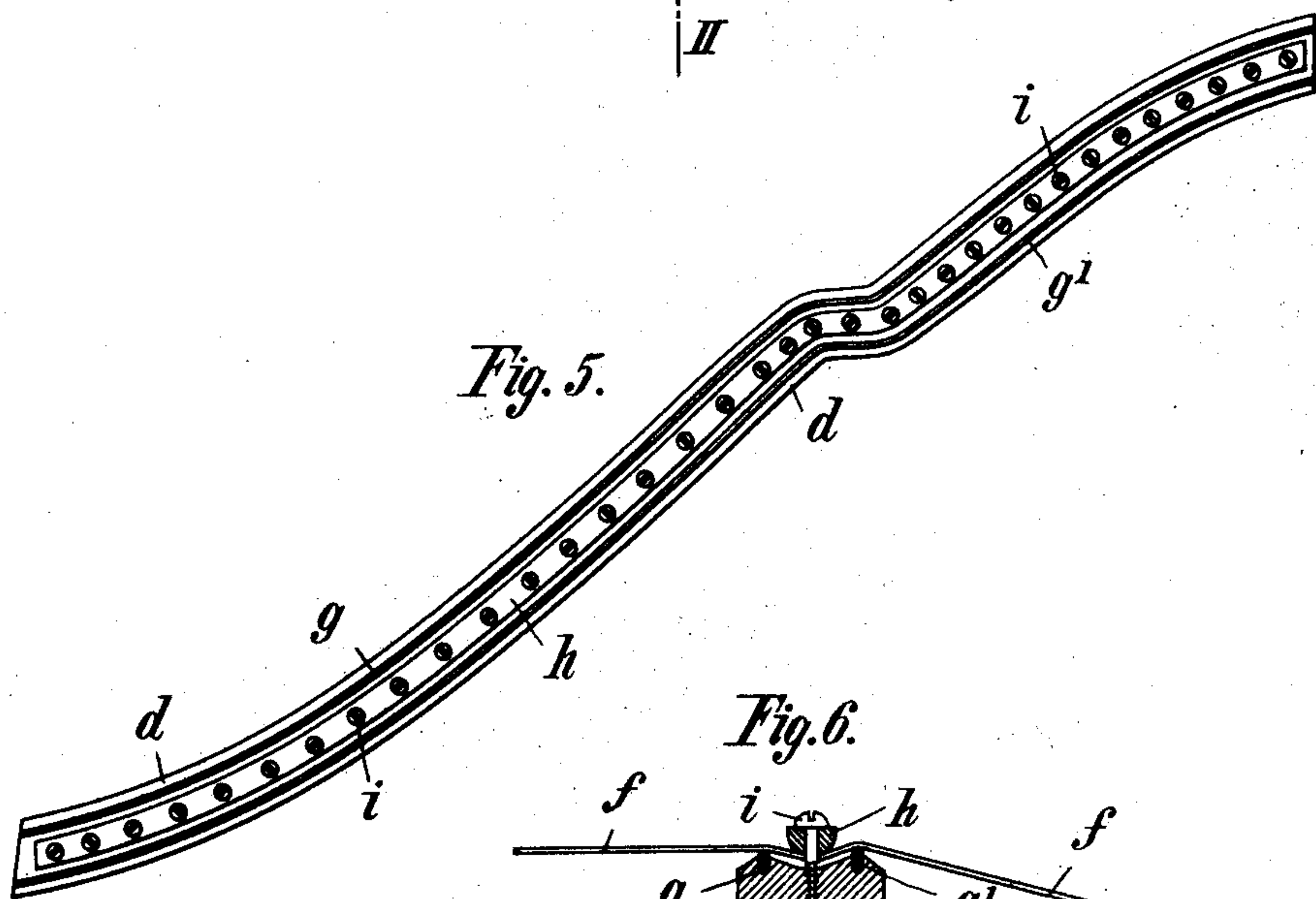
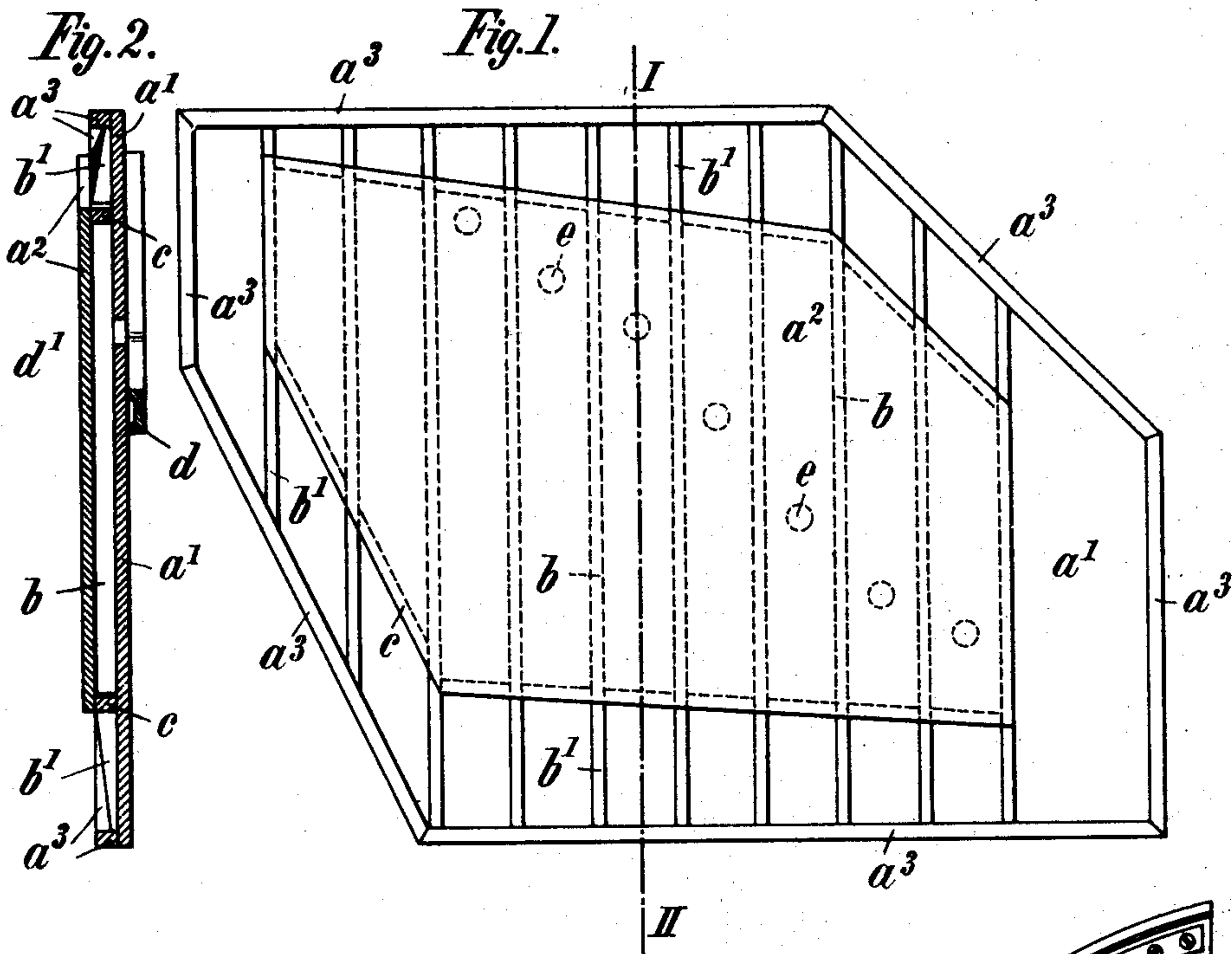


J. C. H. SCHNELL.
PIANO.

(Application filed Oct. 7, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:
B. John
W. Lommers

Inventor:
Johann Carl Heinrich Schnell.
by Henry M. [Signature]

No. 669,104.

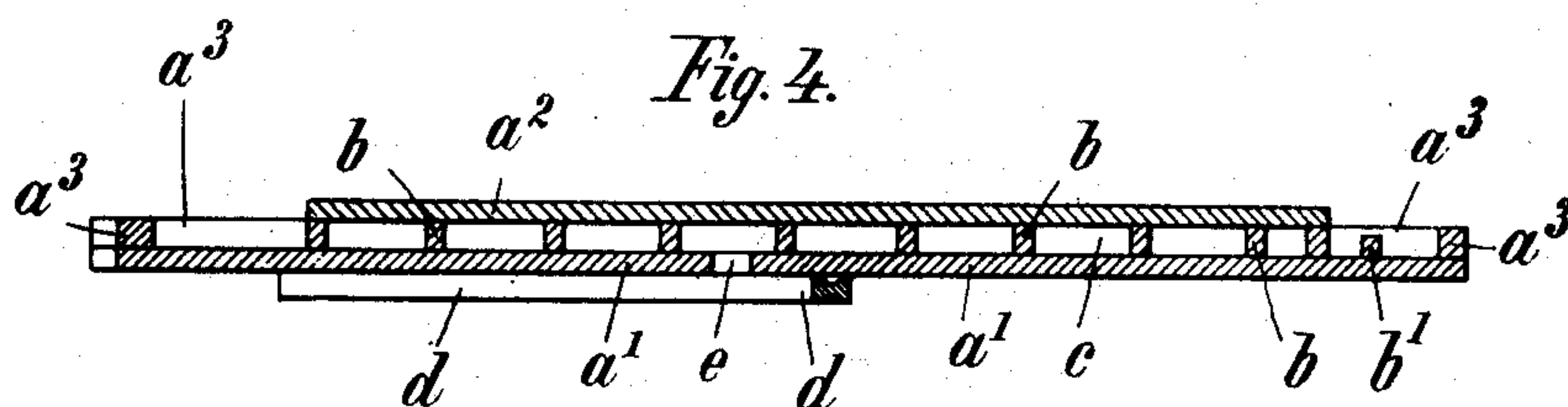
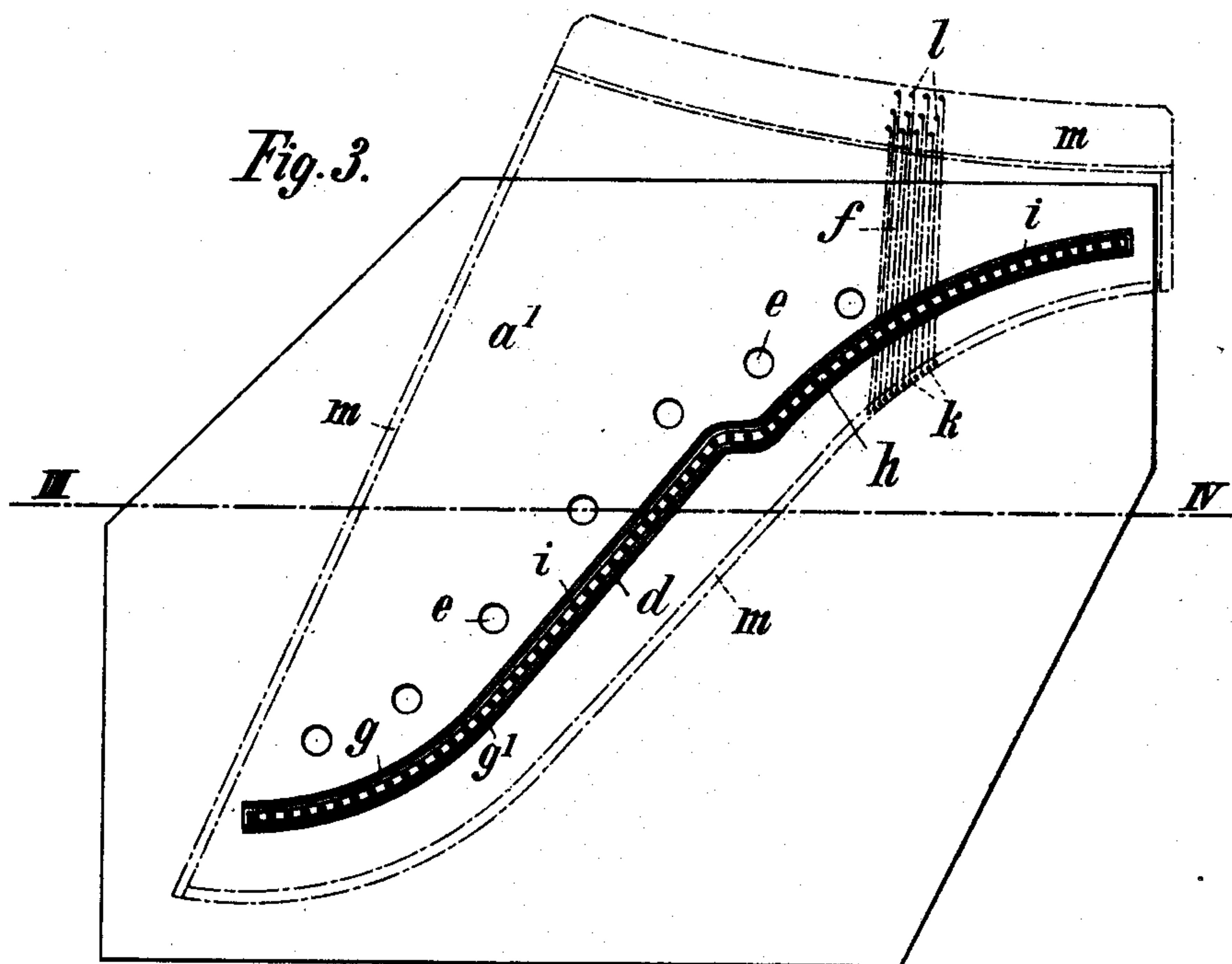
Patented Mar. 5, 1901.

J. C. H. SCHNELL.
PIANO.

(Application filed Oct. 7, 1899.)

(No Model.).

2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

JOHANN CARL HEINRICH SCHNELL, OF HAMBURG, GERMANY.

PIANO.

SPECIFICATION forming part of Letters Patent No. 669,104, dated March 5, 1901.

Application filed October 7, 1899. Serial No. 732,940. (No model.)

To all whom it may concern:

Be it known that I, JOHANN CARL HEINRICH SCHNELL, a subject of the German Emperor, and a resident of No. 46 Gurlittstrasse, Hamburg, in the German Empire, have invented certain new and useful Improvements in Pianos, of which the following is a specification.

The present invention relates to improvements in pianos and like instruments, and more especially refers to improvements in double-resonance bottoms and in string-bridges connected therewith.

The strengthening of the frames of pianos rendered necessary by the increased weight of the strings or wires of the instrument introduced some time back was effected by the employment of iron plates in their construction. This, however, imparts a metallic character to the tones produced, and only instruments which produce a wood tone possess a pure timbre.

The object of the improvements in resonance bottoms is to render this prejudicial influence of the iron plates quite innoxious, and this result is obtained by using a double-resonance bottom comprising two plates divided interiorly by means of ribs into longitudinal divisions or compartments, one of such plates being furnished with sound-holes.

The object of the improvements in string-bridges is to effect a more perfect "stopping" of the strings, and consequently an improvement in their tone, and this result is obtained by employing a bridge which is provided with two parallel metal ledges or ribs, upon which ribs the strings are held or pressed down by means of a central pressure-bar adjustably fixed to the bridge proper and between the said metal ribs by means of screws or any other suitable clamping device.

In order that my invention may be more fully understood, I will now proceed to describe the same in detail, and for that purpose reference is taken to the accompanying sheet of drawings, whereon—

Figure 1 is a rear view of my improved double-resonance bottom. Fig. 2 is a section on the line I II, Fig. 1. Fig. 3 is front view or plan of the improved resonance bottom. Fig. 4 is a section on the line III IV, Fig. 3. Fig. 5 is a detailed front view or plan of the im-

proved string-bridge, drawn in a somewhat-enlarged scale; and Fig. 6 is a cross-section of the string-bridge, drawn at a still larger scale.

Similar letters refer to similar parts throughout the several views.

As it will be evident from the drawings, the present double-resonance bottom or sound-board consists of a top or front plate a' , a bottom or rear plate a^2 , side walls a^3 , longitudinal ribs b , cross-ribs c , and a string-bridge d . The top plate a' and side walls a^3 are arranged and connected by gluing, so as to form a flat box. This box or casing is divided interiorly by the ribs b into longitudinal divisions. The ends of the ribs b are obliquely cut away or beveled, as shown at b' . At those places from which these beveled or sloped ends b' extend special cross-ribs c are placed between the longitudinal ribs b , so that a number of compartments is formed. These compartments are wholly closed by the bottom plate a^2 , which is glued on the ribs b and c . The plate a^2 does, therefore, not correspond in size with the plate a' , but covers only those spaces or parts of the longitudinal divisions or channels between the ribs b which are inclosed or surrounded by the cross-ribs c .

Contrary to what is the case in double-resonance bottoms or sound-boards as hitherto made, the cross-ribs c and the longitudinal ribs b up to their slightly inclined or beveled ends b' here form partitions and at the same time connections between the two plates a' and a^2 , so that when the strings of the instrument, respectively, are played a number of wholly-separated vibrating air-columns exists within hollow resonating wooden chambers or compartments and the two plates as a result of their numerous connections vibrate in unison. By means of sound-holes e provided in the top plate a' the separating vibrating layers or columns of air within the double-resonance bottom are brought or placed in communication with the outer air.

Into the top surface of the string-bridge d , supporting the strings f , Figs. 3 and 6, are firmly inserted or otherwise attached, a short distance apart, two metal ribs or ledges g g' , Figs. 3, 5, and 6. These ribs, running equidistant to each other, are laid longitudinally from end to end of the bridge or extend but

as far as the set of strings. The strings *f* are stretched over the bridge and fastened at their respective ends to pegs *k* and tuning-pins *l* of a suitable frame *m*, as usual; but
 5 instead of resting on the top edge of the ordinary bridge they now rest upon the top of the said metal ribs *g g'*. In Fig. 3 the frame *m*, the pegs *k*, tuning-pins *l*, and strings *f* are shown by dotted lines. To hold the strings
 10 or wires firmly in place and to press or clamp them upon the ribs *g g'* in order to effect the stopping of them at the bridge, which is of course the point beyond which they should not vibrate, a bar *h*, having preferably a
 15 rounded under side is placed upon the strings centrally and parallel between the metal ribs *g g'*, and this central pressure-bar is clamped down firmly upon the strings by means of screws *i*, which are passed through holes in the
 20 bars *h* and screwed into the bridge *d* beneath.

For sake of clearness and simplicity the ribs *g g'*, the pressure-bar *h*, and the clamping-screws *i* are not shown in the sectional views, Figs. 2 and 4.

25 By concaving both upper and lower faces

of the wooden string-bridge *d* and by stopping the strings *f* with a wooden bar convex on its under side the bridge itself becomes resonant instead of acting as a damper, as do the string-bridges now in general use, as will
 30 be readily understood.

Having thus fully described my invention, I claim—

The combination with the sound-board of a stringed instrument divided into a multiplicity of sounding-chambers substantially parallel to the strings, of a string-bridge made wholly of wood extending across said sounding-chambers, said bridge having concaved upper and lower faces and thin metallic string-rests arranged along the opposite edges of the channel in the upper face of the bridge, and a stop-bar having a convex under face adapted to be secured to the bridge so as to bear on the strings at points intermediate of the string-
 35 rests, for the purpose set forth. 40 45

JOHANN CARL HEINRICH SCHNELL.

Witnesses:

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