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RECORDING DEVICE

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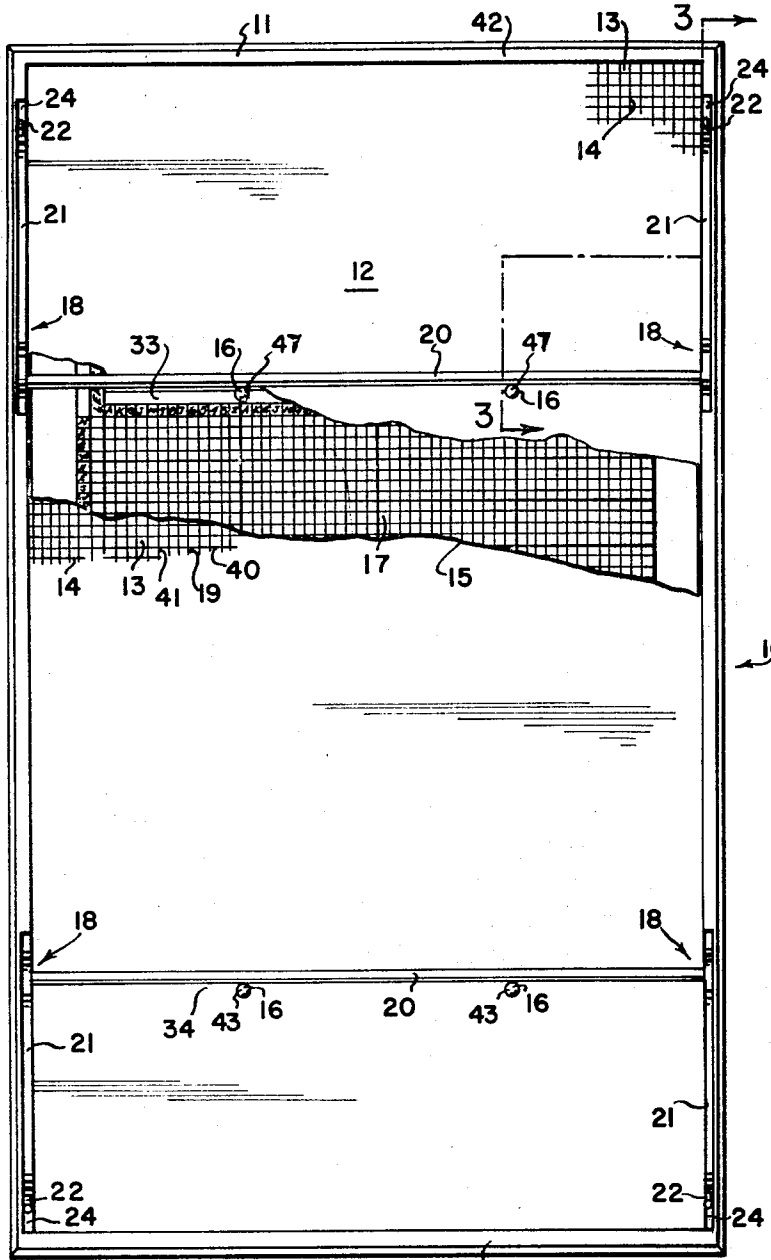


Fig. 1

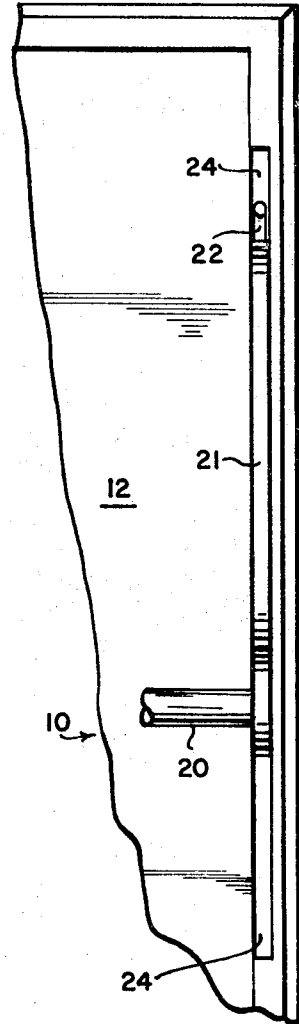


Fig. 2

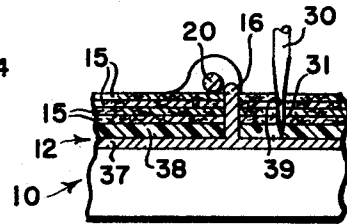


Fig. 4

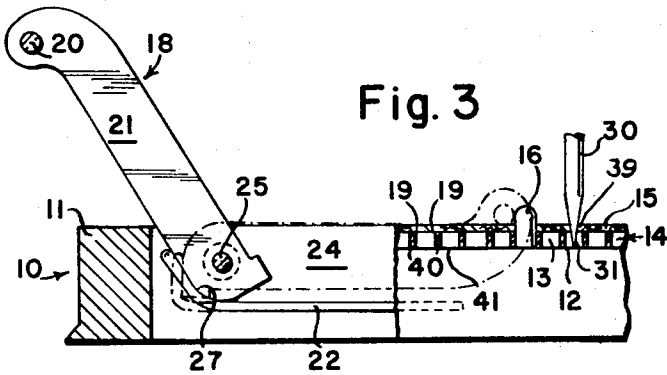


Fig. 3

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3,537,178

RECORDING DEVICE

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9 Claims

ABSTRACT OF THE DISCLOSURE

A recording device providing biased hold means for snugly holding a plurality of identical printed record sheets or cards, said hold means being adapted for quick release of said record sheets; pin and register hole means, cooperable with said hold means in the upper middle and lower middle of the record sheet proper thereby allowing free access of the record sheet perimeters to the manipulator of the recording device; and a backer element providing means to permit penetration of the point of a recording instrument such as a stylus. The backer element may be a thin layer of yieldable, resilient material, such as a foamed elastomer on a solid backing, or it may be a recessed or foraminous layer wherein said recesses or foramina will be positioned for register with the printed zones of the record sheets which are to be marked. In duplicate bridge, the game cards, played by each player in each trick, are recorded by the "dummy" player by piercing through at least one to four identical sheets at once, so that the manner and result of play is a permanent record for each player.

BACKGROUND OF THE INVENTION

It has been a problem in the record art, to provide a portable recording or scoring device which will be adapted to keeping a record, for example, of each meter read by a meter reader, or of each score or penalty by an umpire, or of each game piece or trick taken by each player in a relatively rapid-action game. Such a recording device used in a game should be adaptable for simultaneously marking a plurality of score sheets because each of the players is likely to benefit from his own copy of the game record. Study of such a game record will reveal, to even a relatively experienced player, the weaknesses of his game, the tendencies of his partners, etc.

Such a recording and scoring device must be easily manipulated and not so cumbersome to handle that the operator or the game is slowed down appreciably by its use. Moreover, the device should not require the use of carbon paper or other relatively expensive copy sheet material, which material would provide a manipulative encumbrance or a source of soiling hands, record sheet, or playing surface.

For a meter reader, surveyor, umpire, or other person desiring to make permanent records in the field, the device of the invention improves over a conventional clip board in having central register pins, upper and lower clamp bars, and a backer so constructed that each successive card can be permanently pierced to record information, regardless of weather and without danger of smudging or obliteration. The cards, or sheets, not being used can be stored in the recess under the frame, and the pierced cards can be introduced directly into punch type tabulating equipment without danger of error due to transfer of information.

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SUMMARY OF THE INVENTION

Therefore it is a principal object of the instant invention to provide a record and scoring device having means for holding at least one, and preferably a plurality, of record sheets in snug position during each game, allowing their quick release and quick substitution of new sheets and providing for their easy separation and distribution.

It is another object of the invention to provide a means for recording a plurality of record sheets simultaneously without resort to carbon paper or other extraneous aids, by merely piercing through appropriate printed box areas simultaneously on all of the sheets.

A further object of the invention is to provide a device for so holding a stack of identical, printed record sheets, that the stack can be pierced from top through the bottom without danger of mismarking due to shingling, wrinkling or curling of the sheets, and with the central critical portion of the sheets clamped firmly against a backer element.

FIG. 1 is a plan view of the recording device of the invention;

FIG. 2 is an enlarged plan view of a corner area of the recording device shown in FIG. 1;

FIG. 3 is a view along the line 3-3 of FIG. 1, showing the biased relationship between clamp arms and their biasing spring arms and with the handle clamp arms fully raised in full lines and in dotted line pressure applying position; and

FIG. 4 is a fragmentary view similar to FIG. 3, showing the preferred embodiment in which the backer is of yieldable, resilient sheet material.

Referring to FIG. 1, it is seen that recording device 10 comprises an integral frame 11, which can be formed of cast aluminum or the like. Supported on frame 11 is a backing member 12 comprising a metallic screen or grille 14. On grille 14 is held a plurality of identical unconnected record sheets 15. Grille 14 is selected of a mesh, the register holes 13 of which will generally correspond to the grid of printed boxes 17 on record sheets 15.

Record sheets 15 are held in place by a pattern of pins, preferably four upstanding pins, pegs or posts 16, which are set into frame 11 and have a sufficient height to protrude through the maximum number of sheets 15 which are likely to be mounted on device 10 at a given time.

Pins 16 avoid the need for positioning means such as a raised tray-type rim around the perimeter of sheets 15, and thus greatly facilitate the positioning on removal of the sheets from the device.

These pins 16 are desirably positioned with reference to particular sheets 15 to be used with device 10 so that the pins will not interfere with the portion of sheet 15 to be marked. The printed grid 17 thus includes a blank area 33 across the upper middle, and a similar blank area 34 across the lower middle, in which the pins are located and upon which the pressure cross bars to be described hereinafter are operable for mutual clamping action without interfering with marking on the grid 17. Moreover, such standard positioning allows the sheets to be pre-punched at the factory and avoids the necessity of punching and re-arranging the positioning of pins 16 at the playing table.

Once sheets 15 are precisely positioned with the aid of pins 16, they are snugly held in place by means of two

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clamp assemblies 18. Clamp assemblies 18 each comprise a crossbar 20, clamp arms 21, and spring arms 22. Clamp arms 21 and spring arms 22 are normally (that is in the recumbent stack-pressure position shown in FIG. 1) mounted in recesses 24 near each corner of frame 11.

Crossbar 20 is mounted in two clamp arms 21, which are in turn pivotally mounted on pins 25 which pins 25 are embedded in frame 11. So mounted, crossbar 20 may be easily lifted, swinging clamp arms 21 upwardly towards the position shown in FIG. 3. This upward movement is opposed by the biasing action of spring arms 22 and finally terminated by a locking action resulting from the upward curvature of spring arms 22 on the curvature of clamp arms 21 at point 27.

Spring arm 22 may be attached to recording device 10 in any number of ways. One convenient method of attachment has been to press fit the arms into recesses 24.

In operation in a game, the scorer will usually be a non-participant in the direct playing action. Normally, in bridge, the scorer will be the "dummy." As such he will place four scoring sheets 15 over pins 16, clamp down crossbars 20 to hold sheets 15 snugly against screen 14, and proceed to record each card as it is played. The record sheet, shown in part, provides a complete playing history of a thirteen trick hand, and a copy is distributed to each player on the completion of the hand. The dummy can easily achieve the accuracy and speed required to keep up with the play by using a stylus 30, with the point 31 of which he can pierce through all four sheets 15, the holes 13 of the grille 14, mounted under the grid 17 on the sheets, providing space for complete penetration of the lower sheets 15, so that they are as clearly marked as is the upper sheet, while the rim 19 of each hole, formed by the lateral cross bars 40 and longitudinal cross bars 41 of the grille, guides the point 31 into the centre of each hole.

The backing member, while advantageously a grille, is preferably of resilient, yieldable sheet material which will minimize the tendency of the point of the piercing instrument 30 to slip or slide during the scoring. A thin foam layer or sheet of polymer, for example a polyurethane foam sheet, has proved most satisfactory in this service when it is mounted on a metal or plastic plate to form the backing member.

As shown in FIG. 4, a backer member 12 may be in the form of a plate 37 of rigid material such as metal serving the support function of grille 14 and an overlying sheet 38 of resilient, yieldable material, such as polyurethane foam, or the equivalent. The point 31 of stylus 30 is enabled to form a clear aperture 39 in each of the four record sheets 15 and to penetrate into the sheet 38 down to the level of plate 37, thereby avoiding slippage and clearly marking the lower sheets with the same size holes 39 as in the upper sheets 15.

It will be noted that the bail-like clamp assemblies 18, when in upper position form convenient handles for the device 10 if it is desired to use it as a tray.

Preferably the pins 16 are in a predetermined pattern, wherein a first pair thereof, 47, are located well within the upper edge 42 of frame 11, in the upper middle portion designated 33, and the second pair 43 thereof are located well within the lower edge 44 of frame 11 in the lower middle portion designated 34.

It will be understood that the sheets 15 may be of any easily perforable material, such as paper, and that the resilient yieldable material is preferred as a backing member to avoid, when a pencil is used, the possible breaking of the pencil point during penetration of the sheet, or plurality of sheets, and while a relatively fast game is in progress.

What is claimed is:

1. A recording or scoring device comprising:

a flat rimless frame having a non-slip backing member for supporting at least one of a plurality of identical recording or scoring sheets, each having register

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holes only in the upper middle and lower middle portions thereof and each substantially co-extensive in area with said backing member;

a plurality of upstanding pins mounted on said member in the upper middle and lower middle portions thereof, and registering with said holes;

a pair of spring clamp assemblies each having a cross bar and each pivoted proximate one of the opposite ends of said frame to move from upstanding position to recumbent sheet pressure position with each said cross bar resting across an upper middle or lower middle portion of the uppermost face of said sheet proximate the adjacent said pins and stylus means for piercing said sheets.

2. A device as defined in claim 1 wherein said backing member has a surface of foamed polymer on a plate of rigid material, said polymer being yieldable and resilient for spring clamping said sheets in cooperation with said spring pressed cross bars.

3. A device as defined in claim 1 wherein said backing member comprises a grille of rigid material formed of lateral cross bars and longitudinal cross bars which define the rims of a plurality of recesses, said rims unyieldably supporting said sheets while guiding said stylus into said recesses.

4. A device as defined in claim 1 wherein said backing member comprises a rigid grille; each said recording or scoring sheet mounted thereon includes a grid of printed areas matching the holes of said grille and each said grid is free of printed areas in the vicinity of said register holes, pins and cross bars.

5. In a recording device the combination of:

a stack of identical, unconnected record sheets, each sheet having a predetermined printed, grid-like pattern thereon defining a multiplicity of small area recording spaces;

each sheet having a predetermined pattern of register holes in the upper middle and lower middle areas thereof;

a frame having a backing member for supporting said stack of sheets, said member having a pattern of upstanding pins in the upper middle and lower middle areas thereof, each registering with one of said holes for retaining said stack on said member against sidewise movement;

a sharp pointed marking instrument for simultaneously piercing through all of the sheets in said stack in desired spaces of said printed pattern;

recess means in said backing member for receiving the point of said instrument, to permit the bottom sheets in said stack to be properly pierced

and spring pressure clamping means pivotally mounted at opposite ends of said frame, and cooperable with said pins for pressing said upper middle and lower middle portions of said sheets firmly down on said pins and against said backing member.

6. A device as specified in claim 5 wherein:

said backing member is a layer of resilient, yieldable material overlying a plate of rigid material, said layer being of predetermined thickness to receive a substantial portion of the point of said instrument and thereby form said recess means while resiliently opposing the clamping pressure of said pressure clamping means.

7. A device as specified in claim 5 wherein said backing member is a grille formed of lateral and longitudinal cross members of unyieldable material, said cross members forming the rim of each said recess and supporting said sheets while guiding the sharp point of said instrument into said recess.

8. A device as specified in claim 5 wherein said spring pressure clamping means comprises a pair of pressure clamps, each pivoted proximate one of the opposite ends of said frame and each having a cross-bar extending

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transversely across the central portion of said stack of sheets to press the same, proximate said upstanding pins, against said backing.

9. A device as specified in claim 8 wherein:

said pattern of upstanding pins comprises a first pair of laterally spaced pins aligned transversely of said upper middle portion, and a second pair of laterally spaced pins aligned transversely of said lower middle portion of said stack of sheets, and

each said cross bar of said pressure clamps is located proximate but outside one said pair of pins to mutually clamp said sheets in position on said backing member.

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U.S. Cl. X.R.

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