

(No Model.)

J. A. HENDRICK.

FAN TREMOLO.

No. 322,450.

Patented July 21, 1885.

FIG. 1.

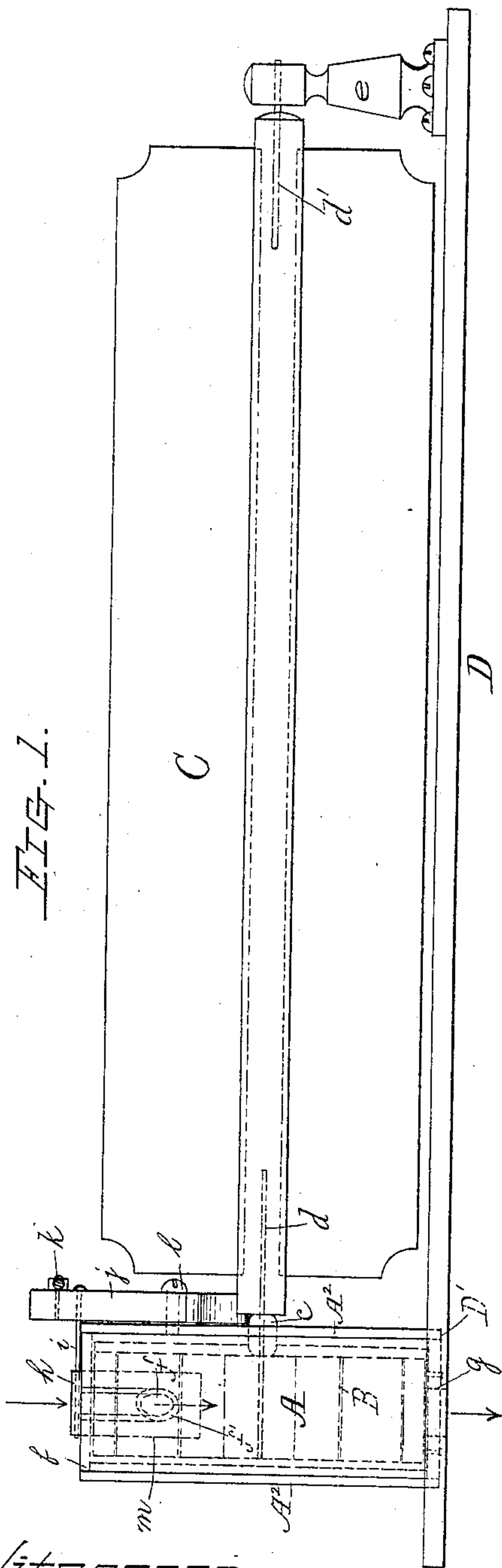


FIG. 2.

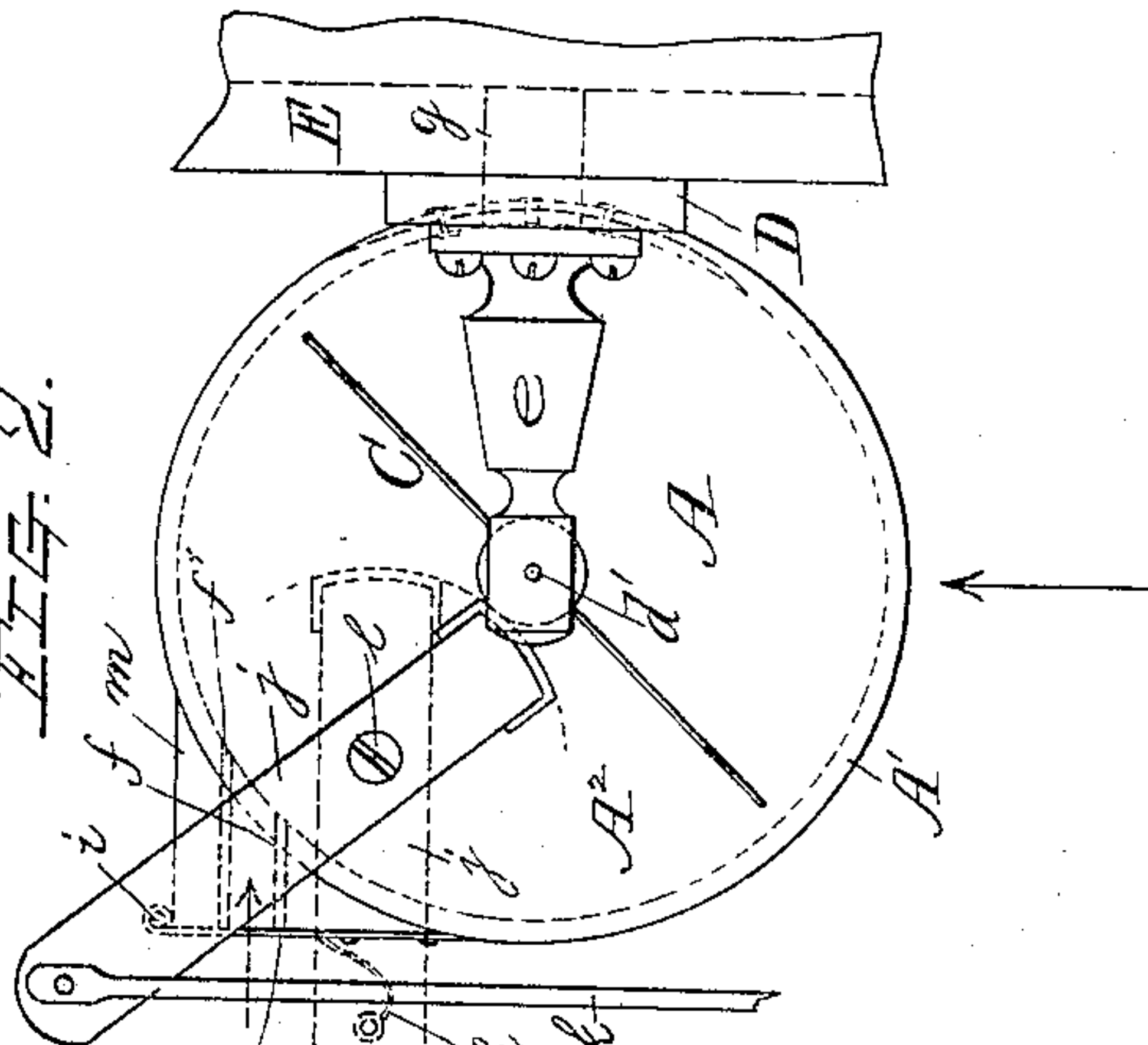


FIG. 3.

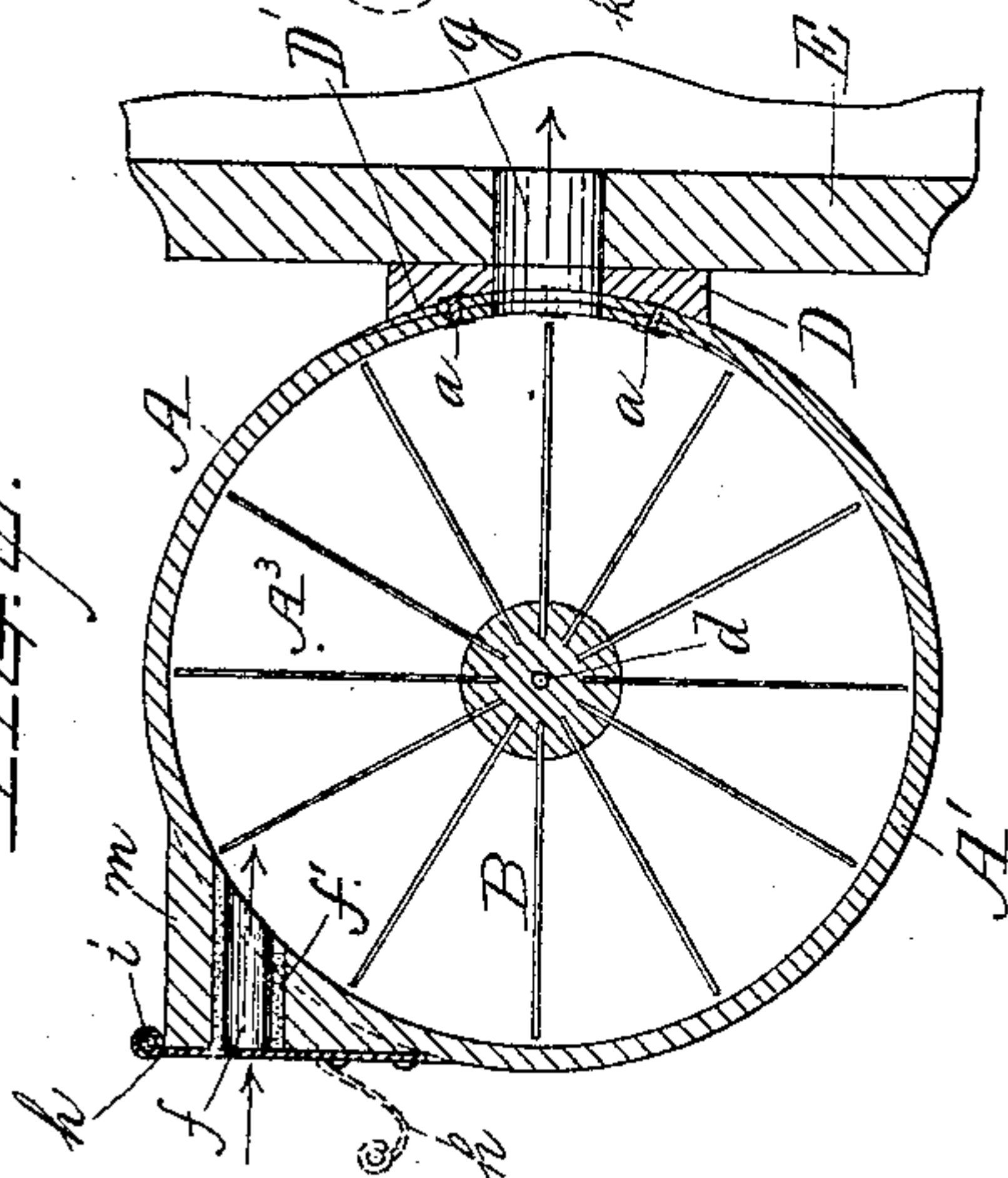
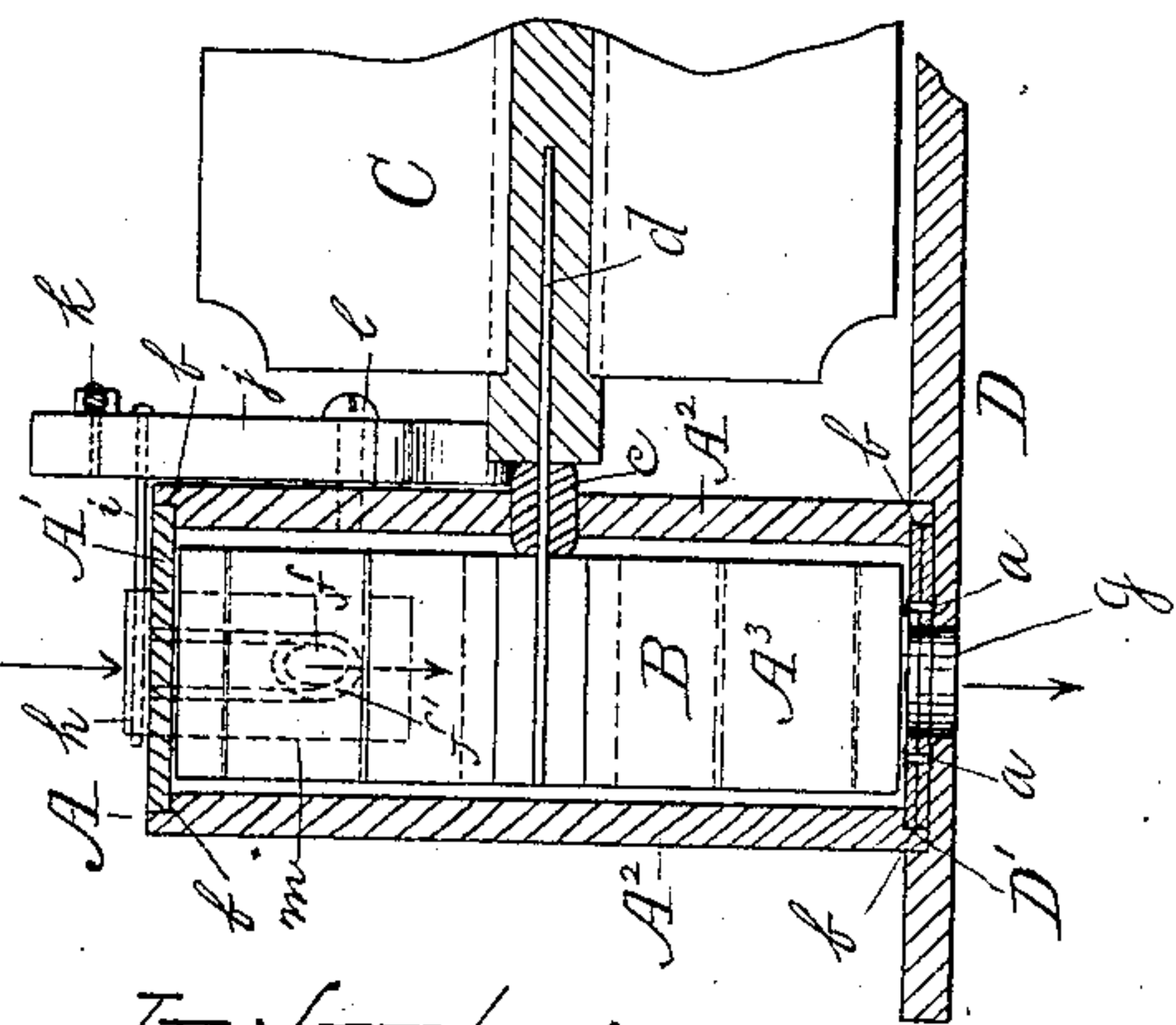


FIG. 4.



Witnesses;

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UNITED STATES PATENT OFFICE.

JEROME A. HENDRICK, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO
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FAN-TREMOLO.

SPECIFICATION forming part of Letters Patent No. 322,450, dated July 21, 1885.

Application filed September 29, 1884. (No model.)

To all whom it may concern:

Be it known that I, JEROME A. HENDRICK, of Worcester, in the county of Worcester and State of Massachusetts, have invented certain
5 new and useful Improvements in Fan-Tremolos for Musical Instruments; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a
10 part of this specification, and in which—

Figure 1 represents a side view of my afore-said improved fan-tremolo. Fig. 2 represents a top or plan view of said tremolo and a part of the sound-board of an ordinary reed-organ.
15 Fig. 3 represents a central transverse or cross section through the motor-head of the tremolo, a part of the sound-board also being shown in this figure; and Fig. 4 represents a central longitudinal section through the tremolo with the
20 sound-board removed, looking in the direction indicated by the arrow in Fig. 2.

My invention relates to fan-tremolos used on reed-organs and similar musical instruments; and it consists in the construction of the motor-head, and other parts connected therewith, in
25 combination with the old parts of a fan-tremolo, as will be hereinafter more fully set forth.

To enable those skilled in the art to which my invention appertains to make and use the
30 same, I will proceed to describe it more in detail.

In the drawings the part marked A represents my improved motor-head; B, the motor-wheel, and C the fan of the tremolo.

35 The part D is a long flat strip of wood, which in practice is fastened to the sound-board E of the instrument, and to which is fastened in any well-known manner the motor-head A. In this instance I unite said
40 parts together by forming a recess, D', in the strip and inserting and gluing the head in said recess, as shown in the drawings.

I make the motor-head round or cylindrical in shape upon the outside, for the purpose of
45 decreasing the cost of manufacturing the same, as by this construction I am enabled to do away with the usual turning operation to make the interior of the head in circular form.

I take a thin flat strip of wood or other suitable flexible material of the proper width and

length, bend it into a circular form, as shown at A' in the drawings, then fasten the ends (which overlap each other for the purpose) by means of rivets *a*, or other suitable fastenings. I then fasten the thin circular disks A² to the
55 ends of the bent part A' in any well-known manner to form the chamber A³, in which is placed the motor-wheel B. In this instance I fasten said ends A² by forming a shoulder,
60 *b*, upon the edge of each of them, so that they may be inserted part way into the part A' and glued in position, as is shown in Fig. 4 of the drawings.

The inner end of the head is provided with a central bushing, *c*, having a central longitudinal opening through which to pass the pivot-wire *d*, which turns in said opening. One end of said wire is inserted in the hub of the wheel B and the other end in one end of the fan C, thus forming a connection between the wheel
70 and fan and a pivot for this end of said fan. The other end of the fan is pivoted in a similar manner by means of a pivot-wire, *d'*, fitted to turn in a bearing, *e*, projecting out at right angles from the strip D.
75

Air is introduced into the motor-head to turn the wheel B and fan C through a small opening, *f*, arranged at or about right angles to the float of the wheel coming in front of it,
80 as is shown in Fig. 3, and is discharged through a larger opening, *g*, connected with the wind-chest of the instrument in the usual way.

I govern the supply of air to the motor-head by means of a flexible valve, *h*, which is opened
85 and closed by the operation of the drawer-stop of the instrument in the usual way, connection being made between said valve and drawer-stop by means of the wire *i*, swinging lever *j*, and connecting-rod *k*, which extends
90 to and is connected with said drawer-stop. The wire *i* is fastened at one end to the free end of the valve *h*, and at its other end to the outer end of the lever *j*, at right angles to the latter. The lever *j* is hinged at *l* to the motor-head, and to its outer end is hinged one
95 end of the connecting-rod *k*, before alluded to, which in turn is hinged at its other end to the inner end of the drawer-stop of the instrument.
100

The valve is fastened by gluing or other suitable means to a projection, *m*, formed upon or fastened to the circular part of the motor-head, as is shown in the drawings. The air-inlet *f* is made through said projection, and the latter is used mainly for the purpose of extending the length of said conducting-tube *f*. Said opening or tube *f* is provided with a bushing, *f'*, of velvet, felt, or similar soft material having a rough surface, for the purpose of deadening the noise usually produced in passing through the inlet to a motor-head, and which has been a source of considerable annoyance in the old devices. I have ascertained by the application of my invention to practice that by the use of a bushing in the supply-opening, as before described, the device is rendered nearly or quite noiseless. I have also ascertained that my improved tremolo may be much more conveniently applied to different kinds of instruments than those of ordinary construction, for the reason before stated.

In applying my tremolo to an instrument it is simply necessary to place it on the sound-board, with the outlet *g* over the correspondingly-shaped opening in said sound-board, fasten it in position, and attach the outer end of the hinged connecting-rod *k* to the inner end of the drawer-stop, as before described, when it is ready for operation.

I have represented the inner end of the hinged lever *j* as being provided with the usual leather or other soft material employed for facilitating the starting and stopping of the fan by the end of said lever coming in contact with it when moved forward and back in opening and closing the valve *h*.

In Fig. 2 I have represented the lever *j* by full lines in the position it occupies when the device is at rest ready to be operated by pulling upon the drawer-stop, and by dotted lines after having been drawn forward to open the valve, the fan being left free to turn by the inner end of the lever passing by out of contact with the hub of said fan.

The use of a soft lining in fan-tremolos to deaden the sound of in-rushing air, I am aware is not new, in a broad sense, being to my knowledge shown and described in Patent No.

181,472, granted to H. L. Pierce, August 22, 1876, but in said patent said lining is applied in a different manner, a chamber or passage outside of the tremolo-valve being thus lined for the above purpose, whereas in my device it is interposed between said valve and the motor-wheel for lining an air inlet or opening between said parts. In view of the above, I therefore limit my claim to such a lining to my method of application, hereinbefore shown and described.

Having described my improvements in fan-tremolos, what I claim therein as new and of my invention, and desire to secure by Letters Patent, is—

1. The combination, with the strip *D*, provided with the recess *D'*, of the motor-head *A*, consisting of the bent part *A'*, circular ends or disks *A² A²*, and provided with the projection *m*, air-inlet *f*, bushing *f'*, and outlet *g*, substantially as described.

2. The combination of the circular motor-head *A*, consisting of the bent circular part *A'*, and disks or heads *A² A²*, and means for supporting said motor-head, with the motor-wheel *B*, fan *C*, and means for supporting and operating said wheel and fan, substantially as shown and described.

3. The combination of the strip *D*, provided with the recess *D'*, and the circular motor-head *A*, constructed substantially as described, with the motor-wheel *B*, bushing *c*, fan *C*, pivot-wires *d d'*, and bearing *e*, substantially as and for the purpose set forth.

4. The combination, with the part *m* of the motor-head *A*, of the bushing *f'*, placed in the opening *f*, between the valve *h* and chamber containing the motor-wheel *B*, substantially as and for the purpose set forth.

5. The combination, with the motor-head, of a fan-tremolo provided with the projection *m* and air-inlet *f*, of the bushing *f'*, flexible valve *h*, wire *i*, hinged lever *j*, and hinged connecting-rod *k*, substantially as and for the purpose set forth.

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Witnesses:

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