Brief Description of the Invention

According to a first aspect, there is provided a method of displaying multiple image streams for entertaining multiple viewers, comprising: generating an interleaved image stream from a plurality of image sources, wherein the interleaved image stream comprises a plurality of cycles that each comprise a plurality of image frames; generating a common image frame corresponding to each of the plurality of cycles of the interleaved images stream, wherein each common image frame is generated by combining the plurality of image frames of the corresponding cycle and then subtracting portions that are not common to the plurality of image frames of the particular cycle to produce one or more blank spaces; projecting each corresponding common image frame onto a display using a first projector while projecting, into the one or more blank spaces of each projected common image, the corresponding cycle of the interleaved image stream using a second projector.

According to a second aspect, there is provided a system for displaying multiple image streams that entertains multiple viewers, comprising: an image multiplexer configured to interleave at least three image streams to produce an interleaved image stream comprising a plurality of cycles, wherein each cycle of the interleaved image stream comprises a plurality of image frames; an image source configured to generate a background image frame corresponding to each of the plurality of cycles of the interleaved image stream, wherein each background image frame includes common portions of the plurality of image frames of the corresponding cycle and includes blank spaces for dissimilar portions of the plurality of image frames of the corresponding cycle; a first projector configured to project each background image frame on a display; and a second projector configured to project each corresponding cycle of the interleaved image stream into the blank spaces of each projected background image frame on the display.

Disclosed herein is a~~A~~ device for displaying multiple image streams comprising multiple image frames that entertains multiple viewers comprises at least three image generators for generating at least three separate image streams each comprising multiple image frames and wherein at least one image generator is configured for at least one viewer input. An image multiplexer is provided for interleaving the image frames of each image stream to produce an interleaved image stream and a display is provided for showing the interleaved image stream.

According to one ~~particular aspect~~embodiment of the invention, a filtering mechanism is also provided that comprises at least one shutter that is synchronized to the display of the desired frames in the interleaved image stream. The filtering mechanism is interposed between the viewer and display medium.

In another ~~particular aspect~~embodiment of the invention, the interleaved image stream is superimposed on a background image stream that is visible to all viewers. When multiple image projectors are used to combine the images for viewers, the images from other projectors may be subtracted out prior to projection so as not to cause distortion in the combined image. The combination of a background image stream and a selected subset of filtered image streams is passed by the viewer's filtering mechanism, such as a shuttering filter.

In another embodiment of the invention, a method of displaying multiple image streams comprising multiple image frames for entertaining multiple viewers, comprises generating at least three separate image streams each comprising multiple image frames and providing for input from at least one viewer to one of the separate image streams; interleaving image frames of each image stream to produce an interleaved image stream; and displaying the interleaved image stream.

The various features of novelty which characterize the invention are pointed out with particularity in the claims annexed to and forming a part of this disclosure. For a better understanding of the invention, its operating advantages and benefits obtained by its uses, reference is made to the accompanying drawings and descriptive matter.