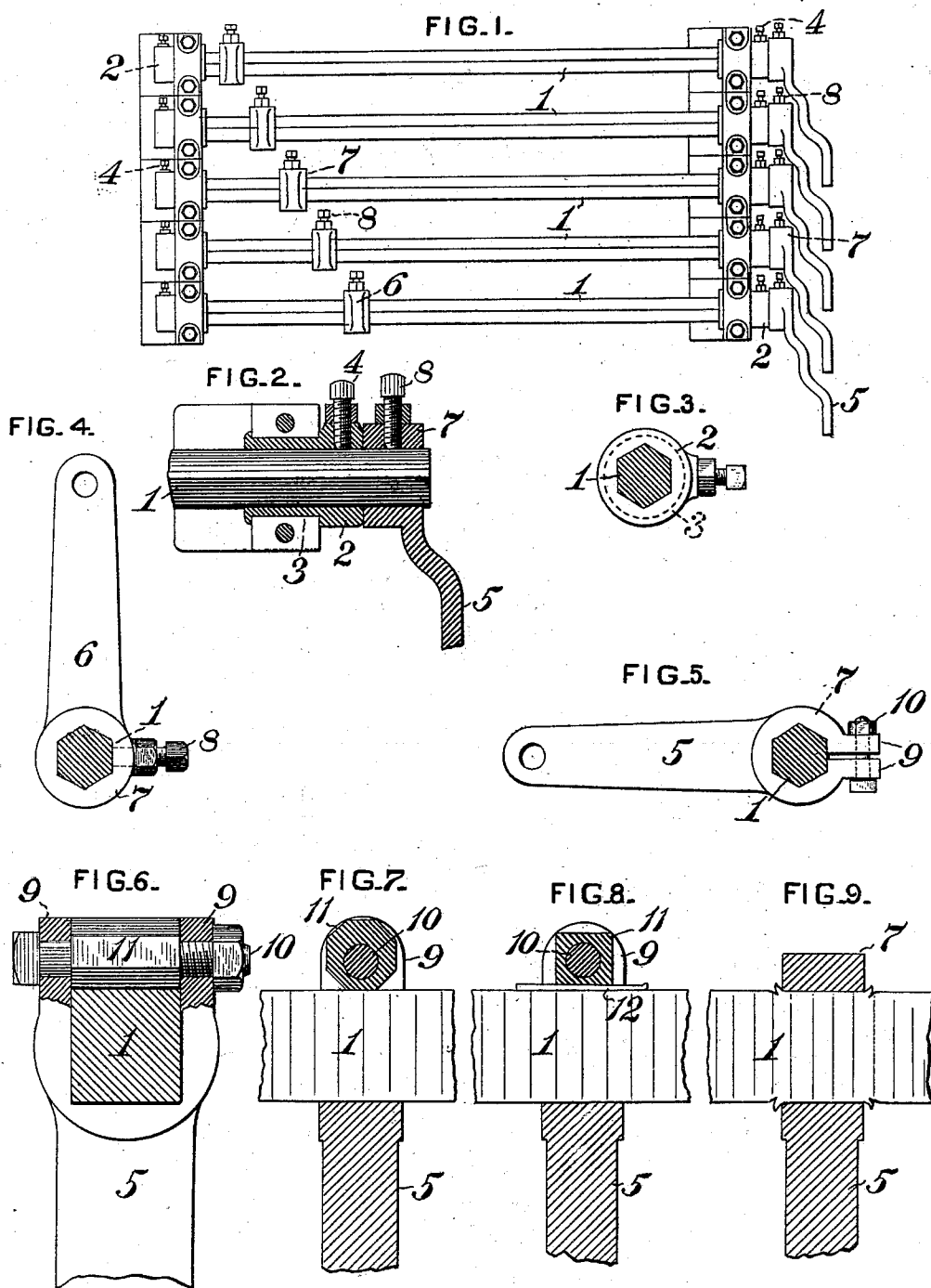


(No Model.)

V. C. SPICER.
SWITCH AND SIGNAL APPARATUS.

No. 553,477.

Patented Jan. 21, 1896.



WITNESSES:

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UNITED STATES PATENT OFFICE.

VIBE C. SPICER, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE UNION SWITCH AND SIGNAL COMPANY, OF SWISSVALE, PENNSYLVANIA.

SWITCH AND SIGNAL APPARATUS.

SPECIFICATION forming part of Letters Patent No. 553,477, dated January 21, 1896.

Application filed May 21, 1892. Serial No. 433,846. (No model.)

To all whom it may concern:

Be it known that I, VIBE C. SPICER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented or discovered certain new and useful Improvements in Switch and Signal Apparatus, of which improvements the following is a specification.

The invention described herein relates to certain improvements in devices technically known as "lead-outs," which are employed for connecting the operating-levers with the switches and signals. These lead-outs consist of round shafts provided with arms to which the operating-levers in the tower and the pipes or wire leading to the switch and signal mechanisms are connected. It has heretofore been customary to weld the arms to the shafts prior to shipping them to places of use, in order to prevent any slipping of the arms around the shafts. It frequently happens that in erecting the switch and signal plant circumstances will require such alterations as to necessitate a change in the positions of the arms; but as the arms are welded on, these changes involve considerable labor, delay and expense.

The object of the present invention is to so construct the lead-outs that an adjustment of the arms around and along the shafts can be readily made at the point of erection of the plant.

In general terms the invention consists in the construction and combination, substantially as hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a plan view of a lead-out embodying my invention. Fig. 2 is a sectional detail view of the end of one of the lead-out shafts to which the operating-lever is connected. Fig. 3 is an end view of one of the journal-sleeves. Figs. 4 and 5 are detail views of the arms, showing the manner of attaching them to the shafts. Figs. 6, 7, 8 and 9 are sectional detail views showing various modifications of the manner of attaching the arms to the shafts.

In the practice of my invention the brackets for the rock-shafts are constructed in the usual manner, and on the upper ends of these

brackets are formed bearings for the shafts 1, which are made polygonal or other irregular shape in cross-section. The journals 2 for these shafts are formed by sleeves having a round exterior portion 3 adapted to fit the bearings on the brackets and having an internal contour corresponding to the cross-sectional shape of the shafts. These sleeves which fit the shafts snugly are held thereon by set-screws 4, or the shaft may be locked as against slipping longitudinally through the sleeve by upsetting a portion of the shaft at each end of the sleeve, as shown in Fig. 9.

The arms 5 and 6, to which the operating-levers and the connections to the switch and signal-operating mechanism are attached, are provided at one end with sockets 7 of an internal size and shape to fit the shafts easily and snugly, as shown in Figs. 4, 5 and 6. These arms are held as against movement along the shafts by set-screws 8, as shown in Fig. 4, or by upsetting portions of the shafts on each side of the sockets, as shown in Fig. 9. If desired, the eyes or sockets at the ends of the arms may be split, and then clamped tightly around the shafts by means of bolts 10, passing through lugs 9 formed in opposite sides of the split, as shown in Figs. 5, 6, 7 and 8. In order to prevent any rattling of the sockets or eyes, when using rods square in cross-section and the split eyes or sockets, which bear upon three sides of the shafts, filling-pieces or washers 11 are slipped upon the bolts 10. These filling-pieces are made with a series of flat faces and the holes for the passage of the bolts are bored eccentric so that by rotating the washer a firm bearing thereof on the shaft may be obtained, as shown in Figs. 6 and 7. The eyes or sockets may be held tightly upon the shafts by means of wedges 12 driven between the bolt or a sleeve surrounding the same and the shaft, as shown in Fig. 8.

I claim herein as my invention—

1. In a switch and signal apparatus, a mechanism interposed in the connections between the operating lever or levers and the part or parts to be operated thereby for changing the direction of movement of the connections, said mechanism consisting of one or more shafts and two or more arms mounted on

each shaft, one or more of the arms being capable of angular adjustment around and of longitudinal adjustment along the shaft or shafts, one of the arms being adapted for
5 connection with the operating lever or levers and the other arm or arms with the part or parts to be operated by said lever, substantially as set forth.

2. In a switch and signal apparatus, a mechanism interposed in the connections between
10 the operating lever or levers and the part or parts to be operated thereby for changing the direction of movement of the connections, said mechanism consisting of one or more
15 shafts angular in cross section, journals sleeves fitting on said shaft or shafts and having round exterior surfaces, and removably attached to the shaft or shafts, and two or more
20 arms mounted on each shaft, one or more of the arms being capable of angular adjustment around the shaft, one of the arms being

adapted for connection with the operating lever and the other arm or arms with the part or parts to be operated by said lever, substantially as set forth.

3. In a mechanism for connecting operating levers, &c., with the switches or signals to be operated, the combination of a shaft angular in cross section, an arm provided with a split eye or socket corresponding in contour to the shaft, bolts for clamping the eye or socket
30 around the shaft, and filling pieces having a series of flat faces and an eccentric opening thereto arranged on the bolt, substantially as set forth.

In testimony whereof I have hereunto set my hand.

VIBE C. SPICER.

Witnesses:

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MORRIS THEIN.