(No Model.) 4 Sheets—Sheet 1.

A. E. A. RAY.

LETTER CASE, PORTFOLIO, &c.

No. 518,628. Patented Apr. 24, 1894.

Fig. 2.

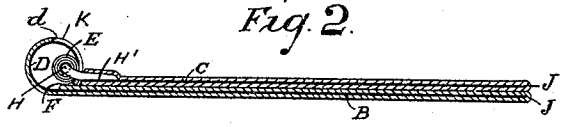

Fig. 3.

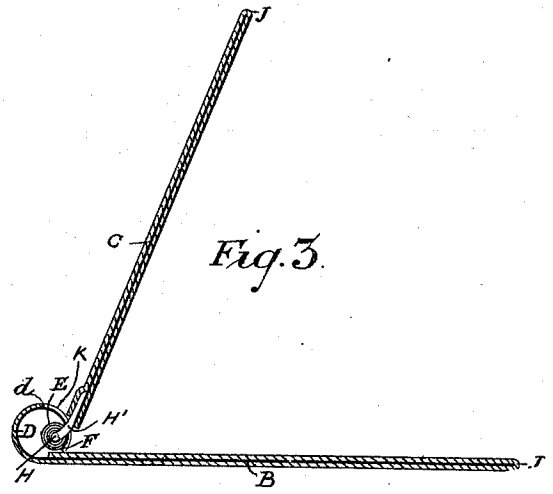

Fig. 4.

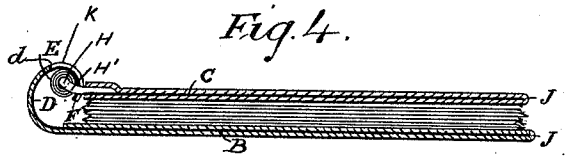

Fig. 1.

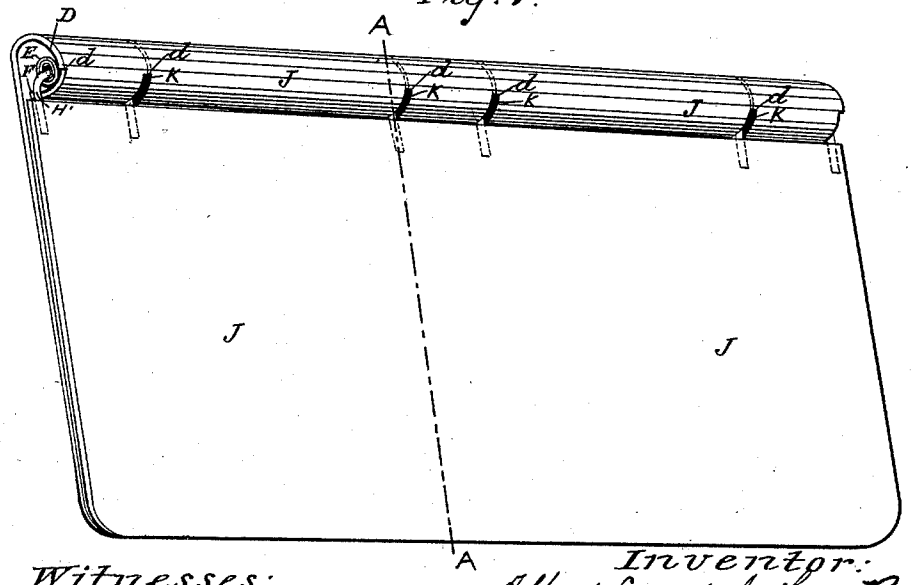

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Fig. 5.

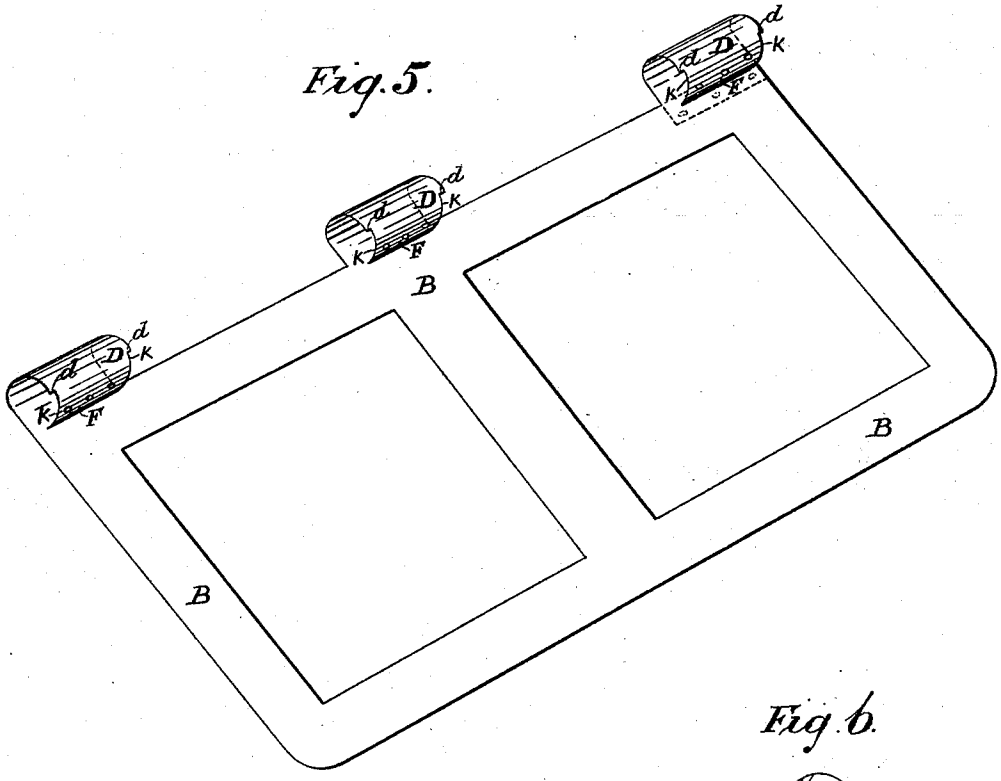

Fig. 6.

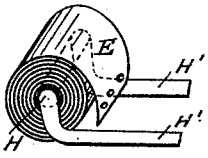

Fig. 7.

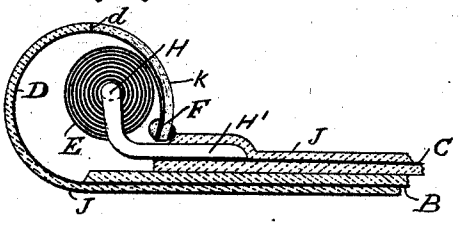

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Fig. 8.

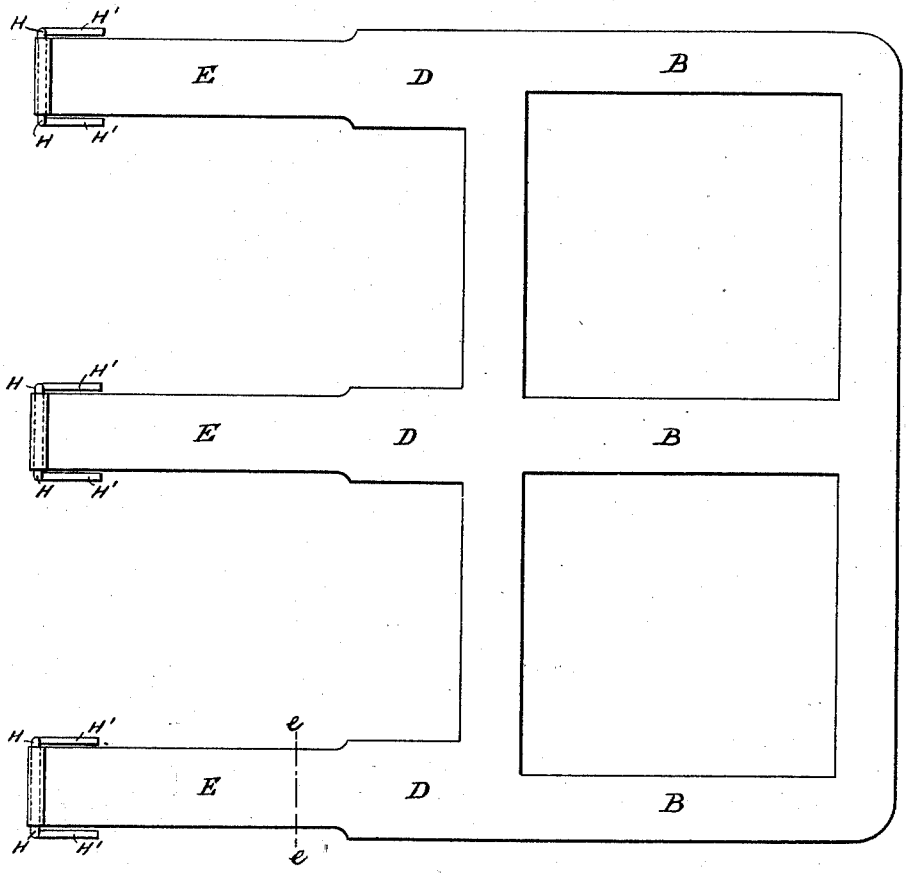

Fig. 9.

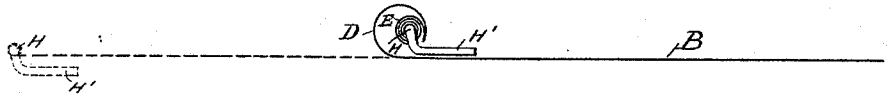

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Fig. 10.

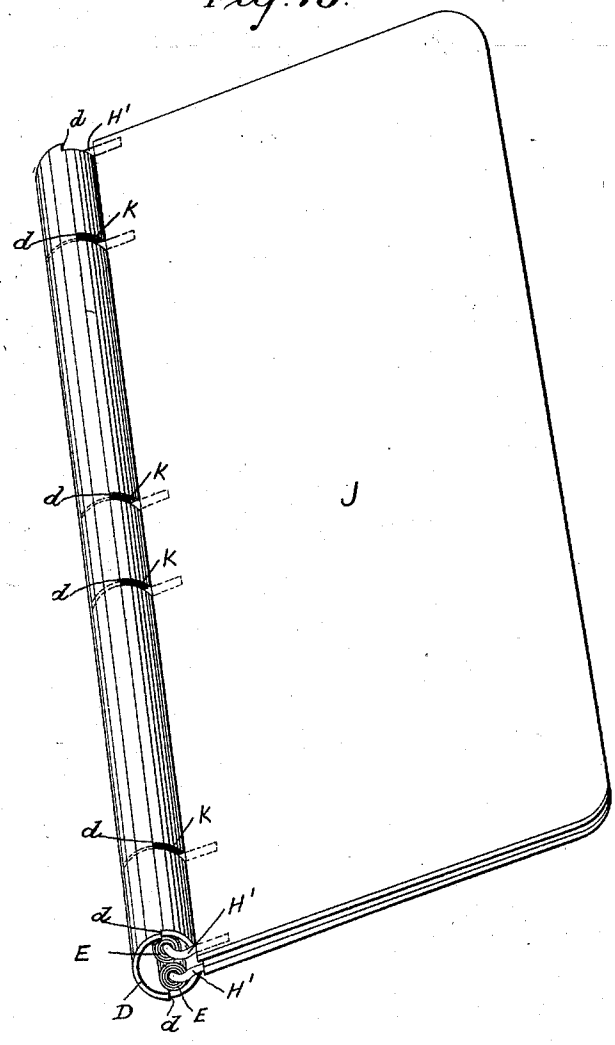
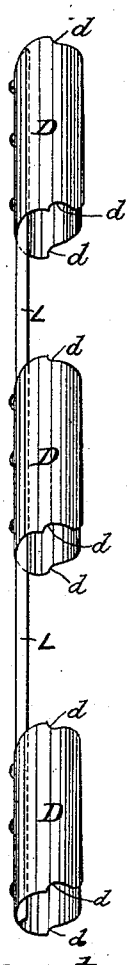


Fig. 11.



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UNITED STATES PATENT OFFICE.

ALFRED ERNEST ARTHUR RAY, OF LONDON, ENGLAND.

LETTER-CASE, PORTFOLIO, &c.

SPECIFICATION forming part of Letters Patent No. 518,628, dated April 24, 1894.

Application filed June 26, 1893. Serial No. 478,815. (No model.)

To all whom it may concern:

Be it known that I, ALFRED ERNEST ARTHUR RAY, engineer, a subject of the Queen of Great Britain and Ireland, residing at 18 Lady Somerset Road, Kentish town, London, in the county of Middlesex, England, have invented certain new and useful Improvements in Letter-Cases, Portfolios, or other Similar Articles, of which the following is a specification.

The object of my invention is to construct letter cases, portfolios, or similar articles in such manner that the covers or sides of the apparatus will securely grip the papers placed therein, over their whole surface, whether it contains a small or large number of papers.

In the accompanying four sheets of drawings, which form part of this specification, Figure 1, is a perspective view of a letter case with one spring cover, empty and closed, constructed in accordance with my invention. Fig. 2, is a cross-section through A A in Fig. 1. Fig. 3, is a similar cross-section showing the letter case open. Fig. 4, is a cross-section showing the letter case filled with papers and closed. Fig. 5, is a perspective view of one of the frames of the case. Fig. 6, is a perspective view to an enlarged scale of one of the springs employed in the construction of the case. Fig. 7, is a part of the cross-section Fig. 2, shown to an enlarged scale. Fig. 8, is a plan of one of the frames of the case, showing a modified method of construction. Fig. 9, is an end elevation of the same. Fig. 10, is a perspective view of a letter case with two spring covers, empty and closed, constructed in accordance with my invention, and Fig. 11, is a perspective view of the spring back of same, with the covers and other parts removed.

Similar letters of reference denote similar parts throughout the drawings.

Referring to Figs. 1 to 7, I employ two thin metal plates B, C, to form the covers of the apparatus, these plates are preferably made as skeleton frames, Fig. 5, in order to save weight. The plate B is made of steel and is stamped out with two, three, or more projections on the back edge which are afterward bent round, and if necessary hardened and tempered, to form spring tubes D, the appearance of the finished plate being best shown in Fig. 5. A small flat spiral spring E, is placed within each of the said tubes D, the outer end of the spring being riveted, or otherwise securely affixed to the tube at F, while its inner end is affixed to a small bar H, having its ends H′ bent downward and then outward at right angles to the central portion and projecting outside and beyond the ends of the tube D. The cover C, which has no spring tubes D, is soldered or otherwise securely affixed to the ends H′ of the bars H.

The apparatus may be covered with leather, cloth, paper, or other desired material J, in the usual way. Slots K are formed in the said material to permit of the movement of the bars H′, and a portion of the ends of each tube D is cut away leaving a shoulder *d*, to form a stop to limit the amount to which the cover may be opened and thus avoid overstraining the spiral springs E. In place of the spring tubes D being made in one piece with the cover B, they may be formed separately and attached thereto by rivets, or other suitable means, as indicated by dotted lines in Fig. 5. The covers are pressed together and grip the papers placed between them by means of the spiral springs E, while the tubes D, which form a spring back to the apparatus, open or close independently of the springs E to accommodate a greater or less bulk of papers. By means of this combination of spiral springs E and spring tubes D, the covers are always enabled to shut parallel upon the inclosed papers, irrespective of their number and thickness, provided that the opening capacity of the tubes D in each particular instance, is not exceeded.

In the modified mode of construction shown in Figs. 8 and 9, the steel skeleton frame plate B is formed with projecting strips D as before, but these strips are extended in length into somewhat narrower pieces E. To the end of each said piece E, a bar H is fixed, having bent ends H′ as before described. The strip is then bent back upon itself at about the line *e*, the narrow part E coiled round to form a spiral spring, and the broad part D bent to form a spring tube, and the whole is hardened and tempered. Fig. 9 represents the finished appearance of the piece. The action is the same as before described, and the object of the modification is merely to avoid the joint between the springs D and E.

In Figs. 10 and 11, a modification is shown in which both covers B and C are independent of the spring back tubes D and are each provided with a set of spiral springs E, attached to them in the manner before described. The tubes D are affixed by any suitable means to a strip of metal L, and are each of sufficient internal capacity to contain a pair of springs E. The result of this mode of construction is that both covers are movable with relation to the back of the apparatus, which in some instances may be an advantage, while in the first described method only one such cover is movable.

In either form of the apparatus, the spaces between the spring tubes D may be filled up with sheet metal, cardboard or other suitable material, bent or formed to the same shape as the said tubes so that when the leather or other covering has been applied, the back may present a uniform cylindrical appearance.

Where it is undesirable to use leather, or other material as a covering, the sides can be formed of plates, embossed, chased, engraved, or otherwise ornamentally treated.

In the case of an apparatus made in this manner with a single moving side, the back springs D must necessarily be constructed separately and attached to the fixed side, as before described. The said springs may also be ornamentally treated and the spaces between filled up in a manner to harmonize with the other parts.

In place of the spring back being formed in separate parts, it may be made in a continuous piece, slots being provided where required for the arms H′ to work through, and instead of the springs E being of spiral, or clock form, as previously described, they may be of helical pattern if preferred.

In construction the cylindrical spring back D should have an equal or very slightly greater power than the combined spiral springs E, in order that it should remain closed when the movable side or sides are opened to receive or abstract papers, the retention of which causes the sides to become distended and owing to the manner in which the spiral springs are fitted to the spring back, this distention actuates this latter spring, which yields and opens and so insures the sides keeping parallel to each other and at the same time maintaining their grip on the contents.

My invention is specially applicable to pocket books, letter, or paper cases, but it is also suitable for paper files for hanging or table use, and for portfolios or any other articles intended to receive and securely retain papers or drawings of any description.

Having now described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A letter case or portfolio consisting of the sides and a spring back connecting them, said spring back comprising a tubular spring part and the spring carried thereby for keeping the sides closed, substantially as described.

2. A letter case or portfolio comprising the sides one of which carries a tubular spring back, the spring within and carried by the said tubular back, the arms H′ and the rod H, the said arms being attached to one of the sides, substantially as described.

3. A letter case or portfolio comprising the two sides one of which has an integral tubular spring back portion and the spring within said back portion connecting the same with the other side, substantially as described.

4. A letter case or portfolio comprising the two sides one of which has an integral extension in the form of a tubular spring having a coiled continuation in the form of a spring, the other side being connected thereto, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

ALFRED ERNEST ARTHUR RAY.

Witnesses:
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AMBROSE MYDEL.