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Hill et al.

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[54] **SYSTEM FOR USING A MICROPHONE IN A BASEBALL BASE**

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[73] Assignee: **Fox Sports Productions, Inc.**, Los Angeles, Calif.

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[51] **Int. Cl.**[6] **H04B 1/03**

[52] **U.S. Cl.** **455/66**; 455/91; 455/128

[58] **Field of Search** 455/66, 90, 575, 455/91, 95, 97, 100, 128, 344, 347, 351; 381/91, 361

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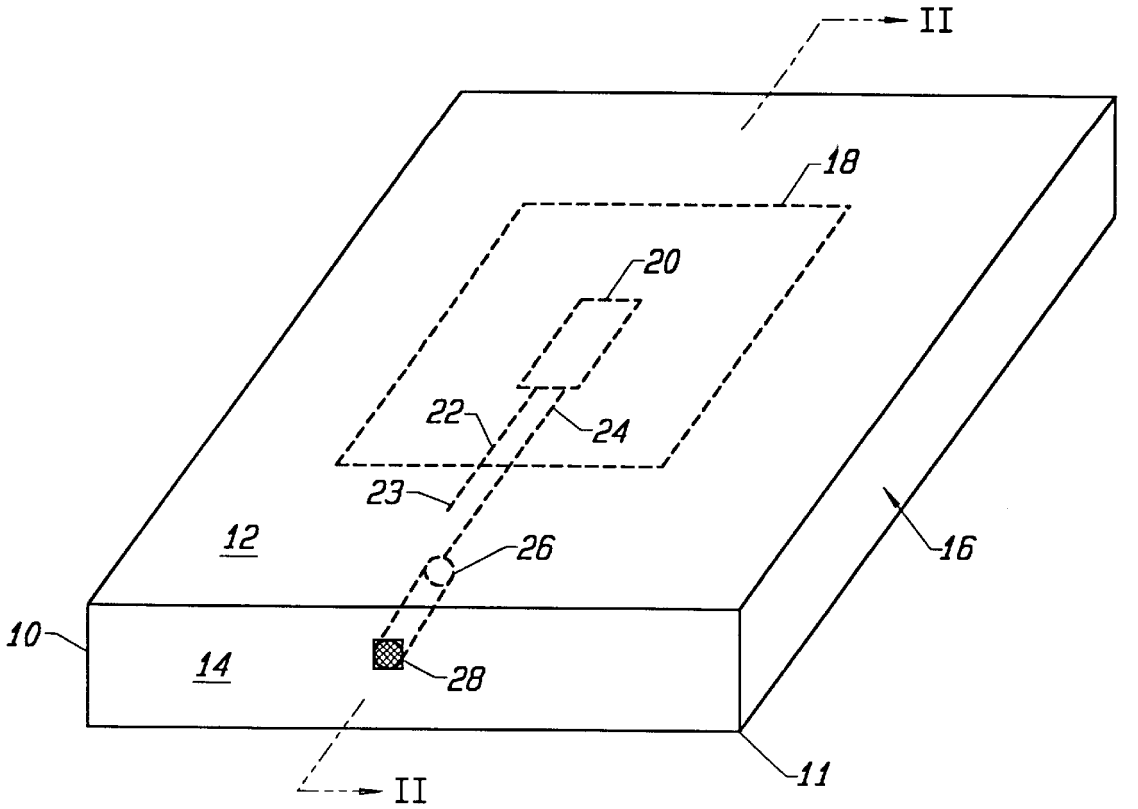
Primary Examiner—Wellington Chin
Assistant Examiner—Philip J. Sobutka
Attorney, Agent, or Firm—Fliesler, Dubb, Meyer & Lovejoy LLP

[57] **ABSTRACT**

A microphone and transmitter are mounted to a baseball base such that they do not interfere with the baseball game. The microphone senses audio data and the transmitter sends the audio data to a receiver. The receiver communicates the audio data to a mixer which can insert the audio data into a television or radio signal.

19 Claims, 4 Drawing Sheets



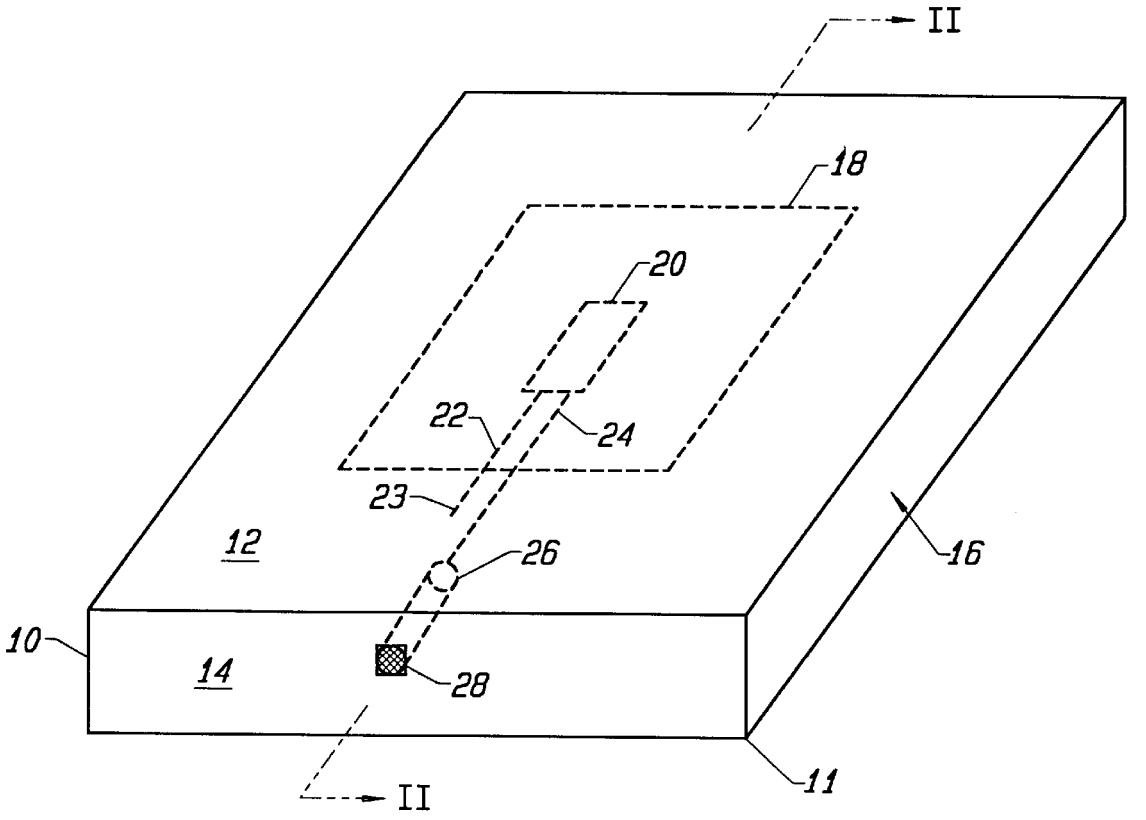
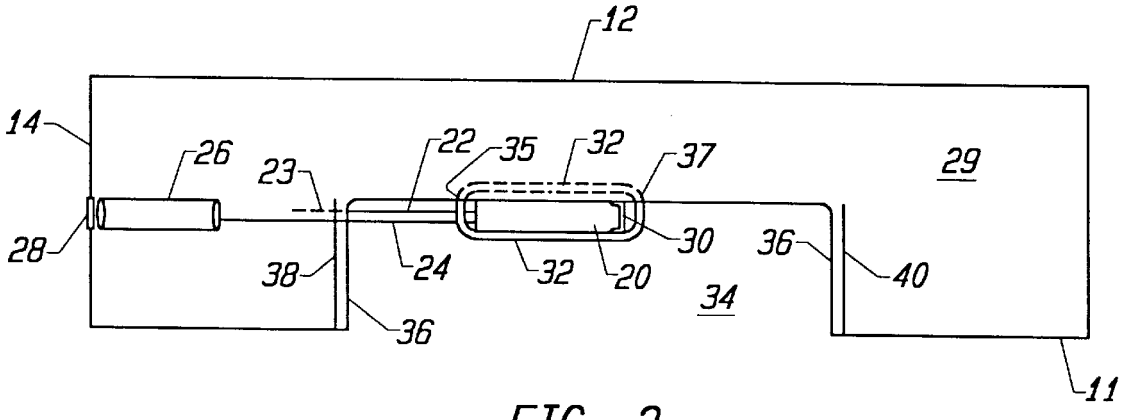

II
18
20
22
24
23
12
26
16
10
14
28
11
II

FIG. 1


12
14
26
23
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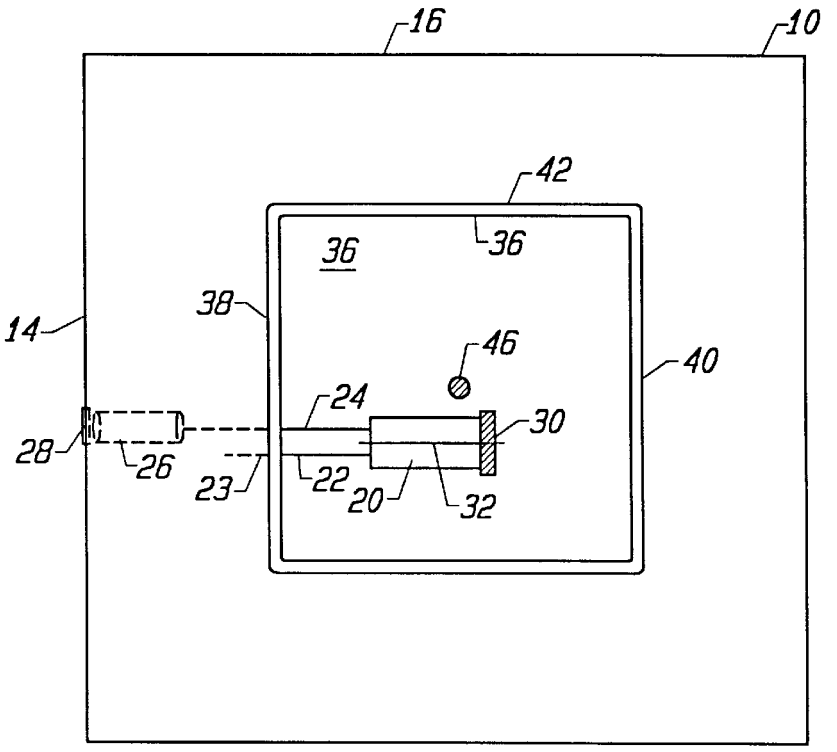
35
32
37
29
28
38
24
32
20
30
36
40
34
36
11

FIG. 2


16
10
42
36
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46
40
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30
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26
23
22
20
32

FIG. 3

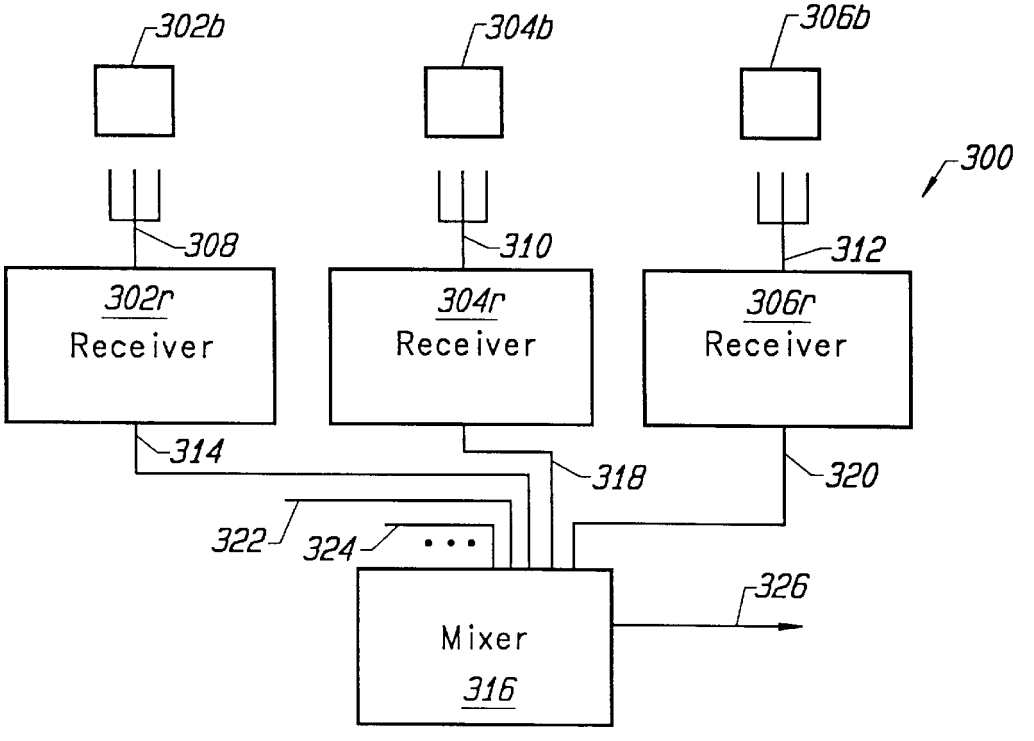
302b
304b
306b
300
308
310
312
302r
Receiver
304r
Receiver
306r
Receiver
314
318
320
322
324
326
Mixer
316

FIG. 8

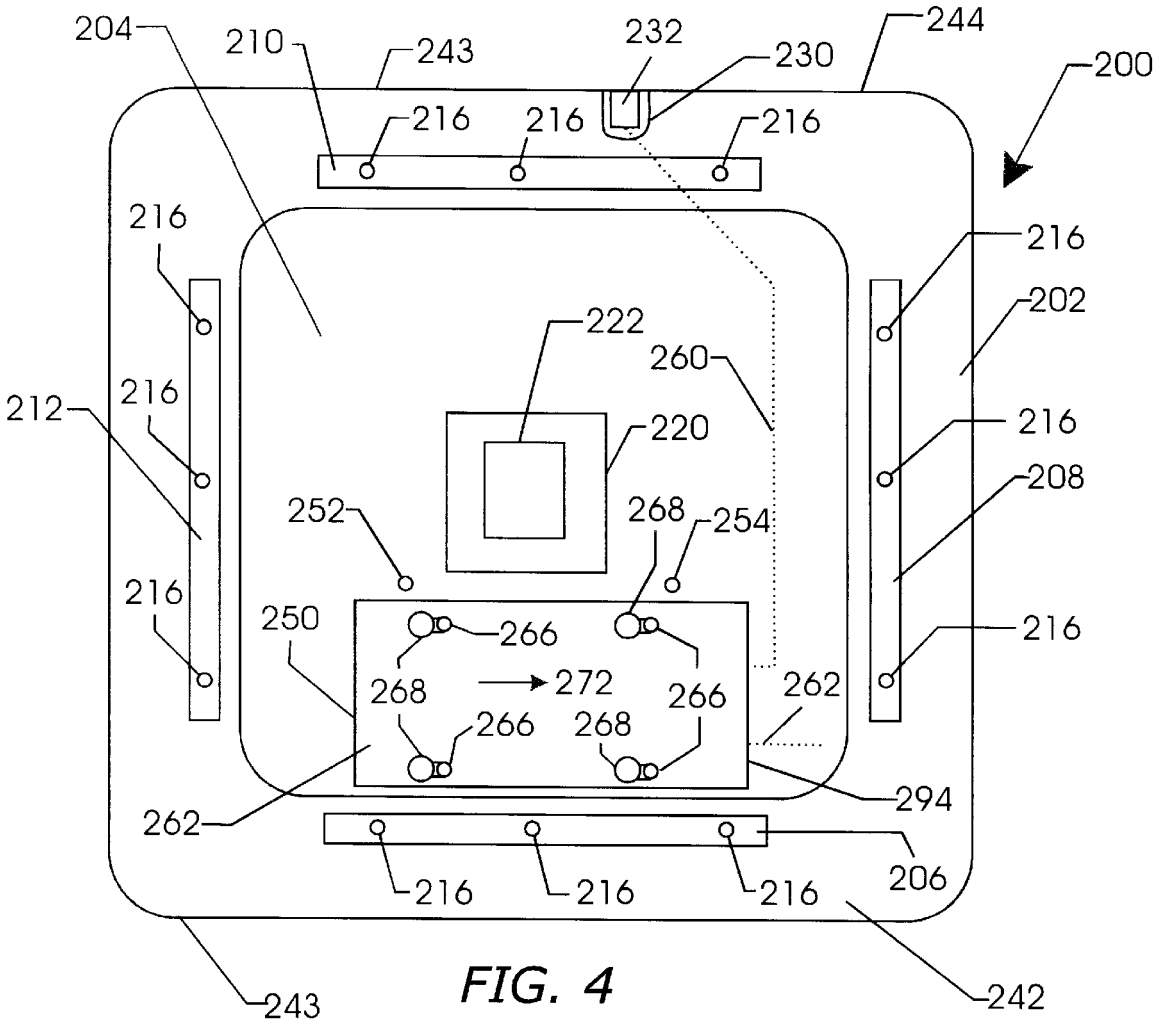
204
210
243
232
230
244
200
216
216
216
216
216
222
260
212
216
220
216
202
252
268
254
208
216
250
266
216
268
272
266
262
266
268
262
294
216
216
216
206
243
242

FIG. 4

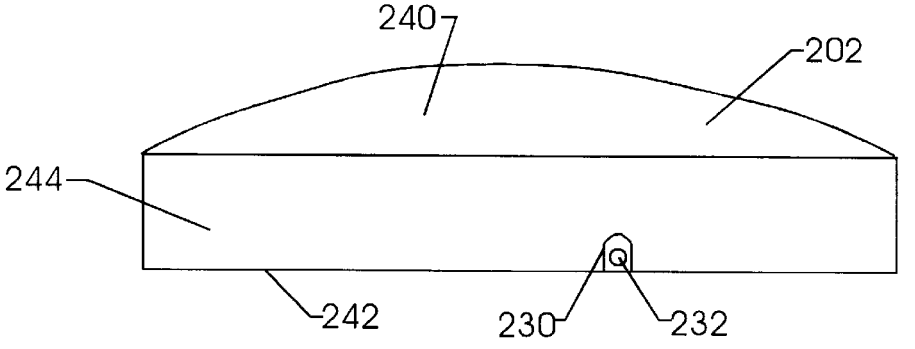
240
202
244
242
230
232

FIG. 5

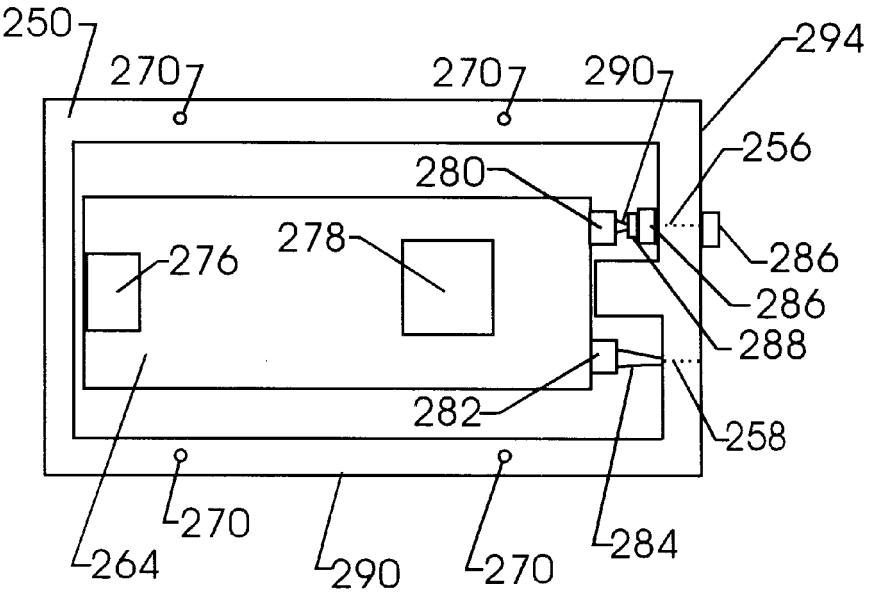
250
270
270
290
294
256
280
278
276
286
286
288
282
258
270
264
290
270
284

FIG. 6

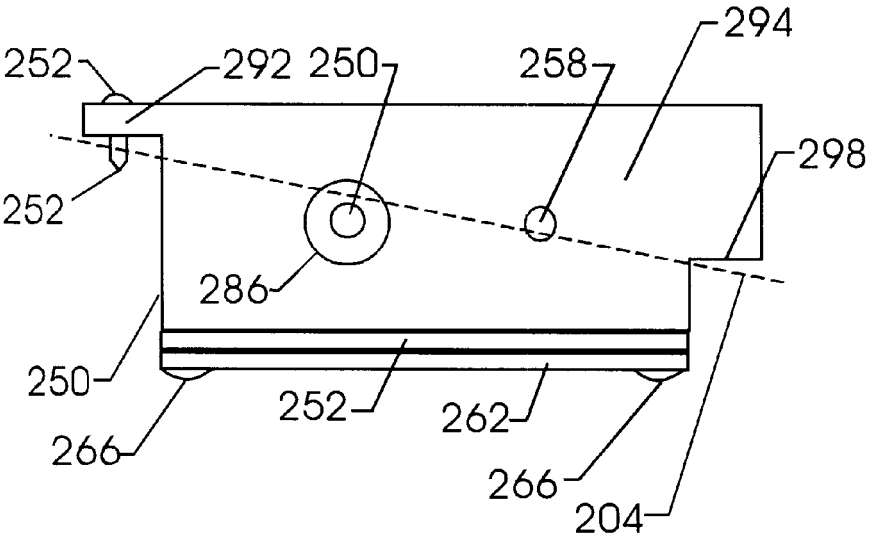
252
292
250
258
294
298
252
286
250
252
262
266
266
204

FIG. 7

SYSTEM FOR USING A MICROPHONE IN A BASEBALL BASE

This application is related to U.S. patent application Ser. No. 08/971,470, filed Nov. 17, 1997, entitled "SYSTEM FOR USING A MICROPHONE IN AN OBJECT AT A SPORTING EVENT," which is a continuation of U.S. patent application Ser. No. 08/638,552, filed Apr. 26, 1996, now abandoned.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention is directed to a system for using a microphone in an object at a sporting event.

2. Description of the Related Art

When attending a sporting event, it is advantageous to have seats close to the playing field in order to see well and hear the sounds of the game. For example, when attending a baseball game fans in seats close to the field can hear the sounds of the bat hitting the ball, the ball being caught, players sliding into a base, collisions, and other sounds from the playing field. Viewers and listeners of broadcasted sporting events cannot hear all of these sounds and, therefore, may feel isolated from the game and do not always get drawn into the excitement of the event. If broadcasters could make the viewers and listeners feel closer to and more involved with the game, viewers would be less likely to turn off the television (or radio), change channels or focus their attention elsewhere. Thus, there is a need to allow viewers and listeners to hear more sounds from the playing field so that they feel closer to and more involved with the game.

In the past, television broadcasters have put microphones around the perimeter, but outside of, the playing field. These microphones can pick up spurious crowd noise as well as noise from players when the players are not on the field. However, these microphones do not reliably pick up sounds from the playing field.

Putting microphones directly on players may allow viewers to hear the players talking; however, these microphones will not detect a lot of interesting sounds from the field and may interfere with or annoy the players.

Other attempts to broadcast sounds from the playing field include hanging microphones from the ceiling of indoor arenas. These microphones, however, do not get close enough to the playing field to detect all of the interesting sounds and this solution is not practical for an outdoor stadium.

Thus, there is a need for a system that uses microphones within the playing field that do not interfere with the play or view of the game, and that can reliably pick up and transmit sounds from the playing field.

SUMMARY OF THE INVENTION

The present invention is directed to overcome the disadvantages of the prior art. Thus, the present invention provides for a system for using a microphone with a baseball base. The baseball base has an outside surface and a channel along a portion of the outside surface. The microphone is located in the channel. The channel is at least partially filled with a non-noisemaking substance. In one embodiment, the non-noisemaking substance is silicone. Placing the microphone in a channel on the outside surface of the base helps prevent the microphone from detecting noises due to the compression of the base when the base is stepped on by a player.

The baseball base includes a shell, a pad inside the shell and a baseplate. The channel housing the microphone is in the shell. The system also includes a transmitter which is connected to the microphone. In one embodiment, the system includes a protective box secured to the baseplate and a cover removably attached to the protective box. Sealing material is placed between the cover and the protective box. The transmitter is housed within the protective box such that the transmitter is protected from moisture and dust.

It is contemplated that during a baseball game three bases could utilize the principles of the present invention (first base, second base and third base). In one embodiment, each base transmits an RF signal at a different frequency. The transmitter frequencies are selectable from a predetermined set of frequencies. A mixer can be used to choose which, if any, of the audio signals are to be inserted into the broadcast signal for television/radio broadcast.

These and other objects and advantages of the invention will appear more clearly from the following description in which the preferred embodiment of the invention has been set forth in conjunction with the drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** depicts a perspective view of a first embodiment baseball base according to the present invention.

FIG. **2** is a cross-sectional view of the baseball base of FIG. **1**.

FIG. **3** is a view of the bottom of the baseball base of FIG. **1**.

FIG. **4** is a view of the bottom of a second embodiment baseball base.

FIG. **5** is a side view of the baseball base of FIG. **4**.

FIG. **6** is a top view of the protective box depicted in FIG. **4**.

FIG. **7** is a side view of the protective box depicted in FIG. **4**.

FIG. **8** is a block diagram of a system which can use the baseball base of the present invention.

DETAILED DESCRIPTION

FIG. **1** shows a baseball base **10** which utilizes the current invention. Base **10** can be used as first base, second base or third base. It is also contemplated that the principles of the current invention could be used in a pitcher's mound, home plate or other object on the field at a sporting event. Base **10**, which is of the standard dimensions and feel of regulation baseball bases, includes a base body **11** having a top surface **12** and four side surfaces (two side surfaces **14** and **16** are depicted in FIG. **1**). Dotted line **18** represents a cavity **34** (see FIG. **2**) inside base **10**.

Mounted inside cavity **34** is a wireless transmitter **20**. In the disclosed embodiment, transmitter **20** is an RF transmitter. Transmitters which utilize other spectrums are also within the spirit of the present invention. One example of an RF transmitter suitable for this application is the SK250 UHF tunable transmitter sold by Sennheiser. The frequency range of the SK250 is 450–960MHz. Transmitter **20** is powered by three AA batteries. Alternatively, transmitter **20** can be powered by a NiCad or other suitable battery. Transmitter **20** is approximately 4.6"×2.4"×0.7." In the embodiment of FIGS. **1–3**, transmitter **20** is completely covered by a plastic sleeve in order to protect against moisture and dust.

Antenna connector **22** connects transmitter **20** to antenna **23**, which is a whip antenna that is supplied with the SK250. Antenna **23** extends into base body **11**. Other antennas that fit unobtrusively within base **10** can also be used; for example, a flat mesh antenna, a ribbon style antenna, a dipole antenna made from a flexible material and other antennas can be used. The inventors contemplate that alternative transmitters may not need an external antenna.

Microphone connector **24** connects transmitter **20** to microphone **26**. Microphone **26** is miniature high quality microphone. Examples of microphones suitable for this application includes the MKE 2, MKE 102 and MKE 104 all sold by Sennheiser, or other similar microphones. Microphone **26** is approximately 3/16 of an inch in diameter with a length of ¼ of an inch, and is mounted so that the front of microphone **26** is flush with side **14**. An optional protective coating can be placed in front of microphone **26** to protect microphone **26** from dust and moisture. One example of a suitable protective covering is a latex membrane. The inventors note that a protective coating in front of the microphone could effect the performance of the microphone. Mounted in front of microphone **26** is a square shaped grill **28**, having sides approximately ¼ of an inch long. Although grill **28** is mounted on surface **14**, part of surface **14** is carved out and grill **28** is thin so that it appears to be flush with surface **14**. In one embodiment, microphone **26** can be mounted in a slightly recessed position so that grill **28** can be mounted flush with surface **14**. Preferably, grill **28** is the same color as surface **14**. Alternative embodiments can be used without a grill. Transmitter **20** and microphone **26** are shown by dotted lines in FIG. **1** because they are not visible when looking at base **10** from a perspective view.

FIG. **2** is a cross-sectional view of base **10** which shows how the components are mounted in base **10**. The interior of base body **11** is made of a foam compound or any other suitable material. Inside base **10** is a cavity **34**. Cavity **34** is open at its bottom so that if base **10** is turned upside down, cavity **34** can be accessed. When base **10** is placed on the ground, cavity **34** is defined by baseplate **36** and the ground. Baseplate **36** is a metal structure that has four sides and a top, similar to an upside down square cup. The edges between the sides and the top are rounded. Attached to each side of baseplate **36** is a metal side plate. FIG. **2** shows side plate **38** and side plate **40**.

Transmitter **20** is mounted to baseplate **36** using a retaining bar **30** and a tye wrap **32**. Retaining bar **30** is an extruded aluminum channel used to support the rear end of transmitter **20** and to seal the plastic sleeve covering transmitter **20**. Tye wrap **32** is a plastic band that cannot be loosened without breaking after it has been tightened and secured. Two holes (**35** and **37**) are drilled through baseplate **36** so that tye wrap **32** can be threaded around transmitter **20**, through one of the holes **35** in baseplate **36**, through interior **29** and out the other hole **37** in baseplate **36**; thereby, holding transmitter **20** securely against baseplate **36**. In one embodiment, the holes (**35** and **37**) in baseplate **36** have a diameter of 3/8 of an inch and include rubber grommets. Although tye wrap **32** is shown wrapped around the length of transmitter **20**, it can also be wrapped around the width of transmitter **20** instead of or in addition to the length. The arrangement shown in FIG. **2** allows for access to the transmitter for programming, repair, etc. Other mounting schemes can be used to secure transmitter **20** to baseplate **36** including schemes that do not use tye mounts or retaining bars. Additionally, transmitter **20** can be secured within bases that do not have a baseplate.

Microphone **26** sits inside interior **29**. One method for positioning microphone **26** is to drill a hole from cavity **34** into interior **29** and inserting the microphone into the drilled hole.

FIG. **3** shows the bottom of base **10**. Microphone **26** is shown dotted because it is inside base **10** and cannot be seen from the bottom of base **10**. Attached to the center of baseplate **36** is a mounting post **46** which is used to mount base **10** to the field of play. FIG. **3** shows the side plates **38**, **40**, **42** and **44** which were referenced above with respect to FIG. **2**. The side plates are ½ inch wide and have a length equal to a side of the baseplate. Note that there is a ¼ inch gap between the side plates and the baseplate **36**. The side plates are used for support in the base. The current invention will work with bases that do not have side plates.

FIG. **4** shows a view of the bottom of a second embodiment baseball base **200**, which is of standard dimensions and feel of regulation baseball bases. One example of a baseball base that can be modified (as described below) to utilize the present invention is the Jack Corbett model baseball base from Hollywood Bases, Inc. The outside surface of baseball base **200** is defined by a rubber shell or cover **202**, which surrounds the top and sides of baseball base **200**. Shell **202** has a large opening on the bottom of the base which provides access to metal baseplate **204**. Enclosed within shell **202** and above baseplate **204** is a pad or cushion (not shown in the drawings). When a player steps on base **200**, the pad compresses.

Baseplate **204** is attached to shell **202** using bars **206**, **208**, **210** and **212**. Each of the bars has three holes which line up with holes in shell **202**. Screws **216** are threaded through the holes in bars **208**, **210**, **212** and **214** and the corresponding holes in shell **202**; thereby, securing baseplate **204** to shell **202**. Welded to the center of baseplate **204** is a metal post support **220**. Mounted to post support **220** is a metal mounting post **222**, which is used to secure baseball base **200** to the playing field. Carved in the bottom of shell **202** is channel **230**. Housed inside channel **230** is a microphone **232**. Microphone **232** can be the same type as microphone **26**, or another microphone of suitable size and quality. Microphone **232** is encapsulated with a non-noisemaking gel that absorbs vibration. One example of a suitable gel is Vibration Absorption Gel Z8006 by Zeal, a division of Kyosho Corporation. A non-noisemaking substance is used so that if the substance is compressed or subject to another force, it will not create a sound which will be detected by microphone **232**. If microphone **232** is placed within the pad, the microphone may detect the sound of air rushing out of the pad when a runner steps on the base and the pad compresses. The gel is applied so that it does not interfere with the microphone's ability to detect sounds. Channel **230** is also filled with silicone to secure the microphone in place. Since rubber shell **202** is traditionally white, a white silicone should be used. The silicone is applied so that it does not block the front of microphone **232** and does not interfere with the microphone's ability to detect sounds.

Base **200** has an outside surface. A majority of the outside surface of base **200** is rubber shell **202**. Other portions of the outside surface include exposed portions of baseplate **204**. Channel **230** is carved out of rubber shell **202**; therefore, channel is along a portion of the outside surface of the base. Bases using structural arrangements other than a shell can still have an outside surface for locating the channel.

FIG. **5** is a side view of the baseball base **200**. As can be seen from FIG. **5**, the outside surface of base **200** includes a top surface **240**, a bottom surface **242** and four side surfaces (one side surface **244** is shown in FIG. **5**). Bottom surface **242** corresponds to the surface shown in FIG. **4**. As can be seen from FIG. **4**, microphone **232** does not protrude from outside surface **244**. As can be seen from FIG. **5**, microphone **232** does not protrude from outside surface **242**.

Although the different planes of rubber shell **202** are labeled as different outside surfaces, in fact rubber shell is one continuous rubber member. In one embodiment, bottom surface **242** is not completely flat. Thus, microphone **232** may protrude from a first part of the bottom surface while not protruding a second part of the surface. In order for the base to be properly positioned on the ground, it is advantageous for microphone **232** to not protrude from the lowest part of bottom surface **242**. For example, if the lowest part of bottom surface **242** is at or near the edge **243** of bottom surface **242**, then the microphone should not protrude from the edge **243**.

A visible outside surface is defined as the portions of the outside surface that are visible when the base is installed on the playing field. When base **200** is installed on a playing field, mounting post **222** is in the ground and bottom surface **242** is not visible. The only outside surfaces that are visible when base **200** is installed in the ground are the side surfaces and top surface **240**.

Base **200** also includes a protective box **250** attached to baseplate **204** via screws **252** and **254** (see FIG. **4**). Protective box **250** is used to hold transmitter **264** (see FIG. **6**) and protect transmitter **264** from contaminants, while allowing easy access to transmitter **264** for maintenance purposes. There are various alternatives for attaching protective box **250** to baseplate **204**. In base **200**, protective box **250** is mounted such that a portion of protective box **250** is below the surface of baseplate **204** and a portion is above the surface of baseplate **204**. Protective box **250** includes two holes **256** and **258** (depicted as dotted lines in FIG. **6**) that allow wires to be threaded from the inside of protective box **250** to the outside of the box. Inside protective box **250** is RF transmitter **264** which is connected to microphone **232** by wire **260**. Wire **260** is connected to the transmitter, threaded through hole **256** in protective box **250**, placed behind baseplate **204** and shell **202**, and connected to microphone **232** through a hole in channel **232** of shell **202**. Because a view of wire **260** is blocked by baseplate **204**, wire **260** is shown as a dotted line. Also connected to transmitter **264** via hole **258** is antenna **262** which, in the embodiment of FIG. **4** is also a wire. Transmitter **264** can be the same type of transmitter as transmitter **20**, or another suitable alternative that fits within the base and can properly transmit the signal from the microphone.

Removably attached to protective box **250** is a cover **262**. It is advantageous that cover **262** be removably attached to box **250** so that transmitter **20** can be easily accessed for maintenance purposes. Cover **262** is removably attached to protective box **250** via four screws **266**. Cover **262** is machined such that it has four small holes next to larger holes. In FIG. **5** the small hole is filled by screws **266** and the larger is denoted by reference numeral **268**. Screws **266** are threaded through the small holes in cover **262** and into holes **270** in protective box **250**. Cover **262** can be removed from protective box **250** by loosening (but not necessarily removing) screws **266**, sliding cover **262** in the direction of arrow **272** and lifting cover **262** such that the heads of screws **266** pass through large holes **268**. Protective box **250** and cover **262** are preferably made of PVC; however, other materials may also be suitable (e.g. aluminum, etc.). In an alternate embodiment, cover **262** can be removably attached to protective box **250** using butterfly hinges that fold down to become at least partially flush with the top surface of cover **262**. The butterfly hinges act as a quick release which may be easier to use than the four screws. An additional alternative includes using a zeuss fastener or quarter turn quick disconnect fastener.

FIG. **6** shows a top view of protective box **250** after cover **262** has been removed. Inside protective box **250** is transmitter **264**. At the bottom of transmitter **264** is a tab **276**. By pulling on tab **276**, transmitter **264** can be removed from protective box **250**. Transmitter **264** has a control panel **278**, which includes switches to turn on, change the gain of and change the frequency of the transmitter. At one end of transmitter **264** are connectors **280** and **282**. Connector **282** couples transmitter **264** to antenna **262**, which passes **7**. through hole **258**. Surrounding wire antenna **262** and abutting hole **258** is rubber sealing material **284** which is used to prevent contaminants (e.g. water, dust, etc.) from entering hole **258**.

Connector **280** couples transmitter **264** to wire **260**. Wire **260** passes through hole **256**. Sealing material **286** abuts both sides of hole **256** and lines the inside of hole **256**. An example of an appropriate sealing material is rubber; however, other suitable sealing materials may be used. Surrounding wire **260** and abutting sealing material **286** is a second sealing material **288**. Sealing material **288** can also be rubber. A third sealing material **290** surrounds wire **260** and abuts both connector **280** and sealing material **288**. Sealing material **290** is similar to sealing material **284**. The sealing materials **286**, **288** and **290** are used to prevent contaminants from entering protective box **250**.

FIG. **7** is a side view of protective box **250**, looking at side **294**. FIG. **7** shows baseplate **204** as a dashed line. A rectangle is cut out of baseplate **204** so that protective box **250** can be inserted through the cut out rectangle. As can be seen, a portion of protective box **250** is below baseplate **204** and a portion is above baseplate **204**. Protective box **250** is secured to baseplate **204** using screws **252** and **254** which secures lip **292** of protective box **250** to baseplate **204**. Protective box **250** also includes ledge **294** which is in contact with baseplate **204**.

Between cover **262** and protective box **250** is sealing material **252**. One example of a suitable sealing material is a neoprene gasket. When screws **266** are tightened so that cover **262** is secured to box **250**, transmitter **264** is protected from dust and moisture.

FIG. **8** is a block diagram of one exemplar system **300** which can be used with three baseball bases **302***b*, **304***b* and **306**. The three bases can utilize the technology described above with respect to base **10** or base **200**. It is assumed, but not necessary, that base **302***b* is first base, base **304***b* is second base and base **306***b* is third base. Note that there is no difference between the bases other than that each base is programmed to transmit on a different frequency. Each base transmits its signal on a different frequency so that the signal can be distinguished. Furthermore, different sets of frequencies may be used in different cities because the spectrum allocation can vary on a city by city basis. System **300** includes three receivers **302***r*, **304***r* and **306***r*. Receiver **302***r* is tuned to receive the signal from base **302***b* via antenna **308**. Receiver **304***r* is tuned to receive the signal from base **304***b* via antenna **310**. Receiver **306***r* is tuned to receive the signal from base **306***b* via antenna **312**. Many suitable RF receivers can be used. One exemplar receiver is the EM203 multi-channel receiver system sold by Sennheiser. The EM203 includes a chassis that houses three receivers. Each of the receivers sends a signal to mixer **316**. Various alternatives include having the receivers filter, amplify or perform other operations on the received signal prior to transmission to mixer **316**. In one embodiment a receiver can simply transmit the received signal to mixer **316**. Furthermore, some suitable receivers may not need an external antenna.

Mixer **316** receives the signals (**314**, **318** and **320**) from the three receivers (**302***r*, **304***r* and **306***r*) as well as other audio sources (depicted by lines **322** and **324**). The other audio sources can include additional receivers, microphones, tape decks, disc players, etc. Mixer **316** transmits one or more of the audio signals it receives, via signal **326**, to broadcast or recording equipment. For example, the output **326** can be added to the audio portion of a television signal or can be sent to headphones for the announcers to hear. Mixer **326** can be operated to ignore all of the audio input, output one of the inputs or output a combination of inputs.

The system **300** can be used in conjunction with television or radio broadcasts during a baseball game. During the game, a microphone will pick up sounds from the field of play. The audio signal from the microphone is sent by a transmitter to one of the receivers which passes the signal to mixer **316**. An operator of mixer **316** can choose to ignore or use the audio signal from a particular microphone. For example, if the operator can see that there is no action near third base, then the operator may choose to ignore any audio from the microphone inside third base. The operator may also listen to the audio signal from the third base microphone and decide whether to use the signal based on what can be heard. When the operator uses mixer **316** to select the audio signal from one or more microphones, those audio signals can be broadcasted with the television signal or radio signal so that viewers/listeners can hear the sounds of the game as if the viewer/listener had a front row seat. Since the microphone and transmitter are housed within the base, do not protrude from a visible surface of the base, and do not alter the size, shape or feel of the base, there is no distraction to the players and fans at the stadium.

The foregoing detailed description of the invention has been presented for purposes of illustration and description. It is not intended to be exhaustive or to limit the invention to the precise form disclosed, and obviously many modifications and variations are possible in light of the above teaching. The described embodiments were chosen in order to best explain the principles of the invention and its practical application to thereby enable others skilled in the art to best utilize the invention in various embodiments and with various modifications as are suited to the particular use contemplated. It is intended that the scope of the invention be defined by the claims appended hereto.

What is claimed is:

1. A system for using a baseball base with a microphone during a baseball game, comprising:

a baseball base having an outside surface and a channel along a portion of said outside surface;

a microphone in said channel; and

a transmitter connected to said microphone and secured to said baseball base at a location other than said channel.

2. A system according to claim **1**, wherein:

said channel is at least partially filled with a non-noisemaking substance.

3. A system according to claim **1**, wherein:

said channel is at least partially filled with a vibration absorbing substance.

4. A system according to claim **1**, wherein:

said baseball base includes a shell and a pad inside said shell.

5. A system according to claim **4**, wherein:

said channel is in said shell.

6. A system according to claim **1**, further including:

an antenna connected to said transmitter.

7. A system for using a baseball base with a microphone during a baseball game, comprising:

a baseball base having an outside surface and a channel along a portion of said outside surface;

a microphone in said channel;

a transmitter connected to said microphone; and

a protective box secured to said baseball base, said protective box including a cover removable attached to said protective box, said transmitter being inside said protective box.

8. A system according to claim **7**, further including:

a wire connecting said transmitter to said microphone, said protective box having an aperture allowing said wire to pass through said aperture, said protective box further including sealing material abutting said aperture.

9. A system according to claim **8**, wherein:

said channel is at least partially filled with a non-noisemaking, vibration absorbing substance.

10. A system for using a baseball base with a microphone during a baseball game on a playing field, comprising:

a baseball base having a visible outside surface and a bottom;

a microphone secured to said base such that said microphone does not protrude from said visible outside surface;

a protective box secured to said bottom of said base;

a cover removably attached to said protective box; and

a transmitter inside said protective box, said transmitter connected to said microphone.

11. A system according to claim **10**, further including:

sealing material between said cover and said protective box.

12. A system according to claim **10**, further including:

an antenna, said protective box having an aperture for receiving said antenna; and

sealing material abutting said aperture.

13. A system according to claim **10**, further including:

a conductor connecting said transmitter to said microphone, said protective box having an aperture for receiving said conductor; and

sealing material abutting said aperture.

14. A system according to claim **13**, further including:

sealing material between said cover and said protective box.

15. A system according to claim **10**, wherein:

said base includes a channel along a portion of said visible outside surface;

said microphone is secured within said channel; and

said channel is at least partially filled with a non-noisemaking substance.

16. A system according to claim **10**, wherein:

said baseball base includes a shell, a pad inside said shell and a baseplate; and

said protective box is attached to said baseplate.

17. A system for using baseball bases with microphones during a baseball game on a playing field, comprising:

a first baseball base having a first visible outside surface and a first bottom;

a first microphone secured to said first baseball base such that said first microphone does not protrude from said first visible outside surface;

a first protective box secured to said first bottom of said first baseball base;

a first cover removably attached to said first protective box;

a first transmitter inside said first protective box, said first transmitter connected to said first microphone;

a second baseball base having a second visible outside surface and a second bottom;

a second microphone secured to said second baseball base such that said second microphone does not protrude from said second visible outside surface;

a second protective box secured to said second bottom of said second baseball base;

a second cover removably attached to said second protective box;

a second transmitter inside said second protective box, said second transmitter connected to said second microphone;

a third baseball base having a third visible outside surface and a third bottom;

a third microphone secured to said third baseball base such that said third microphone does not protrude from said third visible outside surface;

a third protective box secured to said third bottom of said third baseball base;

a third cover removably attached to said third protective box;

a third transmitter inside said third protective box, said third transmitter connected to said third microphone; and

at least one receiver.

18. A system according to claim **17**, further including:

first sealing material between said first cover and said first protective box;

second sealing material between said second cover and said second protective box; and

third sealing material between said third cover and said third protective box.

19. A system according to claim **17**, wherein:

said first baseball base includes a first shell, a first channel in said first shell, a first pad inside said first shell and a first baseplate;

said first protective box is attached to said first baseplate;

said first microphone is secured within said first channel;

said second baseball base includes a second shell, a second channel in said second shell, a second pad inside said second shell and a second baseplate; and

said second protective box is attached to said second baseplate;

said second microphone is secured within said second channel;

said third baseball base includes a third shell, a third channel in said third shell, a third pad inside said third shell and a third baseplate;

said third protective box is attached to said third baseplate; and

said third microphone is secured within said third channel.

* * * * *

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 5,963,849
DATED : October 5, 1999
INVENTOR(S) : Hill, et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Claims,

Column 8, line 8, after "cover" and before "attached" delete "removable" and substitute therefor -- removably --

Signed and Sealed this

Twenty-third Day of October, 2001

Attest:

Nicholas P. Godici

Attesting Officer

NICHOLAS P. GODICI
Acting Director of the United States Patent and Trademark Office