

[54] **ELECTRICAL GRAPHIC MOISTURE
RETAINING RECORDING CASSETTE**

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[58] Field of Search **346/74 E, 74 ES, 74 S,
346/74 SB, 145; 242/197-200**

[56] **References Cited**

UNITED STATES PATENTS

3,545,004	12/1970	Alden	346/74 E
3,363,261	1/1968	Maiershofer	346/74 E

OTHER PUBLICATIONS

IBM Tech. Disc. Bulletin, Vol. 15, No. 2, p. 385, July, 1972.

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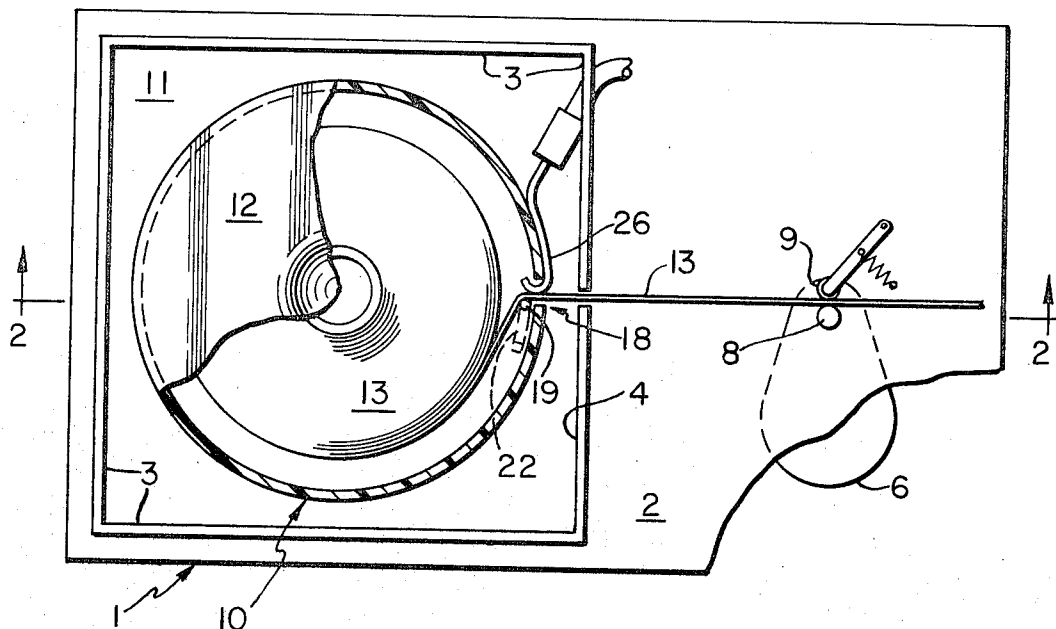
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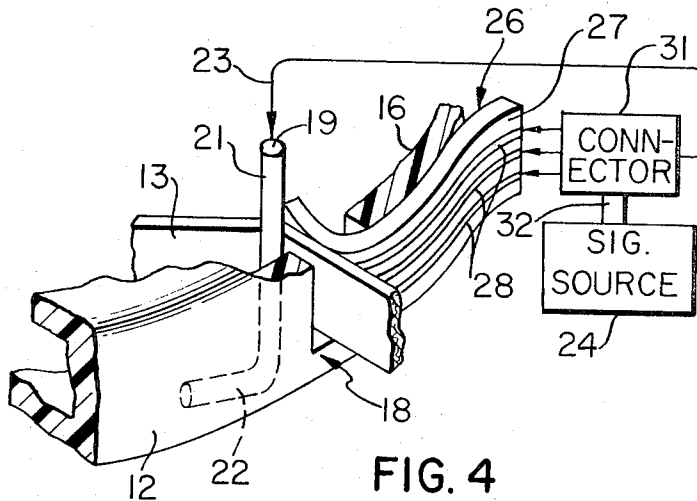
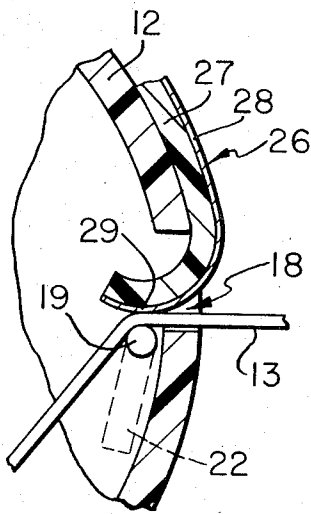
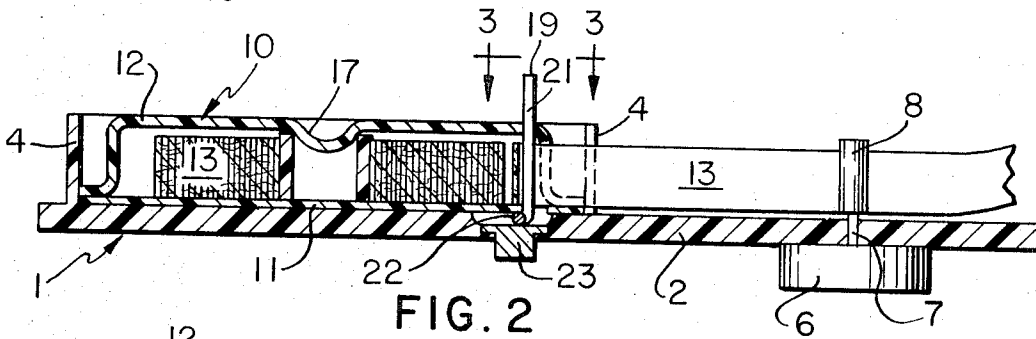
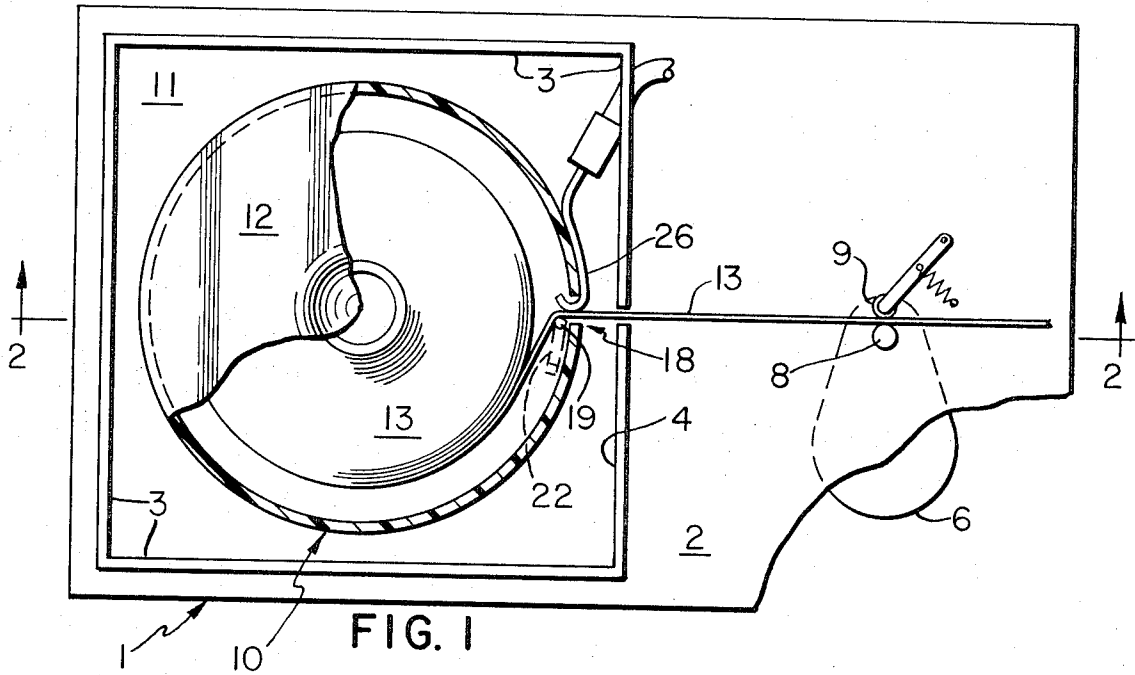
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ABSTRACT

A multi-channel electrolytic recorder using a disposable cassette comprises a flat base with an upstanding socket receiving a cassette. The cassette fits in the socket and has integral circular cover and sidewall portions around a compartment for a roll of moist recording paper. A wire electrode extends from underneath the lower sheet, where it makes contact with a terminal on the base, upwardly adjacent an exit for the paper formed by a slit in the sidewall. A printed series of parallel conductive lines on a flexible insulating sheet presses the paper against the wire electrode with which the sheet cooperates to mark the paper with electrical signals applied to the conductive lines. The printed sheet also closes the exit slit to retain the moisture in the paper.

12 Claims, 4 Drawing Figures





ELECTRICAL GRAPHIC MOISTURE RETAINING RECORDING CASSETTE

BACKGROUND OF THE INVENTION

In the facsimile art of marking electric signals on recording webs such as moist or dry papers the need has been long recognized for protecting the webs from exposure to the atmosphere to prevent contamination of the webs and, in the case of moist electrolytic papers, to retain moisture in the web. In facsimile and other graphic recorders this protection has been incorporated in the recording apparatus as is shown in U.S. Pat. No. 2,655,427 to Milton Alden wherein the electrode applying the electric marking signal to the paper also sealed a compartment in the apparatus from which the paper was drawn during recording. The recorder shown therein required an operator trained to maintain the marking electrodes and their physical relation to the recording paper. More modern facsimile recorders have been devised for operation by untrained personnel as shown in U.S. Pat. No. 3,545,004, which accept a throw-away paper cartridge including the marking electrodes. Such a cartridge may be dropped into a recorder and discarded when the paper supply is exhausted.

It is the object of the present invention to provide an improved, disposable cartridge or cassette for use in a graphic, electrical recorder.

SUMMARY OF THE INVENTION

According to the invention an electric graphic recording cassette comprises a roll of electric recording web, an enclosure confining the roll, an exit aperture for the web from said enclosure, a marking electrode at said aperture resiliently engaging the web, the aperture being the sole opening into the enclosure, and said electrode flexibly extending substantially across the aperture to close the aperture.

DRAWINGS

FIG. 1 is a plan view of a graphic recorder;
FIG. 2 is a section on line 2—2 of FIG. 1;
FIG. 3 is a section on line 3—3 of FIG. 2; and
FIG. 4 is an isometric view of a portion of the recorder.

DESCRIPTION

Shown in FIGS. 1 and 2 is a multi-channel electrolytic graphic recorder comprising a base 1 of any suitable, rigid insulative material including a bottom plate 2 having four upstanding walls 3 forming a rectangular socket 4. A paper feed motor 6 attached to the bottom plate 2 has a shaft 7 connected to a drive roll 8 opposed by a spring loaded idler roll 9.

The socket 4 formed by the base walls 3 receives a cassette 10. The cassette has an undersheet 11 of cardboard or other inexpensive sheet material on top of which is integrally attached a circular dome 12 molded of thermoplastic with a top 14 and a circumferential wall 16. The dome 12 forms an enclosure conforming to and enclosing a roll of recording paper strip 13. A dimple 17 engages the inside of the paper roll. The strip 13 extends through a single and only aperture 18 in the circumferential wall 16 of the enclosure 12.

At the aperture, either inside or outside, is a first electrode 19 having an upstanding linear portion 21 paralleling the aperture. The lower end of the electrode

19 forms a terminal 22 electrically engaging a contact 23 on the base 1. As shown schematically in FIG. 4, the first terminal 19 is connected through the contact 23 a source 24 electrical signals.

Also at the aperture is a second marking electrode 26 comprising a ribbon like sheet 27 of flexible plastic insulating material on which are deposited or printed by known techniques, a plurality of parallel metallic conducting strips 28 preferably flexible copper or alloy. While only three such conductive strips are shown by way of example, several or many such strips may be used. Three strips will, in cooperation with the first electrode mark three line records on the recording paper 13 similarly as in U.S. Pat. No. 2,785,942 to Milton Alden. Several closely spaced strips may be used to form a series of alphanumeric characters along the paper 13. Alpha-numeric and wide facsimile recordings may be made with eight to ten lines per inch, the total number of lines depending on the width of the facsimile copy transmitted.

In all such instances the flexible insulating support sheet 27 and conducting strips 28 resiliently engage the paper 13 to maintain good electrical contact therewith. Additionally the support sheet extends across the exit aperture 18, closing the aperture and thereby containing a moist atmosphere around the paper within the cassette, so that it does not dry out and lose its electrolytic property, even if recording is intermittent.

The conductive strips of second electrode 26 have recording portions 29 opposed to the upstanding part 21 first electrode 19, and being flexed in these portions, resiliently oppose the first electrode. Additionally the second electrode is flexed intermediate the recording portions and its other end which is coupled to a conventional printed circuit socket connector 31 and thence through a cable 32 to the signal source 24. If the second electrode were a stiff, linear plate the connector 31 would lie in the paper path or interfere with its easy feed. But a flexed electrode allows both cassette sealing and a wide choice of paper path outside the cassette.

It should be understood that the present disclosure is for the purpose of illustration only and that this invention includes all modifications and equivalents which fall within the scope of the appended claims.

I claim:

1. An electric graphic recording cassette comprising:
a roll of moist electric recording web,
an enclosure confining the roll,
an exit aperture for the web from said enclosure,

and
a marking electrode assembly supported on the enclosure at said aperture with a flexed side surface of the electrode resiliently engaging the web passing through the aperture,

the aperture being the sole opening into the enclosure, and said electrode assembly flexibly extending substantially across the aperture to form a moisture retaining barrier for the aperture.

2. A cassette according to claim 1 wherein said one electrode has an area substantially closing the aperture.

3. A cassette according to claim 2 wherein a second electrode is supported on the enclosure at the aperture and the area of the first said electrode comprises a flexible insulative support having a planar surface and a plurality of elongate, flexible conductive strips on the surface in insulative relation to each other and having recording portions opposed to the second electrode at

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a recording plane, the support and strips being flexed.

4. A cassette according to claim 3 wherein said strips have terminal portions for connection to a plurality of electric signal inputs, the support being flexed intermediate the recording portions and terminal portions so that the terminal portions are disposed for connection to signal input means out of the recording plane.

5. A cassette according to claim 3 wherein said one electrode is resiliently opposed by the second electrode extending transversely of the recording portions of the conductive strips.

6. A cassette according to claim 1 wherein the enclosure forms an integral, disposable unit attachable and detachable from a recorder base.

7. A cassette according to claim 6 wherein the enclosure is formed of thin sheet plastic material.

8. A cassette according to claim 6 in combination with a recorder base comprising means physically receiving and positioning the enclosure and feed means

for drawing the web from the enclosure past the marking electrodes.

9. A recorder according to claim 8 in combination with a signal source and means for connecting the source to the electrodes.

10. A recorder according to claim 9 wherein the web is a moist electrolytic paper, the closing of said exit aperture substantially retaining moisture with the enclosure.

11. A recorder according to claim 8 wherein the web is a moist electrolytic paper, the closing of said exit aperture substantially retaining moisture with the enclosure.

12. A recorder according to claim 1 wherein the web is a moist electrolytic paper, the closing of said exit aperture substantially retaining moisture with the enclosure.

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