US Patent No. 5,973,247 to Matthews, describes The "Portable Steel Drums and Carrier" a device that is comprised of two steelpan drums with eighteen notes on a harness and mount, designed for the carrying of two steelpan drums mounted upon the human body. The invention thus disclosed does not cover the entire musical range, nor does it extend the range of the traditional steelpan, nor does it give consideration to the optimum design of the playing surface, rim and skirt of the steelpan drums used, nor does it consider the design of the skirt to effect sound propagation.

US Patent No. 6,750,386 to King, describes The "Cycle of Fifths Steelpan," a steelpan which uses a note layout based on the cycle of fourths and fifths. The invention thus disclosed, differs from the prior art only by way of the layout of notes, such that they progress in musical fifths intervals in a counter-clockwise direction, whereas the traditional tenor steelpan as well as the invention described in this document places notes progressing in musical fifths intervals in a counter-clockwise direction. The invention thus disclosed does not cover the entire musical range, nor does it extend the range of the traditional steelpan, nor does it give consideration to the optimum design of the playing surface, rim and skirt of the steelpan drums used, nor does it consider the design of the skirt to effect sound propagation.

US Patent No. 6,212,772 to Whitmyre and Price, the "Production of a Caribbean Steelpan" describes a manufacturing process to facilitate mass production of the steelpan musical instrument by hydroforming the playing surface. The process also allows for providing the instrument with a means to easily detach the skirt to facilitate maintenance, portability and changes in tonal characteristics. However, the description in said aforementioned patent, does not disclose an instrument that extends the range of the traditional steelpan, nor does it reduce the number of steelpans required in an orchestra, nor does it give consideration to the optimum design of the playing surface, rim and skirt of the steelpan drums used for the reduction of non-musical resonances, nor does it consider the design of the skirt to effect sound propagation, nor does it treat with the issue of how the steelpans are to be suspended.

In particular, whereas in the prior art, steelpan quality was subject to the inconsistencies of drums and barrels that could be accessed by tuners, but which were fabricated for the express purpose of packaging, the ensemble of the present invention features a playing surface that is significantly improved through use of certified high quality steels, specifically selected for its manufacture.

In addition, the playing surface is of a compound design to support the creation of notes in the upper musical ranges. The present invention noticeably breaks with the traditional consideration of a drum as an integral entity, treating with said drum, instead, as an item that is constructed from three separate components after deliberate and careful design of said components of the instrument, for optimization of function and in so doing, overcomes the heretofore mentioned disadvantages of the prior art..

Summary of the Invention

According to an aspect of the present invention, there is provided an ensemble comprising four or fewer acoustic steelpan musical instruments,

wherein the ensemble is capable of covering the entire musical spectrum of G_1 to B_6 and a plurality of at least eight additional semitones, superfluous to the requisite musical range of A_1 to F_6,

wherein the four instruments comprise a soprano instrument, a second instrument, a mid instrument and a bass instrument,

wherein the soprano instrument comprises one drum and is configured to span the musical range C_4 to B_6, the second instrument comprises two drums and is configured to span the musical range D_3 to $C^{\#}_6$, the mid instrument comprises three drums and is configured to span the musical range A_2 to $G^{\#}$ and the bass instrument comprises six drums and is configured to span the musical range G_1 to C_4, and

wherein each instrument has a playing surface having an area of

$$S_{instrument} = kS_{B1}\alpha^{J}\left(\frac{1-\alpha^{n}}{1-\alpha}\right),$$

where S_{B1} is the area of a B_1 note, α is the ratio of the area between consecutive notes, typically 0.93, n is the number of notes on the playing surface and, for the playing surface in the form of a spherical bowl mutatis mutandis, the radius of said playing surface is

$$r = \sqrt{\frac{S_{instrument}}{\pi} - d^{2}}$$

where d is the depth of the bowl that forms the playing surface, and the number of drums of an instrument is given by $n_{drums} \geqq S_{instrument}/S_{soprano}$.

The present invention improves upon the traditional acoustic steelpan instrument, primarily through deliberate application of music, appropriate metallurgical and