(No Model.)

W. H. DAVIS & H. C. CHRISTY.

SIGNAL TRANSMITTER.

No. 546,228. Patented Sept. 10, 1895.

Fig 1

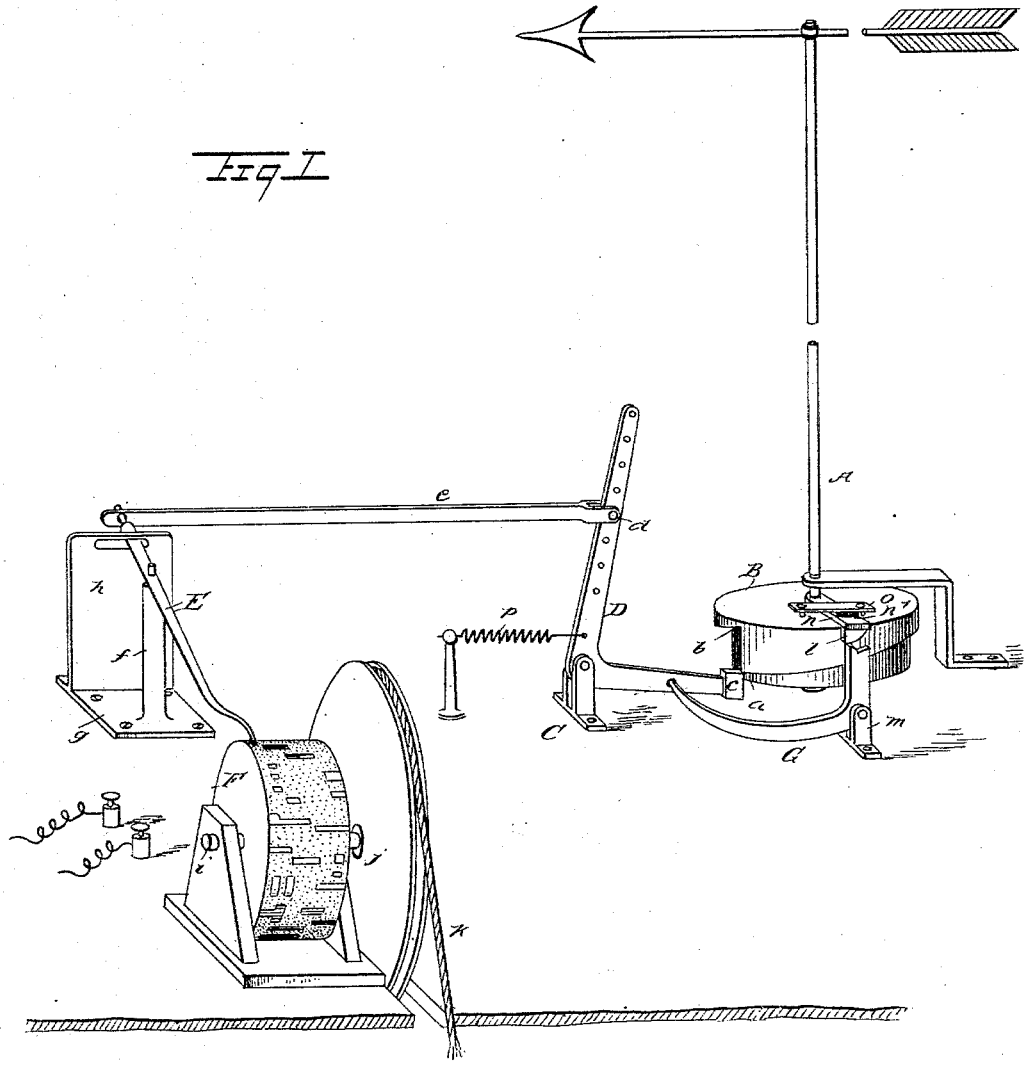
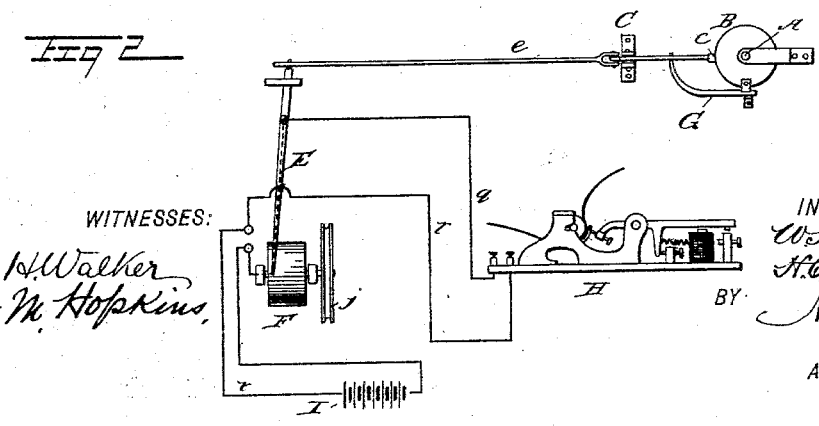


Fig 2



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SIGNAL-TRANSMITTER.

SPECIFICATION forming part of Letters Patent No. 546,228, dated September 10, 1895.

Application filed June 3, 1895. Serial No. 551,514. (No model.)

To all whom it may concern:

Be it known that we, WILLIE HOSEA DAVIS and HUGH CICERO CHRISTY, of Como, in the county of Park and State of Colorado, have invented a new and Improved Signal-Transmitter, of which the following is a full, clear, and exact description.

The object of our invention is to provide apparatus for transmitting electrical signals to be recorded at a distant point, the invention being designed more particularly for use in connection with meteorological instruments—a weather-vane, for example.

Our invention consists in a helical cam attached to the moving shaft, a lever adapted to engage the cam, a device for lifting the lever over the step from the lower to the higher part of the cam, a revoluble drum carrying contact-surfaces representing different signals, a contact-point pressing upon the revoluble drum, and electrical connections and recording mechanism, all as will be hereinafter more fully described.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in both the views.

Figure 1 is a perspective view showing the application of our improvement to a weather-vane; and Fig. 2 is a plan view of the same, showing a recording-instrument connected with the device.

The weather-vane shaft A is supported in bearings in the usual way, and upon the shaft, at any convenient point in the length thereof, is mounted a helical cam B, with its working face extending from the shoulder *a* to a point *b* directly above this shoulder. In a forked standard C, attached to a fixed support, is pivoted an angled lever D, carrying upon its shorter arm a shoe *c*, which rests upon the face of the cam B. The longer arm of the lever D is perforated to receive the pin *d*, passing through the forked end of the connecting-rod *e* and through the lever D. The opposite end of the connecting-rod *e* is pivotally connected with the shorter arm of a contact-lever E, the longer arm of which rests upon the revoluble drum F. The lever E is fulcrumed on the standard *f*, projecting from the base *g*, and the said lever is guided by a slotted guide *h* attached to the base *g*. The shaft *i* of the revoluble drum F is journaled in suitable supports and carries a pulley *j*, which is driven by a belt *k*, taking its motion from any continuously-revolving shaft.

To the cam B, at a point about ninety degrees distant from the shoulder *a*, is secured a toe *l*, and in the forked standard *m* attached to the base of the apparatus is pivoted a right-angled lever G, the shorter arm of which is notched for engagement by the toe *l*, and the longer arm of the lever G is curved and its extremity is inserted in a hole in the shorter arm of the lever D. The toe *l* is attached to a plate *n*, which is held down normally in contact with the top of the cam B by means of a spring *n'*, (which, in the present case, consists of a small block of rubber,) the said rubber spring being pressed by a cross-bar *o*, held in place by screws entering the top of the cam B. The longer arm of the lever D is provided with a retractile spring *p*.

A telegraph-recorder H, located at a distant station, is connected by the wires *q r* with the transmitting apparatus, the wire *q* being connected with the contact-lever E and the wire *r* being connected with one pole of the battery I, the other pole of the battery being connected electrically with the drum F. The said drum F is preferably made of metal and provided with insulation at its periphery, which is cut away at points where an electrical contact is desired. In the present case the drum carries on its periphery contacts which are used in sending signals representing "North," "South," "East," and "West," and as many intermediate divisions of the compass as may be desired. The signals on opposite edges of the drum are the same, so that when the contact-arm is transferred from one edge to the other in the manner presently to be described it will indicate correctly the point of compass.

The operation of our improved apparatus is as follows: As the shaft A is oscillated or revolved by the action of the wind on the weather-vane, the cam B moves the shorter arm of the lever D up or down, according to the direction of the wind. When the deeper portion of the cam rides past the shoe *c* on the shorter arm of the lever D, the said shoe

is made to move to the higher portion *b* of the cam by the retractile spring *p*, attached to the lever D. When the shaft A revolves in the opposite direction and the shoe *c* approaches the shoulder *a*, the toe *l* engages the notched end of the shorter arm of the lever G and swings the said lever on its pivot, thereby carrying the shoe *c* down below the shoulder *a*, allowing the shoulder to pass, thus bringing the shoe into engagement with the deep portion of the cam. The movement of the lever D thus produced swings the lever E, thereby bringing its free end into electrical contact with the contact-surfaces on the drum F. The circuit thus being closed, the recorder H is actuated and a record of the position of the vane on the shaft A is made.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. In a signal apparatus, the combination of a cam, an angle lever actuated thereby, a toe on the cam, an angle lever connected to the first angle lever and actuated by the toe, a revolving drum, a contact arm connected to the angle levers, and electrical connections, substantially as described.

2. The combination of a cam, a toe thereon, an angle lever operating on the face of the cam, a second angle lever having one arm pivotally connected to the first angle lever and having its remaining arm actuated by the toe of the cam, a revolving drum, a contact arm, a link connecting the drum and angle levers, and electrical connections, substantially as described.

3. The combination of a helical cam, a toe thereon, a lever actuated by the cam, a second lever connected to the first lever and actuated by the toe, a drum, a contact arm, and electrical connections, substantially as described.

4. The combination with an electrical circuit having means for opening and closing the same, of a cam, a lever engaging said cam and connected to the means for opening and closing the circuit, a toe on the cam, and a second lever connected to the first lever and operating with the toe, substantially as described.

5. The combination with an electrical circuit having means for opening and closing the same, of a cam actuating said means, a toe on the cam, and a lever actuated by said toe and connected with the means for opening and closing the circuit, substantially as described.

6. The combination with an electrical circuit and means for opening and closing the same, of a helical cam having an abrupt shoulder at the contiguous ends of its face, the said face being engaged with the means for opening and closing the circuit, a toe on the cam, and an angle lever having one end pivotally connected to the means for opening and closing the circuit and having the remaining end periodically engaged by the toe, substantially as described.

7. The combination of a cam, an angle lever, a link connected to the angle lever, a pivoted contact arm connected with the link, a continuously revolving drum engaging the contact arm, and electrical connections, substantially as described.

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Witnesses:
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