Oct. 1, 1963 D. E. CORNELL III 3,105,307

PORTABLE TEACHING MACHINES

Filed April 5, 1961 3 Sheets-Sheet 1

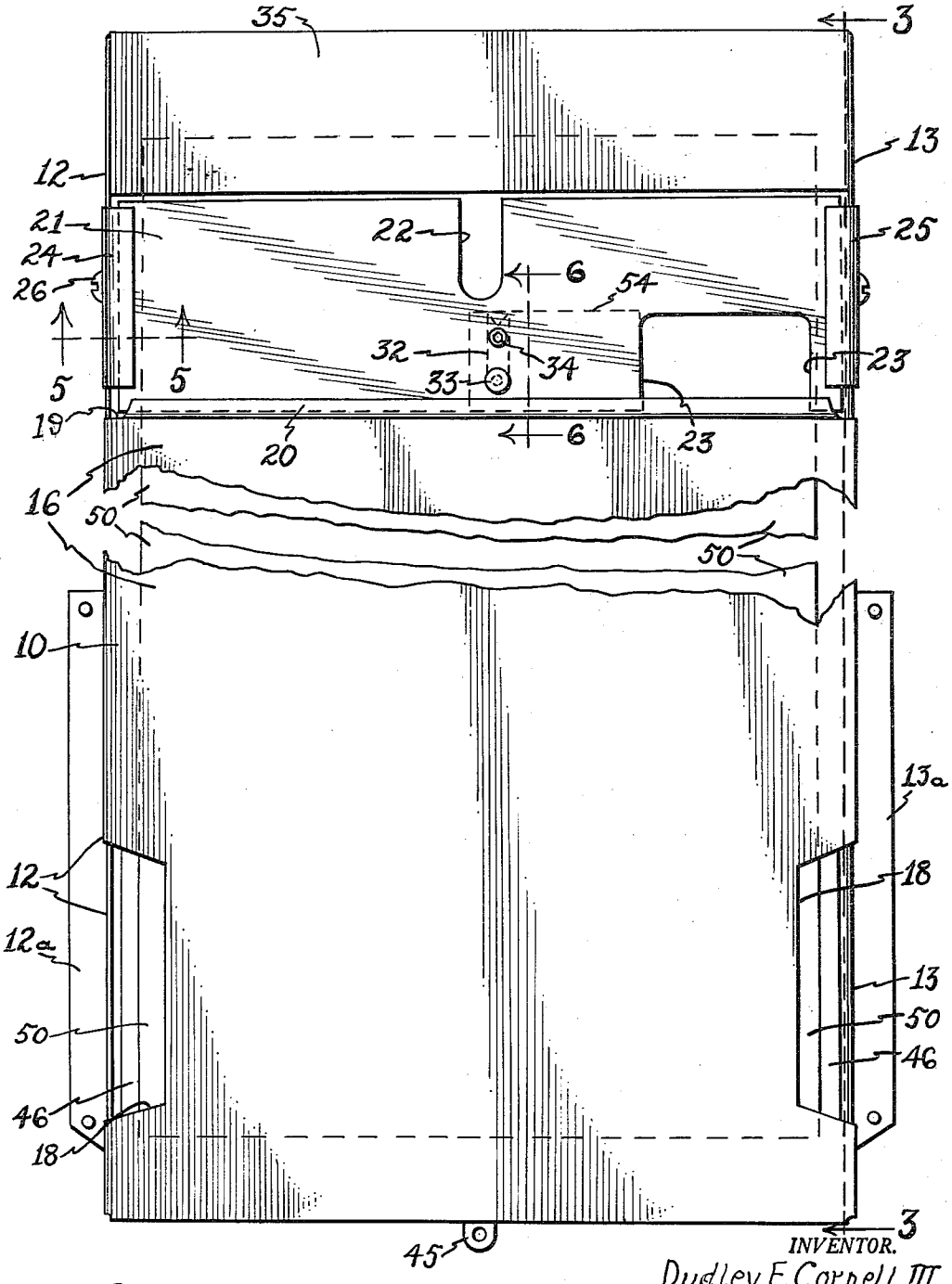

Fig 1

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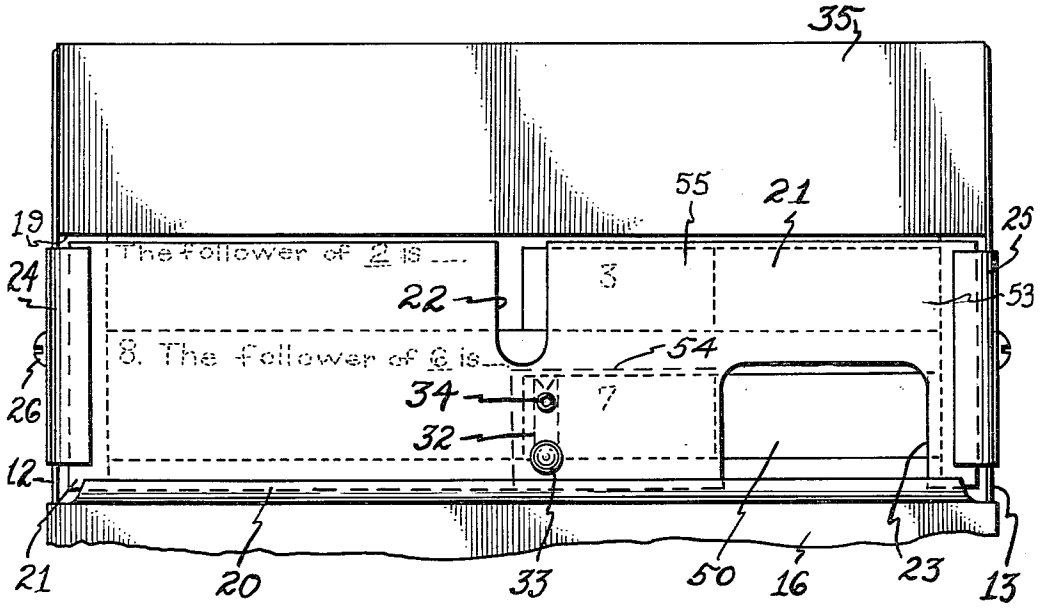

Fig 2

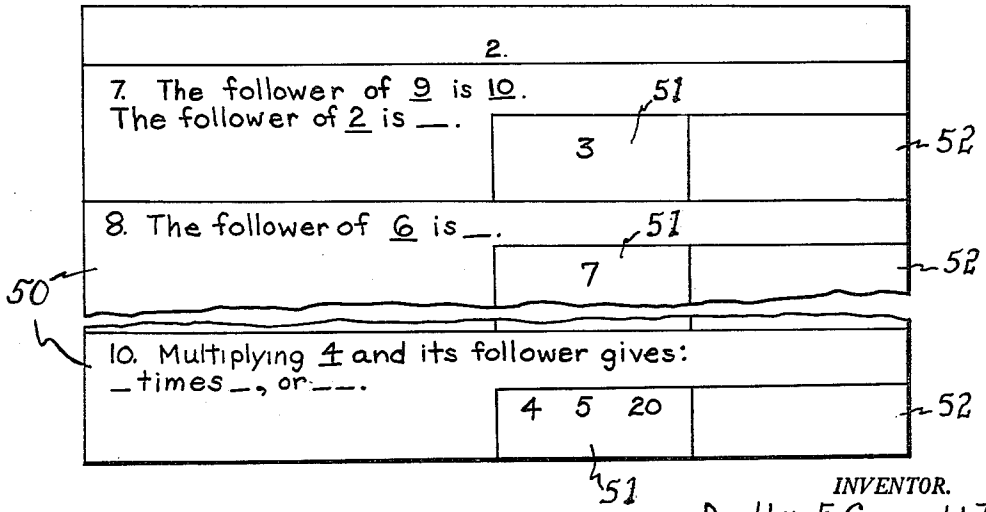

Fig 4

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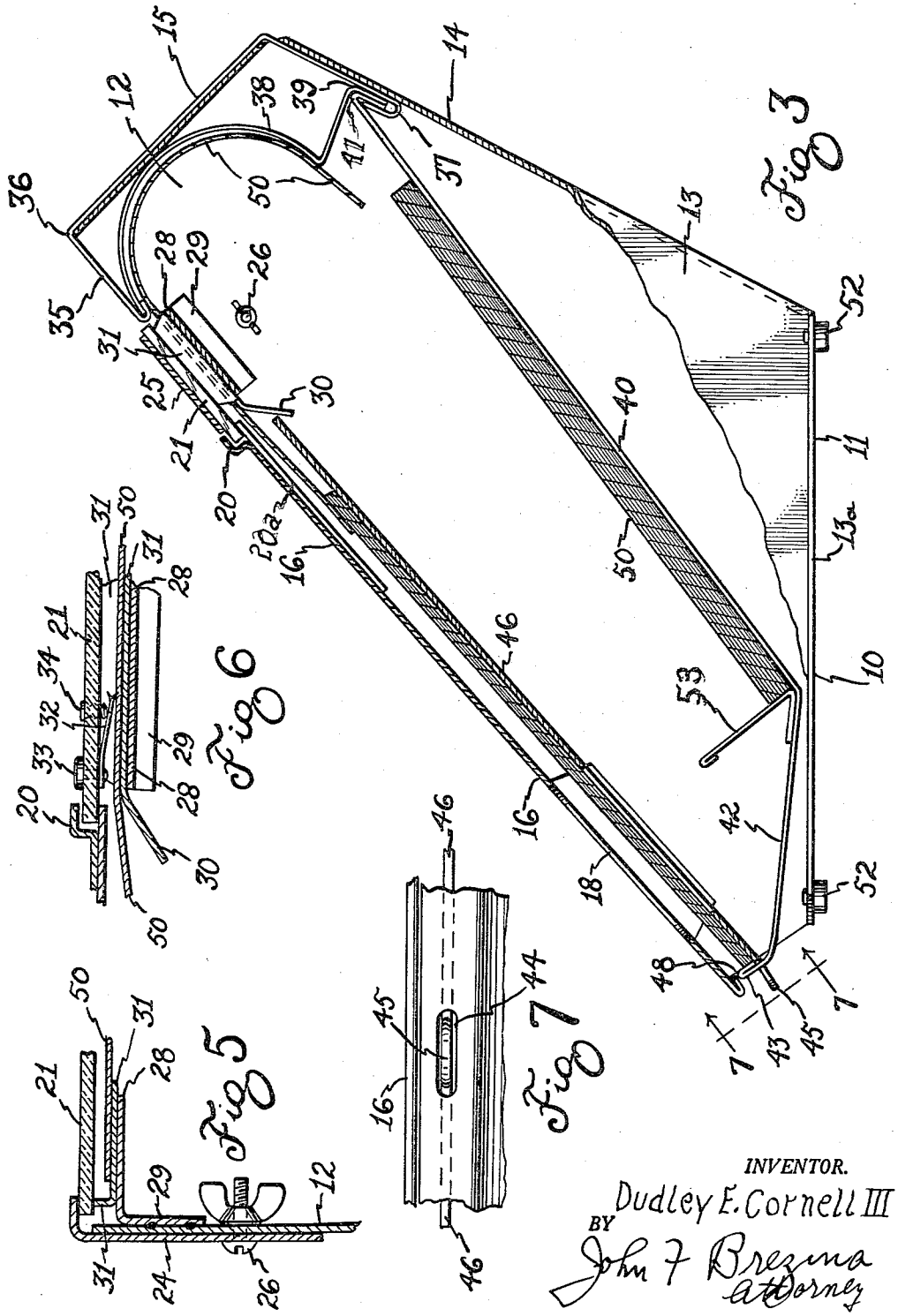

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PORTABLE TEACHING MACHINES

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7 Claims. (Cl. 35—9)

My invention is directed to portable teaching machines which are adapted to releasably hold sheets bearing questions and answers thereon and on which students record answers while the correct printed answers are concealed, and which has means for selectively moving the sheets in the machine for successive recording of answers upon certain exposed areas of said sheets.

Important objects and accomplishments of my invention are:

(*a*) To provide a portable relatively inexpensive and easily manufacturable teaching device or machine having a portable housing with an inclined front, passaged and slotted wall, a transversely extending window mounted on said forward wall having one or more slots therein; means for stacking and releasably holding a plurality of sheets below said forward wall, portions whereof are adapted to be displayed through said window and portions whereof are exposed for writing thereon; means providing for manual selective advancing movement of the uppermost of said sheets; means in said housing for guiding said sheets in an arcuate path to be delivered upon a shelf or rack in said housing; and means for opening and closing the bottom or lower portion of said housing to provide for selective access to the rack and sheets thereon within said housing.

(*b*) To provide a portable self-teaching machine and device including a portable housing having a forward transversely slotted and longitudinally slotted forward wall, and having an adjustable transparent slotted and recessed window mounted over the transfer slot of said forward wall and through which printed or reproduced data may be read, said recesses of said window providing for manual writing on sheets there-below; bracket and support means below said forward wall for supporting a plurality of superposed sheets; said window having means permitting selective forward advancement and sliding of the foremost sheet; spring means mounted below said window for slidably engaging the uppermost sheet and adapted to prevent retraction or backward sliding movement of said sheets; guide means in the upper portion of said cabinet for guiding the advanced sheets into the lower portion of said housing; and means for supporting a plurality of sheets in said housing and removably and pivotably mounted relative to said housing and providing for selective removal of said sheets on said inner support.

(*c*) To provide a portable easily operable teaching device which holds paper sheets or the like which bear printed questions and answers and blank spaces for writing answers thereon novelly positioned, and arranged to display one question or stimulus at a time and to shield from view the answer to the question and to expose an answering area, and having novel means for manual movement of the sheets and for guiding the forwardly moved sheets into a closed though openable chamber, said sheets to be stacked in such chamber for later removal; and having novel means for preventing retracting or reverse movement of the sheets to prevent any changes in previously written answers which are visible though obstructed by transparent panels or the like.

FIGURE 1 is a top planned view with an intermediate portion broken away and showing the normally inclined upper panel and associated parts of my novel teaching machine.

FIGURE 2 is an enlarged elevation view of the upper portion of my teaching machine with parts broken away and illustrating the transparent plate or window having a recess over the normal writing area.

FIGURE 3 is a cross sectional view, with parts broken away, taken on a vertical plane indicated by line 3—3 of FIGURE 1.

FIGURE 4 is a planned view of a typical sheet, bearing questions to be answered, printed or equivalentally reproduced thereon.

FIGURE 5 is an enlarged cross sectional view taken on a corner portion of my device as indicated on line 5—5 of FIGURE 1.

FIGURE 6 is an enlarged cross sectional view illustrating details of the paper holding and guiding means and portion of the window and taken on a vertical plane indicated by line 6—6 of FIGURE 1.

FIGURE 7 is an enlarged fragmentary view looking at the lower central end portion of the machine and illustrating the releasable means for holding and selectively locking the machine against removal of sheets therefrom and taken substantially on line 7—7 of FIGURE 3.

Referring to FIGURES 1, 2 and 3, reference numeral 10 designates generally a casing or housing having parallel side walls 12 and 13 integral therewith, and a large bottom opening 11 between the lower edges of said side walls.

Numeral 15 designates an upper inclined end wall whose rearmost edge portion is bent angularly downwardly to form a depending inwardly extending hook 37.

Numeral 14 designates a pair of inwardly extending flanges which are formed by inwardly bending at right angles the inclined rear portions of the side walls 12 and 13, one of said flanges being illustrated in FIGURE 3.

The upper portions of said flange 14 are connected to the hook portion 37 of the upper rear wall 15.

Numeral 16 designates an inclined forward panel or wall which has a pair of elongated longitudinally extending edge recesses 18 opening in opposite directions, and has a relative large transverse slot or opening 19 formed a short distance below the uppermost corner of said housing.

Said housing and said walls are preferably made of relatively thin metal, although the same may be made of plastic or equivalent material. Side walls 11 and 12 have their lower edges bent outwardly to form integral angular apertured flanges 13*a* and 12*a*, as shown in FIGURE 1. Said base flanges 12*a* and 13*a* have pads 52 secured by screws to the apertured portions thereof, as illustrated in FIGURE 3. The window opening or slot 19 extends from the forward edge of side wall 12 to the forward edge of the opposite side wall 13, as illustrated.

The upper edge of front panel has an outwardly offset angular flange 20. A separate metal plate 20*a* is secured by welding to the inside face of the front panel 16, to form a transverse upwardly opening slot, with the flange 20, which provides a slot and recess seat for the lower edge of a transparent panel or window 21, as illustrated in FIGURES 3 and 6.

Numeral 21 designates a flat relatively thin transparent panel or window, preferably of rectangular form and preferably made of clear plastic or glass and which has formed therein a relatively deep central recess or slot 22 opening on the upper edge portion thereof, as illustrated in FIGURES 1 and 2.

Said window or panel 21 has a lower downwardly opening relatively large recess 23 at its normally right hand end portion and preferably of substantially rectangular form, as illustrated in FIGURES 1 and 2.

Said recess 23 may vary in size and preferably extends about one-fourth the distance inward from the right edge of window 21, and is sufficient to permit a

user to write usual answers through it on the uppermost paper sheet supported below the same.

As shown in cross section in FIGURES 3, 5 and 6, a transverse metal supporting plate 28 has its opposite angularly bent ends 29 secured by welding to the opposite vertical side walls 12 and 13 of the housing 10.

The downwardly extending longitudinal edge portion of said plate 28 is bent downward to form a deflector and guide flange 30, as shown in FIGURE 3, and which flange is engaged by the upper edges of the sheets when same are pushed upward to guide the same. As shown in FIGURE 5, plate 28 has a pair of right angled brackets 31 secured to its opposite ends with the short legs of said brackets extending upwardly so that the same engage and support the window 21 a short distance above the uppermost sheet 50 of a group of sheets, one of which brackets 31 is shown in FIGURE 5.

Numerals 24 and 25 designate a pair of apertured metal brackets which are removably secured by screws or bolts 26, to suitably positioned apertures in the opposite side walls 12 and 13 and in position so that the upper legs of said brackets will overlie and releasably hold and engage the opposite ends of the transparent window panel 21.

Said transparent window panels 21 are accordingly removably mounted, and different panels having different sizes of writing recesses 23 may be selectively mounted in said position.

As illustrated in FIGURE 6, a flexible leaf spring 32 has one apertured end secured to window panel 21 by a rivet 33 so that it extends upward and inwardly so that its integral free end will slidably engage each uppermost sheet to permit each such sheet to be advanced and to prevent each uppermost sheet from being retracted and moved backward by students after they have seen the printed answer on the sheet. This prevents the possibility of the student changing his answer after the sheet has been advanced to positions wherein the written answer is obstructed though visible through the right end portion of the window panel 21.

I provide means for adjusting the tension of said spring 32 to vary its pressure against the paper sheets and this comprises an adjusting screw 34 which is threaded in the window panel in a position above the free end of the spring 32, as illustrated in FIGURE 6. It will be noted that the inner projecting end of said screw 34 bears against the intermediate portion of said spring 32.

Forward upper inclined wall portion 35 is parallel with front panel 16 and is preferably integral with and angular with the downwardly inclined upper end wall 15. End wall 15 is bent angularly downwardly as at 36 and its end is doubled back to form an inwardly opening hook 37 providing an upwardly opening slot or recess.

The guide means which I provide for guiding and stacking the paper sheets include a substantially semi-cylindrical and arcuate baffle or member 38 which has its upper edge preferably integral with the upper wall portion 35 and which has its inner edge portion bent angularly to form a mounting and anchoring flange 39, as illustrated in FIGURE 3. Mounting flange 39 is seated and held in the hook 37 as illustrated in FIGURE 3.

I provide removably mounted means for receiving and holding the advantaged sheets within the housing which permits selective removal of the sheets and which may be selectively locked to prevent such removal. This comprises an elongated metal supporting and stacking panel tray or holder 40 which has one end edge angularly bent to form an integral flange 41 which is loosely seated in hook 37 as shown in FIGURE 3.

The lower portion 42 of stacking panel or tray 40 is bent angularly at an obtuse angle and its extreme edge is doubled back to form a reinforcing edge 43. Holder portion 42 has a central slot 44 formed therein which is normally hooked over an apertured ear 45 formed on the lower end of the inclined inner paper supporting

panel 46 which is parallel to inclined front panel 16 and spaced inwardly therefrom. Between the lower end edge of front wall 16 and the lower end edge of support panel 46 is a paper loading slot or opening 48 which is preferably about one-half inch wide and extends from one side wall 12 to the other side wall 13 and through which a stack of printed lesson sheets 50 are inserted into the housing when the flexible panel 42 is disengaged and removed outward from the ear 45. It is to be understood that holder panel 42 and the paper supporting panel 40 are of thin sheet metal and sufficiently flexible to permit manual outward bending of panel 42 to remove its lower edge portion from the ear 45 and permit said paper support panel 40 and panel 42 to be swung or pivoted downwardly and in a counterclockwise direction and through the large opening in the bottom of the housing to thereby permit manual access and removal of the stacked paper sheets on stacking panel 40. The integral hook 41 of stacking panel 40 is sufficiently loose in the hook 37 to permit such pivoting movement of said panel 40.

The projecting ear 45 is apertured as indicated in FIGURE 1 so that a padlock may be mounted through said aperture when the stacking panel is in closed position, to thereby selectively restrict access to the papers within the machine only to teachers and authorized persons.

A metal angularly bent bracket 53 has its lower bent portion secured by welding to the inner face of the panel portion 42, as illustrated in FIGURE 3, and this forms a stop means which stops the downward sliding of the sheets when they fall on the support panel 40 and causes them to be evenly stacked in upside down positions.

It is to be understood that after the user writes on the writing areas 52 of the uppermost sheet his answers to the questions visible through the left hand portion of the window, the user will then advance the sheet a short distance. For example, by pushing the sheet upward and forward by inserting his pencil through the central slot 22 and pushing upwardly one length of the central slot this will result in the printed correct answers on the sheet (which have been obstructed by the masking member 54) to be made visible through the window portion 55 immediately above the masking member 54.

Thereupon the written answer has been positioned under the portion of the window designated as 53 in FIGURE 2 and the user is prevented from retracting or moving downwardly the said advanced sheet by the engagement of the leaf spring against said sheet as described.

The user will then advance the sheet upwardly by similar action to present to view the next question printed on the sheet and he can thereupon write his answer on the writing area of the paper within the writing recess 23.

The respective answers may accordingly be recorded to the respective questions on the sheet as described, and when the last answer of the last question on the sheet has been recorded the sheet will be in the bent arcuate position and partially over the upper portion of the stacking panel 40 on which it will drop by gravity into the inverted position to be stacked upon said supporting panel 40 in the manner illustrated. This dropping of the recorded sheet occurs as soon as the sheet has been advanced so that its lower edge passes and is disengaged by the spring 32.

When a teacher desires to check and grade the papers of students, the pivoted closure panel is opened by disengaging its lower slotted edge from the ear 45 and removing the stacked papers from within the machine. Where desired, the machine may be locked by the teacher after loading and such lock may later be released and removed only by the teachers when desired.

My aforesaid teaching machine provides great advantages in the saving of time by teachers and in permitting students to take and record various tests without assistance or instruction from teaching staffs and further pro-

vides an advantageous device for self-teaching and in acquisition of self-reliance.

While the foregoing specification sets forth the invention in specific terms, it is to be understood that numerous changes may be resorted to without departing from the spirit and scope of the invention as claimed hereinafter and it is contemplated that various changes may be made in the embodiment of the invention herein specifically described without departing from or sacrificing any of the advantages of the invention or any features thereof, and nothing herein shall be construed as limitations upon the invention, its concept or structural embodiment as to the whole or any part thereof except as defined in the appended claims.

I claim:

1. In a teaching device, a housing having a normally inclined front wall, said front wall having a transverse opening, a paper-supporting panel below said front wall for supporting paper sheets, an upper end wall inclined rearwardly and downwardly; an inner curved guide baffle mounted in said housing, a depending hook on said guide baffle, a pair of side walls; said housing having an enlarged lower opening, an inner pivotally mounted angular supporting panel for stacking paper sheets and having an inwardly supporting extending bracket and being pivotally connected to the upper portion of said housing, a window panel mounted in said transverse opening of said front wall and having a downwardly opened recess adjacent one end thereof exposing one of said sheets supported on said paper-supporting panel for writing on the sheet, and having a middle recess in its upper portion exposing said one sheet for frictional engagement therewith to advance the sheet incrementally toward said guide baffle; and spring means connected to the inside face of said window panel adapted to frictionally engage paper sheets on said paper-supporting panel to prevent retraction thereof, said one sheet being movable beyond said spring means and thereupon moving by gravity on said guide baffle to an inverted position on top of said stacking panel and sheets stacked thereon; and brackets on said side walls for holding said window panel in position.

2. In a teaching device, a housing having a normally inclined front wall and a transverse opening and holding brackets connected to said wall adjacent said opening; a paper-supporting panel below said front wall for supporting paper sheets; an upper end wall inclined downwardly; an inner curved guide baffle having a depending hook thereon; a pair of side walls; an inner pivotally mounted angular panel for stacking paper sheets and being pivotally connected to said hook; a window panel mounted in said transverse opening of said front wall and being partially masked and having a downwardly opened recess in one end portion thereof exposing one of said sheets supported on said paper-supporting panel for writing on the sheet, and having a middle edge-opening recess in its upper portion exposing said one sheet for frictional engagement therewith to advance the sheet incrementally toward said guide baffle, and a leaf spring connected to the inside face of said window panel adapted to frictionally engage paper sheets on said paper-supporting panel, said one sheet being movable beyond said spring and thereupon moving by gravity on said guide baffle to an inverted position on top of said stacking panel and sheets stacked thereon; said front wall panel having elongated recesses to permit manual forward pushing of the paper sheets up to said window panel.

3. In a portable teaching machine, a housing having a normally inclined front wall and a transverse opening and a flange adjacent said opening and having a large opening downwardly, an integral upper end wall, a back wall connected to said end wall and terminating in an integral hook, a pair of integral side walls, an inclined paper supporting panel for supporting paper sheets below said front wall; a curved paper guide baffle, an inner

pivotally mounted panel for stacking paper sheets and being pivotal downwardly through the said downward opening of said housing, a window panel mounted in said transverse opening of said front wall and having a lower recess exposing one of said sheets supported on said paper-supporting panel for writing on the sheet, and having a recess in its middle portion exposing said one sheet for frictional engagement therewith to advance the sheet incrementally toward said guide baffle, a leaf spring mounted on the inside face of said window panel and adapted to frictionally engage papers on said paper supporting panel, said front wall having elongated edge recesses to permit manual pushing of paper up to said window panel, said guide baffle being adapted to guide paper sheets to position said sheets in inverted position on said inner stacking panel.

4. In a teaching machine, a portable housing having an inclined front panel provided with a slot, a pair of opposite side walls, an upper end wall, a back, an inner panel mounted below said front panel and adapted to support sheets thereon, said sheets being successively slideable upwardly; means in said cabinet for guiding said sheets during their upward movement; means for preventing retractive movement of said sheets; a window mounted in said front panel slot, said window having a recess for exposing a part of the uppermost one of said sheets on said inner panel for writing; means on said window for obstructing the view of an inner portion of said sheet; said window having an upwardly extending slot therein to provide for selective upward sliding of the uppermost sheet; said window permitting reading of printed stimuli on portions of said sheet.

5. In a teaching device, a housing having a front wall and a pair of side walls and a connecting end wall and an enlarged transverse slot in said front wall and an enlarged lower and rear opening; a transparent panel removably mounted in said slot; a masking member on a part of said transparent panel, said transparent panel having a central slot and an enlarged opening adjacent one end thereof; a paper supporting panel mounted in said housing substantially parallel to said front wall; means in said housing for guiding sheets in a curved path and arcuately and downwardly; a sheet-receiving panel removably and pivotally mounted in said housing and being adapted to substantially close the rear and lower openings of said housing; means for releasably securing said sheet-receiving panel in normally closed position, said sheet-receiving panel being pivotal outwardly to provide for selective removal of sheets thereon; said enlarged opening in said transparent panel providing for writing of answers to questions exposed to view through said transparent panel, said slot in said transparent panel providing for advancing sheets of paper from said paper supporting panel incrementally under said transparent panel.

6. In a teaching device, a housing having a front slotted wall and connected side walls and a connecting end wall and an enlarged transverse slot in said front wall; a transparent panel removably mounted over said slot; a masking member obstructing a part of said transparent panel, said transparent panel having a central slot and an enlarged opening at one end thereof; a paper sheet supporting panel mounted in said housing substantially parallel to said front wall; said housing being open in its lower portion; a sheet-receiving panel removably and pivotally mounted in said housing and being adapted to substantially close the lower opening of said housing; means for releasably securing said sheet-receiving panel in normally closed position, said sheet-receiving panel being pivotal outwardly to provide for selective removal of sheets therefrom; said enlarged opening in said transparent panel providing for writing of answers on sheets below said transparent panel to questions exposed to view through said transparent panel, said slot in said transparent panel providing for advancing sheets of paper from said paper supporting panel incrementally under said transparent panel; and means for re-

leasably locking said sheet-receiving panel in closed position.

7. In a teaching device, a housing having a front slotted wall and connected side walls and a connecting end wall and an enlarged transverse slot in said front wall; a transparent panel removably mounted over said slot; a masking member obstructing a part of said transparent panel, said transparent panel having a central slot and an enlarged opening at one end thereof; a support for paper sheets mounted below said transparent panel; said opening in said transparent panel exposing one of said sheets on said support for writing on the sheet, said slot in said transparent panel exposing said one sheet for advancing it under said transparent panel; said housing having a large lower opening; means in said housing for closing said lower opening and for supporting a plurality of paper sheets thereon; and means for pivotally mounting said last mentioned means to provide for selective opening thereof.

References Cited in the file of this patent

UNITED STATES PATENTS

1,302,719	Schaff	May 6, 1919
2,169,266	Matter	Aug. 15, 1939
2,340,251	Nesbit	Jan. 25, 1944
2,707,115	Rolleston	Apr. 26, 1955
3,056,215	Skinner	Oct. 2, 1962

OTHER REFERENCES

"Machine Is Teacher," Washington Post and Times Herald (newspaper, Washington, D.C.), Friday, March 6, 1959 (page B2).