No. 826,228.

PATENTED JULY 17, 1906.

W. B. & B. L. COATS.

MACHINE FOR EXHIBITING CARDS.

APPLICATION FILED NOV. 10, 1904.

2 SHEETS—SHEET 1.

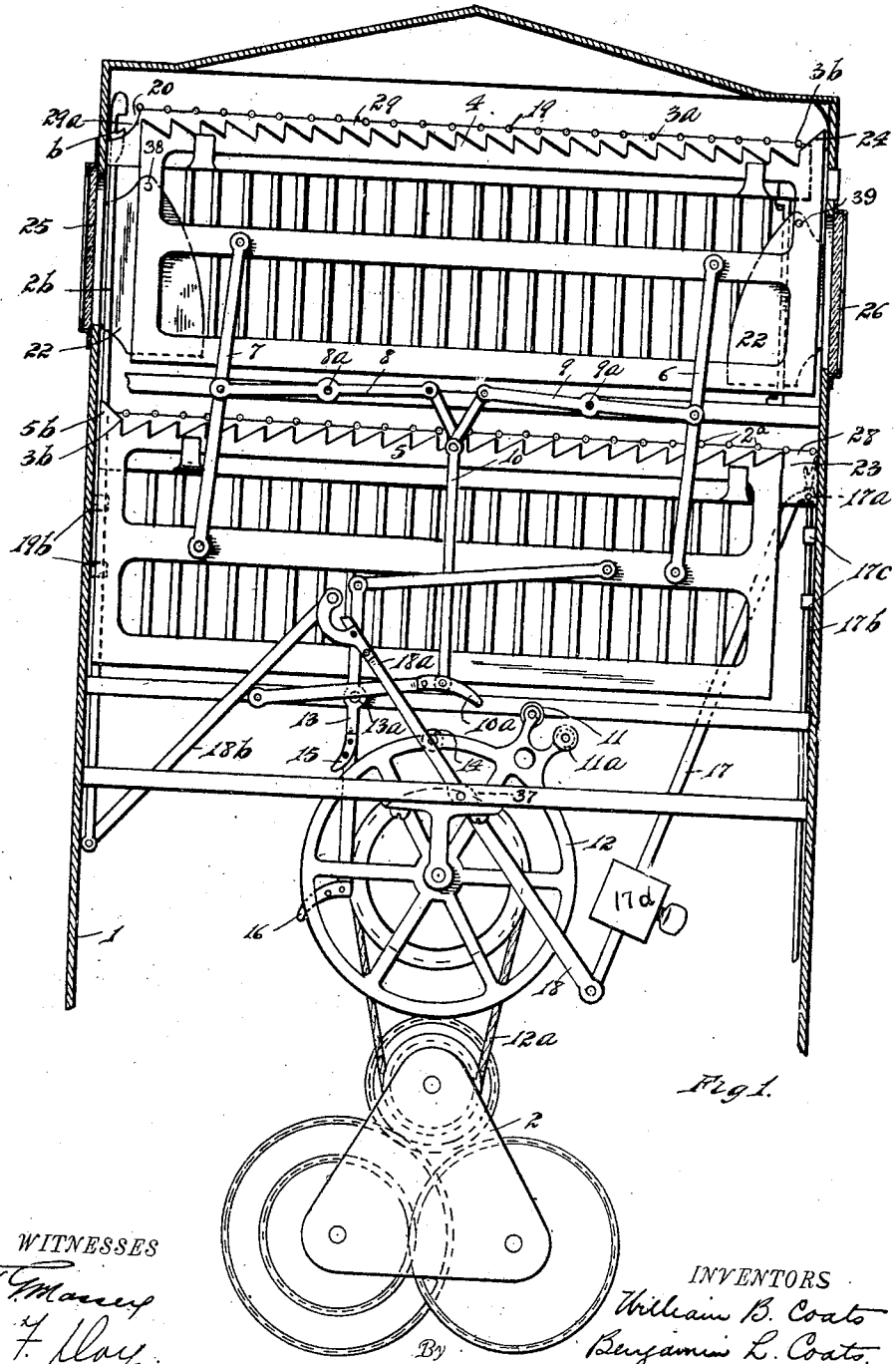

Fig 1.

WITNESSES

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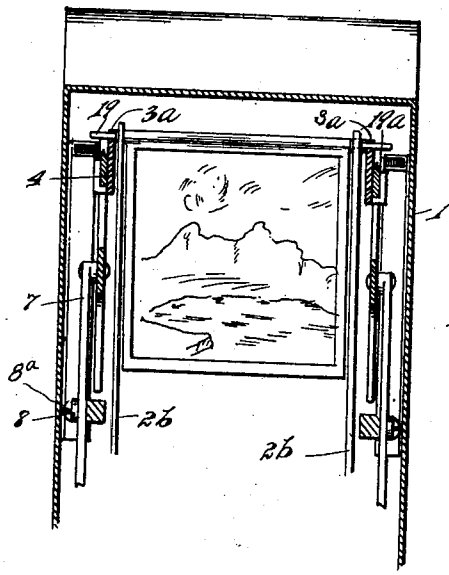

Fig 2.

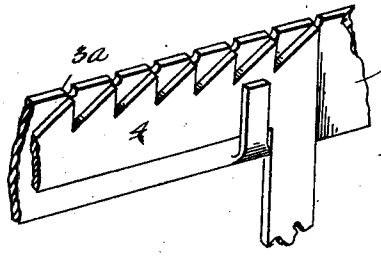

Fig 3.

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MACHINE FOR EXHIBITING CARDS.

No. 826,228. Specification of Letters Patent. Patented July 17, 1906.

Application filed November 10, 1904. Serial No. 232,147.

To all whom it may concern:

Be it known that we, WILLIAM B. COATS and BENJAMIN L. COATS, citizens of the United States, residing at Pontiac, county of Oakland, State of Michigan, have invented a certain new and useful Improvement in Machines for Exhibiting Cards; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to card-exhibitors. It has for its object an improved machine for automatically exhibiting a sequence of cards which are transferred from one part of the machine to another and retained at an exhibition-place during intermissions of the transfer.

In the drawings, Figure 1 is a side elevation of the machine with one of the sides of the casing removed. Fig. 2 is a front elevation showing the top of the machine with a card on exhibition. Fig. 3 is a detail of part of the transfer device.

1 indicates a case in which is mounted a clockwork-motor 2, which propels the moving parts employed to transfer the cards.

In the casing above the motor are two sets of horizontal parallel bars 28 29, provided with notches on their upper edges. The upper pair of bars 29 act in conjunction with a pair of movable serrated bars 4, which are united by levers 6 and 7 to a pair of horizontal bars 5, also serrated and located directly below the bars 4. The levers 6 and 7 are pivotally connected to levers 8 and 9, which are themselves pivoted at points 8^a and 9^a to the frame. The inner ends of the levers 8 and 9 are linked to a vertically-movable rod 10, on the lower end of which is a foot 10^a, that engages under antifriction-roller 11 on an arm extending beyond the periphery of a wheel 12, which is driven by the spring-motor.

The part of the machine thus far described serves to periodically lift the two serrated frames 4 and 5. These are also periodically reciprocated by a lever 13, which also receives its impulses from the wheel 12, which for that purpose is provided with an antifriction-roller 14 on its periphery that engages a swinging but spring-held foot 15, pivotally connected to the lever 13. The lever 13 is pivoted to the frame at 13^a and is swung in one direction by the contact between the foot 15 and the antifriction-roller 14. It is swung in the reverse direction by the antifriction-roller 14, which at a later period in the rotation of the wheel 12 engages against the foot 16 and swings the arm 13 in a direction reverse to the motion previously given to it. This movement produces a horizontal reciprocating movement and the previous movement produced a vertical reciprocating movement.

Cards are lifted from the lower set of bars to the upper set of bars by an arm 17, pivoted to a lever 18, pivoted to the frame of the case at 37, which is actuated by the antifriction-roller 11^a, that engages against the end 18^a of the lever 18 and swings the pivoted end and the arm 17 upward. The end 17^a of this arm is pivoted to a fork-terminated rod 17^b, which engages in guides 17^c on the casing and reciprocates vertically from bars 28 to bars 29. It will be noted that the upper or left-hand end of the lever 18 is terminated by a piece whose shape, as shown in Fig. 1, resembles a reversed interrogation-point. This bridges over the distance between the end 18^a and the adjacent end of the link 18^b and at the same time facilitates its passage during an actuating stroke past the pivoted support of the foot 10^a, which when the machine is at rest is quite close to the link 18^b. Although our experience leads us to believe that this form of bridging member is the most desirable, especially in case of any unintended, irregular, or waving movement of the adjacent parts, we see no objection to the use of a straight strip or connecting-piece as a substitute for the form shown.

The cards are mounted on rods or wires which project beyond the ends of the cards and constitute supports for the cards on the bars 28 and 29. The projections 19 and 19^a rest in notches 2^a and 3^a on the bars 28 and 29, which are fixed to the frame. The projecting ends 19 19^a are periodically lifted out of the notches by the frames 4 and 5, which vertically rise for that purpose, and are transferred to the next succeeding notch by the horizontal reciprocation of the frames 4 and 5, after which the frames 4 and 5 drop and return to the position they had before rising. The last card in the series at the end 20 drops from the bar 29 along the incline 29^a into a seat *b* at the upper end of the vertically-reciprocating transfer-rods 2^b, which reciprocate through guides 19^b. The transfer-rod is actu-

ated by lever 18, to which it is connected by link 18^b.

A pair of swinging plates 22 is pivoted at each end of the machine at 38 and 39, one on each side of the casing. These plates normally hang each with its outer edge (that toward one of the inspection-apertures 25 and 26) contacting the glazing or the end of the case. As a card is being lifted from the delivery end of the bar 28 to the receiving end of the bar 29 by the fork-terminated rod 17^b these outer edges of the plates 22 engage against the outer ends of the wire 19 19^a, which are forced by them into close engagement with the glazing and end of the casing, and thus held uniformly in position. Similarly, the pair of plates at the delivery end of the bar 29 by engagement against the extreme outer ends of the wires guide a card in its descent, so that it does not fall slantwise and clog the passageway.

The last card of the lower series at the end 23 is lifted by the forked end 17^a of the rod 17^b, with the projecting wires engaging in the forks. During the upward travel of the card the ends of the wires pass between the swinging plates 22 and the case, and the rod 17^b continues to rise until the ends are carried above the incline 24, over which they then engage, after which the arm 17^b drops and the card slips down the incline 24 into the notch 3^b. The weight 17^d near the lower end of the arm 17 causes these parts to fall into position for the next stroke with a quick sharp movement.

During the early part of the upward movement of the arm 17 and the fork-terminated rod 17^b, on which the card is suspended, the upper serrated bar 4 has been moving to the left, as seen in Fig. 1, in advancing the cards toward the delivery end of the notched bar 29, thus leaving a considerable space at the right-hand end, past which the card that is being lifted is traveling. When, however, the upper limit of travel is reached and the wire 19 is held suspended above the incline 24, the drop of the bar 17, which is made possible by the action of the clockwork, which is located at the base of the machine and which is accelerated by the presence of the weight 17^d on the bar, is so sudden as to jar the wire of the card from its position in the forked terminal, and it cannot fall elsewhere than on the incline 24, for the reason that meantime the serrated bar 4 has been moved to its extreme right position, as shown in Fig. 1, so that the space between its end and the adjacent portion of the case does not permit the wire carrying the card to slip down between them.

A constant rotary movement is given to the wheel 12 by a cord 12^a, which is driven by the spring-motor. The ends of the case are glazed at 25 and 26, and during the revolution of the wheel 12 there is a period of rest in the movement of the reciprocating parts that leaves the cards under the glazing 25 and 26 for inspection for a period of time determined by the rate of motor speed. Both sides of the card should be provided with matter to be exhibited and the capacity of the machine is indefinite.

What we claim is—

1. In a card-exhibitor, a plurality of notched bars along which cards may travel, means for simultaneously moving the cards, those on one bar in the opposite direction to those on the other bar, and vertically-reciprocating means adjacent to the delivery end of one bar and to the receiving end of the other bar whereby a card may be carried from said delivery end to said receiving end, substantially as described.

2. In a card-exhibitor, in combination with means for holding cards spaced, a movable actuating device adapted to shift cards along the same, and means reciprocating vertically at the end of said card-holding means for carrying a card from the delivery end of one of said spacing means to the receiving end of the other, substantially as described.

3. In a card-exhibitor, in combination with horizontally-disposed notched bars, cards with wires projecting therefrom adapted to rest on said notched bars, a transferring device adapted to receive the card and its wire, and transfer it to a similar set of notched bars, a notched plate and means to actuate the same to engage the said wires and shift each from the notch in which it rests to a succeeding notch and to shift the card and its holding-wire at the ends of the said bars into a transferring device, located adjacent to the first set of notched bars, substantially as described.

In testimony whereof we sign this specification in the presence of two witnesses.

WILLIAM B. COATS.
BENJAMIN L. COATS.

Witnesses:
FLOYD B. BABCOCK,
JOB LEAVENWORTH.