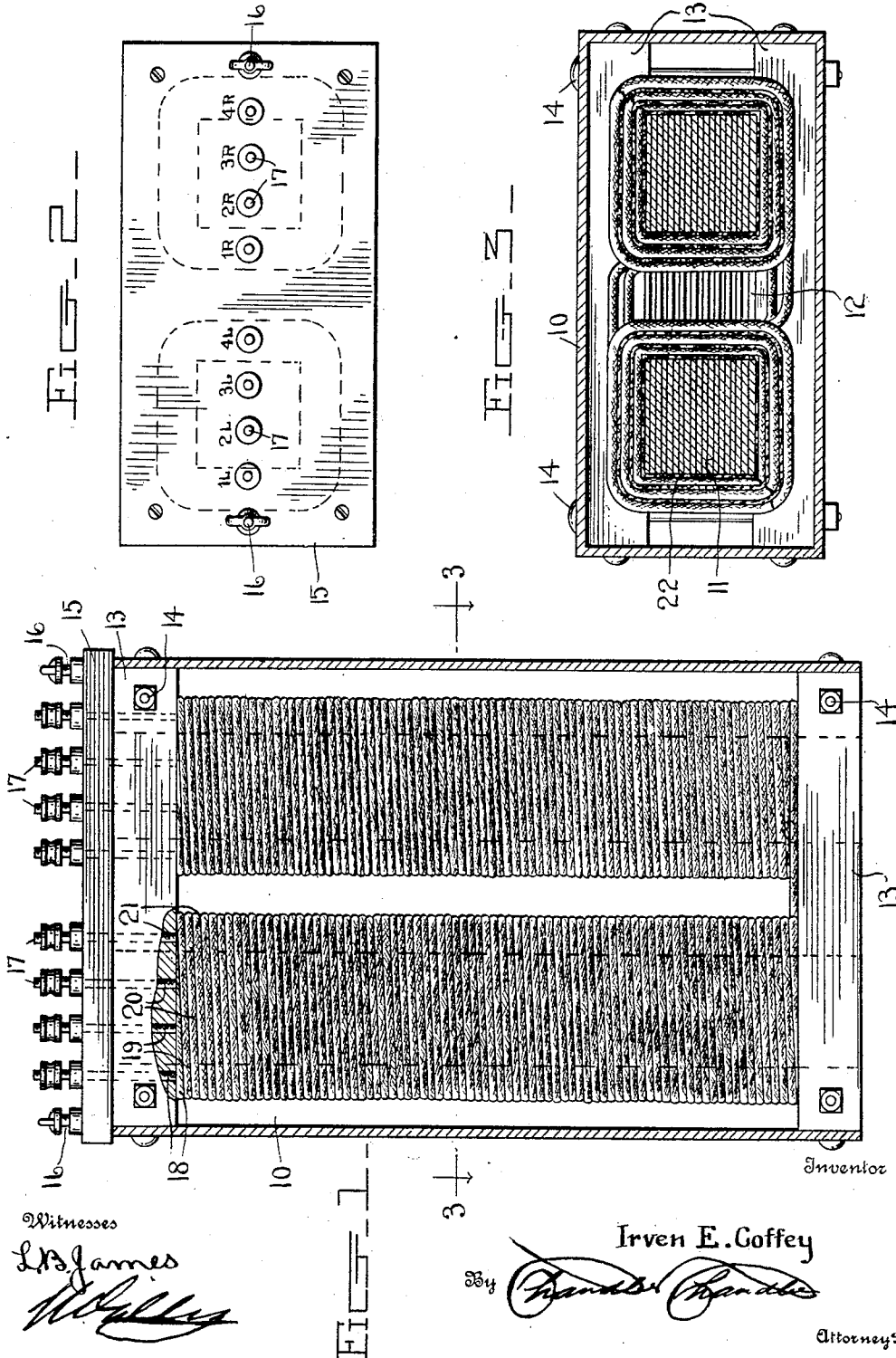


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RESISTANCE COIL.
APPLICATION FILED OCT. 12, 1908.

971,525.

Patented Oct. 4, 1910.
2 SHEETS-SHEET 1.



Witnesses

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2 SHEETS-SHEET 2.

Fig. 4 -

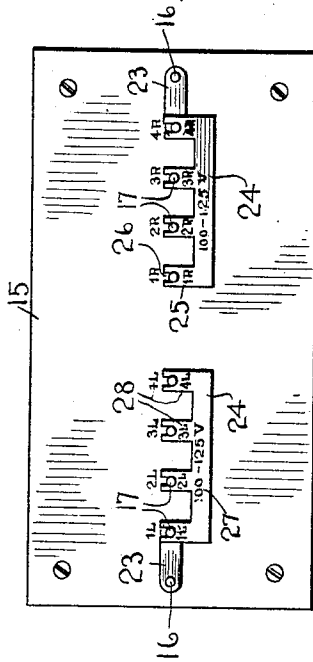


Fig. 5 -

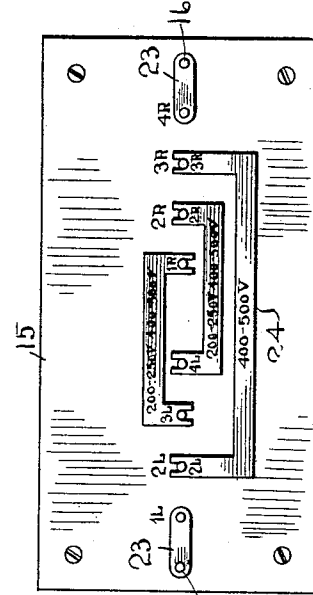
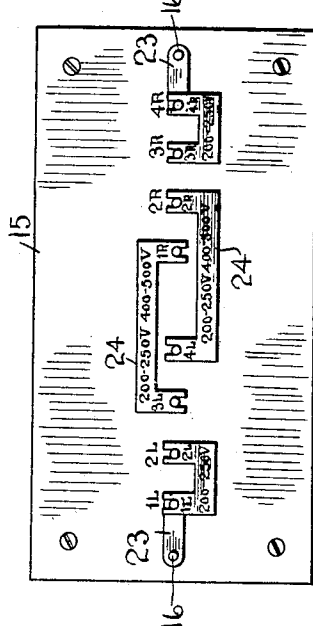


Fig. 6 -



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RESISTANCE-COIL.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, IRVEN E. COFFEY, a citizen of the United States, residing at Lawton, in the county of Comanche, State of Oklahoma, have invented certain new and useful Improvements in Resistance-Coils; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to resistance coils and more especially to an improved form of inductional resistance coil.

One object of the invention is to provide an improved form of inductional resistance coil so wound as to be very compact in nature and readily transportable, said coil being specially adapted for use with moving picture machines and the like.

Another object of the invention is to provide, in connection with such a coil, a series of connecting bars so arranged and marked as to render the application thereof easy to persons unskilled in the use of such instruments.

With the above and other objects in view the invention consists in general of a pair of laminated cores connected by yokes, a special form of resistance winding around these cores, a terminal board, binding posts on the terminal board, and an improved form of connecting bars arranged to be used in connection with said binding posts, the posts and bars being stamped and arranged for various voltages.

The invention further consists in such novel details of arrangement and combinations of parts hereinafter fully described, illustrated in the accompanying drawings, and specifically set forth in the claims.

In the accompanying drawings, like characters of reference indicate like parts in the several views, and Figure 1 is a side elevation of a coil constructed in accordance with this invention, the casing being broken away to show the interior thereof. Fig. 2 is a top plan view of such a coil. Fig. 3 is a section on the line 3—3 of Fig. 1. Fig. 4 is a top plan view of this invention with the binding nuts removed to more clearly show the contact bars as arranged for a voltage from 100 to 125 V. Fig. 5 is a similar view arranged for voltages between 200 and 250. Fig. 6 is a similar view arranged for voltages between 400 and 500.

It will be noted that the device as herein described has a range of from 100 to 500 volts in the way indicated in Figs. 4, 5 and 6. It is obvious, however, that any other arrangement of voltage might be had with a precisely similar arrangement of the parts and without departing from the principles of the invention. It is therefore to be observed that while the invention will be described throughout as pertaining to voltages between 100 and 500 yet the same is not to be limited in any manner to the exact construction necessary to obtain this result.

The numeral 10 indicates the casing of this device. Within this casing is held a core made of two series of parallel laminated plates 11 and provided at the top and bottom with yokes 12. These plates are securely held together by means of clamping pieces 13 at the top and bottom which are preferably of slate or similar material and held by means of bolts 14 passing therethrough at each end. Upon the upper blocks 13 is mounted a terminal plate 15 which is preferably made of slate or the like insulating material. Mounted upon the plate 15 is a pair of binding posts 16 positioned preferably near the ends of the plate and arranged to receive the terminals of a wire carrying a current. The plate 15 further supports a series of binding posts 17. These binding posts 17 are preferably termed the terminal posts. Further these posts 17 are preferably arranged in two sets of four each. To one set of these posts are separately connected wires 18, 19, 20 and 21. These wires are held in parallel relation and continue in that relation throughout the winding now described. In the first place the core is covered with a sheet of asbestos or other heat insulating material as shown at 22. The wires are then wound in this parallel relation around one limb of the core, as say the left hand limb of Fig. 1 down to the bottom thereof. Another sheet of insulating fiber is then wrapped around the coil thus formed and the winding continued to the top when a third sheet is placed in position and the winding continued in like manner to the bottom. The winding is then continued in like manner on the other limb of the core and the wires finally brought out at the top to separate binding posts on the right hand side. In the present design the device has been arranged so that each of the wires constitutes 110 feet of No. 10 insulated wire.

The binding posts connecting the ends of the wires are numbered so that the posts may be distinguished from each other and the numbers are arranged as clearly shown in the top plan view, the ends to the left being indicated by the numerals 1 L, 2 L and so forth while those to the right are similarly numbered with characters ending in R. It will be obvious that by means of this arrangement the different coils may be readily connected either in series or in parallel and it would be further obvious that each of the coils will act to induce a certain resistance in each of the other coils by setting up counter-currents therein. For the purpose of connecting the coils to the binding posts 16 there is provided a pair of contact bars 23 of the ordinary type which are arranged to extend between the binding post 16 and the adjacent pair of binding posts in the series 17.

To enable a person unskilled in making electrical connections to utilize this device in connection with currents of varying intensity there is provided a set of contact bars 24 each of which is arranged with special reference to a definite voltage and has laterally extending members 25 thereon provided with slots 26 for the reception of the binding screws in the binding posts 17. Each of these bars is stamped or otherwise marked at a convenient place with the voltage with which it is intended to be used as is indicated at 27. Furthermore each of the fingers on these bars is provided with numerals or characters similar to the characters for the different binding posts 17, these characters being shown at 28. It will now be apparent from an inspection of Figs. 4, 5 and 6 that these bars have markedly different characteristics and enable a person entirely unskilled in such a device to readily connect the same to insure its use with a line of the proper voltage. Considering now the different arrangement shown in these figures. Fig. 4 representing the connection for a line carrying 100 to 125 volts shows the current passing from the line to the binding post 16 on the left and then to the terminal post numbered 1L by the copper bar 23. This figure also shows the posts 1, 2, 3 and 4 both on the left and right side as bridged together by means of the proper connecting bars 24. The current thus passes through all four of the No. 10 copper wires from one set of terminals to the other a distance of 110 feet thus consuming on short circuit across the line $7\frac{1}{2}$ amperes at about 104 volts or 30 amperes when in series with the ordinary type of hand feed arc light while the arc is burning. In Fig. 5 the connection is shown as for 200 to 250 volts. The current enters in like manner and connects with both terminals 1L and 2L by means of the proper bar 24 and from there runs to the terminals 1R and 2R on the right. From

there it extends through the bars 24 to the terminals 3 and 4 on the left passing through 110 feet of two No. 10 wires in multiple to terminals 3 and 4 on the right and then to the line. The current in all thus passes through 220 feet of No. 10 wire in parallel consuming half the amperage and double the voltage indicated in Fig. 4. In Fig. 6 which represents the connection for 400 to 500 volt line the current enters in like manner and runs in succession through all of the wires which causes a resistance equivalent to that of 440 feet of wire, decreasing the amperage and increasing the voltage in like manner as in Fig. 5.

The device thus provides a simple and efficient manner of regulating the resistance and one which can be readily applied by persons entirely unskilled in the art.

As before noted it is obvious that many minor changes may be made in the form and construction of the invention without departing from the material principles thereof. It is not therefore desired to confine the invention to the exact form herein shown and described, but it is wished to include all such as properly come within the scope of the invention.

Having thus described the invention, what is claimed as new, is:—

1. In a device of the kind described, a series of resistance coils, binding posts connected to each end of each coil; in combination with a set of connecting bars each having a longitudinal body portion and a series of laterally extending slotted arms formed on said body, the series of arms on each connecting bar being engaged with a series of the binding posts.

2. In a device of the kind described, a pair of cores connected by yokes, a plurality of insulated wires wound on the cores, said wires being arranged side by side in parallel relation throughout the entire winding, and binding posts connected to each end of each wire.

3. In a device of the kind described, a series of resistance coils, binding posts connected to each end of each coil; in combination with a set of connecting bars each marked to indicate to which of said posts it is to be attached and further marked with the current strength for which it is to be used.

4. In a device of the kind described, a pair of cores connected by yokes, a plurality of insulated wires wound on the cores, said wires being arranged side by side in parallel relation throughout the entire winding, and binding posts connected to each end of each wire; in combination with a set of connecting bars each marked to indicate to which of said posts it is to be attached and further marked with the current strength for which it is to be used.

5. In a device of the kind described, a connecting bar having a longitudinal body portion provided with characters on its upper surface indicative of the strength of current for which it is to be used, and laterally extending arms formed on said body portion provided with characters indicative of the point of attachment of said arms.

6. In a device of the kind described, a series of resistance coils, binding posts connected to each end of each coil; in combination with a set of connecting bars each having a longitudinal body portion provided with characters on its upper surface indicative of the strength of current for which it is to be used, and laterally extending slotted arms formed on said body provided with characters indicative of the posts to which it is to be attached.

7. In a device of the kind described, a

pair of cores connected by yokes, a plurality of insulated wires wound on the cores, said wires being arranged side by side in parallel relation throughout the entire winding, binding posts connected to each end of each wire; in combination with a set of connecting bars each having a longitudinal body portion provided with characters on its upper surface indicative of the strength of current for which it is to be used, and laterally extending slotted arms formed on said body provided with characters indicative of the post to which it is to be attached.

In testimony whereof, I affix my signature, in presence of two witnesses.

IRVEN E. COFFEY.

Witnesses:

T. R. KEEGAN,
C. S. McLENNAN.