No. 673,375. Patented May 7, 1901.

G. G. BAYHA.

ENVELOP OPENER.

(Application filed Feb. 4, 1901.)

(No Model.)

Fig. 1.

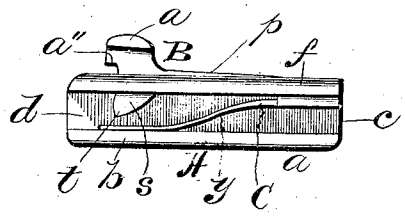


Fig. 2.

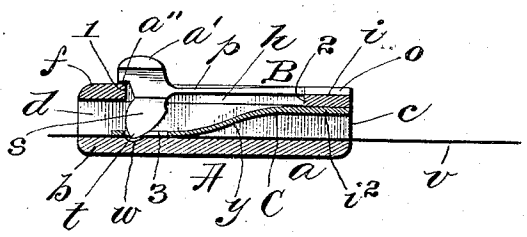


Fig. 3.

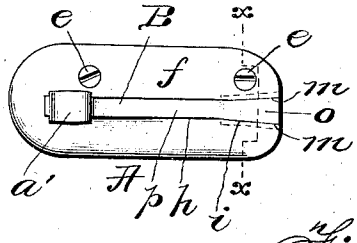


Fig. 4.

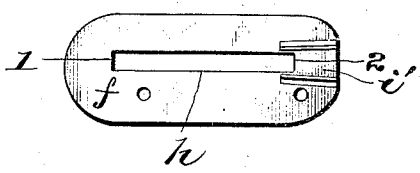


Fig. 5.

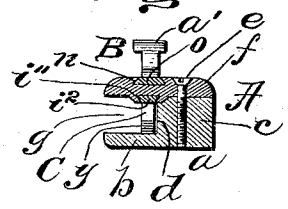


Fig. 6.

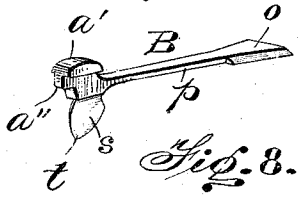


Fig. 7.



Fig. 8.

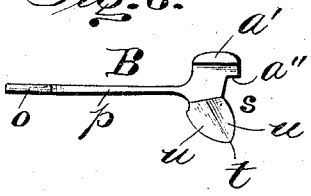
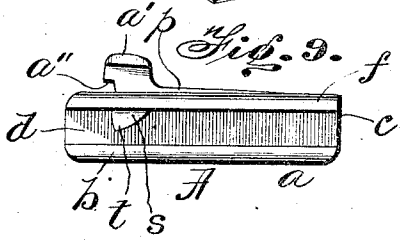


Fig. 9.



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UNITED STATES PATENT OFFICE.

GEORGE G. BAYHA, OF NIOBRARA, NEBRASKA.

ENVELOP-OPENER.

SPECIFICATION forming part of Letters Patent No. 673,375, dated May 7, 1901.

Application filed Febuary 4, 1901. Serial No. 45,901. (No model.)

To all whom it may concern:

Be it known that I, GEORGE G. BAYHA, a citizen of the United States, residing at Niobrara, in the county of Knox and State of Nebraska, have invented certain new and useful Improvements in Envelop-Openers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to knives or cutting devices; and it consists substantially in the improvements hereinafter more particularly described, and pointed out in the claims.

The invention is adapted to a great many different uses or purposes, such as a cutter or trimming device for the edges of textile and other fabrics, including paper, cardboard, and the like; but the particular use or purpose for which the same is intended is that of an opener for the ordinary envelops employed in correspondence through the mails and otherwise.

One object of the invention is to provide a simple and effective knife or cutting device whereby either the longer or shorter edge of an ordinary envelop can be cut off or severed from the body thereof with much greater facility and also in such manner that the contents of the envelop are left intact, while the envelop itself is not torn or lacerated and the usual marks of identification thereon are not obliterated or mutilated.

A further object of the invention is to provide a knife or cutting device of this character which is easily and quickly handled or manipulated and one also that is exceedingly simple in construction and economical to manufacture, besides possessing the qualities of lightness, durability, and strength.

A still further object is to provide a device of this kind comprising the least number of parts or elements, which are readily taken apart either for the purpose of adjustment or repair, and also to provide a device for severing or cutting off the edges of envelops and other articles of varying degrees of thickness.

The above and additional objects I attain by the means substantially as illustrated in the accompanying drawings, wherein—

Figure 1 is a view in side elevation of the preferred form of my improved knife or cutting device, the same being taken from the side at which the edge of the envelop or other article is inserted. Fig. 2 is a longitudinal sectional view of the device, the knife or cutting-blade being shown in elevation and also being shown in the downward position it occupies when pressed upon. Fig. 3 is a top or plan view of the device. Fig. 4 is a view of the bottom or under side of the top plate of the device to more clearly indicate the construction thereof. Fig. 5 is a transverse sectional view of the device about on the line $x\,x$ of Fig. 3. Fig. 6 is a perspective view of the removable knife or cutting-blade detached. Fig. 7 is a similar view of the removable presser-foot detached. Fig. 8 is a view of the knife or cutting-blade, taken from the opposite side to that shown in Fig. 6 and showing the double cutting edge of the blade. Fig. 9 is a similar view to Fig. 1, showing the presser-foot dispensed with.

Before proceeding with a more detailed description it may be stated that my improved knife or cutting device comprises a suitable block or handle, which also constitutes a guide for the edge of the envelop or other article to be operated upon, and working through an elongated opening or slot in said block or handle is a spring knife or cutting-blade which in the severance of the edges from envelops of ordinary thickness or less is pressed upon by the thumb or finger of the operator, so as to be properly held down to its work. The degree of pressure is entirely proportional to the thickness of the envelop or other article to be cut, since it will be apparent from the construction hereinafter specifically described that the thinner the article operated upon the less will be the normal pressure exerted by the said spring knife or cutting-blade. On introducing an envelop of increased or considerable thickness the cutter or knife is necessarily placed under greater inherent or normal tension, and hence the severance of the edge of a thick envelop or other article does not require the same amount of extra or thumb pressure as when operating upon a thinner article. The said knife or cutter is preferably removable or detachable for the purpose of sharpening and repair thereof, and should the same become too much worn or broken it can be readily re-

placed at small cost. It has a movement within and across the guiding-aperture for the envelop or other article, and the construction of the base of said aperture is such that the point of the knife or cutting-blade is permitted to entirely penetrate the article operated upon with absolute certainty, thus rendering the proper working of the device to be relied upon at all times. Means are provided for so limiting the downward movement of the knife as to always prevent the point thereof from being forced into contact with the bottom of the guiding-aperture, which, as is evident, would soon render the knife dull, and whenever through repeated sharpening of said knife or blade the point thereof is rendered too short to completely penetrate the article operated upon then the simple removal or filing away of another portion of the knife enables the said point to be still carried down sufficiently far to render the knife still operative for its purposes. These adjustments can be made from time to time in such a way as to derive a considerable length of service from the device before substituting a new knife or blade. Preferably, though not essentially, I also employ a spring-pressed foot for holding in place the envelop or other article operated upon, so as to obviate any curling or warping tendency of the material of the article at points adjacent the cutting edges of the knife or blade, which, as is evident, would be likely to prevent a clean straight cut from being effected. Said presser-foot is also preferably removable or detachable, and it will be understood that the same is dispensed with in some instances, as when the device is employed solely for cutting articles of more than ordinary bulk or thickness. The knife or blade is preferably sharpened so as to present both a forward and a rearward cutting edge, and thus can the edge of the envelop or other article be severed when operated upon from either direction. Other peculiarities of construction and operation will more fully hereinafter appear; but it may be further added that the complete device is preferably made or constructed of such size as to be conveniently carried in the pocket, similarly to an ordinary pocket-knife, or the device can be constructed or adapted to form a part of many of the ordinary forms of pocket-knives at present in use. On the other hand, my improved device is of itself also readily adapted for use as a part of the furniture of an ordinary writing-desk, and thus it becomes a useful article in offices of all kinds, or the device can also be conveniently constructed in part with many of the forms of paper-cutters, erasers, and other articles of desk furniture already in use.

Specific reference being had to the accompanying drawings, wherein the several parts are shown somewhat enlarged, A represents my improved knife or cutting device as a whole, and which is constructed of any suitable material. Preferably I form the device of a block or handle *a* of some hard wood, which is of any desired size and preferably without sharp or angular edges or corners. Said block or handle is formed with a base *b*, and for its full length is constructed with a raised or elevated portion *c*, the width or thickness of which is about one-half the width of the said base *b*. The upper surface of the base is perfectly flat, as is also the inner or vertical surface *d* of the said raised or elevated portion *c*, the two said surfaces being preferably at perfect right angles to each other, so as to evenly guide the edge of an envelop or other article when inserted in the device for the purpose of being severed or cut off. Secured to the upper surface of the said raised or elevated portion *c* of the said block or handle by means of screws *e* or otherwise is a top plate *f*, which is of the same general shape and dimensions as the block *a* and which projects at one side beyond the inner surface of the raised or elevated portion *c*, above the base *b*, and thus is formed a longitudinal aperture *g* for the insertion of the edge of the article to be operated upon. The thickness of the articles to be operated upon is only limited by the height of said aperture, as is evident. The said top plate *f* is formed or provided with a longitudinal opening or slot *h*, extending between points 1 2, at suitable distances from the ends thereof, and at one end of said slot or opening a recess *i* is formed in the upper surface of said top plate, the ends of said recess being entirely open, while the sides or walls thereof are preferably slightly divergent or spread apart outwardly at *m* in the direction of the end of the said plate. Thus the sides or walls of the said recess are inclined toward each other inwardly, and preferably the said sides or walls are beveled at *n* to receive a correspondingly constructed wedge or tenon *o*, formed at the outer end of a spring knife or cutter B, the arm *p* of which is snugly received between the sides or walls of the elongated slot or opening *h* of the top plate, as shown. By thus forming the outer end of the arm of the knife or cutter the latter is easily and quickly inserted in place, and it is not liable to drop out, while still being capable of ready renewal for any purpose whatever. The wedge or dovetail form of the recess *i* and tenon *o* prevent the knife from being forced too far inwardly, while the beveled sides of the two prevent the knife from dropping out of place even on inverting the device. The said described connection also constitutes a firm bearing or fulcrum for the desired working action of the cutting-blade or knife, the arm *p* of the latter having a certain spring action with the tendency to downward pressure at the inner free end thereof, at which end the blade proper is located, as designated at *s*. This blade *s* is preferably pointed at *t*, and the same is provided both forwardly and rearwardly with preferably a beveled cutting edge *u*, (see Fig. 8,) so as to operate equally whether the edge

of the envelop or other article is drawn through the device in one direction or the other. The said blade *s* is of a height slightly in excess of the height of the longitudinal aperture *g*, so as to insure a complete cutting all the way through the thickness of the article or material *v* operated upon; and for this purpose the base of the device is formed with a notch or recess *w*, receiving the pointed end of the blade, as shown more clearly in Fig. 2. The said arm *p* of the knife or cutter is formed at its inner end with a thumb or finger piece *a'*, by which the blade is pressed down to its work; and it is also formed at such end with a lug or stop *a''*, which limits the downward movement of the blade by engaging or coming into contact with the edge 1 of the longitudinal opening or slot *h* in the said top plate *f*. In this way the point of the blade is prevented from ever coming into contact with the bottom of notch *w*, and the said point *t* of the blade is therefore not likely to soon become worn. If, however, after repeated sharpening of the blade the height of the same is so reduced as to prevent the point *t* thereof from reaching down far enough, then this is remedied by simply filing away a corresponding amount of the under surface of the limiting lug or stop *a''*, whereupon the said point is permitted to descend to the same extent as before. In this way the utility of the device is maintained for a very great length of time, as is evident. As indicated at Figs. 2 and 6, it will be observed that the outer side of the blade is perfectly smooth or flat, while at Fig. 8 it will be further observed that it is the inner side only of the olade which is beveled or ground off to a cutting edge. The said outer side or face of the blade is flush or even with the corresponding side of the spring-arm carrying the same, and inasmuch as the thickness of the blade is less than the width of said arm (see Fig. 6) it follows that a space is left between the inner side of the blade and the vertical side *d* of the aperture *g*. Thus a gage is formed determining the extent or width of the margin cut off or severed from the envelop, although of course it will be understood that my invention is not limited to these precise details of construction and arrangement. The effect produced by the specific form of blade referred to is that the inserted edge of an envelop is forced or drawn up more closely against the vertical wall of the said aperture *g*, whereas if said blade were thus beveled on both sides or on the outer side instead, the effect would tend to be somewhat the opposite and a perfectly straight and even cut would probably not be derived. However, this feature of my invention is also a minor one only and may be followed in its exact details or not, as desired. Of course it will also be understood that the sides of the slot *h* constitute a guide for the movable arm *p*, and hence the part severed from the envelop will be the same width throughout the full length thereof.

As thus far described the device is thoroughly practical for most of the intended uses or purposes thereof; but in order to render the same thoroughly operative under all conditions of use I prefer to employ a presser foot or device for more securely holding in proper position the envelop or other article operated upon. Thus at the same end of the top plate *f*, and preferably directly beneath the wedge-shaped recess *i* therein, I form or provide a similar tapering or wedge-shaped recess *i'*, (see Fig. 4,) the sides or walls of which are likewise beveled at *i''*, and in this said recess is received a correspondingly-shaped tenon i^2, formed at the end of a curved spring presser-foot C, (see Fig. 7,) in like manner as the tenon *o* of the spring-arm *p* of the knife or cutter is received in the recess *i*. The outer end of said presser-foot is thus furnished a bearing or fulcrum, and the presser-foot is also thus rendered easily detachable or removable for any purpose whatever, while at the same time it is not likely to slip out of place accidentally. The said presser-foot is bent or curved at *y*, so that a portion of the same rests flatly on the base *b* of the device, and at a suitable distance from the free end thereof the same is formed with a slot or opening 3, located above the notch *w* in the said base, and through which slot or opening 3 the point *t* of the said blade *s* works, as shown. Said presser-foot is obviously self-adjusting to different thicknesses of envelops or other articles.

It is of course obvious that the construction and operation of the presser-foot and cutting-blade or knife can be altered in immaterial degree without departing from the spirit of my invention. It is further obvious that the details of construction of the remaining elements or parts of my improved device can also be similarly changed or altered.

To use or operate the device for cutting off the edge of a comparatively thin envelop, the said device is grasped so as to bring the same between the thumb and forefinger of the hand in such manner as to enable a sufficient amount of pressure to be exerted upon the thumb-piece of the knife or cutter, whereupon the edge of the envelop is properly inserted in the aperture *g* between the presser-foot and base and with the said edge close up against the straight vertical surface *d* of the raised or elevated portion *c* of the block *a*. (See Fig. 2.) In this way the envelop will be evenly guided, and all that is necessary then to be done is to simply draw the envelop against the edge of the knife in one direction or the other, according to the manner in which the same has been introduced, whereupon the edge of the latter will be severed or cut off in an obvious manner. When an article or envelop of increased thickness is inserted, the inherent tension of the knife-arm is thus

correspondingly increased, and therefore less thumb-pressure is required than in the case of a thin envelop, as is evident. As shown in Fig. 9, I am enabled to dispense with the presser-foot in some instances.

It is apparent that my improved device is capable of a great many different embodiments and also that the same can be made sufficiently small and ornamental to be conveniently worn upon the watch-chain in the manner of a charm or pendant therefor.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. A knife or cutting device, comprising a block or handle having a longitudinal aperture in one side and a communicating slot in the top thereof, and a knife or blade working across said aperture and guided in the slot, substantially as described.

2. A knife or cutting device, comprising a block or handle having a longitudinal aperture in one side, and a slot or opening in the top thereof, and a knife or blade working through said slot and across said aperture, substantially as described.

3. A knife or cutting device, comprising a block or handle having a longitudinal aperture and a longitudinal slot, and a spring-arm working in said slot and having a knife or blade working across said aperture.

4. A knife or cutting device, comprising a block or handle having a longitudinal aperture in one side and a communicating slot in the top thereof, and a pointed knife or blade working across the aperture and guided in the slot, the base of said aperture having means for preventing contact of the point of the knife therewith, substantially as described.

5. A knife or cutting device, comprising a block or handle having a longitudinal aperture and provided with a movable knife or blade working across said aperture and having double cutting edges and tapering to a point, substantially as described.

6. A knife or cutting device, comprising a block or handle having a longitudinal aperture, a movable knife or blade working across said aperture, and a presser-foot bearing upon the base of the aperture, substantially as described.

7. A knife or cutting device, comprising a block or handle having a longitudinal aperture, a movable knife or blade working across said aperture and pointed at its lower end, the base of the aperture having a recess for receiving such pointed end, substantially as described.

8. A knife or cutting device, comprising a block or handle having a longitudinal aperture, the base whereof is formed with a recess, a movable knife or blade working across said aperture and tapering to a point, and a presser-foot bearing upon the said base and having a slot or opening communicating with the said recess, substantially as described.

9. A knife or cutting device, comprising a block or handle having a longitudinal aperture, and a movable spring-arm having a thumb-piece, and provided with a knife or blade working across the aperture, said thumb-piece constituting a stop for limiting the inward or downward movement of the knife, and also the medium through which compensation for wear of the knife is effected, substantially as described.

10. A knife or cutting device, comprising a block having a longitudinal aperture, and a movable spring-arm having a knife or blade working across said aperture, said arm having a stop limiting the movement of the knife or blade in one direction, and said stop constituting a thumb-piece for operating the arm, substantially as described.

11. A knife or cutting device, comprising a block or handle having a longitudinal aperture and a longitudinal slot, and a movable spring-arm working in said slot and having a knife or blade working across said aperture, said arm having a stop abutting the block at one end of the slot, substantially as described.

12. A knife or cutting device, comprising a block or handle having a longitudinal aperture, a movable spring-arm having a thumb-piece, together with a movable knife or blade working across said aperture, said arm also having a stop limiting the downward movement of the blade, and a presser-foot resting on the base of said aperture, substantially as described.

13. A knife or cutting device, comprising the block or handle having the base and the raised or elevated portion, the top plate secured to said portion and extending over the base, said plate having a longitudinal slot, and a spring-arm working through said slot, and having at its free end a knife or cutting-blade working across the space between the said top plate and base, substantially as described.

14. A knife or cutting device, comprising the block or handle having the raised portion and the base provided with the recess, the top plate secured to said raised portion and extending over the base, said plate having a longitudinal slot, a spring-arm working through said slot and carrying a knife or blade working across the space between the base and top plate, and a presser-foot bearing upon said base and having a slot for the passage of the end of the blade, substantially as described.

15. A knife or cutting device, comprising the block or handle having the longitudinal aperture, the top plate having the slot and formed at one end with the tapering dovetailed recess *i*, and the spring-arm having a tenon correspondingly shaped and fitting said recess and carrying a knife or blade working across said aperture, substantially as described.

16. A knife or cutting device, comprising the block or handle having the longitudinal aperture, the top plate having the slot and

formed at one end on the under side thereof with a tapering dovetailed recess, the spring-arm working in said slot and carrying a knife or blade working across the said aperture, and a presser-foot bearing upon the base of the aperture and formed at one end with a correspondingly-shaped tenon fitting said recess, substantially as described.

17. A knife or cutting device, comprising the block or handle having the longitudinal aperture, the top plate having the slot and formed at one end on both the upper and lower surfaces thereof with a tapering dovetailed recess, the spring-arm working in said slot and carrying a knife or blade working across the said aperture, said arm having a tenon of corresponding shape to the upper recess and fitting therein, and a presser-foot bearing upon the base of said aperture and also formed at one end with a tenon of corresponding shape to said lower recess and fitting therein, substantially as described.

18. A knife or cutting device, comprising a block or handle having a longitudinal aperture and a longitudinal slot, and a removable spring-arm working in said slot and fulcrumed at one end to the block, said arm having at its other end a knife or blade working across the aperture, substantially as described.

19. A knife or cutting device, comprising a block or handle having a longitudinal aperture and a communicating longitudinal slot, the under side of the top of the aperture being formed at one end of the slot with a tapering dovetailed recess, a spring-arm working in the slot and having a knife or blade working across the aperture, and a removable presser-foot bearing upon the base of the aperture and formed at one end with a tenon shaped to fit said recess, substantially as described.

20. A knife or cutting device, comprising a block or handle having a longitudinal aperture and a longitudinal slot, and an arm working in said slot having a knife or blade working across the aperture, the outer side of said knife being smooth or flat, and the inner side thereof beveled to a cutting edge disposed a suitable distance from the vertical side of said aperture, substantially as shown and described.

21. A knife or cutting device, comprising a block or handle having a longitudinal aperture and a longitudinal slot, and a movable arm guided in said slot and having a knife or blade working across the aperture, the said knife being less in thickness than the width of the arm, and having its outer side flat and flush with the corresponding side of the arm and the inner side thereof beveled to a cutting edge, substantially as shown and for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE G. BAYHA.

Witnesses:
E. A. HOUSTON,
JOHN A. WILSON.