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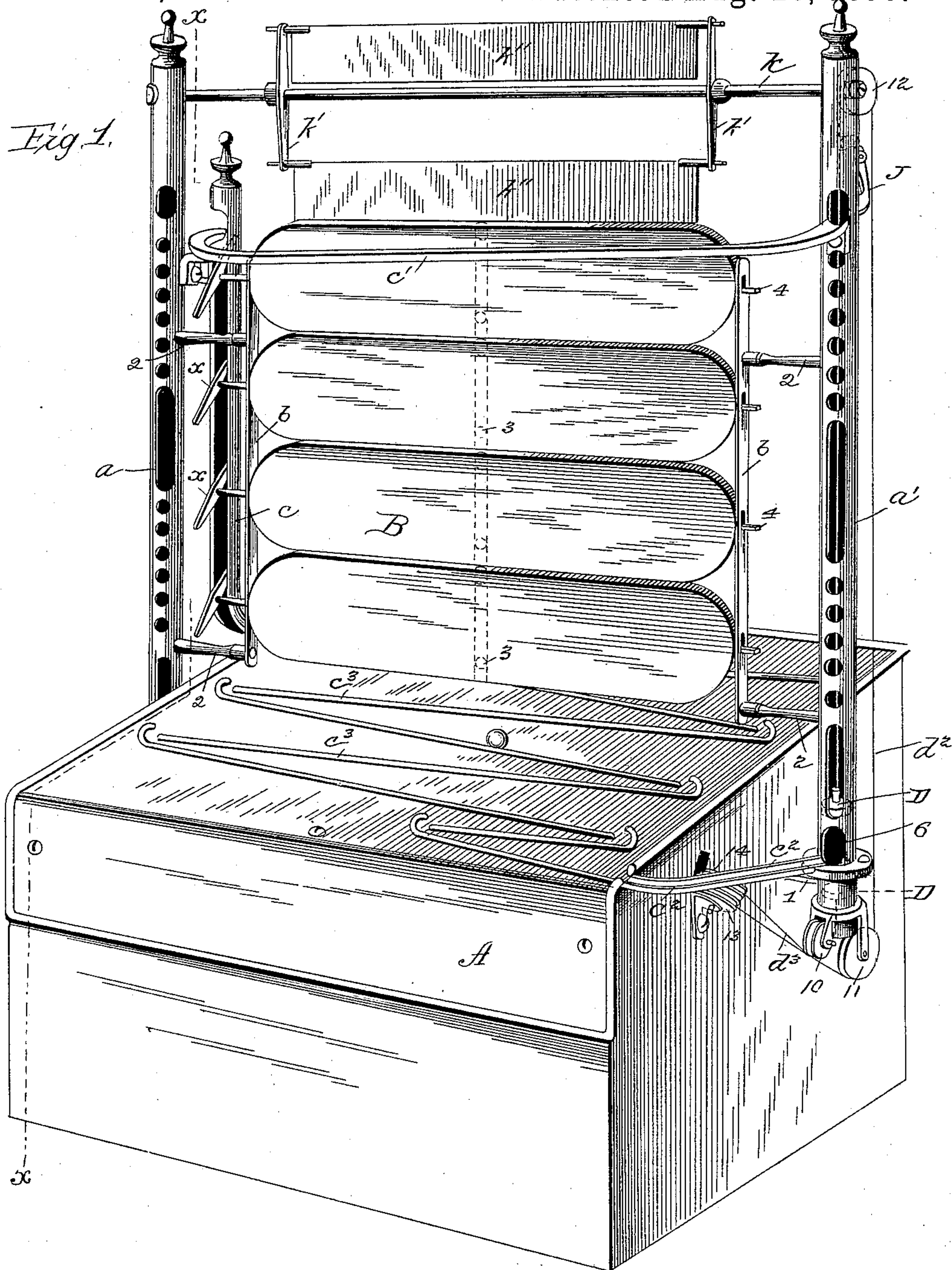
5 Sheets—Sheet 1.

R. GORNALL.

# AUTOMATIC ADVERTISING APPARATUS.

No. 435,118.

Patented Aug. 26, 1890.



Attest  
Walter Donaldson  
Walter F. Keene

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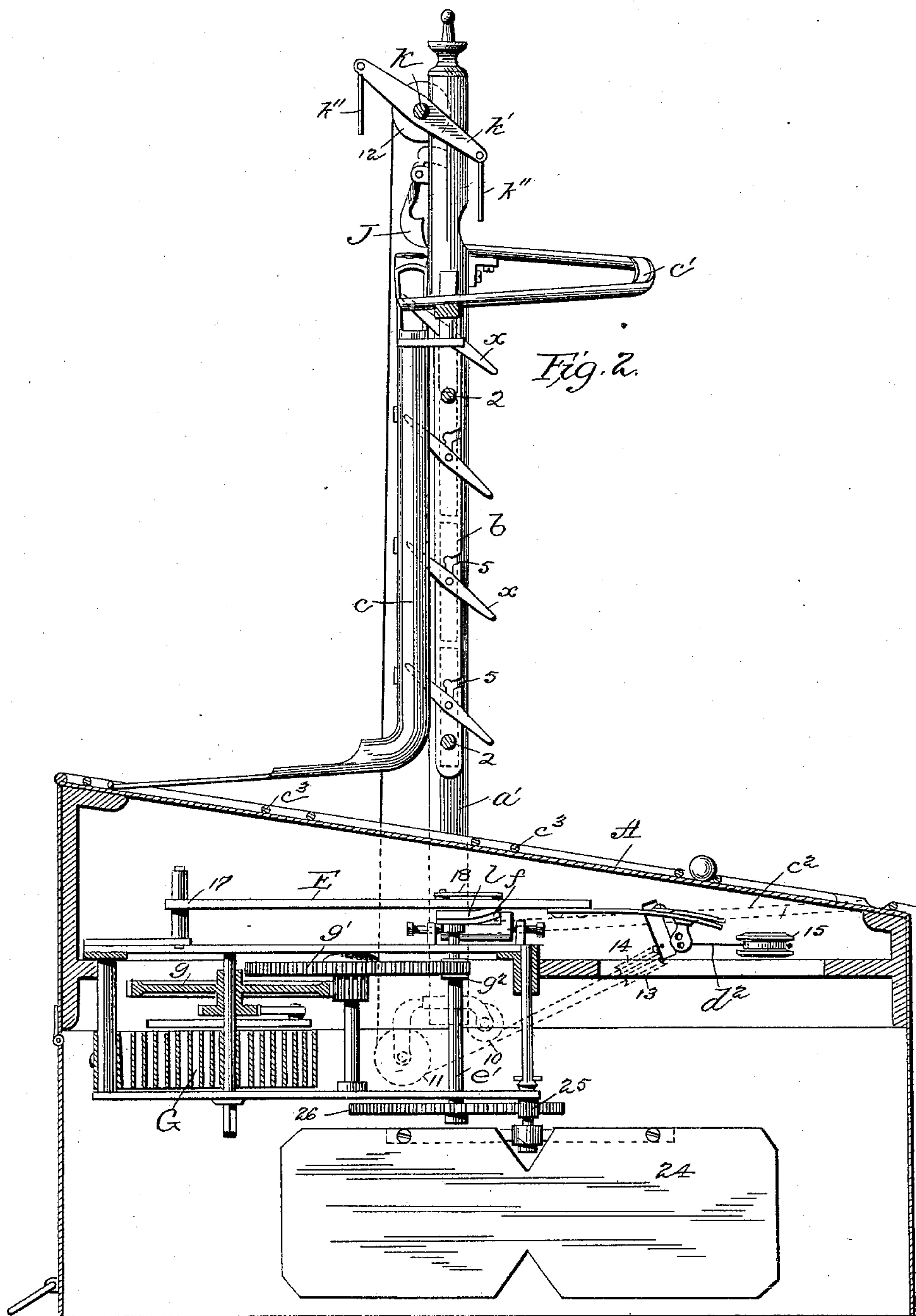
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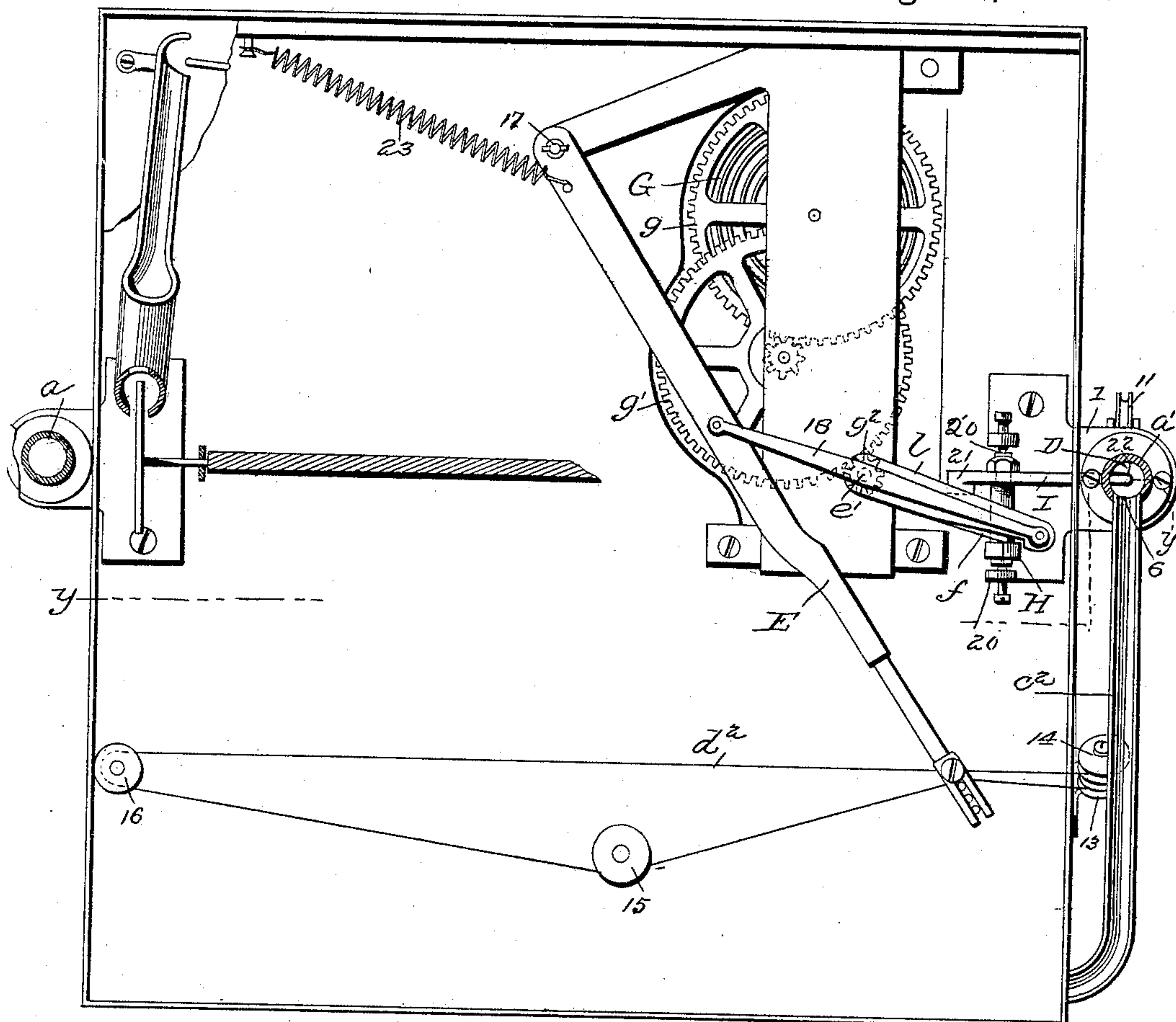


Fig. 3.

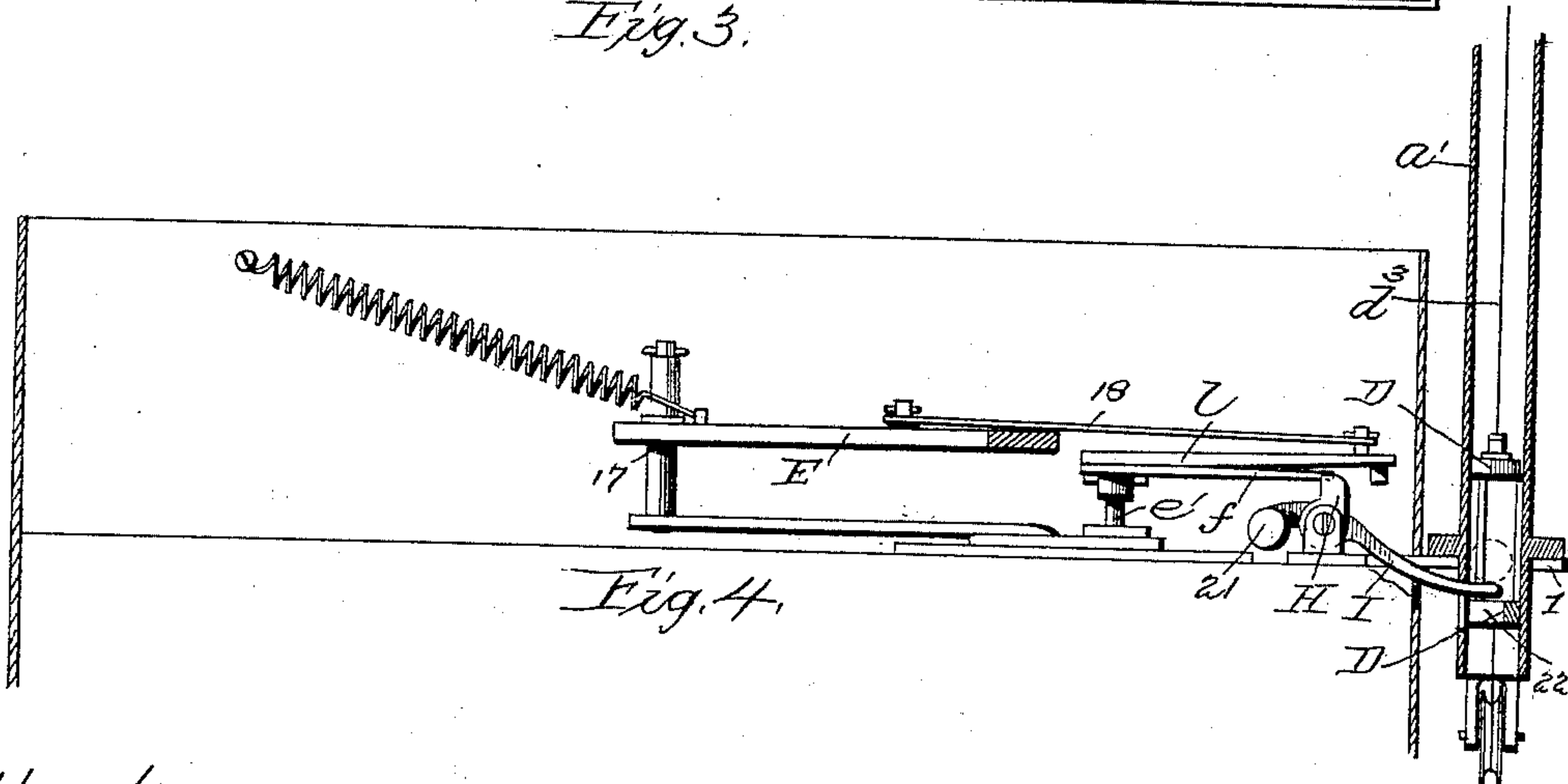


Fig. 4.

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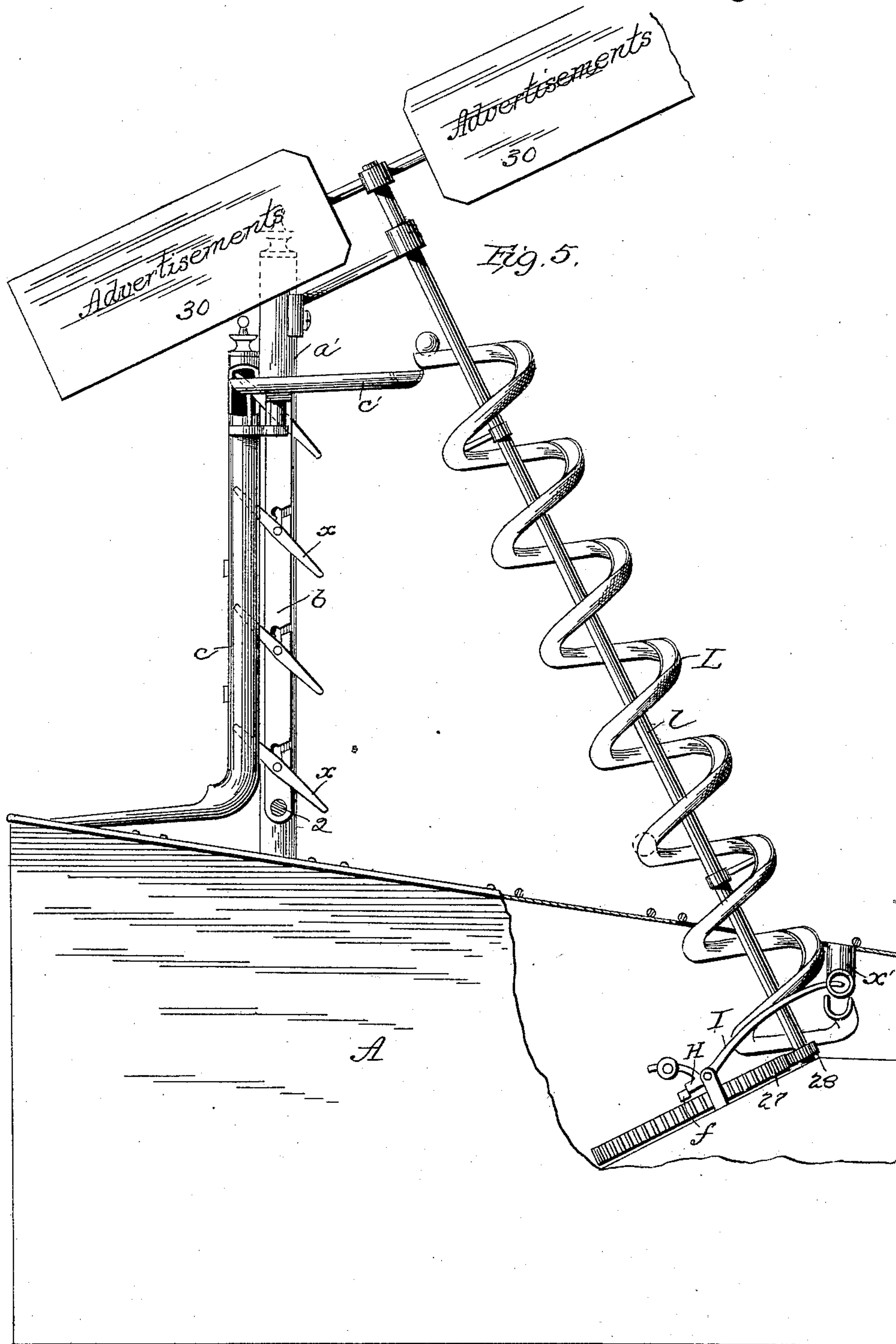
(No Model.)

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R. GORNALL.  
AUTOMATIC ADVERTISING APPARATUS.

No. 435,118.

Patented Aug. 26, 1890.



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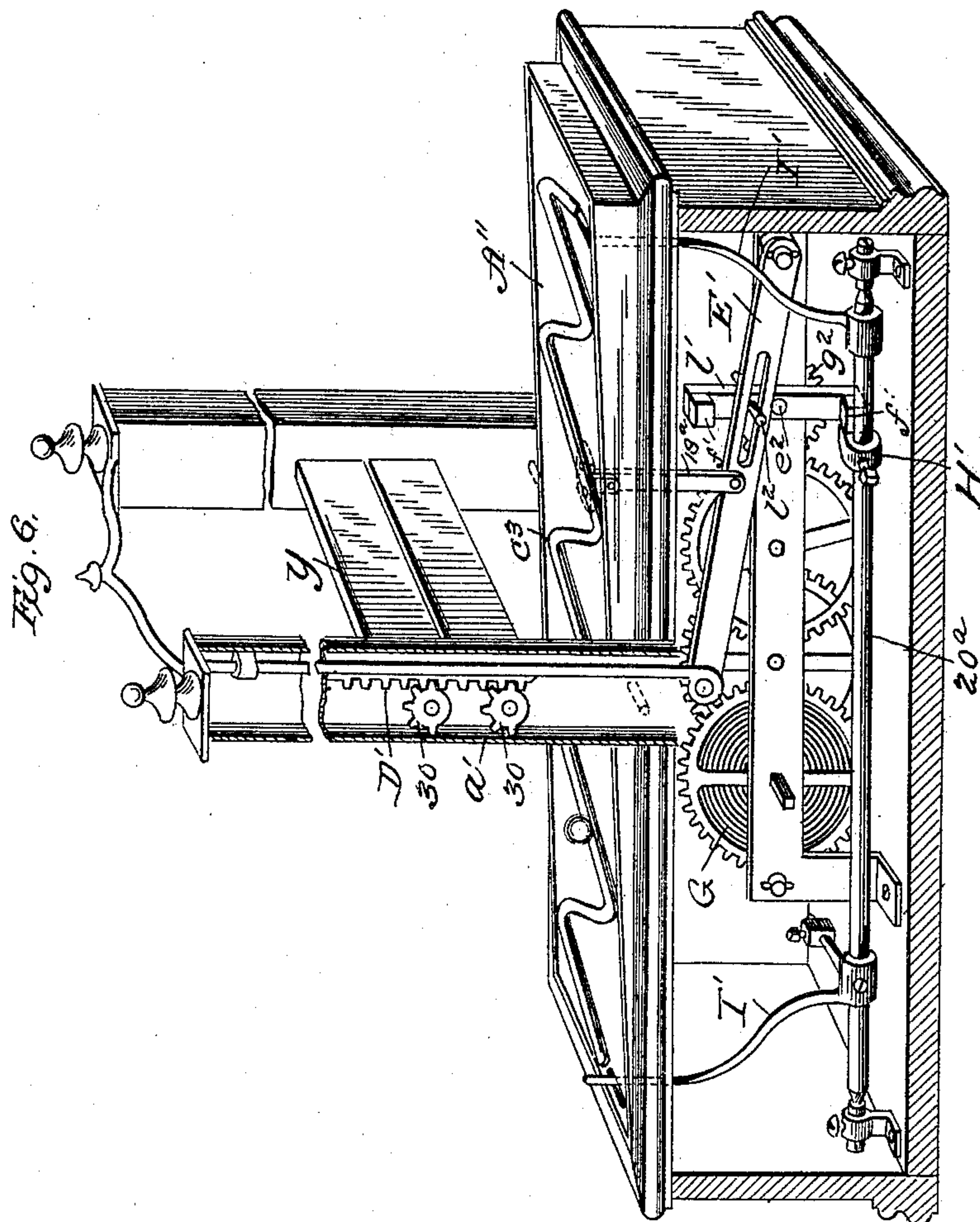
(No Model.)

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AUTOMATIC ADVERTISING APPARATUS.

No. 435,118.

Patented Aug. 26, 1890.



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# UNITED STATES PATENT OFFICE.

RICHARD GORNALL, OF BALTIMORE, MARYLAND.

## AUTOMATIC ADVERTISING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 435,118, dated August 26, 1890.

Application filed November 14, 1889. Serial No. 330,285. (No model.)

*To all whom it may concern:*

Be it known that I, RICHARD GORNALL, of Baltimore, in the State of Maryland, have invented a new and useful Improvement in Automatic Advertising Apparatus; and I do hereby declare that the following is a full, clear, and exact description of the same.

The herein-described automatic advertising device belongs to that class in which the signs or advertisements are changed periodically, the operating parts being set to run under the motive force of a clock-spring or weight. In this machine, however, the motive force is not constantly in action, but is released only at periods by the tripping action of a gravitating weight or ball, said motive force when released being utilized to elevate the ball to its highest level for another operation.

The invention includes movable signs, motive mechanism, combined with trip-holding means therefor, a gravitating weight or ball to release said trip-holding means, and means for elevating the ball connected with the motive mechanism.

The invention includes also the combination, with a gravitating ball, of means for raising and conducting it to the movable signs or panels for operating the same.

Another feature of my invention consists in the combination, with motive and trip mechanism, of an inclined spiral conduit in connection with said motive mechanism to be rotated thereby which raises the ball to its elevated position.

The invention includes further details of construction and arrangement which enable me to reduce the invention to simple and attractive form.

In the drawings, Figure 1 is a perspective view; Fig. 2, a vertical section on line  $x x$  of Fig. 1; Fig. 3, a plan view of the base, with the upper plate removed to show the motive mechanism. Fig. 4 is a front sectional view on line  $y y$  of Fig. 3. Fig. 5 is a view similar to Fig. 3, with parts in side elevation. Fig. 6 is a perspective view of a modification.

Referring to Figs. 1 to 5, inclusive, the base A, which contains the motive mechanism, supports the upper frame-work, consisting of a side standard  $a a'$ , secured to brackets 1 on

the sides of the base. From these standards arms 2 2 extend inwardly toward each other and support vertical bars  $b b$ . In these bars are pivotally hung a series of movable panels 55 or bars B, upon which the advertising matter may be placed in any suitable manner, these devices being representative ones for any equivalents, such as cards, a movable belt, or a chain. The panels are cored out vertically 60 to receive a weight 3, which causes them to assume vertical positions, for which purpose also the journals 4 on one side may be rectangular in cross-section. The other journals bear in slots 5 of the other bar, which slots 65 extend to the edge, permitting the removal and replacing of the panels, when desired. The journals on this side have arms  $x$  extending at right angles and arranged in relation to the panels, so that they are inclined when 70 the panels are in normal position. The rear ends of these arms project into the vertical sections  $c$  of the conduit for the ball or weight, and as the ball falls through said conduit it strikes the ends of the arms and turns the 75 panels in succession to expose the other sides, it being understood that each panel may, if desired, have more than the two advertising sides shown. The ball is conveyed to the vertical section of the conduit by the inclined portion 80  $c'$ , extending across in front of the upper frame-work and connecting with the standard  $a'$  on the right, which is hollow and contains an elevating device for raising the ball, as will hereinafter be described. At the lower 85 end of this standard is an inlet-opening 6 for the ball, located just above the normal position of the elevator-plate, so that the ball, entering through the opening 6, immediately falls upon the elevator and in position to be 90 lifted. An inclined section  $c^2$  of the conduit leads the ball to this opening, said conduit extending to the upper front corner of the base or casing. The top of the casing is inclined downwardly from rear to front and is 95 provided with a circuitous way or conduit for the ball. In the present instance this is shown as consisting of a series of strips or wires  $c^3$ , extending back and forth across the upper surface and curved at their ends, to 100 properly direct and confine the ball. I do not wish to limit myself to this form of conduit,



as the top plate may be formed with grooves to accomplish the same purpose. The conduit-circuit is completed between the rear end of the way on the top plate and the vertical section  $c'$  by an inclined extension  $c^2$  of the latter. The circuit is thus established from the lower end of the standard  $a'$  through the same by means of the elevator along the section  $c'$ , down through the vertical section  $c$ , where the advertising medium is moved, thence to the circuitous way on the inclined top plate, and back to the lower end of the standard by means of the inclined section  $c^2$ . This circuit is thus long enough to give a proper interval between the operations of the panels to hold the attention of the spectators and to enable them to read the advertisements. It will be obvious that a larger circuit may easily be provided, if desired, the ball, instead of operating all the panels at one end through the vertical section  $c$ , being led from the left of the upper panel, for instance, to right of the next panel below and then back to the left of the third panel, and so on.

The ball-raising means consists of an elevator D, included in an endless band  $d^2$ , which passes through the hollow standard  $a'$  about sheaves 10 11 12 on said standard and into the casing around pulleys 13 14 15 16. The band is connected to an oscillating arm E, pivoted at 17 within the casing, which in turn is connected with a rotating crank-arm 1 by a link 18. Movement of the oscillating arm E to the left of Fig. 3 operates the endless band to raise the elevator and ball, while the return movement gives the reverse action and causes the elevator to assume normal position. The crank-arm  $l$  is on the vertical shaft  $e'$ , and this is under operating tension from the coil-spring G through any ordinary train of mechanism  $g g' g^2$ . The crank-arm is provided with a spring-stop or catch-arm  $f$ . In range with the end of this arm is supported a pivoted stop-piece H, which, when in normal position, holds the parts in normal position, as in Fig. 3, this position being maintained while the ball is making the circuit and until it returns to the elevator. The stop-piece is held in adjustable bearings 20 and is combined with a weight 21, which returns it to normal position. A trip-arm I extends from the stop-piece into the lower end of the standard  $a'$  just above the lower part of the elevator, as in Fig. 4, so that the ball, entering the inlet 6, depresses the trip-arm, moves aside the upper end of the stop-piece from the spring-catch arm, and allows the motor mechanism to raise and depress the elevator through the described mechanism. As soon as the ball begins to move upward, the stop-piece returns to normal position, and the crank-arm is arrested when it comes around, it having then made a complete revolution. The spring-catch arm insures an easy action and prevents jar in arresting the motor mechanism. The lower part of the elevator is notched at 22 to allow it to pass the trip-arm

I. The oscillating arm is placed under tension also by means of a spiral spring 23, Fig. 3. As a means of regulating the movements, a revolving fan 24 may be used, as in Fig. 2, connected through pinion 25 and gear 26 with the vertical crank-arm shaft.

In order that the ball may be positively ejected from the elevation onto the conduit  $c'$  a lever J is employed, the upper end of which extends into the hollow standard to be struck by the elevator, which action throws inward the lower end and ejects the ball from the elevator upon the conduit. The sheave 12 at the upper end of the standard  $a'$  rotates a transverse shaft K. To this are fixed arms  $k'$ , which pivotally support additional panels  $k''$ , which may contain advertising matter also. The shaft and panels move while the elevator is being raised and lowered. It will be noticed from the above that the motor mechanism is in action at intervals and is required only to run for the brief time necessary to raise and lower the elevator, and therefore the mechanism may be set to run for a considerable period without requiring winding.

The preferred form of elevating means is shown in Fig. 5, consisting of a conduit L, arranged spirally about a shaft  $l$ . This extends in an inclined position from within the casing to the upper section  $c'$  of the conduit, and the lower end of the spiral in normal position is below the lower end  $x'$  of the conduit. The shaft  $l$  is driven by gear 27 and pinion 28 from any suitable spring or weight, as above described, connected with the former. The gear 27 has a stop or catch  $f$ , similar to the catch of the crank-arm, above described, and a similar stop-piece H and trip-lever I are used to be acted upon by the ball and release the train of mechanism in order to rotate the spiral conduit and elevate the ball. The upper end of the shaft  $l$  is provided with fans 30, which will tend to render the action even, operate to attract attention, and furnish additional space for advertisements.

In Fig. 6 is illustrated a further modification, in which the means for raising the ball consists of a pivoted plate  $A''$ , having the conduit  $c^3$  thereon. This plate is tilted by a lever  $E'$ , to which it is connected by the link 18<sup>a</sup>. Motion is imparted to this lever by an arm  $l'$  on the shaft  $e^2$  of a pinion  $g^2$ , said arm having a pin  $l^2$  projecting through a slot in the lever. The pinion  $g^2$  is driven from the spring G through any suitable train of gears and pinions, such as those shown. The arm  $l'$  is provided on its ends with stop projections  $f''$ , which abut against a stop-piece H when the latter is in normal position, and thus retain the motive mechanism and other parts in one position until the ball trips the mechanism, when the arm  $l'$ , revolving through the force of the spring, moves the lever until the other stop projection strikes the stop-piece. The stop-piece is on a shaft 20<sup>a</sup>, and near the ends of this are trip-levers I', which extend up-



wardly to pass through slots in the tilting plate at the ends of the conduit, so that the ball, running down the inclined plate, will strike the lever at the lower end thereof, tripping the mechanism and causing the plate to tilt in the other way, thus raising the ball, so that it will run to the other end, at which point a similar operation takes place. In this instance the signs Y can be operated by the motive mechanism instead of by the ball. For this purpose the end of the lever E' is connected with a vertical rack-bar D' in the post a', which rack engages with the segmental pinions 30 on the ends of the signs.

I claim as my invention—

1. In combination, the supporting-frame, movable means for the advertisements supported thereby, a gravitating ball, a motive mechanism, a trip mechanism engaging therewith for holding the same normally against action, said trip mechanism being in the path of the ball to be operated thereby, and means for elevating the ball connected with the motive mechanism, substantially as described.

2. In combination, the supporting-frame, the movable advertising means supported thereby, a gravitating ball, a conduit therefor whereby the ball will be directed to operate the same, and automatically-operating means for raising the ball between the lower and upper end of the conduit, substantially as described.

3. In combination, the supporting-frame, the movable advertising means supported thereby, a gravitating ball, a conduit therefor to direct the ball to operate the same in its passage, means for elevating the ball between the lower and upper end of the conduit, a motive mechanism connected with the elevating means, and a trip mechanism engaging with the motive mechanism for normally holding the same, said trip mechanism being in the path of the ball, substantially as described.

4. In combination, the supporting-frame, the movable means for the advertisements, a gravitating ball, a conduit to direct the ball to operate the advertising means, an elevating device for the ball consisting of the inclined spiral conduit arranged between the lower and upper end of the main conduit,

and automatically-operating means for revolving the spiral, substantially as described.

5. In combination, the revoluble panels for the advertisements, the operating ball with elevating means therefor, the conduit, and movable arms projecting into said conduit to be operated by the passage of the ball, said arms being connected with the panels, substantially as described.

6. In combination, the movable means for the advertisements, the ball with elevating means therefor, the casing having an inclined top plate, and the conduit for the ball, a part of the said conduit being upon the inclined top plate, substantially as described.

7. In combination, the movable panels for the advertisements, the ball with elevating means therefor, the vertical section of conduit, the operating arms of the panels extending therein, the inclined top plate of the casing, and the sinuous conduit thereon connected with the vertical section of conduit, substantially as described.

8. In combination, the movable means for the advertisements, the ball and conduit, the elevating means, the motive means therefor, a stop-piece for holding said motive means inactive, and a trip-lever in connection with said stop-piece and extending into the path of the ball, substantially as described.

9. In combination, the movable advertising means, the ball and conduit, the elevating means for the ball, and a supplemental device adapted to receive advertisements connected with elevating means whereby it is operated in the raising of the ball, substantially as described.

10. In combination, the ball with the conduit and elevating means and the revoluble panels for the advertisements, said panels having movable weights for holding them in proper position, substantially as described.

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

RICHARD GORNALL.

Witnesses:

JNO. T. MADDOX,

JAS. P. DORSEY.