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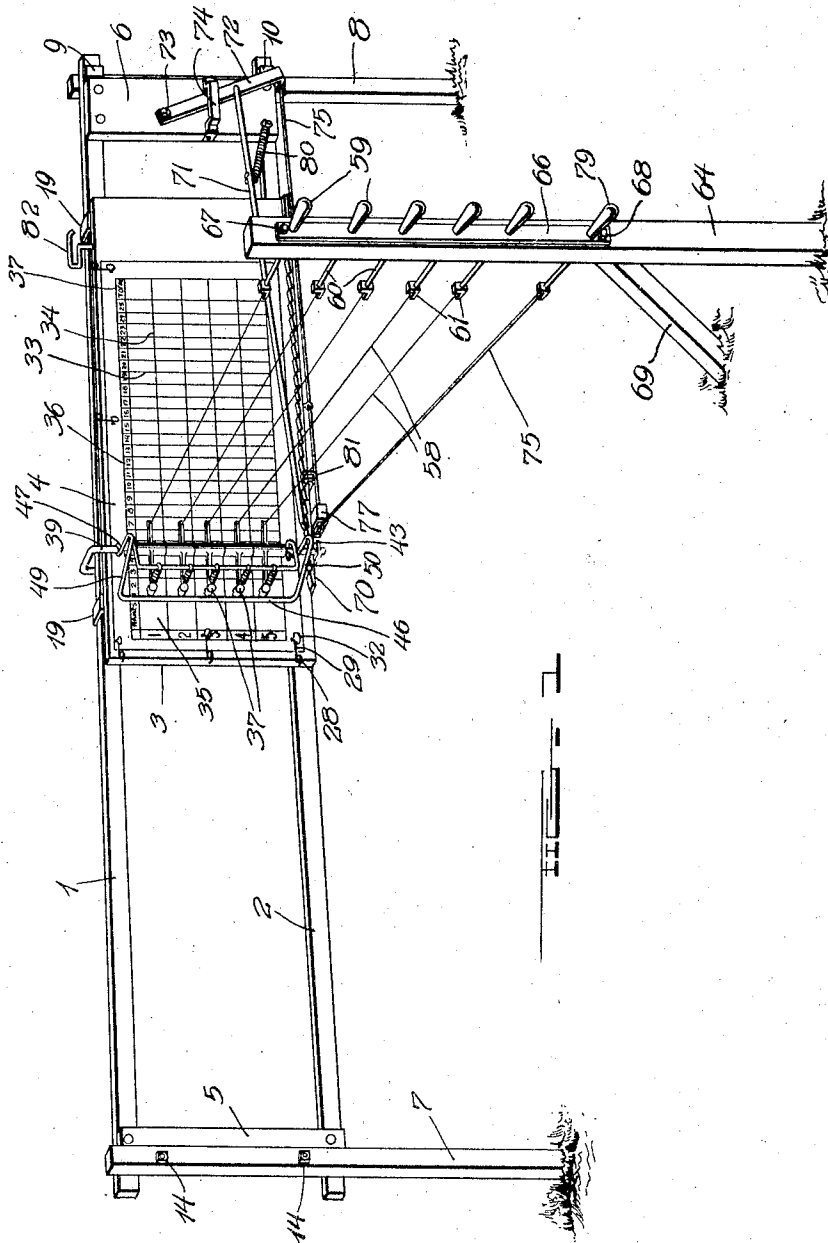
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SCOREBOARD FOR SHOOTING TOURNAMENTS

Filed April 6, 1922

4 Sheets-Sheet 1



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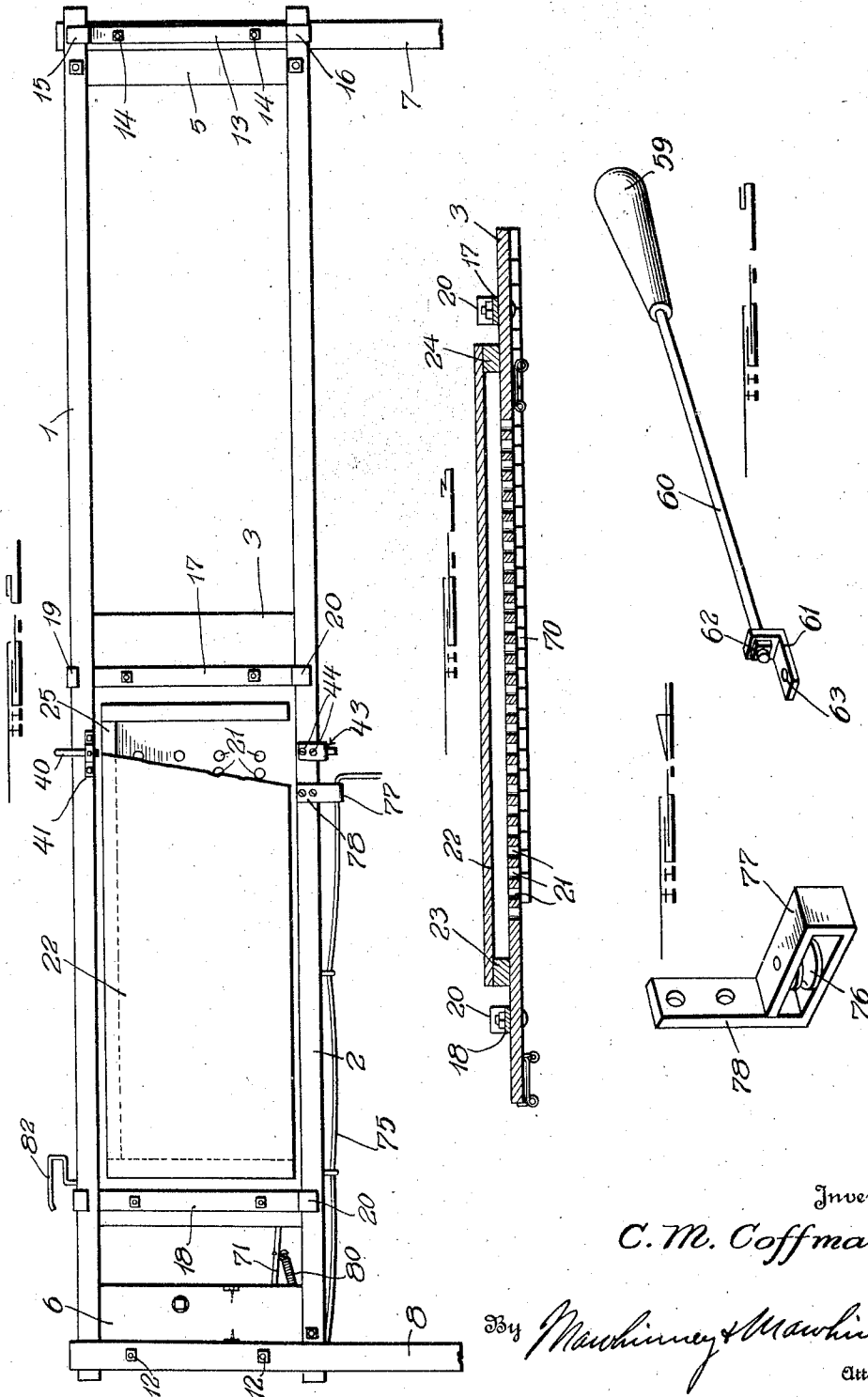
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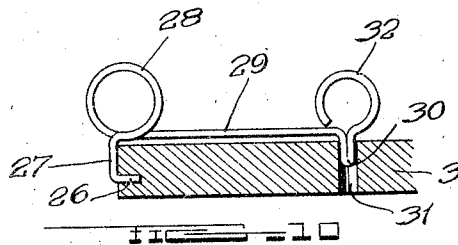
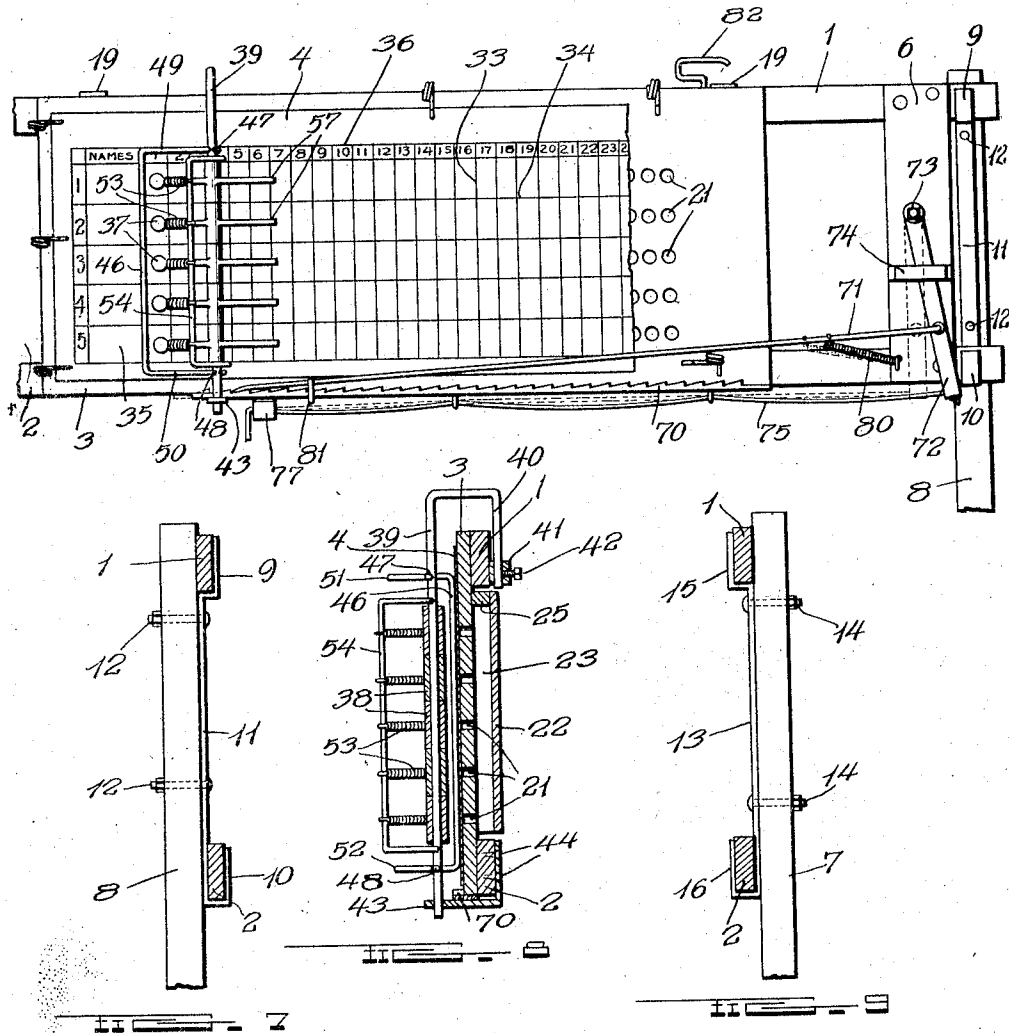
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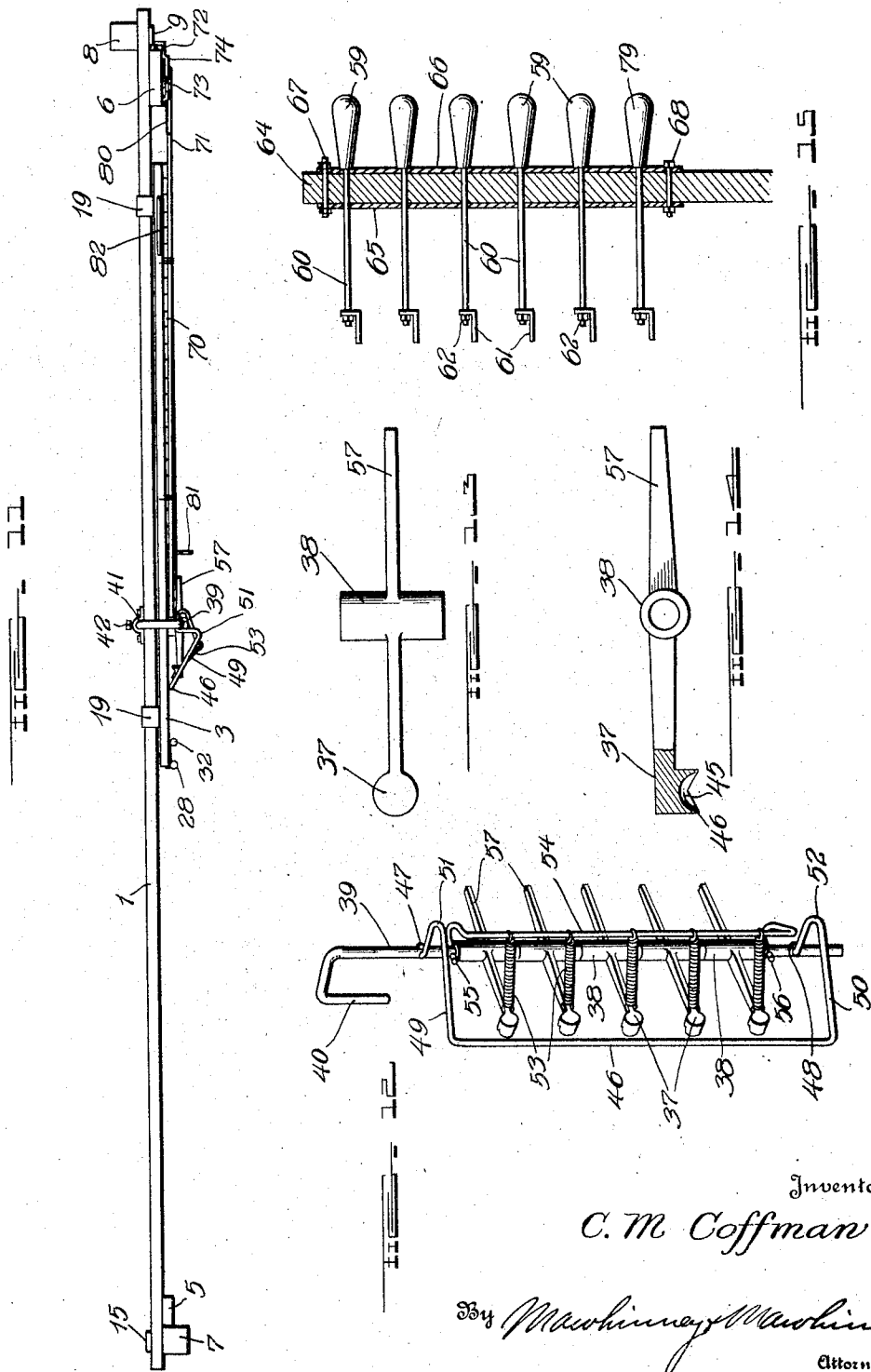
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SCOREBOARD FOR SHOOTING TOURNAMENTS

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4 Sheets-Sheet 4



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SCOREBOARD FOR SHOOTING TOURNAMENTS.

Application filed April 6, 1922. Serial No. 550,036.

To all whom it may concern:

Be it known that I, CHARLES M. COFFMAN, a citizen of the United States, residing at Gallipolis, in the county of Gallia and State of Ohio, have invented certain new and useful Improvements in Scoreboards for Shooting Tournaments, of which the following is a specification.

The present invention relates to improvements in mechanical score boards for trap shooting tournaments in which an accurate recording of the result of each shot may be mechanically made upon a tally sheet located in front of the firing line where it may come under the observation of all of the marksmen or shooters for their casual information whereby they may be at all times apprised of their scores without incurring the trouble and annoyance now experienced where the score is kept behind the firing line manually by a score keeper.

An object of the invention is to produce a device susceptible of being placed in front of the firing line in full view of the shooters but which is mechanically operated from a point in rear of the firing line to avoid any danger of stray shots to the operator of the device.

Another object of the invention resides in providing a score board capable of easy transmitting to and from the field, which may be readily set up in place for operation and removed to the interior for better preservation after the tournament; which is easily and quickly controlled and forms an accurate record of the marksman's aim.

Other objects of the invention are to provide a relatively inexpensive recording device of this character capable of holding a large tally sheet adapted to be perforated by series of mechanically controlled punches and being carried by a movable board also mechanically driven step by step past the punches to bring successively the subdivisions of the tally sheet in position before the punches, the movable board being so constructed and arranged in combination with the punches as to provide for ease in the placing of subsequent tally sheets thereon and in avoiding interference from the wind.

With the foregoing and other objects in view, the invention will be more fully described hereinafter, and will be more par-

ticularly pointed out in the claims appended hereto.

In the drawings, wherein like symbols refer to like or corresponding parts throughout the several views,

Fig. 1 is a perspective view of an improved score board constructed according to the present invention;

Fig. 2 is a rear elevation thereof with parts broken away;

Fig. 3 is an enlarged view taken through the improved board for carrying the tally sheet;

Fig. 4 is a perspective view of a pulley block employed;

Fig. 5 is a similar view of one of the handles;

Fig. 6 is a fragmentary front elevational view on an enlarged scale with parts broken away;

Fig. 7 is an end elevation showing one of the posts and the manner of fitting the frame therein;

Fig. 8 is a vertical sectional view taken transversely through the device and through the punch mechanism;

Fig. 9 is an end view of the opposite post showing the rails of the frame therein;

Fig. 10 is an enlarged fragmentary section of the removable board showing the spring attaching pins;

Fig. 11 is a top plan view of the device;

Fig. 12 is a perspective view of the gang of punches and analogous parts;

Fig. 13 is a plan view of one of the punches;

Fig. 14 is a side view of the same with the punch head shown in section; and,

Fig. 15 is a section through the handle supporting post with the handle shown in place therein.

Referring more particularly to the drawings, 1 and 2 designate, respectively, upper and lower rails of the substantially rectangular open frame in which the movable board 3 for carrying the tally sheet 4 is mounted. Bars 5 and 6 connect the ends of the rails 1 and 2 to complete the rectangular open framework and to reinforce and strengthen the structure. These end bars 5 and 6 are set inwardly from the extremities of the rails 1 and 2 in order to allow projecting ends for fitting in the clips support-

ed by the posts 7 and 8 which are driven into the ground a suitable distance and which are spaced widely apart in order to properly receive the ends of the relatively long frame-work. The posts are driven into the ground sufficiently to give the entire device a stable foundation and it is intended that the posts shall remain in the ground so that they may be driven there permanently, while the frame is made removable from the posts to enable it to be carried indoors after the tournament where it will not be subjected to the damaging influence of the weather.

It will be noted in Fig. 1 that the ends of the rails 1 and 2 at the left lie behind the post 7 while at the right, the ends of these rails are disposed in front of the post 8. This is important in assembling the score board upon the posts as the board may be simply fitted between the posts and then rotated in a horizontal direction to cause the ends of the frame to strike the posts which will make it easier to mount the board in place. The post 8, also shown in Fig. 7, is provided with clips 9 and 10 to receive the ends of the rails 1 and 2, these clips being bent or otherwise formed from the ends of a piece or strap or other metal 11 which lies along the front face of the post 8 and is secured thereto as by a suitable number of bolts 12.

In a similar way, the rear face of the opposite post 7, as more clearly appears in Fig. 9, carries a bar 13 secured thereto as by fastenings 14 and providing clips 15 and 16 in position to receive the opposite projecting ends of the frame rails 1 and 2. The clips are open at their upper ends so that the frame may be let downwardly thereinto without difficulty, and once in place, the weight of the device will insure its remaining rigidly in place.

Now the movable board 3 is equipped to slide horizontally along from right to left in the rectangular frame and to this end I find it convenient to furnish the rear side of the board with straps 17 and 18 of metal or other suitable material, as best shown in Fig. 2, the upper ends of these straps being overturned to provide upper clips 19 engaging over the upper rail 1 and forming hangers for the board 3; while the lower ends are bent out and downwardly to provide lower guide clips 20 which engage the rear face and upper edge of the lower frame rail 2 and also assist to support and direct the board in its progress.

This movable board 3 is constructed with numerous small perforations 21 for which see Figs. 2 and 3, each perforation adapted to lie behind a subdivision of the tally sheet 4 and in front of one of the punches as herein-after more fully referred to. The board is adapted to be closed at its rear by a back plate 22 of wood or other suitable material held spaced from the rear surface of the

board by strips 23 and 24 and as shown in Fig. 8, a third strip 25 is made to lie between the upper edge of the back plate 22 and the board 3 just beneath the upper rail 1. The construction just described forms an enclosed space in rear of the perforated portion of the board 3 and prevents the wind from blowing through the perforations and upon the paper tally sheet which would tend to drive it outwardly from the board and result in a failure of its sub-divided spaces to register accurately with the perforations 21. This enclosed space is however left open and free at the bottom to permit the small particles of paper cut from the score sheet by the punches to drop therethrough onto the ground.

The score or tally sheet 4 is held upon the board 3 in any suitable manner but preferably by the use of a number of spring fasteners such as shown to advantage in Fig. 10. These spring fasteners are, in the preferred form shown, made each of a single length of resilient wire having a terminal end 26 inserted through an edge of the board with a shank 27 bent at right angles thereto in order to lie parallel and in contact with such edge of the board. The shank is wound into one or more convolutions 28, the winding being effected in a left-hand direction. After completing the convolution or convolutions 28, the wire is carried across the outer surface of the board forming a bar 29 which engages the margin of the tally sheet 4 and the fastener is adapted to perforate the sheet and for this purpose carries at the free end of the bar 29 a prong 30 made by doubling the wire material and carrying it downwardly at right angles to the bar and in such position as to enter a perforation 31 in the board.

The free end of the bar 29 carries an eye or hand-hold 32 formed by looping the other terminal of the wire whereby to admit the finger when lifting the prong 30 out of the perforation 31. The coil 28 exerts a tendency to yieldingly restore this prong 30 to the position shown in Fig. 10. The tally sheet will bear indication marks such as dots made in pencil or ink along its margin to show where the fasteners are to enter the paper sheet in order that a proper centering of the tally sheet may be had upon the board, as otherwise the sub-divisions of the tally sheet will not accurately register with the punches.

As indicated in Fig. 1, the board is of such length in comparison with the other parts that the tally sheet 4 may be placed thereon in a substantially flat condition without having to insert it beneath the punches as this often results in folds and tearing in the paper.

The tally sheet 4 is provided with a space above for a heading in which the number of the event, the number of the squad and

the character of the target may be filled in in blank spaces left for this purpose. The tally sheet is ruled off with vertical and horizontal intersecting lines 33 and 34 to provide blocks or small sub-divisions in suitable columns. In the foremost column at the left appears the numbers 1 to 5 inclusive arranged vertically and beside spaces 35 for the names of the marksmen or shooters. Above the sub-divided part of the sheet is a horizontal column containing the numbers 1 to 25 and the last vertical column to the right indicated at 36 is provided for the totals.

The board with the tally sheet is advanced intermittently or step by step past a series of vertically disposed punches 37. These punches are provided with enlarged heads and with relatively elongated bearings 38 journaled one above the other upon a vertical rod 39 having a hook 40 at its upper end adapted to seat in a perforated ear 41 carried at the back of the upper rail 1, as shown in Fig. 8, and in which is threaded a set screw 42 to hold the rod 39 at a desired elevation and to secure its adjustment to bring the punch heads in line with the perforations 21 in the board.

The lower end of the rod 39 is, as shown in Fig. 8, inserted through a guide bracket 43 having its rear upwardly-turned end secured as by screws or other fastenings 44 to the rear side of the lower frame rail 2. The punch heads, as shown in Fig. 14, are made with concave operating faces 45 having sharpened edges 46 just slightly smaller than the perforations 21 in the board so as to cut out small disks from the sub-divided spaces on the tally sheet 4.

A smoothing bar 46 is carried by the rod 39, the rod being perforated to receive the ends 47 and 48 of right angular arms 49 and 50 which are bent from the smoothing bar 46. This bar and its arms are made of spring metal in order that it may yieldingly press against the tally sheet 4 and hold it tightly against the board in the punching operation, loops or wide bends 51 and 52 being provided in the arms 49 and 50 to enhance the resiliency. The plunger heads are normally drawn back or retracted to a normally inoperative position by the use of coil springs 53 attached between the heads and a bar 54 having bent ends 55 and 56 also inserted through perforations in the rod 39. The bar 54 is so arranged as not to interfere with the action of the smoothing bar 46 or of the plungers.

The plungers are provided with tail pieces 57 for attachment to wires or flexible connections 58 which are coupled to the handles 59 by which such punches are guided. As shown in Figs. 1 and 5, the handles 59 are formed with shanks 60 and carry metal angle clips 61 fixed at one end as by

nuts 62 to the shanks and being perforated as indicated at 63 to receive the ends of the wires or connections 58. In Fig. 15, the shanks 60 are shown as slidably received through a post 64 which, incidentally, is situated behind or at the firing line so as to enable the handles 59 to be operated without danger. Wear plates 65 and 66 are secured as by bolts or other fastenings 67 and 68 to opposite faces of the post 64, these wear plates being also perforated to receive the shanks 60 and to avoid any looseness or play occurring through premature wear which would result if the wooden posts 64 were not otherwise reinforced. The posts 64 may be braced if desired by a diagonal piece 69 as shown in Fig. 1.

Now the board 3 is advanced intermittently as heretofore stated and at each step it moves a distance corresponding to the distance between adjacent sub-divisions upon the tally sheet 4 in order to bring successive spaces into registry with its respective punch. For this purpose, the board at its lower edge carries a rack bar 70 having abrupt vertical walls at the right and inclined walls at the left to enable an elongated bar or pawl 71 to slide freely over the inclined surfaces toward the right but to take at its free end against the abrupt vertical shoulders or walls when swung to the left. The free end of this pawl rests loosely and by gravity upon the rack bar 70, while its other end is pivoted in a lever 72 fulcrumed at its upper end as indicated at 73 upon the cross piece 6 and being guided in its movements by a strap 74. The lower end of the lever is coupled to a rope, cord or other flexible connection 75 which runs parallel with the rack 70 until it arrives at a point approximately beneath the wires or flexible connections 58 from the punches. Here the cord 75 passes about a pulley 76 held in a pulley block 77 illustrated more particularly in Fig. 4, and having a hanger 78 perforated to receive fastenings by which it is held upon the lower rail 2 or other suitable part of the apparatus as shown in Fig. 2. The flexible cord 75 is carried forwardly and is secured by a clip to the shank of a handle 79 similar to the handles 59 and having a slidable bearing in the post 64.

A coil or other spring 80 is connected between the bar 71 and the cross piece 6 or other fixed part to draw the bar down into engagement with the rack bar and also to return the lever 72 to the initial position shown in Fig. 1. After each subsequent operation of the cord 75 therefore, the bar and its lever will be restored to an initial or origin position by the spring and will be placed in readiness for the next actuation. After the board 3 has been driven thus step by step across the entire frame and the recording has been made in the 25th column,

then the bar 71 is lifted from engagement with the rack 70 and laid aside in the rest 81 provided for that purpose in the positions shown in Figs. 1 and 6, and the handle 82 is grasped and the board pulled to the right without interference from the bar and the abrupt shoulders of the rack bar.

In the use of the device, it will be seen that the same provides for a twenty-five target event. Of course, a different arrangement might be made in which a smaller number of targets constitute an event, for instance in a one hundred and fifty target program there would be ten target or six 25 target events. The program may have any number of targets divided into events of 10, 15, 20, 25 or more targets in each event.

The tally sheet as shown provides for one squad of five marksmen or shooters. A substitute tally sheet will be provided upon the board 3 for each additional squad, the numbers of squads being regulated only by the number of shooters present at the tournament. Each shooter is designated by a number which appears in the extreme left vertical column of the tally sheet and his name is also placed in the vertical column 5 at the side of his number. When the tournament opens, the first squad comes to the traps or to position on the firing line and the scoring device is in the position shown in Fig. 1. Shooter No. 1 then aims at the target and fires and after the result of his shot has been announced, the score keeper records it in the first sub-divided space under the number 1. Should the first shooter have reached his target, then the score keeper will pull upon the uppermost handle 59 and cause the topmost punch 37 to perforate the tally sheet 4 in the sub-divided space referred to. The pulling upon the handle will also draw upon the upper flexible connection 58 causing the punch to swing upon its extended bearing upon the rod and resulting in its cutting edge 46 cleaving out a round disk from the score sheet which is deposited by the punch in the enclosed space back of the board where it may fall to the ground. In executing this action, the respective spring 53 is extended so that when the handle 59 is subsequently released, this spring will restore the parts to the initial position.

In like manner, shooter No. 2 then fires at the target and his aim is recorded if true by the second punch from the top. If he misses the target, no punch mark is made. In like manner shooters Nos. 3, 4 and 5 take their turn and the accuracy of their aim is recorded by the punches arranged opposite their name. After all five have fired at the target, the board 3 is advanced one step in order to bring column number 2 into registry with the gang of punches. This is

accomplished by the score keeper pulling upon the lowermost handle 79. As previously described this will actuate the lever 72 and bar 71, which, through engagement with the rack 70, will advance the board a distance equal to the distance between the sub-divided spaces on the tally sheet. The spring 80 will then return these parts to initial position, the free end of the bar 71 riding over the inclined walls of the rack teeth. The marksmen or shooters then change positions and take their turns at shooting at the second target, and their aim is recorded as heretofore by the perforated punch mark or the lack of it. This routine is gone through until the squad has had an opportunity to shoot at all twenty-five targets, whereupon this squad retires to give way to squad No. 2.

The board is then restored to the initial position shown in Fig. 1 by disengaging the bar 71 and manually pulling the board back to its original position. The score sheet 4 is then removed and replaced with a fresh sheet containing the names of the second squad. The conducting of the shooting is the same as described for squad No. 1, and subsequent squads taking their turn are acquainted immediately with the result of their marksmanship by the fact that the board is in full view in front of the firing line. The board therefore shows at a glance just what their score is.

The squads thus take their turn until the program is completed.

It will be appreciated from the foregoing that the improved score board provides for the accurate recording mechanically of each shooter's aim and success or failure and it keeps his record before each marksman or shooter and forms a permanent ineffaceable record upon the tally sheet made at the time the result of each shot is announced.

It will furthermore be appreciated that the improved score board is simple in operation and also actuated from a point behind the firing line without danger to the operator and with a great deal of ease and more promptly than records are now made.

Inasmuch as the standard 64 is subjected to little strain, the brace 69 may not be necessary but it will be understood that braces may be provided wherever needed and particularly beneath the center of the frame or board at approximately the position occupied by the punches. It is also to be understood that the misses of the marksmen may be recorded by punching the tally sheet and the hits may go unpunched as either this or the manner of use previously described would give the same result in recording the performance of each of the marksmen or shooters.

It is obvious that various changes and modifications may be made in the details of

construction and design of the above specifically described embodiment of this invention without departing from the spirit thereof, such changes and modifications being restricted only by the scope of the following claims:

What is claimed is:

1. A mechanical score board for trap shooting tournaments comprising a supporting frame set up in front of the firing line, a board for holding the score sheet mounted substantially vertically and for approximately horizontal movement in said supporting frame, a vertical series of punches mounted in front of the horizontal subdivisions on the score sheet, individual means connected separately to said punches and extending behind the firing line, and means separate and distinct from said last named means and also having an operating device extending behind the firing line whereby to advance said board the distance of one of the vertical subdivisions on the score sheets at each actuation.

2. A mechanical score board for trap shooting tournaments comprising a framework set up in front of the firing line and composed in part of upper and lower spaced apart rails, a board having straps to slidably support it upon said rails, said board adapted to receive a score sheet subdivided both vertically and horizontally, a vertical series of punches stationarily mounted in front of said board, means to operate the punches separately of one another from a point back of the firing line, a rack bar having inclined teeth extending along the lower edge of said board, an elongated pawl having its free end resting upon said teeth, and means at one side of the framework for supporting and actuating said pawl, said actuating means being operable from a point behind the firing line.

3. A mechanical score board for trap

shooting tournaments comprising a supporting framework, a board for holding a score sheet standing approximately vertically and mounted in said framework for approximately horizontal travel, punches in front of said board, operating means for the punches, an elongated rack having inclined teeth extending along the lower edge of said board and being affixed thereto and extending from the major portion of the board's length, a lever secured to one end of the framework, an elongated pawl pivoted to the lever and having its free end adapted to rest upon the inclined teeth of said rack, means extending behind the firing line for oscillating said lever.

4. A mechanical score board for trap shooting tournaments comprising a pair of posts erected out of alignment and having supporting clips extending from mutually opposite faces, a framework having protruding ends adapted to slip down into said clips, a board for holding a score sheet carried by said framework and having horizontal movement thereon, a gang of vertically disposed punches stationarily carried in front of said board, means for individually actuating the punches, and means for moving the board intermittently.

5. A mechanical score board for trap shooting tournaments comprising a framework, a board adapted to travel across said framework, a rod suspended in front of said board, punches pivoted on said rod, means for individually moving the punches, a smoothing bar adapted to extend close to said punches and to the board and having yieldable support from said rod, a second bar held by said rod in rear of the punches, and spring means between the punches and said second bar.

In testimony whereof I affix my signature.

CHARLES M. COFFMAN.