Catalogue no. 2004.819
Grand Piano, William Stodart, London, c.1828.

Inscriptions
Nameboard *Patent / William Stodart & Son / Makers to His Majesty & the Royal Family / Golden Square / London* ; in very faint [?] pencil at the LH end of the wrestplank *T – 7- 6* ; in pencil on butt of CC hammer *8726*

Dimensions
Length 2207; width 1234; height 327; height (less lid) 303; height of keyboard from floor 692; height of stand 602; measurements of sides (less mouldings), spine 2190; tail 470; bentside (corner to corner) 1535; cheek 693; top of case to soundboard 87; spine/tail angle 67º

Keyboard
Natural covers of ivory, sharps of ebony, and moulded fronts of holly. Compass CC – f ^{4}; width of keyboard 1071; standard measure 489; length of natural heads 43.5; length of sharps 89; height of sharps above naturals 9.6; width of sharps, top surface 10.5, at base 12.5

Action
English Grand action (see Broadwood Grand 1808.Catalogue no. 2004.2024).
The hammer butts mounted on shared axle wires, arranged in six sections under six brass 'comb' plates. No weighting in keys.
Hammer to string, bass 47, treble, 47; front of key to balance pin 214; front of key to hopper 353; hammer, pivot to head, bass 145, treble 138; hammer, pivot to notch 10.
Sprung under-dampers to c ^{3} inclusive (did go to c# ^{3}) of four pieces of woollen cloth, three white and one red layer.

Pedals and stops

Two: Left, *Un corda / due corde* shift, with sliding bolt in treble key-block; Right, Dampers.

String lengths and strike points

Note	String length	Strike point
CC	1639	200
FF	1604	189
C	1449	172
F	1206	164
c	1024	130
f	791	103
c^{1}	548	71
f^{1}	423	55
c^{2}	290	36
f^{2}	219	28
c^{3}	148	21
f^{3}	110	15
c^{4}	75	12
f^{4}	57	4

CC to EE bichord close wound; FF to G# trichord brass; A to f^{4} trichord steel. Wrest-pins drilled.

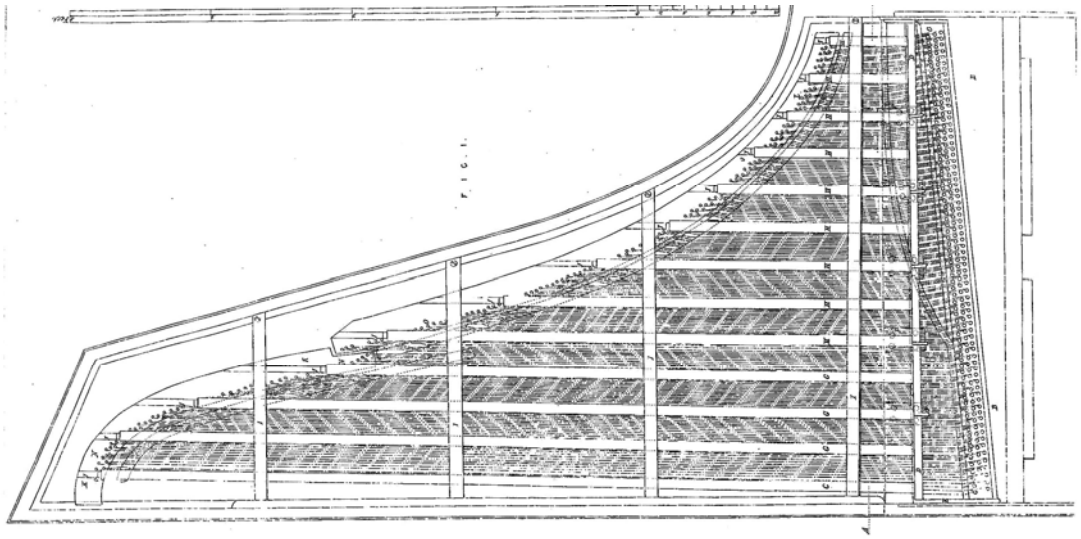
Soundboard and structure
Soundboard of spruce, 6.9 thick at front edge, with grain diagonal, c.70º to header. Bridge in two sections, double pinned throughout. Six soundboard ribs, running nearly perpendicular to the grain direction of the soundboard, and a short cut-off bar. Bridge/soundboard joint strengthened with screws from below. Oak rim braced with five transverse frames and another from tail/spine corner to the header, forming an 'A' frame, all of coniferous wood. Bottom open below the soundboard.
The metal structure above the soundboard consists of nine tubes, six of iron and three of brass [Ø 24.5, c1.9 thick]. To prevent flexing of the tubes there is a transverse framework of five mahogany bars connected to the main wooden framing by eight, threaded, iron stays passing through holes in the soundboard. The distal ends of the tubes fit onto brass brackets bolted to the solid brass hitch plate, and the proximal ends abut a steel bar above the wrestplank. This bar is anchored to the case sides and to the wrestplank by five iron brackets.

Decoration
Case veneered in rosewood with the edge of lid and lower edge of the case outlined in turned egg-and-dart quadrant mouldings. Main lid with single flap, and quadrant-section keyboard cover pivoting on iron arms with their pivots and springs in the baseboard below the key-blocks. Music desk with sliding candle stands. Four turned legs with foliate carving and brass socket castors. Pedal-lyre (without backstay) and pedals are of rosewood.

Commentary

The replacement of modern felt hammers on this piano with more historically appropriate hammer coverings was made possible by a grant from the Leche Trust.

The name of Stodart is as significant in the history of the piano in Britain as that of Broadwood. Robert Stodart's 1777 patent for a combination harpsichord/piano is the first depiction of the English Grand action invented by Americus Backers, and which is the mechanism still found in this instrument.
By the 1820s the search for improved tuning stability, and the increased tension of thicker strings used in the pursuit of greater volume and sustaining power, made the introduction of more metal into the structure of pianos inevitable, but resistance to it was both aesthetic and practical, despite the load instruments had to withstand increasing from around 2,000kg in 1800 to nearer 9,000kg by the 1830s. It seemed inappropriate to intrude cold and heavy iron into the centuries-old intimacy of strings and resonating wood, and many makers were still using no more than an unavoidable minimum in their instruments. William Stodart developed the ideas of James Thom and William Allen, found in their important patent of 1820, to produce a Grand piano with the first, almost, complete metal frame to withstand the tension of the strings. To quote from Thom and Allen's patent specification: *The object of our ... Invention is to lessen the tendency of pianofortes to get out of tune from the swelling and contracting of the wood they are composed of... and the manner in which we intend to carry this Invention into effect is, by taking the strain of the wire strings off the wooden frames of the ... instruments, to which they are affixed at only one end, and keeping them stretched by means of brass and iron wires, rods, plates, bars, or tubes properly applied to their other ends, so that the strings will be but little affected in their tension by moisture or dryness, heat or cold.*



Plan view of Thom and Allen's Compensation frame from the patent drawing of 1820. In practice fewer tubes were used.

Thom, Allen, and Stodart devised a frame that was a highly influential, and a major conceptual change in the piano's history. Realising that mixed wood and metal structures were uneven compromises, they created an ingenious fabricated iron and brass frame which resisted string tension almost alone, while the wooden structure, as far as possible, simply gives the frame rigidity and supports the soundboard. To reduce weight Thom and Allen had the idea of exploiting the great strength of metal

tubes in compression, if they are prevented from flexing - hence the transverse mahogany retainers over the tubes. Thom and Allen's solution is, in essence, the structural principle of the modern piano, despite its very different appearance. The closer the tubes, or any other bracing system, can be brought to the level of the strings the greater its efficiency, but this causes problems in accommodating the usual over-dampers of the English action, which rest on top of the strings, so Stodart placed his dampers below, where they are pressed against the strings by springs, instead of gravity.

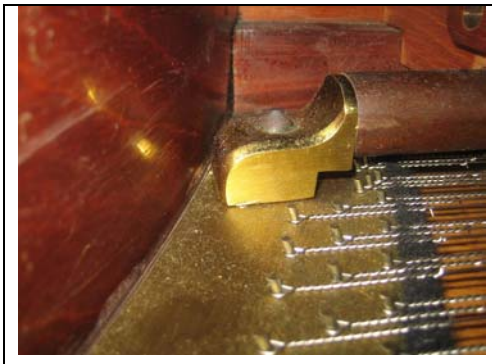
This metal frame has an ingenious refinement, less successful than the overall concept, but which is the origin of the name of this type of instrument - the 'Compensating Grand'. Pianos at this date were still strung in two metals; brass in the bass, and the rest of the compass in steel, and because they expand and contract differently with changes in temperature, it was thought that by putting brass tubes above the brass strings and iron tubes above the steel strings this inequality could be 'compensated' for. There was not a great deal of benefit gained from this innovation so in later models the tubes are all of iron, and in this form the type continued in production until the 1850s.

Stodart's concept was very influential with other makers, especially Erard, but they preferred a system less complicated in fabrication and appearance, using solid iron bars instead of tubes. It was on the other side of the Atlantic that the logical next step was taken; in Boston Alpheus Babcock patented a one-piece cast-iron frame for square pianos in 1825. In the 1840s this was adapted for Grands by Jonas Chickering, marking the beginning of American innovative pre-eminence in the creation of the modern piano.

The true *una corda* is still available on this instrument, and a small sliding bolt in the treble keyblock allows the player to choose between the left pedal moving the keyboard and action to play either *una corda* or *due corde*; that is the hammers strike either one or two of the three strings, while the un-struck strings vibrate in sympathy.

Detail of brass tube attachments at tail

Detail of checks

	
Detail of tube attachment to hitch plate in the treble	Detail of tubes and transverse wooden braces
	
Tubes and hitch plate in bass	Name plaque
	
Tubes and transverse brace in treble	Under-dampers