June 18, 1940. C. W. STRAUBEL 2,204,736

CARD SHEARING MACHINE

Filed June 3, 1939 2 Sheets-Sheet 1

Fig. 1.

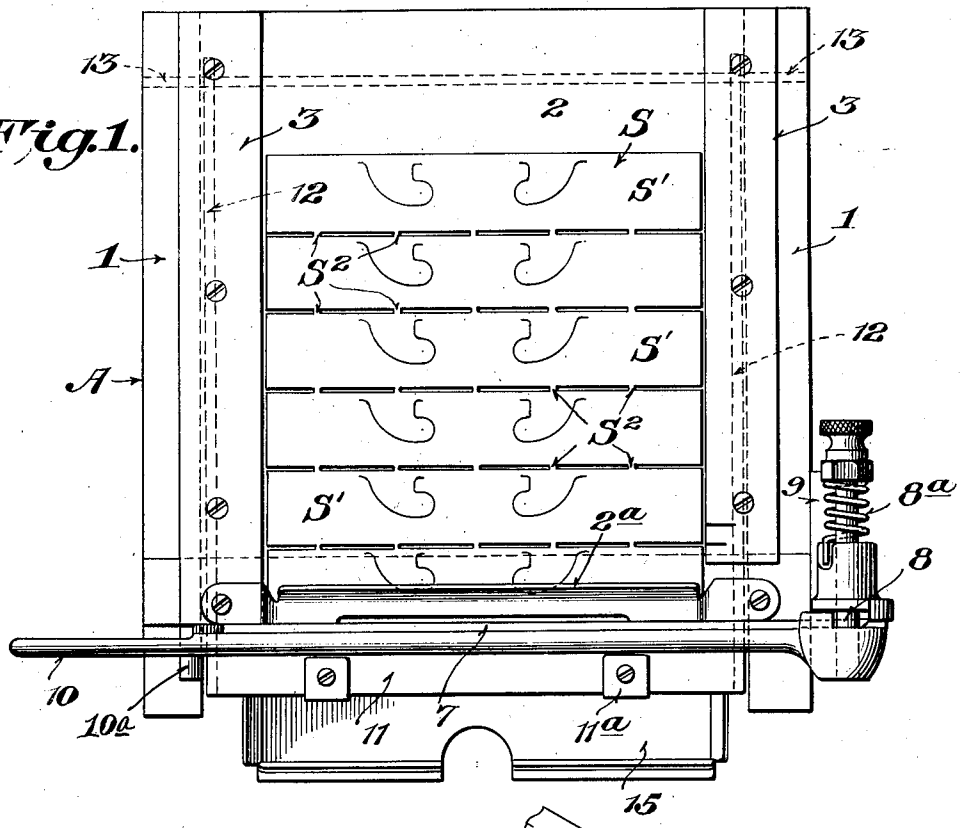
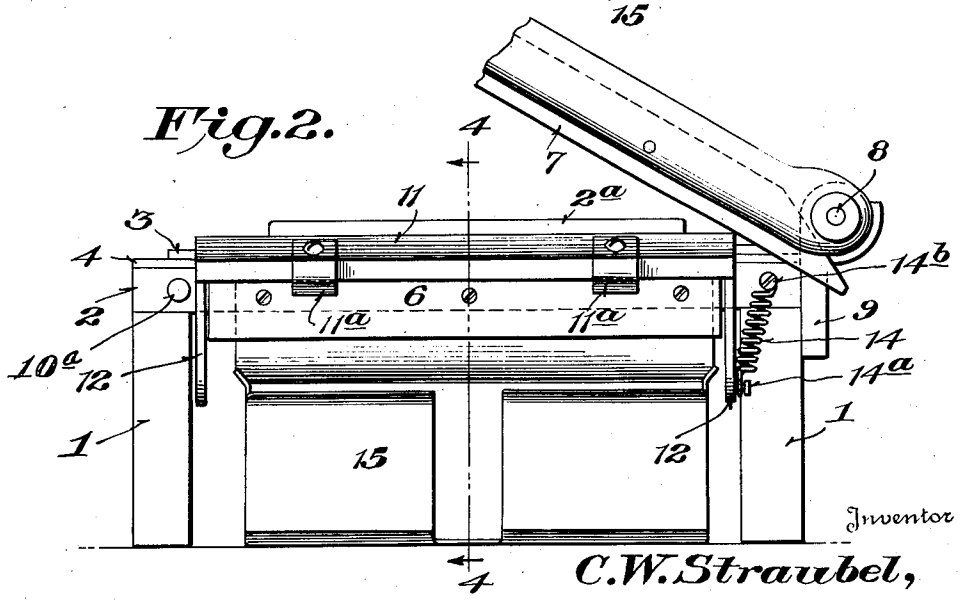


Fig. 2.



Inventor

C. W. Straubel,

By Williamson & Groff

Attorneys

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Fig. 3.

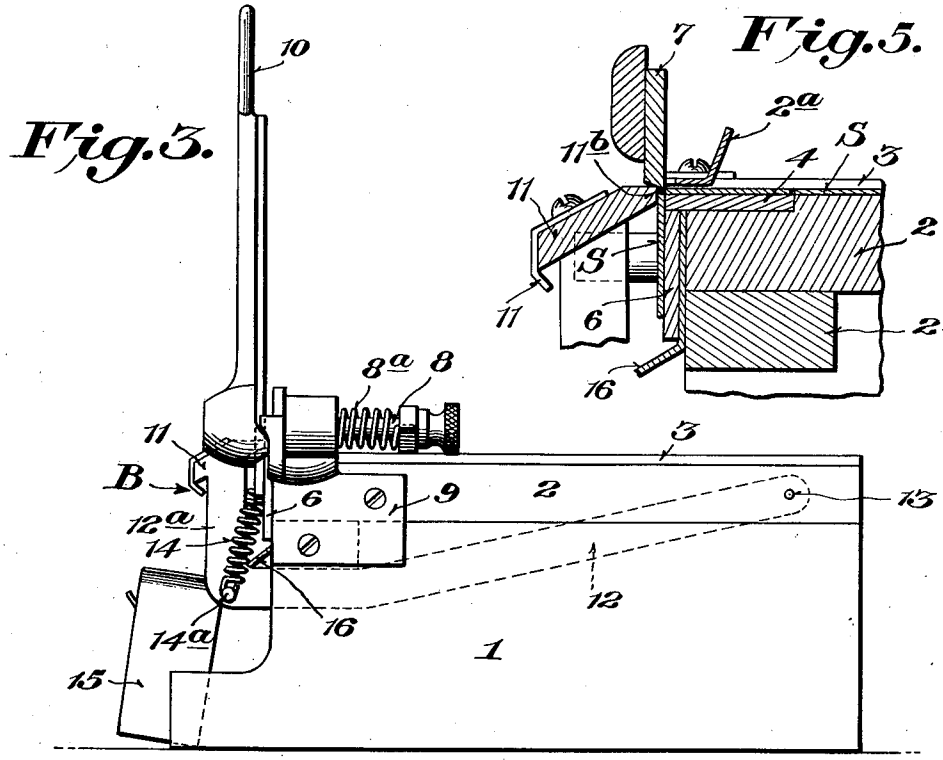


Fig. 5.

Fig. 4.

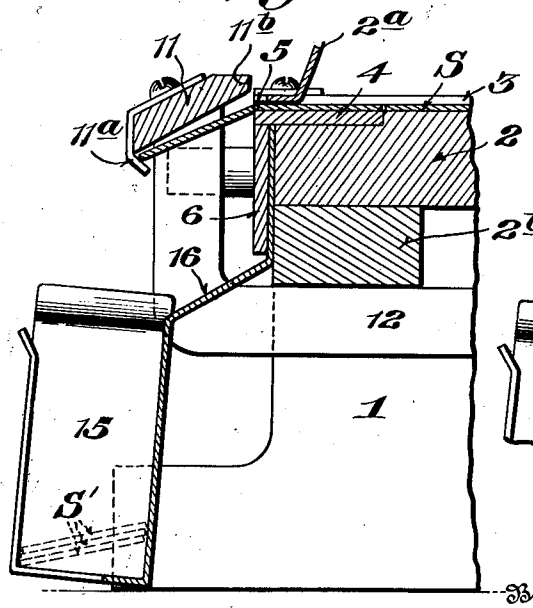
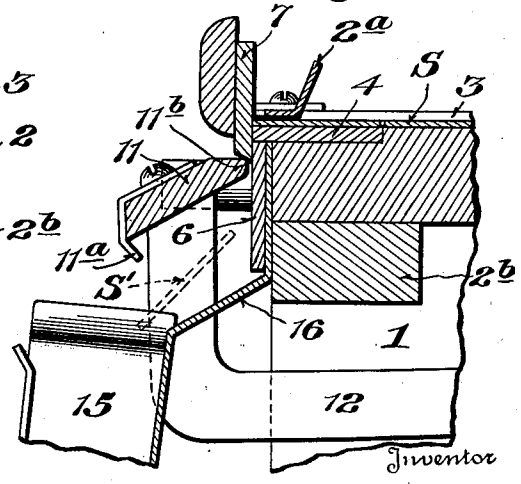


Fig. 6.



Inventor

C. W. Straubel,

By Wheeler, Wheeler & Groff

Attorneys

Patented June 18, 1940

2,204,736

UNITED STATES PATENT OFFICE

2,204,736

CARD SHEARING MACHINE

Clarence W. Straubel, Youngstown, Ohio, assignor, by mesne assignments, to Acme Visible Records, Inc., Chicago, Ill., a corporation of Delaware

Application June 3, 1939, Serial No. 277,269

5 Claims. (Cl. 164—44)

This invention relates to shearing devices and more particularly to a novel apparatus for severing individual filing cards from a strip of stock material.

Cards for filing devices of the type shown in Straubel Patents, Numbers 2,093,941, dated September 21, 1937, and 2,101,963, dated December 14, 1937, include die-cut tabs or ears at their medial portions, for engaging a card carrier strip. When cards of this type are stacked on the carrier strip, it is essential that the upper and lower edges thereof be truly parallel in order to insure accurate vertical stacking of the cards to preserve the correct margin of visibility at the upper edges thereof, and also to prevent "fanning," i. e. prevent the cards from assuming relatively oblique relationship. When the cards are completely pre-cut or severed, that is, are originally made as individual cards, they are ordinarily made by dies which are true and, therefore, the opposite edges are cut perfectly parallel. However, the disadvantage in handling individual cards is that this procedure is time consuming, because the compiler or tabulator must insert each card individually in an appropriate machine. To avoid this time consuming operation, it is desirable to use a continuous strip which is only partially divided or cut transversely into card lengths, thereby preserving the continuity of the individual cards and enabling a strip containing such cards to be placed in a typewriter, addressing machine, or the like. Even though this major time saving procedure is followed, it nevertheless becomes necessary to separate the individual cards from each other, as they occur in the strip. Heretofore, this severing of the cards has been done by hand. That is, each card, provided with the proper data, has been individually torn from the adjacent card at the score lines, but, in some cases, this results in tearing the cards or leaving short tongues of material at the top and bottom edges of the card. These more or less frayed tongues are objectionable, both from the standpoint of appearance when the finished card is filed, and at the same time the presence of these frayed tongues, in some instances, interferes with proper stacking.

Accordingly, the present invention is primarily concerned in providing an apparatus in the nature of a filing accessory and having the characteristics of a shear which will mechanically separate the individual cards from the previously slit or scored stock in an accurate and expeditious manner. In that connection, a distinctive feature of the invention resides in the provision of novel means which serves a two-fold purpose, namely, to act as a stop or abutment for accurately gauging the length of the card, and which also moves downwardly to bend the pre-cut card over a right angular corner whose edge forms the fixed blade of the shear. Thus, the card becomes automatically adjusted over and about the fixed corner, so that the score line in the strip registers perfectly with the edge of the fixed blade, and, when the movable shear blade descends, an individual card will be severed from the strip so that the top and bottom edges will be parallel and the frayed tongues, which would otherwise exist if the cards were pulled apart by hand, are completely removed. The construction which provides this self-adjusting feature for the strip is of paramount importance, because it relieves the operator of the necessity of attempting to bring the scored portion of the card over the fixed blade of the shear so that even if the operator feeds the scored strip toward the shear in an uneven or oblique path, the machine itself will take care of this inaccuracy, and produce the desired result. Thus, it is possible to speed up the separation of the cards from the strip, and, at the same time, insure a perfect card.

With the above and other objects in view, which will more readily appear as the nature of the invention is better understood, same consists in the novel construction, combination, and arrangements of parts, hereinafter more fully described, illustrated and claimed.

A preferred and practical embodiment of the invention is shown in the accompanying drawings, in which:

Figure 1 is a top plan view of the present apparatus.

Figure 2 is an end elevation thereof.

Figure 3 is a side elevation.

Figure 4 is an enlarged detail, vertical cross section view taken on the line 4—4 of Figure 2.

Figure 5 is a detail diagrammatic view, similar to Figure 4, showing the combined card stop and adjuster in the position by which it adjusts the card prior to the descent of the fixed blade of the shear.

Figure 6 is a view similar to Figure 4, showing the position of parts, after the combined card stop and adjuster has descended to its lower limit, and the shear has also descended.

Similar reference characters designate corresponding parts throughout the several figures of the drawings.

According to the embodiment of the invention shown in the drawings, the same includes a base

designated as A including the opposite side walls 1—1, and the top wall 2, the latter being provided on its upper surface with the spaced parallel guide strips 3—3. The said top wall 2 is provided at one edge with a fixed shear plate or blade 4, lying flush with the upper surface of the top wall, thereby to provide a continuous smooth flat surface over which the strip S may be moved. A suitable guide 2a is positioned above the plate 4. Immediately below the cutting edge 5 of the plate 4, the top 2 is provided with a vertical plate 6, whose outer face forms in effect a downward continuation of the shearing edge 5. The plates 4 and 6 together form a truly right angular corner which assist in properly positioning the card, as will presently more fully appear.

A movable shear blade 7 is pivotally supported at 8 in a stop bracket 9 on one of the side walls 1, and as usual may be provided with a handle 10, limited as a movement in one direction by the stop 10a. It will, of course, be understood that the pivot 8 may be of the spring tensioned type as indicated at 8a to insure the blade 7 always being closely aligned with the cutting edge 5 of the plate 4, as well as the plate 6, and to also lift the blade back to normal position.

As previously indicated, a distinctive feature of the invention resides in the provision of means for automatically positioning the card correctly with reference to the shearing means. Therefore, as will be observed from the drawings, this means preferably consists of a pivoted frame designated generally as B, including the transverse adjusting bar 11, connected at its ends with the angular arms designated as 12—12, said arms including the upright portions 12a, and having their rear ends pivoted in the side walls 1—1 as indicated at 13. The entire frame B is preferably spring tensioned in an upward direction, by any suitable means, such for example as the spring 14 (Figure 2), whose lower end is connected as at 14a to one of the arms, while its upper end is connected as at 14b to one of the side walls 1, thereby to pull the arms 12 upwardly against the transverse stop member 2a (Figures 4 and 6), located beneath the top 2.

The transverse bar 11 is provided with a substantially, vertical face 11a adjacent the shearing edge 5, and as will be apparent from Figure 2, the upper surface of the bar is adapted to be progressively engaged by the bottom edge of the shear blade 7, as it moves downwardly. Thus, the frame B, including the transverse bar 11, is pushed down against the tension of the spring 14 before the shear begins to cut the tongues which connect the individual tongues. The transverse bar 11 is also provided with a stop flange 11b which is preferably inclined downwardly and inwardly at the lower face of the bar 11 thereby to act as an abutment or limiting stop for the end card of the strip S as the latter is moved toward the shear.

Below the bar 11 and the shearing means, a suitable receptacle or pocket 15 may be provided for receiving the severed cards. In the embodiment shown, this pocket is preferably a part of a metal stamping which includes the inclined wall 16 lying immediately below the shearing means for directing the sheared card into the pocket.

In operation, the strip S containing the cards S—1, whose edges are connected by the tongues S—2, is laid on the surface of the top 2 between the guides 3. It will, of course, be understood that the movable shear blade 7 is elevated by reason of the spring 8a, and that the frame B, including the bar 11 and the stop means 11a is also elevated as shown in Figures 2, 3 and 4. The operator can thus simply slide the card strip forwardly on the top 2 and beneath the guide 2a until the front edge of the leading card engages the stop means 11a. The operator then causes the shear to descend, so that a portion of the shear blade, adjacent its pivot will engage the adjacent upper surface of the bar 11, as shown in Figure 2, and thus move the bar downwardly before the edge of the movable shear blade 7 comes into cutting relation with the edge 5 of the plate 4. The effect of this preliminary downward movement of the bar 11 is to bend an individual card over the fixed shearing edge 5 so that the card to be cut from the strip is bent down into engagement with the surface of the plate 6 and the card which is still connected with the strip, is firmly and accurately positioned on the plate 4. Thus, as the shear blade 7 continues to descend, the previously scored portion of the individual card will be accurately adjusted and disposed directly on the shearing edge 5, thereby presenting all of the uncut tongues S—2 directly to the action of the movable shear. The individual card thus becomes severed from the strip stock precisely at the points where the previously made transverse cuts are located in the original strip, so that in effect the shearing means only severs the tongues S—2. The cards are, therefore, left of uniform height, and the upper and lower edges are just as true as they were when made by the original die, while at the same time, the tongues are severed in a clean manner so that no objectionable burrs, fins, or frayed tongues are present in the finished card.

From the foregoing, it will be apparent that the present invention provides novel means for mechanically separating individual cards from strip stock which has been previously subjected to the action of a die-cutting machine to accurately and partially form the cards. The present device provides a relatively inexpensive hand operated apparatus, which requires no infinitely accurate feeding means, since the adjustment of the card to shearing position is automatically effected by the combined adjusting and shearing means.

Without further description, it is thought that the features and the advantages of the present invention will be readily understood to those skilled in the art, and changes in the form, proportion and details of construction may be resorted to within the scope of the pending claims, without departing from the spirit of the invention.

I claim:

1. An apparatus for severing partially cut cards from strip stock, comprising, shearing means movably supported adjacent the gauge side of the fixed shear element and including fixed and movable shear elements, and a downwardly inclined flat faced member actuated by the movable shear elements for bending and adjusting a partially cut card over the fixed shear element prior to the descent of the movable shear element.

2. An apparatus for severing partially cut cards from strip stock, comprising, shearing means including fixed and movable shear elements, and a downwardly inclined flat surfaced member normally poised above the line of strip feed and yieldingly and movably supported in a position to be moved downwardly by the movable shear element to automatically center a partially cut card over the fixed shear element prior to the descent of the movable shear element.

3. An apparatus for severing partially cut cards

from strip stock, comprising, shearing means including fixed and movable shear elements, and a yieldingly mounted integrally joined card gauge and card adjuster substantially co-extensive with the fixed shear element and actuated by the movable shear element for bending and adjusting a partially cut card over the said fixed shear element prior to the descent of the movable shear element.

4. An apparatus for severing partially cut cards from strip stock, comprising, fixed and movable shear blades, means cooperating with said fixed and movable shear blades to adjust a partially cut card connected with a card strip stock over the fixed blade, said means including a member having means for gauging the length of a card to be cut and having a portion thereof over-lying said card, spring means for urging said member upwardly, said member adapted to be moved downwardly by the movable blade of the shear, against the tension of the spring to bend the card over the fixed shear blade and locate the connecting portions of the card to be cut from the strip over the fixed shear blade, whereby the continued descent of the movable shear blade will sever said connected portions.

5. An apparatus for severing partially cut cards from strip stock, comprising, a top having means for guiding a sheet of strip stock, fixed and movable shear blades at one end of said member, a combined card gauge and card adjusting member disposed parallel to the fixed shear blade, a frame carrying said member at one end and pivotally mounted at the other end beneath said top, and a spring for maintaining said frame and member normally in an elevated position to be engaged by the movable shear blade as it descends.

CLARENCE W. STRAUBEL.