(No Model.) 2 Sheets—Sheet 1.

W. A. COOKE, Jr., & C. S. COOKE.

FILE FOR LETTERS AND PAPERS, &c.

No. 366,817. Patented July 19, 1887.

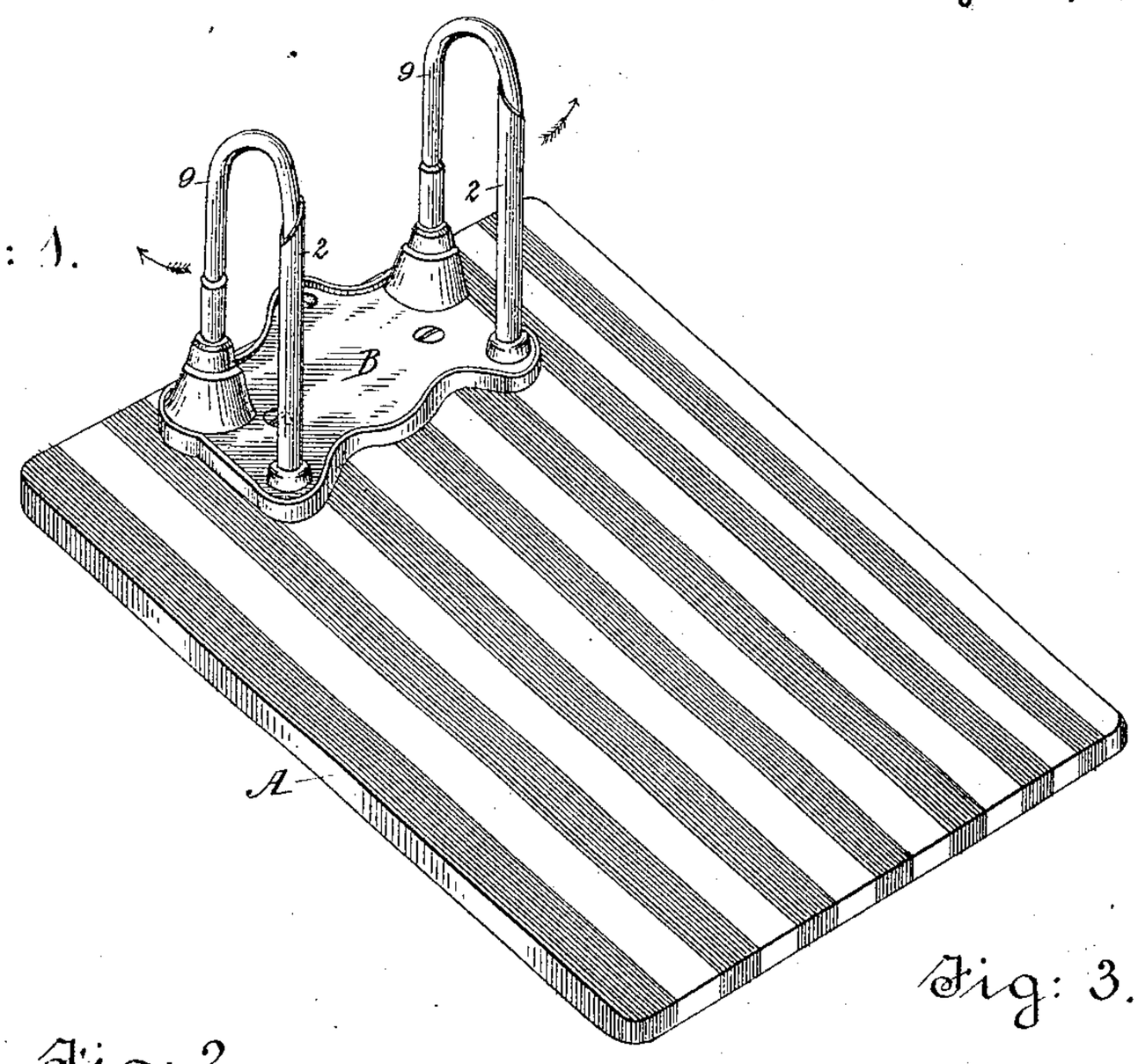
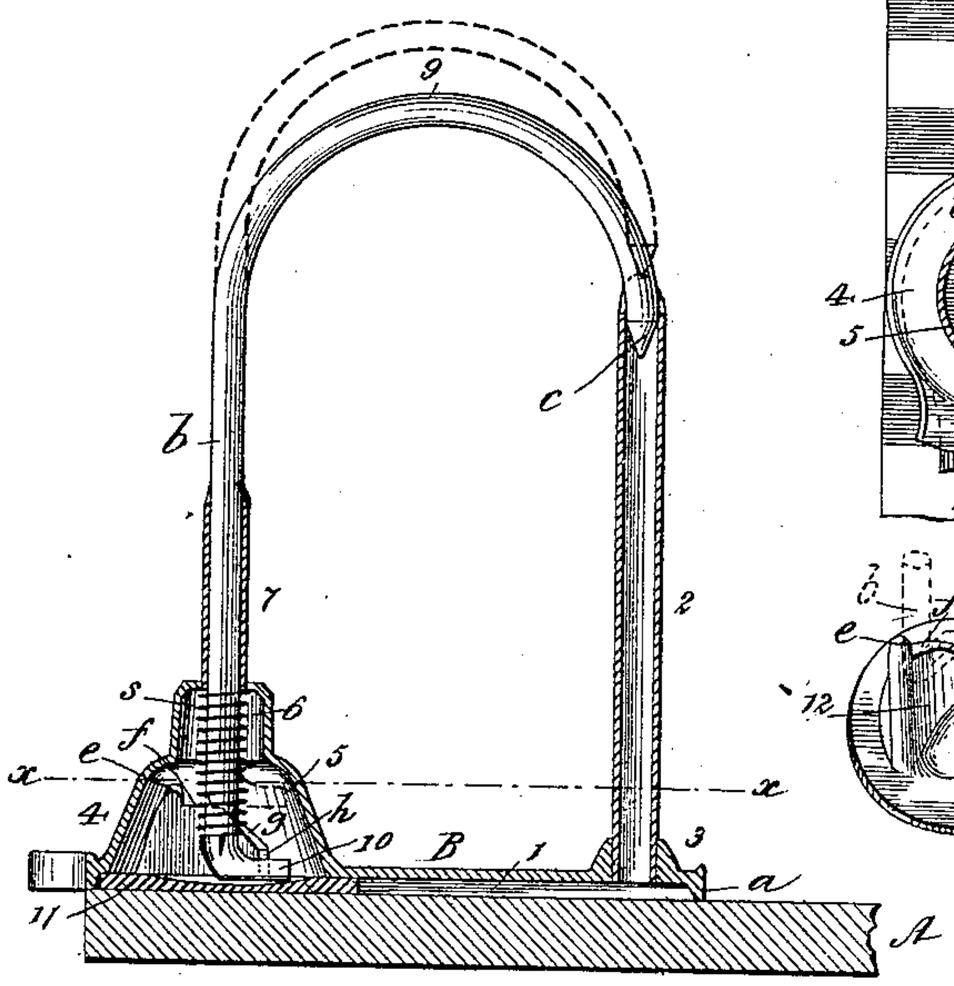
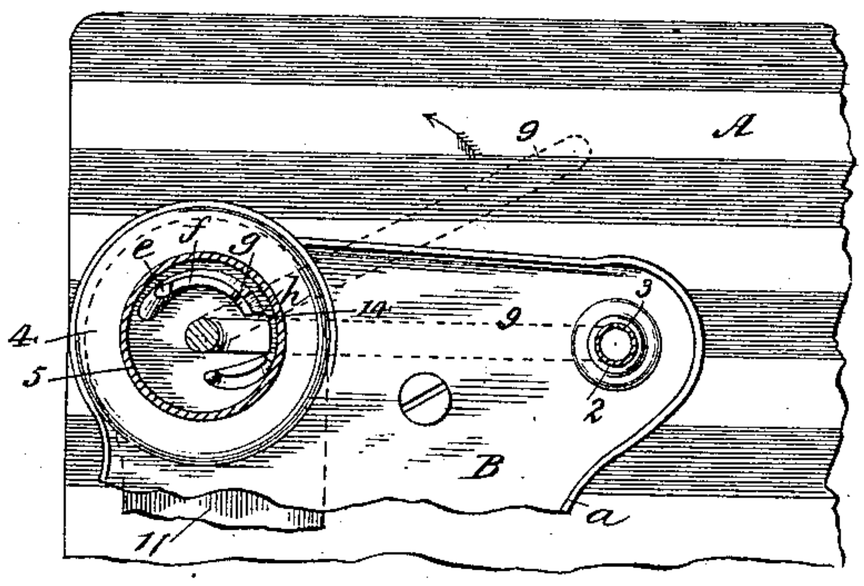


Fig: 1.

Fig: 3.

Fig: 2.





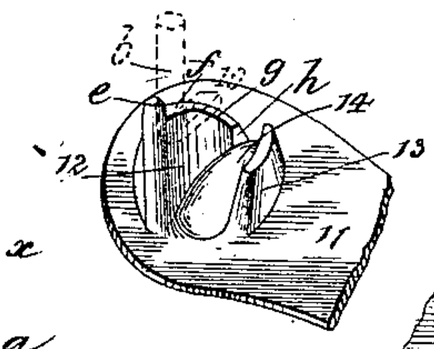


Fig: 4.

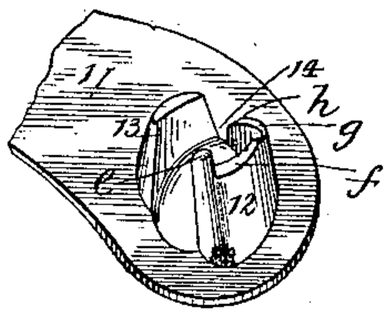


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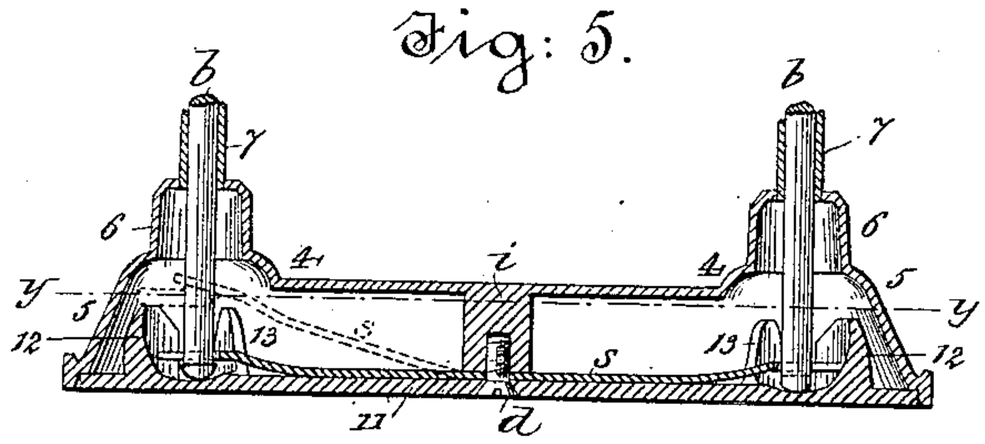
Fig: 5.



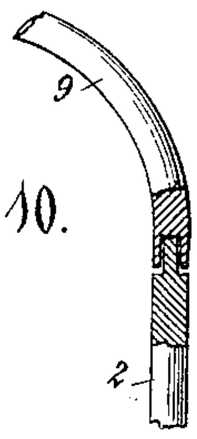


Fig: 10.

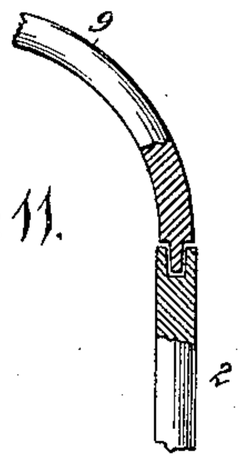


Fig: 11.

Fig: 6.

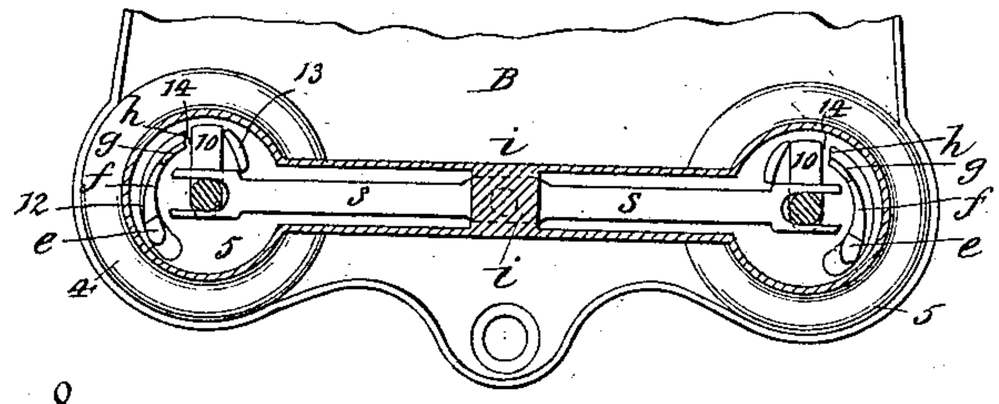


Fig: 8.

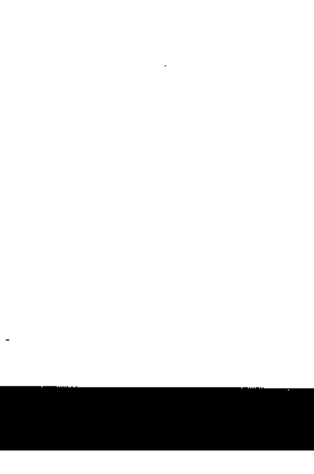


Fig: 7.

Fig: 9.

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UNITED STATES PATENT OFFICE.

WILLIAM A. COOKE, JR., AND CHARLES S. COOKE, OF BROOKLYN, NEW YORK.

FILE FOR LETTERS AND PAPERS, &c.

SPECIFICATION forming part of Letters Patent No. 366,817, dated July 19, 1887.

Application filed January 19, 1887. Serial No. 224,820. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM A. COOKE, Jr., and CHARLES S. COOKE, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful File for Letters, Papers, Bills, and the Like, of which the following is a specification.

This invention appertains to paper-files in which provision is made for removing or examining any of the papers on the files without displacing or disarranging other papers on the same file, and for the orderly arrangement of papers as they are received or accumulate, under dates, titles, or other methods of classification, so that papers bearing on the same or cognate subjects may be filed together, and any paper may be inspected or taken from and replaced in the file without disordering or removing other papers in the same or other classes.

These files consist, essentially, of a fixed tubular or solid wire or needle, on which the papers are impaled, and a movable curved or arched wire, called the "transfer" or "keeper" wire, one end of which is movable to and from the fixed wire. When it is desired to remove or inspect a paper on the file in an intermediate class, or which has been filed under other papers or classes, or to file a paper in a special class or under a certain date, the superimposed papers may be transferred to the movable wire without disarranging their order and the exposed paper inspected; or if the paper is to be removed or another paper filed, the transfer or keeper wire, with the papers, may be turned out of conjunction with the fixed wire and the paper taken off or filed, as the case may be.

Our present improvements are a continuation of or an addition to the invention described and claimed in an application for Patent, No. 205,579, filed June 18, 1886, for "files for letters, papers, bills," &c. The invention described and claimed in said application consists in connecting the transfer or keeper wire with a tubular socket by means of a sliding and vibrating-joint, or a joint formed by means of a slot in the tube, and a pin on the stem of the transfer-wire, and joining the latter with the fixed wire by interlocking its detachable and movable end with the fixed wire.

The objects of our present invention are, first, to do away with the slotted tube and pin, and thus economize the manufacture of the file; second, to make the connections of the transfer or keeper wire with its base more stable, firm, and positive; third, to prevent the transfer or keeper wire from closing or moving when opened to its full extent; fourth, to make the transfer-wire self-closing after being released or receiving an impulse in the direction of closing.

In the accompanying drawings, Figure 1 represents a perspective view of our improved file in duplex form; Fig. 2, a vertical longitudinal section of the same; Fig. 3, a horizontal section on line *x x* of Fig. 2; Fig. 4, a perspective view of the stationary devices which control the movable transfer or keeper wire. Fig. 5 is a vertical cross-section, and Fig. 6 a horizontal section, taken on line *y y* of Fig. 5, of a modification of the improved file. Figs. 7, 8, 9 represent the improvements in the form of a single file. Figs. 10, 11 represent different methods of interlocking the fixed and movable wires.

Referring to the drawings, the tablet A may be made of wood, paper, board, or other suitable material, and of any suitable and convenient size. It may also be arranged as a drawer, so that it can be placed in a case or cabinet. The fixed and movable wires are connected with suitable bases, which are preferably, but not necessarily, cast in one with or connected together by a cast-metal plate, B, of any tasteful design, which is constructed so that it can be attached to the tablet by screws or by any other suitable and convenient means. The plate and filing mechanism being thus connected together may be easily detached from the tablet for convenience of packing and shipping.

Plate B, if used, has a flange, *a*, around its edge, which raises it slightly above the tablet and thus forms a space, 1; but this is not essential.

The fixed or impaling wires 2, as shown in Fig. 2, are tubular, and their tops or upper ends are beveled off to a point, which facilitates

puncturing the papers when they are not previously perforated for filing, as may be done. The tubular form of the said wires is not, however, essential, as will appear presently. The bases 3 for the fixed wires are merely bosses with sockets, in which the lower ends of said wires are inserted and securely fastened. The bases 4 for the movable wires are hollow and of pyramidal form, and within them are a conical chamber, 5, and a cylindrical chamber, 6, in the top of which is inserted a tube, 7, which serves as a guide or sleeve for the transfer-wire. The chamber 5 receives the stationary parts which govern the position and movement of the transfer-wire, and the chamber 6 is a seat for the spring which controls the said wire. The transfer or keeper wires 9 are arched in the usual manner. One leg, *b*, which is considably longer than the other, connects with the base 4 and forms the axis on which the shorter end, *c*, vibrates. The leg *b* is inserted in the sleeve or guide 7 and extends down into chamber 5, its end being provided with a foot, 10, and a spiral spring, *s*, is coiled around the stem, its lower end being fastened to the stem by soldering or in any other secure manner, and its upper end bearing against the top of chamber 6. The spring holds the transfer-wire down and keeps its free end *c* in conjunction with the fixed wire or needle when closed, steadies its motion when being opened, and when closing throws it in conjunction with the fixed wire.

A detachable foot-plate, 11, is connected with the under side of plate B, at the rear thereof, and in position to cover the chambers 5 of the bases 4, the ends of said plate being rounded so as to fit within the flange which passes around the edge of the bases. (See Figs. 3 and 4.) The flange prevents the plate from turning or slipping, and it is otherwise fastened in place by means of a centrally-placed screw, *d*, passed up into plate B, as shown in Fig. 5. On plate 11 are the stationary devices which control the position of the transfer-wires. These consist of a step, 12, and a stop, 13, preferably cast upon plate 11, and in position to enter the chamber understand 4 when the plate is in position. Stop 13 prevents the transfer-wire from turning the wrong way, and from striking or bearing against the fixed wire; but step 12 has certain peculiarities of construction which are clearly illustrated by Fig. 4, and have for their object to control the movement of the transfer-wire. For this purpose the step is preferably curved into nearly the segment of a circle, either concentric or eccentric to the axis of the stem of the transfer-wire. Its upper edge is formed into three parts—viz., a stop, *e*, a horizontal or straight surface or edge, *f*, and an inclined edge, *g*, which terminates above the plate a definite distance, thereby leaving the end *h* at right angles to the plate and terminated short of a line joining the adjacent side of the transfer-wire with the fixed wire. Between end *h* and the adjacent end of projection 13 is a slot, 14, on the side next to and in line with the fixed wire, and in this slot the foot 10 is held when the end of the transfer-wire is in conjunction with the fixed wire. While it is preferred that the step 12 shall have an inclined edge or surface, *g*, this is not essential to our invention, and the straight surface may be continued to the end in some cases, which will be referred to presently. The object of inclining the edge is to make the transfer-wire self-acting in its vibratory motion when closing to a certain extent—that is, after moving it sufficiently to clear the holding-point, (the edge *f*,) the pressure of the spring, combined with the incline on which the foot presses, will cause the free end *c* to swing around into alignment with the fixed wire.

The transfer-wire attains its closed position—that is, with its free end telescoped, interlocked, or in positive connection with the fixed wire—by two movements—viz., a vibratory movement on its axis, the stem *b*, and a longitudinal movement in sequence; and it is opened by the same motions reversed.

The operation is as follows: In the duplex files the arched transfer or keeper wires have no connection with each other, and are therefore operated separately. The closed position is clearly represented by Figs. 1 and 2, the latter showing the free end of the transfer-wire interlocked with the fixed wire. To open the file, the movable or transfer wire is first lifted until its free end *c* clears the end of the fixed wire (if beveled, until it clears it on the side from which it is turned) and the foot 10 clears the end *h* of step 12. These positions are indicated by the dotted lines, Fig. 2. The transfer-wire is now vibrated and the free end diverged from the fixed wire until the foot 10 is arrested by the stop *e* and rests upon the edge *f*, where it is held by the pressure of the spring *s* forcibly enough to prevent the transfer-wire, which is thus held open, from moving. To close the transfer-wire, it is vibrated or swung in the opposite direction until the free end aligns with the fixed wire and the foot clears the end *h* of the step, when the pressure of the spring automatically throws it downward and conjoins or interlocks the free end of the movable wire with the top of the fixed wire, where, by the pressure of the spring, it is held against longitudinal movement, and against lateral movement by the step 12 and stop 13, between which the foot 10 rests in the slot 14. When an inclined edge, *f*, is given to the step, the vibratory motion of closing may be partly automatic also; as when the foot is cleared from the horizontal edge *f* the pressure of the spring will cause the foot to slide down the incline *g*, Fig. 2, and, when it clears it, drop into the notch or slot 14.

The steps and stops on the foot-plate 11, Figs. 1 and 2, are arranged so that the transfer-wires are opened by being swung outward; but it is obvious that by making the stop 13

exactly like the step 12 the transfer-wire may be arranged to open in either direction. This construction, however, would only be advantageously applicable to single files, like that shown in Figs. 7, 8, 9; and if so made the upper end of the fixed wire should be squared off and not beveled.

In Figs. 5 and 6 a flat spring, *s*, is substituted for the spiral spring, to control the transfer wires. In this case the bases are connected and the chambers 5 extended laterally to a partition, *i*, which forms a part of the plate B. The flat spring is laid over the plate 11 and secured by the screw *d* driven into *i*.

The step 12, in the representation of the single file, Figs. 7, 8, 9, has no inclined edge *g*; but, as shown, it has a slight inclination from the stop *e*. This inclination is not enough to cause the spring to move the foot automatically, but by giving the transfer-wire a slight impulse it will continue in motion until it closes.

When a solid fixed wire is substituted for the tubular, the locking connections shown in Figs. 10, 11 may be employed.

The sleeve or guide 7 is made from tubing, and should be of the same diameter as the fixed wire, in order that it will enter the perforations made in the papers for or by the fixed wire. This sleeve or guide furnishes a long bearing or support for the stem of the transfer-wire, and thus gives it steadiness and guards it against lateral play or motion, all which are quite essential to make the transfer-wire work with accuracy. At the same time it does not reduce the capacity of the stem to take all the papers that may be transferred to it from the fixed wire.

We claim—

1. In paper-files, the combination of a base, an arched wire having one end connected with the base and the opposite end free, the said wire being susceptible of longitudinal and vibratory motion in sequence, a fixed wire with which the free end of the arched wire interlocks when in alignment therewith, and a spring which steadies the movement of the arched wire and holds it when opened and closed, and, when its free end aligns with the fixed wire, automatically moves the arched wire longitudinally and causes its free end to interlock with the fixed wire, substantially as specified.

2. The combination of a base, an arched wire having one end connected with the base and the opposite end free, the said wire being susceptible of limited longitudinal and vibratory motion in sequence, a fixed wire with which the free end of the arched wire interlocks when in alignment therewith, and a holding and steadying spring, which, when the free end of the movable wire aligns with the fixed wire, automatically throws its free end into conjunction with the end of the fixed wire, substantially as specified.

3. The combination of two separate bases, 4 4, two separate arched transfer or keeper wires, 9 9, each having its leg *b* connected with one of the said bases and the other end free, said wires each being susceptible of positive longitudinal and vibratory motion in sequence, fixed wires 2 2, and bases 3 3, the free ends of the movable wires interlocking with the fixed wires when aligned therewith, and springs which connect with the movable wires, steadying them in their movements and holding them when open and closed, and, when their free ends align with the fixed wires, automatically move the arched wires longitudinally and cause their free ends to interlock with the fixed wires, substantially as specified.

4. The combination of the fixed wire 2, the arched transfer or keeper wire 9, connected with a suitable base and susceptible of being moved vertically and vibrated axially therein and provided with the foot 10, and the step 12, having its end *h* terminated short of a line joining the adjacent side of the foot 10 and the fixed wire, substantially as specified.

5. The combination of a fixed wire, an arched transfer or keeper wire connected with a suitable base and susceptible of being moved longitudinally and vibrated axially in its base, and provided with a foot, 10, and a step, 12, having its end *h* terminated short of a line joining the adjacent side of the foot and the fixed wire and provided with a stop, *e*, substantially as specified.

6. The combination of a fixed wire, an arched transfer or keeper wire connected with a suitable base and susceptible of longitudinal and vibratory movement therein, and provided with a foot, 10, and a step, 12, having a horizontal edge, *f*, and inclined edge *g*, substantially as specified.

7. The combination of a fixed wire, an arched transfer or keeper wire connected with a suitable base and susceptible of longitudinal and vibratory movement therein, and provided with a foot, 10, a step, 12, a stop, 13, and a slot, 14, between the step 12 and the adjacent end of the stop, substantially as specified.

8. The combination of the arched transfer or keeper wire connected with a suitable base and susceptible of being moved vertically and vibrated axially therein, and provided with a foot, 10, the step 12, and the spring *s*, substantially as specified.

9. The combination of the fixed wire, the longitudinally-movable and vibratory transfer or keeper wire provided with the foot 10, the hollow pyramidal base 4, and the foot-plate 11, provided with the step 12, substantially as specified.

10. The combination of the fixed wire, the longitudinally-movable and vibratory transfer or keeper wire provided with the foot 10, the hollow pyramidal base 4, and the foot-plate 11, provided with the step 12 and stop 13, and the foot notch or slot 14 between them, substantially as specified.

11. The combination of the two fixed wires,

the movable transfer or keeper wires, the hollow pyramidal bases 4 4, and the detachable plate 11, with the steps 12 12 and stops 13 13 cast thereon, substantially as specified.

12. The combination of the tubular sleeve or guide 7 with the longitudinally-moving and laterally-vibrating transfer or keeper wire connected with a suitable base, substantially as specified.

In testimony that we claim the foregoing as our invention we have hereunto set our hands this 8th day of January, 1887.

WILLIAM A. COOKE, JR.
CHARLES S. COOKE.

In presence of—
ISAAC P. HUBBARD,
WILTON C. DONN.