E. E. FLORA.

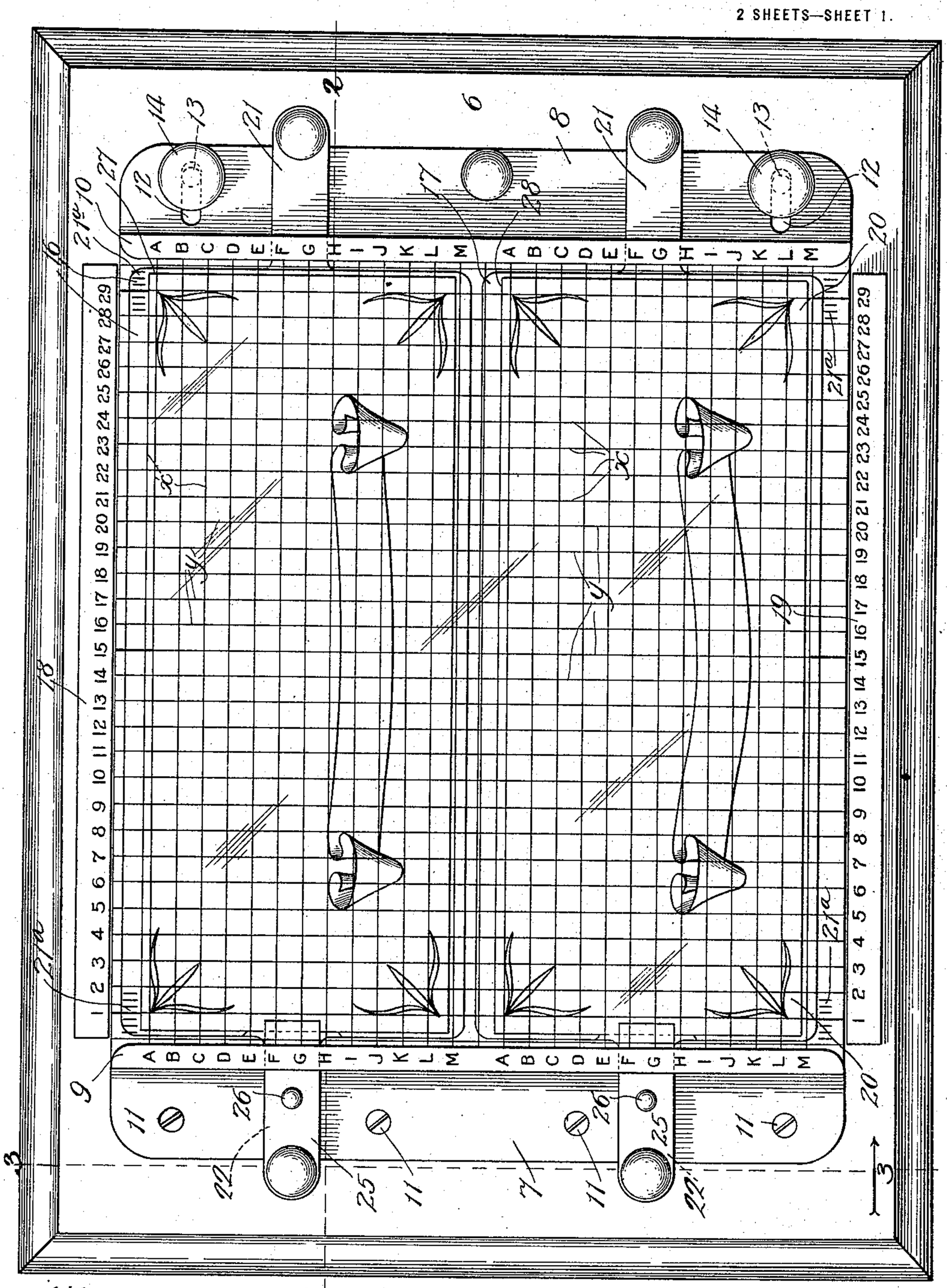
DEVICE FOR DETECTING COUNTERFEIT ARTICLES.

APPLICATION FILED APR. 7, 1915.

1,166,895.

Patented Jan. 4, 1916.

2 SHEETS—SHEET 1.



Witnesses:
Chas. D. Gayford.
Chas. H. Buell.

Inventor:
Ellsworth E. Flora,
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Fig. 1.

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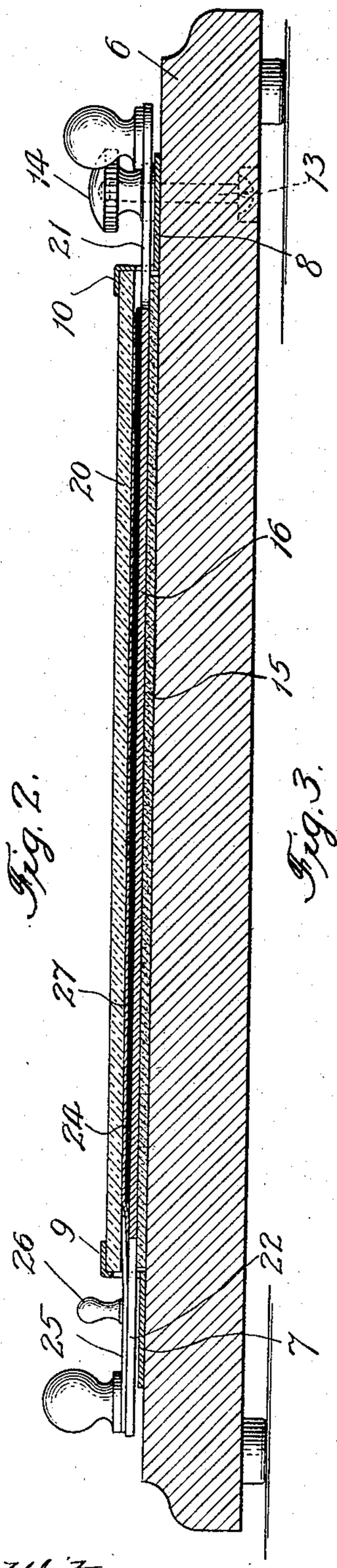

Fig. 2.

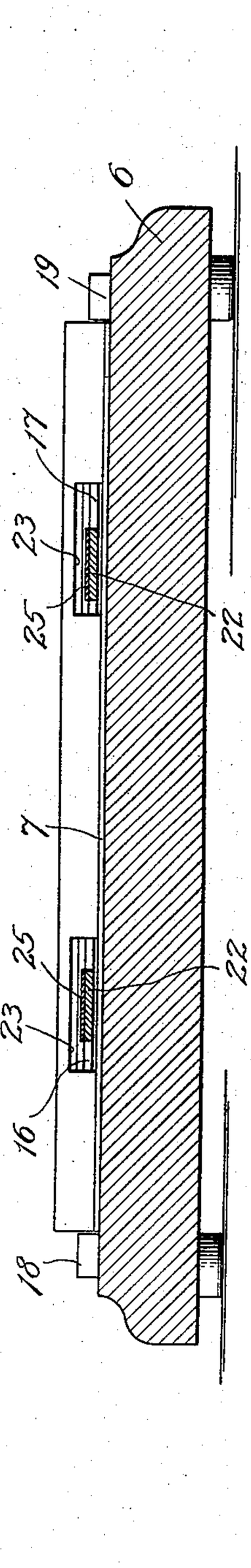

Fig. 3.

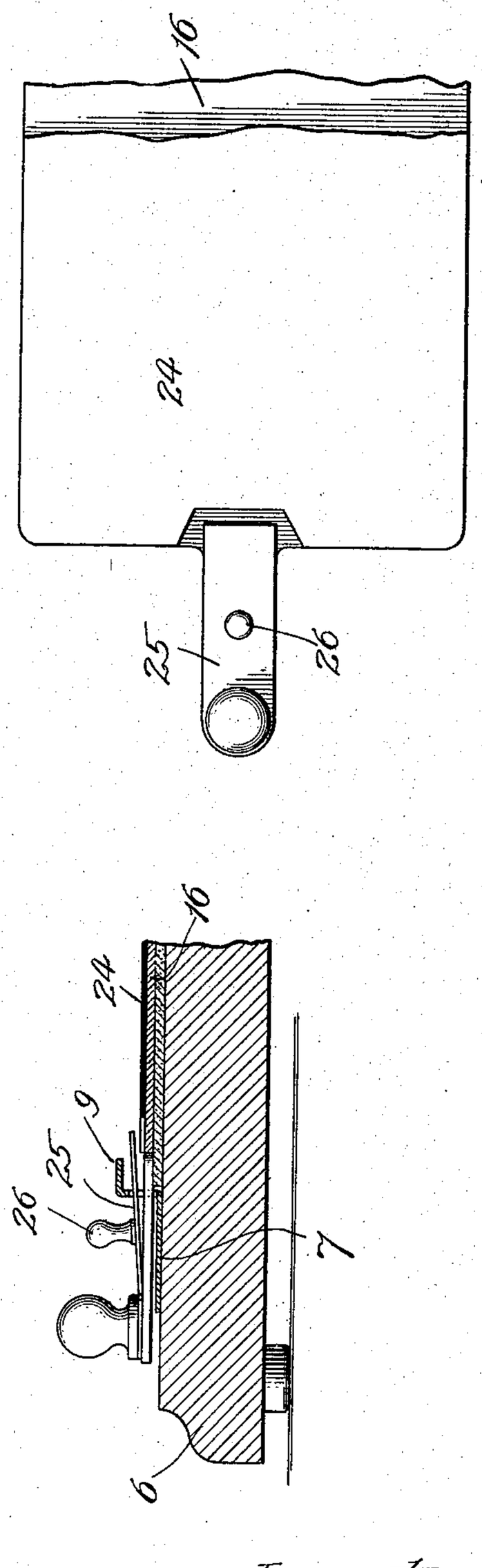

Fig. 5.

Fig. 4.

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UNITED STATES PATENT OFFICE.

ELLSWORTH E. FLORA, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO PORTER COUNTERFEIT DETECTOR COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

DEVICE FOR DETECTING COUNTERFEIT ARTICLES.

1,166,895. Specification of Letters Patent. Patented Jan. 4, 1916.

Application filed April 7, 1915. Serial No. 19,719.

To all whom it may concern:

Be it known that I, ELLSWORTH E. FLORA, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Device for Detecting Counterfeit Articles, of which the following is a specification.

My invention relates more particularly to devices for practising the method of detecting counterfeit articles bearing designs consisting, generally stated, in applying to the articles to be compared, an object presenting intersecting lines or other form of markings and comparing the position of one or more features of the design on one of the articles, relative to such marks, with the position occupied by a corresponding feature, or features of the design on the other articles relative to corresponding marks, this method being applicable more particularly to the detecting of counterfeit paper money, coins, bonds, postage or revenue stamps, certificates and other articles the design on which cannot be produced in exact imitation of the design on a genuine article, by the photographic process, or one involving the cutting of a die in simulation of the genuine article, the method above stated, and for carrying out which I have more particularly devised my improved device, being no part of my invention and not claimed herein, this method forming the subject of a pending application, No. 19612 for United States patent filed by another April 6, 1915.

Referring to the accompanying drawings, Figure 1 is a face view of my improved device showing two articles positioned therein and intended to represent bills, or notes, bonds or other article, one being genuine and the other a counterfeit. Fig. 2 is a section taken on the line 2—2 on Fig. 1 and viewed in the direction of the arrow. Fig. 3 is a section taken on the line 3—3 on Fig. 1 and viewed in the direction of the arrow. Fig. 4 is a broken view of the left-hand end of the structure shown in Fig. 2, showing the device for holding one edge of the article, in position for inserting the edge of the latter into engagement therewith; and Fig. 5 is a broken view of one of the two similar shiftable members between which and a glass plate ruled with intersecting lines the articles to be compared are positioned and by means of which they may be adjusted relative to said intersecting lines.

In order that the particular use for which I have devised my improved detecting means, may be more clearly understood, it may be stated that a desirable way of carrying out the method above referred to is to apply a plate of glass with a series of parallel lines formed thereon with the lines of one series intersecting the lines of the other series, against the faces of the articles to be compared, one known to be genuine and the other one the genuineness of which is to be determined, with the articles centered relative to the said intersecting lines so that the position occupied by a feature, or features, of the design of the genuine article, relative to certain of the intersecting lines, may be compared with the position, or positions, of this same feature, or features, in the design on the other article relative to the same or corresponding lines.

The device illustrated in the drawings and which is provided preferably for receiving a genuine article and also one the genuineness of which is to be determined, in order that the desired examination or comparison may be expeditiously made, but which, if desired, may be provided for receiving only one article, comprises a base 6 provided on its upper side toward opposite edges with plates 7 and 8, these plates being provided along their inner edges with flanges 9 and 10 respectively, which are upwardly offset from the said base as more clearly represented in Fig. 2. The plate 7 is stationary on the base 6 as by screwing it thereto as represented at 11, the other of the plates, 8, being adjustable on the base 6 toward and away from the plate 7, and for the purpose of said adjustment the plate 8 preferably contains toward its opposite ends elongated slots 12 extending crosswise of the plate and through which the threaded ends of screws 13 secured in the base 6, extend, the upper ends of the screws 13 carrying thumb-nuts 14 adapted to be screwed against the face of the plate 8. By this construction the plate 8 is adapted to be adjusted toward and away from the plate 7 and releasably secured in adjusted position for a purpose hereinafter explained. The base 6 intermediate the plates 7 and 8 is provided on its upper face with a sheet 15 preferably

of felt which is slightly thicker than the plates 7 and 8. Superposed and movable on the felt sheet 15 is a pair of shiftable plates, represented at 16 and 17, and adapted to be adjusted in a manner and for a purpose hereinafter described.

Extending above the shiftable members 16 and 17 and adapted to be held releasably between bars 18 and 19 secured to the upper side of the base 6 and extending preferably at right angles to the plates 7 and 8, and overlapped at its edges by the flanges 9 and 10 of the plates 7 and 8, is a plate 20 of transparent material, preferably glass. The plate 20 by preference is provided with two sets of parallel lines *x* and *y*, the lines *x* and *y* being uniformly spaced and arranged at ninety degrees to each other, as represented, to cause the plate to present a checkered appearance, each one of the squares thus produced being preferably of the same area, namely one-quarter inch square. These lines may be formed on or in the plate 20 in any suitable manner so long as they can be seen by the observer when the plate is positioned over the articles to be compared as hereinafter described. By preference the lines *y*, when the plate 20 is positioned in the device as stated and shown in Figs. 1 and 2, extend at their opposite ends substantially in registration with a set of numerals provided in duplicate on the upper sides of the bars 18 and 19, these numerals running from 1 to 29 inclusive and serving to identify each particular line *y*, the lines *x* of each series extending at their opposite ends in substantial registration with the series of letters A to M inclusive imprinted on the upper sides of the flanges 9 and 10, whereby lines *x* of the upper series thereof are indicated by the letters A to M inclusive and corresponding letters are applied to the lines *x* of the lower series thereof. The plate 20 above the line A and at opposite sides of the lines 1 to 29 at both ends of these lines, is provided with a scale represented at 21[a], the scale being in graduations of substantially one-sixteenth of an inch.

The shiftable members 16 and 17 are each of the same construction, the body portion thereof being formed of a plate of a length slightly less than the length of the plate 20, and of a width somewhat less than one-half of the width of said plate, and each provided at its opposite ends with extensions 21 and 22 which project through elongated slots 23 in the plate members 7 and 8, these slots being of such length that the members 16 and 17 may be shifted through a considerable distance for a purpose hereinafter explained. Each of the plate members 16 and 17 is provided on its upper face with a friction surfacing preferably in the form of a rubber sheet indicated at 24, this sheet preferably extending short of one of the ends of each of said members, as represented, whereby the upper surface at the end of each member 16 and 17 presents an offset portion, there being provided on each of the extensions 22 adjacent to the last referred to ends of said shiftable members, a spring-finger 25 held at its outer end to the extension 22 and extending at its free flexible end into the space between the flanges 9 and 10 where it extends part way across the body portion of the plate carrying it to a point slightly short of the adjacent end of the rubber sheet 24, and in registration with said offset portion there being provided on each of the fingers 25 a finger-grip 26, whereby the free ends of the fingers 25 may be upwardly flexed against the tension thereof which normally causes them to bear down on the body portions of the members 16 and 17.

The device may be used in the following manner: Assuming the plate 20 to be removed and the plate 8 to be shifted to the right in Fig. 1, the operator applies to the rubber sheets 24 on the members 16 and 17, the two articles to be compared, as for example, an article known to be genuine, such as the one represented at 27, and which may be a bank note or the like, the design shown thereon being merely fanciful; and applies to the member 17 an article the genuineness of which is to be detected and which in the case illustrated would represent a counterfeit bank note, as at 28, and made to simulate the bank note 27, the edges of the notes 27 and 28 at the left hand side of Figs. 1 and 2 extending beyond the rubber sheets 24, and in this position being clamped between the members 16 and 17, and the inner ends of the spring-fingers 25 for holding the notes against displacement on the members to which they were applied as before stated. The glass plate 20 is then inserted under the flange 9 and in superposed position on the notes 27 and 28, whereupon the operator shifts the plate 8 to the left in Fig. 1 to cause its flange 10 to overlap the edge of the plate 20 as represented, the nuts 14 being then screwed down to clamp the plate 8 in position. When this has been done the operator by grasping the handle pieces on the extensions 21 and 22 independently adjusts the members 16 and 17 to cause the notes 27 and 28 to become properly positioned relative to the intersecting lines *x* and *y* to permit of the proper comparison being made of the one note with the other. For this purpose he would preferably line up the notes by using the marginal extremities of the design as a guide, so adjusting the member 16 that the upper line of the design on note 27 will register with the line A of the upper series thereof and the design be centered relative to the line 15 as

shown. The design on the note 27 in the accompanying illustration is of a length equal to the distance from line 1 to line 29, but were the design of the note longer the operator would adjust the member 16 so that the design would extend to the left beyond line 1 and to the right beyond line 29 an equal distance. The member 17 would then be adjusted to cause the upper line of the design on the note 28 to aline with the line A of the lower series thereof and the design to be centered relative to the line 15, as explained, of the note 27. With the notes 27 and 28 thus similarly positioned relative to the lines 1 to 29 inclusive, and the two series of lines A to M inclusive, the person seeking to determine the genuineness of the note 28 may readily accomplish this by noting wherein any features of the design on the bill 28 do not occupy the same position relative to the lines A to M inclusive, or 1 to 29 inclusive, or their points of intersection, as do the corresponding features of the design on the note 27. Thus in the illustration presented, while the border figures of the design in the case of the note 28 occupy substantially the same position relative to the intersecting lines as do the corresponding features of the note 27, the various lines of the scroll device will be seen to occupy very different positions relative to these intersecting lines in the case of the note 28 than in the case of the note 27, which thus indicates to the one making the comparison that the note 28 is a counterfeit, because were it not, all of the features of its design would occupy the same positions relative to the intersecting lines on the plate 20 as do the corresponding features of the design on the note 27, except where two original notes are slightly different in length due to greater shrinkage in the case of one than the other, in which case the positions of the various features of the two bills or notes would not exactly correspond to the intersecting lines. These differences, however, would bear a definite ratio to the difference between the lengths of the notes, and would produce no confusion, as allowances may be readily made therefor.

It is preferred that the various parts of the structure hereinbefore described be so proportioned that when the plate 20 is assembled with the other parts of the structure as hereinbefore described, the members 16 and 17 will be gripped sufficiently tightly between the plate 20 and the base 6 as to prevent accidental displacement of these members 16 and 17 when once adjusted, but permit the operator to shift them, together with the bills or notes, thereon, into the desired position relative to the intersecting lines for making the examination.

The plate 20 with the intersecting lines thereon as stated constitutes in effect a gaging device by which the comparisons hereinbefore described may be made, and it is preferred that the gaging device be in the form shown and described. This is not essential to the carrying out of the invention, as it may be provided of any other suitable form. Furthermore various other changes and modifications may be made in the construction illustrated without departing from the spirit of my invention, it being my intention to claim my invention as broadly and fully as the prior state of the art will permit.

What I claim and desire to secure by Letters Patent is:

1. A device of the character set forth comprising a base, a gaging member thereon and adapted to expose to view therethrough an article beneath it, and an article-supporting member shiftable along said base beneath said gaging member.

2. A device of the character set forth comprising a base, a gaging member thereon and adapted to expose to view therethrough an article beneath it, means on said base engaging the edge portions of said member to hold it in position on said base, and an article-supporting member shiftable along said base beneath said gaging member.

3. A device of the character set forth comprising a base, a gaging member thereon and adapted to expose to view therethrough an article beneath it, relatively movable members on said base adapted to releasably engage edge portions of said gaging member to hold it in position on said base, and an article-supporting member shiftable along said base beneath said gaging member.

4. A device of the character set forth comprising a base, a gaging member thereon and adapted to expose to view therethrough an article beneath it, relatively movable flanged members on said base adapted to releasably engage edges of said gaging member and hold it in position on said base, and an article-supporting member shiftable along said base beneath said gaging member.

5. A device of the character set forth comprising a base, a gaging member thereon and adapted to expose to view therethrough an article beneath it, members on said base engaging edge portions of said member to hold it in position on said base, one of said members containing a slot, and an article-supporting member on said base beneath said gaging member and having a portion extending through said slot and by which said article-supporting member may be shifted.

6. A device of the character set forth comprising a base, a gaging member thereon and adapted to expose to view therethrough an article beneath it, means on said base engaging edge portions of said member to

hold it in position on said base and containing slots, and an article-supporting member on said base beneath said gaging member and having portions extending through said slots and by which said article-supporting member may be shifted.

7. A device of the character set forth comprising a base, a gaging member thereon and adapted to expose to view therethrough an article beneath it, flanged members on said base engaging opposed edge portions of said member for holding the latter in position on said base, said flanged members containing slots, and an article-supporting member on said base beneath said gaging member and having portions at its opposite ends extending through said slots and by which it may be shifted.

8. A device of the character set forth comprising a base, a gaging member thereon and adapted to expose to view therethrough an article beneath it, an article-supporting member shiftable on said base beneath said gaging member, and means for frictionally holding said article-supporting member between said base and gaging member.

9. A device of the character set forth comprising a base provided on its upper face with a sheet of yieldable material, a gaging member on said base and adapted to expose to view therethrough an article beneath it, flanged members mounted on said base to be relatively adjustable and adapted to engage said gaging member at opposite edges thereof, said flanged members containing slots, and an article-supporting member located in the space between said sheet of yieldable material on the base and said gaging member and shiftable relative to these parts, said article-supporting member having portions extending through said slots and by which it may be adjusted along said base, the whole being constructed and arranged to cause said article-supporting member, when the parts are assembled as stated, to be frictionally held between said base and gaging member for preventing accidental shifting of said article-supporting member after adjustment.

10. A device of the character set forth comprising a base, a gaging member thereon and adapted to expose to view therethrough an article beneath it, an article-supporting member shiftable along said base beneath said gaging member, and means on said article-supporting member for gripping an article thereto.

11. A device of the character set forth comprising a base, a gaging member thereon and adapted to expose to view therethrough an article beneath it, and an article-supporting member shiftable along said base beneath said gaging member, and a spring clip on said article-supporting member adapted to grip an article and hold it in position thereon.

12. A device of the character set forth comprising a base, a gaging member thereon and adapted to expose to view therethrough an article beneath it, an article-supporting member shiftable along said base beneath said gaging member, said article-supporting member having an offset portion adjacent to the end of the surface thereof against which the article bears, and a clip device on said article-supporting member registering with said offset portion and adapted to be clamped against the upper face of the edge of the article in position on said member.

ELLSWORTH E. FLORA.

In the presence of—
NELLIE B. DEARBORN,
A. C. FISCHER.