

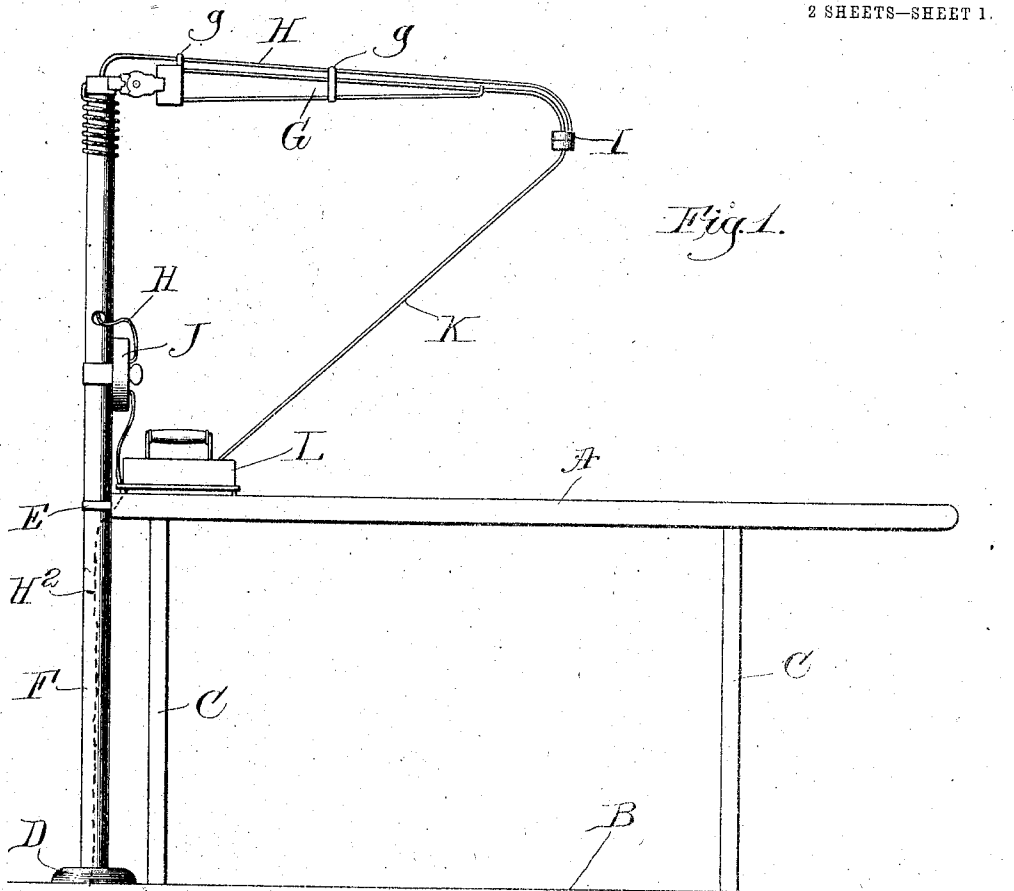
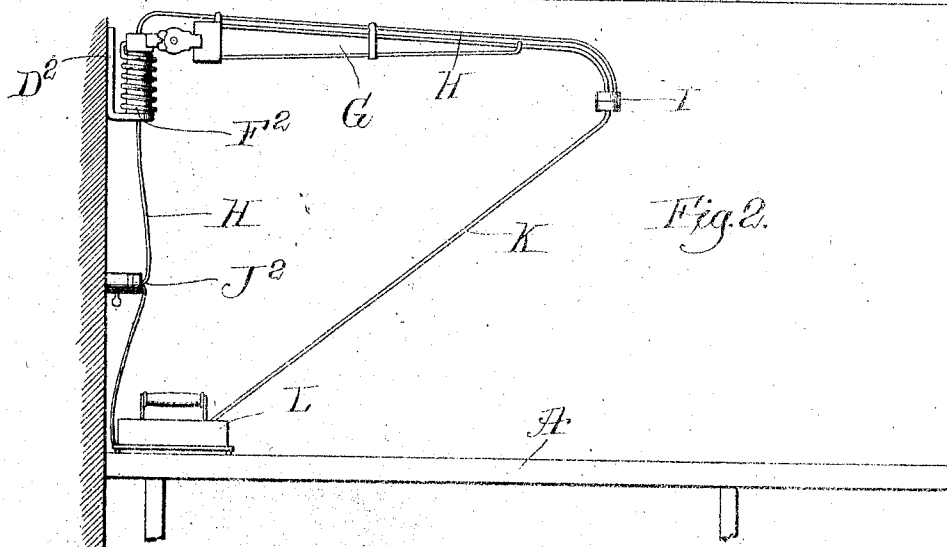
No. 839,256.

PATENTED DEC. 25, 1906.

J. I. AYER & G. T. GILBERT.
CONDUCTOR SUPPORT FOR MOVABLE TOOLS.

APPLICATION FILED DEC. 22, 1905.

2 SHEETS—SHEET 1.



Witnesses.
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Inventors.
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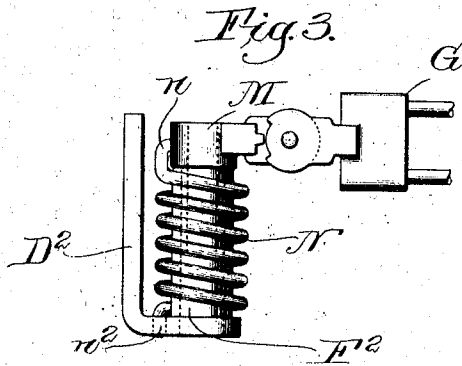
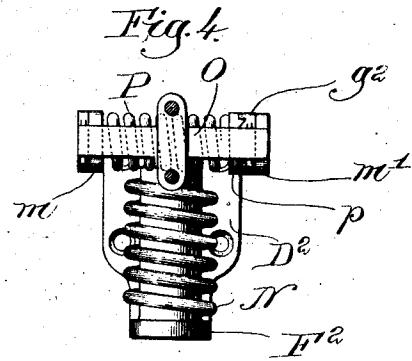
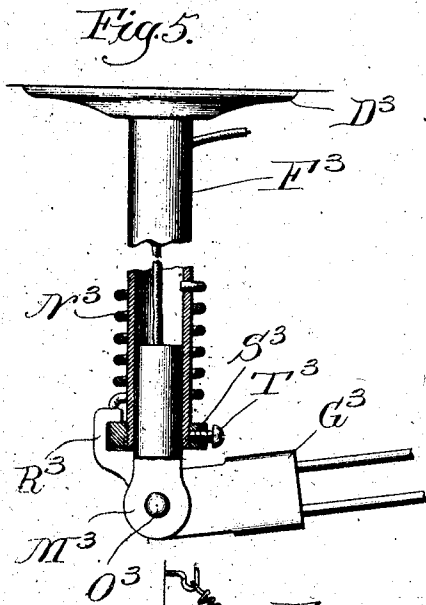
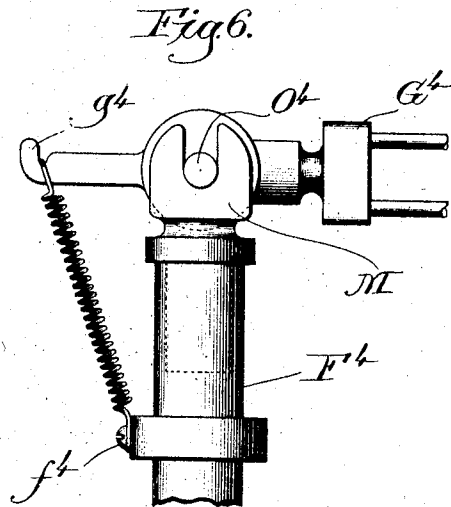
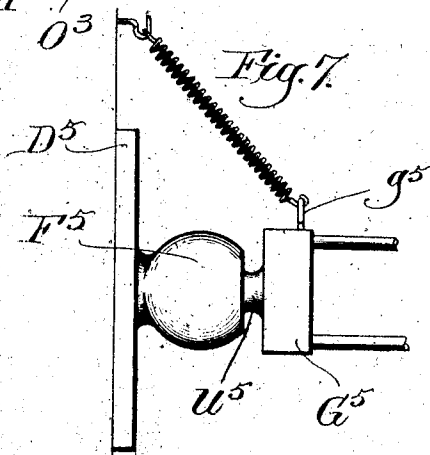
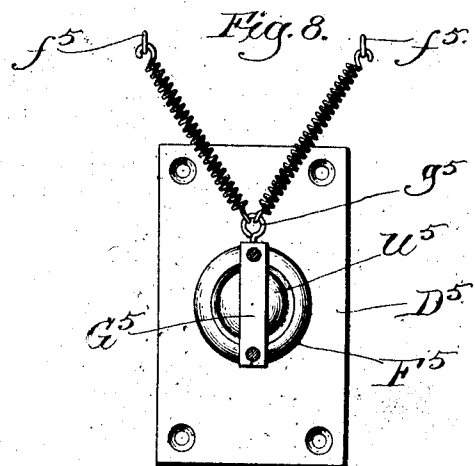
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

JAMES I. AYER, OF CAMBRIDGE, AND GEORGE T. GILBERT, OF NORTHAMPTON, MASSACHUSETTS, ASSIGNORS TO SIMPLEX ELECTRIC HEATING COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

CONDUCTOR-SUPPORT FOR MOVABLE TOOLS.

No. 839,256.

Specification of Letters Patent.

Patented Dec. 25, 1906.

Application filed December 22, 1905. Serial No. 292,943.

To all whom it may concern:

Be it known that we, JAMES I. AYER, of Cambridge, in the county of Middlesex, and GEORGE T. GILBERT, of Northampton, in the county of Hampshire, State of Massachusetts, have invented an Improvement in Conductor-Supports for Movable Tools, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

In the use of movable tools to which an electric current is supplied a flexible conductor for conveying the current is usually an essential. This flexible conductor if suspended from a ceiling or fastened to a side wall or other support must be provided with sufficient slack to allow the free movement of the tool over the work or to the different points of its application. This slack is always more or less a source of annoyance to the operator of the tool and frequently seriously interferes with the operation of the tool, and because of its constant motion it frequently gives trouble from breaking at points where sharpest bends occur or in places where kinks form. These difficulties occur as the result of the handling of electric tools—such, for example, as an electric flat-iron.

The object of this invention is to provide a convenient yielding support for the conductor that will prevent its kinking, allow the free movement of the tool, and at the same time keep sufficient tension on the conductor to avoid having slack anywhere during the operation of the tool.

The drawings represent the invention in several forms with an electric flat-iron as the example of a movable tool.

In the drawings, Figure 1 represents the invention in its preferred form, the supporting-standard being mounted on the floor. Fig. 2 shows substantially the same construction as Fig. 1, with the supporting-standard attached to a side wall. Fig. 3 is a detail showing the joint between the yielding arm and the standard in side elevation. Fig. 4 is a similar detail showing the same parts as in Fig. 3 in front elevation. Fig. 5 is a de-

tail of another form of the invention, the supporting-standard being mounted on the ceiling. Fig. 6 is a detail of a third form of the invention with the supporting-standard from below, as in Fig. 1. Fig. 7 is a detail of a fourth form of the invention with the supporting-standard mounted on a side wall. Fig. 8 is a front elevation of the parts shown in Fig. 7.

Figs. 1 and 2 of the drawings show the invention in use in connection with an electrically-heated flat-iron and an ironing-table over which the flat-iron is moved; but it is to be understood that the invention is in no way concerned with the particular kind of movable tool or its uses so long as the tool requires a supply of electric current necessitating a flexible conductor and is to be moved from point to point while in use.

In Fig. 1 the ironing-table A is shown with the legs C C resting on the floor B. At one side of the table, supported on the floor at D and added to the table at E, is the supporting-standard F, shown as a post extending upward to the desired height. The supporting-arm for the flexible conductor G is pivoted to the upper end of the supporting-standard F to be freely movable in various directions. This supporting-arm may be constructed in any desired form and is shown as made up of a sort of wire trusswork. The electric conductor H extends from a separable connector I at the end of the arm through guiding-eyes g on the arm, down through the supporting-standard, which is made hollow for that purpose, to a switch-box J, located at a convenient point on the standard. The connection from the supply to the switch-box may be made in any desired way and in this figure is shown as a wire H², running up through the floor through the hollow standard to the switch-box J. The flexible conductor K extends from the separable connector I to the electric tool, herein shown as the flat-iron L.

In Fig. 2 the ironing-table A, the tool or flat-iron L, the flexible conductor K, the separable connector I, the supporting-arm G, and the conductor H are all substantially the same in construction as already described in

connection with Fig. 1; but in this figure the supporting-standard F^2 is shown as connected with a bracket D^2 , by which it is attached to the side wall. The switch-box G^2 is also shown attached to the same side wall.

The connection between the supporting-standard and the supporting-arm for the conductor is the same in both of the constructions illustrated in Figs. 1 and 2 and is shown in detail in Figs. 3 and 4. In these latter figures the supporting-standard is of the form shown in Fig. 2.

The essential feature of the joint is that it shall allow of the practically universal movement of the supporting-arm, or at least a universal movement within certain obvious limits. In this form of the invention this movement is secured by providing double pivots, one transverse to the other. It is also an essential feature of the invention that the arm shall be yieldingly mounted and shall act to keep the flexible conductor K without slack during the movement of the tool. These ends are secured in Figs. 3 and 4 as follows: A pivot-block M is journaled vertically in the supporting-standard F^2 . A spring N is connected at one end, as n , with the pivot-block M and at the other end, as n^2 , with the supporting-standard F^2 or its bracket D^2 and is so adjusted that whenever the pivot-block M is turned on its axis the spring will return or restore it to its normal position. This provides for lateral movement of the supporting-arm.

The vertical movement of the supporting-arm, which in conjunction with the horizontal movement allows for universal movement, is provided for as follows: The pivot-block M is extended laterally to present two bearings m and m' , and the end of the supporting-arm G is journaled in these bearing-arms on the pin O . A spring P is connected at one end with the pivot-block M , as by being attached to the bearing m , and at its other end is connected with the supporting-arm G . To allow of adjusting the tension of the spring, this connection is shown as made by the spring being attached to a ratchet p , which engages a portion of the supporting-arm G , mounted on the pin O . This spring normally tends to elevate the supporting-arm G . It will thus be seen that by reason of the movement of the pivot-block M vertically and the pivot-pin O horizontally the supporting-arm G may be swung within reasonable limits to any desired position, allowing it to follow the movement of the tool wherever the tool is applied. The spring P tends to elevate the end of the arm or to produce tension on the conductor K and hold it taut and free from slack, the adjustment of the spring allowing of the right degree of tension being applied. The spring N also acts to produce tension on the conductor K and allows the supporting-arm to

move sidewise, returning it when the tension is released to a normal central position.

The essential features of the invention may be embodied in various other constructions without departing from the spirit or scope of the invention. While the supporting-standard is shown in the figures described as mounted on the floor or on the side wall, it is obvious that a very slight change in construction would allow it to be mounted upon the ceiling or at any other position. The mounting of such a standard upon the ceiling is illustrated in Fig. 5. It is also obvious that the springs for allowing the yielding movement of the supporting-arm may be arranged in different ways and may be of varying construction. The joint also by which the universal movement is permitted may be of various forms and constructions. Some of these forms embodying the invention in its broader aspects are shown in Figs. 5-8, inclusive.

In Fig. 5 the supporting-standard F^3 is shown as connected by the base D^3 to the ceiling or overhead support. The supporting-arm G^3 is pivotally mounted to move in two directions, and thus obtain universal movement at the lower end of the standard F^3 . In the construction shown the pivot-block M^3 is vertically pivoted in the lower end of the standard F^3 and is prevented from falling out by the flanged projection R^3 riding on the collar S^3 , attached to the standard by the set-screw T^3 , which prevents complete rotation of the pivot-block when the flanged projection comes into engagement with it. The up-and-down or vertical movement of the supporting-arm is provided for by pivoting it upon the pivot-pin O^3 in the end of the pivot-block M^3 . The spring N^3 controls the movement of the supporting-arm in the horizontal direction, and a spring at the pivot O^3 , similarly arranged as that shown in Fig. 4, controls the movement in the vertical direction.

In Fig. 6 another form is shown, wherein the supporting-arm G^4 is horizontally pivoted at O^4 in the upper end of the pivot-block M^4 , journaled in the upper end of the supporting-standard F^4 . Two springs extending from a rearwardly-projecting arm g^4 of the supporting-arm to separated points f^4 on the supporting-standard act both to raise the forward end of the supporting-arm and to keep it normally and yieldingly in a central sidewise position.

Figs. 7 and 8 represent still another form of the invention in which the supporting-standard F^5 is in the form of a spherical socket attached by the base D^5 to the side wall. The supporting-arm G^5 is provided with a ball-shaped end U^5 , fitting in the socket of the standard and allowing of the universal movement. Two springs extending from a single point g^5 on the supporting-

arm to separated points f^6 above the supporting-arm and herein shown on the side wall act to hold the forward end of the supporting-arm upwardly and normally and yielding in a central sidewise position.

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

1. A movable electric tool, a flexible conductor connecting the tool to the current-supply, a supporting-arm mounted for yielding movement and connected at its free end with said conductor to control automatically the tension on the conductor throughout a considerable range of movement of the tool.

2. A movable electric tool, a flexible electric conductor leading to said tool, a supporting-standard, a supporting-arm for said conductor mounted on said standard for universal movement, means to move the end of said arm away from the tool and thus keep the flexible conductor taut.

3. A movable electric tool, a flexible electric conductor leading to said tool, a supporting-standard, a supporting-arm for said conductor, said arm being yieldingly and universally mounted on said standard to produce a continual tension on the flexible conductor and maintain it taut between the tool and the end of the arm.

4. A movable electric tool, a flexible electric conductor leading to said tool, a supporting-standard, a supporting-arm for said conductor mounted on said standard for universal movement and yieldingly held against downward or sidewise movement.

5. A movable electric tool, a flexible electric conductor leading to said tool, a supporting-standard, a supporting-arm for said conductor mounted on said standard for universal movement, springs acting to move the arm upward and to restore it to a central position from sidewise movement.

6. A movable electric tool, a flexible electric conductor leading to said tool, a supporting-standard, a pivot-block journaled therein, a spring connecting the standard and the pivot-block and acting to restore the latter to a normal position when moved on its journal, a supporting-arm mounted on and transversely to the pivot-block, a spring connect-

ing the arm of the pivot-block and acting normally to elevate the arm.

7. A movable electric tool, a flexible electric conductor leading to said tool, a supporting-standard, a pivot-block journaled therein, a spring connecting the standard and the pivot-block and acting to restore the latter to a normal position when moved on its journal, a supporting-arm mounted on and transversely to the pivot-block, a spring connecting the arm of the pivot-block and acting normally to elevate the arm, means for adjusting the tension of the latter spring.

8. A movable electric tool, a flexible conductor leading to said tool, a supporting-standard, a supporting-arm mounted for yielding movement upon said standard and connected at its free end with the said conductor to control automatically the tension on the conductor throughout a considerable range of movement of the tool, and a separable circuit-connector at the free end of said arm.

9. A movable electric tool, a flexible electric conductor leading to said tool, a supporting-standard, a supporting-arm adapted to support a flexible electric conductor and mounted on said standard for universal movement, means acting to move the end of said arm in a direction opposite to the pull upon the flexible conductor.

10. A movable electric tool, a flexible electric conductor leading to said tool, a supporting-standard, a supporting-arm for a flexible electric conductor mounted on said standard for universal movement, springs acting to move the arm upward and to restore it to a central position when moved sidewise.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JAS. I. AYER.

GEORGE T. GILBERT.

Witnesses to the signature of James I. Ayer:

ELIZABETH M. CONLIN,

DORA A. PROCTOR.

Witnesses to the signature of George T. Gilbert:

JOHN A. HOUSTON,

LEWIS F. BABBITT.