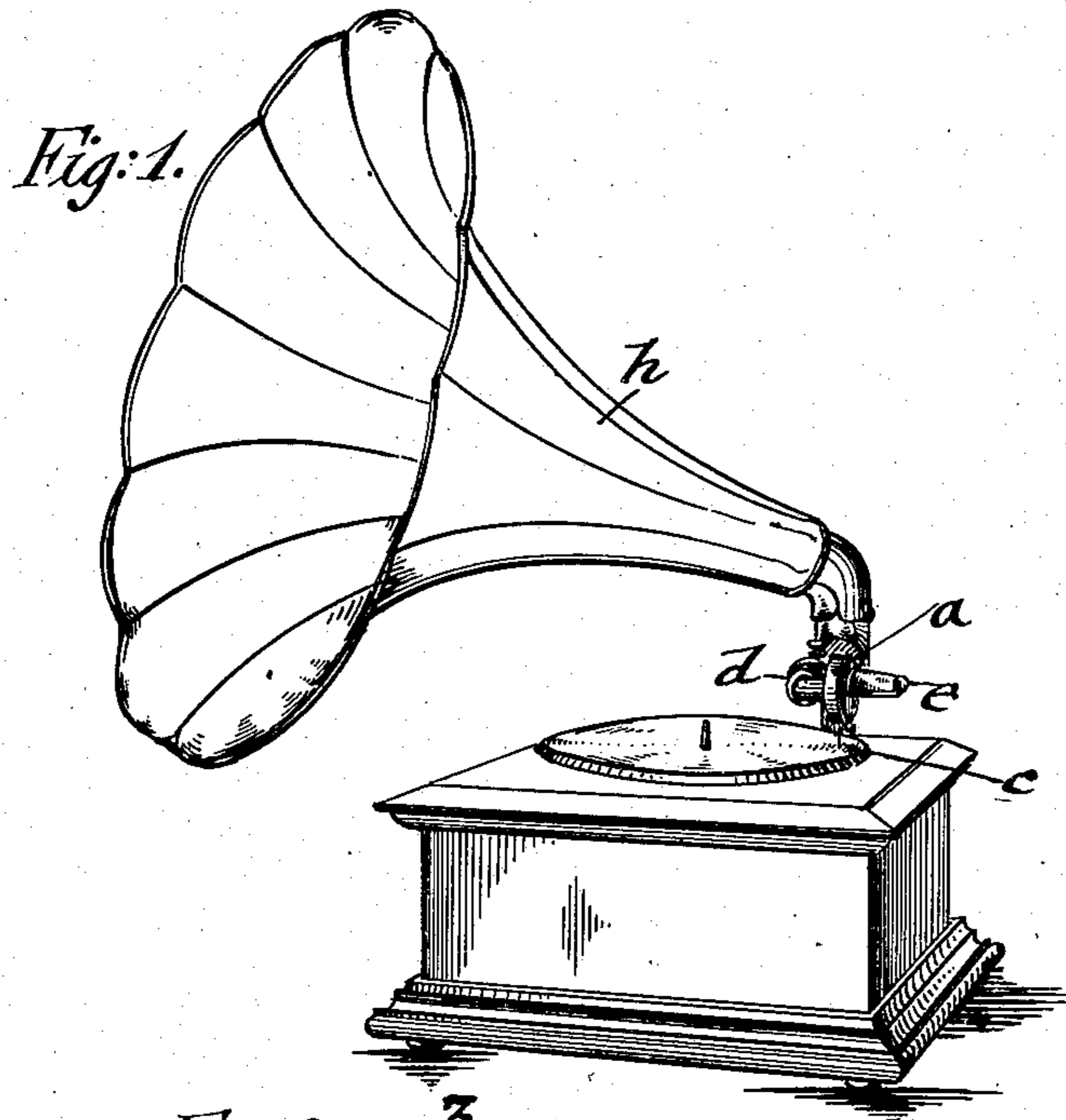


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 RESONATOR FOR PHONOGRAPHIC REPRODUCERS.
 APPLICATION FILED MAR. 13, 1908.

907,794.

Patented Dec. 29, 1908.



Witnesses:
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UNITED STATES PATENT OFFICE.

CARL HARTMANN, OF NEW YORK, N. Y.

RESONATOR FOR PHONOGRAPHIC REPRODUCERS.

No. 907,794.

Specification of Letters Patent.

Patented Dec. 29, 1908.

Application filed March 13, 1908. Serial No. 420,930.

To all whom it may concern:

Be it known that I, CARL HARTMANN, a citizen of the United States of America, residing at New York, in the borough of the Bronx, county and State of New York, have invented certain new and useful Improvements in Resonators for Phonographic Reproducers, of which the following is a specification.

This invention relates to an improvement in phonographic reproducers by which the sounds reproduced by the same are rendered clearer and more distinct than heretofore; and the invention consists in adding to the ordinary reproducer-box containing the diaphragm an extension or resonator which is closed at the outer end and provided at its inner end with an auxiliary diaphragm, the frame of which is tightly fitted into the inner end of the resonator, and which serves for increasing the sounds reproduced by the main or reproducing diaphragm.

In the accompanying drawings, Figure 1 represents a perspective view of a phonograph with my improved reproducer, Fig. 2 is a perspective view of the reproducer, drawn on a larger scale, and Fig. 3 is a vertical longitudinal section on line 3, 3, Fig. 2.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, *a* represents the box, *b* the diaphragm and *c* the style of a phonographic reproducer of the usual approved construction. The style is operated either by a record-disk, cylinder or other record-tablet. The reproducer-box *a* is connected by a sound-conducting tube *d* with the horn *h* in the usual manner. The box *a* is provided in its rear-wall with an opening *o* for establishing atmospheric pressure at the interior of the reproducer-box *a*. To the upper part of the rear-wall of the box *a* is applied a resonator-box *e* which is closed at its outer end and attached by its open inner end to the rear-wall of the box *a*, the resonator surrounding an opening *o*¹ in the rear-wall of the reproducer-box. The resonator-box *e* may be made in semicircular or of other cross-section, and preferably of tapering shape, being widest at its point of connection with the rear-wall of the reproducer-box *a*. The inner end of the resonator-box *e* is closed by an auxiliary diaphragm *f* of mica, which is supported in a supporting frame *f*¹

having a flange *f*², which latter is inserted into the inner end of the resonator *e*, the rim of the frame overlapping the opening *o*¹ in the rear-wall of the box *a*, while the flange *f*² fits tightly into the inner end of the resonator-box *e*. The auxiliary diaphragm *f* serves for the purpose of throwing the sounds produced by the reproducing diaphragm in forward direction through the sound-conducting tube to the horn and of increasing thereby the sounds to a considerable extent so as to produce a clearer and louder reproduction of the same. This is caused by the fact that as the auxiliary diaphragm is located at the rear of the main-diaphragm with respect to the horn, it acts (in connection with the resonator-box *e*) in the nature of a sounding-board by which the sound-waves are reflected toward the horn. The vibrations of the reproducing diaphragm are transmitted to the auxiliary diaphragm and the sound is reflected therefrom in increased volume due to the action of the resonator-box. The air in the resonator-box serves as a cushion for the auxiliary diaphragm, so that the same follows the vibrations set up in the reproducing diaphragm.

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

1. In a phonographic reproducer, the combination, with the reproducing box, diaphragm and style of the same, said box being provided with an opening in its rear-wall, of a resonator-box extending from said opening and closed at its outer end, and an auxiliary diaphragm located at the inner end of said resonator-box.

2. In a phonographic reproducer, the combination, with a diaphragm and inclosing reproducer-box, of a resonator-box closed at the outer end and extending outwardly from an opening in the wall of the reproducer-box, and an auxiliary diaphragm inserted into the opening of the reproducer-box and closing the inner end of the resonator-box.

3. In a phonographic reproducer, the combination, with a reproducer-box, diaphragm and reproducing style, of a resonator-box of tapering shape extending outwardly from an opening in the wall of the reproducer-box, said resonator-box being closed at the outer end and open at the inner end, and an aux-

iliary diaphragm the frame of which is located in the opening of the reproducer-box and inner end of the resonator-box.

4. In a phonographic reproducer, the combination, with the reproducer-box, diaphragm and style, said box being provided with an air-opening in the lower part and a larger opening in the upper part of its wall, of a resonator-box closed at the outer and
10 open at the inner end and extending outwardly from said opening, and an auxiliary

diaphragm that is tightly fitted by its frame into the larger opening of the reproducer-box and inner end of the resonator-box.

In testimony, that I claim the foregoing as my invention, I have signed my name in presence of two subscribing witnesses.

CARL HARTMANN.

Witnesses:

PAUL GOEPEL,
ANTON KOPKA.