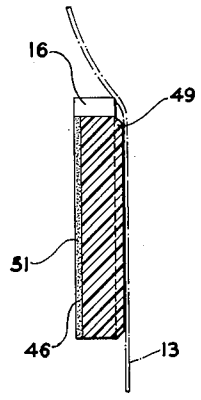
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TRANSPARENT TEAR BAR AND INDICATOR

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FIG. 6



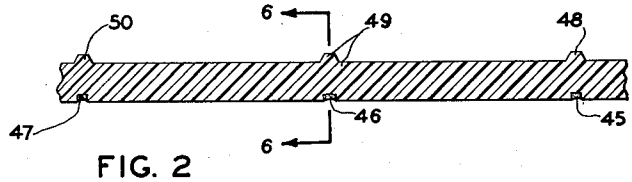


FIG. 2

FIG. 1

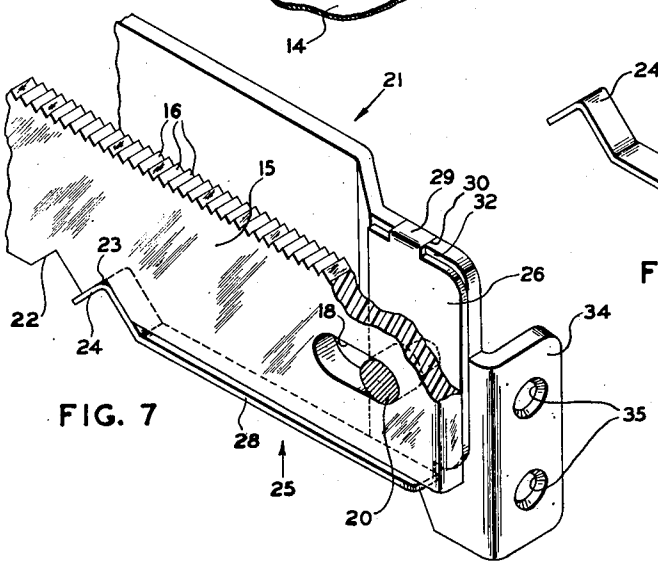


FIG. 7

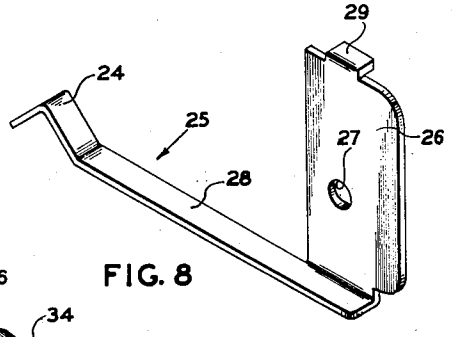


FIG. 8

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TRANSPARENT TEAR BAR AND INDICATOR

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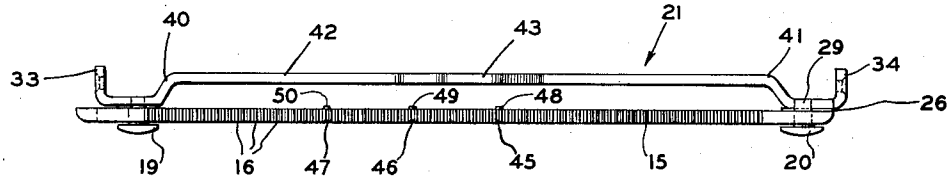


FIG. 3

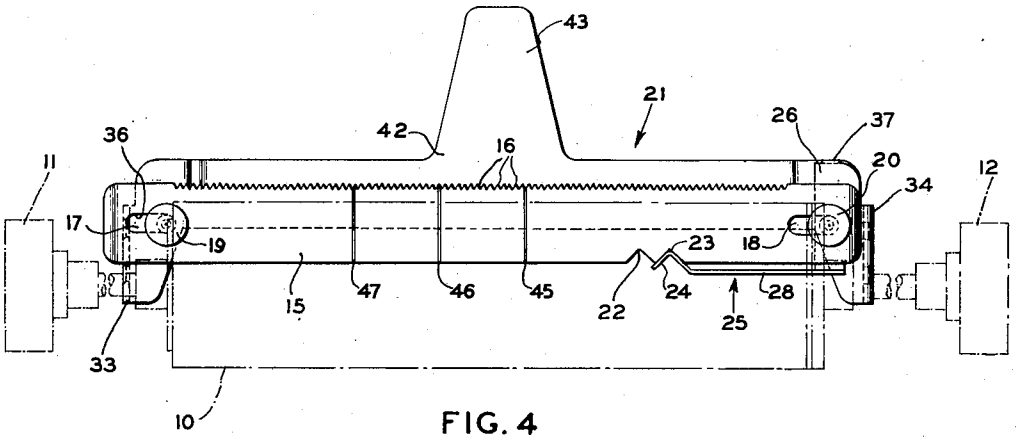


FIG. 4

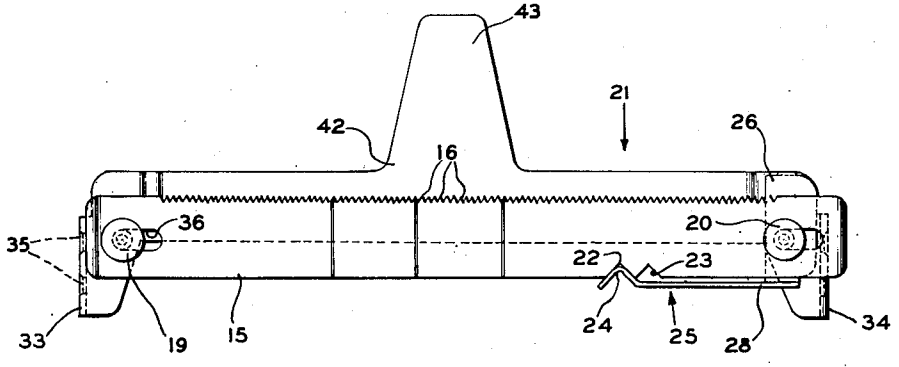


FIG. 5

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TRANSPARENT TEAR BAR AND INDICATOR

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9 Claims. (Cl. 101—93)

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This invention relates to a tear bar and indicator combination particularly adapted for use in the severing of the paper strip fed from business machines or the like.

A feature of the invention is the provision of a cut-off blade of novel and inexpensive construction provided with indicia which appears to punctuate the matter printed upon a web of paper fed thereunder.

Another feature of the invention is the provision of a cut-off blade or tear strip and a support therefor, the blade or strip being formed of transparent material having spaced markings thereon which, to the eye, separate into groups of vertical columns the matter printed on a tape or a web of paper passing thereunder.

Still another feature of the invention is the provision of a transparent cut-off blade and a support therefor on which the cut-off blade is movable to either of two positions, whereby spaced vertical lines on the blade are disposed between vertical rows of numerals printed on a web of paper fed underneath the blade, the lines being arranged to separate the vertical rows according to dollars and cents in one position and in groups of three, according to thousands in the other position.

A still further object of the invention is to provide a mounting for the tear strip and the detent means associated therewith so that both may be quickly and readily assembled with a minimum of adjustment and fastening and to so arrange the parts that the detent is automatically positioned at assembly to function at proper tension with respect to the tear strip or cut-off blade.

Other features and objects of the invention will be found in the following description, given with the aid of the accompanying drawings, of which

Fig. 1 is a perspective view showing a cut-off blade and a supporting bracket therefor in accordance with a preferred embodiment of the invention;

Fig. 2 is an enlarged longitudinal section taken through the center of the transparent cut-off blade;

Fig. 3 is a top view of the cut-off blade and bracket;

Fig. 4 is a front view in elevation showing the tear bar in one position of longitudinal adjustment;

Fig. 5 is a view similar to Fig. 4 showing the bar in another adjusted position;

Fig. 6 is a vertical section taken on the line 6—6 of Fig. 2;

Fig. 7 is an enlarged perspective view showing details of the right hand end of the cut-off blade and bracket; and

Fig. 8 is a perspective view of a detent member associated with the blade and the bracket.

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Referring to Fig. 1, a platen 10 of a business machine, such as an adding machine, is shown with its knobs 11 and 12, together with the usual tape or tally roll strip 13 by dot-dash lines. A portion of the machine cover 14 is also shown in Fig. 1.

A paper tear bar 15 formed of an elongated, ruler-like strip of transparent material preferably a plastic, such as Lucite, is provided with teeth 16 in its upper edge against which an end of the paper tape 13 may be torn off. Longitudinal mounting slots 17 and 18 are formed near opposite ends of the blade and shouldered rivets 19 and 20, disposed in the respective slots and having their shanks suitably fastened in a bracket 21, support the cut-off blade for limited endwise movement.

The lower edge of the tear bar 15 has notches 22 and 23 formed therein which cooperate with a nose 24 of a detent spring 25, Figs. 7 and 8. The detent spring is punched from a sheet of metal and is formed with a flat mounting section 26 having a hole 27 therein through which the shank of the rivet 20 extends. Beneath the mounting section 26 a narrow horizontal spring arm 28 is formed which is bent over to underlie the lower edge of the cut-off blade or tear bar 15. This spring arm is bent or crimped near its free end to form the detent nose 24 already mentioned. Referring to Figs. 3 and 7 the detent spring structure is shown as being disposed between the rear of the right hand end of the tear blade and the bracket 21 the plate section 26 of the spring being mounted on the bracket by the rivet 20. In order to resist strains which might tend to turn the spring on the rivet, a bent over lip or tab 29 formed on the upper edge of the mounting section is held by a complementary notch 30 in the upper edge of bracket 21.

This method of mounting the spring on the shank of the rivet, when the tab 29 is in its seat, automatically positions and maintains the spring strip 28 parallel to the bottom edge of the tear bar 15 and the nose in engagement with a notch of the bar for yielding action when said bar is adjusted longitudinally. Were it not for this structure, additional means would have to be employed for separately holding the detent in proper position, which would require more time and material in assembly operations with a resultant increase in the cost of production. With

the arrangement described, the cut-off blade is manually movable on the bracket in an endwise direction to either of two positions in which the blade is held by the nose 24 of the detent spring which enters one or the other of the detent notches 22 or 23 in the lower edge of the cut-off blade. The purpose of this arrangement will be described below.

Bracket 21 which supports the cut-off blade is designed to be stamped out of a sheet of metal. Near its opposite ends and beyond the ends of the platen, the bracket 21 is formed with flat portions 31 and 32 disposed immediately behind the end portions of the cut-off blade 15 to which the blade supporting rivets 19 and 20 are respectively secured. Rearwardly extending ears 33 and 34, Fig. 3, provided with screw holes 35, are formed at the ends of the bracket to provide a means for attaching the structure to a suitable support, such as the side walls of the cover or form of the machine, not shown.

The mid-portion 42 of the bracket which overlies the platen is offset from the tear bar or cutter blade toward the rear, to provide a space between the bracket and the tear bar for the passage of the paper tape 13. At the center portion of the bracket an upwardly extending arm or paper guide 43 is formed, Fig. 1, which is narrower than the tape. The arm supports a section of the tape for easy reading and permits either corner of the projecting tape to be grasped easily for tearing off against the cutter blade 15.

Since adding and computing machines may deal with groups of numbers which may be according to either units or the decimal system, such as dollars and cents, the machines generally make no provision for punctuating the numbers, since the punctuations for units would be incorrect for dollars and cents. Instead, adjustable wire indicators or printed scale arrangements are used which overlie the tape and aid the eye in separating the vertical columns into groups according to units or dollars and cents to aid in reading quickly the printed amounts. The objection to such devices is that they obscure the copy of covering one or more of the lines of figures and their necessary supports are not in keeping with the streamlined design of the machines.

One of the features of the present invention is the provision of punctuating marks on the transparent cut-off blade 15 which eliminates the need for the external punctuating devices just mentioned. In a preferred arrangement, the cut-off blade or tear bar is provided with a plurality of vertical lines arranged in predetermined spaced relation longitudinally of the blade, three such lines being shown in the drawings, which lines are made by forming grooves 45, 46 and 47 in the front surface of the cut-off blade, as shown in Fig. 2, the grooves preferably being filled with a suitable coloring material, such as red paint 51.

The grooves are arranged with respect to the detent notches 22 and 23, and the detent spring 25 so that when the cut-off blade is in its left hand position as shown in Figs. 1 and 4, the respective lines of numbers and the tape underneath the cut-off blade and adjacent thereto appear to be separated into vertical columns in groups of three, according to thousands, line 45 being positioned between the third and fourth numbers from the right, line 46 being positioned between the sixth and seventh numbers, while line 47 is positioned between the ninth and tenth numbers, whenever this number of characters is printed on a line. This position of the cut-off bar is used when units are being dealt with.

When dollars and cents are to be added or otherwise involved in calculations, the cut-off blade is pushed to its right hand position shown in Fig. 5 where it is held by the nose 24 of the detent yieldably engaging the notch 22 in the cut-off bar. Notches 22 and 23 are separated by one character space so when the bar is in its right hand position the punctuating lines 45, 46 and 47 will be moved the distance of one space to the right and line 45 will then be positioned between the second and third columns of numbers from the right, setting off the first and second columns according to cents, while the remaining punctuating lines separate the columns in groups of three according to thousands, line 46 being positioned between the fifth and sixth columns and line 47 between the eighth and ninth columns of numerals should this number be printed in any line.

Ridges 48, 49 and 50 are formed on the under or rear surface of the cut-off or tear bar. Each ridge is disposed immediately beneath and in alignment with a respective groove 45, 46 and 47 for the punctuating lines, so as to be concealed thereby, and not be visible from the upper surface of the tear bar, as shown in Figs. 2 and 6. The upper ends of the ridges terminate short of the teeth 16 and thus allow the edges of the teeth to be engaged by the paper as the latter is tensioned in the tearing off of said paper tape 13, as shown in Fig. 6. The ridges space the tape from the under surface of the cut-off bar to prevent ink from the printed numbers from staining or smearing the under surface of the cut-off bar and eventually obstructing the visibility of the figures.

While we have described what we considered to be a highly desirable embodiment of our invention, it is obvious that changes in form could be made without departing from the spirit of the invention, and we therefore do not limit ourselves to the exact form herein shown and described, nor to anything less than the whole of our invention as herein set forth and as hereinafter claimed.

What we claim is:

1. A paper tear bar for business machines and the like comprising an elongated ruler-like strip of transparent material disposed above the printing line over the tape on which numbers are printed by the business machine means including elongated end slots and shouldered rivets for adjustably supporting the bar for endwise movement to either of two predetermined positions, a plurality of transverse marks on the bar having predetermined spacing, the marks being arranged to appear to punctuate the numbers printed on the tape when the bar is in one position in accordance with dollars and cents and in the other position in accordance with thousands, and ridges formed on the undersurface of the tear bar in alignment with the transverse marks, said ridges serving to space the printed numbers on the tape from the under surface of the tear bar.

2. A paper tear bar for business machines and the like comprising an elongated ruler-like strip of transparent material having a pair of detent notches formed in one edge thereof, the bar being disposed so as to overlie above the printing line the platen and the platen paper tape the tape on which numbers are printed by the business machine, means for supporting the bar for limited endwise movement, a detent member cooperat-

ing with the detent notches for yieldingly holding the bar in either of two predetermined positions, a plurality of transverse marks on the bar disposed with predetermined spacing, the marks being arranged to appear to punctuate the numbers printed on the tape when the bar is in one position in accordance with dollars and cents and when the bar is in the other position to separate the numbers into vertical columns in groups of three according to thousands, and ridges formed on the under surface of the tear bar in alignment with the transverse marks, said ridges serving to space the printed numbers on the tape from the under surface of the tear bar.

3. A paper tear bar for business machines and the like comprising an elongated ruler-like strip of transparent material having cutting teeth formed on one edge and a pair of detent notches on the opposite edge, the bar being adapted to overlie the tape above the printing line on which numbers are printed by the business machine, a bracket overlying the platen of the business machine for supporting the bar for limited endwise movement, a detent spring secured between the bar and bracket cooperating with the notches for yieldingly holding the blade in either of two predetermined positions, a plurality of transverse marks on the bar disposed with predetermined spacing, the marks being arranged with respect to the rows of printed numbers on the tape so as to appear to separate them into groups of vertical columns, the arrangement being such that when the blade is in one position the numbers appear to be punctuated according to dollars and cents and in the other position according to units, and ridges formed on the under surface of the tear bar in alignment with the transverse marks, said ridges serving to space the printed numbers on the tape from the under surface of the tear bar.

4. A paper tear bar according to claim 3 in which the bar has a longitudinal slot formed near each end and in which the bar is attached to the bracket by shoulder rivets passing through the slots the bar being free to move a limited distance in an endwise direction on the rivets.

5. A paper tear bar and bracket assembly for business machines and the like comprising an elongated ruler-like strip of transparent plastic material having cutting teeth formed in one edge, a pair of detent notches on the opposite edge and a longitudinal mounting slot near each end; a bracket for supporting the bar having portions extending beyond opposite ends of the platen of the business machine, a shoulder rivet in each mounting slot secured respectively to said portions of the bracket, a detent spring cooperating with said notches secured by one of the rivets to the bracket, the arrangement being adapted to permit limited endwise movement of the bar and yieldingly retain it in either of two positions, a central portion formed in the bracket overlying the platen offset from the tear bar to provide a space for the passage of a tape between the bracket and tear bar, and an upwardly extending arm formed on the central portion of the bracket which supports the tape to aid in reading the same as well as holding the tape in a position to be grasped easily prior to tearing it off against the tear off bar.

6. A paper tear bar for business machines or the like comprising an elongated ruler-like strip of transparent material disposed over the tape on which numbers are printed by the business machine, a bracket overlying the platen of the business machine for supporting the tear bar for

limited endwise movement to either of two predetermined positions, the bracket including portions extending beyond the ends of the business machine platen and a central portion overlying the platen and in which bracket the tear bar is movably supported by the first mentioned portions, the central portion of the bracket being offset toward the rear to provide a space between the bracket and tear bar through which the paper tape passes, said central bracket portion and the tear bar overlying the platen above the printing line of the platen, a plurality of transverse marks on the upper surface of the tear bar having predetermined spacing, the marks being arranged to appear to punctuate the numbers printed on the tape when the tear bar is in one position in accordance with dollars and cents and in the other position in accordance with thousands, and projections formed on the under surface of the tear bar immediately underneath the transverse marks so as to be concealed thereby, and the projections serving to space the tape from the under surface of the blade to prevent ink on the printed characters from staining the under surface of the tear bar.

7. A paper tear bar according to claim 6 in which the transverse marks are made in the upper surface of the bar and in which projections corresponding in shape to the marks are formed on the under surface of the bar immediately underneath the marks so as to be concealed thereby.

8. A paper tear bar for a business machine or the like comprising an elongated ruler-like strip of transparent material having cutting teeth formed on one edge, and a pair of detent notches on the opposite edge, the bar being adapted to overlie the tape on which numbers are printed by the business machine, a bracket overlying the platen of the business machine for supporting the bar for limited endwise movement, the bracket including portions extending beyond the ends of the business machine platen and a central portion overlying the platen and in which bracket the tear bar is movably supported by the first metioned portions, the central portion of the bracket being offset therefrom toward the rear to provide a space between the bracket and tear bar through which the paper tape passes, a detent spring secured between the tear bar and the bracket and cooperating with the notches for yieldingly holding the tear bar in either of two predetermined positions, a plurality of transverse marks on the tear bar disposed with predetermined spacing, the marks being arranged with respect to the rows of printed numbers on the tape so as to appear to separate them into groups of vertical columns, the arrangement being such that when the tear bar is in one position the numbers appear to be punctuated according to dollars and cents and in the other position according to units.

9. A paper tear bar for a business machine or the like comprising an elongated ruler-like strip of transparent material having cutting teeth formed on one edge and a pair of detent notches on the opposite edge, the bar being adapted to overlie the tape on which numbers are printed by the business machine, a bracket overlying the platen of the business machine for supporting the bar for limited endwise movement, the bracket including portions extending beyond the ends of the business machine platen and a central portion overlying the platen and in which bracket the tear bar is movably supported by the first mentioned portions, the central portion of the brack-

et being offset therefrom toward the rear to provide a space between the bracket and the tear bar through which the paper tape passes, said central portion of the bracket having an upwardly extending arm which supports the tape for a limited distance beyond the toothed edge of the tear bar to aid in reading the tape as well as holding the tape in a position in which it may be grasped easily for tearing off, a detent spring secured between the tear bar and the bracket and cooperating with the notches for yieldingly holding the tear bar in either of two predetermined positions, a plurality of transverse marks on the tear bar disposed with predetermined spacing, the marks being arranged with respect to the rows of printed numbers on the tape so as to appear to separate them into groups of vertical columns, the arrangement being such that when the tear bar is in one position the numbers appear to be punctuated according to dollars and cents and in the other position according to units.

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