

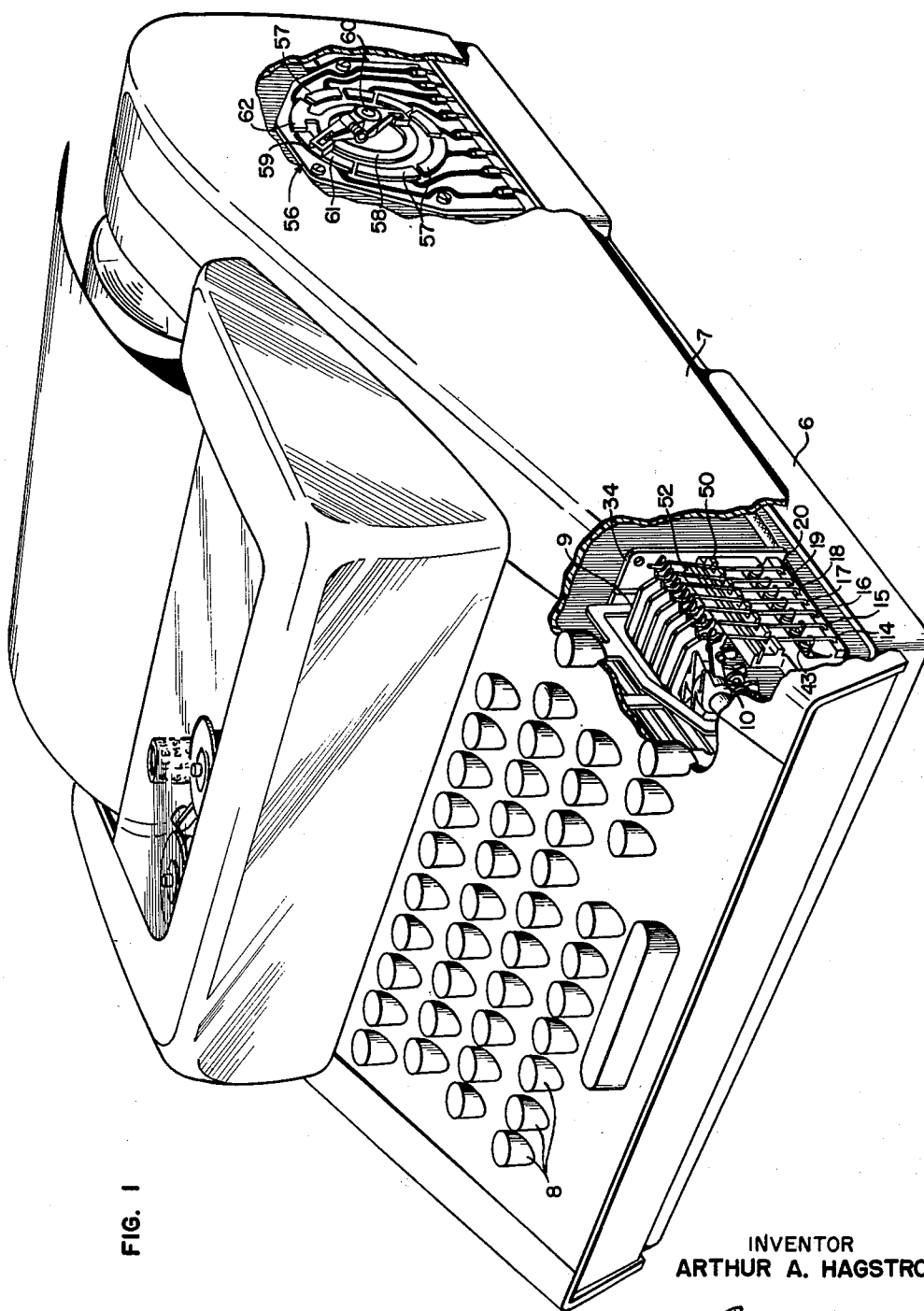
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A. A. HAGSTROM
CONTACT ASSEMBLAGE FOR KEY CONTROLLED
PRINTING TELEGRAPH APPARATUS

3,084,218

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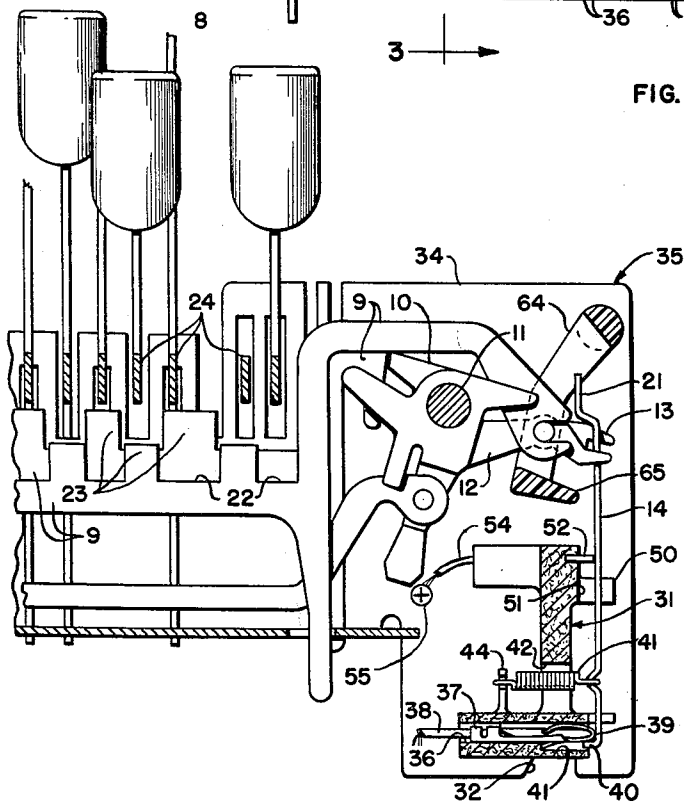
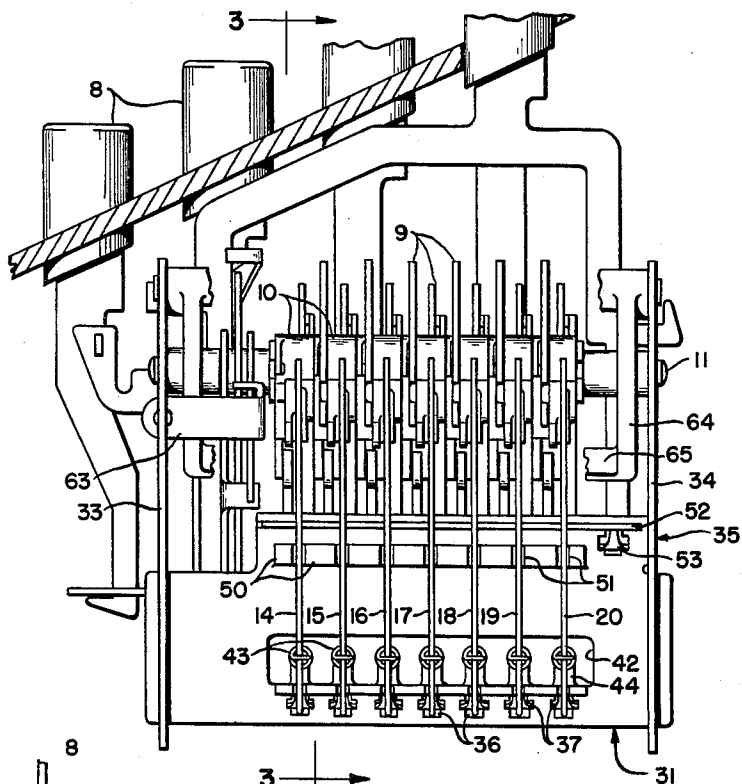
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CONTACT ASSEMBLAGE FOR KEY CONTROLLED PRINTING TELEGRAPH APPARATUS

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8 Claims. (Cl. 178-17)

This invention relates to printing telegraph transmitters and more particularly to the contact mechanism of such transmitters which is controlled by the keys of the transmitter and in turn controls the generation of permutation code signals for transmission by the distributor of the transmitter.

It is an object of the present invention to simplify the construction of contact structures which control the permutation to be transmitted by a telegraph transmitter.

Another object of this invention is the provision of a contact mechanism operable under control of a keyboard which is of simple construction.

A still further object of the invention is the provision of a selectively operable contact mechanism which may be made and assembled at a minimum cost.

A feature of the present invention is a contact mechanism which may be assembled without the use of any tools.

Another feature of the present invention is a contact mechanism which comprises a plurality of readily assembled parts which are held together by spring tension thereby facilitating their assembly and the replacement of individual parts.

In accordance with one embodiment of the invention a contact mechanism operable selectively under control of the keyboard actuated code bars of a printing telegraph transmitting apparatus comprises a common contact bar suitably fixed in a block of insulating material and extending transversely of a plurality of wire contact springs which may be selectively engaged with the common contact bar selectively to apply current to segments of a distributor thereby to control signal transmission. The contact springs are bent to provide a laterally extending lower end portion on each of them for insertion into sockets formed in the block of insulating material, in each of which sockets, a terminal member is positioned for electrically conductive engagement by a contact spring. The block of insulating material has a large central aperture in it through which extend a plurality of coiled springs each having one end connected individually to a contact spring and another end connected to the block for urging its contact spring to engage the common contact bar and for holding its contact spring against an edge of the terminal which serves as a fulcrum for its associated contact spring. Suitable guide slots are formed in the block of insulating material to guide a portion of each contact spring and to cooperate with the terminals in the sockets to hold the contact springs in the assemblage.

A complete understanding of the invention may be had by reference to the following detailed description of a preferred embodiment thereof, when considered in conjunction with the accompanying drawings wherein:

FIG. 1 is a perspective view of a keyboard controlled printing telegraph apparatus equipped with a contact mechanism constructed in accordance with the preferred embodiment of the invention, parts of the cover of the apparatus being broken away to show some of the parts which would otherwise be concealed by it;

FIG. 2 is a transverse vertical sectional view taken through the keyboard of the apparatus shown in FIG. 1 adjacent to the right end of the cover of the apparatus

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more clearly to illustrate details of construction of the contact block and mechanism carried by it, and

FIG. 3 is a vertical sectional view taken substantially along line 3-3 of FIG. 2 in the direction of the arrows.

Referring now to the drawings wherein like reference characters designate the same parts throughout the several views, particular reference being had at this time to FIG. 1, it will be noted that the telegraph transmitting apparatus comprises a main base member 6 on which there is positioned a cover member 7 that encloses the operating mechanism of the apparatus. The forward portion of the cover 7 has extending through it a plurality of keys 8 which may be manipulated to control the transmission of telegraphic messages by actuating a series of code bars 9. The code bars 9 upon being selectively manipulated by the keys 8 will rock T-levers 10. These code bars 9 are arranged in pairs and preferably are of the construction illustrated in the copending application of L. C. Anderson and A. A. Hagstrom, Serial No. 159,324, filed December 14, 1961, which application is incorporated herein by reference and which application shows in detail and claims the keyboard mechanism.

The T-levers 10 are oscillatably mounted on a pivot rod 11 and upon manipulation of the various keys in the keyboard will selectively move the code bars 9 permutatively to control the rocking of the T-levers 10. Each of the T-levers 10 has a code bar pivot arm 12 on it, on which there is formed a camming surface 13 for cooperation with a contact spring of a group of contact springs 14 to 20, inclusive. The contact spring 14 which is most clearly shown in FIG. 3 will be permitted to move to the position shown in FIG. 3 when the T-lever 10 is moved to its clockwise position but will be blocked from moving to the position shown in FIG. 3 when the T-lever 10 is oscillated in a counterclockwise direction (FIG. 3) to a point where the camming surface 13 will be in alignment with a bent-over portion 21 of the contact spring 14. This rocking of the T-levers 10 is effected in accordance with the permutation code notches 22 and projections 23 on the code bars 9 depending upon the position to which the code bars 9 have been moved by cross-members 24 of the keys 8.

The contact springs 14 to 20, inclusive, are mounted upon a block 31 of insulating material which is mounted in fixed relation to the T-levers by forcing it into slots 32 formed in front and rear walls 33 and 34 of a box-like structure 35 which serves to support the code bars 9 and keys 8. The block 31 may be molded from any suitable plastic insulating material and is provided near its lower end with a plurality of apertures that extend through an enlarged portion of the block 31 to form sockets 36. Each of the sockets 36 has a terminal member 37 fixedly mounted on it to which there is electrically connected a wire 38. The terminals 37 are bent at their right ends (FIG. 3) as indicated at 39, to provide a surface against which the springs 14 to 20, inclusive, will bear. The lower end of each of the springs 14 to 20 is bent over to form a laterally extending portion 40 that is held resiliently between the lower surface of the portion 39 of the terminal and the base 41 of the socket.

The block 31 has a relatively large substantially rectangular aperture 42 formed in it just a small distance above the sockets 36 and at a point immediately to the right of the aperture 42 (FIG. 3) the springs 14 to 20 are bent to receive one end of springs 43. The other ends of the springs 43 are attached to upwardly extending pins 44 formed on the block 31.

Approximately midway of the length of springs 14 to 20, the block 31 has formed on it a series of guide projections 50 which define slots 51 in which the springs 14 to 20 may freely move but in which the springs 14 to

20 are guided in approximate position to facilitate the assembling of the blocks as a unit with the T-lever 10 which contact with a common contact bar 52. The common contact bar 52 is suitably mounted in the block 31 and has associated with it a terminal member 53 (FIG. 2) which is of the same general construction as terminal member 37 and which has suitably fixed to it a wire 54 that is connected to a source of potential as indicated at 55.

As is usual in telegraph transmitting apparatus of the type to which the present invention pertains, permutation code signals are applied sequentially to transmission line by cyclically operable distributor mechanism and in the present apparatus the contact springs 14-20 control the feeding of current to distributor 56. The wires 38 which are connected through the terminal members 37 to the contact springs 14-20 are individually connected to transmitting segments 57 of the distributor 56 and marking or spacing pulses will be transmitted to a signal line (not shown) but connected to a common ring 58 by a bridging brush 59 mounted on a shaft 60 of the distributor. When a cycle of rotation of the shaft 60 is initiated as shown in the drawing the brush 59 is in engagement with a stop segment 61 of the distributor and in each cycle of rotation of the shaft 60 the bridging brush 59 will first engage a start segment 62 and will then sequentially engage the transmitting segments 57. While the distributor 56 may be of any known type having the hereinbefore enumerated features, it is preferred that it is of the type shown in the copending application of K. Alonas, A. A. Hagstrom and B. J. Sobczak, Serial No. 159,328, filed December 14, 1961, wherein the preferred form of distributor mechanism is shown in detail and claimed.

In order to initiate a cycle of transmission of the apparatus a universal bail or code bar 63 (FIG. 2) is provided which will be actuated upon the operation of any of the character transmitting keys 8 of the keyboard and as is usual in apparatus of this general type the operation of the universal bail or code bar 63 will initiate a single cycle of the distributor shaft 60 and will release a contact restoring bail 64 and permit it to move to the position shown in FIG. 3. This contact restoring bail 64 has a contact engaging portion 65 which at the end of a cycle of rotation of the distributor shaft 60 engages all of the contact springs 14-20 to move them out of engagement with the common contact bar 52 and which upon operation of the universal bail 63 is released to the position shown in FIG. 3 where any of the contact springs 14-20 which are not blocked by the camming surface 13 or their associated T-levers 10 will be permitted to engage the common contact bar 52. This universal bail structure and the contact restoring bail 64 are preferably of the type described and claimed in the copending application of A. A. Hagstrom, Serial No. 159,240, filed December 14, 1961 which is incorporated herein by reference insofar as is necessary for a complete understanding of the utility and operation of the mechanism covered by the present invention.

In the operation of the apparatus the depression of any key 8 on the keyboard will selectively actuate the code bars 9 which have an arrangement of projections 23 and notches 22 for setting up a permutation code in accordance with the particular key 8 which has been operated. The code bars 9 will rock their associated T-levers 10 to position the camming surfaces 13 on the T-levers 10 permutatively to block the return of the contact springs 14-20 to the position shown in FIG. 3 when the contact springs 14-20 are released by the contact restoring bail. The contact restoring bail 64 will be rocked to the position shown in FIG. 3 upon the operation of anyone of the keys 8 in the keyboard and line potential will then be supplied from the source 55 to the common contact bar 52 to any of the springs 14-20 which are in engagement with the common contact bar 52. Since the universal bail or code bar 63 is operated as a consequence of this

operation of any key 8 in the keyboard, a cycle of rotation of the shaft 60 of the distributor 56 will be initiated and the brush 59 will be driven from engagement with the stop segment 61 to engagement with the start segment 62 and the transmitting segments 57, sequentially to apply permutation code signals to the signal line (not shown) through the common ring 58. At the end of the cycle of rotation of the shaft 60 the contact restoring bail 64 will be rocked in a counter-clockwise direction to disengage any of the contact springs 14-20, which had been permitted to engage the common bar 52, to move those springs out of engagement with the common bar 52 and restore the apparatus to condition to transmit another permutation code signal upon operation of another key 8 in the keyboard.

Although a particular embodiment of the invention is shown in the drawings and described in the foregoing specification, it will be understood that the invention is not limited to that specific embodiment, but is capable of modification and rearrangement, and substitution of parts and elements without departing from the scope of the invention.

What is claimed is:

1. In a printing telegraph transmitter, a distributor, a keyboard for controlling the output of said distributor, a plurality of code bars permutatively operated by said keyboard, T-levers selectively operable by said code bars, and a contact bank including a series of contacts individual to said T-levers for controlling the distributor comprising a block of insulating material, a common contact bar imbedded in said block, a series of wire spring contacts extending transversely of the length of said contact bars for selective engagement with said bar, a socket in said block individual to each wire spring for receiving an end of its associated wire spring, a terminal member in each of said sockets for engagement with said end of a wire spring, a spring for each wire spring contact for urging it to engage said contact bar, means for selecting said wire spring contacts for engagement with said bar, and wiring interconnecting the wire spring contact's terminals to the distributor.

2. An apparatus according to claim 1 wherein an end portion of said terminal member serves as a fulcrum for said wire spring contact and the coiled spring holds the wire spring contact against said fulcrum.

3. A printing telegraph transmitter of the type having a cyclically operable distributor provided with transmitting segments, a common contact ring, a brush for interconnecting the segments with the ring once in each cycle of the distributor, and having keys and permutation code members for controlling the signals transmitted by the distributor, and including a contact bank having a common contact bar, a plurality of wire spring contacts operatively associated with said contact bar, a contact supporting block formed of insulating material for supporting the contact bar and the wire spring contacts having a terminal socket in it individual to each wire spring contact for receiving one end of the wire spring contact, a plurality of guide projections formed on said block for guiding an intermediate portion of said wire spring contacts, a spring individual to each wire spring contact for urging its associated wire spring contact to engage said contact bar and serving as the sole means for retaining the wire spring contact in association with the contact block, and insulating members selectively settable by said code members, to permutatively control the operation of said wire spring contacts by selectively blocking them from engagement with the common contact bar.

4. In a printing telegraph transmitter, a distributor having a common contact connected to a telegraph signal line, a plurality of selectively energizable segments and a cyclically operable bridging brush for sequentially connecting said segments to the common contact, a keyboard having keys for selectively controlling the energization of

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said segments, and a contact bank intermediate the keyboard and the distributor comprising, a contact supporting block, a common contact bar in said block, means connecting said common contact bar to a source of potential, a plurality of wire contact springs extending transversely of said contact bar, a plurality of sockets in said block for receiving the ends of said contact springs, a terminal member resiliently gripped in each socket for conductively and resiliently engaging a contact spring adjacent to the end of it, wiring for individually connecting each terminal member to a segment on said distributor, a spring individual to each wire contact spring for urging it to make contact with the contact bar, and permutatively settable means actuated by the keys in the keyboard in each cycle of the distributor brush for selectively blocking said wire contact springs from engaging the contact bar.

5. A contact block for a printing telegraph transmitter having means for selectively actuating contacts in accordance with a permutation code comprising a block of insulating material, a common contact bar mounted on said block of insulating material, a plurality of wire spring contacts extending transversely of said contact bar for selective engagement therewith, each of said wire spring contacts having a bent-over portion at one end for cooperation with the actuating means and a laterally extending portion at the other end, a terminal socket for

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each wire spring contact to receive the laterally extending portion thereof, a terminal member wedged in each of said sockets for conductive engagement by said laterally extending portion, and resilient means for holding each of said laterally extending portions in engagement with said terminal members and for urging the wire spring contacts toward the common contact bar.

6. A contact block according to claim 5 wherein said resilient means comprises a plurality of coiled springs, one for each wire spring contact, connected to the wire spring contacts intermediate the ends thereof and attached to the block of insulating material.

7. A contact block according to claim 6 wherein the block of insulating material has a plurality of pins formed on it in alignment with the wire spring contacts and has an aperture through it through which the coiled springs extend for connection to the wire spring contacts and the pins.

8. A contact block according to claim 5 wherein a slotted projection is formed on the block of insulating material between the common contact bar and the resilient means for guiding the wire spring contacts and maintaining them in spaced relation during the assembling of the block in a transmitter.

No references cited.