

Aug. 2, 1938.

E. H. A. PARENT

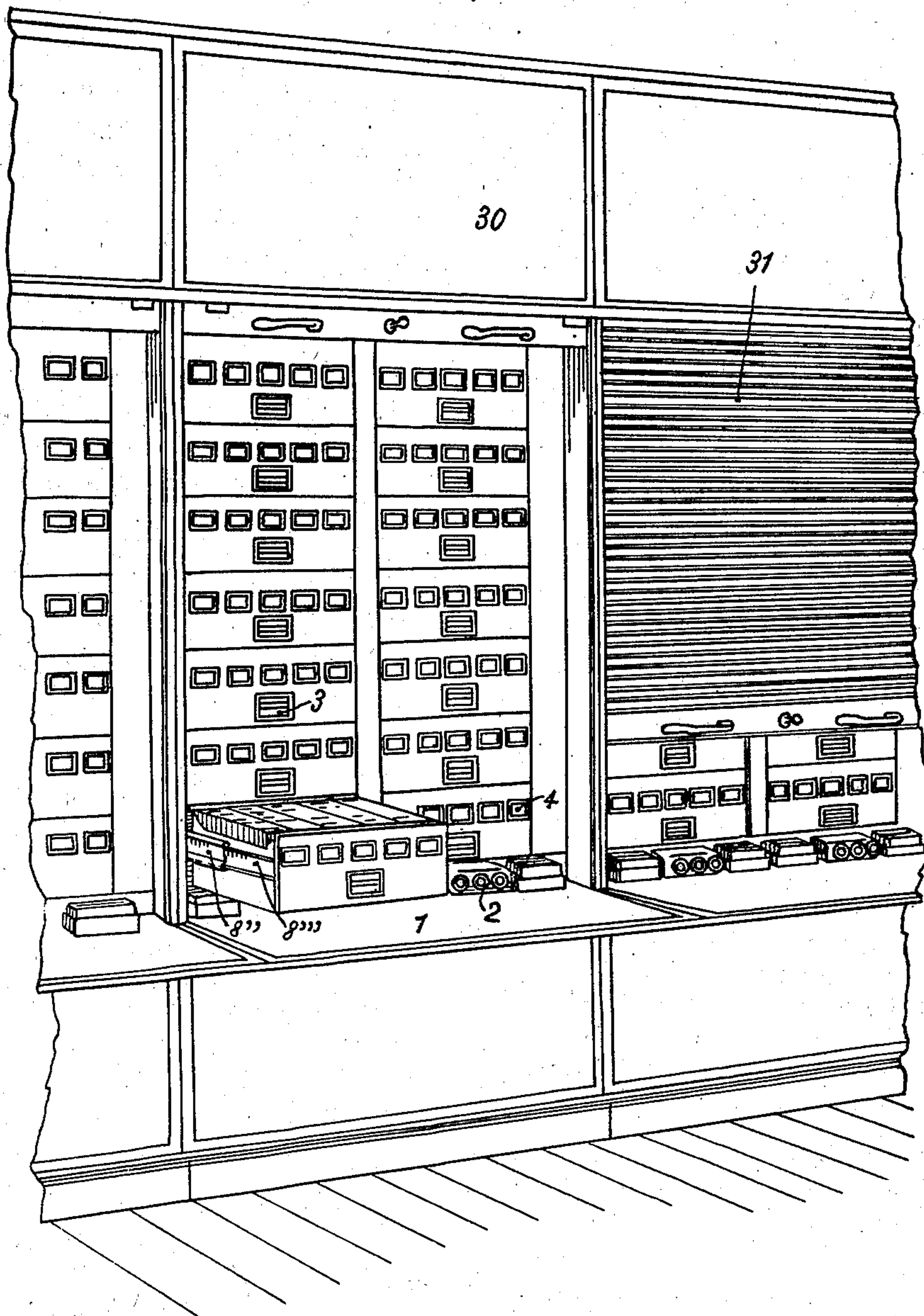
2,125,619

VERTICAL FILING DEVICE FOR CARDS AND OTHER USES

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3 Sheets-Sheet 1

Fig. 1.



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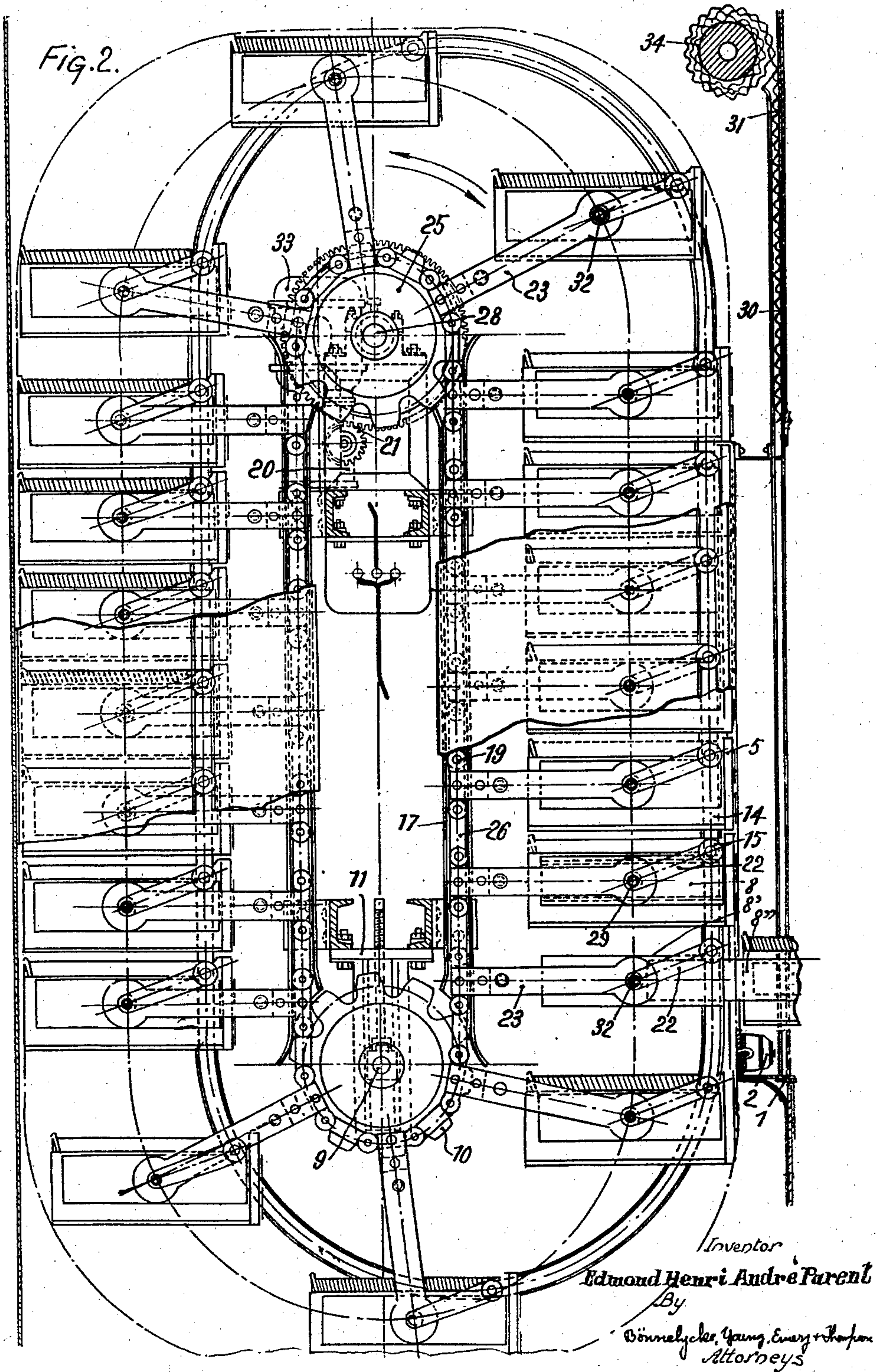
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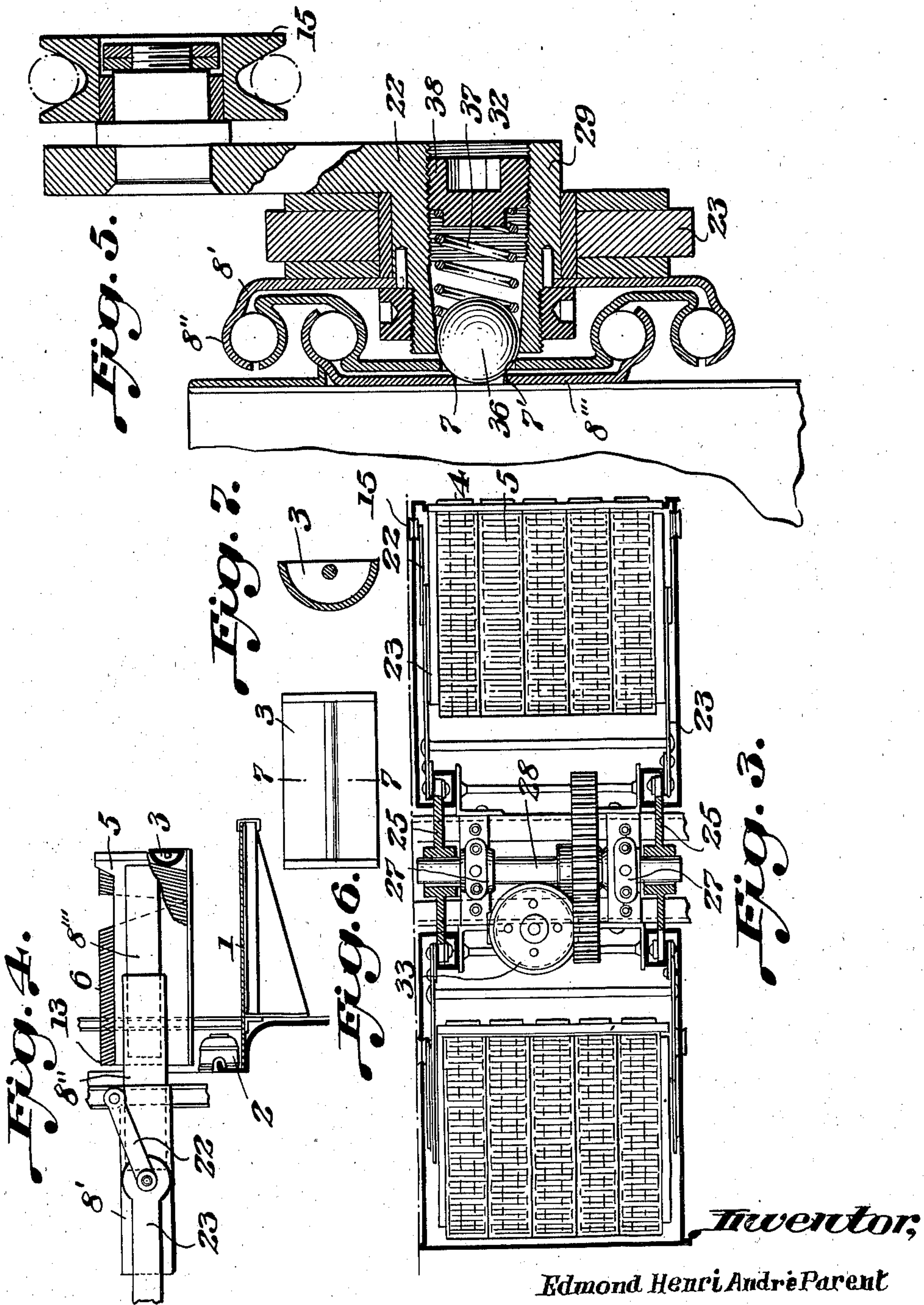
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UNITED STATES PATENT OFFICE

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VERTICAL FILING DEVICE FOR CARDS AND
OTHER USES

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6 Claims. (Cl. 45—3)

This invention relates to a vertical filing device for cards and other uses.

As regards filing there have been made since about ten years only fixed pieces of furniture which can be used, moreover, only in cases which are of a simple character and for current and reduced filing operations.

In the course of the last years a progress has been made with the manufacture of movable pieces of furniture for filing purposes which offer marked advantages over the old ones. The few devices which are presently found on the market and which are rather different from another use the whole ground surface as development surface; this particularity, which, strictly speaking, is suitable for reduced installations, has for its result that the use of such devices is very delicate and even impossible in the case of large installations, for it is a necessity, today, to take every square foot into account.

This invention has therefore for its object to provide a movable vertical filing device which, on the one hand, partakes of the ideal filing arrangement of the wall shelves extending along the walls from the floor to the ceiling and, on the other hand, offers, like all the movable filing devices, the advantage that unnecessary actions and displacements, that is to say, losses of time, are avoided.

The filing device according to this invention is formed of a hermetically closed closet extending from the floor to the ceiling, it being possible to arrange a plurality of such closets in any number side by side. Each closet comprises two vertical endless bands supporting a certain number of card drawers, each of which is furnished with a system of guideways making it possible to draw forward the drawer containing the documents which it is desired to consult and then to push the same back again.

The endless bands or chains which can be moved manually, if necessary, are preferably actuated by a motor and more particularly an electric motor the control buttons of which are arranged in a suitable location on the outer wall of the chest or closet.

A form of execution of the filing device according to the invention is shown by way of example in the appended drawings, in which—

Figure 1 is a perspective view showing the general arrangement of the filing pieces.

Figure 2 is a side elevational view of the filing device.

Figure 3 is the corresponding plan view.

Figure 4 is a side elevational view showing

more particularly one of the drawers in its released position.

Figure 5 is a cross sectional view showing on an enlarged scale the arrangement of the members insuring the displacements of a drawer.

Figure 6 is an elevational detail view of the handle of each drawer.

Figure 7 is a cross-section taken on line 7—7 of Fig. 6.

The cards are arranged vertically (for instance in five rows) in metal boxes comprising compartments 5 and provided each, in a known manner, with adjustable inclined compressing devices 13. The said boxes are strengthened and the front face of the same is provided with a special handle 3 and with label holders 4. The handle 3, which is shown in detail in Figure 6, is preferably formed of a horizontal bar arranged in the middle of a hemispherical recess; through this arrangement there is provided a handle which is easy to grasp, which does not project beyond the front surface, and which aids to give a decorative appearance to the whole.

The boxes 5 are mounted on a pair of laterally located guideways of the telescopic type having each three arms 8', 8'' and 8''' permitting to draw the drawer without strain out of its recess; stops are provided on the guideways for both end positions of the drawer; a detent device which will be described hereinafter is provided in order to retain the drawer in the inner position.

The assembly of the box on the pair of guideways is effected on each of both sliding arms 8''' which are laterally adjacent; this assembly is a rigid one, for the arms must follow the box in all its displacements, but it is so formed that it is possible, when the drawer is drawn out, to take the box 5 out of its guideways through a simple strain acting upwardly, when it is desired to work elsewhere.

Both sliding arms 8'' serve only as extensions and project halfway of their length out of the recess when the drawer is drawn out.

The arrangement of the assembly of both sliding arms 8' is particularly to be noted; through this assembly it is possible to effect vertical displacements of the boxes 5 which are located one above another without losing any space and while maintaining the said boxes in a strictly horizontal position, thus insuring a perfectly satisfactory operation of the device.

To this end the sliding arm 8' receives inter-

mediate its ends a bell crank lever 22 carrying, at one end, a trunnion 29 the centre 32 of which is located exactly in the middle of the sliding arm 8'. The connection of the trunnion 29 with the sliding arm 8' is effected through any suitable means making it possible to obtain a fixed assembly under the angle which is shown in the drawings; the said connection can be made, for instance, by means of cylindrical keys 39, as shown in Figure 5. Moreover, the trunnion 29 receives the rectilinear arm 23 forming an extension of a cheek of the endless chain 26.

It is to be noted that the centre point 32 is in the middle of the box 5 when the latter is pushed home on its guideways, and that it substantially corresponds to the centre of gravity of the same. In this position, if the box were free in the space, it would be possible to turn the same about the centre point 32, the rectilinear arms 23 being held against any movement, while it would be possible to draw it on its guideways 8, since the arm 8' only is fixed. In order to prevent the drawer tilting over a bell crank lever 22 is provided and carries, at one end, a guide roller 15 having a frustoconical groove and rolling along the track 14, thus insuring the correct displacement of the system while retaining the box in a true horizontal position.

The two rectilinear arms 23, which partly support the load of the drawer 5, are firmly braced and each of them is riveted in two points on the outer cheek of a link of the chain 26. The chains, which are two in number for each drawer band, receive on each of their pivoting axes a roller 19 which rolls along a channel 17 with a minimum of play. This assembly insures to the rectilinear arms 23 and therefore to the drawers 5 the horizontal parallelism as above mentioned (this, of course, only in the straight parts of the endless chains 26).

The said chains 26 pass, at the top and on the bottom, on special wheels 25 and 10 integral with the shafts 28 and 9 respectively. This arrangement has for its result that the arms 23 extend in a radial direction and that the pivotal points 32 are brought away from another, which permits a very large development of the drawers, which always retain their horizontal position through the medium of the guide rollers 15.

It is desirable that each drawer, when pushed back home, will be maintained on the application point 32 and any detent member can be used for this purpose. Preferably the device shown in the appended drawings will be more particularly used; this device (Figure 5) comprises a ball 36 which can engage two openings 7 and 7' in the arms 8''' and 8'' of the telescopic guideway. The ball is urged into the openings due to the pressure exerted by the ball 36 under the action of a coil spring 37 maintained through the screw threaded plug 38. It is to be noted that this automatic detent device is adjustable through a variation of the tension of the spring 37 and that the operation of the same is independent of the load, contrary to the current systems in which the braking action at the end of the stroke is effected through the formation of a depression or sinking in a certain part of the track.

The upper shaft 28 carries the load and transmits the driving stress. This shaft is journaled in two fixed bearings 27. The lower shaft 9 insures the parallelism and the initial adjustment of the tension of the chain through two adjustable bearings 11.

Preferably the motor is an electric motor 33

which is provided with a worm gearing 20 and a train of gears 21; furthermore the motor is provided with an electro-magnetical brake (not shown) which instantaneously operates as soon as the current is interrupted, so that the movement is arrested with an absolute precision without any possibility of the band deviating on any side, even when only half of the drawers carry a load.

The complete mechanism is enclosed in a chest or closet 30 (Figure 1) the upper part of which has a table 1 at the normal height for working when sitting; the top of a card is thus in the reach of the hand. The control buttons 2 are so arranged as to be inaccessible when the drawer is drawn; thus any false operation is avoided.

The whole closure is insured by a metal curtain 31 which is wound on a drum 34.

It is to be understood that the above described filing device is not only adapted for filing cards or other documents, but can be used also for receiving any other articles or goods of various kinds and for insuring every manipulation.

In the case when this device is used as a manipulation device, it would be possible, by means of simple changes in the construction, to provide feeding of the boxes in the upper or lower parts in which the boxes are arranged in a radial direction and brought away from another, or feeding from rearward through sliding of the boxes along their guideways in the converse direction with respect to the above described case.

It is to be understood that the apparatus described and shown is only one particular form of the present invention and that the latter may be applied to devices of very different dimensions from filing cabinets for tables or desks up to filing installations involving a plurality of cabinets or even magazine cases without departing from the scope of the invention.

I claim:

1. In a device of the character described, vertically spaced horizontal shafts, chain-carrying wheels on said shafts, an endless chain passing over said wheels, a plurality of filing drawers, a pair of extensible slides carried by each drawer, one on each side of a drawer, said slides comprising a pair of internal slides secured to a drawer, intermediate slides supporting the internal slides and external slides supporting the intermediate slides, means carried by the chain for pivotally supporting the external slides, guiding cranks mounted on the external slides, and an endless guide track cooperating with said guiding cranks for maintaining said slides horizontal in all positions through which they are moved by the chain.

2. In a device of the character described, vertically spaced horizontal shafts, chain-carrying wheels on said shafts, an endless chain passing over said wheels, a plurality of filing drawers, a pair of extensible slides carried by each drawer, one on each side of a drawer, said slides comprising a pair of internal slides secured to a drawer, intermediate slides supporting the internal slides and external slides supporting the intermediate slides, means carried by the chain for pivotally supporting the external slides, guiding cranks mounted on the external slides, an endless guide track cooperating with said guiding cranks for maintaining said slides horizontal in all positions through which they are moved by the chain, each drawer being detachable from said slides and capable of being drawn toward the front and toward the rear, and stop means for retaining said drawers in an intermediate sliding position.

3. In a device of the character described, vertically spaced horizontal shafts, chain-carrying wheels on said shafts, an endless chain passing over said wheels, a plurality of filing drawers, a pair of extensible slides carried by each drawer, one on each side of a drawer, said slides comprising a pair of internal slides secured to a drawer, intermediate slides supporting the internal slides and external slides supporting the intermediate slides, a hollow trunnion carried by each external slide intermediate its ends, arms extending from the chain for pivotally supporting said trunnions, guiding arms fixed to said trunnions, an endless guide track cooperating with said guiding arms for maintaining said slides horizontal, said internal and intermediate slides having apertures provided therein adapted to register with each other and the hollow trunnions when the drawer is in an intermediate position, a ball in each of said hollow trunnions of a diameter greater than the diameter of the apertures in said internal and intermediate slides, and resilient means urging said balls toward the internal and intermediate slides.

4. In a device of the character described, vertically spaced horizontal shafts, a pair of horizontally spaced chain-carrying wheels on each shaft, the wheels on the upper shaft being in vertical alignment with the wheels on the lower shaft, an endless chain passing over each vertically aligned pair of wheels, a plurality of filing drawers, a pair of extensible slides carried by each drawer, one on each side of a drawer, said slides comprising a pair of internal slides secured to a drawer, intermediate slides supporting the internal slides and external slides supporting the intermediate slides, a trunnion carried by each external slide intermediate its ends, carrying arms extending

from each chain for pivotally supporting said trunnions, crank arms fixed to said trunnions, and an endless guide track cooperating with said crank arms for maintaining said slides horizontal throughout the entire travel of said chains.

5. In a filing device, vertically spaced horizontal shafts, chain-carrying wheels on said shafts, an endless chain passing over said wheels, filing drawers, trunnions projecting from each lateral face of the drawers, means carried by the chain for supporting said trunnions, whereby upon movements of the chain said trunnions will move through a path having upper and lower semi-circular portions, the axes of which coincide with said shafts and straight portions connecting said semi-circular portions, an endless guide track having a configuration symmetrical to and dimensions equal to the path of said trunnions, but laterally offset relative to said path so that the semi-circular portions of said track are eccentric to the corresponding semi-circular portions of said path, and means guided by said track for maintaining said filing drawers horizontal throughout their path of travel.

6. In a device of the character described, vertically spaced horizontal shafts, chain-carrying wheels on said shafts, an endless chain passing over said wheels, trunnion supporting arms carried by said chain, trunnions pivotally mounted in said arms, a plurality of filing containers, means for slidably mounting said containers on said trunnions, guiding cranks mounted on said trunnions, and an endless guide track cooperating with said guiding cranks for maintaining said containers horizontal in all positions through which they are moved by the chain.

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