Introduction

For centuries the clavichord flourished in Europe as a favoured means of expression for intimate music, a beloved confidant, and as an irreplaceable guide in the study of all keyboard instruments. With its unique expressive qualities it lived to rival for a time the rise of the fortepiano, and it was only in the mid-nineteenth century that it ceased to be of any importance in the musical world. This eclipse was to prove of brief duration; by the 1880s a handful of passionate musicians with a keen interest in the forgotten instruments of the Renaissance and Baroque set out to revive the instruments and music from those times. By the 1960s the harpsichord was much in evidence, but the clavichord, whose delicate sound was not compatible with large concert halls, remained somewhat in the shadows. Moreover, clavichord enthusiasts, like the instrument they practised, were often isolated and introverted, and the lack of exchange which this circumstance engendered also contributed to the slower revival of the clavichord. While a number of texts and articles have been published in this century on various aspects of the clavichord, no comprehensive work compiling extant documentation drawn from the various countries of Europe has been undertaken.

The mass of information included herewith has been drawn from multifarious sources ranging from literary documentation to iconographical representations, and, though history can never be divided neatly into centuries, I have chosen to group the chapters in that way for the sake of clarity. By so doing a clear and concise history of the clavichord's evolution can be constructed from its modest beginnings to its culmination as a medium for the expressive extremes of the *empfindsamer Stil* in eighteenth-century Germany. This book serves not as a technical manual on clavichord building but rather as a history of the clavichord, a source book in English of much primary material only available in foreign languages and an accessible reference.

Morris Steinert, who figured among the pioneers in the clavichord's revival and whose collection of early instruments forms the basis of the Yale University Collection of Musical Instruments, aptly described those elements which, combined, give the clavichord its special soul, its unique expressive abilities and sensuality, and which have rendered it an instrument of fascination for centuries. In his *Reminiscences*, written in the 1880s, he says:

[In collecting old instruments,] I was not looking for developments, but for the germs of the instrument that gave expression to the musical effusions of the old masters, and that with inexpressible sweetness, elasticity of touch, indescribable colour, contained sufficient power to demonstrate to the music lover and enthusiast the spirituality that lay inherent in Bach, Handel, Scarlatti, and even Haydn and Mozart. In the soft and sweet-toned clavichord I recognized a germ of tremendous power, a germ which, if properly developed and brought out, would give to the world an instrument that would cover not only the requirements of the past, but the demands of the present as well.[1]

For those readers unfamiliar with the basic components of the clavichord – necessary for understanding the technical aspects presented in this book – a brief description follows (a list of technical terms in five languages can be found in Appendix 2, pp. 295–6 below).

In spite of the evolution that clavichord construction underwent from its beginning in the fourteenth century to its final form in the late eighteenth century and first half of the nineteenth, the general structure and the mechanism of the instrument remained nearly unchanged. This makes a general description of the technical components of the clavichord easier to present.

The clavichord's case is usually rectangular, and in some rare instances polygonal; the right side is occupied by a *soundboard* of varying dimensions; the left and central section houses the *action* of the instrument, that is its *keyboard* and the *keylevers* which extend from the *keys*. The *keyfronts* are often decorated by small *arcades*. The *strings* are stretched from left to right, attached along the left wall, and in larger instruments along the *spine*, to a *hitch-pin block* and a *hitch-pin rail*; they pass over a *bridge* (or several partial bridges) located on the soundboard, and are attached on the right to *tuning pins* inserted through the soundboard into a *wrestplank* located along the right wall of the instrument (and on larger clavichords, across its rear right corner). The bridge is most often provided with small bridge pins, which hold the strings in place.

The left end of the soundboard rests on a *belly-rail*, that is, a block placed across the instrument from front to back, and in which an opening has usually been cut out. On its right side, the soundboard is supported by the wrestplank, and along the front and back by *liners* glued to the front wall and inside of the spine. To further reinforce, or stiffen, the soundboard *ribs* are generally glued in variable places underneath it. A *cross-bar* might be glued on the underside of the soundboard, directly under the bridge and intersecting it. A *cut-off bar* might also be glued running parallel to the bridge. On earlier instruments the keyboard often protruded from the front of the clavichord; more commonly it is enclosed within the case walls. It is surmounted by a *nameboard* (on which, on later instruments, makers would often inscribe their name), and on its two

ends by *cheekpieces*. The keylevers pivot on *balance-pins* inserted into a *balance-rail* running under them from the *hitch-pin block* to the belly-rail (occasionally extending beyond the belly-rail and under the soundboard). The rear extremities of the keys rest on a *back rail* placed along the spine. They are generally held in place by a *rack*, that is a board, usually glued against the hitch-pin rail, which has *slots* in which *rack tongues*, inserted into the rear extremities of the keylevers, can slide. Other guiding systems, found on later instruments, will be described further on. The four sides of the clavichord were generally assembled with dovetails. They were either glued on top of the *bottom-board*, or, on Italian instruments particularly, around this bottom-board. Instruments were decorated with *mouldings* on their top edge, as well as around the bottom-board, and often the soundboard. A lid covering the entire surface of the instrument was either constructed in one single piece, hinged onto the spine, or with a flap so that only the keyboard could be exposed. A separate board, the *fallboard*, was sometimes used to close the opening on the front of the *keywell* (space containing the keyboard). The small area on the left of the keyboard was often used as a *toolbox*, closed by a lid (for spare strings, tuning-hammer, etc.).

The mechanism of the clavichord is extremely simple: the strings are struck by small metal blades, the *tangents*, which are inserted perpendicularly at the far end of the keylevers. When a key is pressed by the player's finger, the rear extremity of the keylever rises, and the tangent hits the strings. The clavichord is thus a percussion instrument, unlike the harpsichord, in which the strings are plucked by small quills fixed on jacks which rise when the keys are depressed.

The hammers of the fortepiano, as well as the quills of the harpsichord, fulfil a single function: they set the strings in movement, making them vibrate and produce a sound in turn amplified by the soundboard of the instrument. Once the hammer of a fortepiano or the quill of a harpsichord has contacted a string, it immediately leaves it to vibrate freely on its own. The entire length of the string, from the nut to the bridge, vibrates on both these instruments. The pitch of the different notes is determined by the length of the various strings, their diameter, and their tension, which is regulated by the tuning pins.

In contrast, the tangents of the clavichord fulfil two functions: they act as a percussion element, similar to the hammers of the fortepiano, but they do not leave the strings once they have struck them. Instead, they remain in contact with them throughout the duration of the sound. In so doing, they divide the strings into two sections: the section from the hitchpin to the point of impact is damped by a strip of cloth (*damping cloth*), while the sounding part of the strings (their *speaking length*) is determined by the striking point of the tangent and the bridge. Once the key is released, the tangent leaves the strings,

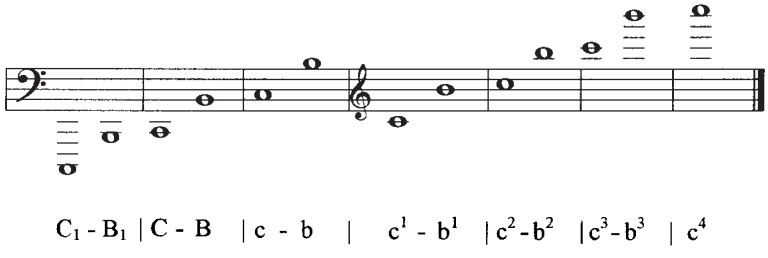
the vibrating section contacts the muted portion of the strings (damping cloth), and the sound is immediately silenced. The damping strip of cloth woven between and around the strings along the hitch-pin block and hitch-pin rail is sometimes covered with a small board (the *damping board*, or *listing board*), which may add some extra stiffness to the strings.

The pitch of the sound on a clavichord is therefore determined by the following factors:

1 the diameter of the strings
2 the material or density of the strings
3 their tension (regulated by means of the tuning pins)
4 the vibrating length (or speaking length) of the strings, which is determined by the striking point of each tangent and the bridge.

With this simple mechanism, several notes can be produced by the same *string course*, that is, two or more strings tuned to the same pitch (clavichords were most often double-strung), by having several keylevers strike it at different places. Clavichords built with this system of more than one key per string course are called *fretted* clavichords. Instruments with one string course per key, similar to the harpsichord or the piano, are designated as *unfretted*.

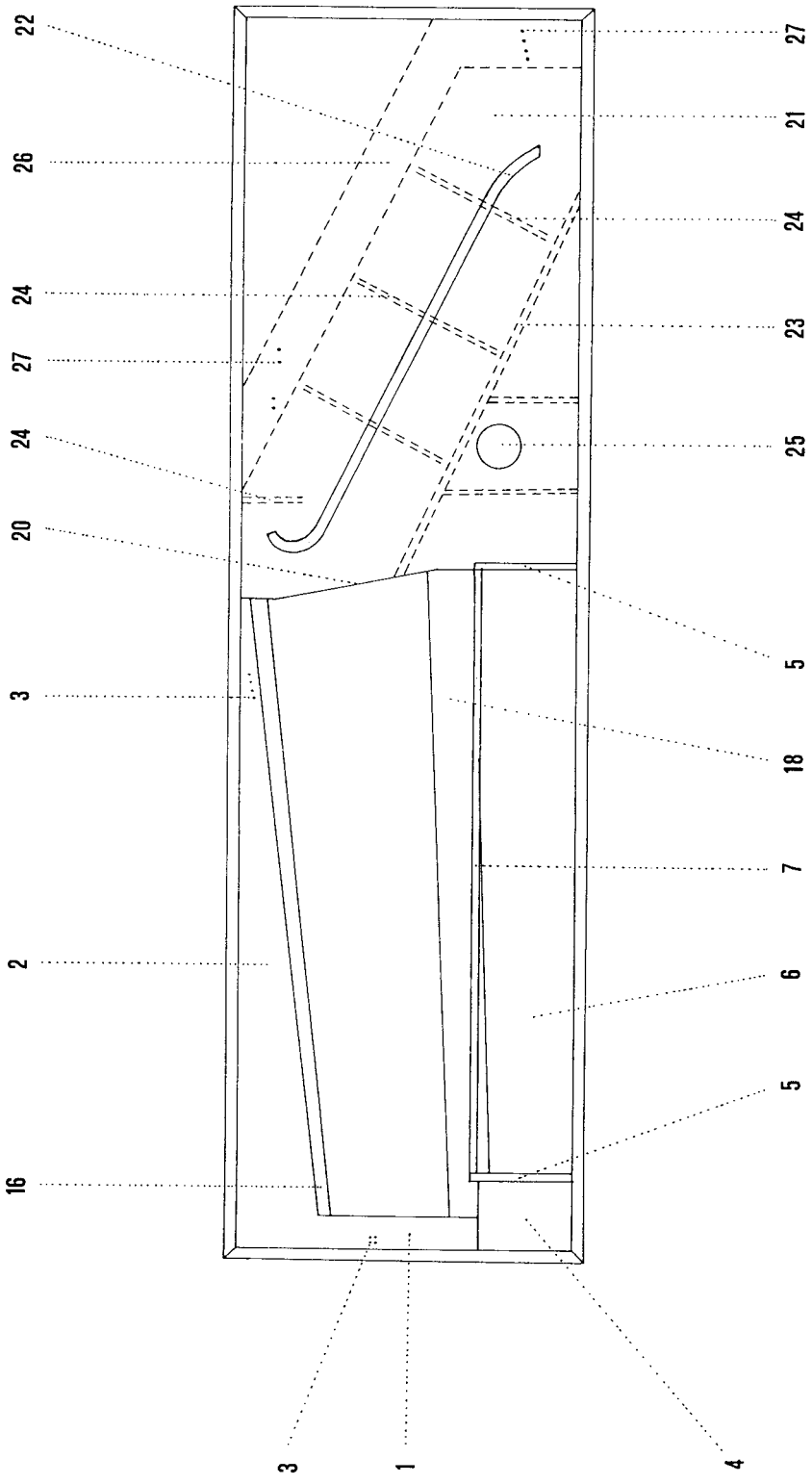
Please note that throughout this text the octaves of the keyboard will be designated in the following manner:

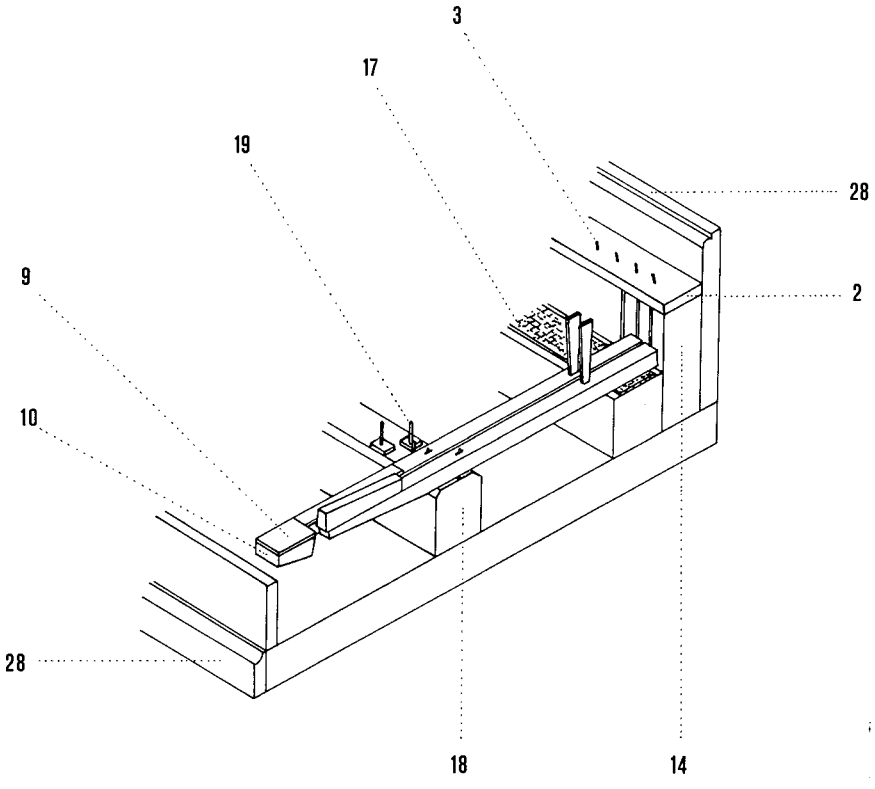


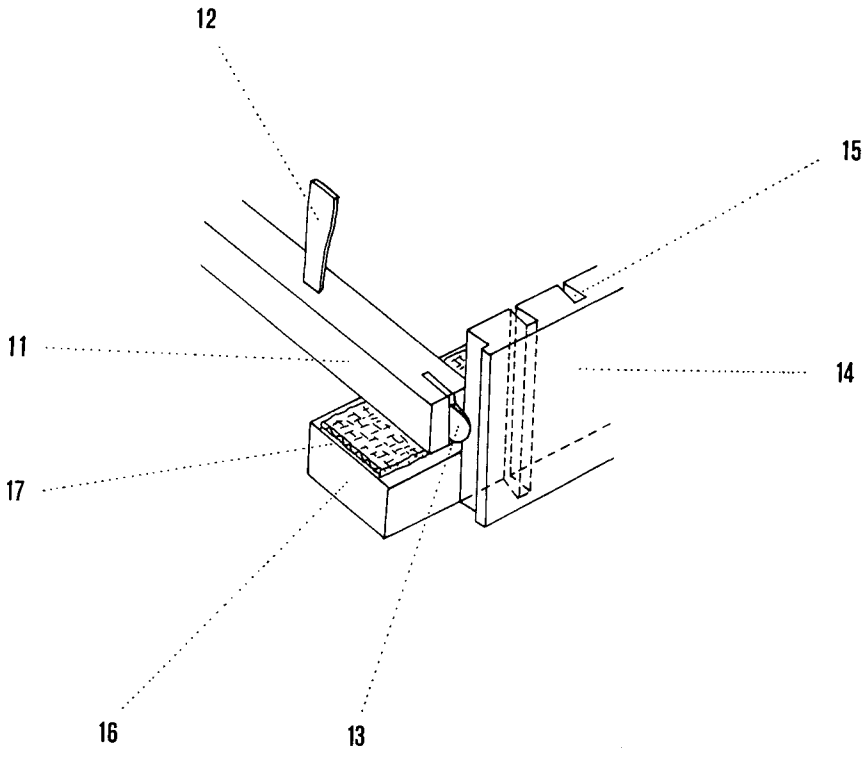
The *short octave*, that is, an incomplete first octave in the bass, is notated as follows:

C/E, meaning that key E sounds C, keys F♯ and G♯ sound D and E respectively, and C♯, E♭, F♯ and G♯ are omitted;
G/B, meaning that key B sounds G, keys C♯ and E♭ sound A and B respectively, and G♯, B♭, C♯ and E♭ are omitted.

Strings in the bass are sometimes overspun with a thin metal wire (usually copper), in order to increase their weight without adding to their stiffness. Such strings are called *overspun* or *covered strings*.







1. Hitch-pin block
2. Hitch-pin rail
3. Hitch-pins
4. Toolbox
5. Cheekpieces
6. Keywell
7. Nameboard
8. Keys
9. Keytops
10. Keyfronts
11. Keylevers
12. Tangents
13. Rack tongues
14. Rack
15. Slots
16. Back rail
17. Woven cloth
18. Balance-rail
19. Balance-pins
20. Belly-rail
21. Soundboard
22. Bridge
23. Cut-off bar
24. Ribs
25. Rose
26. Wrestplank
27. Tuning pins
28. Mouldings

1 · Origins of the clavichord

It is often extremely difficult, if not impossible, to determine when, where and how an instrument first appeared. In many cases, its invention has been the result of multiple and sometimes simultaneous attempts, inspired or influenced by the assimilation of elements of foreign cultures brought to a country or a continent by invasions, migrations or political and commercial exchange. Legends and traditions are often attached to the origins of a musical instrument, many alluding to its symbolic meaning in a particular religion or philosophy.

Sebastian Virdung, a German priest, theorist and composer as well as the author of the first printed manual on musical instruments, *Musica getutscht* (Basle, 1511), admitted that he knew neither who was the clavichord's inventor nor who gave it its name. He assumed the instrument to have evolved from the monochord, which he said had been invented by Guido of Arezzo.[1] This legendary monk, who lived from 991 or 992 to after 1033, enjoyed extraordinary fame as a pedagogue in the Middle Ages; he used the monochord to teach the gamut and musical intervals, and developed a new method of learning a melody by matching the notes of the scale with the initial syllables of each section of a hymn to St John, thus devising the solmisation still in use today:

Ut queant laxis,
Resonare fibris,
Mira gestorum,
Famuli tuorum,
Solve polluti,
Labii reatum,
Sancte Iohannes.

The evolution of the monochord to the clavichord was the generally accepted theory of the clavichord's origins and can be witnessed in the language itself: the term 'monochord', with all its variants (*monachord, manichord, manichordion*, etc.), was commonly used until the end of the eighteenth century in languages of Latin origin to designate the clavichord. In his treatise *Declaración de Instrumentos Musicales* (1555), Juan Bermudo says that the term 'monochord' may have continued to be applied to the clavichord 'out of respect' for the former, from which it was derived.[2]

The monochord

In its most primitive form, the monochord[3] consisted of a rectangular plank on which a single string was stretched by a tuning pin or a weight. This string was supported by two fixed bridges. A third, movable bridge could be slid to any point under the string, dividing it into two sections in order to obtain different pitches. It is said that Pythagoras, the famous Greek philosopher of the sixth century BC, invented this instrument in order to illustrate mathematically his theory of musical intervals and harmonics. Quintilian (first century AD), in book 3 of his *Institutio oratoria*, says that Pythagoras, on his death-bed, besought his disciples to use the monochord in order to understand the art of music by means of mathematics. Euclid of Alexandria, in about 300 BC, was the first to describe the various divisions of a string, in his *Katatomé kanónos*, that is, the divisions of the *kanón*. *Kanón* was the first name given to the monochord, and later became the name for the Arab instrument known as the *qanun*. The first occurrence of the term 'monochord' can be found in Nicomachus of Gerasa's *Handbook of Harmonics*, at the end of the first or the beginning of the second century AD.

Later, in the Middle Ages, a rectangular soundbox was substituted for the plank, producing a louder sound. Nevertheless, the monochord does not seem to have played a significant role as a musical instrument in antiquity or in the early Middle Ages, when its importance was principally in its use as a theoretical instrument. Most music theorists attributed the discovery of consonances and the invention of the monochord to Pythagoras. Nicomachus was the first to describe it with precision, and later Ptolemy (after 83–161), the Greek mathematician, who spent most of his life in Alexandria, gave further details about the bridges in his work *Harmonika*. Boethius (*c.* 480–*c.* 524) in his *De institutione musica* speaks of the monochord not as a musical instrument but as a means of determining consonances and scales, as well as an aid for intonation in plainsong. An anonymous, tenth-century treatise from Northern Italy entitled *Dialogus*, wrongly attributed to Odo of Cluny, deals with the division of the monochord, and reports that this instrument was also used to learn new songs; students could soon find the right notes by looking at the scale on the monochord, without even plucking the string. In the treatise *Musicae Rudimenta*, published in Augsburg in 1516 (and often erroneously attributed to Nicolaus Faber, whose only contribution was a recommendation to the reader on the first page), the theorist Johann Turmair, or Johannes Aventinus, described the uses and advantages of the monochord:

> The uses of the monochord are: it teaches all the tones by touch; by touch it examines all song. It teaches legitimate sound by the finger and ear. It places before the eyes the causes of all things that pertain to music. Without a knowledge of this you can by no

means become a skilled musician, and you will not understand many things in Aristotle and the other philosophers. It is a semi-mute teacher, worthy of admiration, since it knows nothing yet teaches everything. It is most patient, and teaches without blows and indignation. It does not get angry at the slowness of your intelligence. It is ready whenever you choose, the easiest and most artistic of all musical instruments.[4]

Walter Nef[5] demonstrated that it was a mistaken interpretation of theoretical texts which led Sigfrid Wantzloeben[6] to assert that monochords with several strings were built in the Middle Ages. For example, Theogerus of Metz (*c.* 1050–1120), in his treatise *Musica*, speaks of the monochord with 'octo chordae'. However, further on he said that the bridges sustained the 'string', clearly only one, and demonstrated that these 'octo chordae' were eight notes, and not eight strings. The same error occurred again when Wantzloeben, in his interpretation of a passage of Johannes de Muris's *Musica speculativa* (1323), understood this theorist to be demonstrating a nineteen-string monochord, when actually he was giving a diagram for the division of one string into nineteen segments. The contexts in which these monochords were mentioned unequivocally proves that the term *chorda* was understood as 'note', and not as 'string'. Later, in the early fourteenth century, monochords with multiple strings appeared; however, the name 'monochord' was given to such instruments only because all the strings were tuned in unison.[7]

Representations of the monochord used as an instrument of musical theory are to be found from the twelfth century on. An anonymous drawing in the Österreichische Nationalbibliothek shows Guido of Arezzo and his pupil Theobaldus before a monochord, Guido plucking it with two plectra (Plate 1.1). Letters representing seventeen notes can be discerned on the side of the monochord. A twelfth-century manuscript of the *De institutione musica*, in the Cambridge University Library, shows Boethius playing a monochord (Plate 1.2); he holds the instrument on his knees, and is plucking it with the right hand. Here again, letters indicating the notes are written on the side of the instrument. Another representation is found in the treatise of Lodovico Fogliani, *Musica theorica*, published in Venice in 1529 (Plate 1.3), in which an anonymous woodcut shows a young man adjusting two movable bridges under the string of a large monochord with twenty-seven notes marked on its soundboard.

The monochord was further perfected in the sixteenth century by the addition of various mechanisms to facilitate the sliding of the movable bridge under the string. An example of such an instrument can be seen in the *Theatrum Instrumentorum* of Michael Praetorius, published in Wolfenbüttel in 1620, as an appendix to the second volume of *Syntagma Musicum* (Plates 1.4 and 1.5). In the third volume of his *Harmonie Universelle*, published in Paris in 1636, Marin Mersenne described a monochord with three strings all of which