

A. H. GRAVES.
VOUCHER SEVERING DEVICE.
APPLICATION FILED MAY 5, 1906.

912,981.

Patented Feb. 16, 1909.

Fig. 1.

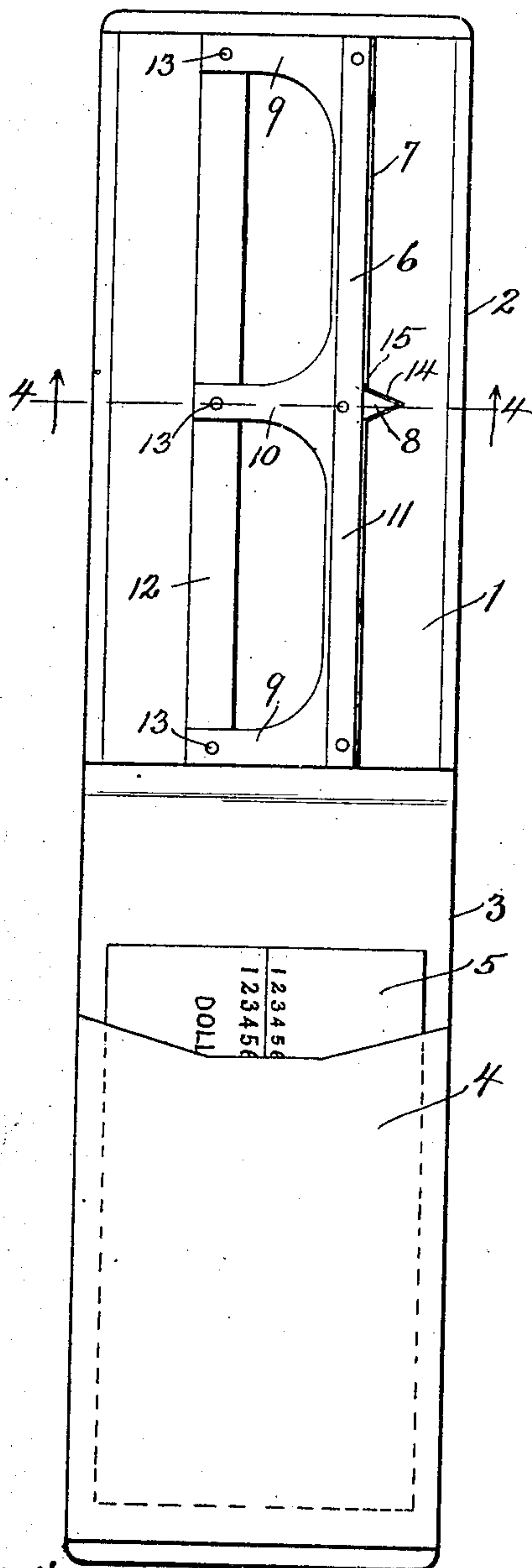


Fig. 2.

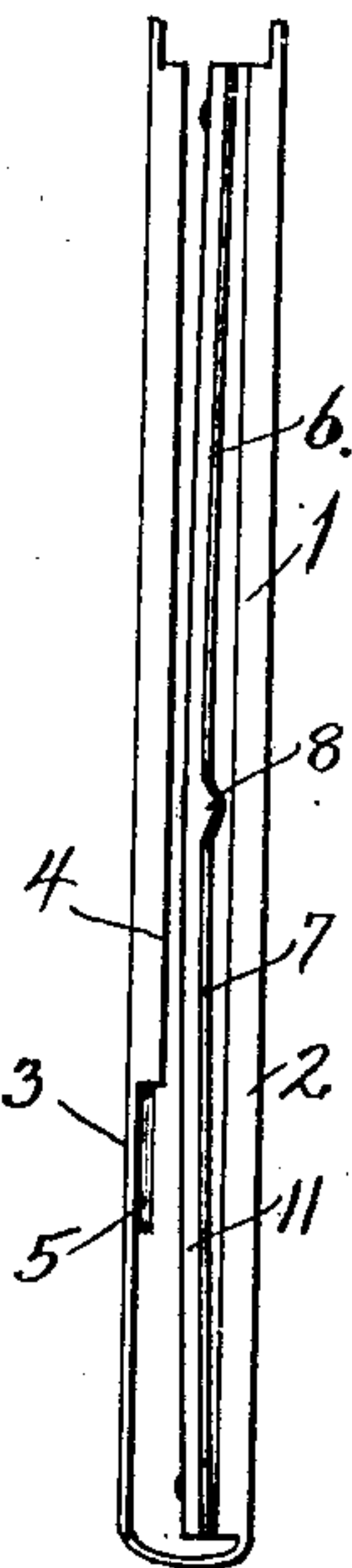


Fig. 5.

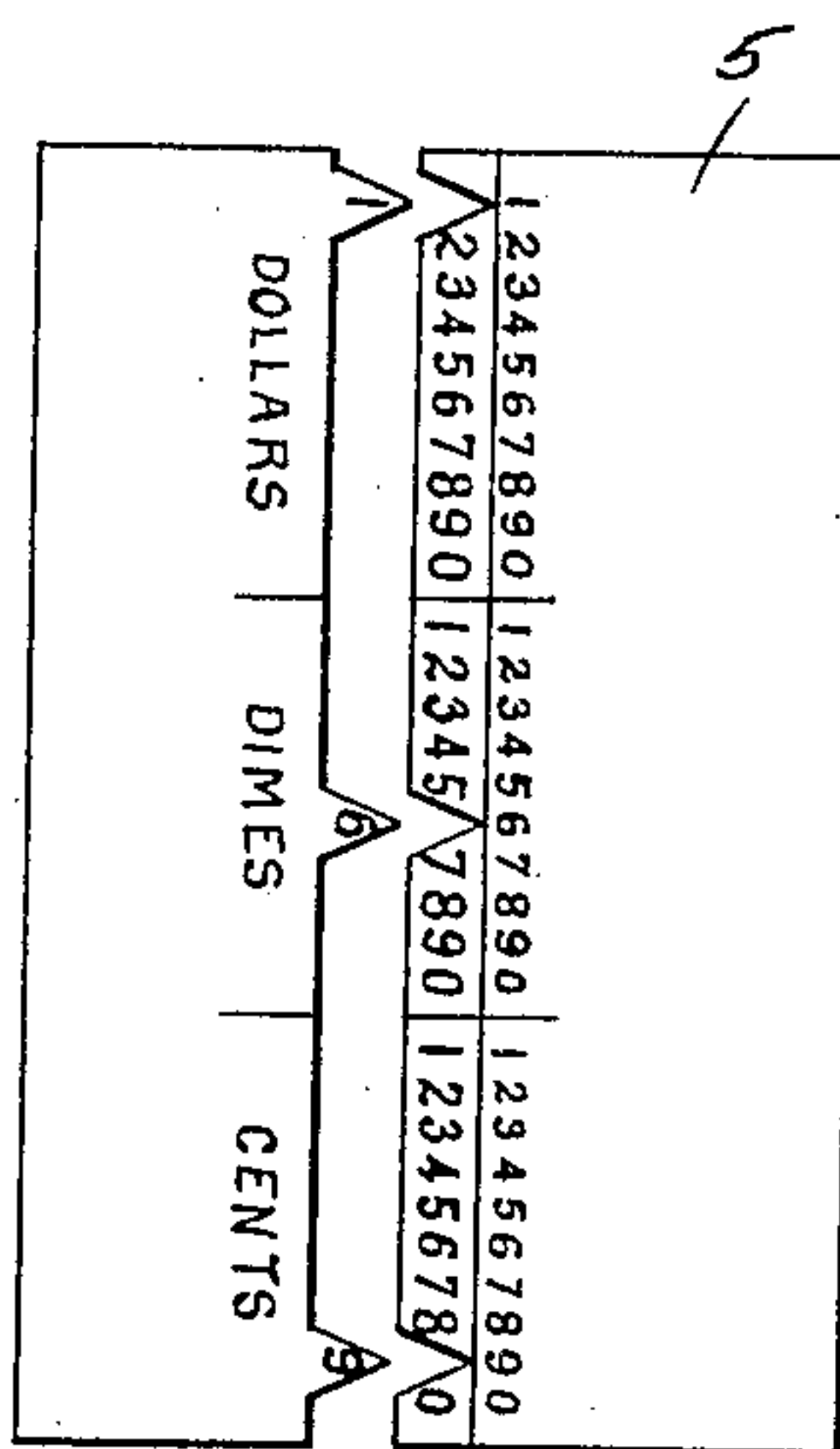


Fig. 3.

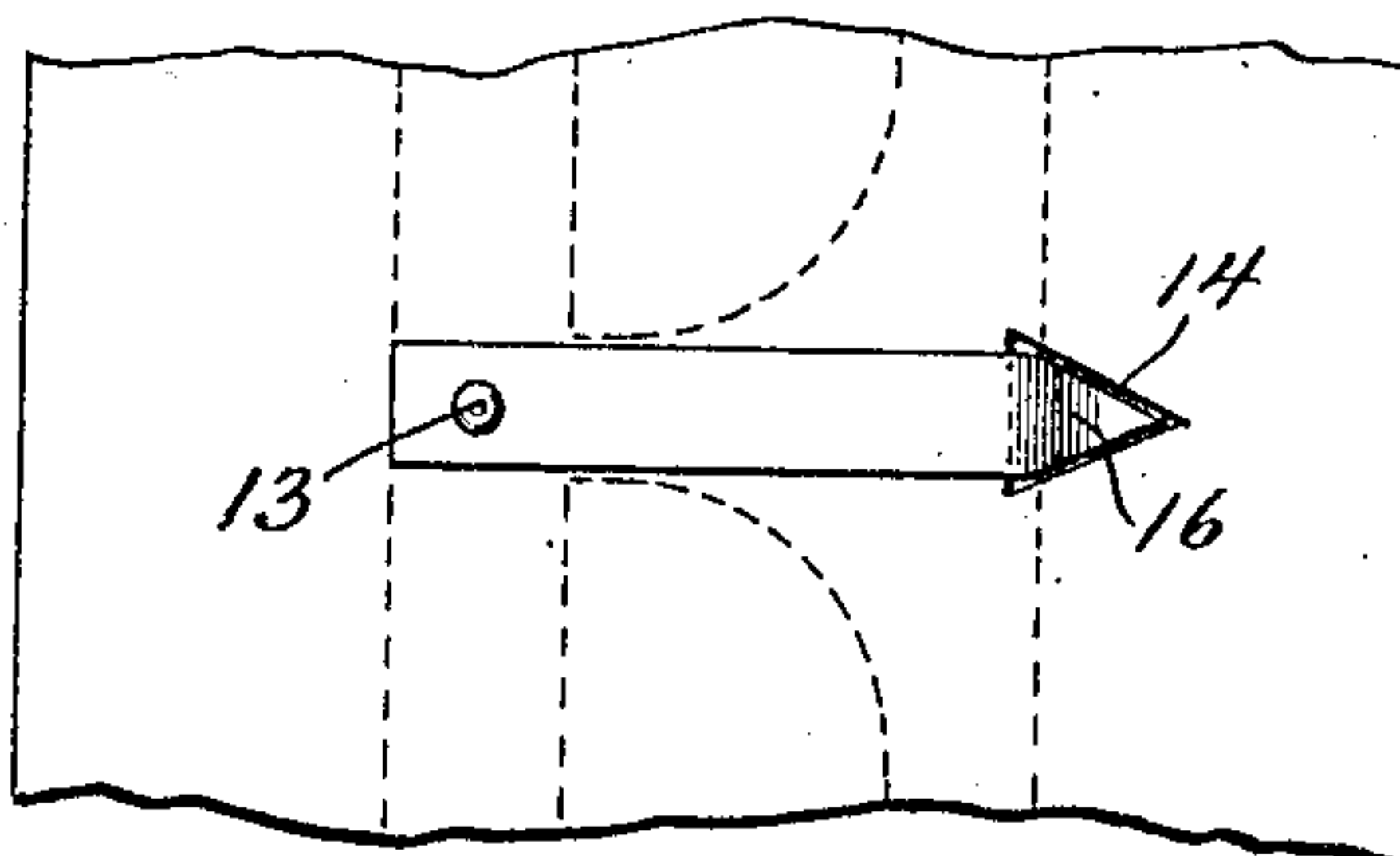
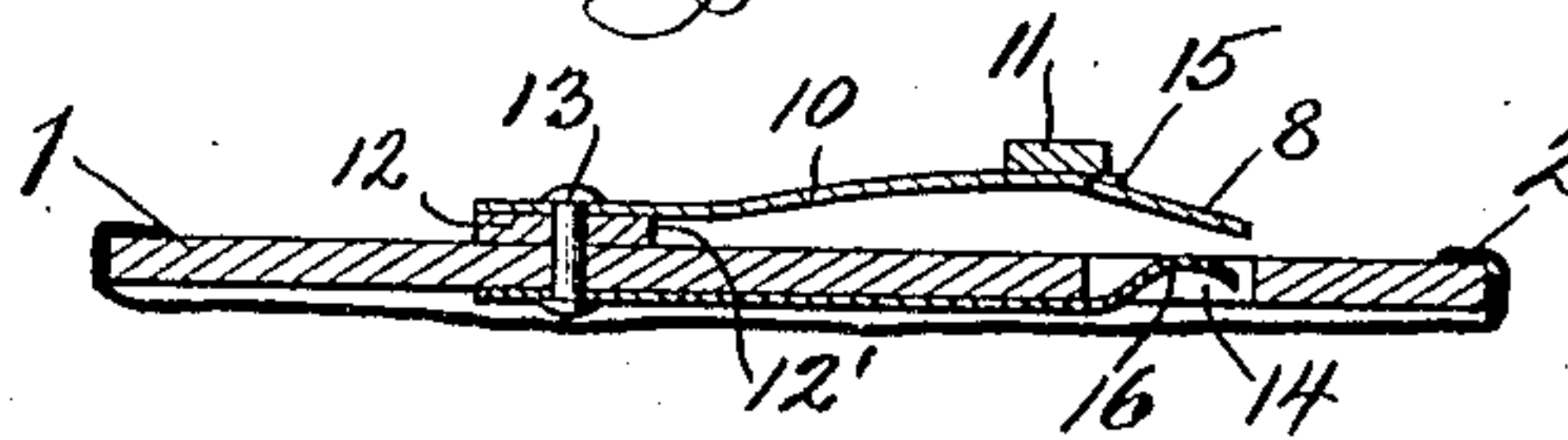


Fig. 4.



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ALBERT H. GRAVES, OF CHICAGO, ILLINOIS.

VOUCHER-SEVERING DEVICE.

No. 912,981.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ALBERT H. GRAVES, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Voucher-Severing Devices, of which the following is a specification.

This invention relates to an improved voucher severing device of that type commonly used by railway conductors and collectors in issuing receipts for cash fares, and for analogous purposes.

Among the salient objects of the invention are to provide a device in which the danger of improperly tearing or mutilating either of the two parts of the separated voucher is to a great extent minimized; to provide a device which enables the voucher to be separated more rapidly than has heretofore been practical, and at the same time without increasing liability of mistearing the voucher; to provide a device which may be advantageously made up in the form of a book convenient for carrying in the pocket and having all of the mechanism fully concealed between, and protected by, the covers; to provide a construction in which the cutter mechanism may be struck out by means of dies and thus economically manufactured; and in general to provide a simple and improved device of the character referred to.

To the above ends the invention consists in the matters hereinafter described, and more particularly pointed out in the appended claims.

In the drawing—Figure 1 is an inside face view of a preferred embodiment of the device in open position; Fig. 2 an edge elevation of the device, closed; Fig. 3 is a view of the reverse or back side of the straight-edge tablet; Fig. 4 is a cross sectional view of the ticket severing mechanism taken on line 4—4 of Fig. 1; Fig. 5 shows one of the vouchers printed in form suitable for use with the device, the two parts being shown slightly separated to indicate the manner in which the separation is effected.

In said drawings, 1 designates a rigid tablet or backboard which is preferably formed of fiber board, although it may be of metal, hard rubber, cellulose or other suitable material, and which is, in the preferred embodiment shown, bound in as one of the cover members 2 of the device; the other cover mem-

ber 3 being of corresponding size, adapted to fold over upon the member 2 book-fashion, and being desirably provided upon its interior with a pocket 4 to hold a supply of vouchers, as indicated at 5.

6 designates as a whole a severing member which constitutes both straight-edge and punch for severing the voucher in such manner as to provide a straight main line of severance parallel with one edge of the voucher and one or more projections extending from this severed edge. To this end said member 6 comprises a straight-edge bar 7, a triangular tearing point 8 projecting beyond the edge of the straight-edge bar, spring arms, as 9, 9 and 10, and preferably a reinforcing strip 11.

In order to provide a gage member and also a suitable support upon which the spring arms of the severing member may be mounted in such manner as to space said member a slight distance away from the face of the tablet 1, a bar or strip 12 is fixedly mounted upon the tablet, and the severing member, said bar and the tablet are rigidly united by means of through-rivets 13. The spring arms are also preferably curved upward from their points of attachment, as seen in Fig. 4 and constitute guards which overlie and confine the voucher while it is being severed.

The tearing point 8 is so constructed and arranged that, in conjunction with a suitable recess or aperture in the tablet into which it enters as the straight-edge is depressed, it operates to tear a V-shaped line through the paper when the severing member is depressed and before the straight-edge is brought into bearing with the tablet. To this end said tearing point is V-shaped, is depressed so that its lower acting edges stand substantially below the under face of the straight-edge, and in bent forwardly or in the direction of closing movement of the straight-edge to stand at a distinct angle with the face of the straight-edge. An important feature of its construction resides in so forming the tearing point that the lateral severing edges thereof extend below the acting edge of the straight-edge to a point somewhat inside of the straight tearing edge of the straight-edge proper. In other words, the lateral edges of the tearing point intersect and extend beyond the edge of the straight-edge so that when the V-shaped

tear has been effected and the paper subsequently separated along the edge of the straight-edge these lines of tear will be certain to intersect notwithstanding the voucher
 5 may be adjusted against the gage more or less inaccurately. The desired construction is conveniently secured by extending the cuts which outline the V-shaped tearing point inwardly beyond the edge of the
 10 straight-edge and bending down the tearing point from the inner ends of these cuts outwardly, as indicated at 15.

14 designates the aperture or recess in the tablet within which the tearing point enters.
 15 This recess is so shaped as to support the paper closely along the lines of severance effected by the tearing point, and accordingly is preferably V-shaped to conform to the shape of the tearing point. The margins of the aperture are preferably distinctly
 20 angular, but it is to be understood that the construction is not such as intentionally to secure a shearing cut but on the contrary such as to support the paper properly for the tearing point to effect a tearing separation.
 25 There are several distinct advantages in thus effecting the separation of the V-point as distinguished from a cutting operation such as would be effected by a pair of coöperative
 30 dies or punch members. The operation of tearing in the manner described is much more easily effected, and the point which effects this tear may therefore be made correspondingly light, and the operator may
 35 manipulate it with the greatest ease; the operation of cutting paper between die members not only requires considerable power but the paper rapidly wears the cutting edges of the die members and thereupon the die
 40 becomes practically inoperative; and the effective cutting of paper by means of a pair of dies depends upon almost perfect accuracy of register in the meeting action of the dies, which, of course, means that the movable
 45 member carrying one die member must be hinged to the corresponding member with a very high degree of accuracy and rigidity.

In order to enable comparatively thin sheet metal to be used in forming the main
 50 body of the severing member and its spring arms, it is desirable to provide a reinforcing strip 11 upon the back of the straight-edge, and in order to insure a sharp clean tear along the edge 7 of the straight-edge, the
 55 reinforcing bar 11 is set back slightly from said edge, as best seen in Fig. 4. That edge 12' of the gage strip 12, which underlies the spring arms, forms the gage which determines the distance to which the voucher is to
 60 be inserted beneath the severing member, and it is essential, if the device is to be used for so severing the paper as to provide more than one point, that the cutting edge of the straight-edge and the gage shoulder be parallel
 65 with each other, as will hereinafter

appear. The open spaces between the spring arms in front of the gage strip, enable the operator to slip the severed portion of the voucher out from beneath the severing member by a rubbing movement with the
 70 ball of the thumb or finger.

When the tearing point punctures the paper, owing to the inclined position of the point, the triangular partially severed projection of the paper tends to stick in the
 75 aperture or recess 14 and accordingly an ejector is provided for ejecting it. To this end a spring tongue 16 formed of thin sheet metal is secured to the under side of the tablet, as indicated at 17, and the free end
 80 of this tongue is shaped to approximately conform to the aperture 14 and is bent upwardly to normally stand in a plane about coincident with the upper or acting surface of the tablet, as seen clearly in Fig. 4.
 85 When the tearing point is depressed this tongue is forced downwardly thereby, and as the tearing point rises the spring tongue ejects the severed point of paper.

The severing device may be, of course,
 90 used with any suitable or desired form of voucher, but is most commonly used with a voucher having three duplex groups of figures representing respectively dollars, dimes and cents, as seen in Fig. 5. The
 95 figures are arranged in two parallel rows at one side of the longitudinal line of severance effected by the straight-edge, as indicated at 18 in Fig. 5. The amount indicated by the severed vouchers is designated by the
 100 triangular points remaining on one portion of the voucher and the corresponding notches upon the other.

The use of the device is obvious from the foregoing description, but may be briefly
 105 set forth. The operator wishing to issue a receipt, places the slip under the straight-edge with its inner edge engaging the gage strip and brings the tearing point into register with the proper figure of either the
 110 dollars or cents group, and then depresses the severing member to effect the triangular punch. He next shifts the ticket along to the proper figure of the group at the opposite end of the slip, and in the same manner
 115 punctures this. Finally he shifts the slip into the proper position for puncturing the dimes amount, depresses the severing member so as to effect this puncture, and while holding the straight edge firmly in bearing
 120 with the ticket, tears off the outer half across the straight-edge in an obvious manner. Having fully separated the triangular points by the puncturing operation, it will be obvious that there is no possibility of tearing
 125 off accidentally one of these when tearing off the outer half of the voucher provided the voucher be properly adjusted against the gage each time a point is punctured and also when the final tear is effected, so that
 130

the straight-edge tear properly intersects each of the V-shaped tears. Obviously if the voucher be carelessly and inaccurately punched, the V-shaped cuts will not register properly with the edge of the straight-edge on the final tearing operation, and it will be equally obvious that misadjustment of the voucher for the final tear would produce the same result even though the points had been properly punched. In view, however, of the fact that the operator can adjust the voucher, both as to its bearing with the gage and as to its position relatively to the tearing point, in plain and unobstructed view, the several puncturing operations may be performed quickly, and following the final puncture the outer half of the voucher may be jerked off with the utmost quickness and without danger. In fact the certainty of the result of each operation dispenses with the usual care which must be exercised in using devices of the prior art and slowness incident to such care. Inasmuch as the straight-edge can be best held firmly across the full length of the strip by pressing it at a point near its middle, the tearing point is preferably located near this point, so that the operator need not shift his thumb after depressing the severing member to make the final puncture. However, the tearing point might be located nearer either end of the straight-edge so that the dollars, dimes and cents might be punctured in the order mentioned or in the reverse order. It will be obvious that the severing mechanism is fully operative without being associated with a book binding, but on the other hand when bound in as described the cover not only forms a suitable protection for inclosing the severing mechanism but also provides a receptacle for the supply of vouchers. Accordingly the device is claimed both broadly and specifically.

The construction of tearing point described is that found most simple and effective, as hereinbefore fully set forth, but nevertheless it may be modified, so long as it is coöperatively associated with a straight-edge tearing bar or straight-edge and gage extending parallel with the acting edge of the straight-edge.

I claim as my invention:

1. A paper severing device comprising a straight-edge member, a tearing point projecting beyond the edge of the straight-edge member, a coöperative base member provided with a recess into which the tearing point enters as the straight-edge is depressed and whereby the paper is severed during the closing movement of the straight-edge, and a gage parallel with the straight-edge.

2. In a paper severing device, the combination of a tablet member, a straight-edge member, and means for severing a portion of the paper to form a projection extending

beyond the line of severance effected by the straight-edge comprising a tearing projection associated with one of said members having severing edges advanced beyond the edge of the straight-edge and operating to effect a tear as said tablet and straight-edge members are brought together, and means associated with the other of said members receiving the acting edges of the tearing projection and supporting the paper contiguous to such edges.

3. A paper severing device comprising a straight-edge member, a coöperative tablet member, a tearing point projecting beyond the edge of the straight-edge member and inclined at a distinct angle to the meeting faces of the straight-edge and tablet members, and a recess in the tablet member into which said tearing point enters as the straight-edge is brought into bearing therewith.

4. A paper severing device comprising a straight-edge member, a coöperative tablet member, a tearing point projecting beyond the edge of the straight-edge member and inclined at a distinct angle to the meeting faces of the straight-edge and tablet members, a recess in the tablet member into which said tearing point enters as the straight-edge is brought into bearing therewith, the severing edges of said tearing point being extended below the acting edge of the straight-edge at the points where these edges intersect and at both sides of such intersecting points.

5. A paper severing device comprising a straight-edge member having a substantially straight main cutting-edge, a tablet member upon which the straight-edge member is mounted to move toward and from the face of the tablet jaw-fashion, a severing projection extending beyond the acting edge of the straight-edge at a point intermediate the length of the latter, said severing projection having its severing edges depressed below the acting face of the straight-edge, means associated with the tablet member and coöperating with said severing projection to effect the severance of the paper during the closing movement of the straight-edge upon the tablet, and a gage arranged parallel with the main cutting edge of the straight-edge to limit the distance of insertion of the paper to be severed.

6. A paper severing device comprising a straight-edge member, a rigid tablet member upon which the straight-edge member is mounted to move toward and from the tablet member jaw-fashion, a spring normally holding the straight-edge retracted, a V-shaped tearing point extending from and beyond the edge of the straight edge and having its severing edges extended below the acting face of the straight edge from its point towards its base and beyond the inter-

secting edge of the straight edge, a die recess formed in said tablet in register with and approximately fitting the contour of said tearing point, a gage shoulder upon the tablet and beneath the straight-edge member, extending parallel with the edge of the straight-edge, and means for ejecting the point severed by the tearing point from the die recess of the tablet.

7. A paper severing device comprising a tablet member, a skeleton straight member provided with a plurality of spring arms, a gage support upon the tablet, to which the ends of said spring arms are attached and whereby the acting edge of the straight-edge is normally held separated from the tablet, a V-shaped tearing point formed with, and extending rigidly from and beyond, the acting edge of the straight-edge, the cutting edges of said tearing point extending at an angle to the face of the tablet when the straight-edge is in operative engagement with the latter, a recess formed through the tablet in register with and approximately conforming to the acting edges of the tearing point, and an ejector spring secured in the under side of the tablet and projecting within said die recess.

8. A voucher severing device comprising a base member, a straight-edge member mounted thereon and moving to and from said base member jaw-fashion, a gage extending parallel with the straight edge and having its acting shoulder exposed to view when in operation, and one or more guards uniting

said gage and straight-edge member and arranged to overlie and confine the voucher when in position for severing.

9. A voucher severing device comprising a tablet member, and a cover member book-bound thereto so that said parts close upon each other book-fashion, a straight-edge member of skeleton construction mounted upon the inner face of the tablet member with its straight edge extending at right angles to the hinge of the book, and comprising a straight-edge bar and plurality of integral spring arms extending from said bar, said spring arms normally holding said bar, out of contact with said tablet member, a gage strip underlying the attached ends of said spring arms, a tearing point extending from the acting edge of said straight-edge, and a pocket for a supply of loose vouchers upon the inner face of the cover member which folds upon the tablet.

10. A voucher severing device comprising a base member, a straight-edge member mounted thereon, and movable to and from said base member jaw-fashion, a gage extending parallel with the straight edge and having its acting shoulder exposed to view when in operation, and a plurality of resilient guards uniting said gage and straight-edge member and arranged to overlie and confine the voucher when in position to be severed.

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