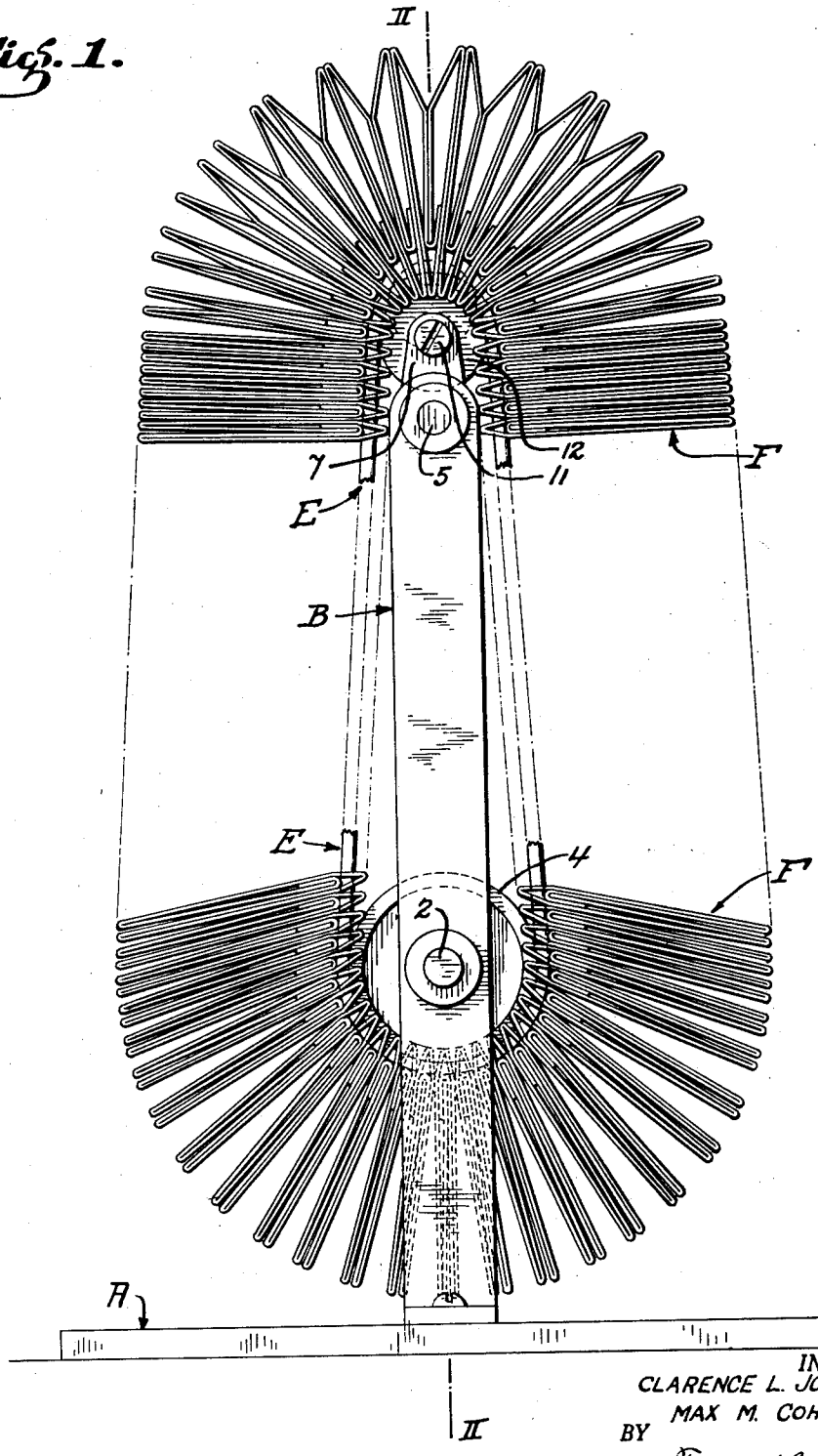
Aug. 15, 1933. C. L. JOHNSTON ET AL 1,922,736

RECORD SHEET

Filed March 22, 1932 4 Sheets-Sheet 1

Fig. 1.



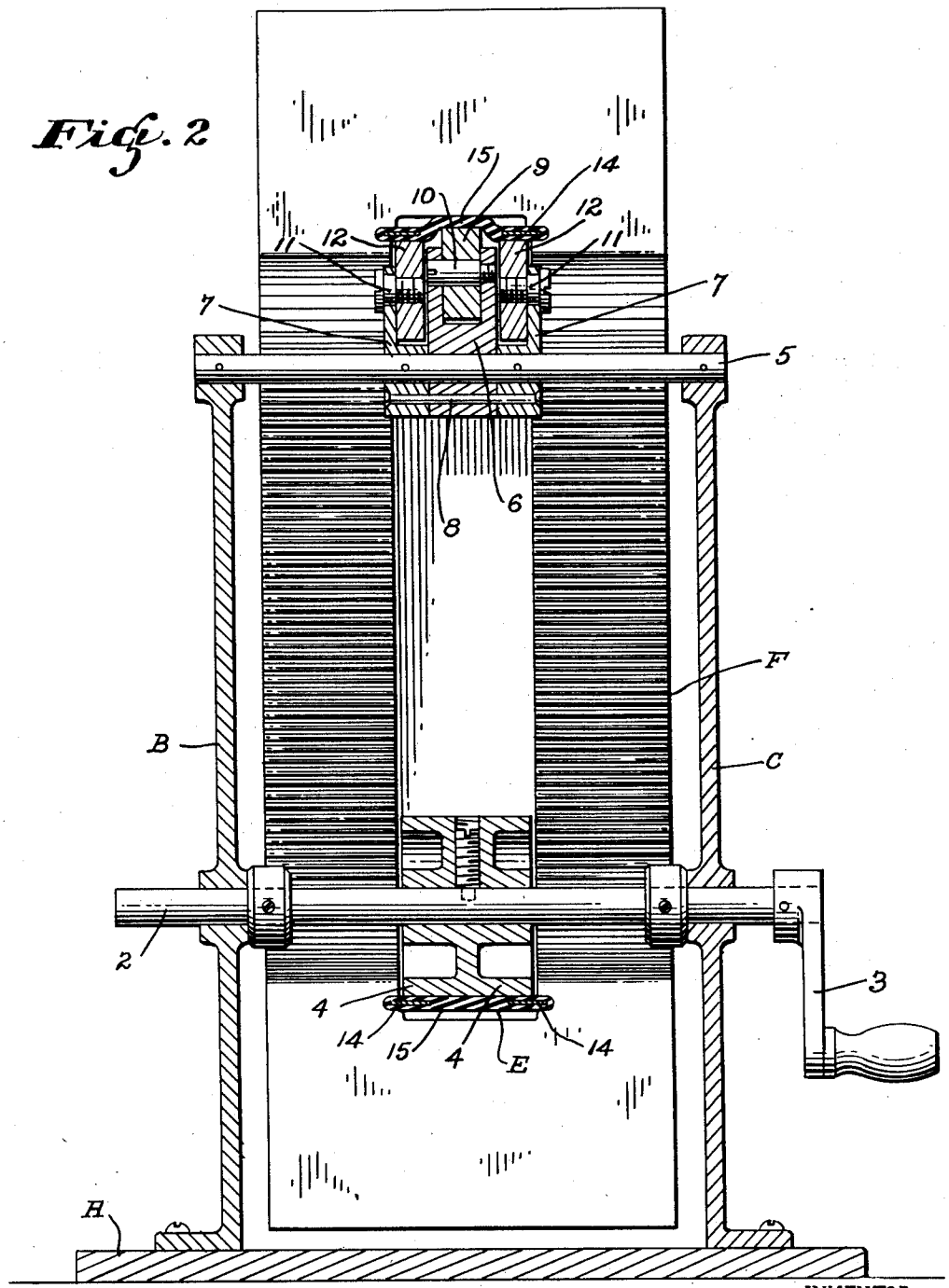
INVENTORS.
CLARENCE L. JOHNSTON,
MAX M. COHN.
BY
Townsend and Lofting.
ATTORNEYS.

Aug. 15, 1933. C. L. JOHNSTON ET AL 1,922,736

RECORD SHEET

Filed March 22, 1932 4 Sheets-Sheet 2

Fig. 2



INVENTOR.
CLARENCE L. JOHNSTON.
MAX M. COHN.
BY
Townsend and Loftus.
ATTORNEYS.

Aug. 15, 1933. C. L. JOHNSTON ET AL 1,922,736

RECORD SHEET

Filed March 22, 1932 4 Sheets-Sheet 3

Fig. 3.

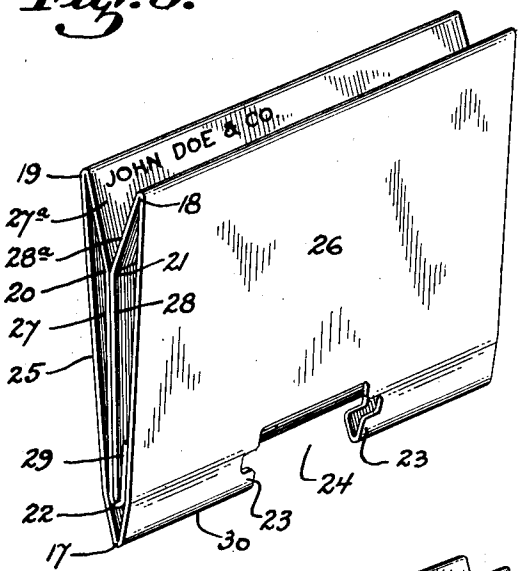


Fig. 4.

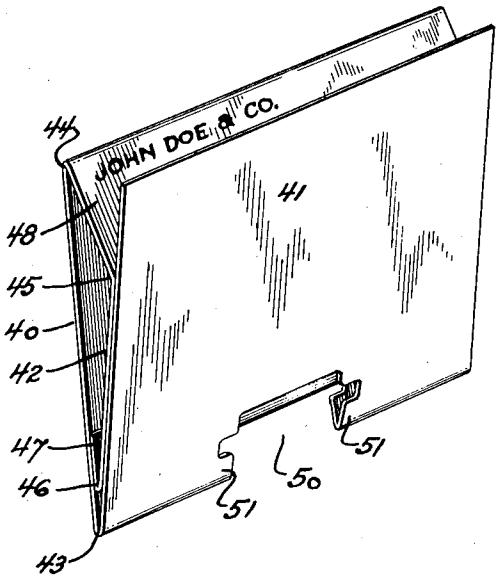


Fig. 5.

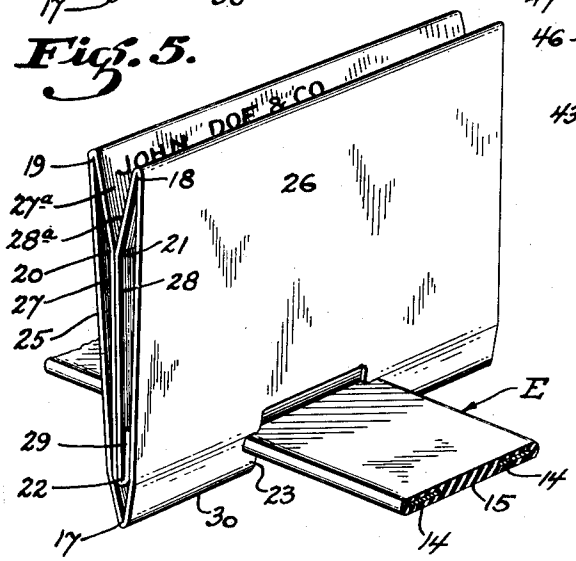
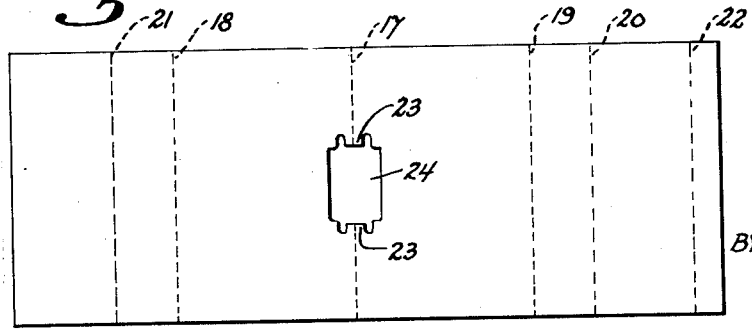


Fig. 6.



INVENTORS.
CLARENCE L. JOHNSTON.
MAX M. COHN.

BY Townsend & Loftus
ATTORNEYS.

Aug. 15, 1933. C. L. JOHNSTON ET AL 1,922,736

RECORD SHEET

Filed March 22, 1932 4 Sheets-Sheet 4

Fig. 7.

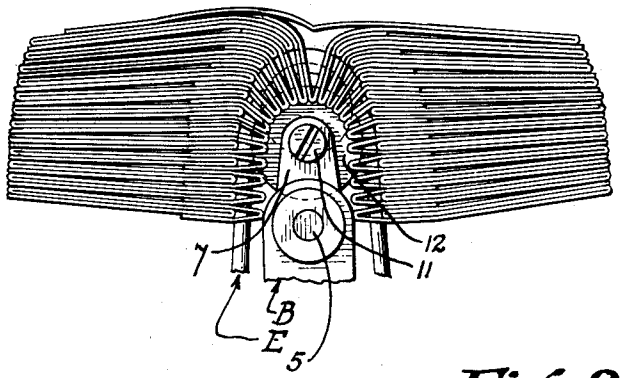


Fig. 8.

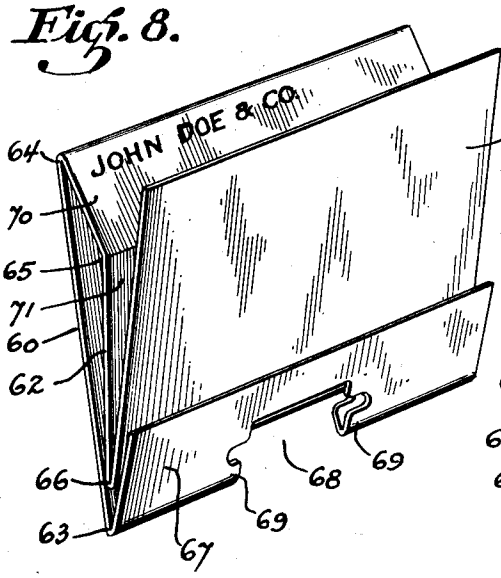
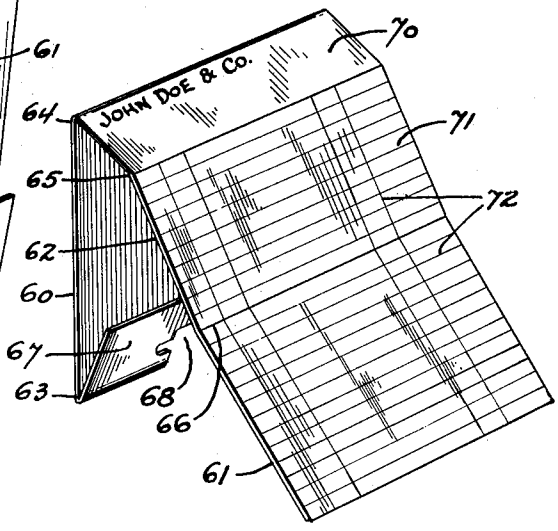


Fig. 9.



INVENTORS.
CLARENCE L. JOHNSTON,
MAX M. COHN.
BY
Townsend & Loftus.
ATTORNEYS.

Patented Aug. 15, 1933

1,922,736

UNITED STATES PATENT OFFICE

1,922,736

RECORD SHEET

Clarence L. Johnston, Hillsborough, and Max M. Cohn, Los Gatos, Calif.

Application March 22, 1932. Serial No. 600,458

9 Claims. (Cl. 129—16.7)

This invention relates to a record sheet, and especially to record sheets intended for use in an apparatus such as disclosed in our copending application entitled "Rotary visible index apparatus and card", filed July 17, 1931, Serial Number 551,504.

In the application above referred to an index card is disclosed in which the indicia appears at the upper edge of the card and entries or data of varying character are made on the remaining space provided by the card. The card is double, that is, it consists of two connected sections, and when each section is filled in a new card must be indexed and added. That is, the space provided for entries or other data is rather limited, also the amount of separation obtained when the indicia are to be exposed is not always sufficient for certain uses.

The object of the present invention is to generally improve the operation and utility of the apparatus by providing a record sheet which may be formed with three or more sections so as to materially increase the space for entries or other data; to provide a novel method of spreading or opening the sheets whereby the indicia and other matter may be clearly and fully displayed; and further, to provide a record sheet which may be unfolded and spread out flat so that entries may be made without removing the sheet from the apparatus.

The invention is shown by way of illustration in the accompanying drawings, in which—

Fig. 1 is a side elevation of the apparatus showing a number of record sheets removed.

Fig. 2 is a central, vertical section taken on line II—II of Fig. 1.

Fig. 3 is a perspective view of one of the record sheets.

Fig. 4 is a perspective view of a modified form of the record sheet shown in Fig. 3.

Fig. 5 is a perspective view of the manner in which a record sheet is attached to the belt or carrier.

Fig. 6 is a plan view of the blank from which the record sheet in Fig. 3 is formed.

Fig. 7 is a side elevation of the upper portion of the apparatus showing the sheets of a modified form flattened out and one sheet unfolded and extended for the purpose of receiving entries.

Fig. 8 is a perspective view of the modified form of sheet.

Fig. 9 is a perspective view of the sheet shown in Fig. 8, but showing the sheet unfolded.

Referring to the drawings in detail and particularly Figs. 1 and 2, A indicates a base member on which is supported a frame consisting of two side members or uprights, such as indicated at B and C. Journaled in the lower portion of the uprights is a shaft 2 which is adapted to be rotated by means of a hand crank 3 or the like and secured on the shaft to rotate in unison therewith is a pulley 4.

Secured between the upper ends of the uprights is a non-rotating shaft 5, and secured on the shaft midway between the frame members or uprights B and C is a frame which consists of a central plate 6 and a pair of side plates 7—7, which are secured with relation to each other and the shaft 5 through means of pins or rivets, such as indicated at 8. The central plate is recessed or forked in its upper end to receive a pulley or wheel 9 of small diameter, said wheel being journaled on a pin 10 so as to rotate freely thereon. Similarly journaled on pins 11 carried by the side plates 6 are a pair of small pulleys 12. The pulleys 12 function in unison with the pulley 4 as a support for an endless flexible belt or carrier generally indicated at E and this, in turn, functions as a support for a plurality of record sheets generally indicated at F.

The belt or carrier E, see Fig. 2, is preferably constructed of soft rubber or the like. The outer edges, which are supported by the lower pulley 4 and the upper pulleys 12, are preferably stiffened and reinforced as indicated at 14 to render them fairly rigid. The central portion of the belt, indicated at 15, is not reinforced as it must be yieldable and capable of being displaced as will hereinafter be described.

A number of different types of record sheets may be used in an apparatus such as here illustrated, and the several types of sheets employed are shown in Figs. 3, 4 and 8.

The form of sheet shown in Figs. 3 and 6 is cut from stock material, such as stiff paper or the like. It is scored along the lines indicated at 17, 18, 19, 20, 21 and 22, and it is punched or cut to form a pair of side lugs 23 and a central recess 24. The sheet, after scoring and punching, is folded along the scored lines 17, 18, 19 and 22, thus forming a sheet which presents a back section 25, a front section 26, a pair of intermediate sections 27 and 28, and an upturned flap 29; the several sections, when folded, being so arranged that the intermediate section 28 will lie within the flap 29. The cut-out portion, as previously stated, form the side lugs 23 and the center cut-away portion 24, the lugs 23 being provided to embrace or engage the outer edges of the belt or carrier E, as will hereinafter be described, and the cen-

tral opening 24 forms a space into which a portion of the belt may be projected, as will hereinafter be described.

In actual operation the sheets are attached to the endless belt or carrier E, as shown in Figs. 2 and 5, being secured with relation to the reinforced edges 14 of the belt by means of the lugs 23. A great number of sheets may be applied and when the belt or carrier is substantially filled with sheets, the sheets will lie flat against each other in stacked formation as shown in Fig. 1. The sheets will be arranged alphabetically or numerically, or in any manner desired, and means are provided for spreading the sheets when they pass over the upper pulleys 12, and other means are provided for opening each individual sheet and for moving the indicia surface of each sheet into an angular position so that the indicia may be quickly and readily observed and read.

The main sections of the sheets, shown in Figs. 2 and 3, are the back sections 25, the front sections 26, and the intermediate sections 27 and 28. The upper portion 27*a* of each intermediate section 27, that is, the portion above the score line 20, carries the indicia, for instance, John Doe, and any other data desired, and the remaining surfaces presented by the several sections of the sheets are reserved for entries or data of any character. The several sections forming each sheet will normally lie flat one upon the other when attached to the belt or carrier E, hence all the data written or printed on each sheet, together with the indicia at the head of each sheet, will be concealed, but when movement is transmitted to the belt or carrier the sheets will pass over the pulleys 12 and the sheets will there tend to spread or arrange themselves radially with relation to the axis of rotation of the pulleys 12. Due to the fact that they tend to radially arrange themselves around the pulleys 12, a certain degree of spacing between the sheets is secured. This spacing is, however, far from sufficient to expose the indicia portion of the respective sheets and means for exposing the indicia surfaces has accordingly been provided. The means employed will now be described.

By referring to Fig. 2, it will be noted that the central portion of the belt indicated at 15, which is soft and yielding, will at this point pass over the central pulley 9. This pulley is disposed at a higher elevation than the pulleys 12, or in other words in an eccentric position with relation to the same, and as such causes displacement or upward movement of the central portion 15 of the belt. The portion of the belt which is thus displaced enters into the central opening 24 formed in the lower edges of the sheets and as the lower portion of the flap 29, together with the lower edge of the intermediate section 28, normally lies in this opening they will be pushed upwardly by the belt, hence causing the intermediate sheet sections 27 and 28 to bend on the hinges or score lines indicated at 20 and 21, thereby forcing the portions 27*a* and 28*a* of the intermediate card sections to assume the angular position shown in Figs. 1 and 3. Due to the upward movement caused by the central portion of the belt, each individual sheet is opened or spread and the indicia carrying surfaces 27*a* are thus fully exposed so that the indicia and other data contained may be readily seen and read. The moment the belt, together with the sheets carried thereby, passes over the pulleys 9, the lower edges of the intermediate sheet sections 27 and 28 will move inwardly and the sheets will close, thus automatically restoring the indicia-carrying sections to concealed and flattened position.

The reason for forming the flap 29 on the lower edge of the intermediate sheet section 27 is twofold: First, it reinforces the lower edge which is engaged by the central portion of the belt, thus preventing indentation or destruction of the lower edges of the intermediate sections 27 and 28 which are engaged by the belt; and secondly, by forming the flap 29 an increased thickness of paper is provided at a point above the innermost edge 30 of the sheet. By referring to Fig. 1, it will be noted that the innermost edge of the sheet presents merely two thicknesses of paper, at a point a slight distance outwardly therefrom five thicknesses of paper are presented, and beyond that point only four thicknesses. Less thickness of paper at the innermost edges of the sheets permits the innermost edges to crowd together as the sheets are passing around the pulleys 12, while the increased thickness of five layers of paper at a point further out tends to spread the sheets and thereby radially position the same as they pass around the pulleys 12. It is desirable to radially position the sheets as they pass around the pulleys 12, as it is at this point that the sheets are automatically spread and opened to expose the indicia-carrying sections.

The sheet shown in Fig. 4 consists of three sections, a main back section 40, a front section 41, and an intermediate section 42. The blank from which the sheet is formed is scored along the lines indicated at 43, 44, 45 and 46, the score line 46 forming a flap 47 similar to that indicated at 29 in Fig. 3 to reinforce the lower edge of the intermediate section of the sheet, and also to provide an increased thickness of paper spaced outwardly with relation to the inner edge of the sheet. The score line 44 forms the folding line or hinge which connects the back section 40 and the intermediate section 42, and the score line 45 provides a hinge connection which permits angular positioning of the indicia-carrying surface indicated at 48. This sheet is also cut out centrally to form an opening 50 to receive the center portion of the belt and also to form retaining lugs, such as shown at 51. The sheet shown in Fig. 4 provides more surface for the entering of any data desired than the card shown in our copending application previously referred to, as it consists of three sections upon which data may be entered. The type of sheet shown in Fig. 3 is, however, preferable as it not only provides the greatest amount of surface for the reception of entries and data but it, furthermore, permits the greatest spread or opening of each individual sheet when the indicia is to be displayed.

The type of sheet shown in Fig. 4 permits only half the spread or opening obtained by the sheet shown in Fig. 3, as there are two sections of the latter which are angularly displayed when actuated by the center portion of the belt and the roller 9, while there is only one section which is angularly disposed in the sheet shown in Fig. 4 when actuated by the center portion of the belt and the roller 9.

The sheets shown in Figs. 3 and 4, besides having the advantages already described, may also function as carriers for loose-leaf sheets, that is, plain sheets may be slipped in endwise between the intermediate section and the back section, or between both of the intermediate sections and the back and front sections as in Fig.

3, hence permitting insertion of considerable additional matter after the entry or data carrying spaces have been completely filled.

In Figs. 8 and 9 another modified form of record sheet is shown. The sheet consists of three sections, to-wit, a main back section 60, a front section 61, and an intermediate section 62. The blank from which the sheet is formed is scored along the lines indicated at 63, 64, 65 and 66, the score line 63 forming a flap 67 which, together with the back section 60, is cut out to form a central opening 68 to receive the center portion of the belt and also to form retaining lugs 69. The score line 64 forms a connection between the back section and the intermediate section 62. The score line 65 divides the intermediate section into two sections 70 and 71, the second section 70 being provided for the reception of indicia, and the section 71 for the reception of entries, and the score line 66 forms a connection between the intermediate section and the front section 61.

The type of sheet shown in Fig. 8 may be unfolded, as shown in Fig. 9, and it may be ruled or lined, as shown at 72, to form spaces for varying entries, etc. This type of sheet is also ideal for use in the apparatus disclosed, as when a sheet reaches uppermost or display position, the sheet may be unfolded and flattened out, as shown in Fig. 7, and entries may thus be made on any selected sheet without removing it from the apparatus.

While certain features of the present invention are more or less specifically described, we wish it understood that various changes may be resorted to within the scope of the appended claims. Similarly, that the materials and finish of the several parts employed may be such as the manufacturer may decide, or varying conditions or uses may demand.

Having thus described our invention, what we claim and desire to secure by Letters Patent is—

1. A record sheet comprising a front and a back sheet, a hinge connection between the lower edges of said sheets, and a pair of spreader members interposed between the sheets, one spreader being hingedly connected to the upper edge of one sheet, and the other spreader being hingedly connected to the upper edge of the other sheet.

2. A record sheet comprising a front and a back sheet, a hinge connection between the lower edges of said sheets, an intermediate sheet hingedly connected to the upper edge of one of the first-named sheets, said intermediate sheet being divided into two sections, and a hinge connection between said sections to permit bending of the intermediate sheet and spreading of the front and back sheets with relation to each other.

3. A record sheet comprising a front and a back sheet, a hinge connection between the lower edges of said sheets, a pair of intermediate sheets, a hinge connection between the upper edge of the back sheet and one intermediate sheet, a hinge connection between the upper edge of the front sheet and the second intermediate sheet, said intermediate sheets being each divided into two sections, and a hinge connection on each intermediate sheet connecting the sections into which they are thus divided to permit bending of the intermediate sheets and spreading of the front and back sheets about their hinge connection.

4. A record sheet formed from one piece of material and folded to form a pair of outer sheets, and a pair of intermediate sheets, said folding of the material forming a hinge connection between the lower edges of the outer sheets and a hinge connection between the upper edges of the outer sheets and the upper edges of the intermediate sheets, and a fold in each intermediate sheet between the upper and lower edges thereof to divide each intermediate sheet into two sections and to form a hinge connection between said sections whereby the intermediate sheets may be bent to spread the outer sheets about their hinge connection.

5. A record sheet comprising a relatively long sheet folded to form a pair of outer sections and an intermediate section, said folding of the record sheet forming hinge connections between the sections, and means on the intermediate section functioning as a spreader to separate the outer sections.

6. A record sheet comprising a relatively long sheet folded to form a pair of outer sections and an intermediate section, said folding of the record sheet forming hinge connections between the sections, and a fold in the intermediate section between the upper and lower edges thereof to divide the intermediate section into two sections and to form a hinge connection between said sections, whereby the intermediate section may be bent to spread the outer sheets.

7. A record sheet comprising a front and a back sheet, a hinged connection between the lower edges of said sheets, a portion of each sheet and a portion of the hinge connecting the sheets being cut away to form an actuating opening, and a spreader member interposed between the sheets and projecting into said opening for actuation.

8. A record sheet comprising a front and a back sheet, a hinged connection between the lower edges of said sheets, a portion of each sheet and a portion of the hinge connecting the sheets being cut away to form an actuating opening, and a spreader member attached to one of the sheets and projecting into said opening for actuation.

9. A record sheet comprising a front and a back sheet, a hinged connection between the lower edges of said sheets, a portion of each sheet and a portion of the hinge connecting the sheets being cut away to form an actuating opening, and a spreader member attached to one of the sheets and projecting into said opening for actuation, said spreader member having a fold line adjacent its upper end and extending transversely thereof, said fold line causing the upper section to bend outwardly on an angle with relation to the sheet to which it is attached when the lower end of the spreader member is actuated and raised upwardly between the two sheets.

CLARENCE L. JOHNSTON.
MAX M. COHN.