# SYMBOL DISPLAY DEVICE FOR GAME MACHINE

## BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates to a symbol display device mounted in a game machine, such as a roulette game machine. The symbol display device displays the win or the loss of the game by rotating and stopping rotational members having predetermined symbols.

[0003] 2. Description Related to the Prior Art

[0004] A symbol display device mounted in a slot game machine or a Pachinko game machine generally uses reels arranged in lines or in a matrix. Some symbol display devices use a liquid crystal display to simulate rotation of the reels. For instance, Japanese Patent Laid-Open Publication (JP-A) No. 2000-116843 describes a symbol display device that determines the win or lose in accordance with combinations of the symbols displayed on a rotary reel (first display) having a transparent window and a second display inside the first display. The second display is a liquid crystal display panel or another rotary reel having a diameter different from that of the first display. Additionally, U.S. Pat. No. 5,152,529 describes another example of the symbol display device that uses double structured reel composed of an outer reel having an opening and an inner reel disposed inside the outer reel. The game machines with the symbol display devices described above may change the symbols twice and provide a variety of symbol display patterns.

[0005] However, since the second display provided inside the first display is validated only when the transparent window or the opening stop on a predetermined winning line, which is not always happened, it is not possible to use the second display effectively. Accordingly, such symbol display devices have limitations to provide various display patterns of symbols. In order to provide various display patterns of symbols by use of the second display devices in the outer reels, all of the outer reels need to have transparent windows or the openings.

[0006] The symbol display device, described in Japanese Utility-Model Publication No. H07-22301, has three concentric rotary disks. The player wins if a predetermined combination of the symbols on the rotary disks is displayed in a radial direction. Such symbol display device may be more compact than that having mechanical reels arranged in lines or in a matrix. Such symbol display device, however, has insufficient display patterns in a game because a player can observe all the symbols. Thus, sufficient appeal to a player is not expected.

[0007] In order to solve the above problems, a symbol display device, described in JP-AH06-327807, has a first display device having a round rotator, for example, and a second display device having mechanical reels disposed inside of the round rotator. When a player plays a game machine that mounts such symbol display device, the first display device executes roulette game, and the second display device is operated if the player wins in the roulette game. If the player wins in the slot game executed by the second display device, the points gained by winning in the slot game is added to the points gained in the roulette game, so as to encourage the player's expectation to win. Although playing different games continuously may prevent a player from being dull, a game machine is not organized as the first and the second display devices are less associated with each other.

## SUMMARY OF THE INVENTION

[0008] An object of the present invention is to provide a symbol display device for a game machine that provides various display patterns associated with the game result.

[0009] Another object of the present invention is to provide a symbol display device that improves the appeal effect to a player.

[0010] In order to achieve the above objects, the symbol display device of the present invention comprises plural concentric main display units having display parts, and a sub display unit for displaying symbols in motion and/or a static symbol behind at least one of the light-penetrate area. The sub display unit is mounted on a rotary member provided concentrically with the main display units. The main display units and said rotary member rotate separately.

[0011] In a preferred embodiment, the display part is composed of at least one symbol area in which a symbol is provided and at least one transparent non-symbol area. The light-penetrate area is one of the non-symbol area, a transparent area inside the symbol, or a transparent area outside the symbol in the symbol area.

[0012] The main display unit may have at least one transparent part inside or outside of the display part. When the sub display unit is stopped in an overlap area where the light-penetrate area of one of the main display units is overlapped with the transparent parts of other main display units, the sub display unit displays symbols in motion and/or a static symbol behind the overlap area.

[0013] The sub display unit may display symbols in motion and/or a static symbol, when the light-penetrate areas of the main display units are stopped and arranged in line. In that case, the drive mechanism rotates the rotary member to the position where the sub display unit is overlapped with the light-penetrate areas arranged in line.

[0014] It is possible to overlap the symbol of the sub display unit with the symbol of the main display unit so as to form a single composite symbol.

[0015] According to the present invention, since the display patterns of two different games by the main display units and the sub display unit are associated with each other, it is possible to improve the appeal effect to a player.

## BRIEF DISCRIPTION OF THE DRAWINGS

[0016] One with ordinary skill in the art would easily understand the above-described objects and advantages of the present invention when the following detailed description is read with reference to the drawings attached hereto.

[0017] **FIG. 1** is a front perspective view of a slot machine in which a symbol display device of the present invention is mounted;

[0018] **FIG. 2** is a perspective view of the symbol display device;