

No. 701,374

Patented June 3, 1902.

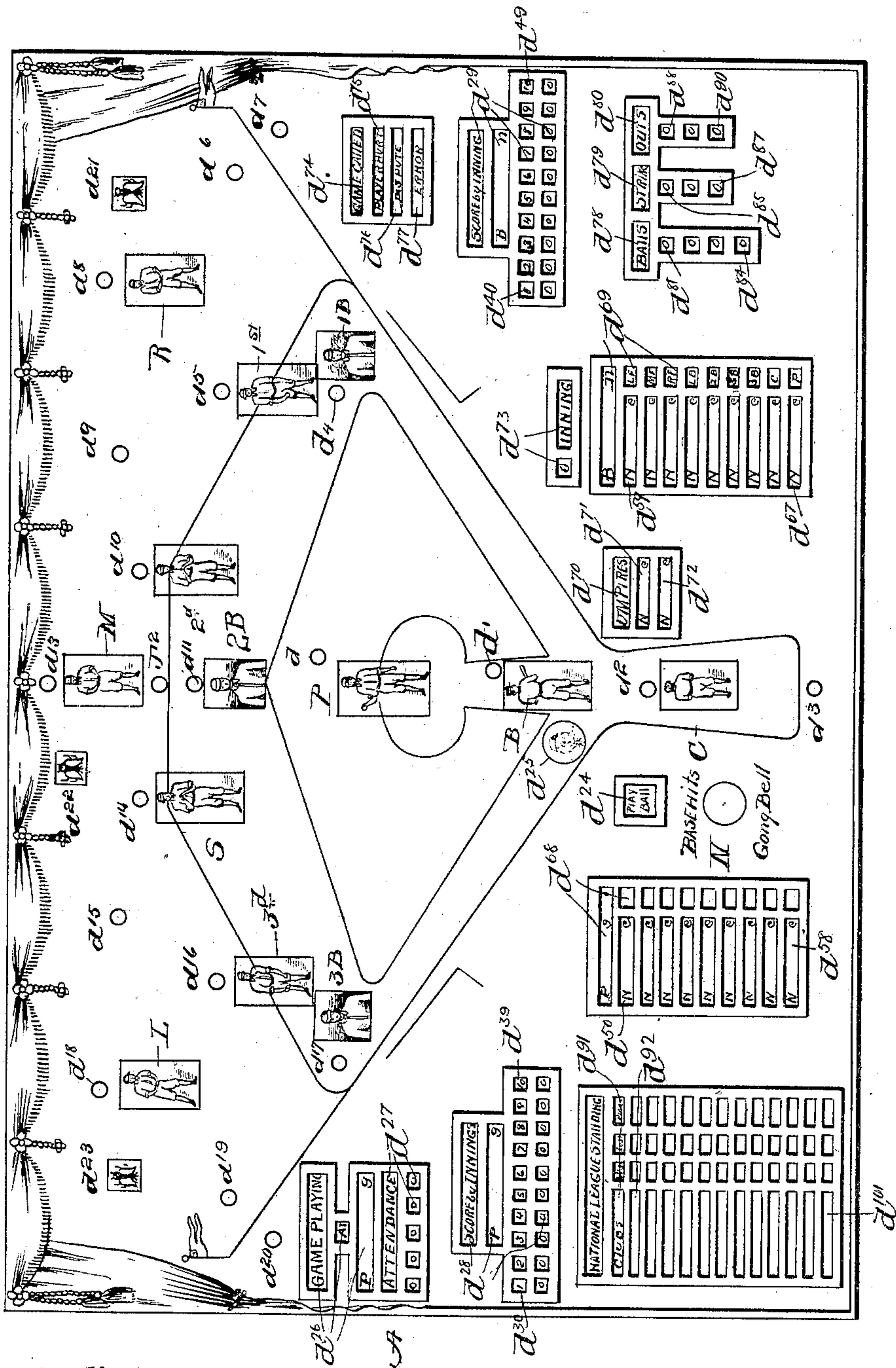
F. S. NEWMAN.  
ILLUSTRATING APPARATUS.

(Application filed Jan. 17, 1899.)

(No Model.)

4 Sheets—Sheet 1.

Fig. 1



Witnesses:

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R. W. Ashley

Inventor:

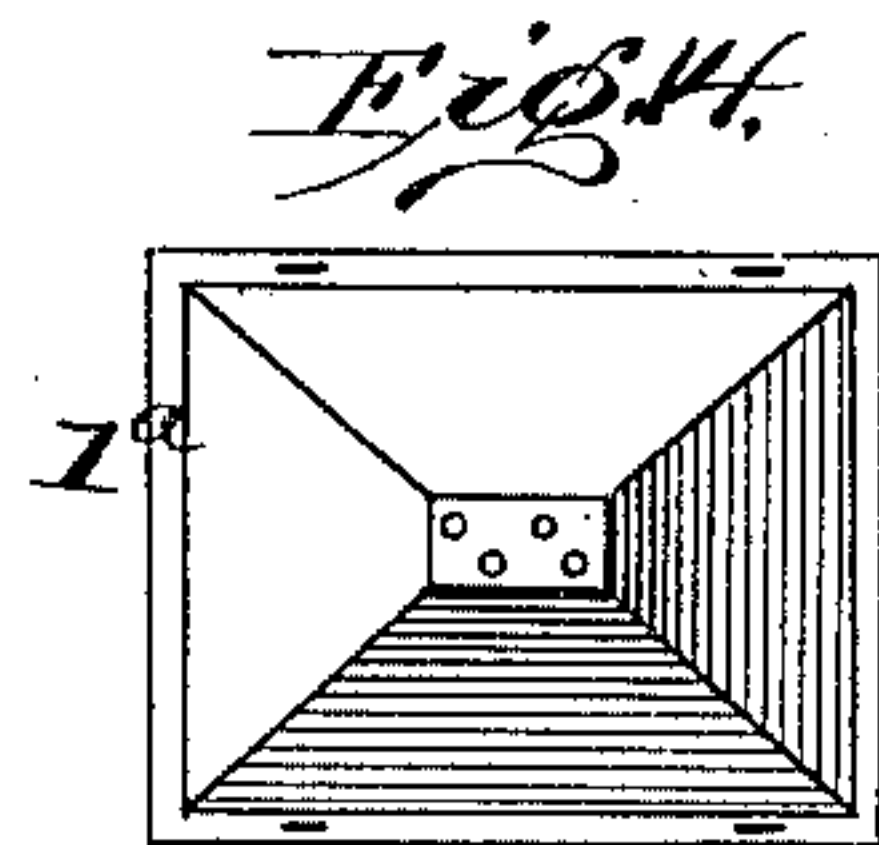
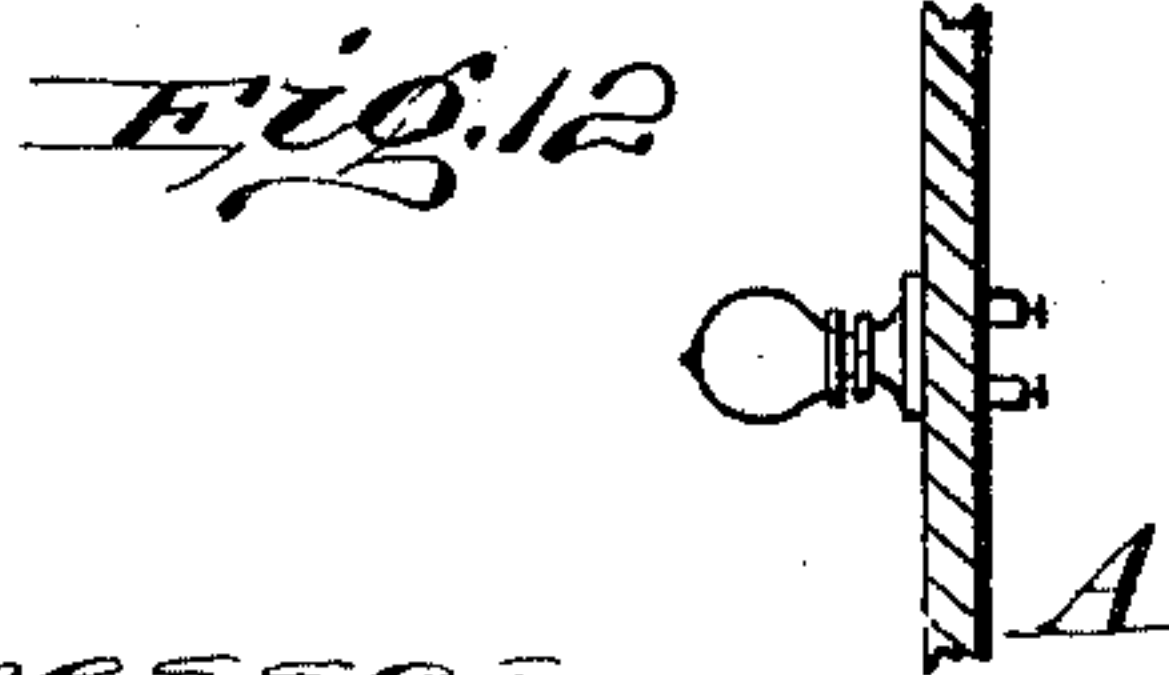
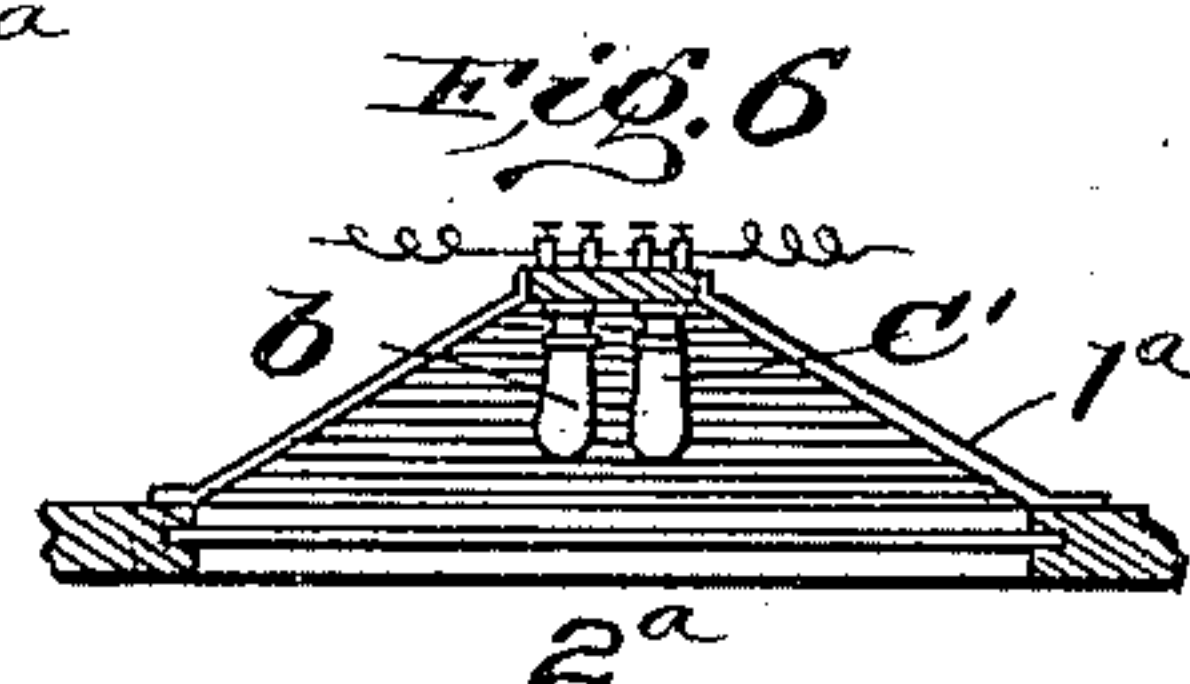
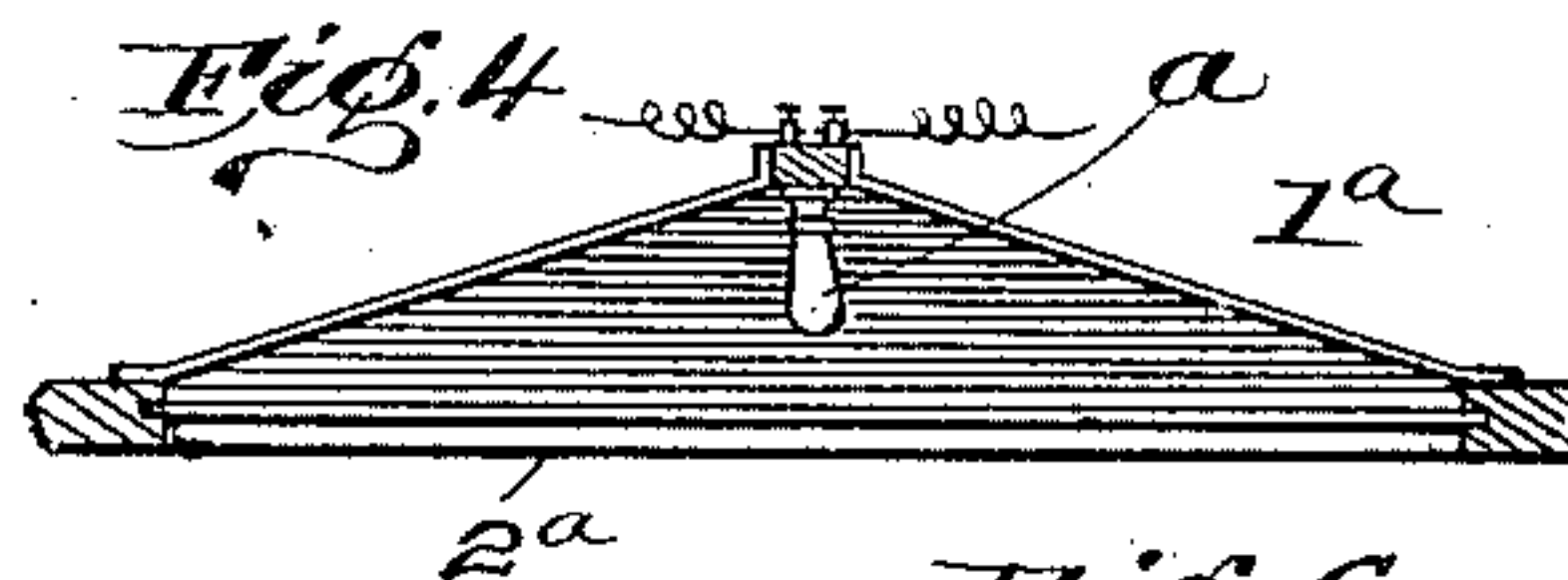
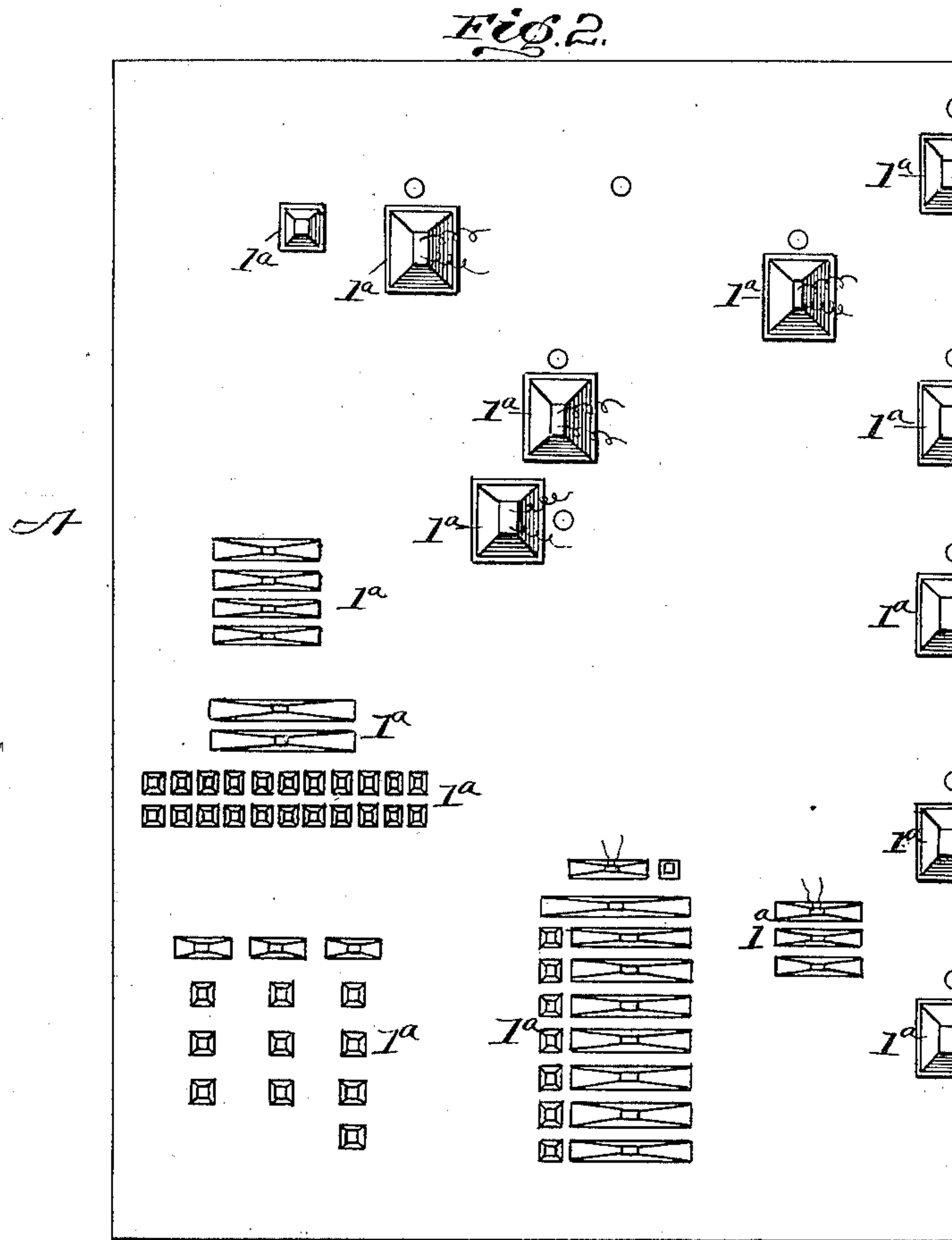
Fred'k S. Newman  
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ILLUSTRATING APPARATUS.

(Application filed Jan. 17, 1899.)

(No Model.)

4 Sheets—Sheet 2.



witnesses,  
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Atty.



No. 701,374.

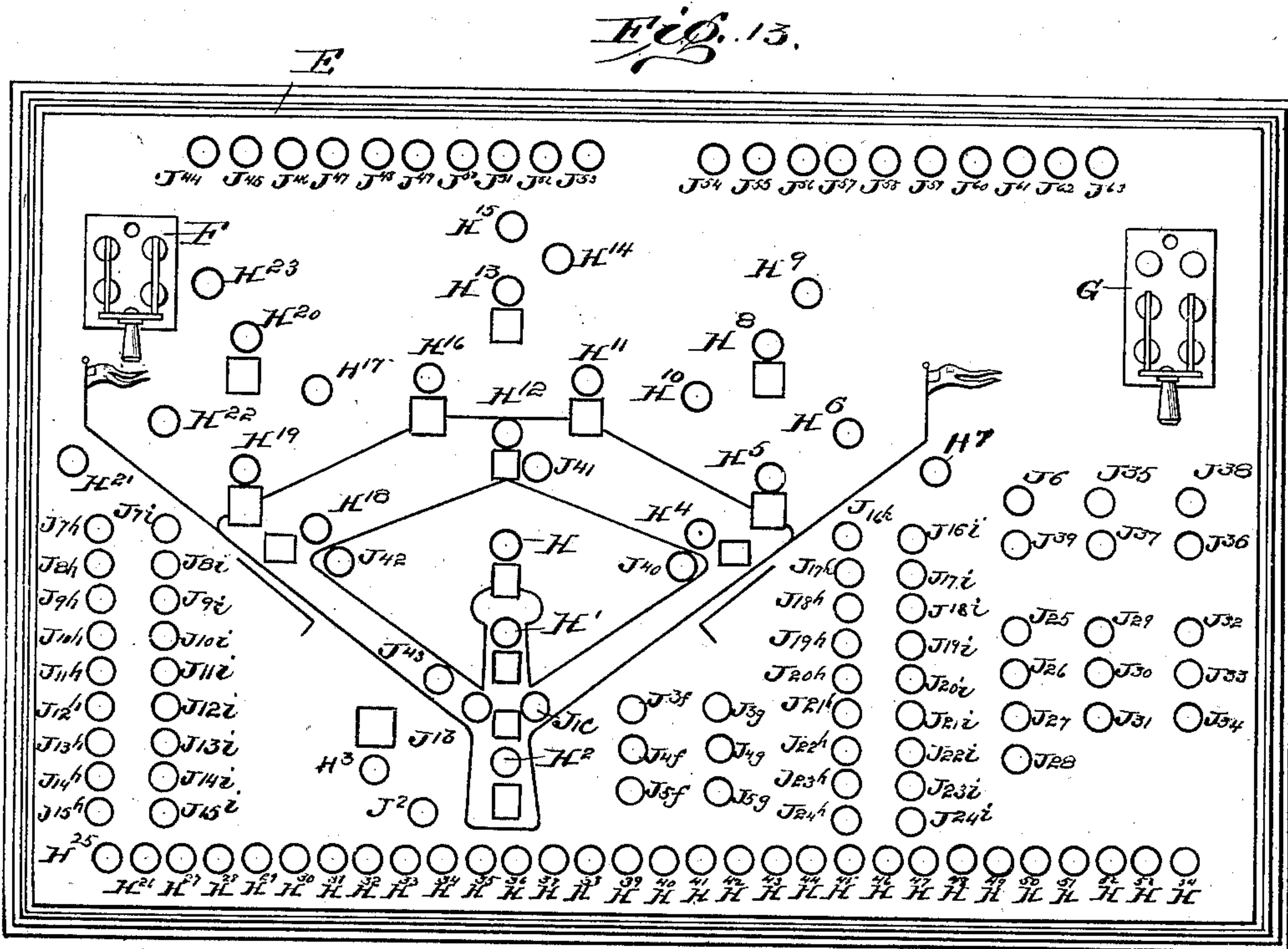
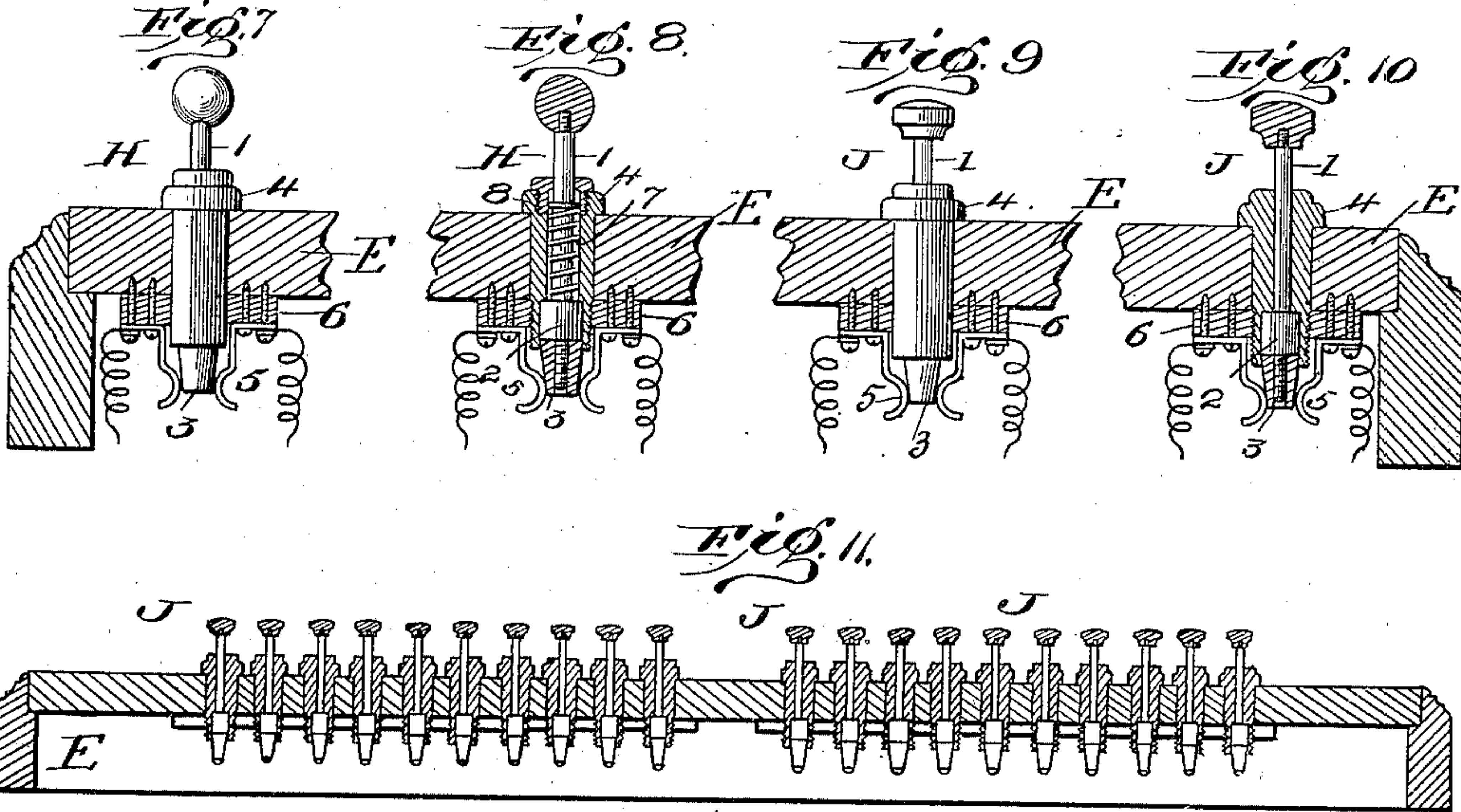
Patented June 3, 1902.

F. S. NEWMAN.  
ILLUSTRATING APPARATUS.

(Application filed Jan. 17, 1899.)

(No Model.)

4 Sheets—Sheet 3.



Witnesses:  
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**No. 701,374.**

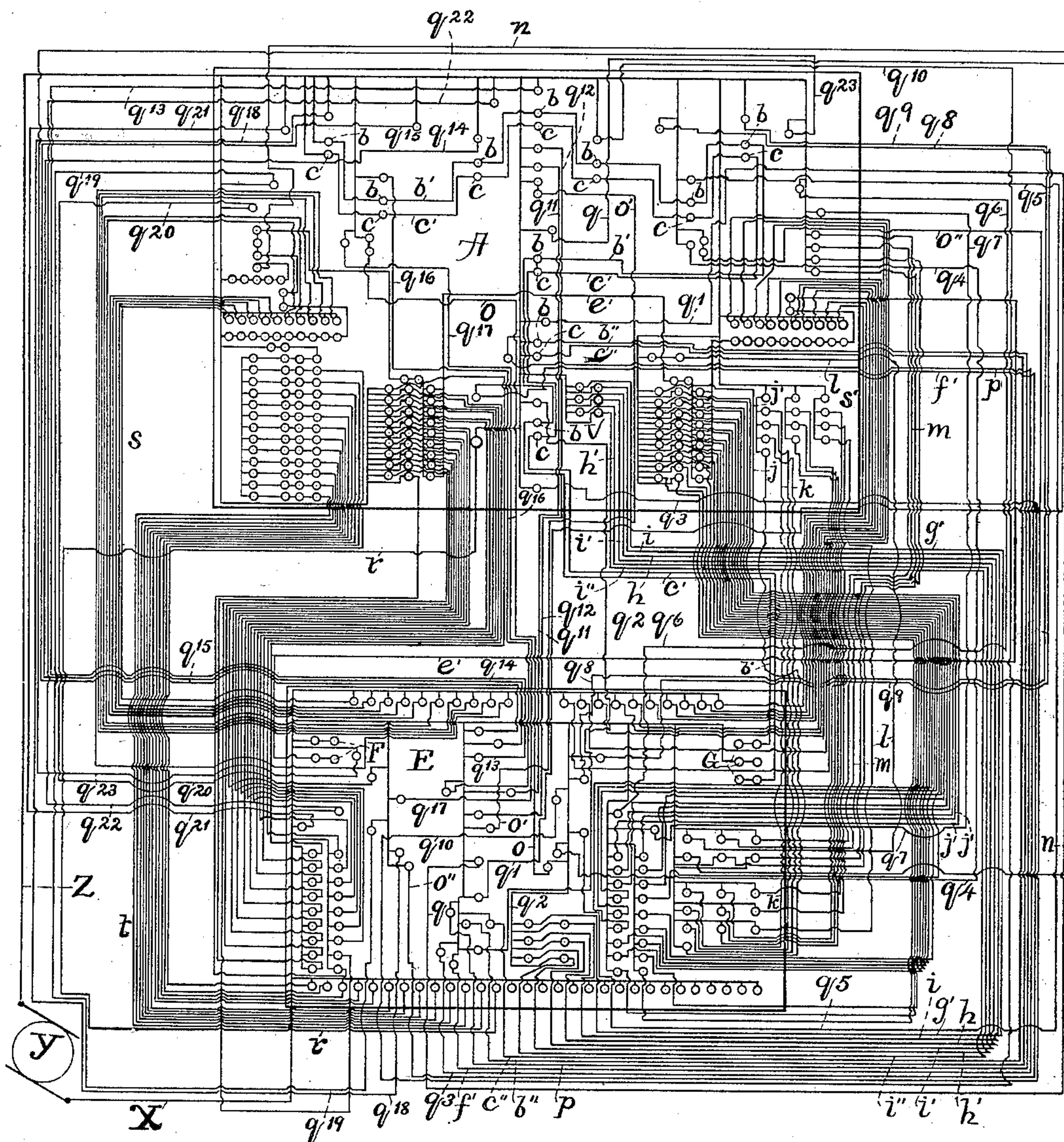
Patented June 3, 1902.

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ILLUSTRATING APPARATUS.

(Application filed Jan. 17, 1899.)

(No Model.)

4 Sheets—Sheet 4.



*Fig. 15.*

Witnesses

*F. A. Cutter.*

D. D. Taft Jr.

Inventor

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# UNITED STATES PATENT OFFICE.

FREDERICK S. NEWMAN, OF SPRINGFIELD, MASSACHUSETTS.

## ILLUSTRATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 701,374, dated June 3, 1902.

Application filed January 17, 1899. Serial No. 702,411. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK S. NEWMAN, a citizen of the United States of America, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented a new and useful Illustrating Apparatus, of which the following is a specification.

My invention relates to electrically-controlled display and illustrating or reporting apparatus, wherein the essential elements utilized consist of a screen, curtain, or other vertically-fixed surface or wall having depicted and portrayed thereon a scene illustrative of a game or event and means operatively associated therewith for illuminating the scene to reproduce the game in substantial duplication and conformity with the actual occurrences taking place at a remote locality.

The object of the invention is to provide an apparatus of the kind mentioned adapted for use in halls, theaters, or other places, whereby the various incidents of a game may be faithfully, lucidly, and accurately denoted and recorded in sequential order of occurrence.

My apparatus is particularly adapted for illustrating and reporting the detail of base-ball games and to particularly and correctly report or announce to an audience a game of the kind named in progress at a distant place. A base-ball game will therefore be described for the purpose of conveying a clear idea of the invention and the apparatus embodying it; but it will be understood that I include in the scope of my invention any game or event that may be illustrated by a scene, reflectors, different-colored lights, means for controlling and manipulating the lights, and other associated appliances or elements of the apparatus.

I have fully and clearly illustrated the invention in the accompanying drawings, in which—

Figure 1 is a view in elevation, illustrating in outline a base-ball field, the different active players being designated as in their primary positions, and also showing the different display appliances wherein or whereby the record of a game is announced and made; Fig. 2, a rear view of the right-hand half of the screen, showing the different illuminating devices in relative position, the other

half of the screen, which is substantially a duplicate of this figure, not being shown; Fig. 3, a front view of one of the reflectors; Fig. 4, a central vertical longitudinal section of said reflector, showing a single lamp therein; Fig. 5, a front view of another reflector adapted to have two lamps secured therein, as illustrated in Fig. 6 in central section; Figs. 7, 8, 9, and 10, detail views, elevations, and sections of the switch-plugs used in the circuits; Fig. 11, a detail view, in central vertical section, through the rear row of switch-plugs shown in Fig. 13, which is a plan view of the keyboard; Fig. 12, a detail of one of the lamps used to illustrate the course of a ball, secured to the face of the screen; Fig. 14, a front view of a two-lamp reflector differing only in shape and size from that shown in Fig. 5, and Fig. 15 a diagrammatic view of the wiring.

Similar letters and figures of reference designate like parts throughout the drawings and specification.

Referring to the drawings, A designates a screen, made of wood or other suitable material, on which is delineated the outline or picture of a base-ball field, the players being shown as occupying their respective stations.

P designates the pitcher; B, the batter; C, the catcher; 1st, the first baseman; 2nd, the second baseman; 3rd, the third baseman; S, the short stop; L, the left fielder; M, the center fielder, and R the right fielder. At each of the points mentioned is mounted a reflector having produced on the transparent closure thereof a picture designating the form of the player, and within these particular reflectors are secured incandescent electric lamps *b* and *c* of different-colored glasses, in this instance the former being red and the latter white to distinguish between the opposing clubs or players participating in the game.

1 B, 2 B, and 3 B designate the respective bases and are produced by reflectors suitably mounted on the screen A and provided with lamps *a* and transparent closures having pictures thereon.

Each reflector used in this invention preferably consists of a pyramidal-shaped frame or structure 1<sup>a</sup>, having interior reflecting-surfaces with a transparent closure 2<sup>a</sup> at the front or base, the reflector being set into a



suitable opening in the screen A, provided to receive it. The several reflectors are so made in shape and size as to serve the purpose intended, being square or elongated at the base to meet the requirements. They are arranged independently or in groups or series, as shown in the drawings. Each reflector is provided with a single lamp *a* or two lamps *b* and *c*, as required, to illuminate the reflecting-surfaces from whence the rays of light are projected through the closure 2<sup>a</sup>. The reflectors thus constructed are mounted in openings or apertures in the screen, as before stated, and secured in place at points or locations designating positions of participants in the game and for other purposes hereinafter explained. Other lamps are mounted on and secured to the screen A, as shown in Fig. 12, at suitable points, which are utilized to indicate temporarily the transient positions of balls or to illustrate transient incidents occurring during the progress of the game, as more fully set forth hereinafter.

E designates a keyboard provided with ordinary switches F and G, the latter being double, and a plurality of switch-plugs. The keyboard E is located at any point convenient for receiving telegraphic messages, and the several switches are connected by wires in any proper manner with the several lamps to complete the circuits.

In Fig. 15 my method of wiring is shown, the main wire Z running from one pole of the generator Y and branching off to the various lamps and the gong N, and the main wire X running from the opposite pole of said generator and branching off to the corresponding switches, the lamps and switches being connected by wires, as hereinafter pointed out. Of course the main wires may be connected with any suitable form of electric supply. The wire Z or a branch therefrom runs to one side of each lamp or series in the same circuit and the gong, and the wire X or a branch therefrom runs to one side of each switch or plug, while the circuit between a lamp or series or the gong and the corresponding switch or plug is completed by a wire connecting sides of the same opposite to those to which the main wires extend. In this figure the screen A and the keyboard E are shown, the positions of the lamps and gong on the former and of the switches and plugs on the latter being indicated by small circles, the locations of which correspond with the locations of these members in Figs. 1 and 13. Wherever wires are spoken of as running to reflectors, it will be understood, of course, that they run to the lamps in the reflectors. The wire *b'* connects the switch G with the red lamps *b* in the reflectors containing the same, and the wire *c'* connects said switch with the white lamps *c*. Hence the switch is thrown backward to light the red lamps when that color represents the club in the field and forward to light the white lamps when the other or opposing club is in the field. The batter's (B)

position is illuminated by the color representing his club, either by depressing the switch-plug J I *b* to cause the red lamp *b* to show through the medium of the wire *b''* or by depressing the switch-plug J I *c* to cause the white lamp *c* to show through the medium of the wire *c''*.

The switch-plugs employed in this device consist of two kinds, the resilient and retractile plug (designated by H with or without other characters) and the non-resilient plug J with or without other characters. Both of said plugs consist of the stems 1, the metallic contact-collars 2, superimposed above the fiber bases 3, the insulators 4, set into the board E, through which said stems operate, and the contact-springs 5, fastened to the insulator-blocks 6 on the under side of said board. The wire conductors are attached to the springs 5. The stem 1 of the switch H has a spherical thumb-piece, and the spiral spring 7 is interposed between a shoulder 8 on the upper part of said stem and the base of an annular chamber in the insulator 4, which is provided for the reception of said spring.

It will now be perceived that as soon as the pressure by which the stem 1 of a retractile switch-plug has been depressed is removed the stem will return to its normal position. The stem 1 of the non-resilient switch-plug is provided with a flattened head to distinguish it from the retractile plug and to facilitate drawing the same upward. While either form of the said plugs is in its raised position the fiber base 3 separates the springs 5 and obviates the possibility of a short circuit, but when depressed the contact-collar 2 is forced between said springs and the circuit established.

The different courses or directions which the balls may take are designated by the lamps *d* to *d*<sup>20</sup>, inclusive, and the fly balls by the reflectors having a fly portrayed on the transparency thereof and designated as *d*<sup>21</sup>, *d*<sup>22</sup>, and *d*<sup>23</sup>. The "Fly" reflectors have lamps *a* therein. Similar reflectors are also employed for announcing "Play ball" at *d*<sup>24</sup> and "Score" at *d*<sup>25</sup>.

N designates a gong for announcing the number of base-hits, &c.

The three reflectors *d*<sup>26</sup> in the same circuit indicate "Game played at" and the name of the place.

The large and small reflectors *d*<sup>27</sup> in the same circuit indicate "Attendance" and allow for the display of the figures representing the number in attendance. The two "Score by innings," club name, and "Runs" reflectors *d*<sup>28</sup> and *d*<sup>29</sup> are shown on opposite sides of the screen, the reflectors on each side being in the same circuit. Above the small "Runs" reflectors of the *d*<sup>28</sup> series are the small reflectors *d*<sup>30</sup> to *d*<sup>39</sup>, inclusive, for figures, and above the "Runs" reflectors of the *d*<sup>29</sup> series are similar reflectors *d*<sup>40</sup> to *d*<sup>49</sup>, inclusive, for figures. The transparencies at the lower left and right centers of the screen



consist of the double-light reflectors  $d^{50}$  to  $d^{58}$ , inclusive, for names of the members of one club and the reflectors  $d^{59}$  to  $d^{67}$ , inclusive, for names of the members of the other club, while the reflectors  $d^{68}$  in the same circuit are for the name of one club and the titles of its members, and the reflectors  $d^{69}$  in the same circuit are for the name of the other club and titles of its members.

The three double-light reflectors  $d^{70}$ ,  $d^{71}$ , and  $d^{72}$  are for "Umpires" and the names of the umpires. Lamps for these lights are shown at V in Fig. 15, where the right-hand lamps should be of a different color from those on the left—green, for example. The large and small reflectors  $d^{73}$  in the same circuit are for the number of the inning and the word "Inning." "Game called," "Player hurt," "Dispute," and "Error" are indicated at  $d^{74}$  to  $d^{77}$ , inclusive. "Balls," "Strikes," and "Outs" are indicated at  $d^{78}$ ,  $d^{79}$ , and  $d^{80}$ , respectively. Places for the number of "Balls" are provided at  $d^{81}$  to  $d^{84}$ , inclusive, places for the number of "Strikes" at  $d^{85}$  to  $d^{87}$ , inclusive, and for the number of "Outs" at  $d^{88}$  to  $d^{90}$ , inclusive. The lamp for "Balls" is in the circuit with the figure-lamps below, so that when any one of the latter is lighted the "Balls" reflector will be illuminated, and the lamps for "Strikes" and "Outs" are similarly arranged.

At the lower left-hand corner of the screen are the reflectors  $d^{91}$  in the same circuit for "National League standing" and "Clubs," "Won," "Lost," and "Percentage." Below these reflectors are twelve series of reflectors  $d^{92}$  to  $d^{101}$ , inclusive, the reflectors in each series being in the same circuit, which illuminate the names of the clubs in the league and the figures indicating their standing.

The manipulation of the apparatus and the operation of the assembled elements may be stated as follows: When the game is about to commence, the operator at the keyboard E shifts the switch F to energize the circuit  $e'$  and illuminate the reflectors  $d^{26}$ ,  $d^{28}$ ,  $d^{29}$ ,  $d^{68}$ , and  $d^{69}$ , all of which are in the same circuit. This shows where the game is played, lights up the "Score by innings" transparencies of both clubs playing with the places for the runs and the club names and players' titles of the two clubs. Next, upon receiving word that the game has commenced the operator depresses the switch-plug  $J^2$ , Fig. 13, and the wire  $f'$  carries the current to the "Play ball" transparency  $d^{24}$ , which is lighted up and remains so until the game is called, when said plug is drawn up and the light thereby extinguished. When the game is resumed, the plug  $J^2$  is again depressed. The players in the field and the batsmen are illuminated with different-colored lights, as before explained. The next move of the operator will be to operate the plug  $J^3 f$  to illuminate the word "Umpires" with the left or white light, the conductor  $g'$  receiving the current, and when he receives word which of the umpires is to

act he manipulates either the plug  $J^4 f$  or  $J^5 f$ , the wires  $h$  and  $h'$  connecting said plugs with the respective white lamps. Should the umpire make an error and the game be called, the operator draws up the plugs  $J^3 f$  and either  $J^4 f$  or  $J^5 f$  and presses down the plugs  $J^3 g$  and either  $J^4 g$  or  $J^5 g$  to illuminate the word "Umpires" and the acting umpire's name with the green lights. The wires  $i$ ,  $i'$ , and  $i''$  connect the plugs  $J^3 g$ ,  $J^4 g$ , and  $J^5 g$  with the respective green lamps. The plug  $J^6$  controls the transparency indicating the inning and the number, an assistant being employed to change the latter as may be required. The wire  $l$  connects the plug  $J^6$  with the lamps in the inning-reflectors  $d^{73}$ , said lamps being in the same circuit.

The left-hand lamps in the reflectors  $d^{50}$  to  $d^{58}$ , inclusive, are white, and corresponding lamps in the reflectors  $d^{59}$  to  $d^{67}$ , inclusive, are also white, while the lamps immediately to the right of these are green. If the club represented at the left center is in the field and the other club at the bat, the operator pushes down the plug  $J^{16} h$ , for example, which illuminates the name of the player at the bat and the position he holds in the club. This action lights the left-hand or white lamp in the reflector  $d^{59}$ , to which the wire  $j$  passes from said plug. If this man makes an error, the fact is communicated to the audience by elevating the plug  $J^{16} h$  and depressing the plug  $J^{16} i$ , which lights the green lamp at the right of the one previously mentioned. The wire  $j'$  connects this green lamp with the plug  $J^{16} i$ . The plugs  $J^7 h$  to  $J^{15} h$ , inclusive, control the first series of white lights, the plugs  $J^7 i$  to  $J^{15} i$ , inclusive, control the corresponding series of green lights, the plugs  $J^{16} h$  to  $J^{24} h$ , inclusive, control the second series of white lights, and the plugs  $J^{16} i$  to  $J^{24} i$  control the corresponding series of green lights, the plugs and lamps being connected by wires arranged similarly to the wires  $j$  and  $j'$ . As the successive players take their places at the bat the plugs, arranged as above noted, are operated to illuminate their names in turn and to report their errors. The series of plugs  $J^{25}$  to  $J^{34}$ , inclusive, control the lamps that illuminate the reflectors  $d^{78}$  to  $d^{90}$ , inclusive, wires running from each plug to its corresponding figure-lamp and title-lamp—as the wire  $k$ , for instance, from the plug  $J^{25}$  to the lamp in the reflector  $d^{81}$  and also the lamp in the reflector  $d^{78}$ . The required figures are placed in the illuminated reflectors in this case by an assistant. The series of plugs designated  $J^{35}$  to  $J^{38}$ , inclusive, control the lamps in the reflectors  $d^{74}$  to  $d^{77}$ , inclusive. The wire  $m$  extends between the plug  $J^{35}$  and the lamp in the reflector  $d^{74}$ , and the other plugs and lamps in this group are similarly connected.

When the number in attendance at the game is received, the plug  $J^{39}$  is used to effect the illumination of the reflectors denoting this, the figures being placed in position by



an assistant. The wire  $n$  enters into the makeup of this circuit.

The wires  $o$ ,  $o'$ , and  $o''$  connect, respectively the plug  $J^{40}$  with the reflector 3 B, the plug  $J^{41}$  with the reflector 2 B, and plug  $J^{42}$  with the reflector 1 B. By depressing one of these plugs the base reached by a player is indicated.

The reflector  $d^{25}$  is connected by the wire P with the plug  $J^{43}$ , which is depressed for a score.

The courses taken by the balls are indicated by the lamps  $d$  to  $d^{20}$ , inclusive, which project, as hereinbefore specified, from the front of the screen, a single lamp for each position or location of a ball. These ball-lamps are under the control of the resilient switch-plugs H to  $H^{20}$ , inclusive, and the wires  $q$  to  $q^{20}$  connect plugs and lamps having like figures, except that the wire  $q$  connects the plug H with the ball-lamp  $d$ . Now by depressing any one of the last-mentioned plugs the lamp in connection therewith is caused to light up, going out or subsiding immediately upon the release of the plug. By the means just described the course of the ball from start to finish is accurately indicated and represented. For instance, when the umpire tosses the ball to the pitcher P the lamp  $d$  is lighted by depressing the plug H and goes out as soon as the ball is thrown or the plug becomes elevated. If the batter B hits the ball, the lamp  $d'$  is illuminated by the depression of the plug  $H'$ , and then if the ball should be caught by the catcher C the circuit to the lamp  $d^2$  being closed will indicate that fact, and so the positions of the balls are shown or indicated wherever they may be.

The wire  $q^{21}$  connects the plug  $H^{21}$  with the fly-reflector  $d^{23}$ , the wire  $q^{22}$  connects the plug  $H^{22}$  with the fly-reflector  $d^{22}$ , and the wire  $q^{23}$  connects the plug  $H^{23}$  with the fly-reflector  $d^{21}$ . Should a fly ball be struck to the right field, the manipulation of the plug  $H^{23}$  closes the circuit to the transparency  $d^{21}$  and illuminates its lamp for an instant; if to the center, the reflector  $d^{22}$  is caused to make known the fact, and if to the left the light in the reflector  $d^{23}$  is energized by means of the plug  $H^{21}$ .

The lamps  $d^3$  back of the catcher C,  $d^7$  to the right and  $d^{20}$  to the left of the field, are suitably colored, as red, to denote foul balls. The other ball-lamps may reflect a white light.

If a player on the side that is in the field puts out a player trying to make any of the bases or to score, the operator will cause the lamp at the station of the player who did it to be lighted and also the lamp at the base where the player was put out in order to show the audience who put the player out and where it was done.

The gong N, which is provided to announce the base hits and home runs, is connected by the wire  $r$  with the plug  $H^{37}$ , one stroke on the bell sounding each time said plug is manipulated.

The series of switch-plugs  $J^{44}$  to  $J^{53}$ , inclusive, control the left-hand figure-reflectors  $d^{30}$  to  $d^{39}$ , inclusive, through the medium of the wires  $s$ , and the plugs  $J^{54}$  to  $J^{63}$ , inclusive, control the right-hand figure-reflectors  $d^{40}$  to  $d^{49}$ , inclusive, through the medium of the wires  $S'$ . As soon as the club at the bat is put out the operator pushes down the plug  $J^{44}$  or  $J^{54}$ , according to which represents the retiring club, and causes the first inning of the "Score by innings" to be illuminated of the club that has just been at the bat. If the club has made anything, the "goose-egg" at the smaller of the two reflectors  $d^{73}$  is removed to be replaced by a figure denoting the score made. The initial inning of the other club is similarly set forth, then the second inning of the first club, and so on until the game is closed. The innings-lamps are kept in circuit during the game for the convenience of late comers, as well as for those present throughout the progress of the game. The remaining lamps are for various purposes more or less closely associated with my invention. The circuits made up in part by the wires  $t$  and controlled by the switch-plugs  $H^{25}$  to  $H^{36}$ , inclusive, are for the purpose of lighting up any series reflectors  $d^{92}$  to  $d^{101}$  and with that series the reflectors  $d^{91}$  to show which club is to play, or these reflectors may all be included in one circuit and lighted by a separate plug and said plugs used to inform an assistant through other indicators which club is about to play.

The plugs  $H^{38}$  to  $H^{54}$ , inclusive, are employed to convey information to the assistant or assistants, and since it has not been deemed necessary to show the appliances for this work other than the plugs further reference to the latter in this specification is also believed to be unnecessary.

From the foregoing description, taken in connection with the drawings, it will be perceived that illustrations produced by means of this invention give a clear and accurate synopsis of a game being played at a distance. The positions of the players and the illustrating devices may be changed to suit different sizes or styles of curtains or screens, and of course different games, sports, and other events may be portrayed on the screen and their progress communicated without violating the spirit of the invention. The colors of the lamps or lights may vary, provided distinctions are maintained where they may be essential.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, in an illustrating apparatus, of a display-board having a diagram delineated thereon and openings therein at determined points, reflectors having transparent closures, secured back of said openings, pictures permanently affixed to certain of said closures, and electric lamps in said reflectors, with a keyboard equipped with switches F and G and a plurality of switch-



plugs arranged at determined points corresponding to the locations of certain of said lamps, and electric circuits connecting the lamps, switches and switch-plugs with a source of electrical supply, substantially as shown and described.

2. The combination, in an illustrating apparatus, of a display-board having a diagram delineated thereon and openings therein at determined points, flaring reflectors having transparent closures, secured back of said openings, pictures permanently affixed to certain of said closures, and electric lamps inside and attached to the rear of said reflectors, with a keyboard equipped with switches F and G and a plurality of switch-plugs arranged at determined points corresponding to the locations of certain of said lamps, and electric circuits connecting the lamps, switches and switch-plugs with a source of electrical supply, substantially as shown and described.

3. The combination, in an illustrating apparatus, of a display-board having a diagram delineated thereon and provided with openings at determined points and other openings arranged in independent series, proximately adjacent to each other, reflectors having transparent closures, secured back of said openings, pictures permanently affixed to the closures at said first-mentioned openings, and electric

lamps in said reflectors, with a keyboard equipped with switches F and G and a plurality of switch-plugs arranged at determined points corresponding to the locations of certain of said lamps, and electric circuits connecting the lamps, switches and switch-plugs with a source of electrical supply, substantially as shown and described.

4. In an illustrating apparatus, a display board or screen having a diagram delineated thereon, openings in said screen at determined points, other openings arranged in independent series, proximately adjacent to each other, reflectors disposed in said openings, transparent closures for said reflectors, incandescent lamps within the reflectors, electric circuits to said lamps, switches F and G and non-resilient switch-plugs in the circuits, incandescent lamps secured to and projecting from the face of the screen, an electric circuit to each of said last-mentioned lamps, and spring-actuated switch-plugs in each lamp-circuit last mentioned, to close said circuits as required and to automatically break the circuits when pressure is removed from the plugs, substantially as specified.

FREDERICK S. NEWMAN.

Witnesses:

ALLEN WEBSTER,  
F. A. CUTTER.