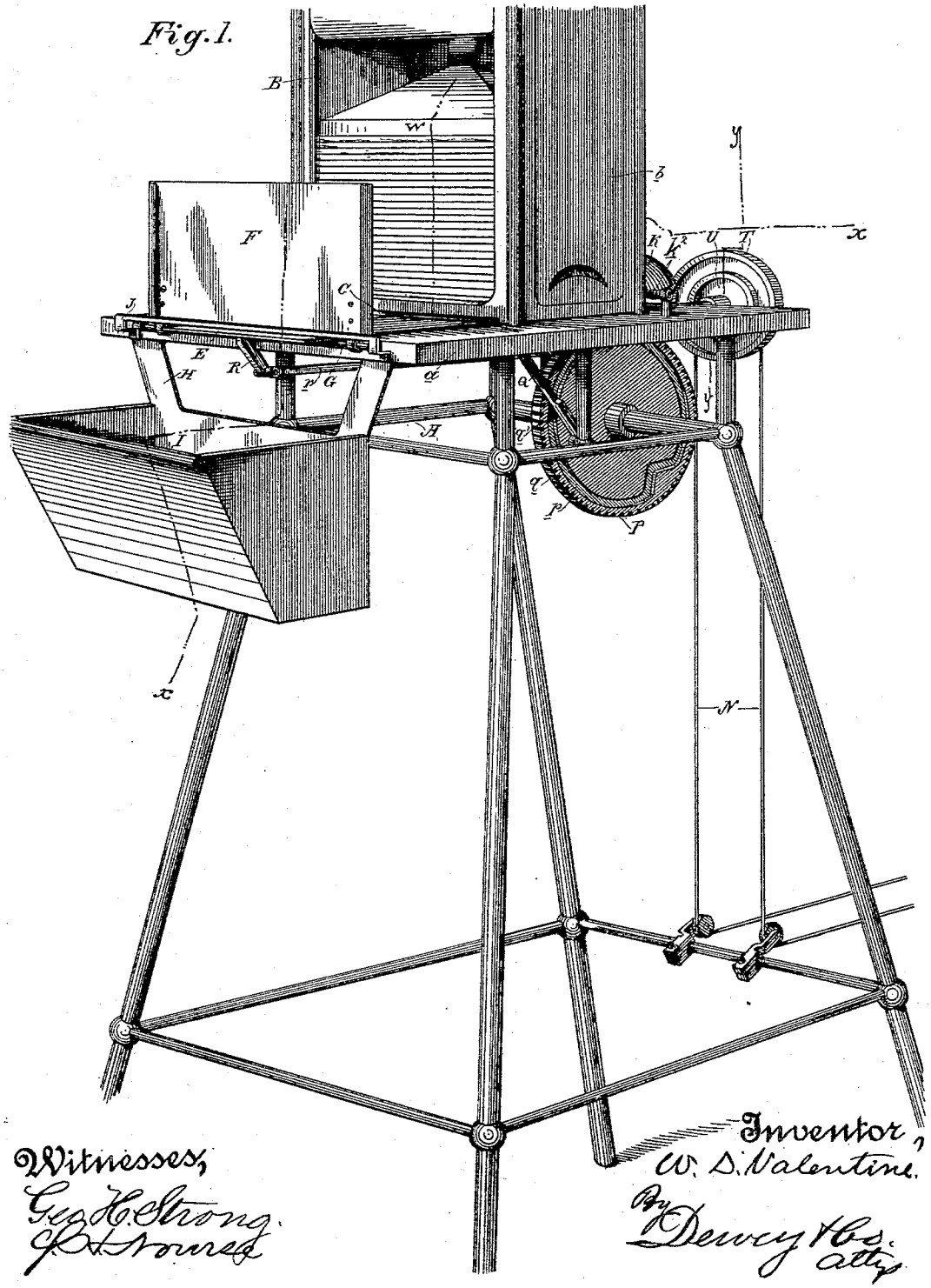
(No Model.) 3 Sheets—Sheet 1.

W. D. VALENTINE.

CARD EXHIBITOR.

No. 378,345. Patented Feb. 21, 1888.

Fig. 1.



Witnesses,
Geo. H. Strong.
J. L. Bowes.

Inventor,
W. D. Valentine.
By Dewey & Co.
Atty.

N. PETERS, Photo-Lithographer, Washington, D. C.

(No Model.) 3 Sheets—Sheet 2.

W. D. VALENTINE.

CARD EXHIBITOR.

No. 378,345. Patented Feb. 21, 1888.

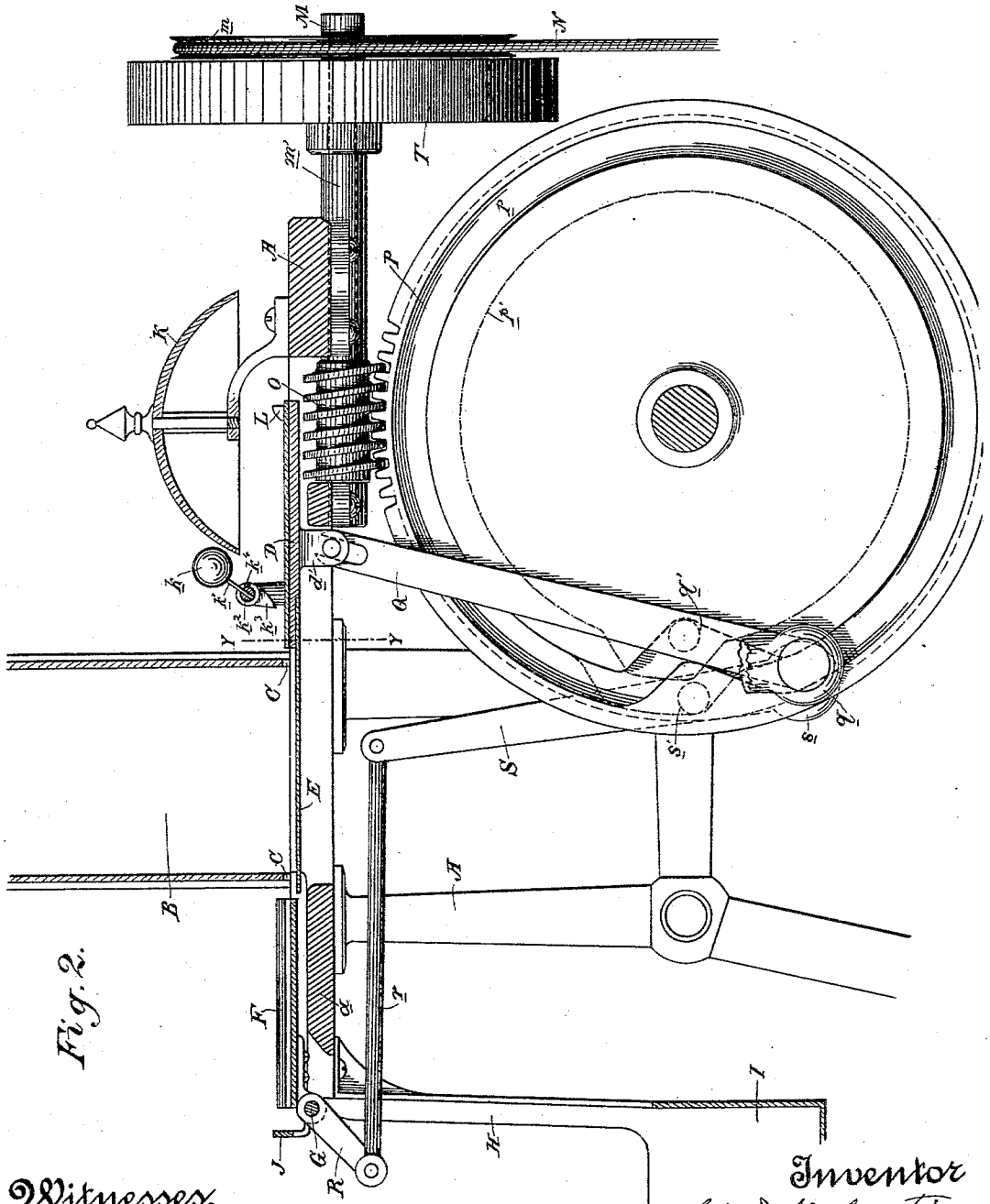


Fig. 2.

Witnesses,
Geo. H. Strong.
J. B. Howard

Inventor
W. D. Valentine
By Dewey & Co.
Attys

N. PETERS, Photo-Lithographer, Washington, D. C.

(No Model.) 3 Sheets—Sheet 3.

W. D. VALENTINE.

CARD EXHIBITOR.

No. 378,345. Patented Feb. 21, 1888.

Fig. 3.

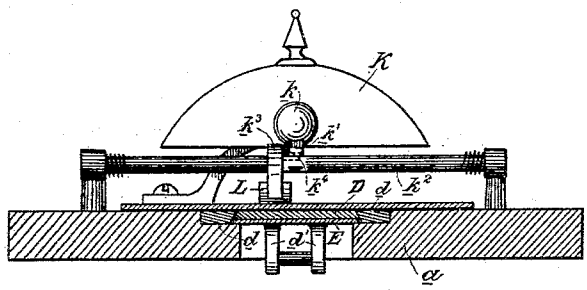


Fig. 4

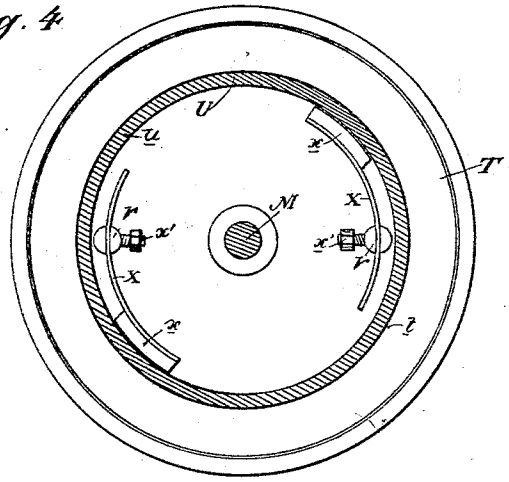
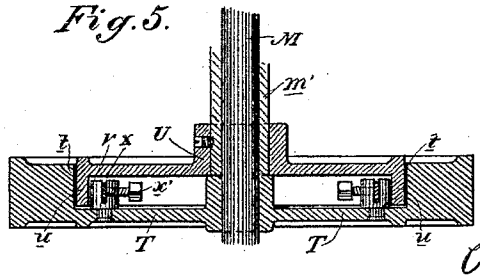


Fig. 5.



Witnesses,
Geo. H. Strong.
J. B. Tromsk.

Inventor,
W. D. Valentine.
By Dewey & Co.
Attys

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

WALTER D. VALENTINE, OF SAN FRANCISCO, CALIFORNIA.

CARD-EXHIBITOR.

SPECIFICATION forming part of Letters Patent No. 378,345, dated February 21, 1888.

Application filed September 21, 1887. Serial No. 250,362. (No model.)

To all whom it may concern:

Be it known that I, WALTER D. VALENTINE, of the city and county of San Francisco, and State of California, have invented an Improvement in Card-Exhibitors; and I hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to that class of machines for exhibiting cards in which the cards are contained in a hollow column or tube, and are successively forced out by a slide into a holder, said holder having a movement by which it is placed in position to receive the card, and, after exposing, to discharge it; and my invention consists in the novel pushing-slide and attached card-support, and the mechanism for operating said slide, the movable card-holder and the mechanism for operating it, the alarm apparatus, and governing device for controlling the operation of the machine, all of which I shall hereinafter fully describe.

The object of my invention is to provide a simple and effective machine for automatically exhibiting cards of any description successively and at suitable periods.

Referring to the accompanying drawings, Figure 1 is a perspective view of my machine. Fig. 2 is a vertical longitudinal section on the line *x x* of Fig. 1. Fig. 3 is a cross-section on line *y y*, Fig. 2. Fig. 4 is a vertical section of disk U of the governor, the fly-wheel being in elevation. Fig. 5 is a cross-section of the governor on the line *y y* of Fig. 1.

A is the frame of the machine, upon the top *a* of which is supported the hollow column or casing B, in which the cards are contained in vertical series, and having, if desirable, a superincumbent weight, W. The cards are put in from the top of the column, or, if preferable, from the side, for which purpose I make a sliding door, *b*, in one side of the column. The lower edges of the front and back walls of the column do not come quite down to the top of the frame, so that they leave an opening or space, C, between their lower edges and the top of the table, the forward opening being for the purpose of allowing the card to pass out of the column forwardly, and the rear opening being for the purpose of allowing the pushing-slide to pass into the base of the column and come in contact with the lowermost card of the series. This pushing-slide is designated by D, and is mounted in suitable guides, *d*, in the top *a* of the frame, so that it can be moved back and forth, its backward limit of movement withdrawing it completely from the column B, while its forward movement is sufficient to push the card entirely clear of the column forwardly.

E is the card-supporter, which consists of a plate secured to the forward edge of the pushing-slide D, and extending under the base of the column, and beyond the forward edge of the slide far enough to always remain under the card being pushed out until the slide retracts, when it withdraws from under the card.

F is the card-holder, consisting of an open frame-work adapted to receive the card through its back and to discharge it through its front, as will hereinafter more fully appear.

The card-holder is secured at its forward edge to an oscillating shaft, G, mounted in the frame A, so that said holder may turn with the shaft as an axis from a horizontal position, in which it lies backwardly and in line with the opening C in the base of the column, to a vertical position, in which its open base is in line with a guide-chute, H, which terminates in a receiving-trough, I. To the frame A, and just in front of the forward edge of the card-holder, is secured a small bracket, J, which is for the purpose of preventing the card, when first pushed into the holder, from moving too far, though it in no wise prevents the card from dropping through the holder at the proper time, as it consists simply of an arm or arms, and not of a complete trough.

K is a gong, and *k* is the hammer which is adapted to strike it, said hammer having a stem, *k'*, secured to a spring-controlled shaft, k^2, on which is loosely pivoted a downwardly-extending crank-arm, k^3, having a pin, k^4, on which the hammer-stem rests normally.

Upon the rear edge of the pushing-slide D is a small lug, L, which, when the slide is moving forward into the column B and pushing out a card, slips by the crank-arm k^3, causing it to move freely without affecting the hammer; but on the return-stroke this lug, coming in contact with the forward edge of the

arm, causes it, through its pin k^4, to raise the hammer, and as it slips by to drop it again, so that the alarm is sounded.

The mechanism for operating the several parts is as follows:

M is a drive-shaft, over a grooved pulley, *m*, on the end of which is passed the driving belt or cable N, which represents any suitable means for rotating the shaft. Upon this shaft is a worm, O, which meshes with a worm gear or wheel, P, having on one side a cam-groove, *p*, and on the other side a cam-groove, *p'*, said grooves being for the most part circular, but having at one side the eccentric or cam portions, as is shown in Fig. 2.

Q is a lever, the upper end of which engages a bracket, *d'*, on the base of the pushing-slide D, and the lower end is pivoted at *q*, said lever being provided with a stud, *q'*, which fits in the cam-groove *p*. To the oscillating shaft G of the card-holder F is attached a crank, R, from which a link, *r*, extends to a lever, S, the lower end of which is pivoted to a center at *s*, and is provided with a stud, *s'*, which fits in the cam-groove *p'* on the other side of the worm-gear P. By these connections the pushing-slide is moved back and forth and the card-holder oscillated.

The operation of the machine as far as described is as follows: The cards being placed in vertical series in the hollow column, the motive power is started, so as to rotate the shaft M, thereby, through its worm O, rotating in the direction shown by the arrows the worm-gear P, having the cam-grooves *p p'* on its opposite sides. Referring to Fig. 2, the interrelationship or timing of these cam-grooves will be seen to be as follows: The normal position of the pushing-slide D is forward within the tube, and the normal position of the card-holder F is elevated, so that the card it contains is exposed to view, and has its lower edge resting on the projected front of the card-supporting plate E, which is attached to the slide D, Fig. 1. These positions are maintained throughout the entire circular or concentric portions of both cam-grooves, so that the viewers have a chance to observe the card for an appreciable period of time, while said card is properly supported in the holder. The first effect which now takes place is caused by the inturned portion of the cam-groove *p* coming up with the stud *q'* of the lever Q, whereby said lever is forced backwardly, thereby immediately withdrawing the supporting-plate E from under the card, so that it drops down into the receiving-trough below, and the slide itself moving back, its lug L comes in contact with the arm k^3, which operates the gong-hammer, thereby giving notice of the operation and the immediate prospect of a fresh card. While the slide D is moving back, and directly after the supporting-plate E withdraws from under the card, the outturned portion of the cam-groove *p'*, coming up with the stud *s'*, forces the lever S forward, which, through the link *r* and the oscillating crank-shaft G, causes the card-holder F to move backwardly to a horizontal position, ready to receive the fresh card. By this time the outturned portion of the cam-groove *p* forces the lever Q forward, thereby carrying the pushing-slide D forward into the column, which, coming in contact with the lowermost card, forces it out into the recumbent holder, while the supporting-plate E moves along under said holder to position to support the card when the holder is raised again. During this movement of the pushing-slide the holder F remains in a recumbent position, its operating mechanism remaining inactive, due to the short concentric portion of the cam-groove *p'*. As soon as the card is well in the holder and the supporting-plate E is moved forward to position, the inturned portion of the cam-groove *p'* now forces the lever S back, which movement effects the uprising of the card-holder to its first position, and all the parts thereupon remain inactive during the passage of the concentric or circular portions of both cam-grooves.

In order to control and govern the speed of the machine, I have the following device: On the end of the drive-shaft M is secured a fly-wheel, T, and to the boxing *m'* of said shaft is firmly secured a disk, U, having a rim-flange, *u*, which projects inwardly under the inner circumference of the rim *t* of the fly-wheel, though without touching it, so that it does not interfere with the rotation of the wheel.

By referring to Fig. 5 it will be seen that the fly-wheel is made with a dish-shaped inner portion, and that the disk U is of a cup shape, fitting the cavity of the fly-wheel, and by making the back of said disk of the same shape or contour as the front of the fly-wheel the two parts fit together in such a way as not to be noticeable, the whole appearing simply as a fly-wheel, though the disk, being fast on the box, does not rotate. Secured to the inner face of the fly-wheel, and extending into the space between the body of the wheel and the disk, are slotted lugs V, in which are fitted curved springs X, having on one end brake-shoes *x*, which impinge against the inner surface of the flange *u* of the fixed disk, and said springs are secured in the slotted lugs by means of set-screws *x'*. Now it will be seen that when the motion of the fly-wheel is increased the brake-shoes are thrown outwardly into greater frictional contact with the fixed flange of the disk, thereby serving to check the speed of the machine. By adjusting the springs by means of the screws this effect may be suitably regulated.

In a former application, Serial No. 225,403, for similar improvements made by me jointly with Howard S. Bailey, I have claimed, broadly, any means for operating the reciprocating follower, showing and describing mutilated gears and pinions as one means for imparting the necessary movements to the follower. I therefore do not claim in this appli-

cation the follower and any means for operating it, but limit myself to the specific mechanism herein shown, described, and claimed.

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

1. In a card-exhibitor, a hollow column or casing for containing the cards, and having an opening at its base, in combination with the slide for entering the open base of the column and pushing a card out, and the mechanism for reciprocating the slide, consisting of a rotating cam, and a pivoted lever connected with the slide and operated by the cam, substantially as described.

2. In a card-exhibitor, a hollow column or casing for holding the cards, and having an opening at its base, in combination with a slide for entering the opening and pushing a card from under the column, and the mechanism for reciprocating the slide, consisting of a rotating wheel having a cam-groove and a pivoted lever secured to the slide, and having a stud fitting in the cam-groove, substantially as described.

3. In a card-exhibitor, a hollow column or casing for containing the cards, in combination with a holder for receiving a card from said casing, and the mechanism for vibrating the holder to receive and expose the card, consisting of a rotating cam, a pivoted lever operated by the cam, and connections between said lever and the card-holder, substantially as described.

4. In a card-exhibitor, a hollow column or casing for containing the cards, and having an open base, and a reciprocating slide for pushing the card from under the column, in combination with a card-holder for receiving the card as it is pushed out from under the column, and the means for vibrating the card-holder to receive and expose the card, consisting of a rotating cam, a pivoted lever operated by said cam, and connections between said lever and the holder, substantially as described.

5. In a card-exhibitor, a hollow column or casing for holding the cards, and having an opening at its base, and a reciprocating slide for entering the opening and pushing the card from under the column, in combination with a card-holder for receiving the card as it is pushed out and exposing it, and mechanism for vibrating the holder, consisting of a pivoted shaft to which the holder is attached, a rotating wheel having a cam-groove, a pivoted lever having a stud fitting in said groove, a crank-arm on the holder-shaft, and a link connecting said crank-arm with the lever, substantially as described.

6. In a card-exhibitor, a hollow column or casing for the cards, and having an opening at its base, a reciprocating slide for pushing a card from under the column, and a vibrating holder for receiving and exposing the card, in combination with the mechanism for operating the slide and the holder, consisting of a rotary wheel having a cam-groove on each side, a pivoted lever connected with the slide and having a stud fitting in one of the cam-grooves, and a pivoted lever connected with the vibrating holder and having a stud fitted in the other of said cam-grooves, substantially as described.

7. In a card-exhibitor, a hollow column or casing for holding the cards, and having an opening at its base, a reciprocating slide for entering the opening and pushing the card from under the column, and a vibrating holder for receiving and exposing the card when pushed out, in combination with the mechanism for operating the slide and the holder, consisting of a drive-shaft having a worm, a worm-gear with which the worm engages, said gear having a cam-groove on each side, a pivoted lever connected with the slide and having a stud fitting in one of said grooves, a pivoted lever having a stud fitting in the other of said grooves, a crank-shaft to which the holder is attached, and a link connecting the crank of said shaft with the last-named lever, substantially as described.

8. In a card-exhibitor, a hollow column or casing for holding the cards, and having an opening at its base, in combination with a reciprocating slide for entering the opening of the base and pushing a card from under the column, a supporting-plate attached to said slide and moving under the card as it is pushed out, and a card-holder having open ends for receiving the card pushed out and moving it to a vertical position, in which its lower edge rests upon the supporting-plate, substantially as described.

In witness whereof I have hereunto set my hand.

WALTER D. VALENTINE.

Witnesses:
C. D. COLE,
J. H. BLOOD.