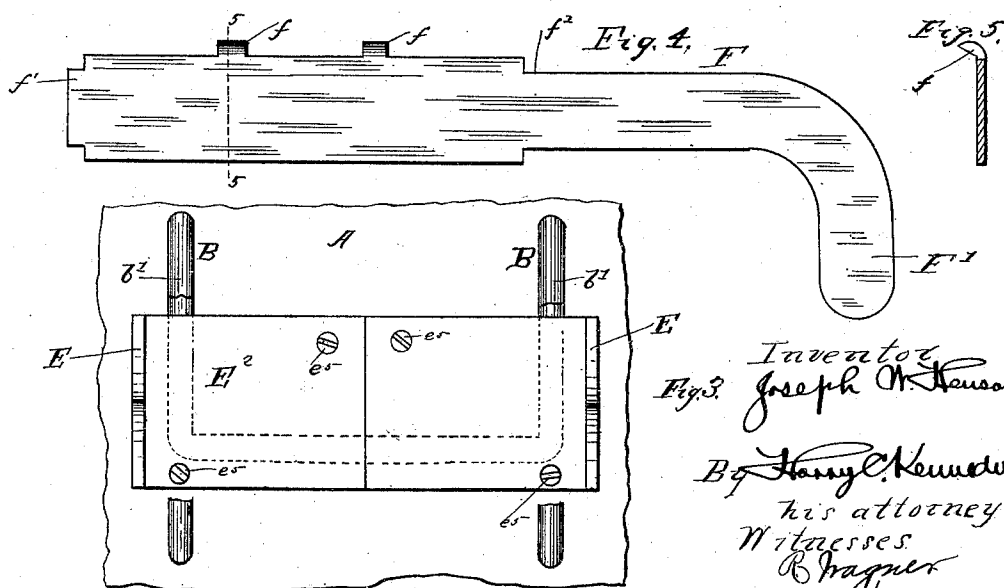
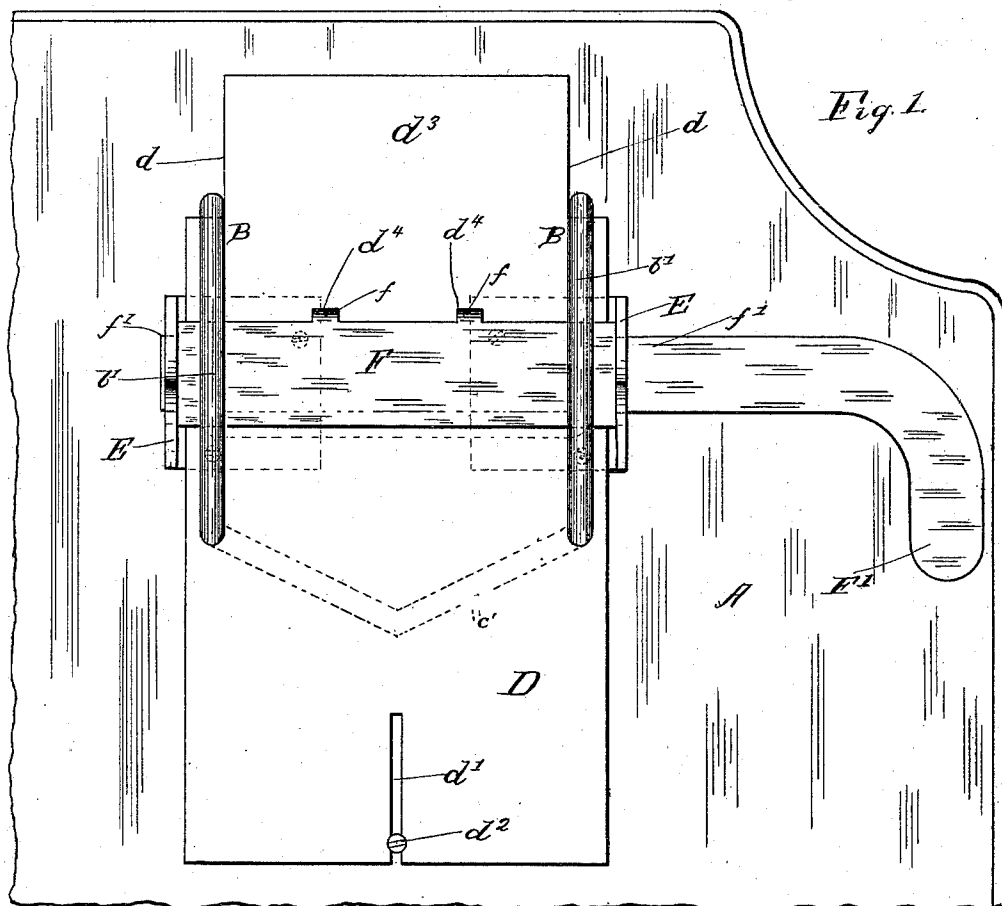


J. W. HENSON.
BILL AND LETTER FILE.

No. 474,776.

Patented May 10, 1892.



Inventor
Joseph W. Henson

By Henry C. Kennedy,
his attorney
Witnesses
R. Wagner
A. S. Wells

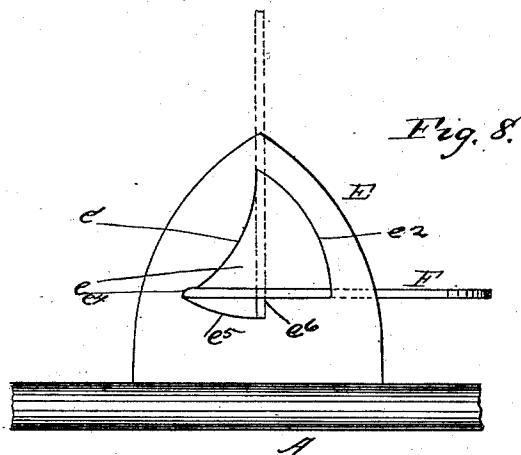
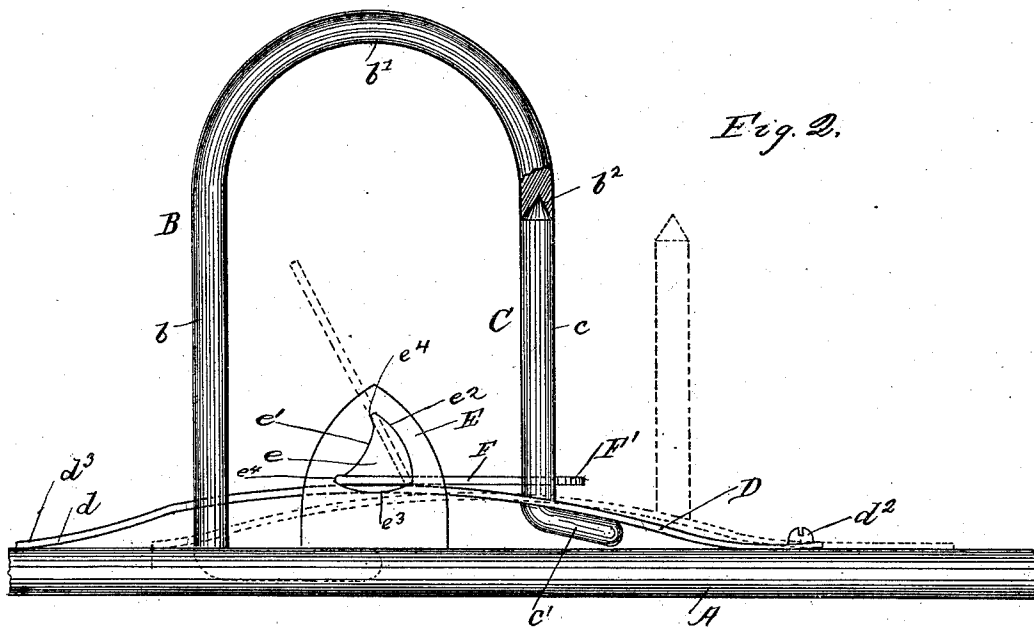
(No Model.)

3 Sheets—Sheet 2.

J. W. HENSON.
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No. 474,776.

Patented May 10, 1892.



Witnesses:
R. Ingham.
Chas. G. Page

Inventor:
Joseph W. Hensan.
By Harry C. Kennedy.
his attorney.

(No Model.)

3 Sheets—Sheet 3.

J. W. HENSON.
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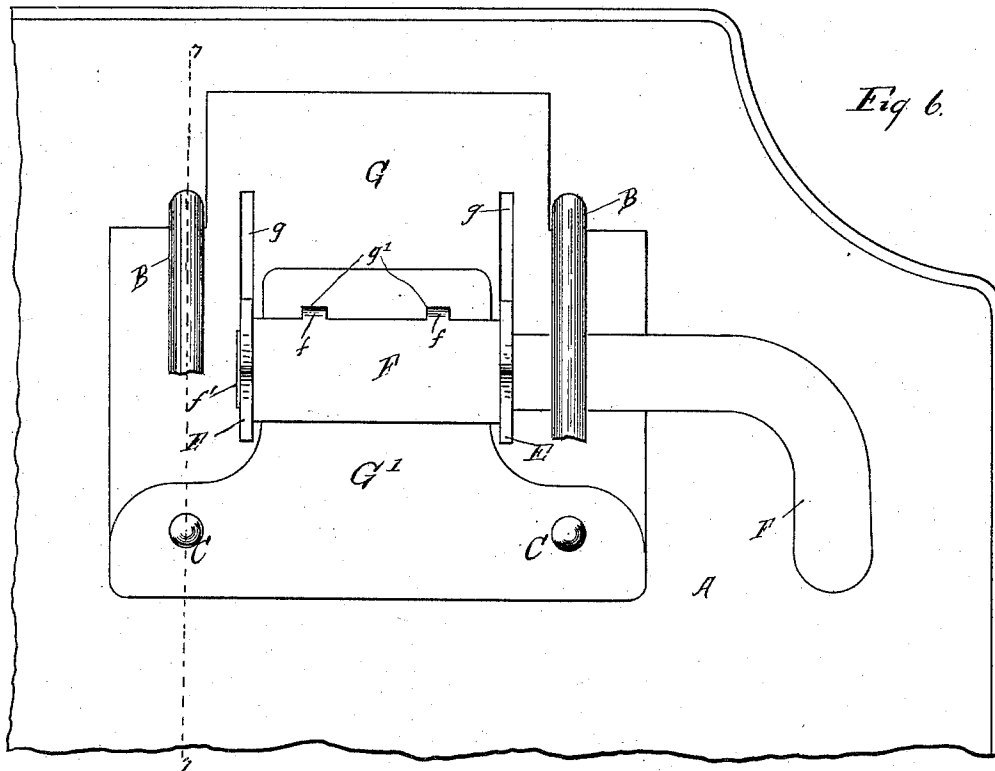


Fig 6.

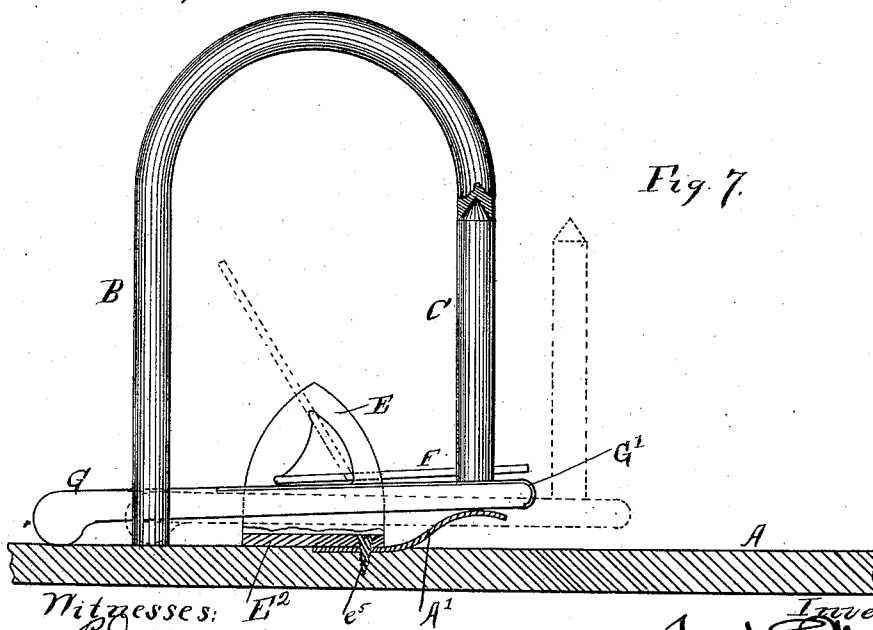


Fig 7.

Witnesses:
R. Wagner.
A. S. Kelly.

Inventor
Joseph W. Henson
By Harry Kennedy.
his attorney

UNITED STATES PATENT OFFICE.

JOSEPH W. HENSON, OF LA GRANGE, ILLINOIS, ASSIGNOR OF ONE-HALF TO
NAHUM EDWARD JENNISON, OF SAME PLACE.

BILL AND LETTER FILE.

SPECIFICATION forming part of Letters Patent No. 474,776, dated May 10, 1892.

Application filed November 25, 1890. Serial No. 372,605. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH W. HENSON, a citizen of the United States, residing at La Grange, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Bill and Letter Files, of which the following is a specification.

My invention relates to bill and letter files of that class which comprise a couple of parallel transfer-wires and a couple of parallel receiving-wires located the same distance apart as said receiving-wires and movable toward and away from the latter, whereby said transfer and receiving wires can be joined or separated to permit papers to be placed thereon and removed therefrom.

The object of my improvement is to provide a device of this description comprising a minimum number of parts, combining durability and compactness of construction and arrangement with simplicity and efficiency of operation.

The invention consists in the features of construction and combination of parts hereinafter fully described, and pointed out in the appended claims.

In the accompanying drawings, illustrating my invention, Figure 1 is a plan view of a file constructed in accordance with my invention. In this and in the other views only a portion of the base-board is shown for convenience of illustration. Fig. 2 is a side elevation. In this figure the receiving-wires and parts connected therewith are shown in dotted lines in the position they will assume when separated from the transfer-wires. Fig. 3 is a plan view of the apparatus with the spring-plate removed. Fig. 4 is a detail view of the operating-bar. Fig. 5 is a transverse section of the same on line 5 5. Fig. 6 is a plan view of a modified form of construction embodying my invention. Fig. 7 is a view, partly in vertical section, on line 7 7 in Fig. 6. Fig. 8 is a detail view of a modified form of construction of the upright support of the operating-bar.

Referring to Figs. 1, 2, 3, 4, and 5, A indicates a base-board upon which the operative parts of the device are supported. As before

stated, a file constructed in accordance with my invention embraces two stationary transfer-wires and two movable receiving-wires capable of being moved toward said transfer-wires, so as to be joined thereto in the usual manner, so that papers can be passed from one of said pairs of wires to the other pair and also capable of being separated, so that papers can be placed upon and removed from said receiving-wires. The construction employed for joining the wires consists of a recess in the end of one that receives the end portion of the other wire, so that they have interfitting end portions. The transfer-wires B are secured to the base-board and have upright portions *b* and overhanging arched portions *b'*, whose lower ends are recessed, as shown at *b²*, to receive the pointed or sharpened ends of the upright movable receiving-wires C. In accordance with the broad idea of my improvement the said receiving-wires are arranged so that they are capable of a downward movement to separate their ends from the ends of the transfer-wires and then a movement away from or to one side of the ends of said transfer-wires to permit the papers to be easily placed upon the said receiving-wires. The above-described movement on the part of the receiving-wires disconnects them from the transfer-wires, and to connect them a movement that is the reverse of the above-described movement is imparted to said receiving-wires.

The manner of using a bill and letter file of this kind is substantially the same as that of the ordinary file, and consists merely in bringing the receiving-wires forward, as shown in dotted lines in Fig. 2, when it is desired to place papers thereon, and then throwing said receiving-wires back to connect them with the transfer-wires in a familiar manner. In said Figs. 1 to 3 the said transfer-wires are made in one piece and the rectangular-shaped base portion formed by bending the part of the wire connecting the upright portions to the desired shape and securing said bent base portion in a suitably-formed groove or cut-away portion of the base-board. The movable receiving-wires are also conveniently

formed from a continuous piece and comprises the upright portions c , connected by the base portion c' . The receiving-wires are carried and supported upon a spring-plate D, which rests upon the base-board at its ends, but rises therefrom between said ends. Suitable perforations or apertures are formed in said spring-plate D, through which the upright portions c of the receiving-wires project, and the base portion c' is soldered or otherwise secured to the under side of said spring-plate D. The combined downward and forward movement of the receiving-wires is accomplished by pressing downwardly the upwardly-curved portion of the sliding spring-plate, and at the same time causing said spring-plate to move forwardly, it being understood that the downward movement of the receiving-wires first occurs until the sharpened ends of the receiving-wires are withdrawn from the recessed ends of the transfer-wires, whereupon the former can be moved forwardly without interference. The width of the spring-plate is greater than the distance between the receiving and transfer wires, and said plate in its rear portion is cut away, as at d d , to provide a rearwardly-extending portion, which can pass between the upright portions of the transfer-wires. In the forward end portions of said spring-plate a longitudinal slot d' is cut, and a pin or projection d^2 upon the base-board passes therethrough and serves, in connection with its narrow extended rear portion d^3 , which fits between the transfer-wires, to form suitable guides for said sliding spring-plate.

E E are upright supports for the operating-bar F, which serves to give the desired movement to the spring-plate. Said operating-bar turns in bearings formed in said upright supports E, and is provided upon one of its edges with overhanging lugs or fingers f , which engage perforations or openings d^4 in said sliding plate. In Fig. 2 the said operating-bar is shown in full lines in the position it will assume when the transfer-wires and receiving-wires are joined and also in dotted lines when said wires are disconnected. Said operating-bar conveniently consists of a flat piece having reduced end portions f' , which engage the bearing-apertures e in the supports E. The said bearing-aperture e embraces three sides e' e^2 e^3 , the side e' being curved inwardly, while the sides e^2 and e^3 are curved outwardly. The outwardly-curved side e^2 forms a segment of a circle whose center is located at the junction of the sides e' and e^3 , and the curve of the side e^3 forms a segment of a circle whose center is located at the junction of the sides e' and e^2 , the radius of these outwardly-curved sides being approximately the same as the width of the reduced end portions of the operating-bar. The curve of the inwardly-curved side of this bearing-aperture is about the same as the other sides, while at its junction with the outwardly-curved sides it is cut out slightly, as

at e^4 , to receive the edges of the reduced portions f' of the operating-bar. When the wires are joined, the operating-bar is in a substantially horizontal position, with the edges of its reduced portions located, respectively, at the junction of the outwardly-curved side e^3 of the bearing portions with the other curved sides e' and e^2 , the parts being so constructed that when in this position the flat side of said operating-bar will rest against the upper surface of the upwardly-bent spring-plate, with the lugs f engaging the said apertures of said plate. When, however, it is desired to disconnect the receiving and transfer wires, the handle F' of the operating-bar is thrown upwardly and rearwardly, and during the first part of the throw of this operating-bar it will turn upon its edge, located at the junction of the sides e' and e^3 of the bearing-aperture, as a center, and its other edge will traverse the curved side e^2 until the flat portion of the bar riding over said curved side e' will draw the said edge away from its center and throw the opposite edge to the junction of the curved sides e' and e^2 , whereupon it will turn upon this latter point as a center until it comes in contact with the lower end of the side e^3 , as shown in dotted lines in said Fig. 2. This will have the effect of bringing the receiving-wires to the position also shown in dotted lines in said figure. During the first part of the throw of said operating-bar the spring-plate will be compressed and the downward movement of said fingers f will be such that the pointed ends of said receiving-wires will be drawn from engagement with the transfer before said fingers move forwardly during the latter part of the throw of said operating-bar. At the end of the throw of the bar the spring-plate rises slightly, which movement is hardly perceptible and does not form an essential feature of its operation. In said Fig. 2 the spring-plate is also shown in dotted lines in the position it will assume at the ends of the forward throw of the receiving-wires. Papers can now be removed and placed upon said receiving-wires in the usual manner, and by a reverse movement of the operating-bar the said receiving-wires can be thrown back and into engagement with the transfer-wires, it being observed that until the wires are joined the spring-plate exerts an upward pressure, so that it rises automatically during its rearward movement under the influence of the operating-bar.

The construction of the operating-bar and bearing-apertures shown in the foregoing figures presents a preferred form of construction, although it will be understood that various other devices and arrangements can be resorted to to accomplish this movement without departing from the spirit of my invention, and except in the claims for the specific forms of construction I do not wish to be limited to any particular device for causing the forward throw of the receiving-wires.

In the form of construction shown in Figs. 6 and 7 I have illustrated the device in which the receiving-wires, instead of being carried and supported upon the sliding spring-plate, are carried by the sliding plate, which is subject to the action of springs. The construction and arrangement of the transfer-wires is the same as heretofore described, while the plate G for supporting the receiving-wires is preferably partially covered with sheet metal, to which are secured the said receiving-wires. The rear portion of said plate G fits between the upright portions of the stationary transfer-wires and is guided thereby, while the upright supports E for the operating-bar are arranged between the pairs of wires and pass upwardly through slots g, formed in said plate G, which also serve to guide the movement of said plate. The said operating-bar acts in the same manner, as described, and when the wires are joined the forward edge of said sliding plate is elevated by a couple of plate-springs A', which are secured to the base-board beneath and near the forward edge of said sliding plate. The metallic cover G' upon said spring-plate is provided with apertures g' to receive the fingers f of the operating-bar. The operation of this form of device will be readily seen, for under the influence of the operating-bar the plate will be depressed against the action of the springs A' and will then be moved forwardly in an obvious manner, while during the reverse movement of said metal bar the said springs will serve to elevate the sliding plate and bring the receiving-wires into engagement with the transfer-wires.

The bent base portion of the stationary wires is secured in the grooved portion of the base-board by means of the bases E² of the upright supports, which latter are secured to said base-board by screws e². In Figs. 1 and 3 the said bases E² of the upright supports are shown with their adjacent edges in contact with each other, which forms a guide for their position. In Fig. 7 the spring A' is shown as being secured to the base-board by having its rear end located beneath the base portion E² of the upright E and secured by one of the screws that hold said upright in position.

It will be understood for the broad idea of my invention I contemplate accomplishing the throw of the receiving-wires by any suitable means, and do not intend to limit myself to the devices herein shown, except in the claims for the specific construction therefor, as various means could be substituted. It will further be understood that the particular spring-support for the receiving-wires can also be variously modified without departing from my invention. In Fig. 8, however, I have shown a modified form of construction for accomplishing the throw of the receiving-wires, which consists in making the curved sides of the bearing-apertures of greater

length and enlarging the operating-bar correspondingly. By the employment of this construction it requires a throw on the part of the operating-handle F' equal to about one-quarter of a revolution, whereas when in connection with device shown in Fig. 2 it requires a throw equal to about one-third of a revolution. While it is understood that I am entitled to all changes in dimensions, yet in the form of upright shown in Fig. 8 the lower curved side e⁵ does not meet the lower end of the outwardly-curved side e². In said figure the curved side e⁵ of the bearing-aperture is the same length as the curved side e³ of the aperture shown in Fig. 2, and at its forward end is provided with an abutment or shoulder e⁶, which serves to limit the forward movement of the lower edge of the operating-bar and performs the same function as the lower end of the curved side e² of the bearing-aperture shown in Fig. 2.

It is manifest that any pivotal connection between the operating-bar and sliding support for the receiving-wires can be substituted for the connection herein shown and described. The separable hinge-joint shown is a convenient construction; but an ordinary hinge connecting said parts will answer the purpose, in which case it would not be necessary to have the pin and slot guiding mechanism at the front end of the spring-plate. It is further obvious that the ends of the transfer-wires can be sharpened and the receiving-wires recessed, although the construction shown is preferable.

What I claim as my invention is—

1. A paper-file comprising a base-board, transfer-wires, receiving-wires engaging the ends of said transfer-wires, and a movable support for said receiving-wires, having a compound movement for moving the receiving-wires to first separate their ends from the ends of the transfer-wires and then for moving said receiving-wires to one side of the ends of said transfer-wires.

2. A paper-file comprising a base-board, transfer and receiving wires having interfitting end portions, said receiving-wires being mounted upon a movable support having a compound movement for moving the receiving-wires to first separate their ends from the ends of the transfer-wires and then for moving said receiving-wires to one side of the ends of said transfer-wires.

3. A paper-file comprising a base-board, transfer-wires, and movable receiving-wires mounted upon a flexible support.

4. A paper-file comprising a base-board, transfer-wires, and movable receiving-wires mounted upon a resilient support.

5. A paper-file comprising a base-board, transfer-wires, and receiving-wires mounted upon a movable and flexible support.

6. A paper-file comprising a base-board, transfer-wires, and receiving-wires mounted upon a movable and resilient support.

7. A paper-file comprising a base-board, transfer-wires, receiving-wires mounted upon a movable and flexible support, and an operating device for moving and operating said support.

8. A paper-file comprising a base-board, transfer-wires, receiving-wires mounted upon a movable and resilient support, and an operating device for moving and operating said support.

9. A paper-file comprising a base-board, transfer-wires, receiving-wires engaging the ends of said transfer-wires, a movable support for said receiving-wires, having a compound movement for moving the receiving-wires to first separate their ends from the ends of the transfer-wires and then for moving said receiving-wires to one side of the ends of said transfer-wires, and an operating device for moving said movable support.

10. A paper-file comprising a base-board, upon which all the operative parts of the device are mounted, said base-board having grooves or recesses, transfer-wires having their base portions secured in said grooves or recesses, and movable receiving-wires.

11. A paper-file comprising a base-board, upon which all the operative parts of the device are mounted, said base-board having grooves or recesses, transfer-wires formed from one continuous piece bent to form a base portion and needles and having said base portion secured within said grooves or recesses, and movable receiving-wires.

12. A paper-file comprising a base-board, stationary transfer-wires, and movable receiving-wires constructed from a continuous piece bent to provide upright needles and a base portion connecting the same, said base portion being secured to a movable spring-support.

13. A paper-file comprising a base-board, transfer wires, and receiving-wires carried by a sliding spring-support movable toward and away from said base-board.

14. A paper-file comprising a base-board, a plurality of upright stationary transfer-wires, and receiving-wires carried by a sliding support having a rearwardly-extending portion fitting between said transfer-wires, whereby said sliding support is guided.

15. A paper-file comprising a base-board, transfer-wires, receiving-wires, a sliding spring-support for said receiving-wires, and devices arranged to depress and slide said spring-support and receiving-wires.

16. A paper-file comprising a base-board, transfer-wires, receiving-wires, a sliding spring-support for said receiving-wires, movable toward and away from said base-board, and an operating-bar supported in bearings on said base-board and engaging said spring-support.

17. A paper-file comprising a base-board, transfer-wires, receiving-wires, a sliding spring-support therefor, and a revolving oper-

ating-bar supported in bearings on said base-board and engaging said spring-support.

18. A paper-file comprising a base-board, transfer-wires, receiving-wires, a sliding support for said receiving-wires, and an operating-bar supported in bearings on said base-board and pivoted to said sliding support.

19. A paper-file comprising a base-board, transfer-wires, receiving-wires, a sliding support for said receiving-wires, and an operating bar or lever engaging said sliding support, said bar or lever being supported in bearings on said base-board and having a shifting fulcrum-point.

20. A paper-file comprising a base-board, transfer-wires, receiving-wires, a sliding support for said receiving-wires, an operating bar or lever engaging said sliding support, and uprights E on said base-board, said uprights being formed with bearing-apertures e , in which the end portions of the operating bar or lever are supported, said bearing-apertures being provided with a plurality of fulcrum-points for said operating bar or lever.

21. A paper-file comprising a base-board, transfer-wires, receiving-wires, a sliding support for said receiving-wires, an operating bar or lever engaging said sliding support, and uprights E on said base-board, said uprights being formed with bearing-apertures e , having inwardly-curved sides e' and outwardly-curved sides e^2 and e^3 , the fulcrum-points of said operating bar or lever being located at the points of junction of said side e' with said sides e^2 and e^3 .

22. A paper-file comprising a base-board, transfer-wires, and receiving-wires carried by a sliding spring-plate movable toward and away from said base-board.

23. A paper-file comprising a base-board, transfer-wires, receiving-wires, a sliding spring-plate upon which said receiving-wires are supported, resting at its end portions upon said base-board and having an uprising intermediate portion.

24. A paper-file comprising a base-board, transfer-wires, and receiving-wires carried by a sliding plate possessing inherent elasticity.

25. A paper-file comprising a base-board, transfer-wires, receiving-wires carried by a sliding support, and a revolving operating-bar provided with fingers engaging with apertures in said sliding support.

26. A paper-file comprising a base-board, transfer-wires, receiving-wires, a sliding spring-plate upon which said receiving-wires are supported, and a revolving operating-bar provided with fingers engaging with apertures in said spring-plate.

27. A paper-file comprising a base-board, transfer-wires, receiving-wires carried by a sliding spring-plate, said spring-plate resting at its end portions upon the base-board and provided at one end with a slot, and a pin passing through said slot and secured to said base-board.

28. A paper-file comprising a base-board, receiving-wires carried by a sliding support, an operating-bar for moving said support, bearing-uprights for said operating-bar, said
5 uprights having base portions adapted to be secured to said base-board, and transfer-wires secured to said base-board by having their

base portions located between the base portions of said uprights and the said base-board.

JOSEPH W. HENSON.

Witnesses:

HARRY COBB KENNEDY,
R. WAGNER.