E. D. TRAUTMAN & G. JACOBS.

FILING CABINET.

APPLICATION FILED JULY 14, 1908.

908,169.

Patented Dec. 29, 1908.

3 SHEETS—SHEET 1.

Fig. 1.

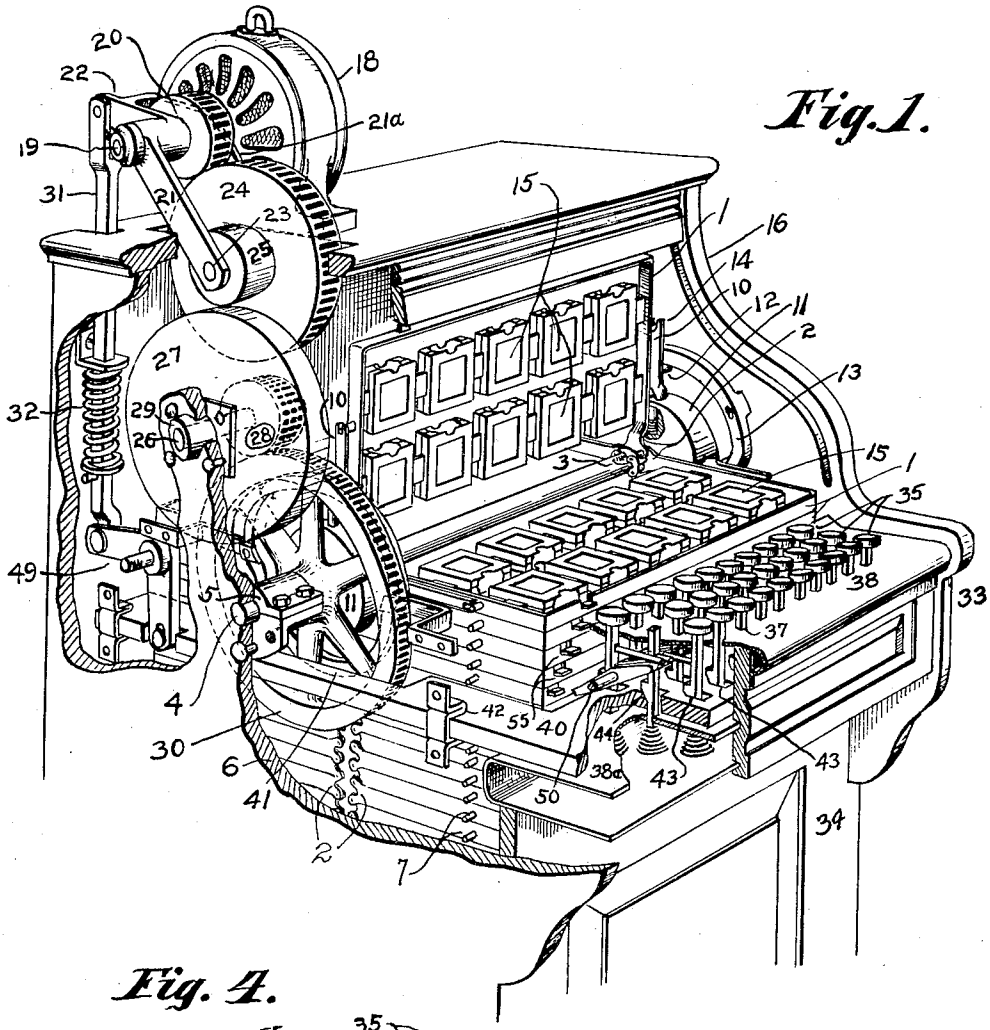
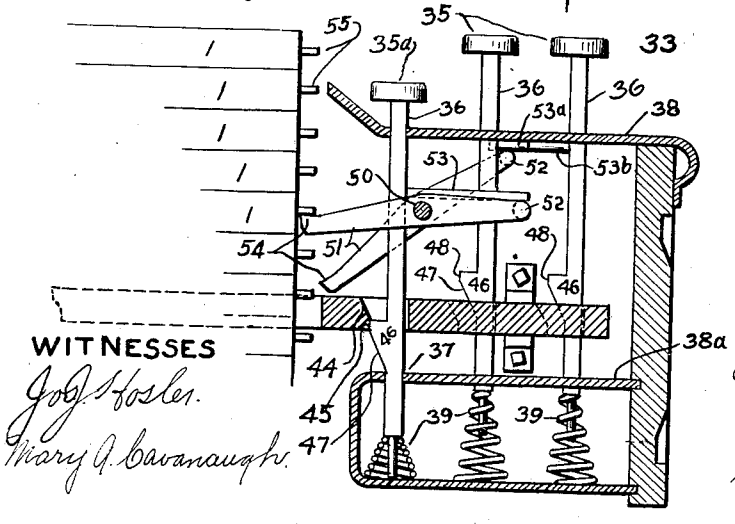


Fig. 4.



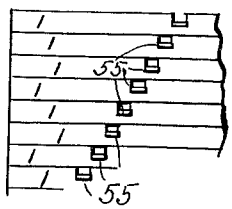


Fig. 5.

WITNESSES

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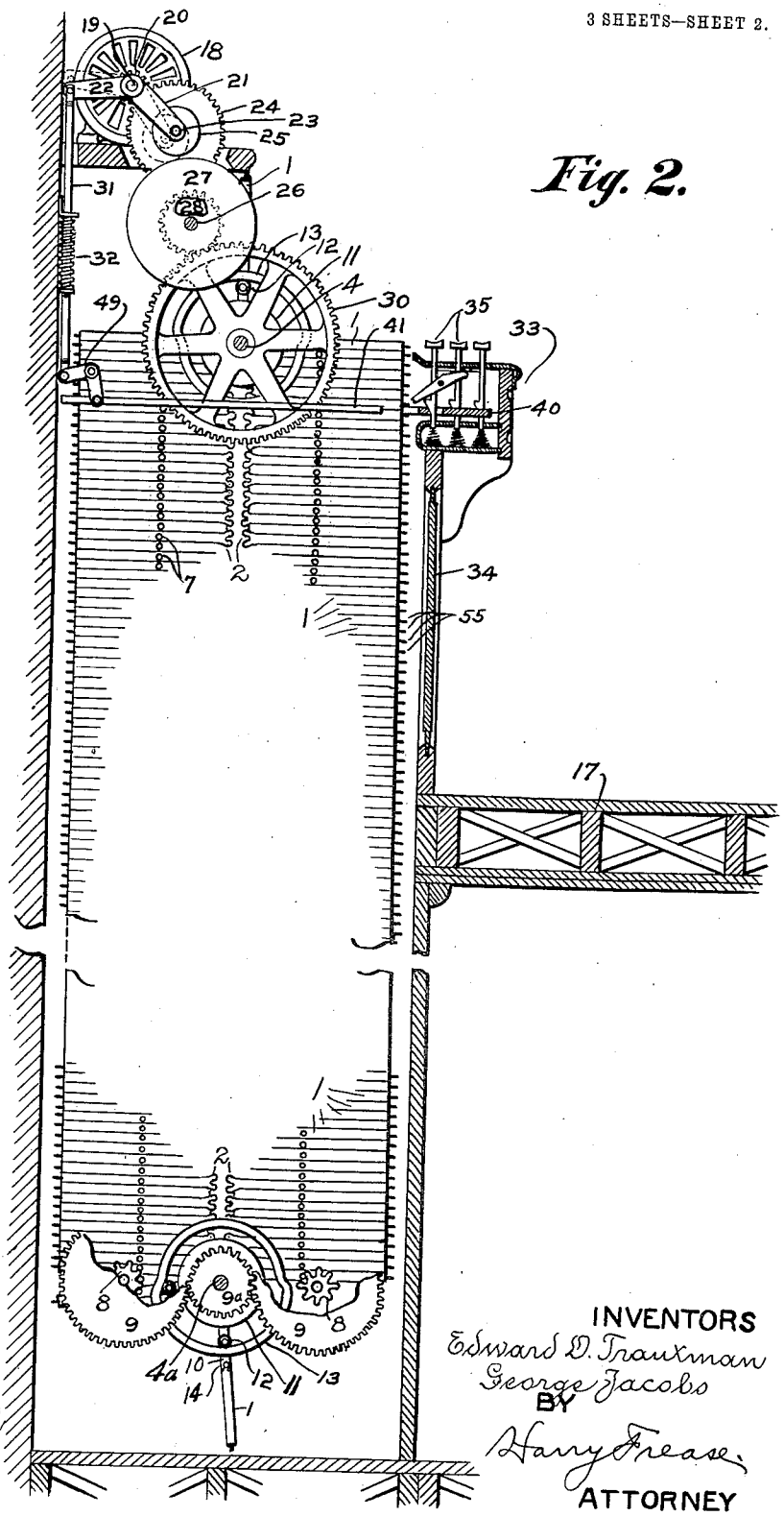
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3 SHEETS—SHEET 2.

Fig. 2.



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3 SHEETS—SHEET 3.

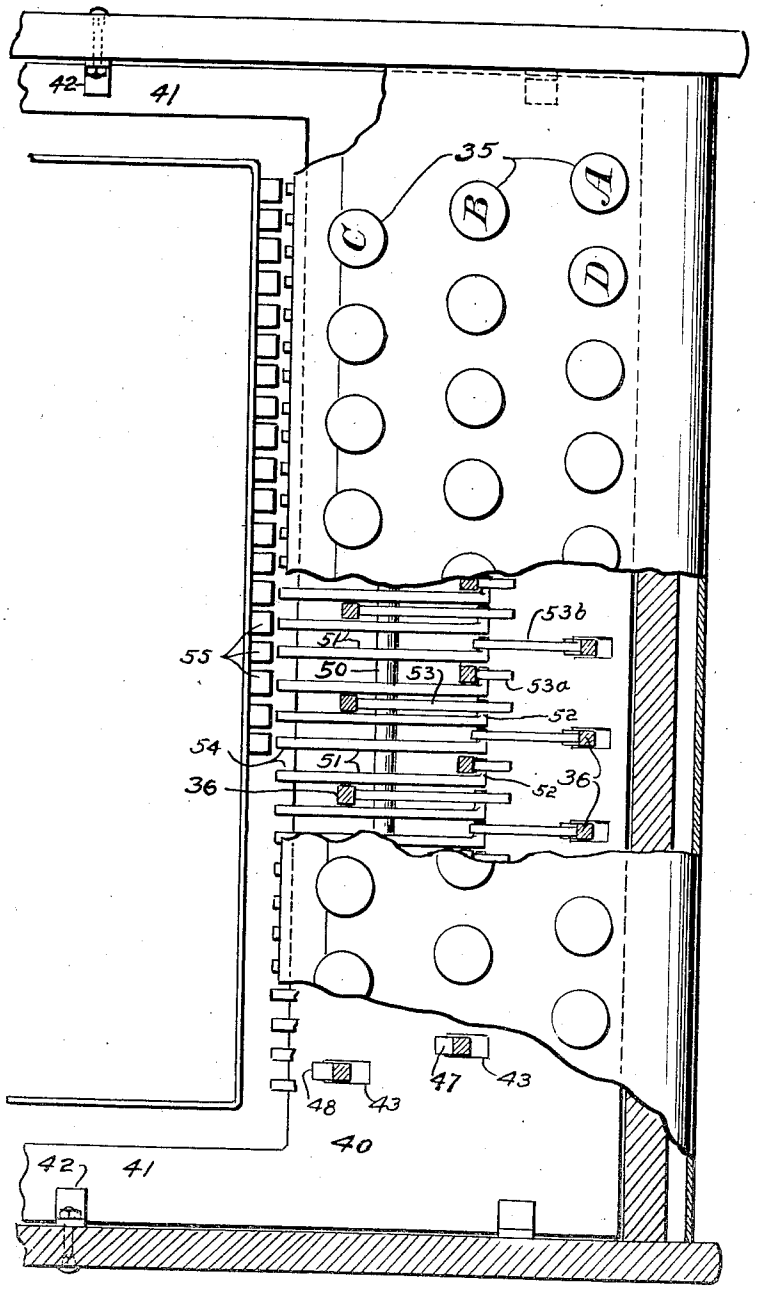


Fig. 3.

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UNITED STATES PATENT OFFICE.

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FILING-CABINET.

No. 908,169. Specification of Letters Patent. Patented Dec. 29, 1908.

Application filed July 14, 1908. Serial No. 443,468.

To all whom it may concern:

Be it known that we, EDWARD D. TRAUTMAN, a citizen of the United States, and GEORGE JACOBS, a subject of the Emperor of Germany, residing, respectively, in the cities of Alliance and Canton, both in the county of Stark and State of Ohio, have invented a new and useful Improvement in Filing-Cabinets, of which the following is a specification.

The invention relates to a cabinet containing a series of leaves having pockets for the filing of bills, letters, documents or other papers or articles, and in which the leaves are normally assembled in compact form but are movably mounted so that they can be readily operated to be separated at a given point to expose for access the pockets on either side of any leaf for the purpose of readily inserting or removing individual papers or articles.

In the embodiment of the invention illustrated and described herein, the leaves are assembled face to face in two stacks or tiers, with the side edges of the leaves in one tier located adjacent to the side edges of the leaves in the other tier, and the contiguous corners of the leaves in the respective tiers are connected to form chains. Sprocket pinions are mounted between the tiers at the top and bottom thereof, on which pinions the chains are adapted to operate. The leaves in one tier are thus adapted to be moved upward and the leaves in the other tier downward, thus successively separating and exposing the individual leaves as the same are rotated over or under the respective pinions.

Under the methods of modern business, the great accumulation of papers to be filed renders it practically necessary to construct filing cabinets of great capacity and to occupy a minimum space with the accessible portions thereof; which requirement is fulfilled in the type of cabinet herein embodied, by extending the tiers of leaves indefinitely in height or depth, as from one floor of a building to and through an upper or lower floor. Such an extension of the size of the cabinet so increases the weight of the tiers of leaves and the resistance of the gearing, that it is inconvenient to operate the same by manual means; and furthermore, a manual operation if possible at all, is necessarily too slow for practical purposes.

One object of the present invention is to combine a motor with a series of movable leaves, whereby the same can be automatically operated at any reasonable desired speed; and a further purpose is to provide means for throwing the motor into and out of gear with the leaf-mechanism so that the latter can be started and stopped without sudden jar or shock.

A further object of the invention is to combine with the motor and leaf-mechanism a keyboard including a series of keys individually correlated with the several leaves, so that the motor can be thrown into gear with the leaf-mechanism by the depression of any one of the keys, and to provide devices by which the mechanism thus started is adapted to be automatically thrown out of gear so that it will stop when the leaf corresponding to the depressed key has arrived at the point of exposure.

The objects of the invention, thus set forth in general terms, are attained by the construction, mechanism and arrangement illustrated in the accompanying drawings, forming part hereof, in which—

Figure 1 is a perspective view of the upper end of the filing cabinet with some parts of the case broken away, to show the motor, the keyboard and the connections and gearings somewhat in detail; Fig. 2, a vertical section of the cabinet showing the tiers of leaves, the motor and the gearings in side elevation; Fig. 3, a plan of the keyboard and the adjacent exposed leaf with some parts broken away to show details of the keyboard; Fig. 4, a vertical section of the keyboard showing in fragmentary side elevation the adjacent leaves; and Fig. 5, a fragmentary front elevation of a few of the collocated leaves.

Similar numerals refer to similar parts throughout the drawings.

The leaves 1 are assembled in two adjacent tiers, and the contiguous corners of the leaves of the respective tiers are connected together to form the continuous sprocket chains 2, which chains are adapted to operate over the sprocket pinions as 3 formed or mounted on the upper and lower shafts 4 and 4ª journaled in suitable bearings, as 5, formed or attached on the side walls 6 of the case. The projecting pins 7 are provided on the ends of the leaves, which pins are adapted to operate successively in the cog pinions 8 located at

the bottom of each tier of leaves. The cog pinions are connected by suitable gearings, as the cog wheels 9 and 9ª, with the lower shaft 4ª, so that the rotation of the cog pinions is coördinated with the rotation of the sprocket pinions, whereby the leaves in each tier are supported in a substantially horizontal position.

The spring-actuated radial arms 10 are mounted and adapted to move endwise in the disks 11 formed or attached on the upper and lower shafts, the movements of which arms being controlled by the rollers 12 pivoted on the sides of the arms and adapted to travel and operate on the inner sides of the cam rings 13 which are secured to the side walls of the case. The forked outer ends 14 of the radial arms are adapted to engage the pins of the successive leaves and to hold such leaves in a substantially radial position as they rotate around the upper and lower sprocket pinions.

The filing pockets 15 are formed or attached in each side of the respective leaves, and when the leaves are rotated around the respective sprocket pinions, the sides of the leaves and the pockets therein are successively exposed for access, as shown in Fig. 1. The particular construction and arrangement of the series of leaves thus assembled and connected, form no part of the present invention, but are set forth more in detail and are claimed in our Letters Patent No. 896,486 of August 18, 1908, for a new and useful account cabinet, which same is hereby referred to for a more particular description of the leaf-mechanism.

A convenient method of mounting the cabinet, is to make the upper parts 16 of the case in the form of a roll top desk, as shown in Fig. 1, and to locate the same at a convenient distance above the floor 17 of the filing room, so that the operator can be seated for manipulating the file. A suitable motor, as the electric motor 18, is located adjacent to the leaf-mechanism, preferably on the top of the case, and on its axial shaft 19 is securely fastened the cog pinion 20; and on the same shaft are pivoted the swinging arms 21 and 21ª, and these arms are provided with the lever 22. The axis 23 of the cog wheel 24 and of the minor friction disk 25 which is formed or attached on the side of the wheel, is journaled in the free ends of the arms 21 and 21ª. The axis 26 of the major friction disk 27 and the cog pinion 28 which is formed or attached on the side of the major disk, is journaled in the bearing 29 formed or attached in the side wall of the case, and this cog pinion is adapted to mesh with the main cog wheel 30 which is securely mounted on the upper shaft of the leaf-mechanism. The connecting bar 31 is pivoted to the free end of the lever 22 and preferably extends downward into the rear portion of the case.

The connecting bar is normally held downward by action of the controlling spring 32, so that the arms 21 and 21ª are rotated upward and forward to hold the minor disk free from contact with the periphery of the major disk, as shown by full lines in Figs. 1 and 2, in which relation of the parts the motor and the leaf-mechanism are held out of gear; but by an upward movement of the connecting bar, to swing the arms downward and rearward, to bring the periphery of the minor disk into contact with the periphery of the major disk, as shown by broken lines in Fig. 2, the motion of the motor, assuming the same to be in operation, is communicated to the leaf-mechanism by the friction of the minor disk against the major disk, so that the motor and the leaf-mechanism are thus thrown into gear. The axis of the minor disk is normally located on the forward side of the line connecting the axes of the motor and the major disk, and the parts are so proportioned and arranged that when the minor disk is thrown into operating contact with the major disk, the axis of the minor disk approaches but never quite reaches the line connecting the axes of the motor and the major disk, thus effecting an easily controllable wedge action of the one disk against the other, whereby the leaf mechanism can be gradually started by a slight pressure of the minor disk against the major disk, and can be operated to the full speed of the motor, as transmitted through the respective gearings, by a complete or full pressure of the one disk against the other.

The keyboard 33 is formed or attached on the forward wall 34 of the case, preferably in front of the upper end of the forward tier of leaves, so that an operator seated at the keyboard will face the upper forward exposure of the leaves as they are successively rotated over the upper sprocket pinions. The keyboard is composed of one or more rows of keys 35 each one of which is correlated with a certain leaf or with adjoining leaves of the cabinet. The shanks 36 of the respective keys are adapted to be guided and to operate endwise in the apertures 37 formed in the upper and lower plates 38 and 38ª of the keyboard, and the respective keys are normally held upward in their inoperative position by means of the individual spiral springs 39.

The horizontal operating plate 40 is located in the keyboard and is provided with the arms 41 one of which extends rearwardly in the case on each side of the tiers of leaves, the plate and the arms being adapted to operate by sliding directly forward and rearward in the guides as 42 formed or attached on the side walls of the case. A slotted aperture 43 is provided in the operating plate for the shank of each one of the keys, the forward wall of each slot being beveled

as at 44 in its upper portion and being formed square or vertical as at 45 in its lower portion; and the shank of each key is provided with the lug 46 on its forward side, the lower rear edge 47 of which lug being beveled to correspond with the beveled wall of the slot and the upper rear edge 48 of the lug being formed vertical to squarely abut the vertical portion of the forward wall of the slot.

The slotted apertures in the plate are elongated from front to rear, and in the normal inoperative position of the plate there is an interval between the forward edge of each key shank and the forward wall of each slot, as shown in Figs. 1, 2 and 3; and the parts are so arranged that when any one key is depressed to the position shown for the rear key 35ª in Fig. 4, the beveled portion of the lug on the key will first operate against the beveled portion of the wall of the slot and the resulting sliding wedge action will move the plate rearward, until the vertical portion of the edge of the lug is brought to abut the vertical portion of the wall of the slot, whereupon the plate is locked in its rearward position. In this relation of the parts, the individual springs of the keys are strong enough to hold the free keys upward in their normal position, but at the same time they are not strong enough to overcome the frictional pressure of the squarely abutting portions of the plate and the lug of the key which has been depressed.

The bell crank 49 is pivoted by a suitable bearing, not shown, on the side wall of the case, and one arm of this crank is pivotally connected with the adjacent arm of the operating plate and the other arm is pivotally connected with the lower end of the connecting bar. The parts are so proportioned and arranged that the backward movement of the operating plate described above as being caused by the depression of one of the keys, serves to throw the motor into gear with the leaf mechanism, and to cause an operation of the same when the motor is rotating. It is evident that the movement of the leaf-mechanism can be started without sudden shock by gradually depressing the key and thereby gradually increasing the pressure of the minor disk on the major disk until the maximum speed of the leaf-mechanism is attained by the full pressure of the one disk on the other, which is accomplished by the complete depression of the key; in which full-speed operative relation of the parts, the mechanism is locked by the abutment of the vertical portions of the slotted aperture of the plate and of the lug of the key.

The transverse rod 50 is securely mounted in the keyboard and a series of trip levers 51 is pivoted thereon, there being one lever corresponding to each key. The fingers 52 are provided on the side of the forward ends of the levers, against the upper sides of which fingers the stems 53, 53ª and 53ᵇ, formed or attached on and projecting from the sides of the shanks of the respective keys, are adapted to operate to depress the forward end of the lever when the particular key pertaining to it is depressed. The levers are normally located in an inclined position with the rearward or trip end 54 directed downward and terminating some distance in front of forward edges of the leaves of the forward tier, and the parts are so proportioned and arranged that when the forward end of the lever is depressed by the operation of its affiliated key, the lever is rotated to a substantially horizontal position, which brings the trip end thereof quite close to the forward edge of the leaves in the forward tier.

The projecting tongues 55 are provided on the outer free side edges of the respective leaves, and these tongues are located laterally in echelon so that not more than one tongue travels in the same vertical plane. Each tongue is located in a vertical plane coinciding with the plane of a particular trip lever, so that when such lever is thrown to its horizontal position by the depression of its particular key to throw the leaf-mechanism into gear, the trip end of the lever will be thrown into the path of the coinciding tongue. When the leaf-mechanism has been operated to carry the leaf in question upward, forward and then downward, over the upper sprocket pinions, the tongue on the leaf will strike the trip end of the lever and carry it downward; and by the upward movement of the finger on the forward end of the lever against the stem of the depressed key, the key will be thrown upward, whereupon the operating plate is free to be moved forward, which movement is accomplished by the controlling spring which, in so doing, draws the connecting bar downward and throws the motor out of gear with the leaf-mechanism.

In the cabinet illustrated herein, the leaves are adapted to move upward in the rear tier and downward in the forward tier so that each leaf is successively thrown upward and forward and then downward over the upper sprocker gear, and in this movement the pockets located on the upper side of one leaf and the pockets located on the forward side of the succeeding leaf are exposed to view and for access at a given time, as shown in Fig. 1. Each leaf of the series is indexed or indicated as by the letters A, B, C, D, etc., to indicate the first letter of the names contained on the bills filed therein, and a similar reference letter is marked on the key which is adapted by means of its trip lever and one of the leaf tongues, to throw the motor-mechanism out of gear with the leaf-mechanism to stop the correspondingly indexed leaf in the exposed position noted above.

It will be understood that in the embodi-

ment of the invention herein set forth, the leaf which carries the trip tongue is located somewhat in advance, as the leaves are rotated, of the leaf which is indexed like the key which has been employed to start and stop the leaf-mechanism; but this arrangement is not an essential feature of the invention. And it is furthermore evident that the particular form and arrangement of the gearings, connections and coördinating devices which are illustrated and described, are not essential to the more general features of the invention. It will also be understood that within certain limits one key is provided for each leaf of the series, but that when the number of leaves is greatly increased, one key is correlated with two or more leaves; in which latter event, the series is arranged to be stopped to expose one of the correlated leaves and the others are exposed, if necessary, by operating the leaf-mechanism by manual means.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. A filing cabinet including a movable series of leaves adapted to be successively exposed at a certain place, a motor, an intervening wedge-acting friction gear, a series of keys correlated with the leaves, connections between the keys and gear and trip devices between the keys and the leaves, whereby the leaves and motor are thrown into gear by the operation of one key and automatically thrown out of gear to stop in the exposed place the leaf which is correlated with the starting key.

2. A filing cabinet including a movable series of leaves adapted to be successively exposed at a certain place, a motor, an intervening gear, a series of keys correlated with the leaves and having connections for throwing the leaves and motor into gear by the operation of one key, and trip devices actuated by certain leaves to stop in the exposed place the leaf which is correlated with the starting key.

3. A filing cabinet including a movable series of leaves adapted to be successively exposed at a certain place, an operating motor, a series of keys correlated with the leaves, connections for throwing the leaves and motor into gear by the operation of one key, and devices for throwing them out of gear to stop in the exposed place the leaf which is correlated with the starting key.

4. A filing cabinet including a motor-actuated series of movable leaves adapted to be successively exposed at a certain place, a series of keys correlated with the leaves and having connections for starting the leaves by the operation of one key, and devices actuated by certain leaves for stopping in the exposed place the leaf which is correlated with the starting key.

5. A filing cabinet including a movable series of leaves adapted to be successively exposed at a certain place, a motor, an intervening wedge-acting friction gear, a series of keys, and connections between the keys and gear whereby the leaves and motor are thrown into gear by the operation of one key.

6. A filing cabinet including a movable series of leaves adapted to be successively exposed at a certain place, a motor, an intervening gear, and a series of keys correlated with the leaves and having connections for throwing the leaves and motor into gear by the operation of one key,

7. A filing cabinet including a movable series of leaves adapted to be successively exposed at a certain place, an operating motor, a series of keys correlated with the leaves, and connections for throwing the leaves and motor into gear by the operation of one key.

8. A filing cabinet including a motor-actuated series of movable leaves adapted to be successively exposed at a certain place and a series of keys having connections for starting the leaves by the operation of one key.

9. A filing cabinet, including a motor-actuated movable series of leaves adapted to be successively exposed at a certain place, and a series of trip devices correlated with the leaves and actuated by certain leaves to stop a correlated leaf in the exposed place.

10. A filing cabinet, including a movable series of leaves adapted to be successively exposed at a certain place, and a series of trip devices correlated with the leaves and actuated by certain leaves to stop a correlated leaf in the exposed place.

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