

D. W. McCLAY.
ELECTRIC IRON.

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928,532.

Patented July 20, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

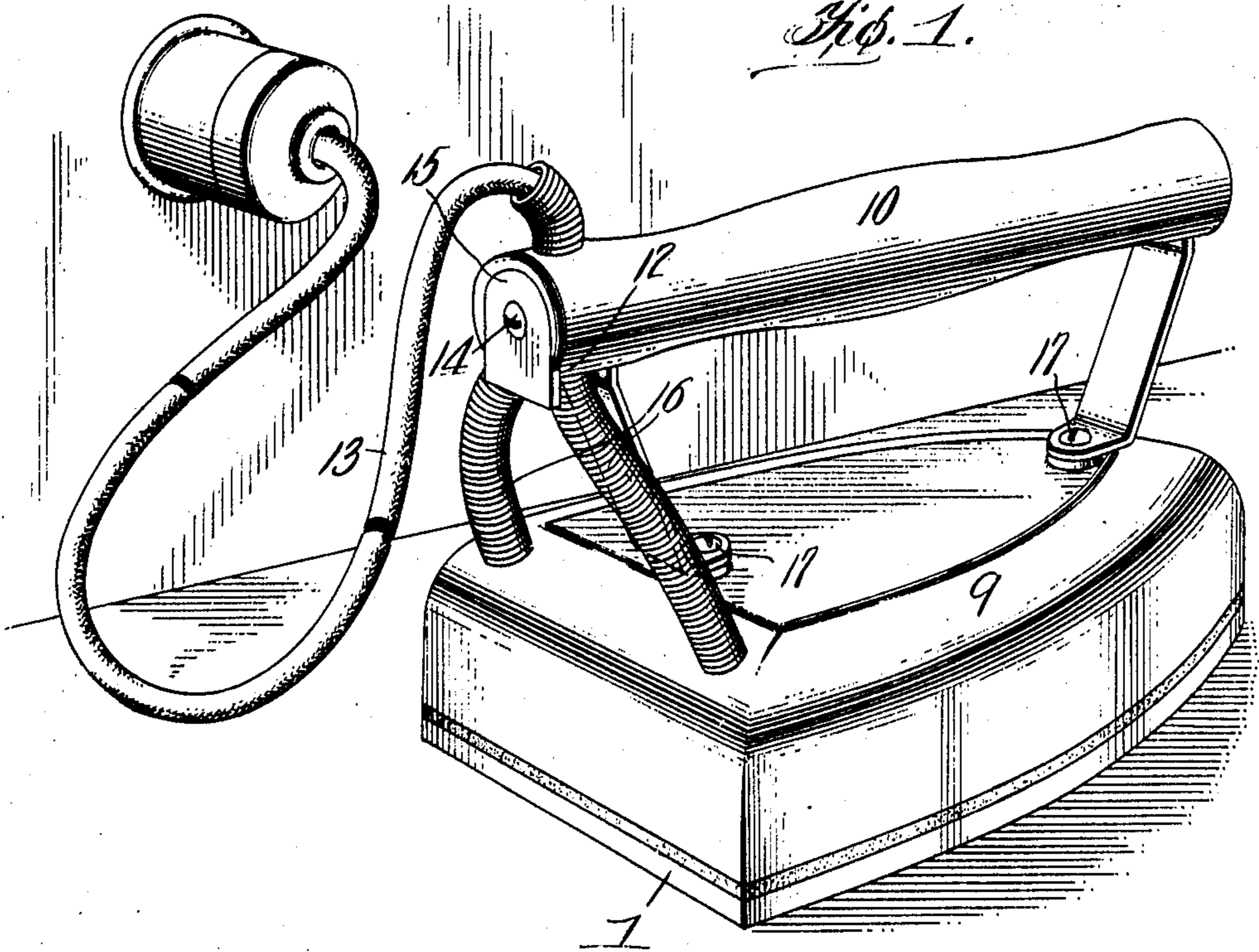
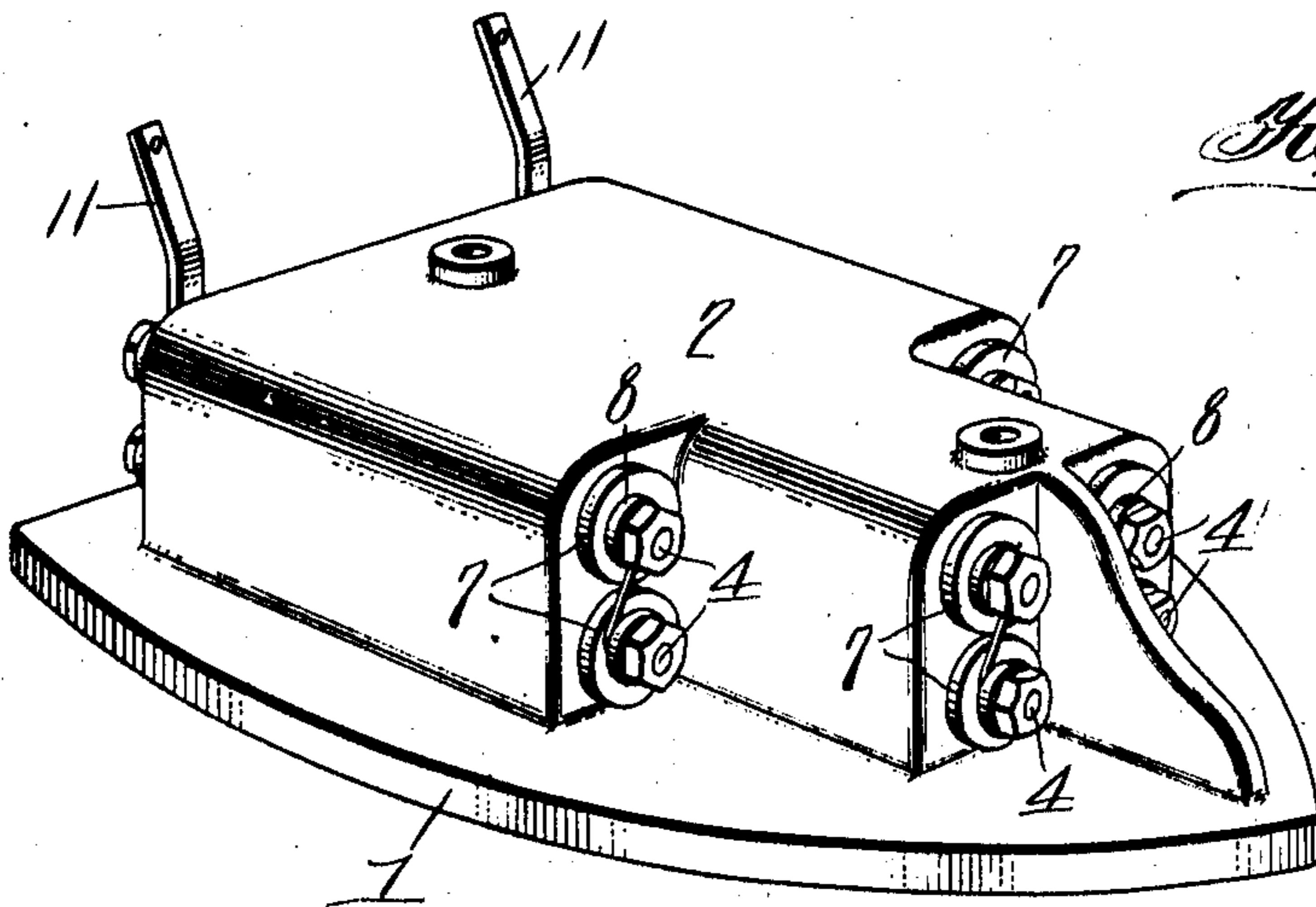


Fig. 2.



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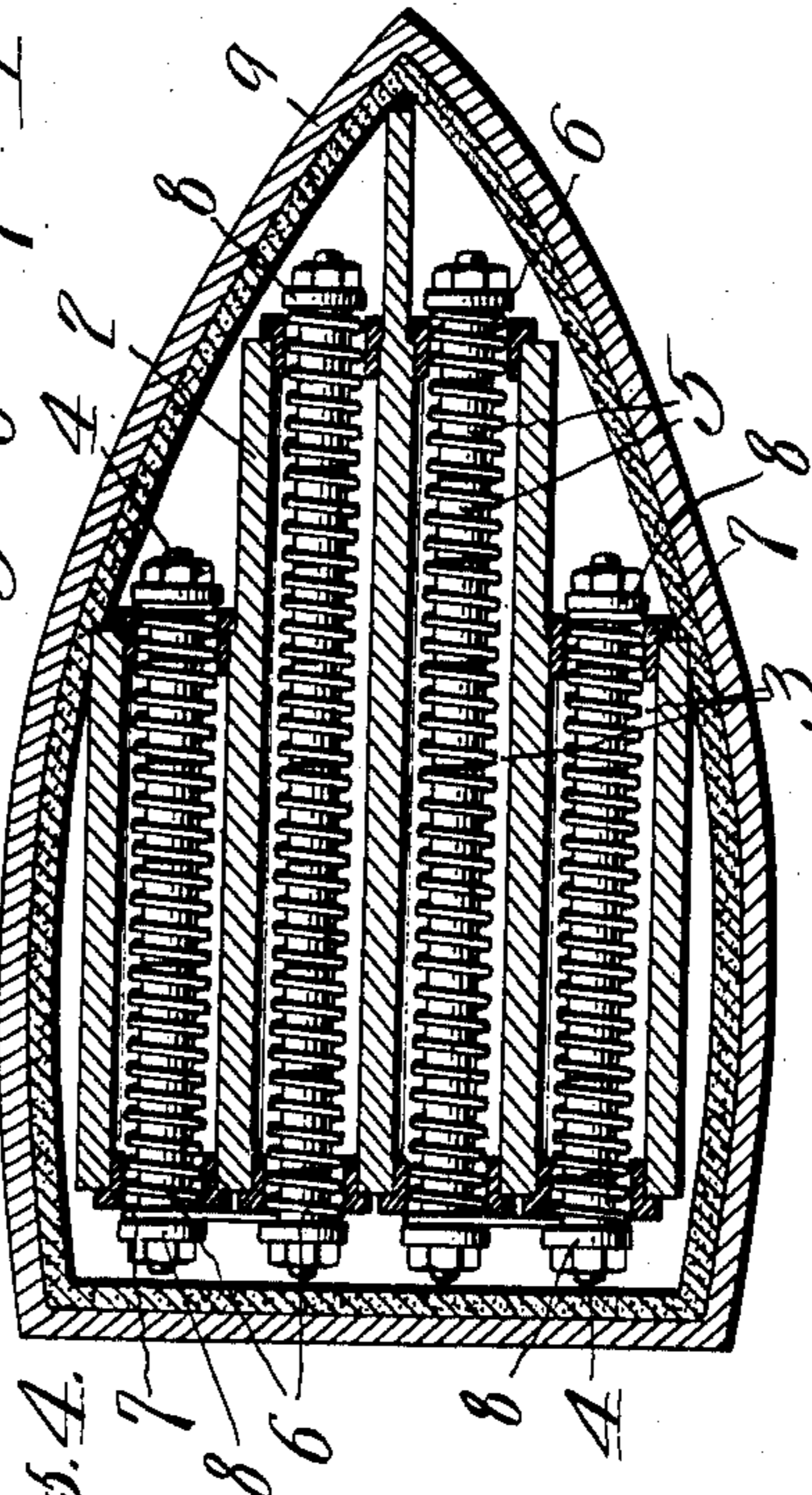
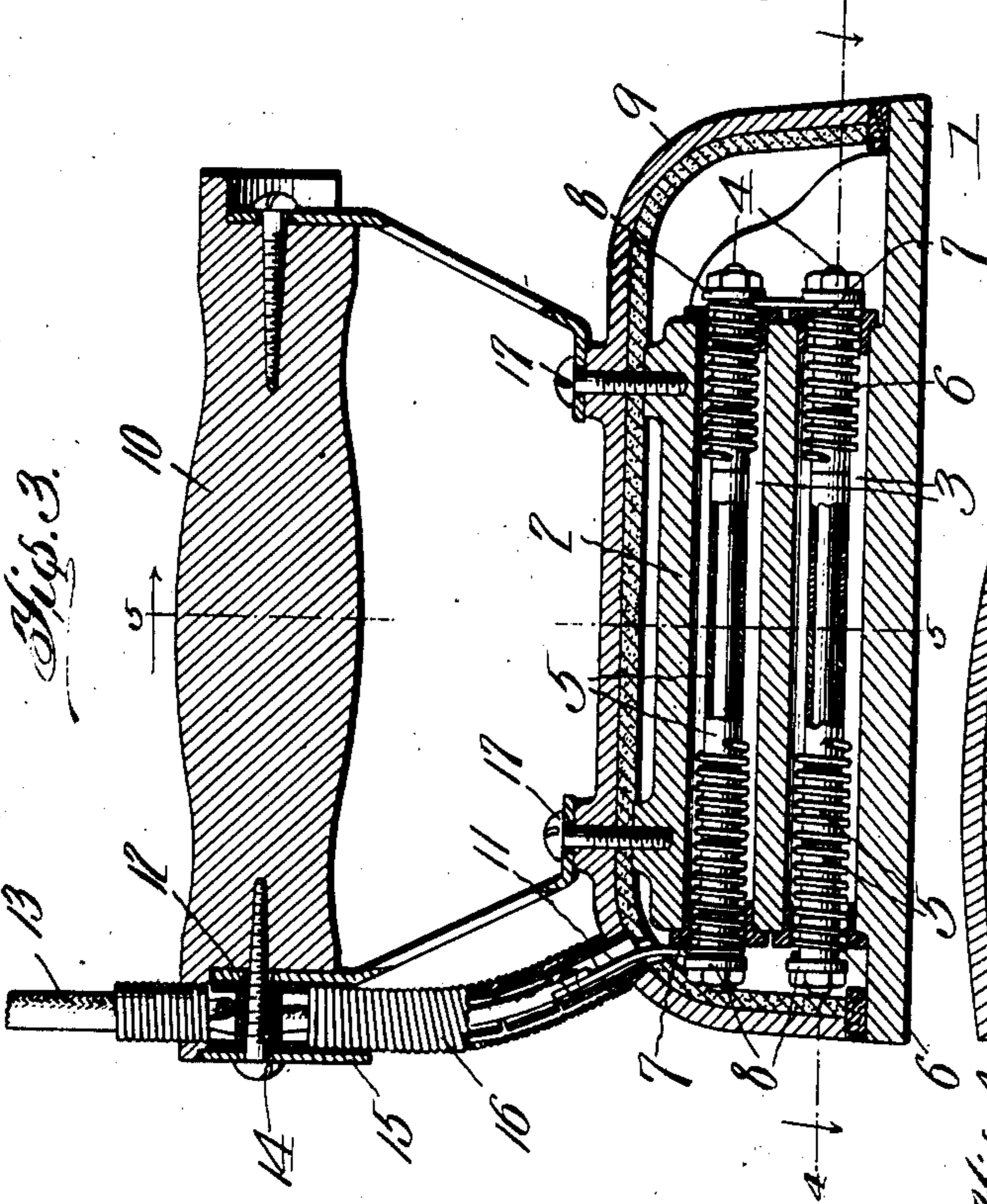
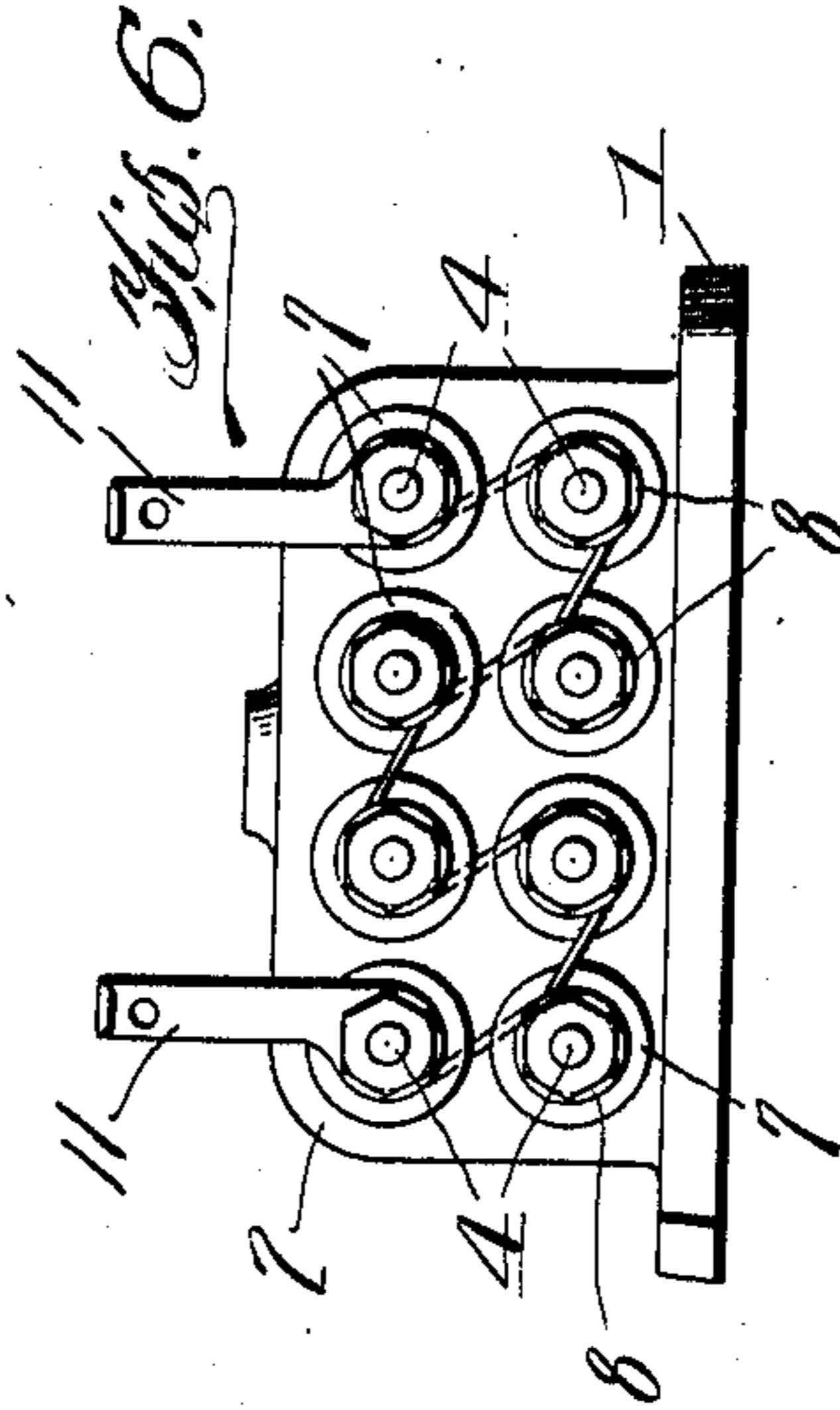
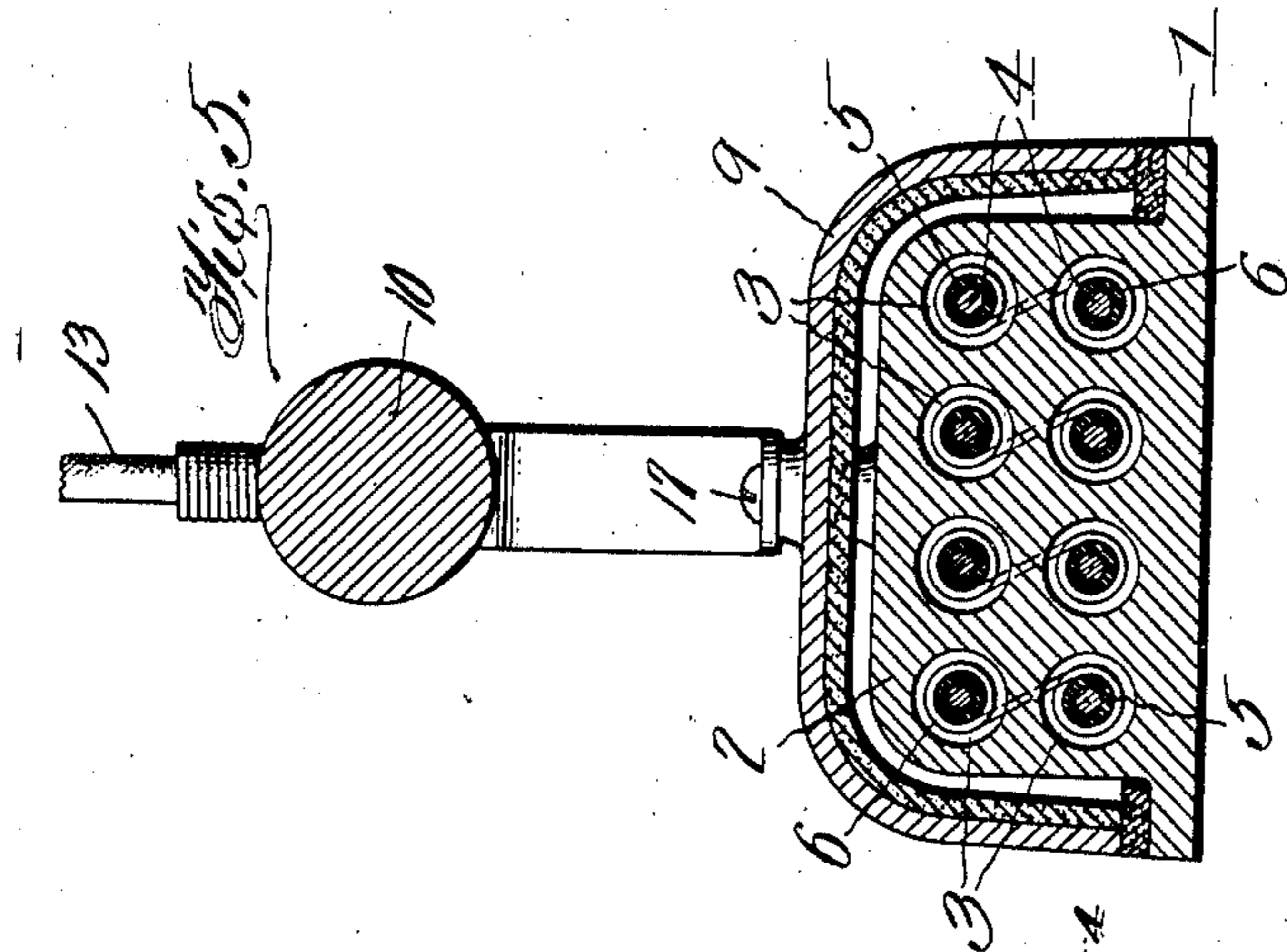
Witnesses

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2 SHEETS—SHEET 2.



Witnesses

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UNITED STATES PATENT OFFICE.

DAVID W. McCLAY, OF PITTSFIELD, MASSACHUSETTS.

ELECTRIC IRON.

No. 928,532.

Specification of Letters Patent.

Patented July 20, 1909.

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To all whom it may concern:

Be it known that I, DAVID W. McCLAY, a citizen of the United States, residing at Pittsfield, in the county of Berkshire and State of Massachusetts, have invented a new and useful Improvement in Electric Irons, of which the following is a specification.

This invention relates to an electrically heated iron and the main object of the invention is an iron provided with a multiple coil, single heating unit, the coils being arranged in series, and provided with a core of insulating material adapted to allow for expansion.

I am aware of the fact that electrically heated irons have been devised, and in the first irons of this description considerable difficulty was experienced by reason of the expansion of certain parts owing to the great heat generated in the coils. This difficulty which prevented the commercial success of the earlier devices of this kind has resulted in efforts to construct an iron of this kind which will overcome the difficulty by furnishing a construction which will avoid the expansion or contraction of the various parts. This, however, involves the loss of considerable heat units for the constructing of a heating device which does not give as high a temperature as desirable, or if a high temperature and but little loss of the heat units is obtained without expansion of some of the parts, it is obtained only at an expense which puts the device beyond the reach of the average purchaser of such devices.

My invention consists of a heating unit arranged within the iron proper mounted directly upon the base or ironing plate, which plate forms the bottom of the heating unit; the said heating unit comprising a plurality of upper and lower rods passing longitudinally through the casing containing the heating unit, of short sectional sleeves of a tough insulating material loosely arranged upon said rods, and heating coils wrapped around said sleeves and joined together in series.

In the accompanying drawings, Figure 1 is a perspective view showing the device in position for use. Fig. 2 is a perspective view of the heating unit casing. Fig. 3 is a vertical sectional view. Fig. 4 is a section on the line 4—4 of Fig. 3. Fig. 5 is a section

on the line 5—5 of Fig. 3. Fig. 6 is a rear end elevation.

In these drawings 1 represents the ironing plate which forms the base of both the iron and the heating unit. Upon this base and cast with it is a heating unit casting 2. This casting is longitudinally bored out to form a plurality of horizontally extending bores 3 which open at each end of the casting, or if desired, these bores may be formed when the device is molded, and they may be of any number or size desired. These bores are arranged in upper and lower sets, and it will be noted that in order to conform to the configuration of the base 1 the casting is reduced in width adjacent the forward end, so that the inner bores are of greater length than the outer or side bores. Through each of these bores passes a rod 4, each rod having threaded projecting end portions upon which suitable nuts are placed in order to lock the rods in position. Each rod is inclosed by a plurality of short sleeves 5 formed of any suitable non-brittle insulating material, such as lava, wood fiber or similar materials. These short sleeves form practically a continuous sleeve upon each rod, divided into a large number of short sections. Over each of these sectional sleeves is fitted a wire coil 6 of a smaller diameter than the bore 3 in which it is placed. At each entrance to each bore a flanged collar 7 is fitted over the end portions of the coils, said collar also being of an insulating material, and of a diameter substantially the same as that of the bores, said collars serving to space the coils from the sides of the bore, the flanges upon the collar bearing against the ends of the casting and preventing escape of heat from the bores to the outside atmosphere. A suitable insulating washer 8 is also placed upon each of the rods and between the collar and the locking nut. Over the heating unit thus described I place a casing 9 similar in shape and appearance to the usual iron and provided with a detachable handle 10. This casing is insulated by means of asbestos packing, preferably formed in sheets, from the casting 2 and the base 1. Brass contact strips 11 are connected to the two upper and outer coils and project upwardly and outwardly through suitable openings formed at the rear end of the casing 9.

At the rear end the handle 10 is recessed as shown at 12 and the flexible electrical conductor 13 which leads from an ordinary in-

candescant light socket is led into this recess, being properly insulated from the handle, and is held in position by a screw 14 which works through an end plate 15 which plate when in position closes the recess at the rear end of the handle. The positive and negative wires then separate and lead downwardly from said handle to the contact strips 11 respectively. Around these branches I place wire coils 16 which prevent the insulating fabric woven about the electrical conductors from wear and from direct contact with the hands of the party using the iron. The casing 9 and the handle 10 are both held in place by screws 17 which thread into the top of the casting 2. The coils 6 are connected in series, the upper left hand coil having one of the contact strips connected therewith and the current, after traversing said coil, passes down to the coil immediately below it, along said coil to the rear, and thence to the adjacent lower coil, and to the front, thence to the upper end of the coil immediately above, through said coil to the rear end of the casting, thence to the adjacent upper coil on the right hand side, to the forward end of the casting, down to the coil below it, back to the rear end, thence to the rear end of the lower right hand coil, through said coil to its forward end, thence up to the forward end of the upper right hand coil and thence back to the remaining contact strip. It will be understood that the coils may be of any desired number, but the number shown will be employed in an iron of the size usually employed for general household work. The number of coils may be increased by adding one to each set making ten coils in all, or in larger irons the coils may be arranged in three sets of four or five coils in a set, or any other desired arrangement may be employed, the coils being connected substantially as above described. It will be obvious that by placing these coils upon short sections of insulating material, said sections being in the form of sleeves loosely mounted upon a rod; the expansion of said sleeves due to their becoming heated is allowed for without resorting to any expedients for preventing such expansion taking place.

The various coils are all formed of one piece of wire but when arranged in the form above described, in groups, they become in effect separate coils, and the longitudinal expansion of each coil is only one-sixth of the expansion which would take place if the coils were continuous. By forming the heating unit of a casting with bores passing therethrough the casting forms practically a solid portion with the base in which the heated coils are embedded and by reason of

the amount of metal carried by it becomes a vehicle for the storage of heat, and being insulated from the inclosing casing, this casing remains cool when the ironing surface is extremely hot, there being practically no appreciable loss of heat by radiation except from the ironing surface.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In an electrically heated device, a heating unit comprising a rod, a series of independent sleeve sections of insulating material surrounding said rod from end to end, and a wire coil arranged upon said sleeve sections, and adapted for circuit connections, as set forth.

2. In an electrically heated device, a heating unit, comprising a rod, a series of independent sleeve sections surrounding said rod, and a wire coiled about said sleeve sections, in combination with a metallic casting having a bore in which the rod carrying the sleeves and wire is located.

3. In an electrically heated iron, the combination with a base having a casting thereon, said casting being bored longitudinally, of rods passing through said bores, independent sleeve sections of insulating material surrounding said rods from end to end, wires coiled around said sleeve sections, said wires being connected in series, as set forth.

4. In an electrically heated iron, the combination with a base having a casting thereon, said casting having a plurality of longitudinal bores, rods passing through said bores, independent sleeve sections surrounding said rods from end to end, wires coiled around said sleeve sections, collars of insulating material surrounding the coils at each end, said coils being connected in series, and a casing enveloping the casting and insulated therefrom, as set forth.

5. The combination with an iron, of an inclosed casting carried thereby, said casting having longitudinally extending bores formed therein, rods removably held in said bores, a plurality of short sleeves fitting loosely upon said rods and extending continuously throughout the length of said bores, a wire coil carried by each of said rods and inclosing the sleeves upon said rod, all of said coils being connected in series with an electrical circuit, and flanged collars of insulating material fitting over the end portions of said coils, the flanges of the collars bearing against the casing.

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Witnesses:

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