

Oct. 5, 1954

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2,690,697

ELECTRICAL-MECHANICAL TYPEWRITER PROJECTION APPARATUS

Filed Feb. 4, 1953

2 Sheets-Sheet 1

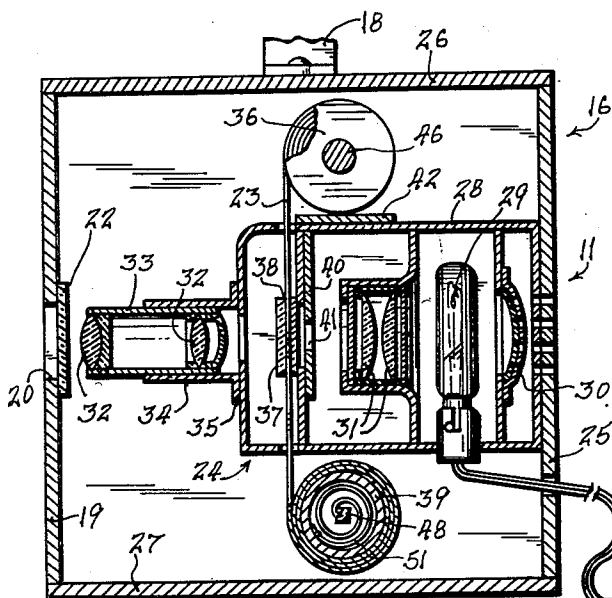


FIG. 2.

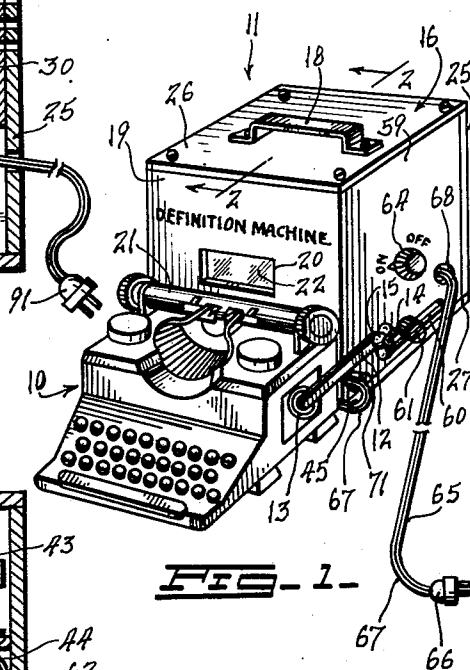


FIG. 1.

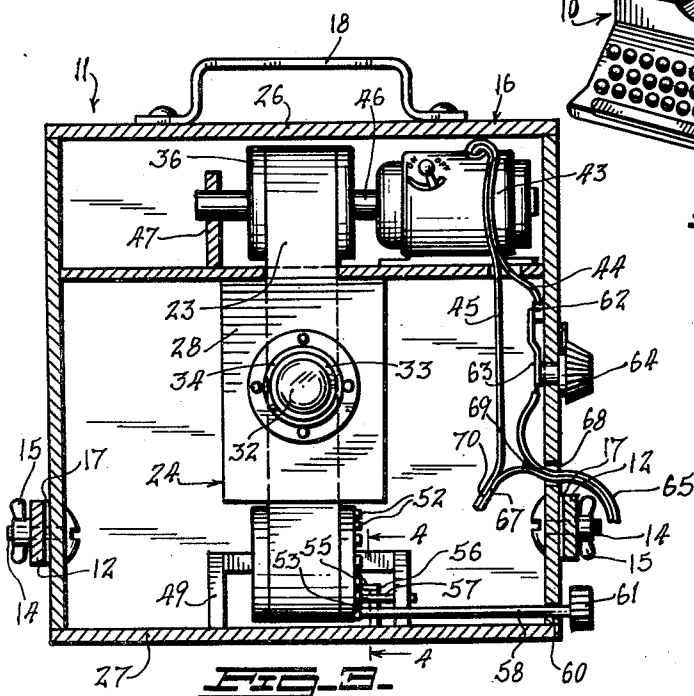


FIG. 3.

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2 Sheets-Sheet 2

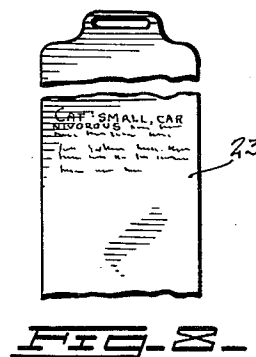
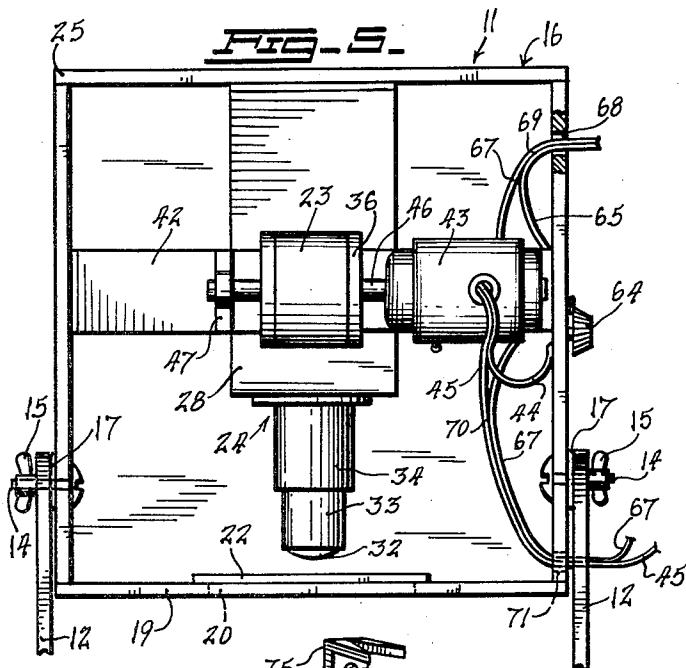


FIG. 6.

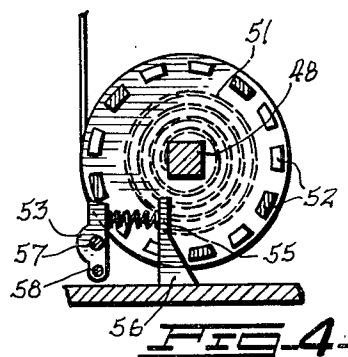
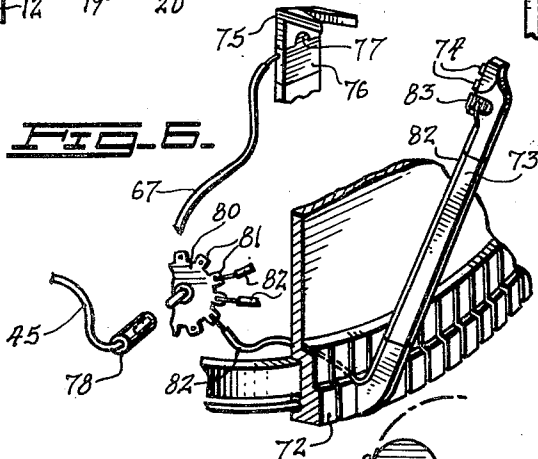
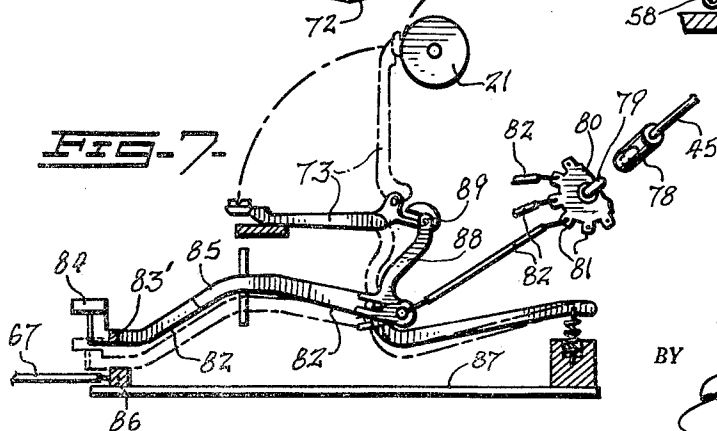


FIG. 7.



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ELECTRICAL-MECHANICAL TYPEWRITER
PROJECTION APPARATUS

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Application February 4, 1953, Serial No. 335,143

8 Claims. (Cl. 88—28)

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This invention relates to mechanical dictionaries and, more particularly, to a dictionary of the aforesaid type actuable by the keyboard of a typewriter.

In modern business offices, a great deal of time is wasted looking up the definitions of words in cumbersome dictionaries and also in writing down such definitions.

It is accordingly a principal object of the present invention to provide a typewriter dictionary which includes a definition machine having a screen adapted to overlie the roll of the typewriter and on which is projected the definition of the word, movement of the words across the screen being controlled by the keyboard of the typewriter.

It is another object of the present invention to provide a dictionary typewriter of the above type wherein the definition of the word sought is quickly and easily projected on the screen without the loss of time usually occasioned when looking the word up in a conventional dictionary.

It is still another object of the present invention to provide a dictionary typewriter of the above type wherein the definition may be typed out on paper directly below the screen for ready reference.

Other objects of the present invention are to provide a dictionary typewriter bearing the above objects in mind, which is of simple construction, inexpensive to manufacture, has a minimum number of parts, is compact, durable, easy to operate and highly efficient in operation.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:

Fig. 1 is a perspective view of a typewriter dictionary embodying the features of the present invention.

Fig. 2 is a vertical sectional view of the definition machine taken along line 2—2 of Fig. 1.

Fig. 3 is a front elevational view of the interior of the definition machine, with the housing thereof shown in section.

Fig. 4 is a vertical sectional view taken along line 4—4 of Fig. 3.

Fig. 5 is a top plan view of the definition machine with the cover of the housing removed.

Fig. 6 is a fragmentary perspective view of a portion of a typewriter showing the manner of

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connecting the leads from the definition machine.

Fig. 7 is a schematic diagram of the striking mechanism of a typewriter and showing an alternate method of connecting the leads from the definition machine.

Fig. 8 is a fragmentary, front elevational view of the film containing the definitions.

Referring more in detail to the drawing, in which similar reference characters designate corresponding parts throughout the several views, there is shown in Fig. 1 a typewriter dictionary consisting of a conventional typewriter 10 and a definition machine, referred to collectively as 11, positioned in back of the typewriter and releasably secured thereto by means of rotatable arms 12, the outer ends of the arms fixedly carrying suction-cups 13 adapted to engage the ends of the typewriter, while the inner ends are secured in position by screws 14 and wing-nuts 15.

The arms 12 are separated from the housing 16 by washers 17, and, when the definition machine 11 is not in use, may be rotated upwardly and tightened against the housing in a vertical position, thus providing a light, compact unit which may be easily carried by means of the handle 18 to another place of business, where it may again be readily secured to another typewriter, appropriately wired, for operative use.

As shown in Figs. 1, 2 and 5, the front wall 19 of the housing 16 is provided with a rectangular cut-out 20 adapted to overlie the platen 21 of typewriter 10, a screen 22 of translucent plastic being secured to the inner face of the wall 19 and visible through the cut-out 20 for a purpose to be hereinafter described.

Referring now particularly to Figs. 2, 3 and 5, it will be seen that the definitions appearing in alphabetical order upon the film 23 are thrown upon the screen 22 from within the housing 19, so that the typist may view the definitions from the front of the definition machine, by means of a suitable projector, referred to collectively as 24, secured to the rear wall 25 and equally spaced from the top 26 and the bottom 27 of the housing 16, substantially as illustrated.

The projector 24 comprises a casing 28 having the usual source of illumination 29 at the rear thereof. Within the casing 28 rearward of the source of illumination 29 is a parabolic reflector 30 serving to direct a portion of the light toward the front of the projector. A projection system is provided consisting of condensing lenses 31, spherical or cylindrical, and the usual projection lenses 32 mounted in a tubular member 33 slid-

able longitudinally within the tubular member 34 fixedly secured to the casing 28 as at 35. The film is carried by a roller 36, extending inwardly of the casing 28 between the usual supporting plates of glass 37 and 38 in the optical path of the projector and downwardly onto a roller 39, substantially as illustrated. The casing 28 is provided with a partition 40 between the condensing lenses 31 and the projection lenses 32 and having the usual framing opening 41 in line with the optical path of the light from source 29.

A partition 42 extends across the top of casing 28 and mounts a small electrical motor 43 connected to a source of power by means of insulated wires 44 and 45 in a manner to be hereinafter referred to. The motor 43 is provided with the usual drive shaft 46 extending horizontally across the partition 42 and to which the roller 36 is rigidly secured, the outer end of the shaft resting in a bearing member 47.

The roller 39 is mounted upon a fixed shaft 48 secured at its ends to supports 49 and 50, the interior of the roller 39 being spaced from and supported on the shaft 48 by a spiral spring 51 extending between said roller and said shaft and which normally retains the film 23 wound upon the roller 39, as shown in Fig. 2, with the first definition thereon just below the framing opening 41 and the top end of the film 23 secured to the roller 36 in any suitable manner.

Operation of the motor 43 will wind the film 23 upward onto the roll 36 with the definitions passing before the framing opening 41 to be projected continuously upon the screen 22. When the desired definition has been projected on the screen and the motor stopped, the film 23 is prevented from winding back upon the spring urged roller 39 by means described directly.

The roller 39 has formed near its periphery a plurality of outstanding lugs 52, as shown in Figs. 3 and 4, and which are engaged by a pivoted arm 53 urged against the bottom of a lug 52 by a spring 54 secured at one end to the inwardly extending arm 55 of a support 56, and at its other end to the arm 53. The arm 53 is mounted upon a shaft 57 rotatably mounted in the support 50 in any suitable manner, and fixedly carrying an elongated shaft 58 extending outwardly of the wall 59 through an elongated slot 60 and to the end of which is secured a release knob 61. Upon manual movement of the knob 61 rearward in the slot 60, the shaft 58 will rotate the arm 53 outwardly against the action of the spring 54 to release the lug 52 and to permit the film 23 to wind back upon the roller 39 under action of spring 51.

The wire 44 is connected to a fixed contact 62 on the wall 59, which is electrically engaged by the rotating arm 63 of a dial switch 64. The lower end of the copper arm 63 is electrically connected to a wire 65 which is in turn connected to one terminal of a male plug 66 for connection with a household or office outlet, not shown. A wire 67 is connected to the other terminal of the plug 66 and extends inwardly of the housing 16 through an opening 68 therein, along with the wire 65 which is then connected to the arm 63. The wire 67 separates from the wire 65 as at 69 to be coupled as at 70 with the wire 45 to provide a pair of leads to be connected to the typewriter in a manner to be hereinafter described, the leads 67 and 45 extending outwardly from the housing 16 through an opening 71 therein.

Referring now particularly to Fig. 6, there is

shown an enlarged portion of the typewriter 10 consisting of the usual slotted guide comb 72 pivotally mounting a plurality of type bars 73 carrying type 74, along with a type guide 75.

The lead 67 from the definition machine 11 is connected to a copper clamp 76 adapted to be snapped onto the guide 75, substantially as illustrated, and having an upwardly extending ear 77 integrally formed therein.

The lead 45 from the definition machine 11 is connected to a female connector 78 adapted to receive the male element 79 of connector element 80, the latter having a plurality of teeth 81 to each of which wires 82 are connected. Copper clamps 83 are snapped onto the bars 73 below the type 74 and are adapted to contact the ear 77 of clamp 76 when the keys 84 are actuated in the usual manner, the wires 82 extending through the guide comb 72 to run along the bars 73 to connect with the clamps 83.

With this arrangement, the typewriter 10 serves as a multi-armed switch connected in series with the motor 43, the switch being closed each time a key is pressed, and the clamp 83 contacts the clamp 76. Preferably, the wires 82 are connected to only the bars 73 carrying all the letters of the alphabet, in other words the element 80 will be provided with twenty-six teeth 81 and wires 82, each of the wires 82 being connected in parallel with the wire 45, so that when any key is pressed the circuit will be closed and the motor 43 will operate.

Referring now particularly to Fig. 7, there is shown an alternate method of connecting the leads 45 and 67 to the typewriter. The wire 45 is again connected to a female connector 78 receiving a male element 79 of connector element 80, wires 82 being connected to the teeth 81, substantially as in the method of Fig. 6. Here, however, the clamps 83' are snapped under the arms 85 carrying keys 84, the wires 82 running from the clamps 83' along the bottom of the arms 85 to the connector 80, substantially as illustrated, while the wire 67 is now connected in parallel with a plurality of contacts 86 underlying the clamps 83'. The contacts 86 are positioned on a plate 87 adapted to be slid under the typewriter, each of the contacts 86 being electrically connected in parallel with the wire 67, so that the depression of any key 84, which causes a clamp 83' to contact a contact 86, will close the circuit and operate the motor 43.

As is usual in the operation of front-strike mechanisms, depression of the key 84 causes lever 88 with pin 89 to swing type bar 73 upward to the horizontal center line of platen 21.

In operation, the portable definition machine 11 is secured behind a typewriter 11 by means of the arms 12, suction cups 13 and wing-nuts 15, with the screen 22 overlying the platen 21. The plug 66, along with the plug 91 of the projector light 29, are then inserted in the usual power outlets to illuminate the screen and energize leads 65 and 67.

The knob of switch 64 is then turned to the "on" position shown in Fig. 1, which brings the arm 63 into contact with contact 62.

Assuming the word it is desired to define is "cat," the "C" key of the typewriter is pressed until the clamp 83 contacts the clamp 76, thus closing the circuit and energizing the motor 43 which rotates drive shaft 46, this motion rotating the roller 36 and drawing the film 23 through the projector. During this operation, the "C" key is held down and a continuous series of defi-

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nitions are projected on the screen 22, beginning with words starting with "A" and continuing alphabetically until words starting with "C" appear on the screen. At this point the "C" key is released, and the "A" key is pressed down. Again, a different clamp 83 contacts the clamp 76, and the unwinding of the film 23 continues until words starting with "CA" are projected upon the screen 22. At this point, the "A" key is released, and the "T" key is pressed down, being held down until the word "CAT" appears at the left of the screen along with its accompanying definition, at which time the "T" key is released.

The switch 64 is then turned to the "off" position, and further actuation of the keyboard will not result in further unwinding of the film 23, the arm 53 retaining the film in the desired setting.

A paper may then be inserted into the typewriter to copy off the definition. This paper could, of course, have been in position during the above operation, in which case the word "cat" would already be typed thereon.

After the definition has been typed up, the release knob 51 is pushed rearwardly to disengage the arm 53 from lug 52, permitting the spring 51 to rotate the roller 39 until the film 23 has been rewound thereon, ready for the next word to be defined.

The same sequence of operations is followed with the switch arrangement of Fig. 7.

After the definition machine 11 is no longer needed, the lead 67 and associated clamp 76 may be snapped off the guide 75, and the lead 45 and female connector 78 snapped out of engagement with the male element 79, thus electrically disconnecting the machine 11 from the typewriter 10. After releasing the arms 12 from the typewriter and folding them upwardly, the definition machine may be conveniently carried by means of handle 18 to a point of storage, or to another typewriter similarly wired. The same is true in the arrangement of Fig. 7, the lead 67 and associated plate 87 being removed from under the typewriter, while the lead 45 and female connector 78 may be snapped out of engagement with the male element 79 and connector 88.

It will be understood that any electrical or mechanical typewriter may, by suitable wiring, be used with my definition machine, and that by typing the letters on the typewriter the word desired will appear above the keyboard. It should also be apparent that the appearance of the definition can be effected by other means such as, for example, by cams and other internal workings in operative engagement with the typewriter keyboard. Such internal workings could include cards with the definitions thereon, or a cylinder arrangement. To economize in the size of the definition machine, the part carrying the definitions could be greatly magnified, or, in the form shown in the drawing, suitable micro-film could, of course, be employed.

It should also be apparent that two sets of typewriter keys might be employed; one for setting the first letter of the word, and the other for the remainder of the word.

It should now be apparent that there has been provided a typewriter dictionary with keys so that when a word is spelled out on a typewriter by means of the individual keys, a definition of the word appears on a definition machine.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the pre-

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cise constructions herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent is:

1. A typewriter projection apparatus comprising in combination a typewriter and a definition machine, said definition machine including a housing having an opening in the front wall thereof adapted to overlie the platen of the typewriter, a screen within said opening, a projector disposed within said housing behind said screen, a first roller disposed above said projector, a motor, a drive shaft in operative engagement with said motor, said first roller being fixedly mounted on said drive shaft, said motor being connected to a source of power, switch means actuable by the keyboard of said typewriter connected in series with said motor and source of power, a second roller rotatably mounted below said projector, film wound on said second roller, said film extending upwardly through said projector and connected to said first roller, said second roller being spring urged in a direction opposite to the direction of rotation of said drive shaft whereby to normally wind said film upon said second roller and releasable means for normally retaining said second roller against the action of said spring means, and a second switch connected in series with said motor, said source of power, and said switch means whereby to deenergize said motor when said switch means is closed thereby permitting said typewriter to be used without energizing said motor.

2. A typewriter projection apparatus comprising in combination a typewriter and a definition machine, said definition machine including a housing having an opening in the front wall thereof adapted to overlie the platen of the typewriter, a screen within said opening, a projector disposed within said housing behind said screen, a first roller disposed above said projector, a motor, a drive shaft in operative engagement with said motor, said first roller being fixedly mounted on said drive shaft, said motor being connected to a source of power, switch means actuable by the keyboard of said typewriter connected in series with said motor and source of power, a second roller rotatably mounted below said projector, film wound on said second roller, said film extending upwardly through said projector and connected to said first roller, said second roller being spring urged in a direction opposite to the direction of rotation of said drive shaft whereby to normally wind said film upon said second roller and releasable means for normally retaining said second roller against the action of said spring means, said switch means comprising a copper clamp connected to one terminal of said definition machine, said clamp being adapted to resiliently engage the type guide of the typewriter, and a plurality of second copper clamps connected to the other terminal of said definition machine, said clamps being adapted to resiliently engage the type bars of the typewriter below the type carried thereon and to contact said first clamp when the type strikes the platen of the typewriter.

3. A typewriter projection apparatus comprising in combination a typewriter and a definition machine, said definition machine including a housing having an opening in the front wall thereof adapted to overlie the platen of the typewriter, a screen within said opening, a projector

disposed within said housing behind said screen, a first roller disposed above said projector, a motor, a drive shaft in operative engagement with said motor, said first roller being fixedly mounted on said drive shaft, said motor being connected to a source of power, switch means actuable by the keyboard of said typewriter connected in series with said motor and source of power, a second roller rotatably mounted below said projector, film wound on said second roller, said film extending upwardly through said projector and connected to said first roller, said second roller being spring urged in a direction opposite to the direction of rotation of said drive shaft whereby to normally wind said film upon said second roller and releasable means for normally retaining said second roller against the action of said spring means, said switch means comprising a copper clamp connected to one terminal of said definition machine, said clamp being adapted to resiliently engage the type guide of the typewriter, and a plurality of second copper clamps connected to the other terminal of said definition machine, said clamps being adapted to resiliently engage the type bars of the typewriter below the type carried thereon and to contact said first clamp when the type strikes the platen of the typewriter, and a connector element intermediate said second clamps and said other terminal of said definition machine, wires running along the type bars connecting said second clamps to said connector element, a male element fixedly carried by said connector element, and a female element connected to the other terminal of the definition machine adapted to releasably receive said male element.

4. A typewriter projection apparatus comprising in combination a typewriter and a definition machine, said definition machine including a housing having an opening in the front wall thereof adapted to overlie the platen of the typewriter, a screen within said opening, a projector disposed within said housing behind said screen, a first roller disposed above said projector, a motor, a drive shaft in operative engagement with said motor, said first roller being fixedly mounted on said drive shaft, said motor being connected to a source of power, switch means actuable by the keyboard of said typewriter connected in series with said motor and source of power, a second roller rotatably mounted below said projector, film wound on said second roller, said film extending upwardly through said projector and connected to said first roller, said second roller being spring urged in a direction opposite to the direction of rotation of said drive shaft whereby to normally wind said film upon said second roller and releasable means for normally retaining said second roller against the action of said spring means, said switch means comprising a plurality of copper clamps connected to one terminal of the definition machine, said clamps being adapted to resiliently engage the arms of the typewriter adjacent the keys on the undersides thereof, and a plurality of copper contacts disposed on a plate below the typewriter, each of said contacts being adapted to underlie one of said clamps and to come into contact therewith when the keys of the typewriter are pressed down, each of said contacts being connected to the other terminal of said definition machine.

5. A typewriter projection apparatus comprising in combination a typewriter and a definition machine, said definition machine including a housing having an opening in the front wall thereof adapted to overlie the platen of the type-

writer, a screen within said opening, a projector disposed within said housing behind said screen, a first roller disposed above said projector, a motor, a drive shaft in operative engagement with said motor, said first roller being fixedly mounted on said drive shaft, said motor being connected to a source of power, switch means actuable by the keyboard of said typewriter connected in series with said motor and source of power, a second roller rotatably mounted below said projector, film wound on said second roller, said film extending upwardly through said projector and connected to said first roller, said second roller being spring urged in a direction opposite to the direction of rotation of said drive shaft whereby to normally wind said film upon said second roller and releasable means for normally retaining said second roller against the action of said spring means, said switch means comprising a plurality of copper clamps connected to one terminal of the definition machine, said clamps being adapted to resiliently engage the arms of the typewriter adjacent the keys on the undersides thereof, and a plurality of copper contacts disposed on a plate below the typewriter, each of said contacts being adapted to underlie one of said clamps and to come into contact therewith when the keys of the typewriter are pressed down, each of said contacts being connected to the other terminal of said definition machine, and a connector element intermediate said clamps and said first mentioned terminal of said definition machine, wires running along the arms of the typewriter connecting said clamps to said connector element, a male element fixedly carried by said connector element, and a female element connected to said first mentioned terminal of said definition machine adapted to releasably receive said male element.

6. A typewriter projection apparatus comprising in combination a typewriter and a definition machine, said definition machine including a housing having an opening in the front wall thereof adapted to overlie the platen of the typewriter, a screen within said opening, a projector disposed within said housing behind said screen, a first roller disposed above said projector, a motor, a drive shaft in operative engagement with said motor, said first roller being fixedly mounted on said drive shaft, said motor being connected to a source of power, switch means actuable by the keyboard of said typewriter connected in series with said motor and source of power, a second roller rotatably mounted below said projector, film wound on said second roller, said film extending upwardly through said projector and connected to said first roller, said second roller being spring urged in a direction opposite to the direction of rotation of said drive shaft whereby to normally wind said film upon said second roller and releasable means for normally retaining said second roller against the action of said spring means, outwardly extending, rotatable arms at each end of said housing, suction-cups carried by the outer ends of said arms on the inner faces thereof, said arms and suction-cups being adapted to frictionally engage the ends of said typewriter, means for releasably locking said arms in various angular positions, and a handle secured to the top of said housing.

7. A typewriter projection apparatus comprising in combination a typewriter and a definition machine, said definition machine including a housing having an opening in the front wall thereof adapted to overlie the platen of the typewriter, a screen within said opening, a projector

disposed within said housing behind said screen, a first roller disposed above said projector, a motor, a drive shaft in operative engagement with said motor, said first roller being fixedly mounted on said drive shaft, said motor being connected to a source of power, switch means actuatable by the keyboard of said typewriter connected in series with said motor and source of power, a second roller rotatably mounted below said projector, film wound on said second roller, said film extending upwardly through said projector and connected to said first roller, said second roller being spring urged in a direction opposite to the direction of rotation of said drive shaft whereby to normally wind said film upon said second roller and releasable means for normally retaining said second roller against the action of said spring means, said second roller being rotatably mounted upon a fixed shaft, and a spiral spring extending between said roller and said shaft, one end of said spring being connected to the interior of said second roller and the other end of said spring being connected to said shaft whereby to normally retain said film wound upon said second roller.

8. A typewriter projection apparatus comprising in combination a typewriter and a definition machine, said definition machine including a housing having an opening in the front wall thereof adapted to overlie the platen of the typewriter, a screen within said opening, a projector disposed within said housing behind said screen, a first roller disposed above said projector, a motor, a drive shaft in operative engagement with said motor, said first roller being fixedly mounted on said drive shaft, said motor being connected to a source of power, switch means actuatable by the keyboard of said typewriter connected in series with said motor and source of power, a second

roller rotatably mounted below said projector, film wound on said second roller, said film extending upwardly through said projector and connected to said first roller, said second roller being spring urged in a direction opposite to the direction of rotation of said drive shaft whereby to normally wind said film upon said second roller and releasable means for normally retaining said second roller against the action of said spring means, said second roller being rotatably mounted upon a fixed shaft, and a spiral spring extending between said roller and said shaft, one end of said spring being connected to the interior of said second roller and the other end of said spring being connected to said shaft whereby to normally retain said film wound upon said second roller, said last mentioned means comprising a plurality of outwardly extending lugs secured to one end of said second roller around the periphery thereof, a pivoted arm adjacent said lugs, a spring connected at one end to said arm whereby to normally urge the top of said arm against one of said lugs, and manually operable means for disengaging said arm from said lugs.

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