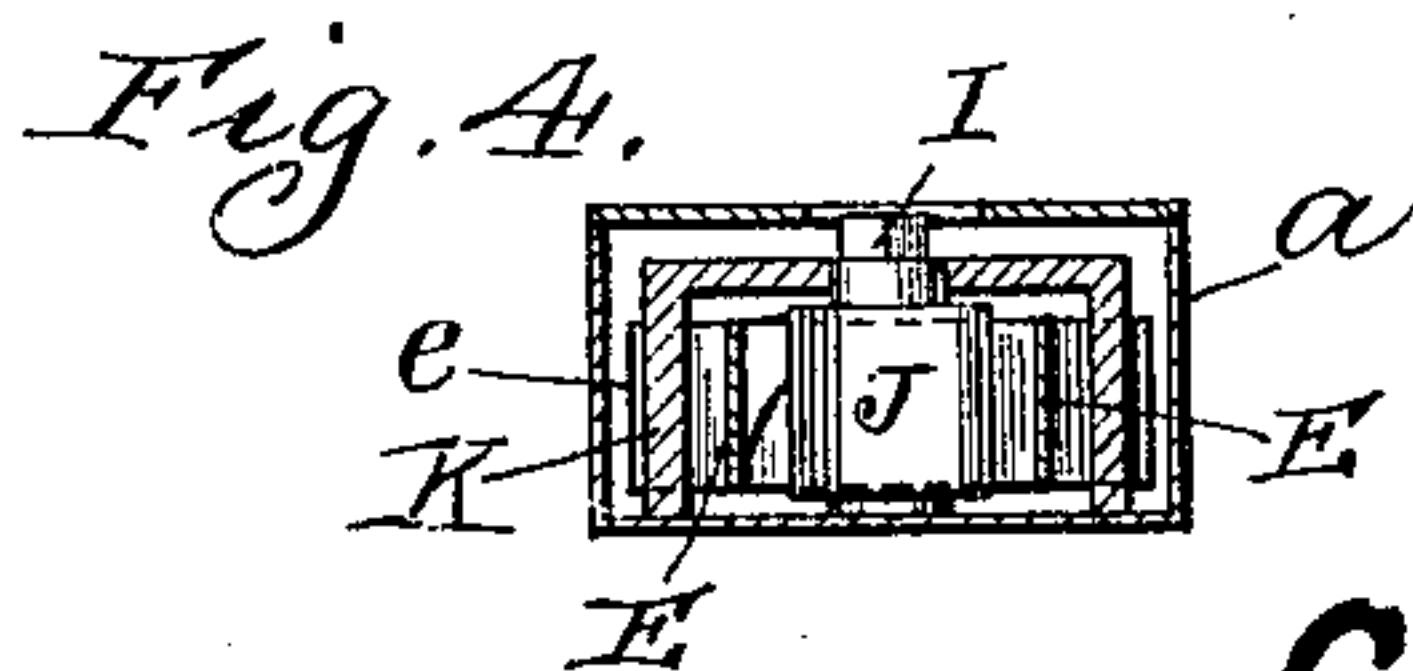
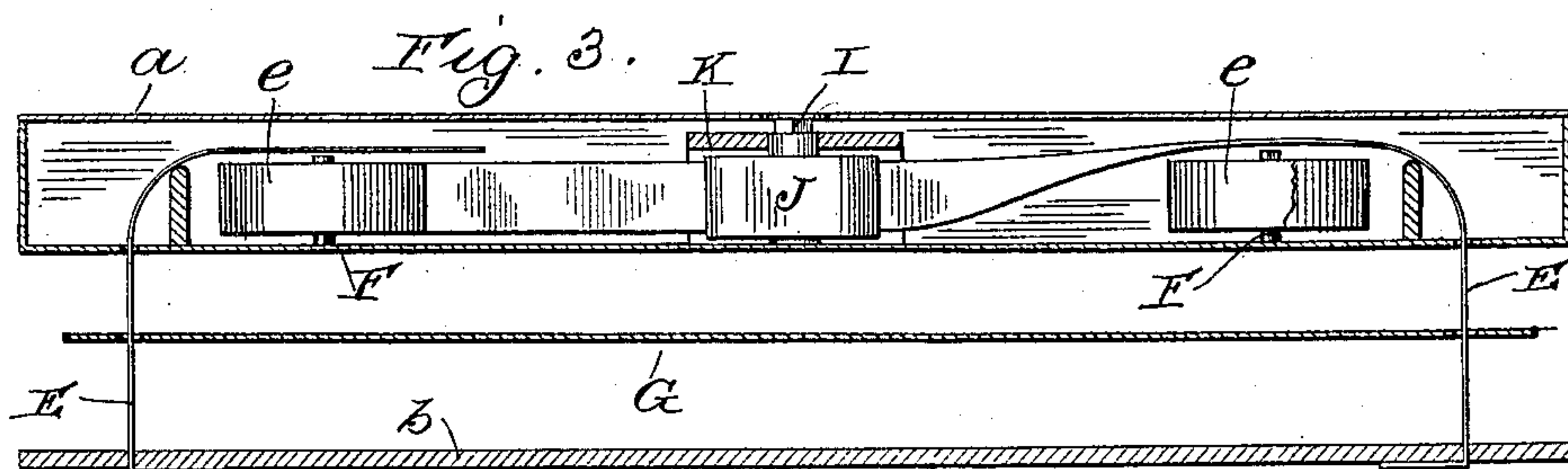
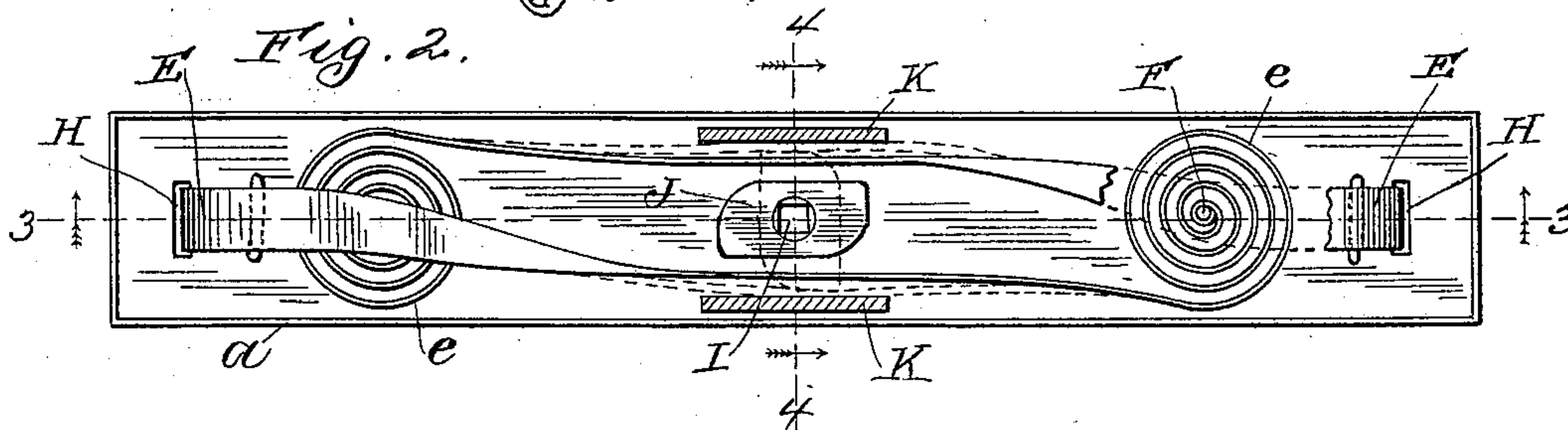
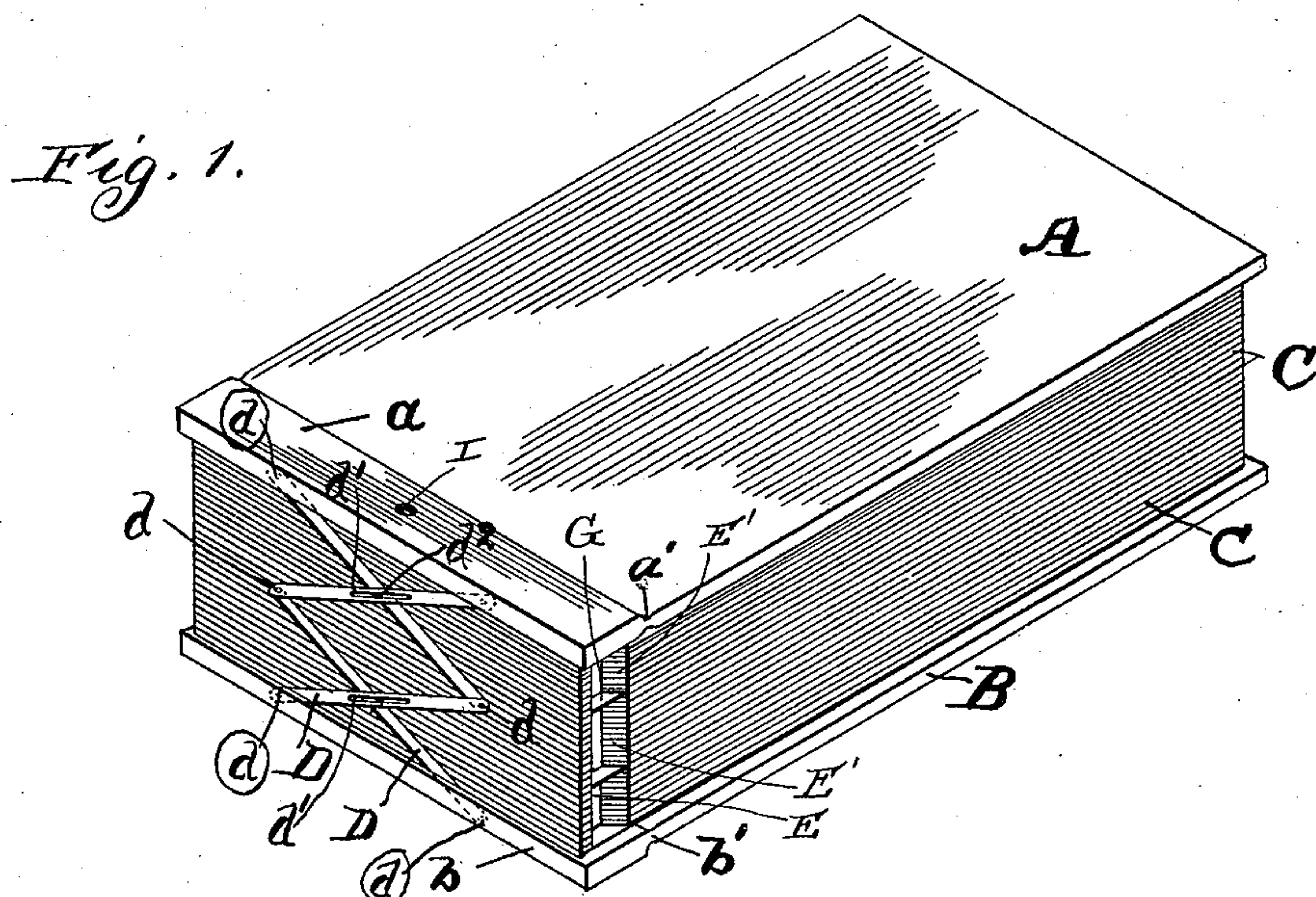



L. M. LESLIE.  
LOOSE SHEET BINDER.

Patented Apr. 20, 1897.



Witnesses:  
R. J. Jacker,  
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*Attys.*



# UNITED STATES PATENT OFFICE.

LEON M. LESLIE, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE WILLIAM MANN COMPANY, OF PHILADELPHIA, PENNSYLVANIA.

## LOOSE-SHEET BINDER.

SPECIFICATION forming part of Letters Patent No. 581,124, dated April 20, 1897.

Application filed October 24, 1896. Serial No. 609,925. (No model.)

*To all whom it may concern:*

Be it known that I, LEON M. LESLIE, a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Loose-Sheet Binders, of which the following, when taken in connection with the drawings accompanying and forming a part hereof, is a full and complete specification.

This invention relates to temporary binders designed to hold in a convenient form for use loose sheets, such sheets ordinarily consisting of writing-paper properly ruled, and connected by a flexible hinge to a stub; and the object of the invention is to obtain a loose-sheet binder into which sheets of paper of suitable size and shape can be readily placed and secured and from which such sheets can be taken with like facility, such holder being so constructed and arranged as to be of pleasing appearance, strong, and durable.

In the drawings referred to as forming a part of this specification, Figure 1 is a perspective view of a loose-sheet binder embodying my invention; Fig. 2, a top plan view of one of the back pieces of one of the covers of the loose-sheet binder, with the top covering thereof removed to expose to view the mechanism contained therein; Fig. 3, a vertical sectional view on line 3 3 of Fig. 2, viewed in the direction indicated by the arrows; and Fig. 4, a cross-sectional view thereof on line 4 4 of Fig. 2, also viewed in the direction indicated by the arrows.

A letter of reference applied to designate a given part is used to indicate such part throughout the several figures of the drawings.

A is one of the covers of the binder. *a* is the back piece to which such cover is secured by flexible hinge *a'*, and B is the other cover of the binder, secured to back piece *b* by flexible hinge *b'*.

C C are sheets of paper held in place in the binder.

D D are levers pivotally secured to back pieces *a b*, respectively, and to each other, (by pivots *d d'*), making what are known in the art as "lazy-tongs." The back pieces *a b* are maintained in parallel planes, which

may be made to approach or recede from each other by the several levers D D.

E E are springs, one end of each whereof is secured to the back piece *b* and the other end is coiled (as an ordinary clock or watch spring is coiled) into coil *e* around its shaft F in back *a*.

E' E' are notches in the sides of sheets C C, (or in the stubs thereof, where such sheets are constructed with stubs,) in which recesses the portions or parts of springs E E, which extend between backs *a b*, extend; such springs thus forming positive-acting mechanism for holding sheets C C in the binder in addition to the friction to be obtained by forcing the backs *a b* firmly against the interposed sheets.

G G are thin strips (preferably of sheet metal) having holes therein through which springs E E respectively extend. Strips G G are not essential in a binder having but few loose sheets bound therein, but will be found very necessary in a binder having many sheets C C therein, as the springs E E are thereby held in the notches in sheets C C when backs *a b* are not in frictional contact with the sheets adjacent thereto, respectively.

I is a shaft having cam J thereon.

K K are abutments.

It will be observed that springs E E after extending through holes H H, respectively, in back *a* extend to the coils *e e* at the other end of such back, passing between cam J and abutments K K, respectively, so that when such cam is turned one-quarter around (as by a key fitting over the squared end of such shaft) the springs are pinched between the cam and the abutments, as indicated by the dotted lines in Fig. 2, and thereby backs *a b* held in close contact to the sheets interposed between them and the portion of the springs extending between backs *a* and *b* maintained taut.

So much of the springs as are not contained in coils *e e*, respectively, when sheets C C are in place in the binder and the covers in proper position to hold the sheets in place may be (and preferably are) annealed—that is, may have the tempering of the spring taken therefrom—the purpose of using spring metal for the flexible connections E E being that such



connections may automatically coil around the posts F F (holding such connections taut between the backs *a b*) when the covers and backs are pressed together against sheets C C.

5 The operation of placing loose sheets in or removing them from the binder is: Covers A B, together with backs *a b*, are separated (springs E E being thereby uncoiled) and the loose sheets put in place between the backs  
10 and covers and strips G. The backs *a b* are then pressed firmly together on sheets C C, when the springs E E will automatically coil into coils *e e* to maintain the position of the spring between the backs *a b* in a taut posi-  
15 tion. The cam J is then turned (as by means of a key fitting over the squared end of shaft I) from the position of such cam as illustrated by the full lines in Fig. 2 into the position thereof indicated by dotted lines in Fig. 2.  
20 The several parts are thereby held firmly and rigidly in position and the sheets are bound in place. To take out any of the sheets or to add more, the cam J is turned back to the position thereof illustrated in full lines in  
25 Fig. 2 and the backs *a b* forced apart, (opening the tongs formed by levers D D,) when such sheets may be withdrawn and others inserted.

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

1. A loose-sheet binder comprising covers, backs to which the covers are flexibly at-  
35 tached, levers maintaining the backs in parallel planes, flexible connections between the backs consisting of flat springs automatically coiling, to take up the slack thereof, in one of the backs, and means for securing the flexi-  
40 tially as described.

2. A loose-sheet binder comprising covers,

backs to which the covers are flexibly at-  
tached, levers maintaining the backs in par-  
allel planes, flexible connections between the  
backs consisting of flat springs automatically  
45 coiling, to take up the slack thereof, in one of the backs, metal strips fitting over the por-  
tion of the flexible connection which extends between the backs, such metal strips coming  
50 between the loose sheets in the binder, and means for securing the flexible connections in a taut position; substantially as described.

3. A loose-sheet binder comprising covers, backs to which the covers are flexibly at-  
55 tached, levers maintaining the backs in parallel planes, flexible connections between the backs consisting of flat springs automatically coiling, to take up the slack thereof, in one of the backs, abutments in the back and a cam  
60 between which and the abutments the flexible connections extend, such cam affording means for securing the flexible connections in a taut position; substantially as described.

4. A loose-sheet binder comprising covers, backs to which the covers are flexibly at-  
65 tached, levers maintaining the backs in parallel planes, flexible connections between the backs consisting of flat springs automatically coiling, to take up the slack thereof, in one of the backs, abutments in the back and a cam  
70 between which and the abutments the flexible connections extend, such cam affording means for securing the flexible connections in a taut position, metal strips fitting over the  
75 portion of the flexible connections which extends between the backs, such metal strips coming between the loose sheets in the binder; substantially as described.

LEON M. LESLIE.

In presence of—

FLORA L. BROWN,  
CELIA L. PETERMAN.