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(54) **GOLF TRAINING AID/SIMULATOR.**

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Description

This invention relates to a golf training aid/simulator, of which the most basic is individual booths provided at golf practice ranges, each booth comprising a fixed base covered by a mat along-side of which is provided a strip of artificial grass on which the ball can be placed to be hit.

An aid/simulator is known from US-A-3633917 of the kind comprising a base including a platform providing a standing area on which the user takes his stance in relation to a ball playing area, the platform being adjustably mounted so that it can be tilted to a position in relation to the ball the user wishes to practise or simulate, and drive means for tilting the platform to a selected position. It will be appreciated that such an aid/simulator has the advantage that the user can practise the complete range of shots likely to be met during an actual round of golf, i.e. an uphill, or downhill lie and with the ball lying level with, above, or below, the feet.

The object of this invention is to provide such an aid/simulator by which the user can readily assess his swing profile.

According to this invention, there is provided a golf training aid/simulator of the kind referred to above, which is characterised in that the platform is in one section and is mounted to overlie a plinth so as to be tiltable relative to the plinth, in that the standing area of the platform is defined by two marked areas corresponding to the user's foot position, in that pressure responsive devices are provided beneath said marked areas for detecting the weight distribution between respective feet during use, in that signals generated by the pressure responsive devices during a golfing swing are fed to comparator means to produce an output which is fed to balance indicator means for displaying the actual percentage of bodyweight taken by each foot at address and the actual transfer of weight during a swing, and in that a chart is provided to display the preferred balance and weight transfer required during a swing for each of the complete range of shots that can be achieved by tilting said platform, whereby the user can compare them with his actual results for assessing corrections that may be needed to his balance and swing.

An aid/simulator arrangement which incorporates pressure responsive devices for detecting weight distribution of the user's feet is known from US-A-4577868. However, this arrangement is limited to use where the initial weight distribution at the address position is evenly distributed, i.e. a level lie. Furthermore, its purpose is to control the tempo of the user's swing.

In accordance with the present invention, the aid/simulator enables the user's swing profile to be recorded, i.e. the user's weight transfer during a

complete swing, and for this profile to be compared with a preferred swing profile over a complete range of shots, i.e. all possible lies.

Preferably, said aid/simulator is further characterised in that, to effect said tilting, the platform is mounted centrally on a universal joint providing X and Y horizontal pivot axes, and at least one telescopic unit is provided for each axis, which units are arranged to act in concert with each other to cause the platform to tilt via the universal joint into a required tilt angle.

According to an advantageous feature of this invention, the training aid/simulator may be linked via a suitable Computer/CPU interface to a computer loaded with a software program providing data of a "golf course", whereby the user can simulate and practise a "round of golf" by the platform being tilted to the lie of the simulated landing position of the ball. In this case, as known in the art, an electronic sensing arrangement would be provided in the base to detect the speed and direction of the club head on impact with a ball so as to determine the landing position of the ball on the "course".

In order that the invention may be readily understood, and further features made apparent, one embodiment of a golf training simulator will now be described, with reference to the accompanying drawings, in which,

Figure 1 is a perspective view of the aid,

Figure 2 is another perspective view incorporating a security cover, and

Figures 3 (A) to (D) are perspective views showing the aid in use.

Referring to Figure 1, the aid comprises a rectangular base 1 having a tiltable platform 2 providing a ball playing area 3 and a standing area 4. At one, front, end of the base a pedestal 5 is provided on top of which a control panel 6 is mounted.

The platform 2 is of sheet metal appropriately stiffened by internal stiffeners (not shown) and a marginal flange 7 and is mounted on the base 1 via a folding bellows arrangement 8 to enable the platform to be tilted as described hereinafter and prevent the ingress of dirt. As shown the base, in turn, forms part of, or is mounted on, a plinth 9.

The platform and bellows are cut-away in the Figure to show that the platform 2 is centrally mounted on a vertically extending universal joint 10 the joint halves of which are mounted to pivot around two horizontal pivot axes X, Y whereby tilting can be effected around either axis or a combination of both to cover a complete range of "lies". At least one extending telescopic unit 11, 12 respectively is provided for each pivot axis, each of which is connected between the base and platform as shown and these units are connected by an

appropriate network of pipes if hydraulically or pneumatically operated, or wires if electrically operated, whereby they can be moved in unison by different amounts under the control of suitable control means to set the angle of tilt required for the platform 2. A rubber mat 13 or similar is provided over the standing area 4 and is marked with two outlines 14 to define the foot positions of the user. A control device, which may conveniently be in the form of a joystick 19 is provided on the panel which is operative through a suitable control circuit (not shown) to move the platform 2 as required by the user, in which case a scale (not shown) may be provided to give the user a visual indication of the tilt angle set.

Pressure sensing devices (not shown) are provided beneath the outlines 14 of the standing area 4, which are operative through a suitable comparator circuit (not shown) to sense the weight distribution between the golfer's feet when he addresses the practise ball and the weight transference during his swing, and to pass this information to a balance indicator which in this embodiment comprises a strip 17 of L.e.d's or similar visual indicators as shown along the front of the platform 2.

As mentioned hereinbefore, a chart strip (not shown) may also be provided to show the preferred weight distribution for comparison.

In this embodiment, a computer/CPU interface port 18 is provided on the pedestal 5 (or the control panel if preferred) for connection to a Computer to enable the user to play a simulated round of golf as mentioned hereinbefore. Also, a coin and/or card meter 19 may be provided by removable squares of "grass" of different height to simulate fairway, semi-rough and rough, as required. Alternatively, the different surfaces could be provided on three sides of a rotatable drum (not shown) mounted beneath the platform 2 in which case the appropriate surface would be rotated into position by a suitable operating member.

When not in use, the complete unit described above can be closed-off and locked by a pair of interfitting covers 20 as shown in Figure 2.

Referring to Figure 3, the platform 2 is shown tilted for practising

- (A) standing below the ball,
- (B) standing above the ball,
- (C) an uphill lie, and
- (D) a downhill lie.

Claims

1. A golf training aid/simulator comprising a base including a platform (2) providing a standing area on which the user takes his stance in relation to a ball playing area, the platform being adjustably mounted to that it can be

tilted to a position in relation to the ball the user wishes to practise or simulate, and drive means (11, 12) for tilting the platform to a selected position, characterised in that the platform is in one section and is mounted to overlie a plinth (9) so as to be tiltable relative to the plinth, in that the standing area of the platform is defined by two marked areas (14) corresponding to the user's foot position, in that pressure responsive devices are provided beneath said marked areas for detecting the weight distribution between respective feet during use, in that signals generated by the pressure responsive devices during a golfing swing are fed to comparator means to produce an output which is fed to balance indicator means for displaying the actual percentage of bodyweight taken by each foot at address and the actual transfer of weight during a swing, and in that a chart is provided to display the preferred balance and weight transfer required during a swing for each of the complete range of shots that can be achieved by tilting said platform, whereby the user can compare them with his actual results for assessing corrections that may be needed to his balance and swing.

2. An aid/simulator according to Claim 1, further characterised in that, to effect said tilting, the platform is mounted centrally on a universal joint (10) providing X and Y horizontal pivot axes, and at least one telescopic unit (11;12) is provided for each axis, which units are arranged to act in concert with each other to cause the platform to tilt via the universal joint into a required tilt angle.
3. An aid/simulator according to any preceding Claim, further characterised in that it is linked via a suitable Computer/CPU interface to a computer loaded with a software program providing data of a "golf course", whereby the user can practise a "round of golf" by the platform being tilted to the lie of the simulated landing position of the ball.

Patentansprüche

1. Golfübungshilfsmittel/Simulator mit einer Basis, die eine Plattform (2) enthält, die eine Standfläche bildet, auf der der Benutzer seine Haltung in Bezug auf einen Ball-Spielbereich einnimmt, wobei die Plattform (2) einstellbar montiert ist, so daß sie in Bezug auf den Ball in eine Position verschwenkbar ist, die der Benutzer üben oder simulieren möchte, und mit einer Antriebseinrichtung (11, 12) zum Verschwenken der Plattform (2) zu einer ausge-

wählten Position, dadurch gekennzeichnet, daß die Plattform (2) in einem einzigen Abschnitt und so montiert ist, daß sie sich oberhalb eines Sockels (9) befindet, so daß sie relativ zu dem Sockel (9) verschwenkbar ist, daß die Standfläche der Plattform (2) durch zwei markierte Bereiche (14) gebildet ist, die der Fußposition des Benutzers entsprechen, daß druckempfindliche Vorrichtungen unterhalb der markierten Bereiche (14) zur Detektierung der Gewichtsverteilung zwischen den entsprechenden Füßen während der Benutzung vorgesehen sind, daß durch die druckempfindlichen Vorrichtungen während eines Golfschwunges erzeugte Signale einer Vergleichereinrichtung zur Erzeugung eines Ausgangssignales zugeführt werden, das einer Balance-Anzeigeeinrichtung zur Anzeige des tatsächlichen Prozentsatzes des Körpergewichtes, das durch jeden Fuß beim Ansprechen aufgenommen wird, und der tatsächlichen Gewichtsübertragung während eines Schwunges zugeführt wird, und daß ein Diagramm erzeugt wird, um die bevorzugte Balance und Gewichtsübertragung anzuzeigen, die während eines Schwunges für jeden Abschlag des vollständigen Bereiches von Abschlägen gefordert wird, die durch Verschwenken der Plattform (2) erreicht werden können, wobei der Benutzer diese mit seinen tatsächlichen Ergebnissen vergleichen kann, um für seine Balance und seinen Schwung benötigte Korrekturen abschätzen zu können.

2. Golfübungshilfsmittel/Simulator nach Anspruch 1, ferner dadurch gekennzeichnet, daß die Plattform zur Ausführung der Verschwenkung mittig auf einem Universalgelenk (10) montiert ist, das horizontale X- und Y-Schwenkachsen bildet, und daß wenigstens eine teleskopierbare Einheit (11; 12) für jede Achse vorgesehen ist, wobei diese Einheiten so angeordnet sind, daß sie zusammenwirken, um die Plattform (2) über das Universalgelenk (10) in einen geforderten Schwenkwinkel zu verschwenken.
3. Golfübungshilfsmittel/Simulator nach einem der vorhergehenden Ansprüche, ferner dadurch gekennzeichnet, daß er über ein geeignetes Computer/CPU-Interface mit einem Computer verbunden ist, in den ein Softwareprogramm eingegeben ist, das Daten eines "Golfkurses" liefert, wobei der Benutzer eine "Golfrunde" dadurch üben kann, daß die Plattform (2) zur Lage der simulierten Landeposition des Balles verschwenkt wird.

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Revendications

1. Appareil de simulation et d'aide à l'entraînement au golf, comportant une base pourvue d'une plate-forme (2) présentant une zone de station sur laquelle l'utilisateur se met en posture de jeu par rapport à une zone de frappe de balle, la plate-forme étant montée de manière ajustable pour pouvoir être inclinée à une position voulue par rapport à la balle que l'utilisateur souhaite employer pour l'exercice ou la simulation, et des moyens d'actionnement (11,12) pour incliner la plate-forme jusqu'à une position sélectionnée, caractérisé en ce que la plate-forme est en une seule partie et montée en recouvrement d'un socle (9,) de manière inclinable par rapport au socle, en ce que la zone de station de la plate-forme est définie par deux zones marquées (14) correspondant à la position des pieds de l'utilisateur, en ce que des dispositifs sensibles à la pression sont prévus sous lesdites zones marquées pour détecter la répartition du poids entre les pieds pendant l'utilisation, en ce que des signaux produits par les dispositifs sensibles à la pression pendant un swing de golf sont délivrés à des moyens comparateurs pour produire un signal de sortie qui est délivré à des moyens indicateurs d'aplomb pour afficher le pourcentage effectif de poids corporel supporté par chaque pied lors de la visée et le transfert effectif de poids pendant un swing, et en ce qu'il est prévu un tableau pour afficher les valeurs préférées de balance et de transfert de poids qui sont requises pendant un swing pour chaque coup de toute la gamme des coups qu'on peut jouer en inclinant la plate-forme, de sorte que l'utilisateur peut comparer ces valeurs à son résultat effectif pour estimer les corrections à apporter à son aplomb et à son swing.
2. Appareil selon la revendication 1, caractérisé en outre en ce que pour effectuer ladite inclinaison, la plate-forme est montée en son centre sur un joint de cardan (10) présentant des axes horizontaux de pivotement X et Y, et en ce qu'il est prévu au moins une unité télescopique (11, 12) pour chaque axe, ces unités étant agencées pour agir de concert pour incliner la plate-forme à un angle d'inclinaison voulu sur le joint de cardan.
3. Appareil selon l'une des revendications précédentes, caractérisé en outre en ce qu'il est relié, à travers une interface appropriée ordinateur/unité centrale, à un ordinateur chargé avec un logiciel fournissant des données d'un "par-

cours de golf", grâce à quoi l'utilisateur peut s'exercer à un "tour de golf" en inclinant la plate-forme à l'assiette de la position simulée où la balle est tombée.

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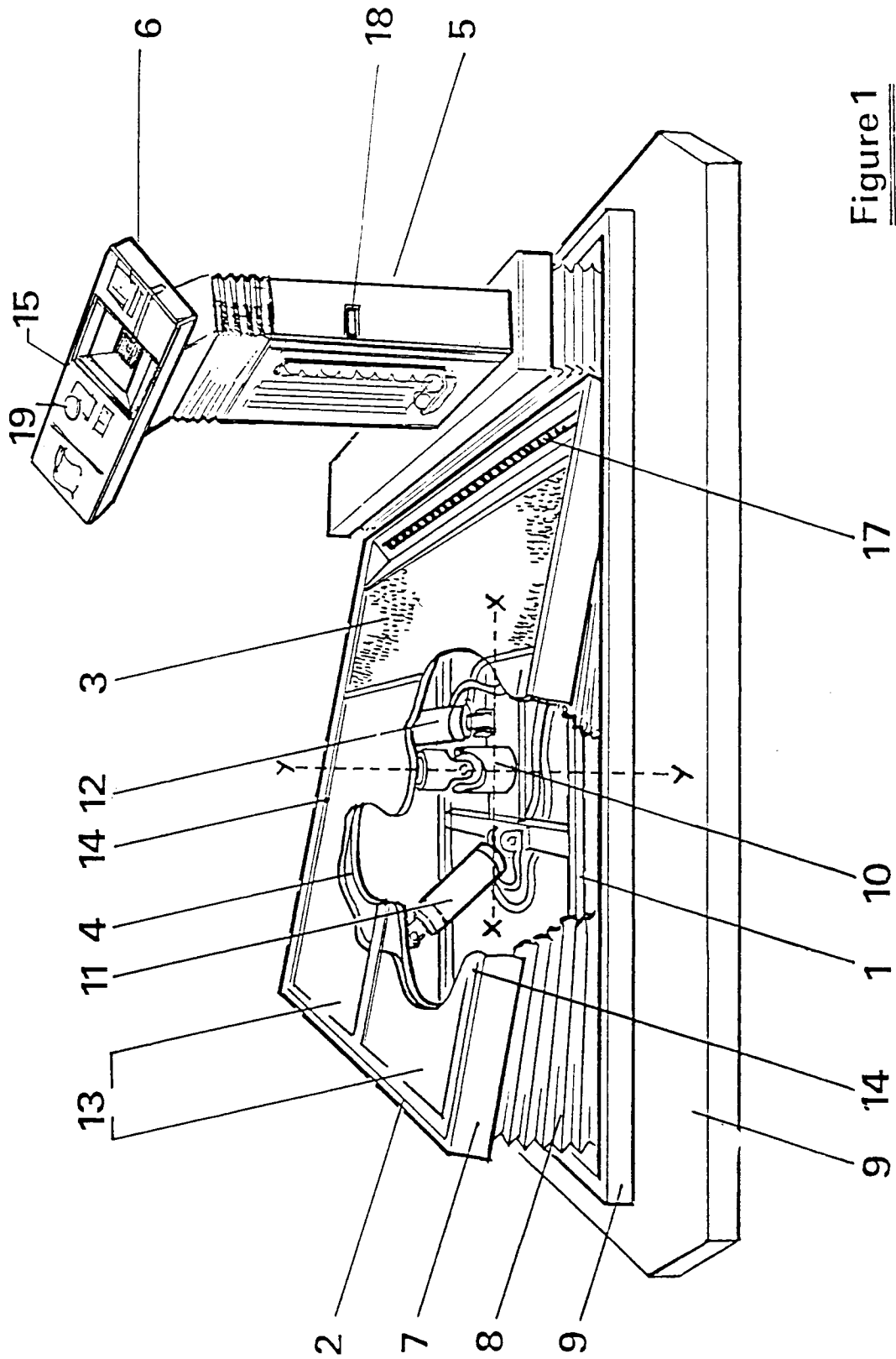


Figure 1

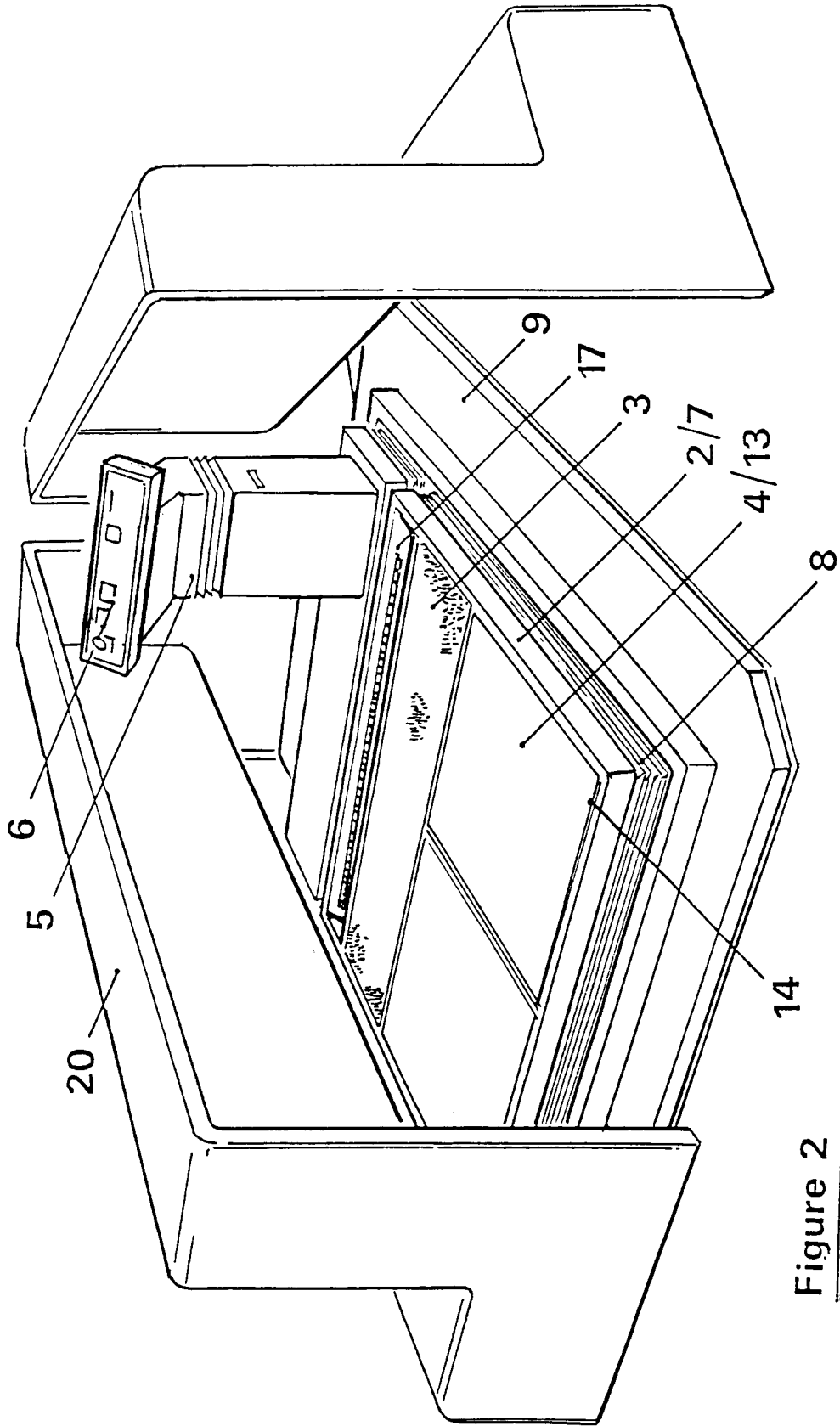


Figure 2

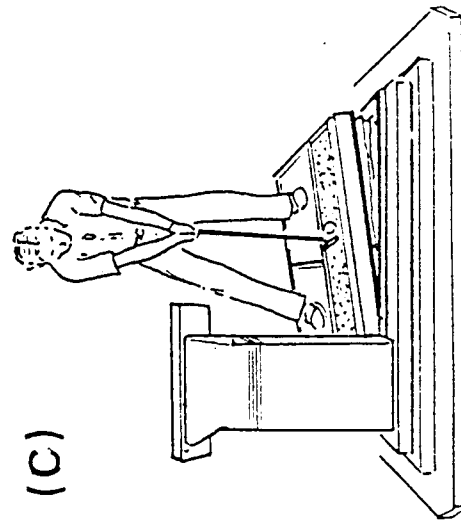
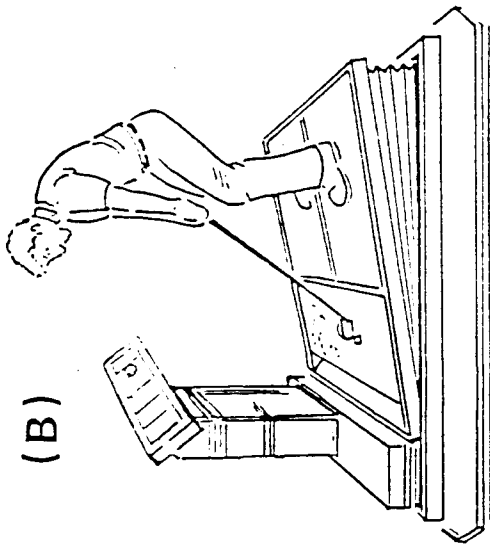
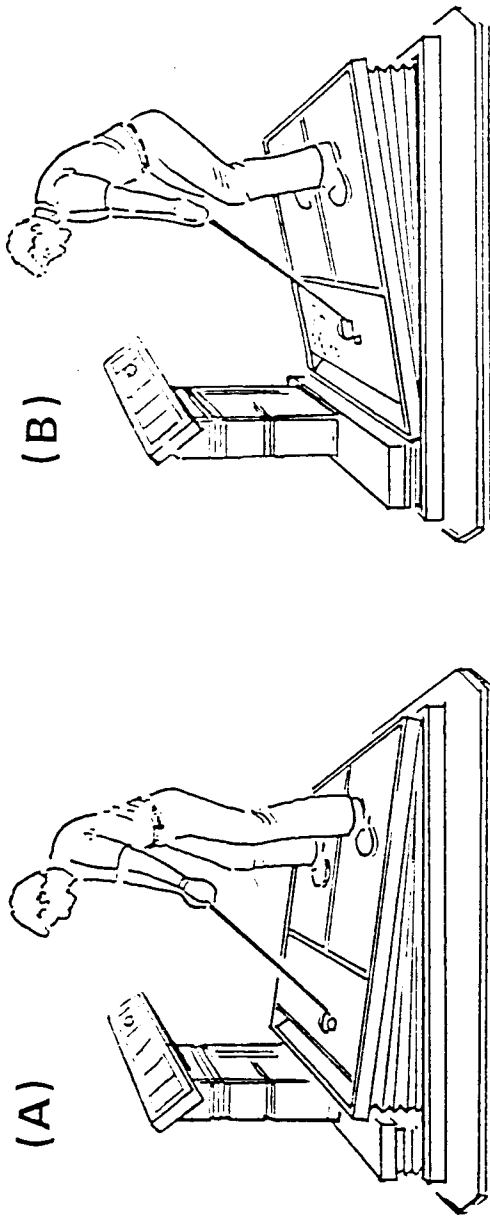


Figure 3