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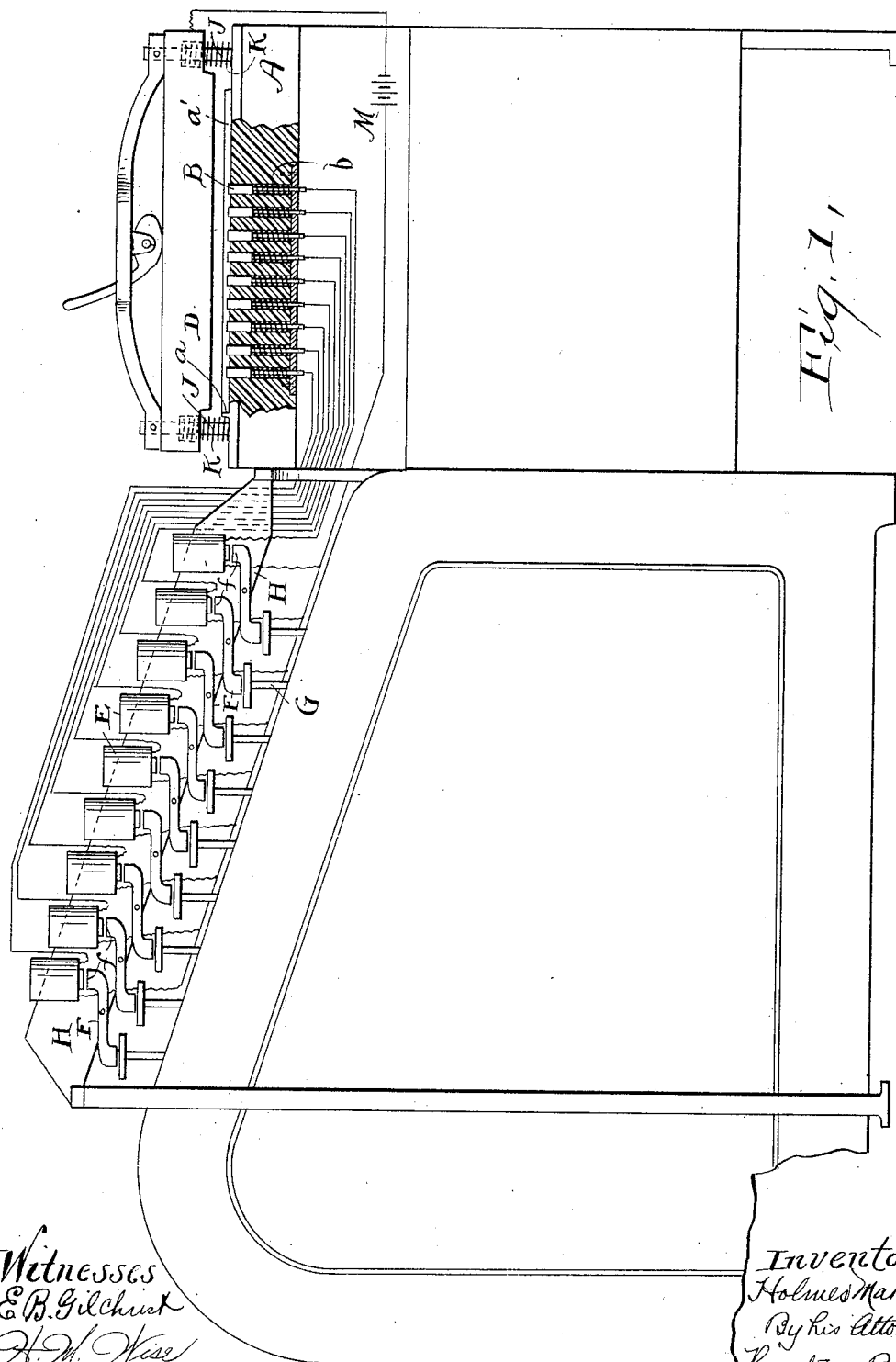
H. MARSHALL.

AUTOMATIC ATTACHMENT FOR ADDING MACHINES.

APPLICATION FILED NOV. 9, 1901.

NO MODEL.

3 SHEETS—SHEET 1.



Witnesses
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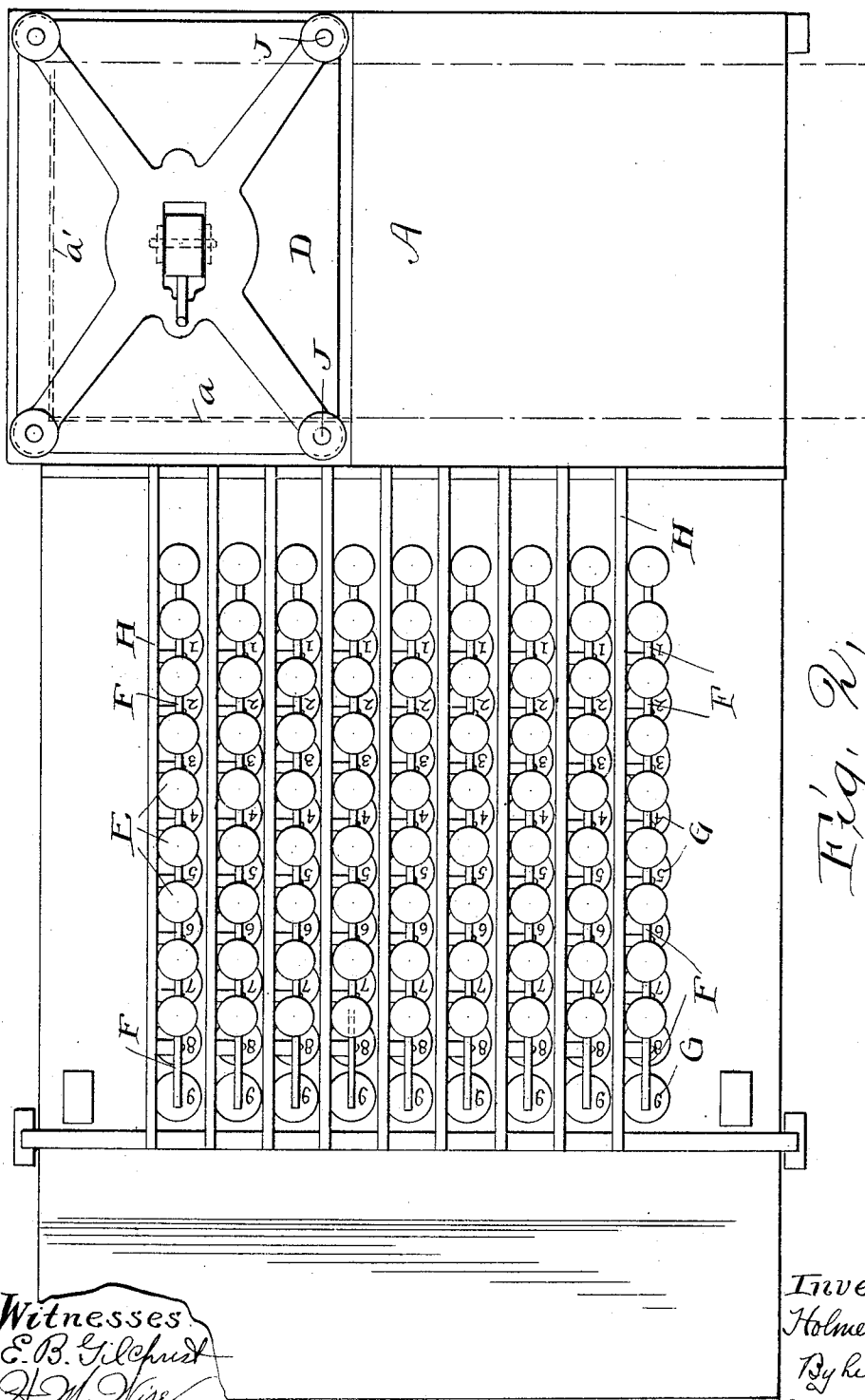
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UNITED STATES PATENT OFFICE.

HOLMES MARSHALL, OF NEW YORK, N. Y.

AUTOMATIC ATTACHMENT FOR ADDING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 748,766, dated January 5, 1904.

Application filed November 9, 1901. Serial No. 81,695. (No model.)

To all whom it may concern:

Be it known that I, HOLMES MARSHALL, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a certain new and useful Improvement in Automatic Attachments for Adding-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

The object of this invention is to provide an attachment applicable to an adding-machine whereby the values indicated by properly-placed perforations in checks, &c., may be automatically added together.

In referring to this invention as an "attachment" I do not mean that it is necessarily constructed as a thing apart from the adding-machine and then attached to it. It may be so constructed or it may be constructed as a permanent part of an apparatus of which the adding-machine is a part. The invention, however, is believed to be applicable to any adding-machine.

Checks or other negotiable paper instruments upon which this invention may operate must be perforated in accordance with an invention forming the subject-matter of another application. The essential characteristics of that method of perforation are that the perforations shall be placed in definite relations to fixed guides on the check, whereby each perforation will by reason of its position represent a definite figure of a particular denomination. Preferably two converging edges of the check will be utilized for the guides, in which case the distance of each perforation from one of said edges determines the figure which the perforation represents, and its distance from the other edge determines the denomination of that figure.

The present invention may be conveniently characterized as consisting of the construction and combination of parts hereinafter described, and pointed out definitely in the claims.

In the drawings, Figure 1 is a side elevation, partly sectional, of my attachment and the keyboard of an adding-machine to which it is applied. Fig. 2 is a plan view. Fig. 3 is a plan view of the platen with the clamp-

ing-block removed. Fig. 4 is a plan view of a check adapted to be used with the invention.

Referring to the parts by letters, A represents a platen upon which the perforated checks are to be placed with their two converging edges in contact with the raised guides *a a'*. In this platen are a plurality of holes arranged in intersecting rows lying at right angles to each other, the distance of these holes from the planes of the two guides referred to being substantially the same as the distance from the converging edges of a check at which perforations may be made to indicate different money values. The guides *a a'* will of course be adapted to cooperate with whatever guides the check is provided with, those shown being for use with checks whereof, as stated, two converging edges are the guides. Projecting up through each of these holes is a plunger B, which is pressed upward by a light spring *b*. These several plungers are insulated from the platen in which they are mounted. A contact-block D is vertically movable upon guides J, secured to the platen, and it may be moved down toward the platen against the force of one or more springs K, which normally hold it up, whereby said block may contact with certain of the said plungers, as will be presently explained. If, for example, a check perforated as described is placed upon the platen and the clamping-plate lowered, those plungers only which are in line with the perforations in the check will pass through those perforations and contact with the contact-block D, while the other plungers will be temporarily insulated from said block by the unperforated part of the paper.

The drawings show the invention in the form of a separable attachment for a key-operated adding-machine. The drawings, however, do not show an adding-machine in detail, because its details of construction are no part of this invention. The adding-machine is shown conventionally, and its keys appear in proper relation to the operating mechanism forming part of my invention. Over the adding-machine keyboard a plurality of bars H are rigidly held. Pivoted to these bars as many levers F as there are keys G. One end of each lever is turned down over the top

of its associated key G. By moving the opposite ends of these levers F upward said levers will perform functions for which the operator's fingers are ordinarily employed in actuating adding-machines. Associated with each lever F is an electromagnet E, which is fixed just over the end of said lever F, and a suitable armature *f* is attached to said end of each lever within the field of attraction of the magnet. Each of these electromagnets is in a normally open electric circuit. When the circuit of any magnet is closed, said magnet attracts the adjacent end of the lever F, the result being the operative movement of the associated adding-machine key G. The contact-block D forms a part of the circuit of every magnet. There are as many magnets as there are plungers B. Each of said plungers is connected in the circuit of the magnet with which it is associated. The generator M is connected in the circuit of every magnet at any convenient point. The drawings show suitable electric connections for the purpose stated. The break in the circuit of each magnet is between the associated plunger B and the contact-block D. It is obvious, therefore, that when a check perforated as described and shown in the drawings is laid upon the platen, with the proper converging edges thereof in contact with the guides *a a'* and the contact-block D is moved down against this check, all of those plungers B in line of the perforations in the check will pass through those perforations and make an electrical contact with said block D. The magnets associated with these particular plungers will become energized, because their circuits will be severally closed. The circuits of the other magnets will not be closed, because the paper will prevent the electrical contact of the other plungers with said block D. The magnets whose circuits have been closed will operate the levers F, which in turn will depress the associated adding-machine keys, the result being precisely the same as if an operator had with his fingers actuated said keys.

A key-operated adding-machine complete in itself is shown conventionally in the drawings, and this illustrates what I regard as the best and most practical embodiment of my invention. It is not essential, however, to my invention that such a complete key-operated adding-machine be employed, and I intend that the claims herein shall cover any embodiment of the invention whether it operates directly upon the keys of an adding-machine or whether it operates upon the mechanism which directly or indirectly are ordinarily operated by the keys. I do not intend either that the claims shall be limited to any particular type of adding-machines. In some adding-machines the depression of the keys merely sets certain mechanisms which are subsequently operated by other means. In other machines the depression of the keys at once operates the computing mechanism. In some adding-machines the

amounts added are also printed. My invention is applicable to all of these varieties of adding-machines, and, in fact, when suitably connected with any kind of adding-machine it is capable of doing automatically in connection with properly perforated checks all that an operator ordinarily does by the manipulation of the keys.

Having described my invention, I claim—

1. The combination of an adding-machine having a plurality of keys for operating the same, a series of independent devices for setting said keys, and a check provided with means whereby said independent devices may set the keys of the adding-machine to add a number corresponding to that on the face of the check.

2. The combination of an adding-machine having a plurality of keys for operating the same, a series of independent levers for setting said keys, and a slip provided with means whereby certain of said independent levers may set such keys of the adding-machine as will add a number corresponding to that on the face of the slip.

3. The combination of an adding-machine having a plurality of keys for operating the same, a series of independent devices for setting said keys, electrically-operated devices for operating said independent devices, contact devices for said electrical devices, and a slip provided with means whereby certain of said contact devices may set the keys of the adding-machine and record a number corresponding to that on the face of the slip.

4. The combination of an adding-machine having a plurality of keys for operating the same, a series of independent devices for operating said keys, and a check having a series of cut-out portions, said cut-out portions being adapted to permit certain of said key-operating devices to set such of the keys of said adding-machine as will indicate the value of the check.

5. The combination of an adding-machine having a plurality of keys for operating the same, a series of independent devices for operating said keys, a platen having suitable guides, a check provided with cut-out portions, a series of devices carried by said platen for operating said key-operating devices, said cut-out portions of said check being adapted to permit such of said devices carried by the platen to set certain keys of the adding-machine corresponding to the face value of said check, and means for clamping said check upon the platen.

6. The combination with an adding-machine having a plurality of keys for operating the same, of a series of electrical devices for operating said keys, a platen having suitable guides, a series of contact devices carried by said platen corresponding in number to said electrical devices, a check operating in connection with said guides upon the plate, said check being provided with suitable cut-out portions, and said cut-out portions being

adapted to permit certain of said contact devices to actuate such of the keys of the adding-machine as will correspond to the numbers upon the face of the check, and means
5 for clamping said check upon said platen.

7. The combination with an adding-machine having a plurality of rows of keys ranging from 1 to 9 for operating the same, of a series of electromagnets, a series of levers actuated by said magnets for setting said keys,
10 a platen having suitable guides thereon, and a series of contact devices for operating said electromagnets, a check coöperating with said guides upon the platen, and having cut-out
15 portions, and a clamping-plate for said check, said cut-out portions permitting such of the contact devices to make contact with the clamping-plate as will set certain keys of the adding-machine corresponding to the number upon the face of the check.
20

8. The combination with an adding-machine having a plurality of rows of keys for operating the same, of a frame arranged above said keys, electromagnets carried by said
25 frame, levers between said magnets and the

keys, a platen also carried by the frame and having contact devices, each of said contact devices being connected with one pole of its corresponding electromagnet, guides upon said platen, and a check having cut-out portions which will permit such of said contact devices to make contact with the clamping-plate as will set certain of the keys corresponding to the number upon the face of the check.
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9. In combination with an adding-machine provided with means for printing separate items, of a device for setting said adding-machine and a check for controlling the actuation of said device.
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10. In combination with an adding-machine adapted to print individual items, of a device for actuating said adding-machine, and a perforated check for governing said device.
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In testimony whereof I hereunto affix my
signature in the presence of two witnesses.
45

HOLMES MARSHALL.

Witnesses:

R. S. WHITE,
SAMUEL KLAUBER.