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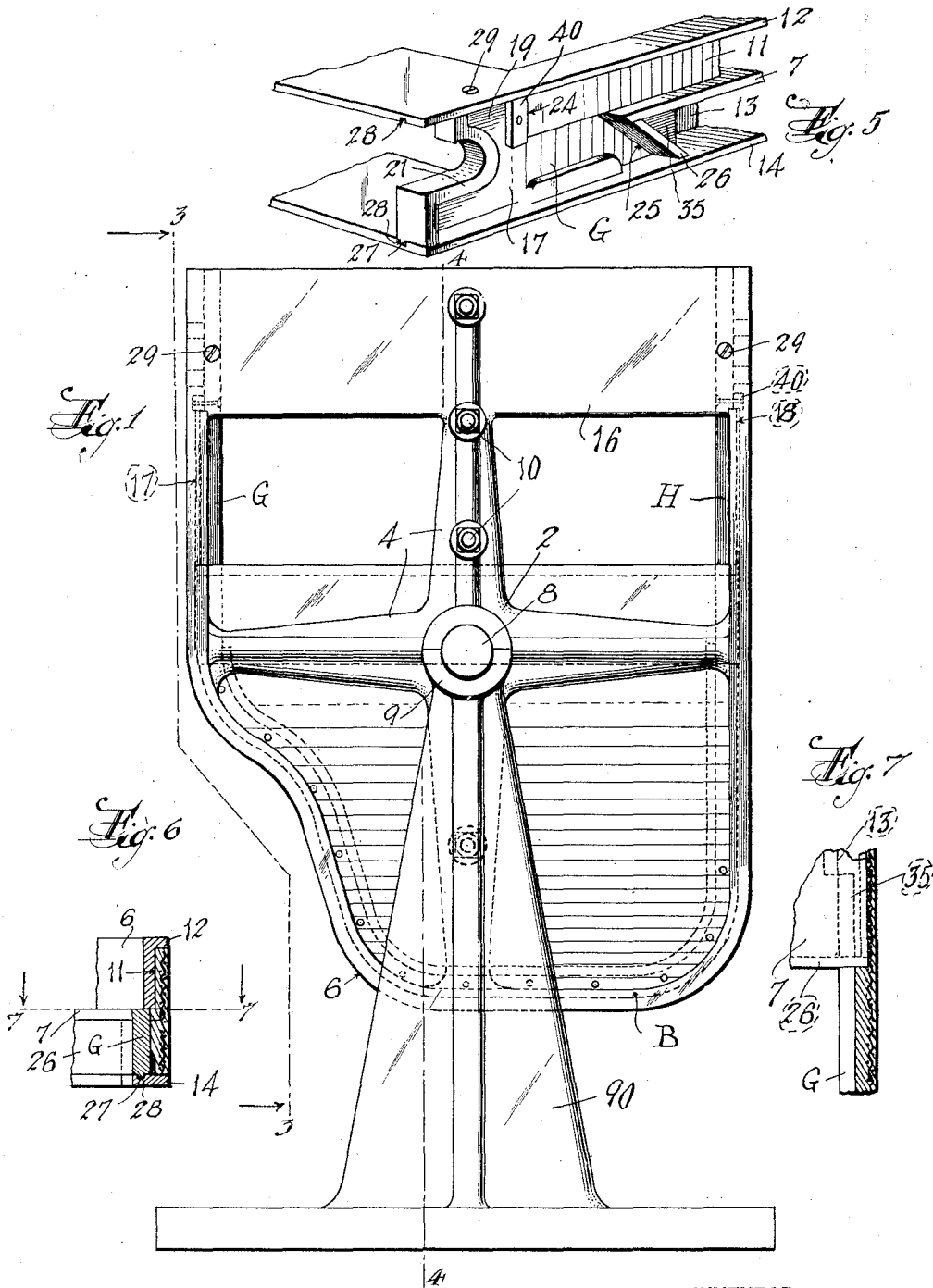
C. E. CAMERON, JR

1,799,675

PIANO CASE AND METHOD OF MAKING THE SAME

Filed June 20, 1929

3 Sheets-Sheet 1



INVENTOR
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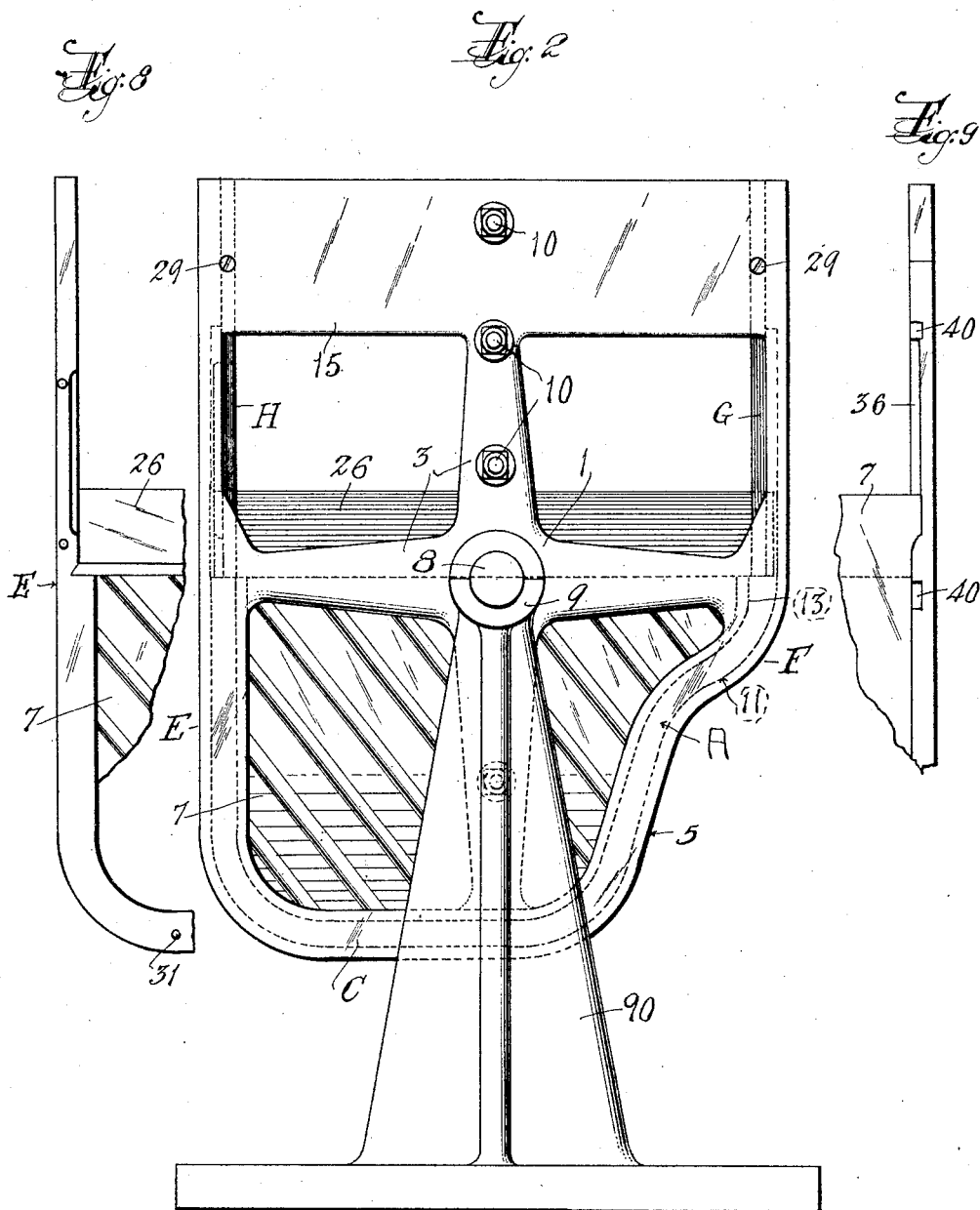
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PIANO CASE AND METHOD OF MAKING THE SAME

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3 Sheets-Sheet 2



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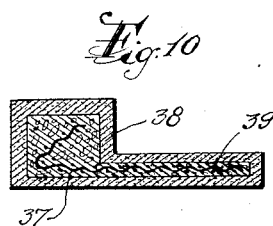
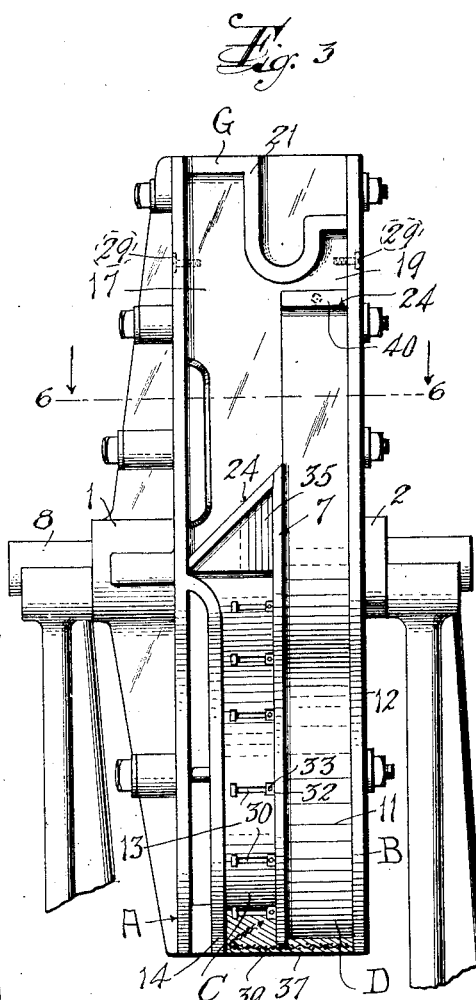
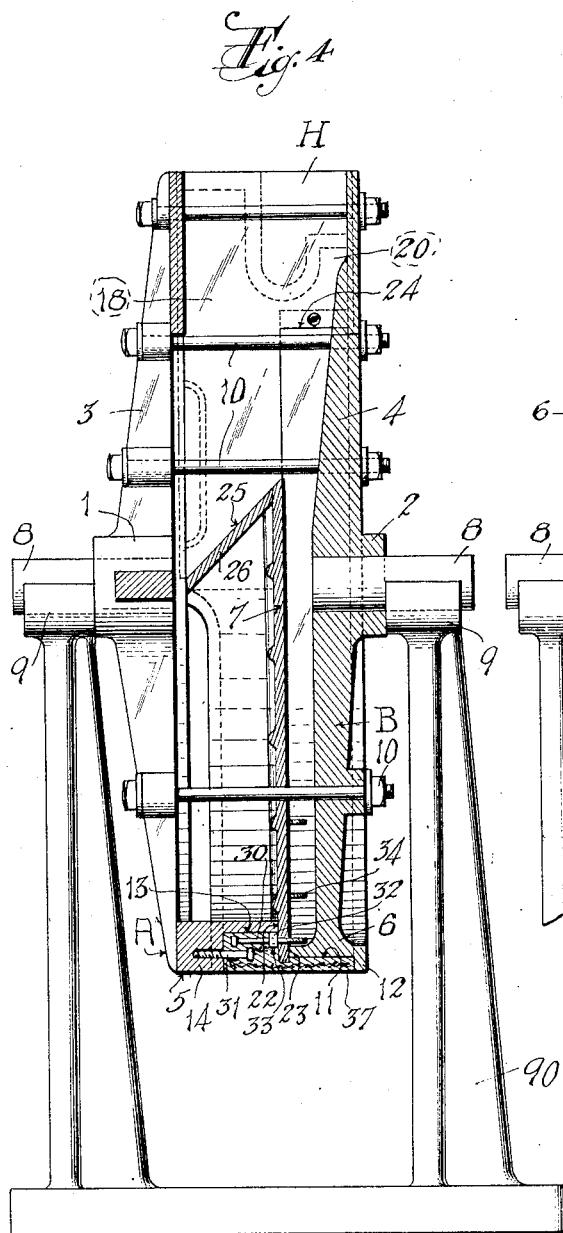
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PIANO CASE AND METHOD OF MAKING THE SAME

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3 Sheets-Sheet 3



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PIANO CASE AND METHOD OF MAKING THE SAME

Application filed June 20, 1929. Serial No. 372,324.

This invention relates to the manufacture of piano cases, particularly cases for grand pianos.

One object of the invention is to provide a piano case which is molded of plastic material whereby manufacture of the case is simplified and the cost thereof is small compared with the usual wood cases.

Another object is to provide a molded piano case having the edges of the sounding-board embedded in the sides of the case so that uniform and tight contact of the sounding-board and the case is secured throughout the edges of the former, and the sounding-board and the case are in effect one-piece, whereby assembly of the sounding-board and the case is simplified and the piano when completed has an exceptionally pure, full tone.

A further object is to provide a novel and improved method of molding piano cases with the sounding boards embedded in the sides of the cases, whereby the assembly of the piano case and sounding-board can be quickly accomplished in a simple and inexpensive manner, to obtain other advantages and results as will be more fully brought out by the following description.

Referring to the accompanying drawings, in which corresponding and like parts are designated by the same reference characters.

Figure 1 is a front elevation of the molding apparatus embodying my invention.

Figure 2 is a rear elevation thereof.

Figure 3 is a side elevation of the mold viewing the same from the line 3—3 of Figure 1, showing the sounding-board assembled in the mold and portions of the piano case in transverse section.

Figure 4 is a transverse vertical sectional view taken on the line 4—4 of Figure 1.

Figure 5 is a fragmentary perspective view of one side of the mold showing the manner of molding one of the end pieces.

Figure 6 is a horizontal sectional view on the line 6—6 of Figure 3 through one side of the mold, showing a portion of the piano case in the mold.

Figure 7 is a horizontal sectional view on the line 7—7 of Figure 6.

Figure 8 is a fragmentary bottom plan

view of one side of the finished piano case, and

Figure 9 is a fragmentary top plan view of said side of the piano case.

Figure 10 is an enlarged transverse vertical sectional view through the piano case showing the preferred manner of applying the plastic material in the mold.

Specifically describing the illustrated embodiment of the invention, the molding apparatus includes two complementary sections A and B each of which conforms in outline to substantially the shape of a grand piano case. The sections A and B have the respective end portions C and D corresponding to the rear or sounding-board end of the piano case, and side portions E and F corresponding to the sides of a grand piano case, which side portions merge at one end into the end portions. The other ends of the sections A and B have cooperating therewith the respective end sections G and H.

As shown in the drawings, the sections A and B may each be formed in one piece as by casting and comprise the respective hub portions 1 and 2 from which radiate corresponding spokes or webs 3 and 4 at the outer ends of which are supported the respective rims 5 and 6. The two sections and the end sections G and H cooperating therewith are so shaped as to clamp between them the sounding-board structure 7 and to shape plastic material applied to their rims into the configuration of a grand piano case. Each section A and B has a trunnion 8 projecting from its hub which may be removably mounted in a half-bearing 9 formed on a suitable support 90 so that the mould may be rotated on said support about the trunnions 8 as an axis. For securing the sections A and B together I may utilize tie bolts 10.

The rims of the two sections A and B are complementally shaped so as to form respectively the upper and lower portions of the piano case, upper and lower portions meaning in this connection respectively the portions of the case above the sounding-board and the portion of the case below the sounding-board. The rim of the section B has a surface 11 and a flange 12 arranged at sub-

stantially right angles to said surface, the width of said surface corresponding to the depth of the piano case from the upper edge to the sounding-board, and the depth of the flange 12 corresponding to the thickness of the upper edge of the case. The rim of the section A has a surface 13 at right angles to which is arranged a flange 14 the width of the surface 13 corresponding to the depth of the piano case between the sounding-board and the lower edge of the case, and the depth of the flange 14 corresponding to the thickness of the piano case at its lower edge. The surfaces 11 and 13 terminate short of the ends of the sections A and B but the flanges 5 and 12 extend throughout the length of the respective sections and are connected at their extremities by transverse webs 15 and 16. These extensions of the flanges 12 and 14 support the end sections G and H which have the respective surfaces 17 and 18 which form extensions of the surfaces 13 of the section A. The end sections also have respective surfaces 19 and 20 which comprise extensions of the surfaces 11 of the section A. These end sections also have flanges or ribs 21 corresponding to the extremities of the sides of the piano case.

When the mold is to be assembled, the sounding-board structure 7 is arranged between the two sections A and B so as to be clamped between the inner edges 22 and 23 of said sections as clearly shown in Figures 3 and 4 of the drawings. The edges of the sounding-board corresponding to the end and side portions of the piano case extend slightly beyond the surface 11. The end sections G and H are then fitted between the extensions of the flanges 12 and 14. Each end section has a surface 24 to abut the corresponding end of the surface 11 and also has an end surface 25 to abut the front board 26 of the sounding-board structure as clearly shown in Figure 3, 4 and 5 of the drawings. These end sections may be secured in position in any suitable manner, but as shown, may have tongues 27 on their edges to slidably fit grooves 28 in the extensions of the flanges 12 and 14. Screws 29 may be threaded into the edges of the end sections through the respective flanges 12 and 14 to secure the end sections in proper position. As shown, the surfaces 11 and 13 are offset with respect to each other so that the flange 14 is deeper than the flange 12, and this is for the purpose of making the lower portion of the piano case thicker than the upper portion so as to form a rest for the sounding-board and as a support for bolts 30 for securing the iron frame of the piano in the case. Also, this thick portion of the case may support bolts 31 for securing the rear legs of the piano to the case. Any suitable means may be utilized for initially supporting the bolts 30 in the mold but as shown these bolts are mounted in blocks 32

secured to the underside of the sounding-board and which have set screws 33 therein for holding the bolts with their threaded ends 34 in proper relation to the upper side of the sounding-board. The bolts 30 may be initially supported in openings in the flange 14 of the mold section B.

With the parts of the mold thus assembled the surfaces 11, 13, 17, 18, 19 and 20 and the flanges 12 and 14 form a mold cavity which corresponds in shape to the sides and end of the piano case. The plastic material is placed in this cavity by a trowel or the like. It will be observed that the sounding-board structure includes triangular end blocks 35 for supporting the end board 26 in proper relation to the sounding-board, and in order to form a piano case with the end portions of the sides thicker throughout their width than the lower portion of the case below the sounding board, the surfaces 17 and 18 of the end sections G and H are offset with respect to the ends of the surfaces 13 as clearly shown in Figures 2 and 5. To form recesses 36 on the inner walls of the end portions of the sides of the case, the end portions of the surface 11 are offset with respect to the surfaces 19 and 20 of the end sections as shown in Figures 1, 5 and 6.

With the sections of the molding apparatus thus assembled the operator applies plastic material to the surfaces 11, 13, 17, 18, 19 and 20 of the mold sections. This plastic material may be easily applied by a trowel and the outer surface 37 thereof may be smoothed off with a trowel so as to be flush with the outer edges of the flanges 12 and 14. The piano case is thus formed and the edges of the sounding-board corresponding to the sides and the end of the case are embedded in said sides and end, as clearly shown in Figures 4, 7, 8 and 9 of the drawings. At the same time the bolts 30 are molded and embedded into the plastic material of the case, as are also the bolts 31. After the plastic material has hardened or dried the mold may be removed from the support 90, after which the tie bolts 10 and the screws 29 are removed. The two sections A and B may then be separated from each other and the end sections G and H pulled outwardly away from the ends of the piano case. The case can then be removed to the desired point by merely lifting it from the section A or B upon which it may be resting.

The plastic material of which the case is formed may be widely varied, although preferably it should have the desired lightness of weight, strength, resistance to changes in atmospheric conditions, such as heat, moisture, etc., and durability without cracking, warping, etc. I have found that a well-known composition used for manufacturing floors may be used, for example, a composition of about equal parts by volume of sawdust or wood flour, silex or very fine sand, and a suit-

- able binder, such as glue, Portland cement, or a gum, for example shellac. Also preferably the plastic material has embedded therein a suitable reinforcement such as reticulated metal 37. Furthermore it may be desirable to form the surfaces of the case of a continuous layer 38 of material which will present or take the desired finish, while the intermediate portion 39 may be of coarser material having any desired characteristic not fully possessed by the outer finished layer 38. A suitable material, such as talc may be used on the surface to improve working qualities of the composition.
- Should the material not be thoroughly capable of receiving and holding screws or other fastening members, I may separably attach to the mold sections blocks 40 of wood or the like in positions corresponding to the location of hinges or other parts of the piano which are to be secured to the case, so that said blocks are molded into the case.
- It will be understood that while I have shown and described a particular method and molding apparatus, the detailed steps of the method and the details of construction of the molding apparatus may be widely modified and changed by those skilled in the art in accordance with the various types of piano cases, molding structure, etc., without departing from the spirit or scope of the invention, the form illustrated being primarily for the purpose of explaining the principles of the invention.
- Having thus described my invention, what I claim is:
1. A piano including a case composed of molded plastic material, and a sounding board having its edges embedded in said case.
 2. A piano including a case comprising a unitary mass of plastic material having two sides and an end, and a sounding-board having its edges corresponding to said sides and end embedded therein.
 3. The step in a method of making pianos consisting in molding the piano case with the edges of the sounding-board embedded therein.
 4. The step in a method of making pianos consisting in molding plastic material over the edges of a sounding-board and shaping said material to correspond to the sides and end of a piano case.
 5. The step in the method set forth in claim 4 with the additional step of mounting in openings in the sounding board bolts to receive and hold an iron frame within the piano case and shaping said plastic material to embed therein the portions of said bolts below the sounding-board.
 6. A piano including a case formed of plastic material, and a sounding board with its edges embedded therein, the portion of the case below the sounding-board being thicker than the portion above the sounding-board
- and having embedded therein bolts which project through openings in the sounding-board above the upper surface of the latter to receive and hold an iron frame within the case.
- CHARLES EWEN CAMERON, Jr.

CERTIFICATE OF CORRECTION.

Patent No. 1,799,675.

Granted April 7, 1931, to

CHARLES EWEN CAMERON, JR.

It is hereby certified that the name of the assignee in the above numbered patent was erroneously written and printed as "Lauter-Humano Co." whereas said name should have been written and printed as Lauter-Humana Co., as shown by the records of assignments in this office; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 5th day of May, A. D. 1931.

(Seal)

M. J. Moore,
Acting Commissioner of Patents.

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