

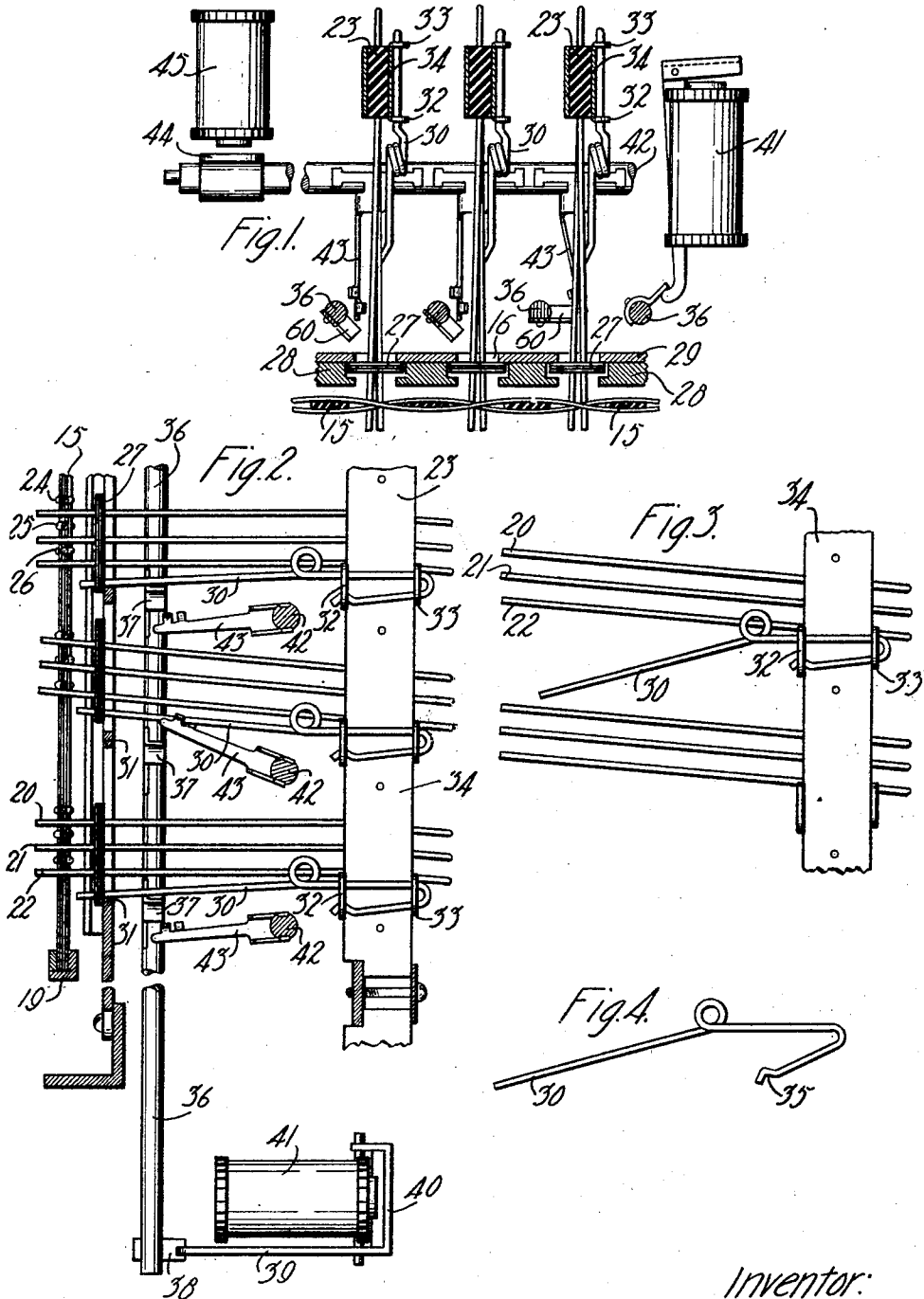
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H. W. GOFF

TELEPHONE SWITCH

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Inventor:
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UNITED STATES PATENT OFFICE.

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TELEPHONE SWITCH.

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To all whom it may concern:

Be it known that I, HAROLD W. GOFF, a citizen of the United States of America, residing at New York, in the county of New York, State of New York, have invented certain new and useful Improvements in Telephone Switches, of which the following is a full, clear, concise, and exact description.

10 This invention relates to telephone switches and more specifically to a retracting spring used in such switches.

The object of the invention is the production of a switch which is low in first cost, accessible for adjustment, efficient in operation, simple and rugged.

A feature of the invention resides in the provision of a contact bank on which a plurality of active contact retracting springs are mounted and easily removable therefrom for adjustment and repairs.

Another feature of the invention resides in the provision of a reenforcing strip which is secured to the active contact support and on which slotted lugs are provided to receive the fastening end portion of the active contact retracting springs.

Another feature of the invention resides in the provision of a retracting spring having its fastening end portion bent in the form of a V-shaped hook adapted to fit tightly into respective slots in a supporting strip and the provision of a depression at the free end portion of the hook adapted to snap into one of the slots through the medium of the spring tension of the hook for holding the retracting spring against longitudinal movements.

Other features and advantages will appear from the following description and by the claims appended hereto, reference being had to the accompanying drawings in which Fig. 1 is a plan of a switching structure in which the retracting spring is used, Fig. 2 is a side elevation of the switching structure of Fig. 1, Fig. 3 is a side elevation of a contact support showing a retracting spring in position thereon, and Fig. 4 is a side view of a retracting spring.

Similar reference characters refer to similar parts throughout the several views.

The switch structure in which the retracting spring disclosed in this invention forms a part consists of a plurality of active and passive contact sets, the active contacts be-

ing adapted to be moved selectively in contacting relation with their associated passive contacts through the conjoint operation of selecting and operating bars.

Each set of active contacts consists of 60 a plurality of bare wires 20, 21 and 22 which are molded into an insulating block 23, shown in Fig. 1, and extend laterally therefrom in juxtaposition with sets of associated grid wires 24, 25 and 26. Such grid 65 wires are interwoven with insulating weft bars 15 secured on a frame 19 partially shown in Fig. 2. Each set of active contact wires 20, 21 and 22 protrude through an aperture 16 in a supporting plate 29 and 70 each wire protrudes through its respective aperture in an insulating card 27. Each card 27 is slidably arranged in a channel-shaped guide formed by a plurality of parallelly disposed T-shaped bars 28 which are 75 secured on the supporting plate 29. With each card 27, there is provided a retracting spring 30 adapted to hold the cards 27 and the active contacts 20, 21 and 22 served thereby in normal non-operated position as 80 shown by the upper and lower sets of contacts in Fig. 2 wherein the retracting spring 30 is shown resting against the stop 31 in the supporting plate 29.

Each retracting spring 30 has its fastening 85 end portion bent in the form of a V-shaped hook adapted to fit into the slots of two parallelly disposed lugs 32 and 33 which are integrally formed with the reenforcing strip 34 secured on the insulating 90 block 23 in any convenient and suitable manner. The free end portion of each hook is provided with a depression 35 adapted to engage the lower portion of lug 32 under the medium of the spring tension of the 95 hook for holding the retracting spring against longitudinal movement.

For each vertical row of active contacts, there is provided a selecting bar 36 on which the cams 37 are secured. On one end of 100 each bar 36, there is provided an arm 38 in operable relation with an arm 39 of an armature 40 which is adapted to rotate the bar 36 in response to each energization of an operating magnet 41. 105

For each horizontal row of active contacts, there is provided a rotatable bar 42, each of which carries a plurality of resilient lifting fingers 43 each associated with a retracting spring 30 and a cam 37. On each 110

bar 42, there is provided an armature 44 adapted to rotate its associated bar 42 in response to each energization of an electromagnet 45.

5 It is to be noted that normally the lifting fingers 43 are free to move by the side of their associated retracting springs without engaging them. When the selecting bar 36 is moved a small angular distance from normal to operated position as shown at 60 in Fig. 1, the movement of bar 42 from normal to operated position results in flexing the lifting finger disposed at the intersection of the two bars out of its normal path for oper-
10 atively engaging its associated retracting spring 30, and thereby releasing its associated active contacts 20, 21 and 22 which move into contact with their associated grid wires 24, 25 and 26 through the medium of
15 their own tension. The selecting bar 36 may be returned to normal position immediately to participate in the establishment of other coexisting connections but the horizontal bar 42 and the lifting fingers 43 carried thereby remain in operated position
20 throughout the duration of the connection.

This invention is an improvement of the type of switch disclosed in Patent 1,515,735 issued to C. L. Goodrum, et al. on November 18, 1924.
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What is claimed is:

1. In a switching device, switch contacts, a slotted support and a retracting spring for moving said contacts held in said slots
35 through the medium of its own tension.

2. In a switching device, the combination of switch contacts, a contact support, a slotted member secured on said support, a retracting spring for moving said contacts
40 having a V-shaped hook, and means integrally formed with said hook for holding said spring against movement in said slots.

3. In a switching device, the combination of sets of active contacts, a supporting member therefor, a retracting spring associated
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with each of said sets, parallelly arranged slotted lugs carried by said member, a pair of said lugs for each of said springs, and means for holding each of said springs against longitudinal movement in the slots of said member.

4. In a switching device, a contact supporting member having two parallelly disposed slotted lugs; and a retracting spring removably arranged in said slots, said spring having a fastening end portion bent in the form approximately of a V-shaped hook and a depression at the free end portion of said hook for holding said spring against movement in said slots.

5. In a switching device, the combination of an insulating support, a reinforcing strip secured on said support, parallelly disposed slotted lugs laterally extending from opposite sides of said strip, and individually removable retracting springs each having a V-shaped spring hook for holding said spring against movement in said slots.

6. In a switching device, the combination of a set of active contact wires arranged in an insulating block, a reinforcing strip for said block, a card associated with said set of wires, and a retracting spring for said card, said spring having its fastening end portion in the form approximating a V-shaped hook and a depression formed at the free end portion of said hook for holding said spring in said slots.

7. In an automatic fastening device, the combination of a supporting strip, a pair of parallelly disposed slotted lugs arranged on said strip, and a V-shaped spring hook having a depression adapted to snap into one of said slots through the medium of the spring hook tension.

In witness whereof, I hereunto subscribe my name this 7th day of September A. D., 1923.

HAROLD W. GOFF.