No. 736,236. PATENTED AUG. 11, 1903.

M. B. DISKEN.

CHANGEABLE SIGN.

APPLICATION FILED OCT. 30, 1901.

NO MODEL. 3 SHEETS—SHEET 1.

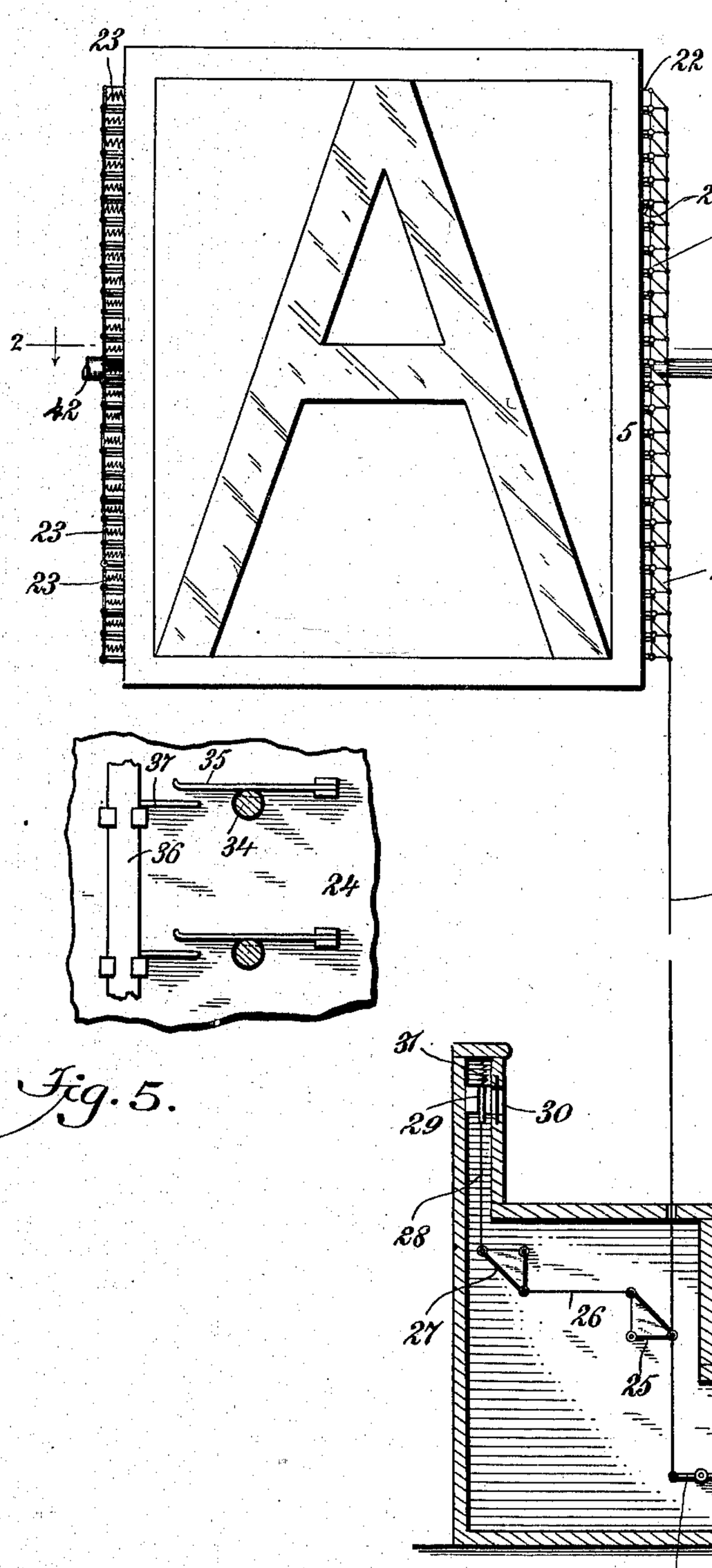
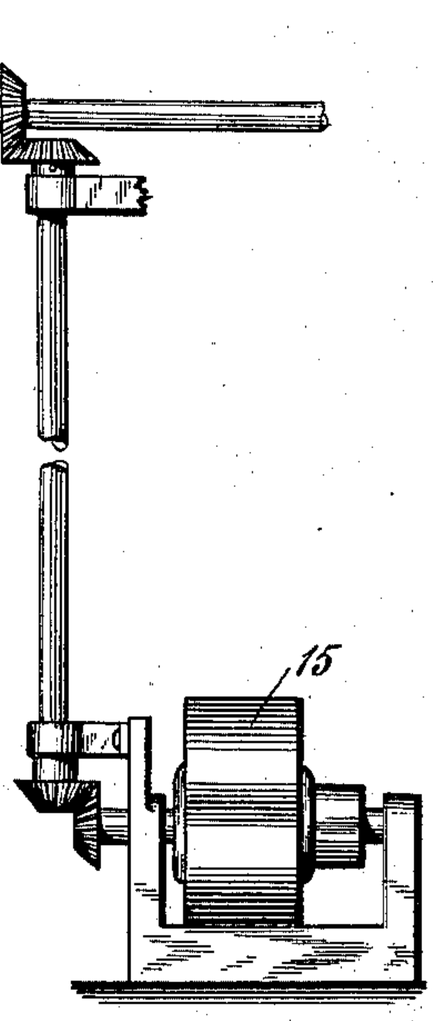


Fig. 5.



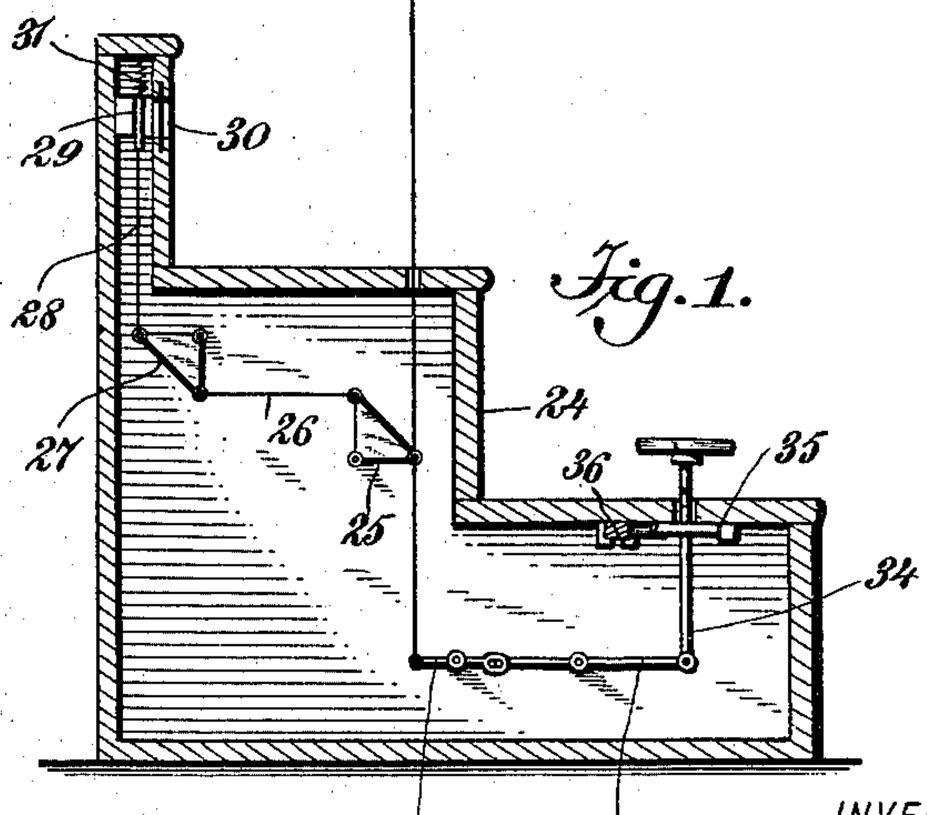


Fig. 1.

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NO MODEL. 3 SHEETS—SHEET 2.

Fig. 3.

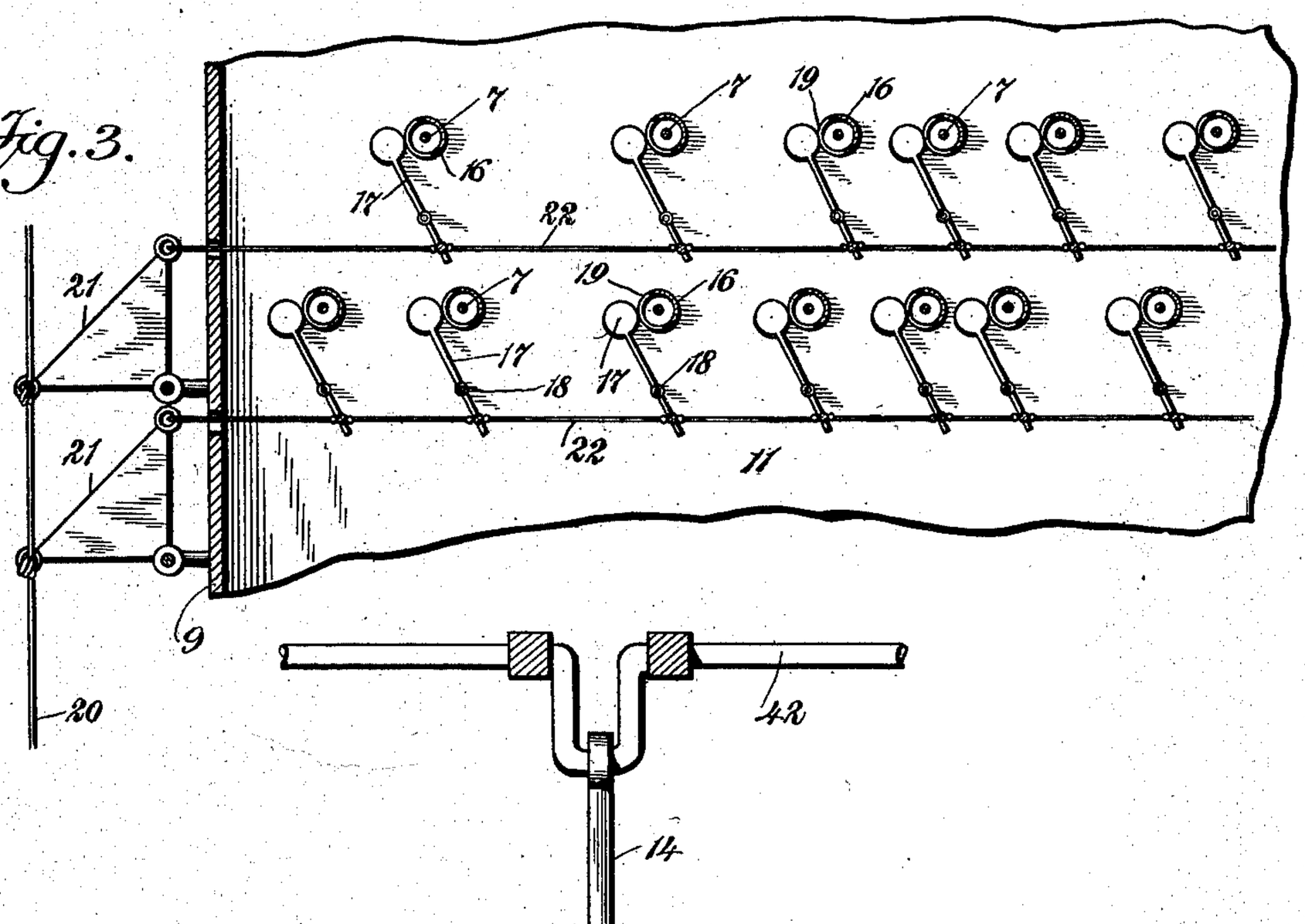

Fig. 2.

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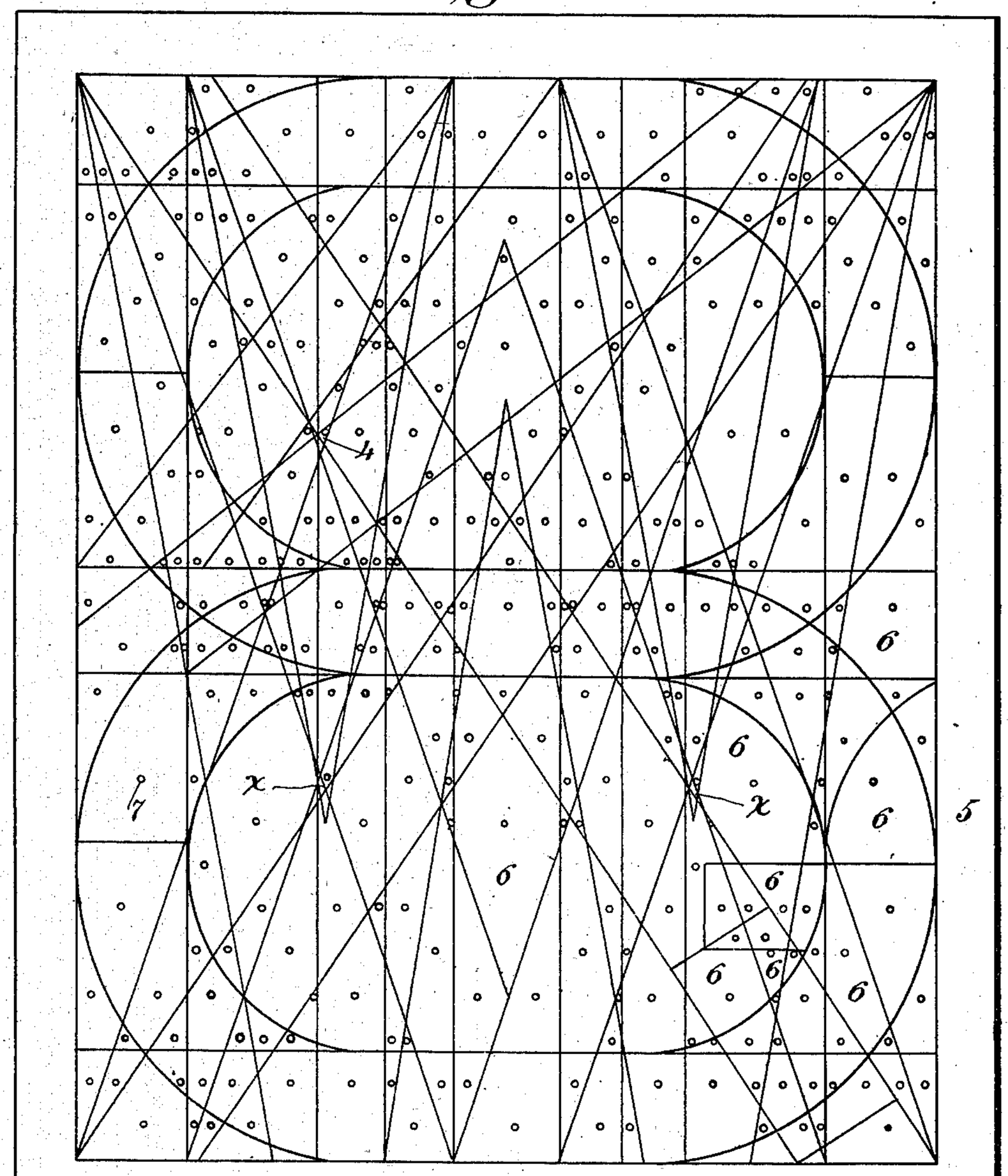
NO MODEL. 3 SHEETS—SHEET 3.

Fig. 4.



WITNESSES:

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No. 736,236. Patented August 11, 1903.

UNITED STATES PATENT OFFICE.

MARTIN BERTRAND DISKEN, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO JAMES A. LIND, OF BUFFALO, NEW YORK.

CHANGEABLE SIGN.

SPECIFICATION forming part of Letters Patent No. 736,236, dated August 11, 1903.

Application filed October 30, 1901. Serial No. 80,526. (No model.)

To all whom it may concern:

Be it known that I, MARTIN BERTRAND DISKEN, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Changeable Sign, of which the following is a full, clear, and exact description.

This invention relates to a sign adapted to be changed from time to time, so that different letters or figures may be shown. By placing a number of the signs together words and sentences may be written.

The invention comprises a framing holding together a number of blocks of various shapes, said blocks being arranged in a master grouping and forming a solid mass when assembled. These blocks are independently movable into protruded or retracted positions and are of such form that by pushing some of the blocks in or out, as the case may be, any letter or figure will be described. The blocks are connected with certain mechanism by which the proper blocks may be selected and pushed forward.

I will describe one of the signs, and of course it should be understood that the signs may be grouped together in any number desired, so as to display one word or an entire sentence, according to the purpose for which the sign is intended.

This specification is a specific description of one form of the invention, while the claims are definitions of the actual scope thereof.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a view illustrating one of the signs, as well as the mechanism for driving the movable parts and the key apparatus for selecting the blocks to be actuated. Fig. 2 is a section on the line 2 2 of Fig. 1. Fig. 3 is a fragmentary section on the line 3 3 of Fig. 2. Fig. 4 is an enlarged face view of the sign, showing the various irregular-shaped blocks referred to above; and Fig. 5 is a detail showing the spring-catches of the keyboard employed in connection with the sign.

The sign has a rectangular framing 5, which is adapted to be rigidly mounted on any suitable support and which contains the numerous irregular blocks, (indicated at 6 in Fig. 4.) These blocks are all matched to set snugly together, forming jointly a complete square; but each block is separately movable, so that by pushing out or pushing in certain selected blocks any letter of the alphabet or any single numeral may be shown—for example, the letter "A." (Illustrated in Fig. 1.) Reference to Fig. 4 will show that there are several very minute angular blocks necessary to complete all of the letters—that is to say, at such points where the lines of the various letters closely intersect, (see the points *x* in Fig. 4.) Theoretically these minute blocks should be formed separately; but in practice it is not necessary to follow the lines of the letters so accurately, and such very small blocks may be omitted to simplify the construction without materially departing from the accuracy of the letters when shown. Each block 6 has connected with the rear side thereof a rod 7. The positions of these rods are diagrammatically indicated in Fig. 4. They are shown fully in Figs. 2 and 3. By means of the rods 7 the blocks 6 are pushed in an out, so as to show the letter desired. In Fig. 2 I have shown one of the blocks pushed out. It may be supposed that there are other blocks pushed out in vertical line with this block illustrated in Fig. 2, so as to produce the letter "I."

Back of the frame 5 is arranged a selecting-box, comprising a rear wall 8, side walls 9 and 10, and a front wall 11, which last is preferably made up of two sections, as shown in Fig. 2. This selecting-box is adapted to be moved backward and forward from the frame. Any desired mechanism may be employed for this purpose—for example, the crank-shaft 42, connected with the box by a link 14 and driven from a motor 15 (see Fig. 1) or any other suitable source of movement. Within the selecting-box are arranged a number of tubes 16, receiving the respective rods 7 and extending forward and parallel with each other. The tubes 16 are one for each rod 7, and consequently one for each block 6. The tubes 16 and rods 7 are arranged in horizontal rows. The number of tubes and rods in each row is immaterial, but it is essential that the

rows of tubes all be horizontal. Any number of rows will be made, as will be convenient, and of course the tubes and rods will be spread out over the entire area of the sign and selecting-box. The rods 7 are headed at their rear ends, and these heads are adapted to come in contact with the front wall 11 of the selecting-box, so that when the selecting-box is moved rearward from the position shown in Fig. 2 the blocks 6 which previously have been pushed out will be drawn back to their inactive positions. In Fig. 2 the selecting-box is shown pushed forward, so as to show a letter on the sign; but when no letter is exhibited on the sign the box is drawn back and all of the rods 7 lie with their heads snugly against the front wall 11 of the box.

Mounted at the inner side of the wall 11 are a number of stops 17, which are pivotally carried on shafts 18, rockably mounted within the selecting-box. There is one shaft 18 for each stop and one stop for each tube 16. These stops are movable into the tubes through openings 19 in the sides thereof directly adjacent to the wall 11, as shown in Fig. 3. Now when certain of the stops 17 are thrown into the tubes 16 and when the rods 7 lie with their heads snugly against the wall 11 the stops will fall behind the heads of the rods, and these rods will then be locked to move with the selecting-box. The other rods, however, will still be freely slidable in the box, or, in other words, the box will be freely movable without imparting movement to the rods. Now should the box be moved forwardly to the position shown in Fig. 2 it will carry with it such of the rods 7 as are engaged by the stops 17, which have been thrown into the tubes 16. This forward movement of certain of the rods 7 will result in a like movement of the blocks 6, which are attached to said rods. It may therefore be seen that by selecting such of the blocks as go to make up a letter and throwing into operative position the stops 17 of the tubes concerned with said blocks upon the forward movement of the selecting-box the necessary blocks will be pushed outward, and the letter will thus be formed.

The selecting mechanism is operated by a number of main wires 20. (See Fig. 1.) This view shows but one wire, the other wires being supposed to be directly in line with it. These wires may be of any length desired, so as to lead from the sign to the point from which the letters are selected, or, in other words, the point from which the sign is operated. The number of the wires 20 is equal to the aggregate number of letters and figures which the sign may show. For example, if there are thirty-four letters and figures to be shown there should be thirty-four main wires 20. These main wires pass up one side of the sign and are each connected with a series of bell-cranks 21, the bell-cranks of each wire 20 being arranged in vertical lines and therefore following the number given above there are thirty-four vertical lines of bell-cranks 21. Fig. 1 shows one line of bell-cranks 21, the other lines being supposed to be just back of them. Each wire 20 is devoted to one letter or figure, and each vertical line of bell-cranks 21 is therefore devoted to one letter or figure. The bell-cranks 21 have connected thereto wires 22, which pass into the selecting-box and are connected at the opposite side thereof to springs 23, these springs tending to draw them to the right in Fig. 3, so that normally the stops 17 are held out of the respective tubes 16. However, by pulling down on one of the main wires 20 (see Fig. 3) the bell-cranks 21, connected with said wire, will be turned so as to draw the wires 22 to the left and thus throw in the stops 17. In Fig. 3 it may be assumed that all of the stops there illustrated belong to one letter. For example, they may belong to the middle horizontal branch of the letter "E." Now taking the letter "E" as an example, if all of the stops related to this letter are connected to a certain one of the wires 20 through the medium of the wires 22 and bell-crank 21 by pulling on this wire 20 all of the stops above referred to will be thrown into the tubes 16, and then upon the movement of the selecting-box, as before described, this letter will be pushed out, as shown. Pressure on the wire 20 relating to the said letter may then be relaxed, and the springs 23 will return the stops to their inactive positions. (See Fig. 3.) However, the blocks 6 will stay in active position as long as the selecting-box is held forward. (See Fig. 2.) The motor 15 or other source of movement for the shaft 42 may of course be provided with controlling mechanism, so as to hold the selecting-box in one position or the other as long as may be desired. Concerning Fig. 2, I have not shown the entire number of vertical rows of bell-cranks, for the reason that on the scale at which the drawing is made if it were attempted to illustrate all of the bell-cranks the illustrations would be too small. For the same reason I have omitted the majority of the wires 22 and have illustrated only that number which is sufficient to show the general principle on which they are arranged.

In Figs. 1 and 5 I have shown a key apparatus for operating the wires 20 and also for showing to the operator just what letters have been produced upon the sign. In Fig. 1 the wire 20 is shown passing down into a box 24. This box may be placed wherever desired and as far removed from the sign as convenience may require. Each wire 20 passing into the box 24 is connected with a bell-crank lever 25, and these bell-crank levers 25 are in turn connected by wires 26 to bell-crank levers 27. The bell-crank levers 27 have wires 28 attached, and these wires pass to auxiliary signs 29, mounted in the upper part of the box 24 and visible through observation-openings 30 therein. These signs are one for each of the letters or figures to be

shown by the sign—say, for example, they are thirty-four in number—and they are held normally raised out of sight by springs 31. When, however, any one of the wires 20 is drawn down, this causes a like downward movement of the sign 29 related thereto, so that this sign will be visible through the corresponding observation-opening 30, and the operator will see at the box 24 just what letter is shown at the sign notwithstanding that the sign itself may be very remote and out of sight. The wires 20 pass from the bell-cranks 25 to levers 32, which in turn have slot-and-pin connections with levers 33, mounted in the lower part of the casing 24. Keys 34 are connected with the levers 33, so as to throw them. Thus upon the movement of the keys 34 not only is the desired letter actually shown on the sign, but this same letter is indicated by the appropriate auxiliary sign 29 on the upper part of the casing 24. Spring-catches 35 are provided to hold down the keys 34 after they have been operated, and these catches 35 are themselves adapted to be simultaneously released by means of a reciprocal bar 36, (see Fig. 5,) having fingers 37 engaging the catches. These spring-catches 35 when operative hold the keys down, so that should the operator be working on a number of signs to spell out a word or sentence he will be shown at all times just what letters he has exhibited, and after the entire word has been spelled and exhibited as long as desired the bar 36 may be operated, thus releasing the catch 35 which had previously become operative. A keyboard 24 is provided for each of the signs—that is to say, if in practice one chooses to have a group of, for example, twenty signs there must be twenty keyboards provided, one for each of the signs.

If desired, the sign may be made luminous, and to this end the blocks 6 should be formed as shown in Fig. 4—viz., they should be made up of an opaque back section 6^a and a transparent front section 6^b, connected rigidly together and held spaced apart by rods 6^c. When the blocks are all moved inward, the spaces between the sections 6^a and 6^c will register to form a transverse chamber running throughout the sign. The side walls of the frame 5 are provided with orifices 38, which correspond to this chamber, and lights 39, with reflectors 40, are arranged just opposite the said orifices, so that the lights shine into the chamber between the sections 6^a and 6^b of the blocks 6, and consequently all of the blocks which are moved inward—that is to say, which lie in inactive position—will be luminous; but those blocks which are moved outward to show a letter will have their opaque sections 6^a interposed between the light-chamber and the front of the sign, and these letters will therefore appear as darkened. Consequently the sign thus arranged will have its letters dark on a luminous field. The sign may be made to show luminous letters on a dark field by reversing the mechanism, so that blocks related to the letter to be shown are held immobile, while all the other blocks of the sign are pushed out.

The motor 15 may be mechanically controlled by a suitable switch mechanism, so as to exhibit the letter for any length of time desired, or, if preferred, an automatic device may be employed for holding the selecting-box forward for a certain time and then drawing it backward, this operation going on continuously, so that complete sentences may be spelled out on the sign in a regular order.

Various changes in the form, proportions, and minor details of my invention may be resorted to without departing from the spirit and scope of my invention. Hence I consider myself entitled to all such variations as may lie within the scope of my claims.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A sign formed of a number of blocks or sections set together and movable bodily, independently of each other to show any one of two or more characters, the said movements of the blocks or sections being in parallel lines.

2. A sign formed of a number of blocks or sections set together and movable bodily, independently of each other to show any two or more characters, said movements of the blocks or sections being in parallel lines, and selecting mechanism for said blocks or sections.

3. A sign formed of a number of blocks or sections set together and movable bodily, independenly of each other to show any one of two or more characters, the said movements of the blocks or sections being in parallel lines, and selecting mechanism for said blocks or sections, said selecting mechanism including means for driving it to push the sections in and out.

4. A sign, comprising a frame, and a number of irregular blocks or sections matched together and held in the frame, said sections being independently movable and being capable of forming either one or a plurality of curved or acute-angular characters.

5. The combination of a frame, a plurality of blocks or sections held therein, said blocks being movable bodily, independently of each other in parallel lines, a member movable toward and from the frame, and means for connecting and disconnecting any of the said blocks or sections to the said movable member for the purpose specified.

6. The combination of a frame, a plurality of blocks or sections held therein, said blocks being movable bodily independently of each other in parallel lines, a member movable toward and from the frame, and means for connecting and disconnecting any of the said blocks or sections and the said movable member for the purpose specified, said means comprising rods attached to the blocks and stops on the movable members to engage the rods.

7. The combination of a frame, a plurality of independently-movable blocks or sections held therein, a selecting-box movable toward and from the frame, rods attached to the blocks or sections and sliding in the box, and stops mounted in the box to engage the rods, for the purpose specified.

8. The combination of a frame, a plurality of independently-movable blocks or sections held therein, a selecting-box movable toward and from the frame, tubes mounted in the box, rods attached to the blocks or sections and sliding in the tubes, stops mounted in the box and respectively movable into the tubes to engage the rods, and means for operating the stops.

9. The combination of a frame, a plurality of independently-movable blocks or sections held therein, a selecting-box movable toward and from the frame, tubes mounted in the box, rods attached to the blocks or sections and sliding in the tubes, stops mounted in the box and respectively movable into the tubes to engage the rods, means for operating the stops, said means comprising rock-shafts on which the stops are carried, cords connected to the rock-shafts, bell-crank levers connected to the cords, and means for transmitting movement to the bell-crank levers.

10. A sign having a number of blocks independently movable, said blocks being each made up of an opaque and a transparent part spaced from each other to form an illuminating-chamber.

11. A sign having a number of blocks independently movable, said blocks being each formed of an opaque back part, a transparent front part, and a connecting-rod for holding them spaced apart to form an illuminating-chamber within the sign.

12. In a device of the character stated, elements arranged in a master grouping and each element independently movable into protruded and retracted positions, and means for controlling the movement of said elements in accordance with a predetermined plan.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MARTIN BERTRAND DISKEN.

Witnesses:
WILLIAM J. BARRETT,
JAMES F. DISKEN.