E. E. FAIRCHILD.

BASE BALL GAME EXHIBITOR.

APPLICATION FILED FEB. 3, 1914.

1,173,788. Patented Feb. 29, 1916.

3 SHEETS—SHEET 1.

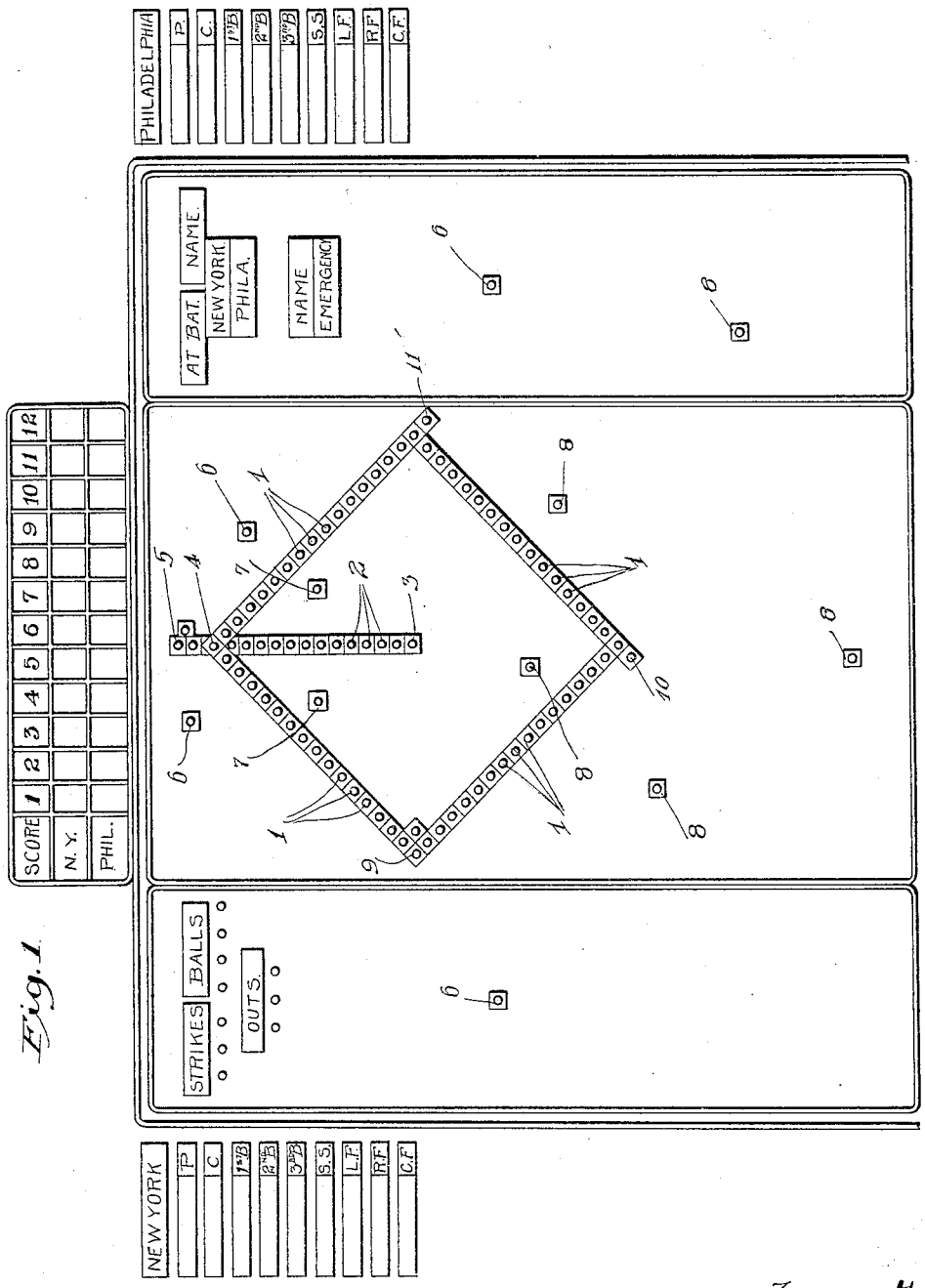

Fig. 1

Witnesses:
Sully Russo.
Lute S. Alter.

Inventor
Edwin E Fairchild
by Lyon & Hackley
attys.

THE COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

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3 SHEETS—SHEET 2.

Fig. 2.

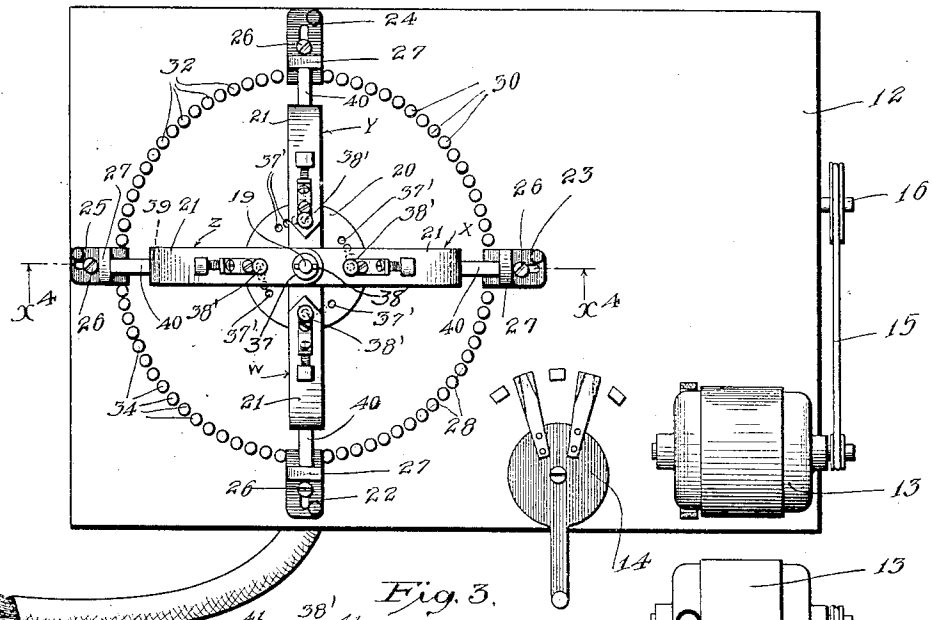


Fig. 3.

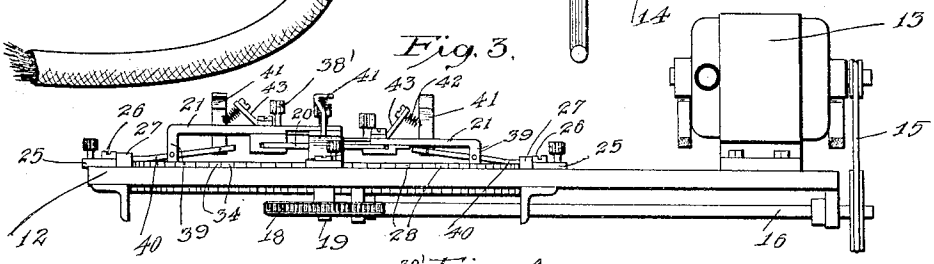


Fig. 4.

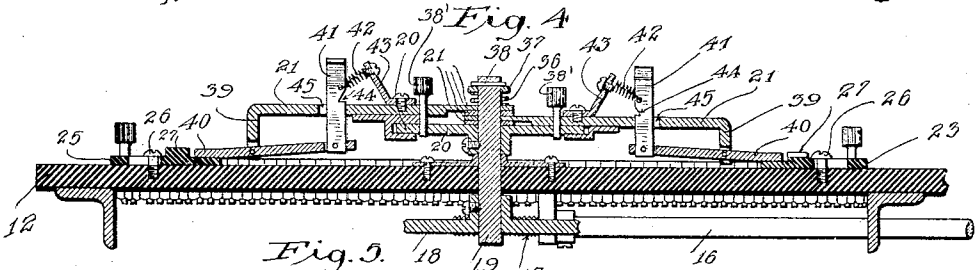


Fig. 5.

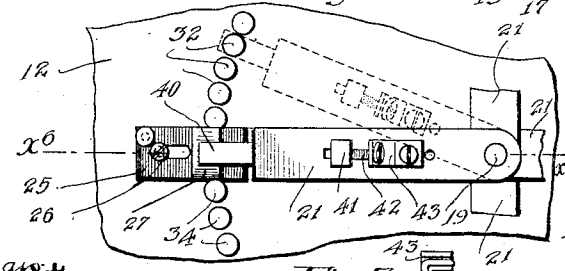


Fig. 6.

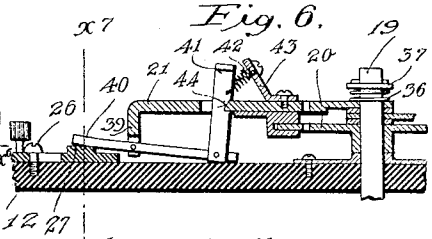
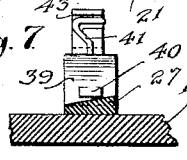


Fig. 7.



Witnesses:
Sully Russ.
Lulu D. Alter.

Inventor
Edwin E. Fairchild
by Ryan Hackley
Attys

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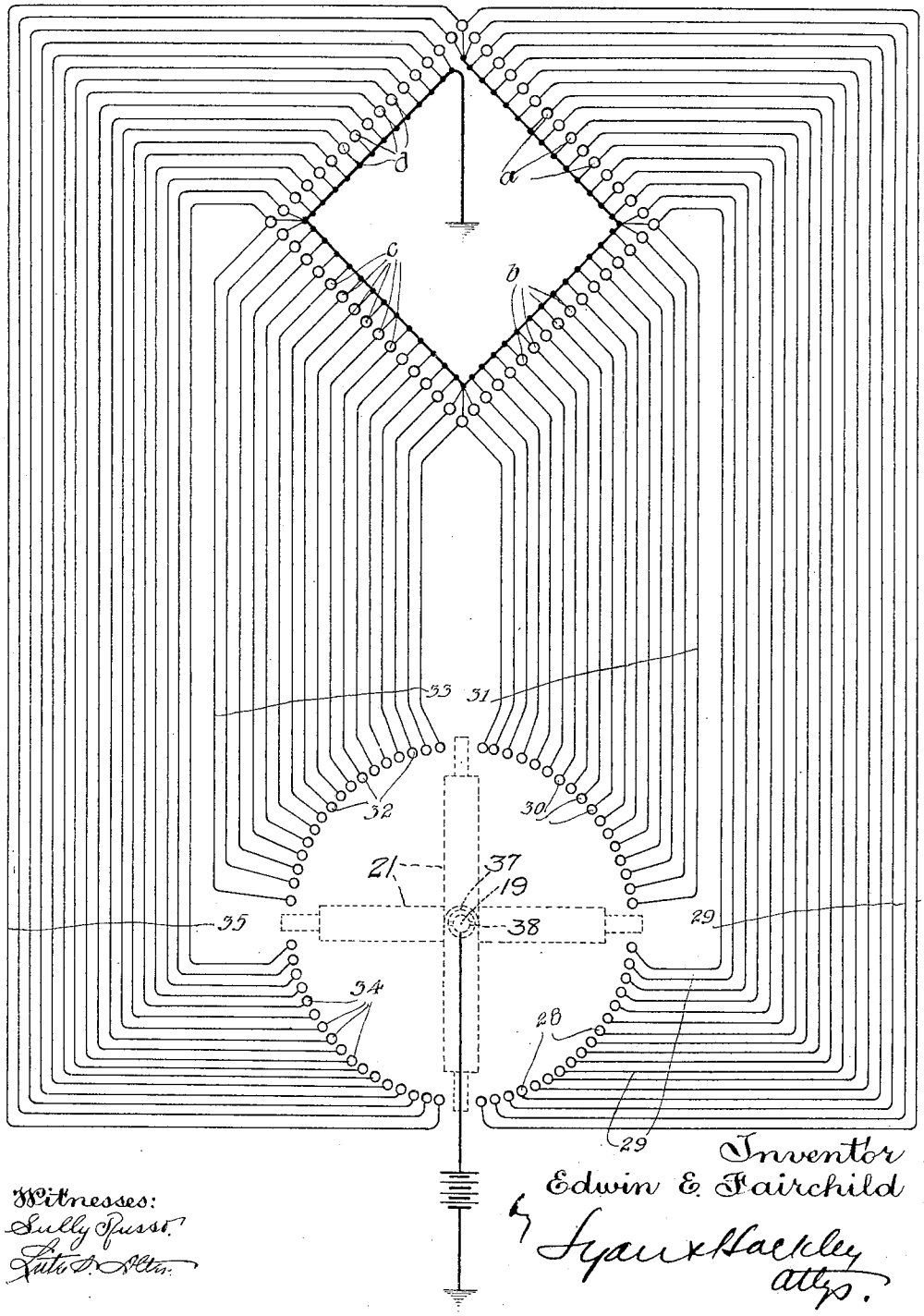
3 SHEETS—SHEET 3.

Fig. 8.



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Inventor
Edwin E. Fairchild
by Lyon & Hackley
Attys.

THE COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

EDWIN E. FAIRCHILD, OF LOS ANGELES, CALIFORNIA, ASSIGNOR TO WILLIAM RANDOLPH HEARST, OF NEW YORK, N. Y.

BASE-BALL-GAME EXHIBITOR.

1,173,788. Specification of Letters Patent. Patented Feb. 29, 1916.

Application filed February 3, 1914. Serial No. 816,204.

To all whom it may concern:

Be it known that I, EDWIN E. FAIRCHILD, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Base-Ball-Game Exhibitor, of which the following is a specification.

This invention relates to a device which is adapted for displaying graphically the playing of a game of base ball, the operation of the device being manipulated from any desired point. The visual representation is accomplished by means of electric lights which are so grouped, and the circuits through which are so manipulated, that the movements of men in the game, particularly those of running bases, are delineated.

The device comprises an arrangement of lamps, which is to be located at the place of exhibition, and a circuit controlling device which may be located at any convenient place, either at the place of exhibition or at any distance therefrom, and which is electrically connected with the lamps. The circuit controlling device is so constructed that it is capable of automatically operating to control the circuits and illustrate the movements of one or more men running bases.

Heretofore base running has been exhibited by means of lighted lamps, but the control of the circuits through the lamps has been manual, and it is the main object of my invention to provide an automatic device capable of being set in operation to control the circuits in such a way as to consecutively light the lamps at the exhibiting board in consecutive order to illustrate the running of a man from one base to another. The device may be set to automatically stop after it has illustrated the running of a man from one base to another, or it may be set to stop after the man has run two bases, or it may be set to stop when the man has run three bases, or it may be set to operate to illustrate a home run. Controlling means are also provided for causing the base running device to operate reversely, and thereby illustrate the movement of a man who, after starting to steal a base, has changed his mind and has run back to the base he was on. The device is adapted to illustrate the movements of one, two or three men on bases, and with a fourth man at the bat.

The operation and advantages of the device will be better understood in the following description.

Referring to the drawings: Figure 1 is a front elevation of the exhibiting board. Fig. 2 is a plan view of the base running device. Fig. 3 is a side elevation of the base running device. Fig. 4 is an enlarged vertical section on line x^4—x^4, Fig. 2. Fig. 5 is a plan view of one of the arms of the base running device and adjacent portions. Fig. 6 is a section on line x^6—x^6, Fig. 5. Fig. 7 is a section on line x^7—x^7, Fig. 6. Fig. 8 is a diagrammatical view of the circuits.

Referring to Fig. 1, the exhibiting board consists of a series of lamps 1, which are so grouped as to illustrate the diamond, and also a line of lamps 2 extending from the pitcher's box 3 across the home plate 4 to the catcher 5. Isolated lamps 6 are positioned to indicate fouls, and isolated lamps 7 and 8 indicate hits to various points in the diamond. By causing the lamps to burn in consecutive order from the home plate 4 to first base 9, will indicate the running of a man to first base; by causing the lamps to burn in consecutive order from first base 9 to second base 10, will indicate the running of a man from first base to second base; by causing the lamps to burn in consecutive order from second base 10 to third base 11 will indicate the running of a man from second base to third base, and by causing the lamps to burn consecutively from third base 11 to home plate 4 will indicate the running of a man from third base to the home plate. By causing the lamps to burn in consecutive order from the pitcher's box 3 to the catcher 5 will indicate the throwing of the ball by the pitcher. By causing any of lamps 6 to light will indicate a foul, and by causing any of the lamps 8 to light it will indicate a hit. It should be understood that the lighting of the lamps 6 or 8, or of the lamps from 3 to 5, has heretofore been done manually, and is so done in the present invention by means not herein shown or claimed, the present invention being that of the base running feature, which provides for consecutive illumination of the lamps in either direction around the diamond, illustrating the movements of whatever men are on bases.

The device for controlling the circuits of the lamps of the diamond, I term the base running device. The construction of this

is shown in Figs. 2 to 7 inclusive, and it consists of a base 12, on which, in the present embodiment, is mounted a reversible motor 13 which may be caused to run in either direction by the reversing switch 14, or to remain idle when the switch 14 is thrown to open position as shown. The motor 13 drives a belt 15 which operates a shaft 16, having a worm 17 which meshes with a worm gear 18 rigidly secured to a vertical shaft 19, the shaft 19 extending up through the base 12. Rigidly secured to the shaft 19 is a disk 20. Pivotally connected with the shaft 19 are four arms 21. A series of insulated blocks 22, 23, 24 and 25 are adjustably secured to the base 12 by screws 26, each of said blocks having an inclined lug 27. The block 22 corresponds to home plate, block 23 to first base, block 24 to second base, and block 25 to third base. Between the blocks 22 and 23 is a series of contacts 28. These contacts are connected by wires 29, see Fig. 8, with lamps *a*. Between the block 23 and block 24 is a series of contacts 30, which are connected by wires 31 with lamps *b* on the exhibition board. Between the block 24 and block 25 is a series of contacts 32, which are connected by wires 33 with lamps *c* on the exhibition board, and between the block 25 and block 22 is a series of contacts 34, which are connected by wires 35 with lamps *d* on the exhibition board.

Means are provided whereby each arm 21 may be caused to rotate in unison with shaft 19, or it may be arrested and stopped while shaft 19 continues to rotate, or it may be swung independently of shaft 19. The overlapping ends of the four arms 21 are frictionally held together with the lowermost one against the disk 20, by means of a coiled spring 36, which is arranged over the top arm 21 and a washer 37 retained by a pin 38 through the shaft 19. The friction thus secured is sufficient to cause the arms to rotate with the shaft 19, unless an arm is positively restrained from such movement. The disk 20 is provided with four sets of holes 37′ and a pin 38′ is arranged in each arm 21, and is adapted to be engaged with either hole of the set adjacent to it. Thus when any arm 21 is engaged by its pin 38′ with a hole 37′, it is positively locked with the disk 20, and will therefore move with the disk as the shaft 19 turns in either direction. The purpose of having a series of holes is to enable an arm 21 to be advanced relatively to the other arms, and yet move in relation therewith, and thereby indicate a man who has a lead off from his base, as will be hereinafter understood. The other end of each arm 21 has a downturned end 39, and pivoted therein is a wiper 40, which is adapted to wipe the contacts 28, 30, 32 and 34, as the case may be, whenever the arm carrying it is moved. Means are provided whereby the wiper may be shifted relative to its supporting arm 21, and thereby move out of connection with any of the contacts over which it operates. To this end a locking bar 41 is pivoted at its lower end to the inner end of the wiper 40, and the locking bar is connected by a coil extension spring 42 with a rigid bracket 43 on the arm 21, the spring 42 being arranged at such an angle that it tends to pull upwardly on the bar 41 and tilt the wiper 40 to hold the other end of the wiper with a yielding pressure against the contacts over which it operates. The bar 21 is provided with a notch 44, which is adapted to engage the lower edge of slot 45 in the arm 21 whenever the bar 41 is pushed down as indicated in Fig. 6. The base 12 is of insulating material so that all of the contacts 28, 30, 32 and 34 are insulated therefrom and from other portions of the apparatus carried on the same base. The other parts of the device, viz., the shaft 19, arms 21 and parts connected thereto are all in metallic electrical connection, and the other side of the circuit is grounded thereon as indicated in the diagram, Fig. 8.

In use, the device is capable of a great variety of operations, and it will only be necessary to point out the main uses. Let it be assumed that there are no men on bases; a man is at the bat, and he has just made a hit which will carry him to first base, and that such is to be indicated; the operator presses down bar 41 in the three arms 21, which are designated *x*, *y* and *z* in Fig. 2, and throws switch 14 to cause motor 13 to operate shaft 19 in a counter clockwise direction, which is the usual direction of movement, and as shaft 19 revolves it carries all the arms 21 with it as they are frictionally connected therewith. At this time the pins 38′ are removed. The operator also moves inward the block 23 so that its inclined lug 27 stands in line with the contacts 28, and as the shaft 19 rotates, it carries arm 21^{w} with its wiper 40, causing the latter to consecutively wipe contacts 28, and in so doing to cause the corresponding lamps *a* to be illuminated, thereby visually indicating the running movement of the man from the home plate to first base. When the wiper 40 arrives at block 23 corresponding to first base, and rides up on the inclined lug 27, it tilts the wiper 40, moving the bar 41 down and engaging its notch 44 with bar 21, thereby preventing further contact of the wiper 40 with contacts 30, which lie beyond block 23, even though the shaft 19 continues to revolve. As an alternate method of operation, the operator, instead of having moved in block 23 to cause the automatic tripping of the wiper 40 by the inclined lug 27,

could by manipulating switch 14, stop the motor 13 when the wiper arrived at block 23. However, if the man had made a two base hit instead of one, instead of the operator moving in a block 23, he could have moved in block 24 and the wiper would have continued in electrical connection, and would have consecutively wiped the contacts 30 until it arrived at block 24, where it would have tripped and stopped, thereby indicating the running of the man from home to second base. If it had been a three base hit, the operator, instead of pushing in block 23 or block 24, would have moved in block 25 and the wiper would have traveled over contacts 32 in addition to the contacts 30 and 28, and would have stopped upon arriving at block 25, thereby exhibiting the running of the man to third base. If it had been a home run, the operator would not have moved in blocks 23, 24, and 25, which would have permitted the wiper to have made the complete circle of contacts 28, 30, 32 and 34, thereby illustrating the home run, and the operator would have stopped the wiper at home, by moving in block 26, or by manipulating switch 14. On the other hand, suppose that a man is already on first base, and the man at the bat makes a one base hit, and the man on first is to be allowed to get to second base, the operator starts the motor and releases the wipers of both arms x and w, thereby indicating the running movements of the man from home to first, and the man from first to second. the wiper of arm x traveling over contacts 30 at the same time wiper w travels over contacts 28, and both men may be stopped on their respective bases either by stopping the motor or by moving in blocks 23 and 24 to automatically trip the wipers. It will be understood that the tripping of the wipers does not arrest the movement of the arms 21, but merely moves the wipers out of electrical connection so that on the bulletin board only lights are shown which indicate the actual movements of the men. Suppose that there are three men on bases. and a man at the bat, who makes a hit, and that the man on third is to come home safe, the others to move one base each, the operator starts as before, but releases all four wipers so that all four have electrical contact, and as they travel, they cause four light paths to be simultaneously given on the bulletin board, thus visually illustrating the running movements of the four men. The device for this purpose operates only one-quarter of a revolution as that brings the man on third home, and moves each of the others one base. In each instance, the man is stopped at the desired point, either by stopping the switch or by the automatic tripping of the wiper as described.

If it is desired to indicate the independent movements of a man, who is attempting to steal a base, the arm carrying the wiper which illustrates that man may be manually manipulated independently of the others, while the motor 13 is not running. This arm may be moved forward manually as far as desired over the contacts and then moved back. The rapidity of this movement may be used to illustrate the action of the man. Thus, the arm 21 may be moved slowly and cautiously from the base, and then to illustrate that the man is discovered, it may be quickly moved back to the base to indicate the quick return of the man toward the base. When a man has arrived at a base, the arm 21 may be set forward by engaging the pin 38′ with the proper hole 37′ to indicate any amount of lead desired for the man, and this lead will be automatically maintained with respect to the others, by allowing the pin to remain in position.

The foregoing are a few of the plays which may be shown by the apparatus. Others will readily suggest themselves.

What I claim is:

1. A switch comprising a series of contacts, a traveling wiper adapted to travel over said contacts, means for moving said wiper over said contacts, and means for automatically disconnecting said wiper from said contacts after it has moved a definite distance.

2. A switch comprising a series of contacts arranged in a circle, four revoluble arms, means for driving said arms, a wiper carried by each arm and adapted to travel over the contacts, and means for automatically disconnecting a wiper from the contacts at a definite point.

3. A switch comprising a series of contacts arranged in a circle, four revoluble arms, means for driving said arms, a wiper carried by each arm and adapted to travel over the contacts, and means for automatically disconnecting a wiper from the contacts at a definite point, each of said arms being independently movable with respect to said driving means.

4. A switch comprising a series of contacts arranged in a circle, four revoluble arms, means for driving said arms, a wiper carried by each arm and adapted to travel over the contacts, each wiper being pivoted on its arm, and a series of blocks with inclined lugs located ninety degrees apart in the circle of contacts corresponding in angular position to home plate, first, second and third bases, each of said blocks being movable into or out of the path of movement of the wipers, and when in the path of movement, adapted to lift the wipers out of connection with the contacts.

5. A switch comprising a series of contacts arranged in a circle, four revoluble arms, means for driving said arms, a wiper

carried by each arm and adapted to travel over the contacts, each wiper being pivoted on its arm, a series of blocks with inclined lugs located ninety degrees apart in the circle of contacts corresponding in angular position to home plate, first, second and third bases, each of said blocks being movable into or out of the path of movement of the wipers, and when in the path of movement, adapted to lift the wipers out of connection with the contacts, and latch means for retaining the wipers in elevated position when lifted by said lugs.

6. A switch comprising a series of contacts arranged in a circle, four revoluble arms, means for driving said arms, a wiper carried by each arm and adapted to travel over the contacts, and latch means for detachably holding the wipers elevated out of connection with the contacts.

7. A switch comprising a series of contacts arranged in a circle, four revoluble arms, means for driving said arms, a wiper carried by each arm and adapted to travel over the contacts, said driving means comprising a driving shaft, a disk secured to said shaft, means for detachably locking said arms in various angular positions to said disks, and means for driving said driving shaft.

8. A switch comprising a series of contacts arranged in a circle, four revoluble arms, means for driving said arms, a wiper carried by each arm and adapted to travel over the contacts, said driving means comprising a driving shaft, a disk secured thereto, means frictionally holding said arms against each other and against said disk, means for driving the driving shaft, said disk having four series of holes and a detachable pin in each arm adapted to engage the respective associated holes in the disk.

Signed at Los Angeles, California, this 27 day of January 1914.

EDWIN E. FAIRCHILD.

Witnesses:

G. A. PAGE,

F. G. ASMAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."