April 24, 1962 S. ABSECK ETAL 3,030,923

MACHINE FOR HANDLING MACHINE SHORTHAND NOTE PAPER

Filed March 1, 1957 2 Sheets-Sheet 1

Fig. 1

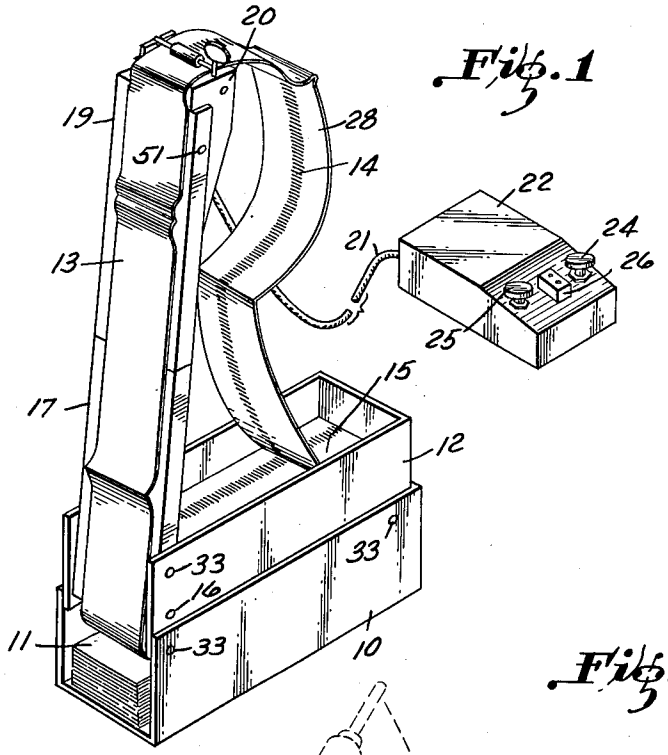


Fig. 2

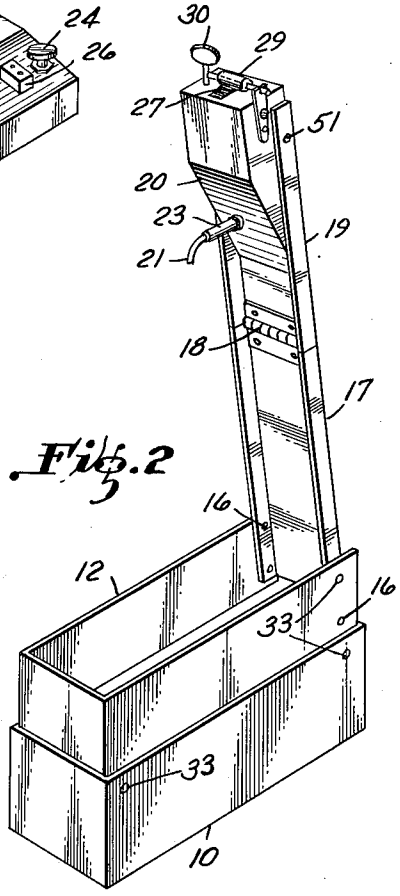
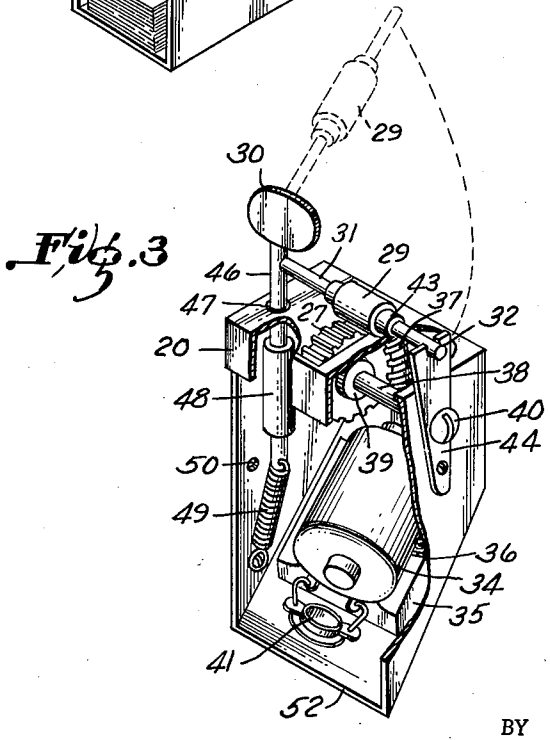


Fig. 3



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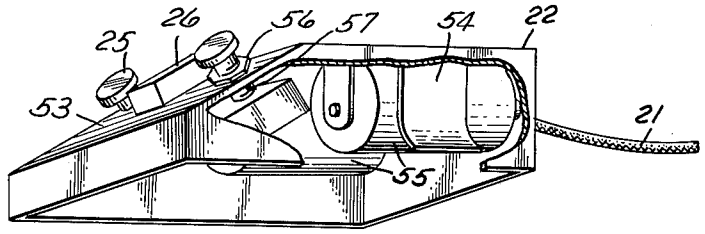
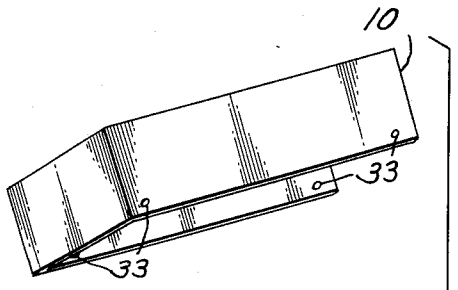


Fig. 4



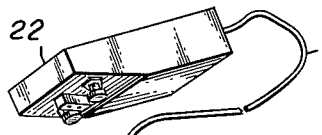
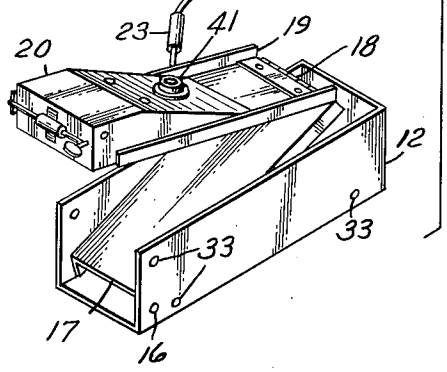


Fig. 5



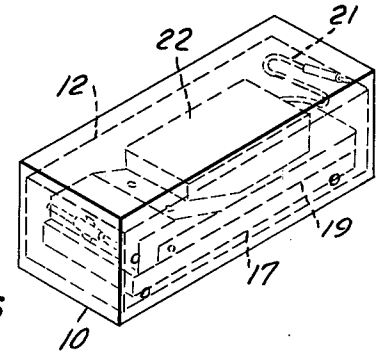


Fig. 6

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3,030,923

MACHINE FOR HANDLING MACHINE SHORTHAND NOTE PAPER

Stuart Abseck and Julius Rehfield, New York, N.Y., assignors, by direct and mesne assignments, of two-thirds to James M. Heilman, Rye, N.Y., and one-third to Marjorie Kingston, Flushing, N.Y.

Filed Mar. 1, 1957, Ser. No. 643,363
4 Claims. (Cl. 120—30)

Our invention relates to an improved and simplified portable machine for use in handling the continuous strip of folded paper upon which notes are taken in shorthand machines. This machine of our invention enables an operator at his typewriter to transcribe said notes without removing his hands or attention from his typewriter or touching said continuous strip of paper in any way.

Our invention performs the basic function of the various prior art devices known to us and specifically the basic function of the devices bearing U.S. Patent No. 2,737,156, and U.S. Patent No. 2,747,547, however, its features of design, features of principles of operation and features of component parts in relation to each other are all new, novel and improvements over that which is old.

One feature of our completely assembled machine is that in actual use it occupies only slightly more desk top area than one folded bundle of shorthand machine note paper would occupy. All other devices of this general type known to us occupy, when in actual use, more desk top area than two folded bundles of shorthand machine note paper would occupy. Our economy of space is achieved by placing our note holding and receiving trays one directly above the other, and our note moving and displaying means fastened to and extending vertically up from the topmost tray. Our said note trays are sufficiently deep to completely enclose and protect from accidental upset a full bundle of note paper, a feature lacking in a folding tray type prior art device.

Another feature of our invention is its compact, self-contained paper moving means. Within its separate, independent housing is affixed a drive mechanism consisting of a simple 110–120 volt A.C. or a one and one-half to three volt D.C. electric motor with a worm drive on its shaft, a mating worm gear, and a pressure roller with a spring to keep it in contact with said worm gear. These are all of our machine's moving drive parts, and this complete unit is readily fastened to or removed from its position atop the machine's vertical paper supporting and displaying column. If need be, a spare or new paper moving means can always be quickly attached to the machine.

The aforementioned pressure roller is another feature of our invention. Said pressure roller is non-removable and may be simply swung to one side at any time to permit insertion or removal of note paper at any place in its entire length of folded panels. One prior art device known to us has, for this said purpose of insertion and removal of note paper at any place, a roller which must be manipulated completely free of the machine. In addition to the extra work involved in using this type of mechanism, there is ever present the hazard of misplacing said removable roller or damaging it should it roll to the floor. Another prior art device known to us features no movable pressure roller of any kind. When using this particular device it is necessary to insert note paper at its beginning and remove it at its end. Insertion into or removal from this machine of note paper at any other place necessitates tearing of the note paper.

Another feature of our invention is the constant marking of note paper as it is moved through the machine by the revolving of the aforementioned worm gear, thus

enabling an operator to at all times know which of his notes have been transcribed.

Another feature of our machine which we believe to be novel is the use of either approximately 110–120 volt home power or ordinary flashlight type batteries, contained in the machine's foot switch housing, for supplying the machine's only necessary source of power. Said batteries are easily accessible and removable, and because they are in the foot switch housing, away from the paper holding and moving portions of the machine, can be quickly changed, when necessary, without disturbing note paper in the process of being read for transcription.

A further feature concerning the foot switch housing of this machine of our invention is that it contains two separate, foot pressure actuated type electrical switches which enable an operator to automatically move his note paper forward or backward at will. No other switches of any type are needed or used in this machine.

Our foot switch housing also has the additional feature of a foot rest, centered between the two aforementioned switches, which relieves an operator of the tiresome task of holding his foot, pivoted at the heel, poised over the switch.

Still another feature of our invention is that for purposes of portability and storage our machine quickly and easily collapses into a small, compact, rectangular unit with all parts nested neatly one into another. There are no pieces or wires left outside and all moving parts are safely protected on the inside. This is accomplished by folding our paper supporting and displaying column in half at its hinged midsection, with paper moving means attached in its normal operating position, and pivoting said column down into the paper receiving tray; our foot switch housing is then placed into said paper receiving tray atop said folded column and alongside said paper moving means, then our paper holding tray is placed over said paper receiving tray in the same manner as a cover is placed over a box.

The simplicity and compactness of our machine and the minimum of moving parts within it indicates an economy of materials and an economy of labor in production that assures a product more commercially feasible than any other product of this general type that we know of.

Other advantages, objects and features of our invention will be apparent from the accompanying drawings, detailed descriptions and the appended claims.

In the accompanying drawings we show various views of one embodiment of our invention. Same parts appearing in more than one view are indicated throughout the same reference numerals.

FIGURE 1 is an isometric front view of our machine set up for use and with the note paper in it and being handled by it. Also shown is the combination foot switch and battery housing and connecting wire. An operator working with the machine would normally position it on his desk so that he faces the paper as it emerges from the bottom tray and moves upward along the vertical column.

FIGURE 2 is an isometric rear view of our machine set up for use with no paper in it.

FIGURE 3 is an enlarged view of our removable paper moving means with sections of its housing wall shown broken away to facilitate the drawing of its internal detail, and the pressure roller arrangement, which may be either right or left handed, is as illustrated for clarity.

FIGURE 4 is an enlarged view of our combination foot switch and battery housing with a section of its wall broken away to facilitate the drawing of the internal arrangement of the two batteries (if batteries are used) in their holder and the internal portions of the foot switches.

FIGURE 5 shows the various parts of the machine as they are about to be nested compactly together for the purpose of portability and storage.

FIGURE 6 shows the completion of the action shown in FIGURE 5. The various parts, shown in dotted outline, are nested in the top tray and the inverted bottom tray is fitted down over said top tray.

The trays, housings and supporting column in the form of a ladder-like element of this machine of our invention may be made of any suitable materials adaptable to the necessary shapes and forms. However, in the particular embodiment of our invention shown and described herein, these said parts are made of sheet aluminum shaped and formed by conventional sheet metal working processes.

The various fastening devices described herein apply to this particular embodiment of our invention and may in this or in any other embodiment be replaced by other fastening devices of any suitable means.

Referring to FIGURES 1 and 2 wherein: The bottom tray **10** is the note paper holding tray, and with its open end facing the machine operator, holds the bundle of note paper awaiting reading for transcription **11**. Above it is positioned a note paper receiving tray **12** to receive the note paper after it has been read **13**, marked **14** and refolded **15**. Its open end also faces the machine operator and has fastened pivotly **16** into it the lower section of a two piece note paper displaying column **17**, to which is fastened by means of a hinge **18** the upper section of said column **19**, to which is fastened by means of two easily removable screws **51**, the machine's note paper moving means **20**; and for the purpose of supplying, actuating, and reversing power, a two strand, insulated electric wire **21** is electrically connected to a combination foot switch and battery housing **22**; and by means of a standard type electrical plug-in device **23**, is connected into said note paper moving means **20**.

An operator using the machine would normally place the combination foot switch and battery housing **22** in a convenient position on the floor under the desk, and place the sole of one foot down over the tops of both switches, forward **24** and reversing **25**, with the weight of said foot centered over, resting on, and supported by the small raised foot rest **26** located midway between said switches. The height of said foot rest prevents the foot from actuating either of the switches except that when the foot is turned slightly to one side or the other, as desired, its weight may be brought to bear on a switch and thus actuate it.

When the operator depresses the forward switch **24** with his foot pressure and continues to hold it down the note paper will continue to move out of the bottom tray **10**, up the face of the column **17** and **19**, over the top of the note paper moving means housing **20** and the gear **27** protruding out of the top of said housing, and then fall freely and unaided **28** neatly refolding itself and coming to rest **15** in the top tray **12**. The very nature of the standard type of continuous strip note paper commonly used, and the way in which it is folded, alternately one way and then the other, is such that it will always refold itself when allowed to fall freely.

As shown in greater detail in FIGURE 3, it is the aforementioned gear **27** under the paper, which revolves, and aided by the downward pressure of the pressure roller **29** on the top of the paper, directly imparts motion to the paper. As the note paper is moved along by the revolving gear, it is constantly marked **14** by the gear's teeth; this feature enables an operator to at all times know which of his notes have been transcribed. If it be necessary to remove an uncompleted bundle of notes from the machine, or if it be necessary for the operator to reverse the machine to check back on some detail, the exact point of completed work can always be instantly found. As shown in greater detail in FIGURE 3, by grasping finger grip **30** and lifting slightly upward, the pressure roller **29** on its shaft **31** may be raised clear of its rest **32** and swung freely to one side, permitting quick and easy insertation or removal of note paper at any point of its length or stage of its completion.

Referring back to the reversing switch **25**, it is used and actuated in the same manner as the forward switch **24**. Use of this said reversing switch will cause the note paper **15** to move up and out of the top tray **12**, over the note paper moving means **20** and down the column **17** and **19**. It will not enter into the bottom tray **10**, but this is not necessary as most of the reversing needs in note transcribing work are for just a short distance back. If the situation is such that the operator has need to check back a considerable distance in his notes, he may allow the paper to continue coming back down the column and it will tend to refold itself on the desk, then this accumulated bundle may be manually placed into the bottom tray **10** atop the paper **11** that is already in this tray. On the other hand, if the paper is only inserted about half or one-third of the way into the bottom tray it will fold automatically on the reversing phase. However, our recommended method for checking back a considerable distance is to simply reach into the top tray and manually lift out the desired amount of folds of paper, check back on whatever is necessary, and then replace them back into the top tray.

Referring further to FIGURES 1 and 2: The note paper holding tray **10** is of rectangular shape, open at the top and at one end, and long and wide enough to hold a bundle of note paper, and somewhat deeper than the thickness of a full bundle of note paper. The note paper receiving tray **12** is also of rectangular shape, open at the top and at one end, slightly narrower than the note paper holding tray's internal width, so that it can fit into it, and deep enough to fully enclose a full bundle of note paper.

The note paper receiving tray is fitted over and slightly down into the open top of said note paper holding tray, and is held in place by four standard type, spring-loaded, self-locking fasteners **33**, one part of each said fastener being affixed near the top edges of the note paper holding tray, and the other mating part being affixed in a corresponding position near the bottom edges of the note paper receiving tray.

The note paper displaying column sections **17** and **19** are each slightly shorter in length than the internal length of the note paper receiving tray, and are of a shape similar to that of a shallow channel. The two pivot fasteners **16** by which the lower column section **17** is fastened into the paper receiving tray are located at the bottom of each side member of the column. Positioned above said pivots at a point opposite and slightly below the top edges of the note paper receiving tray are two fasteners **33** of the type previously described under this reference number, the one part being on the column and the mating part being on the tray. These fasteners **33** serve to hold the column in the raised position for use, which is at an angle slightly backward from the vertical toward the open top of the note paper receiving tray. This backward angle prevents the top section of the column **19** from falling forward on its hinge **18** and it cannot fall backward because each of its side members rest upon the side members of the lower section **17**.

Referring again to FIGURE 3 wherein the note paper moving means housing **20** contains a 1½ to 3 volt D.C. or other conventional 110 volt A.C. electric motor **34** affixed to a base **35** which in turn is fastened by means of two bolts **36** to said housing. The electric motor **34** has a standard conventional drive, such as, for example, a type worm drive **37** fitted to its shaft so that it revolves with the shaft. In this particular embodiment of our invention said worm drive **37** is of 48 diametral pitch, and single right hand thread. Mated to said worm drive is a 50 tooth worm gear **27** which protrudes through a

slot in the housing, and is supported by a shaft 38 upon which it is free to revolve when driven by the worm drive. Retainers 39 fitted to the shaft, one on each side of the worm gear 27 hold it in its properly centered position directly over and in mesh with said worm drive 37. Said shaft 38 is positioned at a ninety degree angle to the motor shaft and at sufficient height above it for proper meshing of gear teeth, and it is fastened to opposite side walls of the housing by means of two screws 40, one on each side, passing through holes in the housing and screwed into the internally threaded ends of the shaft. The motor 34 is wired in a standard manner to a standard type of electrical receptacle 41 for receiving a mating plug 23 as shown in FIGURES 2 and 5.

The pressure roller 29 has a diameter of about a half an inch and is a little longer than the face width of the worm gear 27. It is made of soft rubber, or any suitable rubber-like material, fitted over a hollow metal tube-like core which is in turn supported by a shaft or rod 31 upon which it is free to revolve. It is held in its properly centered position in relation to the protruding gear by means of two retainers 43 fitted to the shaft 31 one on each side. Said shaft 31 extends across the top of the housing parallel to the worm gear shaft 38 and is of sufficient height above said housing to allow the rubber surface of the roller to make slight contact with the gear. The pressure roller shaft 31 rests at one end of the housing in a support 44. This said support 44 has at its top a shallow semicircle-like cradle 32 of slightly greater diameter than the shaft 31 into which said shaft rests, ready for instant removal. At the other end of the housing, the pressure roller shaft 31 is connected at right angles to a vertical rod or shaft 46 which has a finger grip 30 at its top, and extends down through a hole 47 in the housing, and then passes through a vertical, tube-like guide 48, fastened inside of said housing. One end of a spring 49 under elongated tension is attached to the bottom of said vertical shaft 46 and the other end of said spring is attached to the housing.

Said note paper moving means housing 20 has a threaded hole 50 in each of its two parallel sides by means of which it is fastened into its position at the top of the upper section 19 of the note paper displaying column with two screws 51 as shown in FIGURES 1, 2, 5 and 6. Said housing is placed between the side members of said column and with its open side 52 into and against the back of said column.

Referring again to FIGURE 4 wherein the combination foot switch and battery housing 22 is generally a hollow rectangular box with the exception that approximately half of the front part of its top surface 53 has a downward slope for the purpose of best accommodating an operator's foot. Its width is narrower than the internal width of the note paper receiving tray 12. Within this said housing is affixed if batteries are used as a source of power, a battery holding device 54 into which two standard type flash light batteries 55 may be placed and thus brought into electrical contact with the two switches 24 and 25. Said battery holding device is wired to said switches in a standard electrical manner. The heights, and therefore the sensitivity to actuation, of the two said switches may be individually adjusted by an operator by alternately loosening and tightening on the upper and lower fastening nuts 56 and 57.

Referring to FIGURES 5 and 6 wherein, for purposes of portability and storage, the machine is brought together as follows: The combination foot switch and battery housing 22 is disconnected from the note paper moving means housing 20 by removing the plug 23, attached to the connecting wire 21, from its receptacle 41. The upper section 19 of the note paper displaying column, with note paper moving means housing 20 attached, is folded down, through an arc of 180 degrees, so that it rests front to back upon the lower section 17 of said column. This is accomplished by means of the connecting hinge 18. Said lower section is then freed of its two fasteners 33 and by means of its pivot connection 16 lowered down to rest in the bottom of the note paper receiving tray 12 with said upper section and housing resting upon it. The combination foot switch and battery housing 22 with its attached wire and plug is then inverted for better space economy and placed in the tray. The note paper holding tray 10 is then freed of its four fasteners 33 holding it in operating position under said note paper receiving tray is inverted, and then with its closed end over the said note paper receiving tray's open end, placed down over the note paper receiving tray, in which position the four mating fastener parts on each tray will again come into alignment and lock. As specifically shown in FIGURE 6, the machine is now compact, completely enclosed within itself, and all moving parts are safely protected on the inside.

We claim:

1. A collapsible, portable machine for use in holding, unfolding, moving, displaying, marking and refolding the continuous strip of folded paper upon which notes are taken in shorthand machines, comprising: a rectangular note paper holding tray, of depth slightly deeper than the thickness of a full folded bundle of shorthand machine note paper, and open at one end; a rectangular note paper receiving tray, slightly narrower than said note paper holding tray's internal width to fully enclose a full bundle of folded note paper, said receiving tray open at one end, and when the machine is in use said receiving tray is disposed over said note paper holding tray with its open end directly above said note paper holding tray's open end; a note paper supporting and displaying column hinged at approximately half of its length so that it can be folded double, each half being approximately the length of one panel of note paper, said column affixed to the open end of said note paper receiving tray by a pivot, and when the machine is in operative condition said column being unfolded at said hinge to its full length and raised to a near vertical position on said pivot; a self-contained, independently housed note paper moving means removably attached to the top of said column; a self-contained, independently housed combination power supplying and actuating means connected electrically to said note paper moving means whereby when the machine is in use said actuating means is disposed for foot pressure actuation remote from the rest of the machine, an electric motor affixed to a base which in turn is fastened to the mechanism's housing; a worm drive fitted to the extending shaft of said motor so that it revolves with the shaft; a worm gear of corresponding size to said worm drive, and protruding out of the mechanism's housing by means of a slot in said housing, said worm gear mounted on a shaft which revolves with the worm drive; the aforementioned shaft being fastened at its ends in the mechanism's housing whereby it is positioned at a ninety degree angle with the axis of said motor shaft, and at a height above the shaft sufficient for the teeth of the worm drive and the worm gear to properly mesh, retainers to retain the worm gear in its properly centered position; a pressure roller affixed to the mechanism's housing in such a way as to be in contact with said worm gear's teeth so that note paper, moving between the gear and the roller, is marked by the gear's teeth along its length parallel, said pressure roller being free to be swung to one side, clear of the gear and out of the way so that paper may be inserted, a spring under slight elongated tension and being attached to a holder for said pressure roller, a housing for said note paper moving means, a length of tube-like member fastened in a vertical position to one side of the interior of said housing; a rod-like member passing upward through said tube-like member, in which it fits loosely, and passing out of the housing through a hole in its top; a shaft extending at an angle to said rod-like member, a finger grip attached to swing the shaft clear of said housing, oscillatable through a ninety degree turn and extending

over the top of said housing parallel to its surface and crossing directly over and above said protruding worm gear, and resting on a cradle-like retainer at the opposite side of the housing from which it emerged; a roller approximately as wide as the face width of said worm gear made up of a hard, hollow core and covered with a soft rubber-like material; said roller being fitted so that it revolves on said shaft member which crosses the top of the housing, said roller held in place by retainers in a centered position so that it makes direct and proper contact with said worm gear; a spring under slight elongated tension, one end of which is attached to the end of said rod-like member which is inside the housing, and the other end of the spring being anchored to the housing.

2. The combination of claim 1 in which said power supplying and activating means is composed of: a complete and independent housing of sufficient strength and rigidity to support foot pressure, and having a slope in its upper surface at an angle to the floor, said slope therefore causing the housing to be so constructed that it is higher in the rear and lower in the front; a device for holding ordinary flashlight-type batteries, fastened into said higher rear section of the housing, said batteries holding device being of the type that permits said batteries to be clipped in and snapped out by finger pressure; two foot pressure actuated switches, fastened in the housing under the sloped surface whereby they are positioned close to opposite side edges of the housing and an equal distance back from the front edge of the housing, and protruding through holes in said sloped surface so that they may be actuated by foot pressure; a foot rest centered between said switches and fastened to the sloped surface by any suitable means; and wiring and connections to electrically connect the batteries, switches and said note paper moving means.

3. The combination of claim 2 in which said foot rest centered between said switches and fastened by any suitable means to said sloped surface of housing is of height approximately that of the tops of said switches, and of such size and shape sufficient to comfortably hold the weight of an operator's foot and prevent it from actuating either switch as long as said foot is held with its sole more or less parallel to the sloped surface of the housing.

4. The combination of claim 1 in which said length of tube-like member is a tubing, said rod-like member is a rod member, said shaft extends at an angle to said rod, said shaft resting in its operative position on a cradle retainer at the opposite side of the housing from which it may emerge, said roller covered with a soft rubbery material, and one end of said spring attached to the end of said rod member.

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