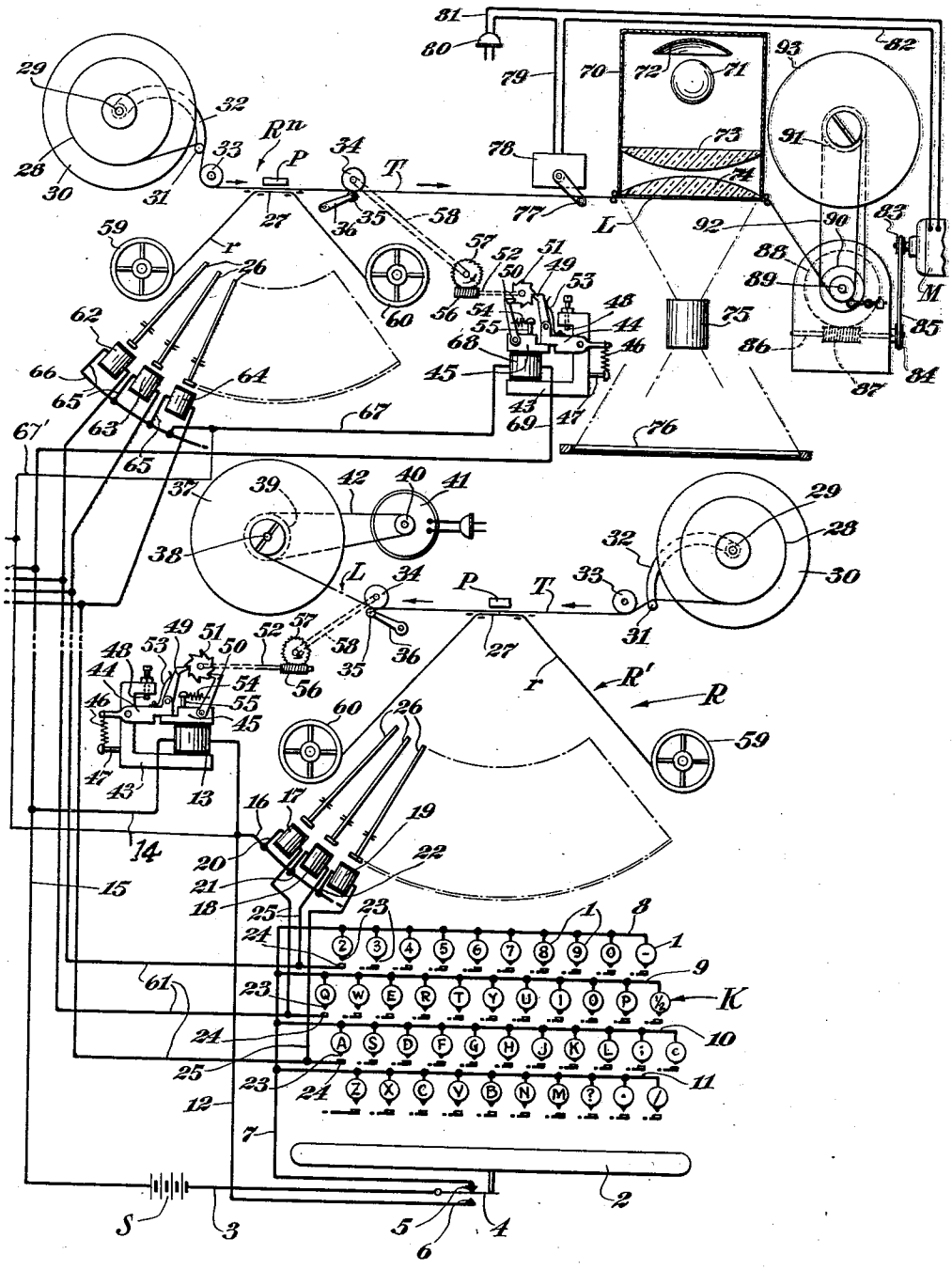
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COMBINATION PROJECTOR AND ELECTRIC TYPEWRITER

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COMBINATION PROJECTOR AND ELECTRIC TYPEWRITER

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This invention relates to record projecting machines in general and more especially to machines for producing and projecting notices, such as the notices of train arrivals and the like or the calls in a hospital or the like. Heretofore, especially in hospitals, a demand has arisen for combination projecting machines and electric typewriters for projecting calls to doctors, nurses and the like, such combination electric typewriters and projectors for hospital use including a transmitter at a central station and a number of receivers associated with projecting machines at substations, located in wards, staff doctors' quarters and the like. The only combination typewriter and projector available for this use heretofore have been those including the standard two wire electric typewriter depending upon an extensive selector system for transmitting the required characters across a two wire system for actuating the type bars of a typewriter at the reception end.

With systems of this character, there was required a transmitter which averaged in cost about five hundred dollars and a receiver at each substation. Consequently, if a hospital had one hundred substations, the typewriter expense alone would approximate five hundred times one hundred and one or fifty thousand five hundred dollars, without considering the cost of wiring, the cost of a projector for each substation and the cost of upkeep. This expense thus made this system prohibitive to the average privately owned hospital and of course objectionable also as to price to public institutions.

Aside from this expense, however, due to the complicated selector system used with this two wire system an ordinary electrician or unskilled helper would not be qualified to maintain such two wire system in repair. The upkeep of such two wire system therefore entailed an additional objectionable excessive expense.

In view of the foregoing, the present invention aims to provide a combination projector and electric typewriter suitable for use in the ordinary privately owned hospital in which the transmitter alone can be produced at an insignificantly small cost and the receivers at the several substations be produced at about one-tenth the cost of the average two wire electric typewriter today in use.

It is still another object of the present invention to provide a combination projector and electric typewriter which can be maintained by the average unskilled mechanic and at least by the ordinary electrician.

It is still another object of the present invention to provide a combination projector and electric typewriter suitable for use in a small privately owned institution, such as a hospital, in which the combination will dispense with the complicated selector system today in use with the well known two wire electric typewriter and require a number of similar standard parts, substantial duplicates of one another.

It is still another object of the prevent invention to provide a combination projector and electric typewriter in which a single narrow strip of paper is used to receive the impressions whereby a line feed mechanism will be dispensed with thereby extensively reducing the cost of manufacture and number of parts entailing such cost.

These and other features, capabilities and advantages of the invention will appear from the subjoined detail description of one specific embodiment thereof illustrated in the accompanying drawing in which

A schematic view is shown illustrating the several parts making up the present improved combination.

In the embodiment illustrated, there is provided a keyboard K having a plurality of keys 1 and a space bar 2 similar to the standard keyboard of the typewriters extensively used in the United States today,

This keyboard in the present instance alone constitutes the central station, that is at the central station alone need such keyboard be located. When a call is to be sent to the several substations located throughout the hospital, this keyboard K alone need be operated. In the present system from the source of current supply S, the main outlet conductor 3 is connected to the contact bar 4 indicated diagrammatically. This contact bar 4 is movably mounted to engage either the contact 5 or the contact 6. The contact 5 in the present instance is connected by the conductor 7 to the branch conductors 8, 9, 10 and 11. The keys 1 in the present instance are connected by electric conductors to these several branch conductors 8, 9, 10 and 11.

In the present instance, the contact 6 is connected by the conductor 12 with the winding of the magnet 13 which is connected by the conductor 14 with the return lead 15 passing back to the source of current supply S. The conductor 12 is also connected to the conductor 16 which is connected to the magnets 17, 18 and 19 by the conductors 20, 21 and 22 respectively. The magnets 13, 17, 18 and 19 in the present instance are indicated as located at one of the sub-

stations. It is of course understood that there will be as many magnets like the ones 17, 18 and 19 as there are type bars and keys 1.

Each of the keys 1 is provided with a contact 23. Adapted to be engaged by such contact 23, each key 1 is furthermore provided with a contact 24 connected by a conductor 25 to its particular magnet 17, 18, 19 or the like.

In the present instance, the key 1 for actuating the character "2" is provided with a contact 23 provided to engage the contact 24 and the conductor 25 connected to the magnet 18. On the other hand, the key 1 for the character "Q" is provided with a contact 23 adapted to engage the contact 24 connected by the conductor 25 to the magnet 17 and the key 1 for the character A is provided with a contact 23 adapted to engage the contact 24 connected by the conductor 25 to the magnet 19. The magnets for the other keys and connecting conductors are not shown since they are mere duplicates of the magnets 17, 18 and 19 and conductors. An explanation of the magnets 17, 18 and 19 and connecting conductors will serve to explain the operation of the magnets for the other keys 1.

The substation provided with the magnets 13, 17, 18 and 19 in the present instance is also provided with a plurality of type bar actuating rods 26 for actuating type bars not shown, in turn to strike the ribbon *r* at the location 27 to form an imprint or impression on the tape T as it passes across the platen P. The platen P will of course serve as an abutment for the paper and type bars during the printing operation. The tape T in the present instance is preferably of the well known narrow ticker tape variety which is supplied in rolls such as the roll 28. In the present instance, the roll 28 is mounted on the shaft 29 of the supply reel 30. From the supply reel 30, the tape preferably passes over the finger 31 on the lever 32 extending from the shaft 29 and then under the guide roller 33 and then across the platen P and from the platen P to the paper feed roller 34 against which the tape T is frictionally held by the finger 35 of the arm 36.

From the tape feed roller 34, the tape then passes to the light aperture hereinafter to be explained and from the light aperture, the tape then passes to the rewind reel 37 mounted on the shaft 38 provided with the sheave 39 which is drivingly connected to the shaft 40 of the motor 41 by the spring belt 42. The spring belt 42 is provided to allow for slippage when the tape T is at rest and not advanced by the tape feed roller 34. The motor 41 is preferably continuously operating.

For operating the tape feeding roller 34, the means now to be described are provided. The magnet 13 in the present instance is provided with a U-shaped core 43 which has pivotally mounted thereon the armature 44 one end of which is adapted to be attracted to the core piece 45 when the magnet 13 is excited. The other end of the armature 44 is connected by the spring 46 with the abutment 47, normally to maintain the armature 44 out of engagement with the core piece 45. The U-shaped member 43 in the present instance, is provided with a stop screw 48 to limit the movement of the armature 44 by the spring 46.

The armature 44 and core piece 45 are provided with the pawls 49 and 50 respectively, pivotally connected to the armature 44 and core piece 45 respectively. The pawls 49 and 50 are provided to co-operate with the ratchet 51 mounted on the end of a shaft 52. For maintaining the pawl 49 in engagement with the ratchet 51, there is provided the spring 53 and for maintaining the pawl 50 in engagement with the ratchet teeth of the ratchet 51, there is provided the coil spring 54 extending from the pawl to the abutment 55 on the core member 45.

On the shaft 52, there is provided the worm 56 in mesh with the worm wheel 57 on the shaft 58, diagrammatically shown, of the pulling roller 34.

The several parts of the driving mechanism for the pulling roller 34 just described are timed to actuate the pulling roller 34 a single letter space at a time each time a key 1 is actuated or the space bar 2 is actuated. The operation of this driving means for the tape pulling roller 34 is substantially as follows:

When the magnet 13 is energized, the armature 44 will be attracted thereby to actuate the pawl 49 across one of the teeth to the next succeeding tooth of the ratchet 51. The ratchet 51 will be maintained in rest position by the pawl 50 engaging another tooth on the opposite side of the ratchet 51. When thereupon the magnet 13 is de-energized, the return of the pawl 49 to normal position by the spring 46 will actuate the ratchet 51 through the engagement of a newly engaged tooth of the ratchet 51, during which time, in the regular way, the pawl 50 will slip across a tooth to the next succeeding tooth. The magnet 13 will be energized whenever the key 1 is actuated and similarly when the space bar 2 is actuated. When a key 1 is actuated, take for instance the key 1 bearing the character "2". the current will pass from the supply S through the conductor 3, contacts 4 and 5, conductor 7, branch conductor 8, contacts 23 and 24, conductor 25, magnet 18, conductors 21, 16 and 12 through magnet 13 and then through conductors 14 and 15 back to the supply S. On the other hand, when the space bar 2 is actuated, the current will pass from the supply S to the conductor 3, contacts 4 and 6, conductor 12, magnet 13 and conductors 14 and 15 back to the supply S.

The means for actuating the ribbon *r* from reel 59 to reel 60 is not shown but may be by the well known means associated with the type bar actuating means or in the present instance with the tape pulling roller 34.

When a plurality of substations are used and operated simultaneously, a plurality of receivers such as the receiver R just described consisting of the electric typewriter parts operated by the magnets 17, 18, 19 and 13, are provided, one receiver R for each substation. These several receivers R are preferably connected as indicated.

In the present instance, the conductors 25 and the several keys 1 are connected by the conductors 61 to the magnets 62, 63 and 64 corresponding to the magnets 17, 18 and 19 of the first substation R just described. It is of course understood that any additional number of substations R^n may be connected to the first described substation and the description of one such additional substation will suffice since additional substations may and preferably are substantial duplicates of one another.

The magnets 62, 63 and 64 are connected by the conductors 65 with the conductor 66 which is connected by the conductor 67 with the magnet 68. The magnet 68 corresponds in the additional substations to the magnet 13 of the first mentioned substation R. This magnet 68 is connected by the conductor 69 with the conductor

15 returning to the supply of current S for use when the spacing actuation is to accompany the printing operation. When however, the spacing actuation is to take place independently, by the actuation of the space bar 2 then the current to the magnet 68 passes to the conductor 67 through the conductor 67' to the conductor 12 and the contact 6 and by means of the conductors 3, 15 and 69 from the contact 4 through the source of electric energy S. In turn, for actuating the additional paper feed actuators independently with the actuation of the spacing bar 2, the conductor 67' is likewise connected to the conductor 67 of the next succeeding substation R^n not shown. All the remaining parts of the electric typewriter of the additional substation are substantial duplicates of the first described substation and therefore need not be described in detail, like references being affixed to like parts.

From the foregoing, it will thus appear that after the message has been printed on the tape T in the several substations and before the same has passed to the inspection areas, to wit the light aperture L in substation R^n, it may then be necessary to actuate the spacing bar 2 independently until the message is so located in the inspection areas. The spacing bar 2 serves as the control for moving the message on the tape into the light apertures L when provided of the several substations.

The light aperture through which the tape T passes is indicated by the reference character L, in the illustrated additional substation R^n as disposed at the end of a lamp housing 70 provided with a lamp 71 and reflector 72 for directing the light rays through the condensers 73 and 74 to the objective lens 75 and from there on to the screen 76. The tape feed in the substations may be controlled to operate as indicated in the additional substation illustrated instead of by the mechanism illustrated with the first described substation R.

In the additional substation R^n, there is provided a loop forming lever 77 of a switch contained in the housing 78 which is connected by the conductor 79 to the outlet plug 80. The outlet plug 80 is also provided with the conductor 81 which is also connected to the motor M which is provided with the return lead 82 to the switch in the switch housing 78. The motor M is provided with a sheave 83 connected to the sheave 84 by the belt 85. The sheave 84 is secured to the shaft 86 of the reduction gearing having the worm 87 in mesh with the worm wheel 88 mounted upon the shaft 89 which is provided with a sheave 90 connected to the sheave 91 by the belt 92. The sheave 91 is mounted on the shaft of the rewind reel 93. In the present instance, the rewind reel 93 will only be operated to take up the tape and advance it across the light aperture L when a sufficient loop is formed under the lever 77 to actuate the switch in the switch housing 78.

For the purpose of clearness, the first mentioned substation is also designated R' and the additional substation designated by the character R^n to indicate any number of additional substations similar and substantially identical to the substation R' or similar and substantially identical to the additional substation R^n illustrated.

The only change illustrated in the additional substation R^n over the substation R' is the change with reference to the means for actuating the tape rewind reel, the tape rewind reel 37 of the substation R' being actuated by a slippage drive while the means for actuating the rewind reel 93 of the substation R^n is controlled by the switch contained in the switch housing 78.

It is obvious that various changes and modifications may be made to the details of construction without departing from the general spirit of the invention as set forth in the appended claims.

I claim:

1. A message transmitting system characterized by a key board having a plurality of character keys and a spacing bar at a single central station, a plurality of narrow tape printers having a fixed single impression location one printer for each of a plurality of sub-stations, each substation having an inspection area, said printers being remotely located from said key board, each printer having a plurality of type bars and a tape feed, one of the type bars of each printer corresponding to one of said character keys, an actuator provided for and operatively connected to each type bar and each tape feed, a magnet for each actuator, a single source of electric current, a primary fixed contact at the central station, a main movable contact normally in contact with said primary fixed contact and operatively associated with said spacing bar to be actuated thereby, a secondary fixed contact adapted to be engaged by said main movable contact, a plurality of switches each cooperatively associated with one of said character keys and including a fixed contact and a movable contact, electrical conductors for said system including means for connecting the tape feed magnet and each type bar magnet of a sub-station in series with said source of electric current, main movable contact and primary fixed contact when a key is actuated to cause a movable contact of a corresponding key switch to make contact with its fixed contact, said electrical conductors also including means for electrically connecting in parallel the corresponding sets of magnets of each sub-station when connected in series by the actuation of a key whereby the sub-stations may be increased or reduced without affecting the system, and said electrical conductors also including means for solely connecting the tape feed magnets of each sub-station in parallel with said source of electric current, main movable contact and secondary fixed contact when said spacing bar alone is actuated to cause said main movable contact to engage said secondary fixed contact, whereby likewise the sub-stations may be increased or reduced without affecting the system and an emergency message removed with facility from the inspection area after the message has been acted upon or received.

2. A message transmitting system characterized by a key board having a plurality of character keys and a spacing bar at a single central station, a plurality of narrow tape printers having a fixed single impression location one printer for each of a plurality of substations, each substation having an inspection area, said printers being remotely located from said key board, each printer having a plurality of type bars and a tape feed, one of the type bars of each printer corresponding to one of said character keys, an actuator provided for and operatively connected to each type bar and each tape feed, a magnet for each actuator, a single source of electric current, a primary fixed contact at the central station, a main movable contact normally in contact with

said primary fixed contact and operatively associated with said spacing bar to be actuated thereby, a secondary fixed contact adapted to be engaged by said main movable contact, a plurality of switches each cooperatively associated with one of said character keys and including a fixed contact and a movable contact, electrical conductors for said system including means for connecting the tape feed magnet and each type bar magnet of a substation with said source of electric current, main movable contact and primary fixed contact when a key is actuated to cause a movable contact of a corresponding key switch to make contact with its fixed contact, said electrical conductors also including means for electrically connecting the corresponding sets of magnets of each sub-station when connected by the actuation of a key, and said electrical conductors also including means for solely connecting the tape feed magnets of each sub-station with said source of electric current, main movable contact and secondary fixed contact when said spacing bar alone is actuated to cause said main movable contact to engage said secondary fixed contact.

3. A message transmitting system characterized by a key board having a plurality of character keys and a spacing bar at a single central station, a narrow tape printer for each of a plurality of substations, each substation having an inspection area, said printers being remotely located from said key board, each printer having a plurality of type and a tape feed, one of the type of each printer corresponding to one of said character keys, an actuator provided for and operatively connected to each type and each tape feed, a magnet for each actuator, a single source of electric current, a primary fixed contact at the central station, a main movable contact normally in contact with said primary fixed contact and operatively associated with said spacing bar to be actuated thereby, a secondary fixed contact adapted to be engaged by said main movable contact, a plurality of switches each cooperatively associated with one of said character keys and including a fixed contact and a movable contact, electrical conductors for said system including means for connecting the tape feed magnet and each type magnet of a substation with said source of electric current, main movable contact and primary fixed contact when a key is actuated to cause a movable contact of a corresponding key switch to make contact with its fixed contact, said electrical conductors also including means for electrically connecting the corresponding sets of magnets of each substation when connected by the actuation of a key, and said electrical conductors also including means for solely connecting the tape feed magnets of each substation with said source of electric current, main movable contact and secondary fixed contact when said spacing bar alone is actuated to cause said main movable contact to engage said secondary fixed contact.

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