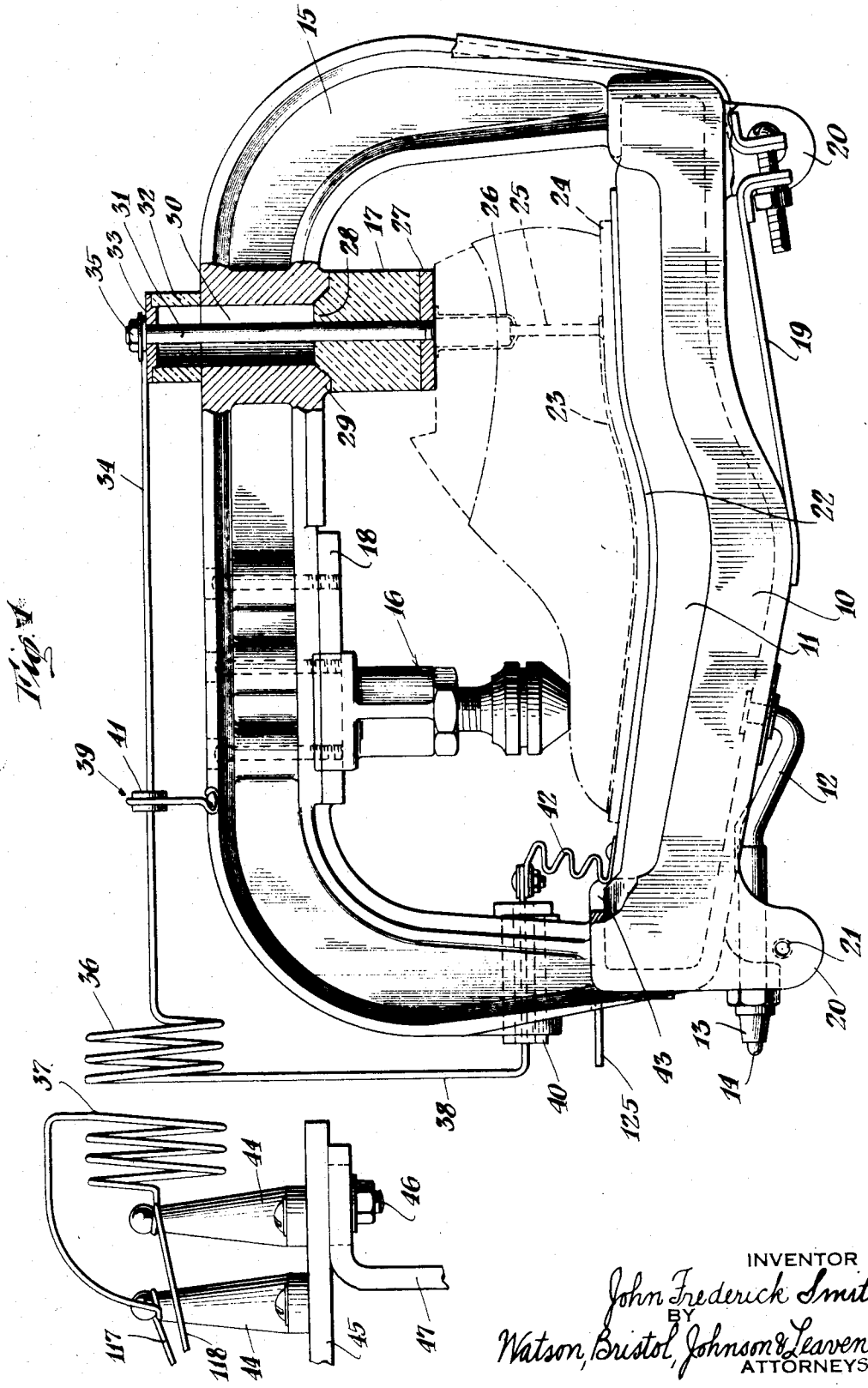
Feb. 22, 1938. J. F. SMITH 2,109,323

SHOE CEMENTING APPARATUS

Filed July 8, 1937 3 Sheets-Sheet 1



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SHOE CEMENTING APPARATUS

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Fig. 2

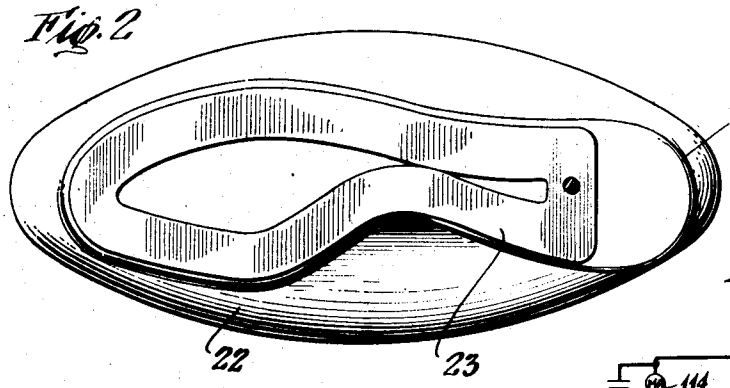


Fig. 3

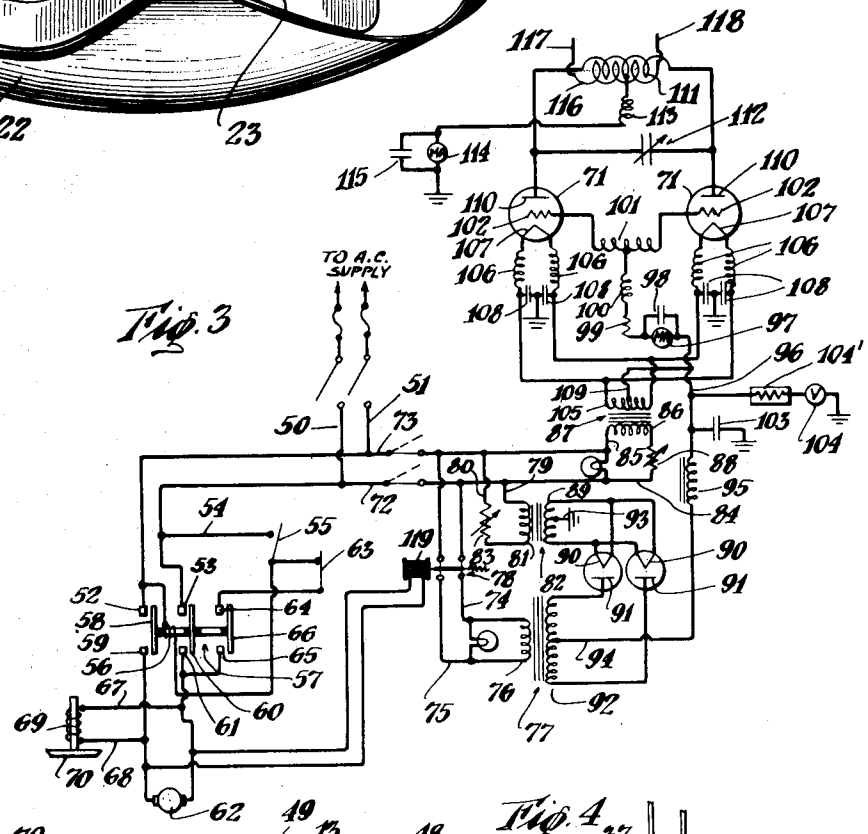
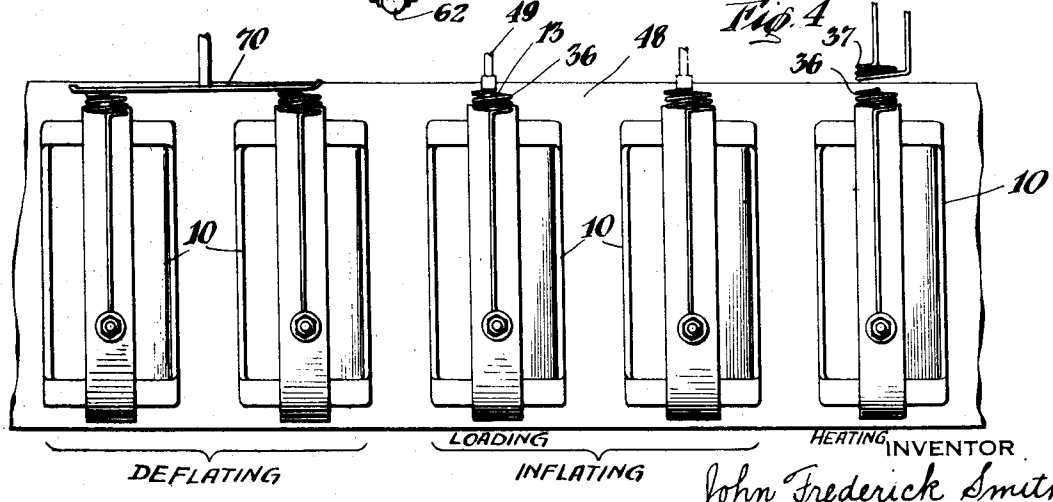


Fig. 4



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SHOE CEMENTING APPARATUS

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Fig. 5

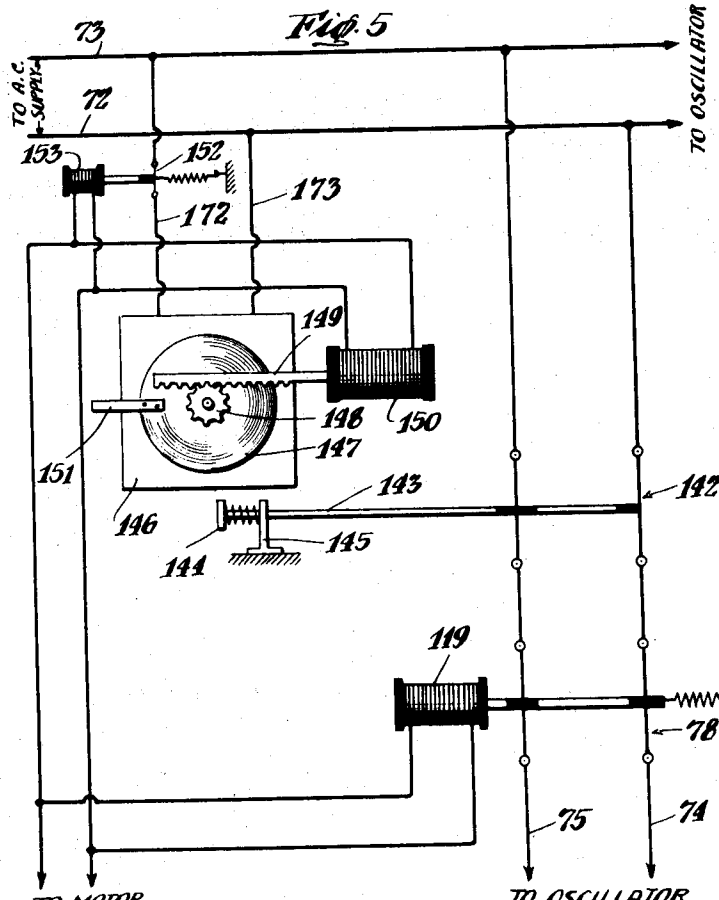


Fig. 8

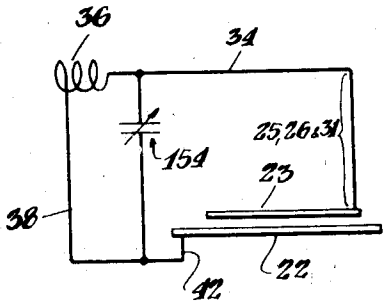


Fig. 7

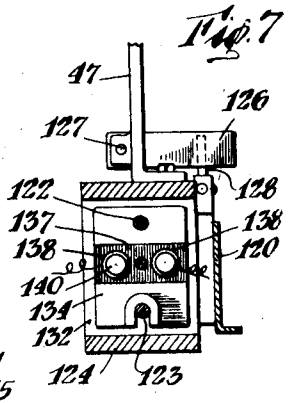
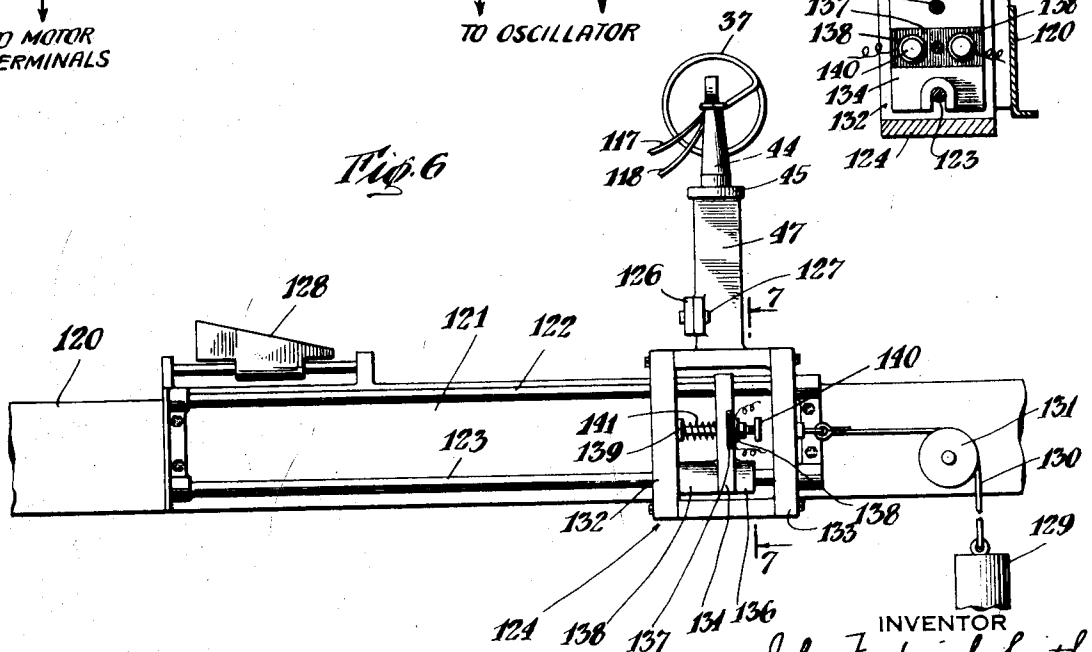


Fig. 6



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Patented Feb. 22, 1938 2,109,323

UNITED STATES PATENT OFFICE

2,109,323

SHOE CEMENTING APPARATUS

John Frederick Smith, Quincy, Mass., assignor to Compo Shoe Machinery Corporation, New York, N. Y., a corporation of Delaware

Application July 8, 1937, Serial No. 152,501

57 Claims. (Cl. 12—36)

This invention relates to apparatus for use in cementing shoe parts together by activating and/or setting previously applied cement with heat generated within and/or adjacent the applied cement by an electrostatic field set up by high frequency oscillating current, electromagnetic field or similar means.

A general object is the provision of such apparatus whereby shoe parts such as outsoles or shoe bottom assemblies and lasted uppers may be readily and efficiently cemented together by any suitable cement such as thermo-plastic, thermo-setting, or solvent containing cements with the use of a high frequency electrostatic field, an electromagnetic field or similar means, and structural embodiments of such apparatus which are readily constructed and allow efficient use and operation thereof, more particularly when they are assembled in a plurality of successively arranged shoe presses on a carrier whereby operations on each assembly unit in a press may be successively carried out in a rapid, simple and efficient manner.

A more specific object of the invention is the provision of a shoe press provided with means for setting up such a heat supplying source adjacent work and transfer of electrical current such as that of high frequency thereto in a simple and efficient manner whereby are avoided the necessity of direct physical connection with the means for producing such electrical current and difficulty in adapting such presses to use with a carrier moving them past successive operation localities, such as stations and zones.

A more specific object is the provision of such a press which provides for ready and simple insertion into an electrical circuit on the press of essential circuit elements when a lasted upper is loaded in the press without requiring operations in addition to those performed in loading prevalent types of presses in usual manners.

Another object of the invention is the adaptation of moving carriers, e. g. of the continuous conveyor type, to use with a plurality of such presses in a simple manner whereby the requisite and desired operations may be efficiently carried out on the succeeding presses.

An additional object of the invention is the provision of such a carrier and associated structure adapted to move a shoe press to a heating station and there provide for transfer of electrical energy to the press electrical circuit without the use of direct physical connection to said circuit and for a desired period of time before moving the press beyond the heating station, and means whereby the means for producing and/or supplying the electrical energy may be permitted to operate only while the press is stopped at the heating station or the motive means for the carrier is not running.

A further object of the invention is the provision of means for efficiently transferring electrical energy to the press electrical circuit while the press is carried along by a carrier which is adapted for like cooperation with succeeding presses, and further characterized, if desired, by means permitting the operation of the means for producing and/or supplying the electrical energy only during the time a press moves through a heating zone.

Another object is the provision of a timing device associated with the carrier and/or the motive means thereof in a manner to permit operation of the means for producing and/or supplying the electrical energy a determined period of time when each press is in a heating locality.

Other objects of the invention will in part be obvious and will in part appear hereinafter.

The invention accordingly comprises the features of construction, combination of elements, and arrangement of parts, which will be exemplified in the construction hereinafter set forth and the scope of the invention will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention reference should be had to the following detailed description taken in connection with the accompanying drawings, in which:

Fig. 1 is a side elevational view with parts in section and parts broken away of a shoe press and a portion of associated apparatus embodying principles of the present invention, indicating by dot-dash lines the relative position of a work unit when loaded therein;

Fig. 2 is a top plan view of the two condenser electrodes, a loaded shoe press and a shoe bottom assembly or other work interposed therebetween when the press is loaded;

Fig. 3 is a diagrammatic showing of one form of the circuit and the motive means for a carrier, the oscillator or means for producing high frequency electrical current and means for transmitting the same to the electrical circuit of the shoe press;

Fig. 4 is a diagrammatic plan view of a portion of a carrier showing a plurality of presses of the present invention located thereon at deflating, loading, inflating and heating stations and zones;

Fig. 5 is a diagrammatic showing of devices and associated circuits which may be used for

permitting operation of the oscillator only while carrier motive means is stopped and for a determined period of time a press is at a heating locality;

Fig. 6 is a side elevational view with parts broken away of means mounted on a conveyor traverse for moving a supply coupling coil associated with an oscillator along in inductive coupling relation to a coupling coil in a shoe press electrical circuit, means for returning the supply coupling coil for cooperation with a succeeding press and a switch device for closing a circuit during forward travel and breaking the circuit during return travel;

Fig. 7 is a sectional view taken on line 7—7 of Fig. 6 with parts broken away; and

Fig. 8 is a diagrammatic view of a modified shoe press electrical circuit.

It has been proposed to use a high frequency electrostatic field set up between condenser electrodes or an electromagnetic field for heating cement between shoe parts to cause them to be cemented together as in the United States patent to Earle C. Pitman, No. 2,087,480, issued July 20, 1937. This is a modification of the practice of using a solvent containing cement and while the shoe parts are held in assembled relation with cement in an adhesive condition therebetween permitting the cement to set by natural evaporation of the solvent. Usually the latter is carried out by assembling the shoe parts in a press with cement in an adhesive condition therebetween, either as a previously applied and dried cement film rendered adhesive by the application of a solvent or as wet cement, applying pressure preferably by means of an inflatable pad constituting a work engaging face of the press, and maintaining pressure until the cement has set.

For the sake of economy, efficiency and rapidity in cementing shoe parts together in this manner a successive procedure is practiced which involves the use of a carrier or continuous conveyor whereby a plurality of succeeding presses are successively moved to a loading station, loaded with the shoe elements having cement in an adhesive condition therebetween, carried to an inflating station or zone where the pads are inflated with air to apply pressure to the shoe parts assemblies and finally after the cement has set to a deflating station or zone where the pads are deflated to allow removal of the shoe parts assemblies. Preferably, carriers of the continuous conveyor type, such as that disclosed in my copending application Serial No. 36,053, filed August 14, 1935, are used, the cement being permitted to set by evaporation of the solvent as the presses are moved along between the inflating zone and the deflating zone, each press being unloaded at the loading station prior to the insertion of another shoe assembly therein.

The present invention provides apparatus for making readily adaptable to such a procedure the use of a high frequency electrostatic field or an electromagnetic field, or similar means for heating thermo-plastic cements to activate them, or to convert thermo-setting cements to set them, or to drive off solvent from solvent containing cements, although the invention is not limited to the use of a plurality of presses of the present invention successively arranged upon a carrier or to a carrier of the continuous conveyor type such as that referred to as will appear hereinafter.

Direct physical connection from the means for producing and/or supplying the electrical energy to the press electrical circuit or the electrodes between which the work is located as previously proposed involves difficulties in making and breaking connections, avoiding tangling of connecting wires, loss of time, possibility of improper operation, complicated structures, etc., particularly when a moving press carrier or a continuous conveyor of the identified type is used with a plurality of presses. These and many other difficulties are substantially eliminated by the apparatus of the present invention which permits efficient and ready cementing together of shoe parts, e. g., elements of a shoe bottom assembly including an outsole and welt ply with the use of a flat platen press similar to the type disclosed in my copending application Serial No. 138,735, filed April 24, 1937, and lasted shoe uppers and shoe bottom assemblies or outsoles with the use of presses and carriers similar to the types described and disclosed in my copending application Serial No. 36,053, filed August 14, 1935, although it is to be understood that the present invention is not limited to specific structures and features disclosed therein but may be used to advantage with various modified processes and devices.

Referring more particularly to the drawings wherein like numerals refer to like parts throughout, there is shown in Fig. 1 a shoe press of conventional type modified in accordance with one aspect of the present invention. It comprises a base member 10 recessed to receive a pressure applying pad 11 which in the preferred form is a hollow inflatable pad adapted to be inflated and deflated through a conduit 12 terminating at the rear end of the base member in a valve 13 having a projecting plunger 14 for unseating the valve. The inflatable pad constitutes a work engaging face which is yieldable and capable of applying pressure to work held thereagainst. The press further comprises a bow member 15 having toe and heel posts 16 and 17 constituting abutment means to hold a shoe or lasted upper against upward movement. The toe post 16 is vertically adjustable and horizontally movable on a track 18 mounted on the bow member 15 for adapting the press to various sizes of shoes. A steel strap 19 may be clamped around the base and bow members for strengthening the press, suitable holes being formed in the strap to permit passage therethrough of the valve, conductors and associated conductor supports and insulating means. Projecting lugs 20—20 on the base member are provided with apertures 21—21 to receive studs or bolts adapted to be received in slots in upstanding press supporting lugs on carrier cleats (not shown) to support the press on a movable carrier if desired.

Upon the face of the pad 11 is positioned a metallic condenser electrode 22 which may be in the form of a sheet of metal or grid, preferably flexible readily to conform to the surfaces of the work and pad as the pad is inflated, and if desired covered with any suitable protective material such as thin leather or woolen fabric. In the preferred form the electrode 22 is formed from sheet lead and as will be seen from Fig. 2 preferably is of an area and shape such that it will completely underlie work to be loaded into the press. The second electrode 23 is adapted to be mounted above the work, which may comprise a shoe bottom assembly or outsole 24 and the lasted bottom of an upper with cement interposed therebetween, and with the type of press shown preferably comprises a copper strip

lying adjacent the outer margins of the forepart and shank portions of a last as indicated in Fig. 2 but may be of any desired shape so as to be adjacent cement carrying areas of the work.

Each last with an upper thereon (indicated by the dotted and dot-dash lines in Fig. 1) is provided with an electrode 23 secured in position by an electrically conducting metal pin 25 having a head anchored into the bottom portion of a metal lined last jack-pin hole 26, the upper portion of the metal lining of which is exposed at the top of the last for contact with a metallic contact plate 27 on the face of the heel post 17.

The heel post 17 comprises a block of insulating material, such as glazed isolantite, an electrical insulating material of the porcelain type, having a reduced portion 28 at the upper end thereof seated within a counter-bored recess in the face of a boss 29 on the bow member 15 which in turn has an oversized hole 30 therethrough adapted to receive a bolt 31 spaced from the walls thereof and anchored at its lower end in the contact plate 27. The upper end of the bolt 31 is surrounded by a bushing or collar 32 of insulating material, such as glazed isolantite, substantially centered with respect thereto by a shouldered plate 33 preferably of metal. The contact plate 27, heel post 17, collar 32, plate 33 and end of an electrical conductor 34 are assembled in position on the bow member by the bolt 31 with the end of the conductor 34 clamped between the plate 33 and a nut 35 or interposed washer.

A coupling coil 36 is mounted on each shoe press, preferably at the rear end thereof, for inductive cooperation with a supply coupling coil 37 both of which consist of a few turns of electrically conductive metal, preferably copper, of suitable size, e. g. No. 11 wire. The coupling coil 36 is preferably supported by the conductive leads therefrom 34 and 38 and suitably insulated conductor supports 39 and 40 mounted upon the frame of the press. The support 39 carries an insulating bushing 41 through which the conductor 34 extends and the support 40 comprises an insulating bushing mounted in and extending through a hole in the bow member 15. The end of the conductor 38 is connected to the electrode 22 by means of a flexible cable 42 preferably of copper.

It will be noted in Fig. 1 that the base member is cut away at 43 so that the cable 42 is suitably spaced therefrom and it is preferable that the entire electrical circuit of the shoe press have an appreciable clearance from all parts of the press frame, preferably one inch or more. In addition it is desirable to keep to a minimum the length of the connecting conductors to insure greatest efficiency.

The supply coupling coil 37 is supported by suitable insulators 44, 44 mounted in any suitable manner upon a plate 45 carrying a bolt 46 adapted to project through an elongated slot in a support 47, which in the preferred form is mounted adjacent the path of a press as it is moved along by the carrier, or in a stationary position upon the frame of a conveyor, or upon a carriage as described hereinafter. The slot in the support 47 and bolt 46 allow adjustment of the coupling between the two coupling coils 36 and 37 which may serve to adjust the resonance of the shoe press and supply circuits when conditions in the shoe press circuit are altered by the loading of shoes of different sizes.

Although the press electrical circuit has been described in connection with one particular type of press it is obvious that a similar circuit may be mounted on other types of presses, for example, a flat platen type of press as disclosed in my copending application Serial No. 138,735, filed April 24, 1937, with one condenser electrode mounted upon the face of the inflatable pad and the other condenser electrode mounted upon the face of the upper platen, similar precautions being taken to obtain proper spacing and to provide flexibility in sections of the conductors for relative movements of the press elements.

One type of carrier or conveyor which might be used in connection with the present invention comprises, as described in my identified copending application Serial No. 36,053, a carrier 48, preferably a movable belt upon which is positioned a plurality of successively arranged presses 10—10 as shown in Fig. 4, each adapted to be loaded at a loading station, to have pressure applied thereto through the valve 13 by means of an inflating chuck 49 preferably carried along therewith through an inflating zone and then disengaged, thereafter to a heating locality which may be a station at which the press is stopped with the supply coupling coil 37 in inductive relation to the press coupling coil 36 or a heating zone through which the supply coupling coil 37 is carried in inductive coupling relation to the press coupling coil 36 so that heat may be produced adjacent and in the work by means of electrical energy such as by a high frequency electrostatic field, and then around to a deflating zone after cooling, for which purpose a device for directing an air blast thereagainst, or other suitable means may be used. As described in my identified application the carrier is preferably operated by an electric motor connected through suitable switch devices to an alternating current supply to which is also connected the deflating mechanism.

The wiring diagrams of these circuits and the circuits of the means for producing and/or supplying the high frequency electrical current to the shoe press are shown in Fig. 3. Current from any suitable source, such as 220 volts A. C., is supplied to the conductors 50 and 51 which are connected to terminals 52 and 53. A pilot lead 54 is connected between terminal 53 and a starting switch 55 which in turn is connected to one end of a coil 56 of a magnetic switch 57 with the other end of the coil 56 connected to the terminal 52. The magnetic switch 57 is given a normal spring bias to the right as viewed in Fig. 3 but upon closing the starting switch 55, the coil 56 is energized so as to draw the core of the switch 57 to the left and to bring a bridging contact member 58 into contact with terminal 52 and a motor terminal 59, and also to bring a bridging contact member 60 into contact with terminal 53 and another motor terminal 61 thereby connecting the carrier motor 62 into the circuit to move the press carrier 48. Soon after the carrier begins to move the operator opens the starting switch 55 and in order to hold the switch 57 against its bias until a new press is brought to a stop at the loading station, an energizing current from the switch coil 56 is run through a stop switch 63, one end of which is connected to the switch 55 and the other end to a terminal 64. Another terminal 65 is connected to the terminal 61 and with the magnetic switch 57 closed a bridging contact member 66 connects the two terminals 64 and 65 together. Opening of the stop switch 63 by any suitable means such as by a projecting finger on a carriage carrying the inflating chuck 49 will deenergize the coil 56 and allow the mag-

netic switch 57 to return to its open position thus cutting out the motor 62. The action is then repeated after the switch 63 has been allowed to reclose by return of the chuck carrying carriage. Conductors 67 and 68 connect the end of a magnetic coil 69 of a plunger solenoid across the terminals of the motor 62 so that while the motor is running the solenoid retracts a spring biased deflating bar 70 which when the motor is cut out of circuit contacts the valve plunger 14 on a press located in the deflating zone. Thus each press as it travels through the deflating zone is subjected to two deflations when in accordance with the preferred form the deflating bar bridges two presses located at two different stations within the deflating zone as shown in Fig. 4.

In Fig. 3 is also shown a circuit diagram of an oscillator which comprises two oscillator tubes 71, 71 supplied from a suitable source of current, preferably the supply for the carrier motor 62, by conductors 72 and 73. Conductors 74 and 75 respectively connect a primary winding 76 of a transformer 77 through a switch 78 to the conductors 72 and 73 and conductors 79 and 80 connect a primary winding 81 of a transformer 82 through a variable resistance 83 to the conductors 72 and 73. Conductors 84 and 85 also connect a primary winding 86 of a third transformer 87 through a variable resistance 88 to the conductors 72 and 73.

A secondary winding 89 of the transformer 82 has the ends thereof connected to cathode filaments 90, 90 of two rectifier tubes. Anodes 91, 91 of the two rectifier tubes are respectively connected to the two ends of a secondary winding 92 of the transformer 77. A midpoint tap of the secondary winding 89 is grounded at 93 and a midpoint tap of the secondary winding 92 is connected through a conductor 94 to an iron cored filter choke coil 95 which in turn is connected by a wire 96 to a grid current indicator or meter 97 shunted by a condenser 98 to keep out radio frequency currents. The indicator or meter 97 is connected through a resistance 99, serving as a grid leak, and a radio frequency choke coil 100 to the midpoint of a grid tank inductance 101 having the ends thereof connected to grids 102, 102.

A filter condenser 103 is connected between ground and the conductor 96 and a plate volt meter 104 and a series resistance 104' therefore are connected in series between ground and the conductor 96 for a purpose to be explained later.

The secondary winding 105 of transformer 87 has its ends connected through suitable R. F. chokes 106—106 to cathode filaments 107, 107 of the tubes 71, 71. Grounded condensers 108—108 cooperate with the chokes 106—106 to isolate radio frequency currents from the filaments 107, 107. A midpoint tap of the secondary transformer winding 105 is connected by a conductor 109 to the wire 96.

Plates 110, 110 of the tubes 71, 71 are connected together through a plate tank inductance 111 which is shunted by a variable condenser 112 to stabilize the performance of the oscillator and is preferably a 6,000 volt variable condenser having from 50 to 100 micromicrofarad maximum capacity. Although the variable condenser 112 is preferred, stabilization of performance may be obtained by a condenser in this position which is provided with means for varying the spacing between the plates. The midpoint of the plate tank inductance 111 is connected through an R. F. choke 113 and a plate current indicator or meter 114 to ground. A condenser 115 shunted across the meter 114 keeps radio frequency currents out of the same.

The circuits of the oscillator may be traced as follows. The filaments 107, 107 are supplied with current through the transformer 87. The plate circuit includes plates 110, 110, plate tank inductance 111, R. F. choke 113, meter 114, the ground connection to meter 114, the ground connection 93, the secondary winding 89 of transformer 82, rectifiers 90—91, secondary winding 92 of transformer 77, conductor 94, filter choke 95, conductor 96, midpoint tap 109, secondary 105 of transformer 87 and the filaments 107, 107. The grid circuit includes grids 102, 102, grid tank inductance 101, R. F. choke 100, grid leak 99, meter 97, conductors 96 and 109, secondary winding 105 of transformer 87 and the filaments 107, 107.

It will thus be seen that the plate circuit of the oscillator is grounded with respect to the direct current as a factor of safety. Thus the grid circuit and the cathode filaments 107, 107 are 2200 volts below ground and thus to obtain a plate voltage reading it is necessary to connect the plate volt meter 104 between the grid return wire 96 and the ground rather than between the plate return wire and the ground constituted by the iron frame of the oscillator case.

There is relatively little coupling between the grid and plate external circuits. Feed-back or grid potential is obtained as a result of small capacity between the grid and plate elements in the tubes and becomes effective as the grid and plate circuits are brought into resonance.

The output of the oscillator may be varied widely and is taken from the oscillator at the plate tank inductance 111. Preferably it is operated to produce power of the order of about one-quarter to 5 kw., with oscillator plate current from about 0.25 to 2.0 amps. at plate voltages ranging from 2,000 to 5,000 volts, and at about 15 to 30 megacycles. These values are based on the usual assumed 50% efficiency. Since the radio frequency potential in the plate tank inductance 111 is high at both ends and zero in the middle and since the usual transmission lines which are safe and simple to construct are low impedance devices and since said transmission lines must be coupled equally to each end of the plate tank inductance, it is preferable to locate the transmission line coupling coil at the middle of the plate tank inductance 111. This coupling coil may be wound around the outside or in the inside of plate tank inductance 111. Careful adjustment of the transmission line coupling coil 116 to the electrical center of plate tank inductance 111 will avoid overloading one oscillator tube and underloading the other. While it would be possible to couple the shoe press coupling coil 36 directly to the center of the plate tank inductance 111 it is more convenient to locate the oscillator at some distance from the shoe press machinery and this is preferably achieved by the use of a transmission line comprising cables 117 and 118 terminating in the coil 116 at the oscillator plate inductance 111 at one end and in supply coupling coil 37 at the other end. The transmission cables 117 and 118 may be twisted together if desired but in the use of relatively high power it may be preferable to avoid the use of twisted cables.

The oscillator and, when used as preferred, the transmission circuit constitute the means for producing or generating and transmitting high fre-

quency electrical current to the shoe press coupling coil 36, more specifically to the supply coupling coil 37 which is adapted for coupling cooperation with the press coupling coil.

It may be desirable to have the oscillator operated only while the loaded press is at a heating locality, that is, stationary at a heating station or moving through a heating zone. For this purpose a plunger type solenoid or relay 119 is connected across the motor terminals and when current is supplied to the motor is adapted to open and hold open the spring biased switch 78 in the supply conductors 74 and 75. If stationary heating is used the press is brought to a stop at the heating station by stopping the motor which will deenergize the relay 119 allowing the switch 78 to close and the oscillator to operate.

If transfer of electrical energy from the oscillator to the press is accomplished while the press moves through a heating zone, the supply coupling coil may be carried upon a carriage along with the press in inductive coupling relation to the press coupling coil and, mechanical means may be provided for cooperation with the carriage to close a switch in a circuit such as the plate circuit of the oscillator as the carriage travels forward and to break this circuit as the carriage returns to its initial position. In Fig. 6 is shown a structure which will perform these functions. Upon a rail or portion of the frame 120 of the conveyor is mounted a guide 121 comprising a pair of guide rods 122 and 123 to extend along the carrier frame throughout a heating zone of sufficient extent to allow heating for a desired period of time as the press is carried along by the carrier. A carriage 124 is mounted for sliding movement upon the rods 122 and 123 and supports the upright arm 47 upon which are mounted the insulators 44, 44 supporting the supply coupling coil 37. Means for aligning the supply coupling coil 37 with the press coupling coil 36 are provided in the form of an outstanding lug 125 which is affixed to each press in position to contact a lever 126 pivotally mounted at 127 on the carriage 124. The lug 125 and the lever 126 are so positioned on the press and carriage respectively that when they contact each other the supply coupling coil 37 and the press coupling coil 36 are in inductive coupling relation, and as the press is moved along by the carrier, the carriage 124 is caused to slide along guide rods 122 and 123 with the coils inductively coupled together. The lug 125 preferably is the same lug which cooperates with a lever on a carriage carrying the air inflating chuck 49, as described in my identified copending application.

As the carriage 124 approaches the exit end of the heating zone the lever 126 rides up along an inclined cam 128 which is fixedly positioned on the conveyor frame, preferably as a part of the guide 121. Such cam serves to elevate the forward end of the lever 126 until it clears the press lug 125 so that the sliding carriage 124 is not compelled further to partake of the press movement. When the carriage is thus released from the press the carriage is returned to its initial position at the approach end of the heating zone by means of a counter-weight 129 which is attached to the carriage 124 by a flexible cable or chain 130 running over a pulley or sprocket 131 on the frame 120. If desired, the counter-weight 129 may slide in a closed guide tube for cooperation to serve as a control of the rate of travel of the carriage during return travel.

For controll of a switch in a circuit of the oscillator or the means for producing and/or supplying the electrical energy or high frequency current, a portion of the carriage 124 may be adapted to engage a switch operating member in a manner so that the switch is closed during forward travel and opened during return travel of the carriage. For this purpose, as shown in Figs. 6 and 7, the carriage may comprise two spaced apart vertically disposed plates 132 and 133 between which loosely rides a switch block 134 suitably apertured to receive the guide rod 122 and notched at the bottom to ride upon the guide rod 123. Spacing blocks 135 and 136 may be secured to the bottom portion of the switch block 134 to increase the weight thereof and the area of contact with guide rod 123 to obtain desired frictional resistance to movement and further to provide abutments against which carriage end plates 132 and 133 may engage. Upon the switch block 134 is mounted a block 137 of suitable insulating material carrying two contact points 138, 138. A spring biased plunger 139 is mounted upon the switch block 134 between contact points 138, 138 and carries a bridging conductor 140 adapted to engage the contact points to close a circuit in which they are included when a spring 141 between the head of the plunger 139 and switch block 134 is allowed to expand as the carriage travels forward with the end plate 133 engaging the spacing block 136 to carry the switch block along with the carriage.

During return travel the end plate 132 engages the head of the plunger 139 compressing the spring 141 and forcing the bridging conductor 140 away from the contact points 138, 138 thereby opening the circuit which is held open during return of the carriage. Switch contact points 138, 138 may be mounted in either of the circuit conductors 74 and 75 or two pairs of such contact points may be provided with two cooperating bridging conductors mounted on the plunger 139 to take the place of switch 78. It is obvious, however, that the switch may be mounted in any circuit, or portion thereof, of means for producing and/or supplying electrical energy or high frequency electrical current as desired.

Relay 119 and switch 78 may be arranged whereby a circuit, such as the plate circuit, of the current supplying means is closed only during movement of the carrier. For this purpose a spring may normally bias the switch 78 in an open position and the relay 119 close the switch and hold it closed when energized during operation of the carrier motor. Thus high frequency electrical current would be supplied to the shoe press only during movement of the carrier and the heating zone could be so arranged as to allow return of the carriage 124 carrying supply coil 37 during the period the carrier motor is stopped so that the oscillator would not be functioning during such return. To obtain this correlation the lever 126 would be released by the cam 128 from engagement with the press lug 125 about or just prior to the time the carrier is brought to a stop.

When using such a "normally open" relay at 119 or elsewhere in the oscillator circuits the required heating may be obtained during movement of the carrier by adjusting the intensity of the heating to the length or duration of press movement by varying the output of the oscillator, e. g. by potentiometer control in the plate circuit, by inductance coupling control between the oscillator plate circuit and the transmission circuit and/or the supply coupling coil 37 and the press coupling coil 36, by control of a variable auto

transformer or large rheostat inserted in either of the supply conductors 74 and 75 connected to the primary 76 of the plate transformer 77, etc.

For purposes of protection a hood may be mounted on the carrier at the heating locality so that the press is covered thereby when heat is applied either while stopped at a heating station or carried through a heating zone.

It may be desired to transfer electrical energy from the supply coupling coil 37 to the press electrical circuit for a determined period of time say from 5 to 20 seconds, while the press is in a heating locality, e. g. stationary at a heating station. For this purpose a timing device, such as a synchronous motor or a clock spring motor may be used to break a circuit of the means for producing and/or supplying the high frequency electrical current, e. g. the plate circuit of the oscillator, and means may be provided for resetting the timing device as the press is again moved by the carrier. Suitable means and circuits thereof for performing such functions are shown in Fig. 5. As previously explained the relay 119 is adapted to open the switch 78 in conductors 74 and 75 connected to the A. C. supply circuit when the motor 62 is operated to move the carrier and allows the switch 78 to close when the motor is deenergized to allow the carrier to stop the press at the heating station.

Conductors 74 and 75 are provided with an additional switch 142 adapted to be opened by a plunger 143 having a head 144 between which and a support 145 is positioned a compression spring adapted normally to bias the plunger 143 to hold switch 142 closed. A self-starting synchronous motor 146 is connected by conductors 172 and 173 to the supply conductors 72 and 73. On one end of the rotor shaft of the synchronous motor is mounted a friction clutch, one plate of which is shown at 147 and carries a pinion 148 in engagement with a rack 149 connected to the plunger of a solenoid 150 having the ends of the coil thereof connected to the terminals of the carrier motor. Upon the clutch plate 147 is mounted a finger 151 adapted to be rotated therewith in a counter-clockwise direction and to engage the plunger head 144 located in its path of travel to open the switch 142. If desired, a switch 152 may be provided in either of the conductors 172 and 173 to open and close the synchronous motor supply circuit. The switch 152 is normally held closed by a spring and opened by a relay 153 connected across the motor terminals.

In operation, while the carrier motor is running, so that a press is moved along the carrier path, relay 119 breaks and holds open the plate circuit of the oscillator. When the carrier motor is deenergized to stop the press at the heating station, the relay 119 is deenergized allowing the biased switch 78 to close so that high frequency electrical current may be developed by the oscillator for transfer to the press electrical circuit. While the carrier motor is running the relay 153 holds the switch 152 open and when it comes to a stop the switch 152 is permitted to close upon deenergization of the relay 153. This permits the synchronous motor 146 to start thereby rotating the clutch plate 147 counter-clockwise carrying with it the finger 151 which after a determined period of time engages the head 144 of the plunger rod 143 and opens the switch 142. The synchronous motor 146 continues to run thereby holding the switch 142 open until the carrier motor is again started. At such time the solenoid 150 becomes energized causing the rack 149 to be drawn toward the solenoid and thereby rotating the clutch plate 147 in a clockwise direction to return the finger 151 to its initial position so that the operation may be repeated when the carrier motor is again stopped.

With the use of a clock spring motor, the operation is similar except that mechanical means are provided for starting and stopping the clock spring motor which cooperate with a moving portion of the carrier. Similar timing devices may be used with a carrier where heating is obtained as the press is moved through a heating zone, suitable mechanical means being provided on the carrier or on the supply coupling coil carriage to start operation of the timing device motor and to reset it.

If desired a small variable condenser 154, shown in Fig. 8, may be mounted on a shoe press across the press coupling coil 36 so that the shoe press electrical circuit may be tuned to achieve resonance between the shoe press circuit and the oscillator circuit. This may be particularly desirable when presses are to be loaded with different sizes of shoes, or shoes wherein the cementing areas differ, whereby the area of the last electrodes differ.

The operation of the apparatus of the present invention, with the type of shoe press shown by way of example, may be as follows. Uppers are lasted upon lasts having condenser electrodes 23 on the bottoms thereof. If films of cement are to be applied previously to areas of the bottom of the uppers and shoe bottom assemblies or outsoles, dried and then rendered adhesive when such shoe parts are cemented together any suitable cement may be used. Examples are thermo-plastic cements of the type described in the identified Pitman application, thermo-setting cements and solvent containing cements such as those now commonly used. When using the latter it is applied wet to the shoe parts and allowed to dry by evaporation of the solvent. Such cement is rendered adhesive by application of solvent just prior to assembly of shoe parts in the press and when heat is applied solvent is driven off. The thermo-plastic cement is to be rendered adhesive by the application of heat and then allowed to set and adhesive thermo-setting cement is to be set by application of heat.

Regardless of what type of cement is used each press is loaded with a shoe bottom assembly or outsole adjacent the condenser electrode 22 and a lasted upper positioned thereabove with the contact plate 27 positioned above the exposed portion of the metal lining of the jack-pin hole 26. The pad 11 is then inflated to apply pressure to the assembled shoe elements, the press coil 36 is brought into coupling relation to the supply coupling coil 37 and high frequency electrical current is transmitted to the coupling coil 37. As a result a high frequency electrostatic field is set up between the condenser electrodes 22 and 23 which heats the cement to render it adhesive if thermo-plastic, to set it if thermo-setting, or to drive off solvent if it is of the type which is rendered adhesive by the use of solvent. The assembled unit is then allowed to cool while the pressure is maintained and for this purpose cooling means such as a blast or air may be used. After the cement has been set and the unit sufficiently cooled, the press is unloaded to allow reloading with other shoe elements.

When this procedure is followed with the use of a carrier or continuous conveyor each suc-

ceeding press is loaded in the above manner at the loading station and carried along by the carrier to an inflating station or through an inflating zone where pressure is applied by inflation of the pad through the conduit 12. The press is then moved to a heating locality, i. e. a station or zone, where the press coupling coil 36 is brought into coupling relation to the supply coupling coil 37. Although the oscillator may be operated continuously it is desired to have it operate only while the press is at the heating locality. If heating is to be performed at a station while the carrier is stopped such as for loading another press, this may be accomplished as previously described by a relay 119 connected to the carrier motor leads or if heating is to be accomplished while the carrier is travelling the supply coupling coil 37 may be carried along in coupling relation to the press coupling coil 36 through the heating zone by the carriage 124 and desired switch operations in a circuit of the oscillator obtained by a device such as the switch block 134 and associated structure.

Operation of the oscillator for determined periods of time while a press is at a heating locality if desired may be obtained with the use of a timing device such as that shown in Fig. 5 and those described above in the manner set forth.

After the press has passed the heating locality it is suitably cooled either by natural cooling or by cooling currents of air while travelling or otherwise. The press is then carried around to the deflating station or zone where the pad is deflated and finally back to the loading station to permit repetition of the operations. Each succeeding press is used in like manner.

It will thus be seen that apparatus has been provided which efficiently attains the objects set forth above and while preferred constructions have been described in detail such description is illustrative and it will be understood that various departures may be made from the specifically illustrated mechanisms within the scope of the invention. Thus, for example, the presses may be used without carriers each press after loading being positioned with its coupling coil 36 in coupling relation to a supply coupling coil 37 until the desired heating is had and then removed for replacement by another loaded press, or suitable carriers, such as rotatable tables, wheels, and the like, may be used in conjunction with desired press constructions characterized by the press electrical circuit of the invention, pad inflating and deflating mechanisms, and mechanisms for attaining any desired inductive coupling relation between this circuit and a high frequency electrical current supplying means. Also the features of the electrical energy supplying means, timing devices, cut-off switches and other structures associated with the carrier and electrical energy supplying means described above may be used with presses having modified electrical circuits such as one wherein provision is made for producing heat at or adjacent the work by means of an electro-magnetic field, etc.

Since certain changes may be made in the above construction and different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

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

1. Apparatus for use in cementing shoe parts together, comprising a shoe press having a work engaging face which is yieldable and capable of applying pressure to work held thereagainst, a condenser electrode on the face, abutment means to hold work against the face, a second metallic condenser electrode associated with said abutment means whereby shoe parts to be cemented together may be held between said electrodes, and electrical conducting means connected between said electrodes including a coupling coil mounted on said press for cooperation with a coupling coil in a high frequency oscillator circuit mounted near a shoe press carrier.

2. Apparatus for use in cementing shoe parts together, comprising a shoe press including a frame, a pressure applying pad having a work engaging face, a substantially flat metallic condenser electrode on the face, abutment means to hold work against the face, a second metallic condenser electrode associated with said abutment means whereby shoe parts to be cemented together may be held between said electrodes, a coupling coil mounted on said frame for cooperation with a coupling coil in a high frequency oscillator circuit mounted near a shoe press carrier, and electrical conducting means connecting each end of the press coupling coil to one of said electrodes.

3. Apparatus for use in cementing shoe parts together, comprising a shoe press including a frame, a pressure applying pad having a work engaging face, a substantially flat flexible metallic condenser electrode on the face, abutment means to hold work against the face, a second metallic condenser electrode associated with said abutment means whereby shoe parts to be cemented together may be held between said electrodes, a coupling coil mounted on said frame for cooperation with a coupling coil in a high frequency oscillator circuit mounted near a shoe press carrier, electrical conducting means connecting each end of the press coupling coil to one of said electrodes and insulating means to support said electrical conducting means on said frame and to space them therefrom an appreciable distance.

4. In apparatus for use in cementing shoe parts together, a shoe press comprising a base member, an inflatable pad on said base member constituting a pressing face thereof, a substantially flat metallic condenser electrode on said pad, means on said press for holding a lasted shoe upper against said pad with a second metallic condenser electrode on the last adjacent the bottom portion of the upper, a coupling coil mounted on said press for cooperation with a coupling coil in a high frequency oscillator circuit mounted near a shoe press carrier, electrical conducting means connecting one end of said press coupling coil to said pad condenser electrode, and other electrical conducting means connecting the other end of said coupling coil to means adapted to make electrical contact with means on the last electrically connected to the last condenser electrode.

5. In apparatus for use in cementing shoe parts together, a shoe press comprising a base member, an inflatable pad constituting the press-

ing face of said base member, a substantially flat flexible metallic condenser electrode on said pad, a bow member mounted on said base member, toe and heel posts on said bow member to hold a lasted upper against said pad with a second metallic condenser electrode mounted on the last adjacent the bottom portion of the upper electrically connected to electrical contacting means on the top of the last, a coupling coil mounted on said bow member for cooperation with a coupling coil in a high frequency oscillator circuit mounted near a shoe press carrier, an electrical conductor connecting one end of said press coupling coil to said pad condenser electrode, electrical contacting means on said heel post adapted to make contact with the electrical contacting means on the top of the last, and an electrical conductor connecting the other end of said press coupling coil to said heel post contacting means.

6. Apparatus for use in cementing shoe parts together, comprising in combination a shoe press having a recessed base member, a resilient pad located in the recessed portion of said base member and constituting a pressing face thereof, a substantially flat flexible metallic condenser electrode on said pad, a bow member mounted on said base member, toe and heel posts on said bow member to hold a lasted upper against said pad, electrical contacting means on the lower extremity of said heel post, a coupling coil mounted on said bow member for cooperation with a coupling coil in a high frequency oscillator circuit mounted near a shoe press carrier, electrical conducting means connecting one end of said press coupling coil to said pad condenser electrode, and electrical conducting means connecting the other end of said coupling coil to said electrical contacting means; and a last having a second metallic condenser electrode located on the bottom thereof and electrical contacting means on the top thereof adapted to cooperate with said electrical contacting means on said heel post with said last condenser electrode electrically connected thereto.

7. In apparatus for use in cementing shoe parts together, a shoe press comprising a base member having a recess therein, an inflatable pad located in the recess and constituting the pressing face of said base member, a substantially flat flexible metallic condenser electrode on said pad, a bow member rigidly supported on said base member, toe and heel posts on said bow member to hold a lasted upper against said pad with a second metallic condenser electrode mounted on the last adjacent the bottom portion of the upper and electrically connected to electrical contacting means on the top of the last, said heel post being formed of insulating material, an electrical contact plate on the face of said heel post adapted to cooperate with the electrical contacting means on the top of the last, means to secure said heel post and said contact face plate to said bow member including electrical conducting means connected to said pad condenser electrode by means of an electrical conductor including a coupling coil mounted on said bow member for cooperation with a coupling coil in a high frequency oscillator circuit mounted near a shoe press carrier.

8. In apparatus for use in cementing shoe parts together, a shoe press comprising a base member having a recess therein, an inflatable pad located in the recess and constituting the pressing face of said base member, a substantially flat flexible metallic condenser electrode on said pad, a bow member rigidly supported on said base member, toe and heel posts on said bow member to hold a lasted upper against said pad with a second metallic condenser electrode mounted on the last adjacent the bottom portion of the upper and electrically connected to electrical contacting means on the top of the last, said heel post comprising a block of insulating material having interfitting engagement with a portion of said bow member, an electrical contact plate on the face of said heel post adapted to cooperate with the electrical contacting means on the top of the last, an electrically conducting tying member securing said heel post and said contact face plate to said bow member, means to space said tying member from said bow member, a coupling coil mounted on said bow member for cooperation with a coupling coil in a high frequency oscillator circuit mounted near a shoe press carrier, electrical conducting means connecting one end of said coupling coil to said tying member, and electrical conducting means connecting the other end of said coupling coil to said pad condenser electrode and including a flexible section to allow relative movement between said pad condenser electrode and the press frame, said conducting means being spaced from all portions of the press frame.

9. Apparatus for use in cementing shoe parts together, comprising in combination a shoe press having a recessed base member, an inflatable pad located in the recessed portion of said base member and constituting a pressing face thereof, a substantially flat flexible metallic condenser electrode on said pad, a bow member rigidly supported on said base member, toe and heel posts on said bow member to hold the lasted upper against said pad, said heel post comprising a block of insulating material having interfitting engagement with a portion of said bow member, an electrical contact plate on the face of said heel post, an electrically conducting tying member securing said heel post and said contact face plate to said bow member, means to space said tying member from said bow member, a coupling coil mounted on said bow member for cooperation with a coupling coil in a high frequency oscillator circuit mounted near a shoe press carrier, electrical conducting means connecting one end of said coupling coil to said tying member, and electrical conducting means connecting the other end of said coupling coil to said pad condenser electrode; and a last having a second metallic condenser electrode located on the bottom thereof, electrical contacting means on the top thereof adapted to cooperate with said contact face plate, and electrical conducting means connecting said last condenser electrode to said electrical contacting means.

10. Apparatus for use in cementing shoe parts together, comprising in combination a shoe press having an inflatable pad, means for holding a shoe thereon with a condenser electrode inside the shoe adjacent the bottom thereof, a second condenser electrode on said pad, a coupling coil and electrical connections between one end of said coil and said pad electrode and the other end of said coil and means to be connected to the shoe electrode; a carrier including means for moving said press along a path having a loading station, a pad inflating locality and a cement heating locality; a supply coupling coil near said carrier at said heating locality for inductive coupling relation to said press coupling coil when said press is in said heating locality; and means

to supply high frequency electrical current to said supply coupling coil.

11. Apparatus for use in cementing shoe parts together, comprising in combination a shoe press having a work engaging face which is yieldable and capable of applying pressure to work held thereagainst, a condenser electrode on the face, abutment means to hold work against the face, a second metallic condenser electrode associated with said abutment means whereby shoe parts to be cemented together may be held between said electrodes, and electrical conducting means connected between said electrodes including a coupling coil mounted on said press; a carrier including means for moving said press along a path having a loading station, a pressure applying zone and a cement heating locality; a supply coupling coil mounted near said carrier at said heating locality for cooperation with said press coupling coil; and a high frequency oscillator including a circuit for supplying high frequency electrical current to said supply coupling coil whereby a high frequency electrostatic field is set up between said condenser electrodes without necessitating the use of direct physical connection to the press electrical circuit.

12. Apparatus for use in cementing shoe parts together, comprising in combination a shoe press having a work engaging face which is yieldable and capable of applying pressure to work held thereagainst, a condenser electrode on the face, abutment means to hold work against the face, a second metallic condenser electrode associated with said abutment means whereby shoe parts to be cemented together may be held between said electrodes, and electrical conducting means connected between said electrodes including a coupling coil mounted on said press; a carrier including means for moving said press along a path having a loading station, a pressure applying zone and a cement heating locality; a supply coupling coil mounted near said carrier at said heating locality for cooperation with said press coupling coil, said supply coupling coil being adjustable toward and away from the path of said press coupling coil for varying the coupling inductance; and a high frequency oscillator including a circuit for supplying high frequency electrical current to said supply coupling coil whereby a high frequency electrostatic field is set up between said condenser electrodes without necessitating the use of direct physical connection to the press electrical circuit.

13. Apparatus for use in cementing shoe parts together, comprising in combination a shoe press including a base member, an inflatable pad on said base member constituting a pressing face thereof, a substantially flat metallic condenser electrode on said pad, means on said press for holding a lasted shoe upper against said pad with a second metallic condenser electrode on the last adjacent the bottom portion of the upper, a coupling coil mounted on said press, electrical conducting means connecting one end of said press coupling coil to said pad condenser electrode, and other electrical conducting means connecting the other end of said coupling coil to means adapted to make electrical contact with means on the last electrically connected to the last condenser electrode; a carrier including means for moving said press along a path having a loading station, a pad inflating zone and a cement heating locality; a supply coupling coil mounted near said carrier at said heating locality for cooperation with said press coupling coil; and a high frequency oscillator including a circuit for supplying high frequency electrical current to said supply coupling coil whereby a high frequency electrostatic field is set up between said condenser electrodes without necessitating the use of direct physical connection to the press electrical circuit.

14. Apparatus for use in cementing shoe parts together, comprising in combination a shoe press having a base member, an inflatable pad constituting a pressing face of said base member, a substantially flat flexible metallic electrode on said pad, a bow member mounted on said base member, toe and heel posts on said bow member to hold a lasted upper against said pad with a second metallic condenser electrode mounted on the last adjacent the bottom portion of the upper electrically connected to electrical contacting means on the top of the last, a coupling coil mounted on said bow member, an electrical conductor connecting one end of said coupling coil to said pad condenser electrode, electrical contacting means on said heel post adapted to make contact with the electrical contacting means on the top of the last, and an electrical conductor connecting the other end of said press coupling coil to said heel post contacting means; a carrier including means for moving said press along a path having a loading station, a pad inflating zone and a cement heating locality; a supply coupling coil mounted near said carrier at said heating locality for cooperation with said press coupling coil; and a high frequency oscillator including a circuit for supplying high frequency electrical current to said supply coupling coil whereby a high frequency electrostatic field is set up between said condenser electrodes without necessitating the use of direct physical connection to the press electrical circuit.

15. Apparatus for use in cementing shoe parts together, comprising in combination a shoe press having an inflatable pad, means for holding a shoe thereon with a condenser electrode inside the shoe adjacent the bottom thereof, a second condenser electrode on said pad, a coupling coil and electrical connections between one end of said coil and said pad electrode and the other end of said coil and means to be connected to the shoe electrode; a carrier including means for moving said press along a path having a loading station, a pad inflating locality and a cement heating station; a supply coupling coil in a stationary position near said carrier at said heating station for inductive coupling relation to said press coupling coil when said press is stopped at said heating station; means to stop said press at said heating station; and means to supply high frequency electrical current to said supply coupling coil.

16. Apparatus for use in cementing shoe parts together, comprising in combination a shoe press including a base member, an inflatable pad on said base member constituting a pressing face thereof, a substantially flat metallic condenser electrode on said pad, means on said press for holding a lasted shoe upper against said pad with a second metallic condenser electrode on the last adjacent the bottom portion of the upper, a coupling coil mounted on said press, electrical conducting means connecting one end of said press coupling coil to said pad condenser electrode, and other electrical conducting means connecting the other end of said coupling coil to means adapted to make electrical contact with means on the last electrically connected to the last condenser elec-

trode; a carrier including means for moving said press along a path having a loading station, a pad inflating zone and a cement heating station; a supply coupling coil mounted in a stationary position near said carrier at said heating station; means to stop said press at said heating station with said press coupling coil in inductive coupling relation to said supply coupling coil; and a high frequency oscillator including a circuit for supplying high frequency electrical current to said supply coupling coil whereby a high frequency electrostatic field is set up between said condenser electrodes without necessitating the use of direct physical connection to the press electrical circuit.

17. Apparatus for use in cementing shoe parts together, comprising in combination a plurality of shoe presses each having an inflatable pad, means for holding a shoe thereon with a condenser electrode inside the shoe adjacent the bottom thereof, a second condenser electrode on said pad, a coupling coil and electrical connections between one end of said coil and said pad electrode and the other end of said coil and means to be connected to the shoe electrode; a carrier including means for moving said press along a path having a loading station, a pad inflating locality and a cement heating zone; a supply coupling coil near said carrier, means for holding said supply coupling coil in inductive coupling relation to said press coupling coil during movement of said press through said heating zone; means for releasing said supply coupling coil from inductive relation to said press coupling coil after travel of said press through said heating zone; and means to supply high frequency electrical current to said supply coupling coil.

18. Apparatus for use in cementing shoe parts together, comprising in combination a plurality of shoe presses each having a work engaging face which is yieldable and capable of applying pressure to work held thereagainst, a condenser electrode on the face, abutment means to hold work against the face, a second metallic condenser electrode associated with said abutment means whereby shoe parts to be cemented together may be held between said electrodes, and electrical conducting means connected between said electrodes including a coupling coil mounted on said press; a carrier including means for moving said press along a path having a loading station, a pressure applying zone and a cement heating zone; a supply coupling coil near said carrier adjacent the approach end of said heating zone; means for holding said supply coupling coil in inductive coupling relation to said press coupling coil during movement of said press through said heating zone; means for releasing said supply coupling coil from inductive coupling relation to said press coupling coil after travel of said press through said heating zone; means for returning said supply coupling coil to its initial position for cooperation with a succeeding press; and a high frequency oscillator including a circuit for supplying electrical current to said supply coupling coil whereby a high frequency electrostatic field is set up between said condenser electrodes without necessitating the use of direct physical connection to the press electrical circuit.

19. Apparatus for use in cementing shoe parts together, comprising in combination a plurality of shoe presses each having an inflatable pad, means for holding a shoe thereon with a condenser electrode inside the shoe adjacent the bottom thereof, a second condenser electrode on said pad, a coupling coil and electrical connections between one end of said coil and said pad electrode and the other end of said coil and means to be connected to the shoe electrode; a carrier including means for moving said press along a path having a loading station, a pad inflating locality and a cement heating zone; a guide along the path of said carrier; a carriage slidable along said guide through said heating zone; a supply coupling coil mounted on said carriage; means for holding said supply coupling coil in inductive coupling relation to said press coupling coil during movement of said press through said heating zone; means for releasing said supply coupling coil from inductive relation to said press coupling coil after travel of said press through said heating zone; and means to supply high frequency current to said supply coupling coil.

20. Apparatus for use in cementing shoe parts together, comprising in combination a plurality of shoe presses each having an inflatable pad, means for holding a shoe thereon with a condenser electrode inside the shoe adjacent the bottom thereof, a second condenser electrode on said pad, a coupling coil and electrical connections between one end of said coil and said pad electrode and the other end of said coil and means to be connected to the shoe electrode; a carrier including means for moving said press along a path having a loading station, a pad inflating locality and a cement heating zone; a guide along the path of said carrier; a carriage slidable along said guide through said heating zone; a supply coupling coil mounted on said carriage; engaging means on said carriage adapted to cooperate with a part of said press at the approach end of said heating zone to bring said supply coupling coil into inductive coupling relation to said press coupling coil and to cause movement of said carriage whereby said inductive coupling relation is maintained during movement of said press through said heating zone; means fixed along said path adjacent the departure end of said heating zone to disconnect said carriage from said press; means for returning said carriage to its initial position for cooperation with a succeeding press; and means to supply high frequency current to said supply coupling coil.

21. Apparatus for use in cementing shoe parts together, comprising in combination a plurality of shoe presses each having an inflatable pad, means for holding a shoe thereon with a condenser electrode inside the shoe adjacent the bottom thereof, a second condenser electrode on said pad, a coupling coil and electrical connections between one end of said coil and said pad electrode and the other end of said coil and means to be connected to the shoe electrode; a carrier including means for moving said press along a path having a loading station, a pad inflating locality and a cement heating zone; a supply coupling coil near said carrier; means for holding said supply coupling coil in inductive coupling relation to said press coupling coil during movement of said press through said heating zone; means for releasing said supply coupling coil from inductive relation to said press coupling coil after travel of said press through said heating zone; means to supply high frequency electrical current to said supply coupling coil; and a switch device operable during forward movement of said supply coupling coil through said heating zone to close a circuit of the high frequency electrical current supplying means.

22. Apparatus for use in cementing shoe parts together, comprising in combination a plurality

of shoe presses each having an inflatable pad, means for holding a shoe thereon with a condenser electrode inside the shoe adjacent the bottom thereof, a second condenser electrode on said pad, a coupling coil and electrical connections between one end of said coil and said pad electrode and the other end of said coil and means to be connected to the shoe electrode; a carrier including means for moving said press along a path having a loading station, a pad inflating locality and a cement heating zone, a supply coupling coil near said carrier adjacent the approach end of said heating zone; means for holding said supply coupling coil in inductive coupling relation to said press coupling coil during movement of said press through said heating zone; means for releasing said supply coupling coil from inductive relation to said press coupling coil after travel of said press through said heating zone; means for returning said supply coupling coil to its initial position for cooperation with the succeeding press; means to supply high frequency electrical current to said supply coupling coil; and a switch device operable during forward movement of said supply coupling coil through said heating zone to close a circuit of the high frequency electrical current supplying means and to break said circuit during return movement of said supply coupling coil.

23. Apparatus for use in cementing shoe parts together, comprising in combination a plurality of shoe presses each having an inflatable pad, means for holding a shoe thereon with a condenser electrode inside the shoe adjacent the bottom thereof, a second condenser electrode on said pad, a coupling coil and electrical connections between one end of said coil and said pad electrode and the other end of said coil and means to be connected to the shoe electrode; a carrier including means for moving said press along a path having a loading station, a pad inflating locality and a cement heating zone; a guide along the path of said carrier; a carriage slidable along said guide through said heating zone; a supply coupling coil mounted on said carriage; means for holding said supply coupling coil in inductive coupling relation to said press coupling coil during movement of said press through said heating zone; means for releasing said supply coupling coil from inductive relation to said press coupling coil after travel of said press through said heating zone; means for returning said carriage to its initial position for cooperation with a succeeding press; means to supply high frequency current to said supply coupling coil; and a switch device operable by movement of said carriage to close a circuit of the high frequency electrical current supplying means during forward movement of said carriage through said heating zone and to break said circuit during return movement of said carriage.

24. In apparatus for use in cementing shoe parts together, the combination comprising a carrier including means for moving a plurality of successively arranged shoe presses along a path having a loading station, a pressure applying locality and a cement heating zone; a guide along the path of said carrier; a carriage slidable along said guide through said heating zone; a supply coupling coil mounted on said carriage for inductive coupling cooperation with a coupling coil connected in a shoe press electrical circuit including spaced condenser electrodes adapted to receive work therebetween; means for holding said supply coupling coil in inductive coupling relation to the press coupling coil during movement of a press through said heating zone; means for releasing said supply coupling coil from inductive relation to the press coupling coil after travel of the press through said heating zone; means for returning said carriage to its initial position for cooperation with succeeding presses; means to supply high frequency current to said supply coupling coil; and a switch device movable with said carriage and operable by movement thereof to close a circuit of the high frequency electrical current supplying means during forward movement of said carriage through said heating zone and to break said circuit during return movement of said carriage.

25. In apparatus for use in cementing shoe parts together, the combination comprising a carrier including means for moving a plurality of successively arranged shoe presses along a path having a loading station, a pressure applying locality and a cement heating zone; a guide along the path of said carrier; a carriage slidable along said guide through said heating zone; a supply coupling coil mounted on said carriage for inductive coupling cooperation with a coupling coil connected in a shoe press electrical circuit including spaced condenser electrodes adapted to receive work therebetween; means for holding said supply coupling coil in inductive coupling relation to the press coupling coil during movement of a press through said heating zone; means for releasing said supply coupling coil from inductive relation to the press coupling coil after travel of the press through said heating zone; means for returning said carriage to its initial position for cooperation with succeeding presses; means to supply high frequency current to said supply coupling coil; and a switch device movable along said guide by said carriage and operable during movement thereof to close a circuit of the high frequency current supplying means during forward movement of said carriage through said heating zone and to break said circuit during return movement of said carriage.

26. Apparatus for use in cementing shoe parts together, comprising a shoe press having a work engaging face which is yieldable and capable of applying pressure to work held thereagainst, a condenser electrode on the face, abutment means to hold work against the face, a second metallic condenser electrode associated with said abutment means whereby shoe parts to be cemented together may be held between said electrodes, electrical conducting means connected between said electrodes including a coupling coil mounted on said press for cooperation with a coupling coil to be supplied with high frequency current from an oscillator mounted near a shoe press carrier, and a variable condenser shunted across said press coupling coil for tuning the shoe press electrical circuit.

27. In apparatus for use in cementing shoe parts together, a shoe press comprising a base member, an inflatable pad on said base member constituting a pressing face thereof, a substantially flat metallic condenser electrode on said pad, means on said press for holding a lasted shoe upper against said pad with a second metallic condenser electrode on the last adjacent the bottom portion of the upper, a coupling coil mounted on said press for cooperation with a coupling coil to be supplied with high frequency current from an oscillator mounted near a shoe press carrier, electrical conducting means connecting one end of said press coupling coil to said

pad condenser electrode, other electrical conducting means connecting the other end of said coupling coil to means adapted to make electrical contact with means on the last electrically connected to the last condenser electrode, and a variable condenser shunted across said press coupling coil for tuning the shoe press electrical circuit.

28. In apparatus for use in cementing shoe parts together, the combination comprising a carrier including means for moving a shoe press along a path having a cement heating station, a supply coupling coil in a stationary position near said carrier at said station for inductive coupling cooperation with a coupling coil connected in a shoe press electrical circuit designed to include spaced condenser electrodes with work therebetween, means to stop the press at said heating station to bring the coils into inductive coupling relation, means to supply high frequency current to said supply coupling coil, and means closing a circuit of the high frequency current supplying means when the press is stopped at said heating station and breaking said circuit when the press is moving.

29. In apparatus for use in cementing shoe parts together, the combination comprising a carrier including means for moving a shoe press along a path having a cement heating station, a supply coupling coil in a stationary position near said carrier at said station for inductive coupling cooperation with a coupling coil connected in a shoe press electrical circuit designed to include spaced condenser electrodes with work therebetween, means to stop the press at said heating station to bring the coils into inductive coupling relation, means to supply high frequency current to said supply coupling coil, motive means for operating the press moving means, and means associated with said motive means closing a circuit of the high frequency current supplying means when said motive means is stopped and breaking said circuit when said motive means is running.

30. In apparatus for use in cementing shoe parts together, the combination comprising a carrier including means for moving a shoe press along a path having a cement heating station, a supply coupling coil in a stationary position near said carrier at said station for inductive coupling cooperation with a coupling coil connected in a shoe press electrical circuit designed to include spaced condenser electrodes with work therebetween, means to stop the press at said heating station to bring the coils into inductive coupling relation, means to supply high frequency current to said supply coupling coil, an electric motor for operating the press moving means, and means connected to the supply leads of said motor closing a circuit of the high frequency current supplying means when the motor supply circuit is broken and breaking said high frequency current supplying means circuit when said motor circuit is closed.

31. In apparatus for use in cementing shoe parts together, the combination comprising a carrier including means for moving a shoe press along a path having a cement heating station, a supply coupling coil in a stationary position near said carrier at said station for inductive coupling cooperation with a coupling coil connected in a shoe press electrical circuit designed to include spaced condenser electrodes with work therebetween, means to stop the press at said heating station to bring the coils into inductive coupling relation, an oscillator for producing high frequency current in said supply coupling coil, an electric motor for operating the press moving means, and a relay connected to the supply leads of said motor controlling opening and closing operations in a circuit of said oscillator whereby said oscillator produces high frequency current in said supply coupling coil when the motor circuit is broken and discontinues such operation of said oscillator when said motor circuit is closed.

32. In apparatus for use in cementing shoe parts together, the combination comprising a carrier including means for moving a shoe press along a path having a cement heating station, a supply coupling coil in a stationary position near said carrier at said station for inductive coupling cooperation with a coupling coil connected in a shoe press electrical circuit designed to include spaced condenser electrodes with work therebetween, means to stop the press at said heating station to bring the coils into inductive coupling relation, an oscillator for producing high frequency current in said supply coupling coil, said oscillator including a plate circuit, an electric motor for operating the press moving means, and a relay connected to the supply leads of said motor operating a switch controlling the current supply to the plates in said plate circuit to energize said plate circuit when the motor circuit is broken and deenergize the same when said motor circuit is closed.

33. In apparatus for use in cementing shoe parts together, the combination comprising a carrier including means for moving a plurality of successively arranged shoe presses along a path having a cement heating locality, a supply coupling coil near said carrier at said heating locality for inductive coupling cooperation with a coupling coil on each of the presses connected in an electrical circuit thereon designed to include spaced condenser electrodes with work therebetween, means to bring the coils into inductive coupling relation at said heating locality, means to supply high frequency current to said supply coupling coil, means closing a circuit of the high frequency current supplying means when a press is at said heating locality and breaking said circuit when the press moves away from said heating locality.

34. In apparatus for use in cementing shoe parts together, the combination comprising a carrier including means for moving a plurality of successively arranged shoe presses along a path having a cement heating locality, a supply coupling coil near said carrier at said heating locality for inductive coupling cooperation with a coupling coil on each of the presses connected in an electrical circuit thereon designed to include spaced condenser electrodes with work therebetween, means to bring the coils into inductive coupling relation at said heating locality, means to supply high frequency current to said supply coupling coil, motive means for operating the press moving means, and a switch associated with said motive means closing a circuit of the high frequency current supplying means when a press is at said heating locality and breaking said circuit when the press moves away from said heating locality.

35. In apparatus for use in cementing shoe parts together, the combination comprising a carrier including means for moving a shoe press along a path having a cement heating station, a supply coupling coil in a stationary position near

said carrier at said station for inductive coupling cooperation with a coupling coil connected in a shoe press electrical circuit designed to include spaced condenser electrodes with work therebetween, means to stop the press at said heating station to bring the coils into inductive coupling relation, means to supply high frequency current to said supply coupling coil, and a timing device for opening a circuit of the high frequency current supplying means a determined period of time after the press stops at said heating station.

36. In apparatus for use in cementing shoe parts together, the combination comprising a carrier including means for moving a shoe press along a path having a cement heating station, a supply coupling coil in a stationary position near said carrier at said station for inductive coupling cooperation with a coupling coil connected in a shoe press electrical circuit designed to include spaced condenser electrodes with work therebetween, means to stop the press at said heating station to bring the coils into inductive coupling relation, means to supply high frequency current to said supply coupling coil, means closing a circuit of the high frequency current supplying means when the press is stopped at said heating station and breaking said circuit when the press is moving, and a timing device for opening said last-mentioned circuit a determined period of time after the press stops at said heating station.

37. In apparatus for use in cementing shoe parts together, the combination comprising a carrier including means for moving a shoe press along a path having a cement heating station, a supply coupling coil in a stationary position near said carrier at said station for inductive coupling cooperation with a coupling coil connected in a shoe press electrical circuit designed to include spaced condenser electrodes with work therebetween, means to stop the press at said heating station to bring the coils into inductive coupling relation, means to supply high frequency current to said supply coupling coil, an electric motor for operating the press moving means, a timing device for opening a circuit of the high frequency current supplying means a determined period of time after the press stops at said heating station, and means associated with said motor for resetting said timing device when said motor is started.

38. In apparatus for use in cementing shoe parts together, the combination comprising a carrier including means for moving a shoe press along a path having a cement heating station, a supply coupling coil in a stationary position near said carrier at said station for inductive coupling cooperation with a coupling coil connected in a shoe press electrical circuit designed to include spaced condenser electrodes with work therebetween, means to stop the press at said heating station to bring the coils into inductive coupling relation, means to supply high frequency current to said supply coupling coil, an electric motor for operating the press moving means, means connected to the supply leads of said motor closing a circuit of the high frequency current supplying means when the motor supply circuit is broken and breaking said high frequency supplying means circuit when said motor circuit is closed, and a timing device for opening said high frequency current supplying means circuit a determined period of time after the press stops at said heating station.

39. In apparatus for use in cementing shoe parts together, the combination comprising a carrier including means for moving a shoe press along a path having a cement heating station, a supply coupling coil in a stationary position near said carrier at said station for inductive coupling cooperation with a coupling coil connected in a shoe press electrical circuit designed to include spaced condenser electrodes with work therebetween, means to stop the press at said heating station to bring the coils into inductive coupling relation, means to supply high frequency current to said supply coupling coil, an electric motor for operating the press moving means, means connected to the supply leads of said motor closing a circuit of the high frequency current supplying means when the motor circuit is broken and breaking said high frequency supplying means circuit when said motor circuit is closed, a timing device for opening said high frequency current supplying means circuit a determined period of time after the press stops at said heating station, and an electromagnetic device connected to the motor supply leads for resetting said timing device when said motor is started.

40. In apparatus for use in cementing shoe parts together, the combination comprising a carrier including means for moving a shoe press along a path having a cement heating station, a supply coupling coil in a stationary position near said carrier at said station for inductive coupling cooperation with a coupling coil connected in a shoe press electrical circuit designed to include spaced condenser electrodes with work therebetween, means to stop the press at said heating station to bring the coils into inductive coupling relation, an oscillator for producing high frequency current in said supply coupling coil, an electric motor for operating the press moving means, a relay connected to the supply leads of said motor controlling opening and closing operations of a switch in a circuit of said oscillator whereby said switch is closed when said motor circuit is opened and opened when said motor circuit is closed, a timing device for opening a second switch in the same circuit a determined period of time after the press stops at said heating station, and an electromagnetic device connected to the motor supply leads for resetting said timing device when said motor is started.

41. In apparatus for use in cementing shoe parts together, the combination comprising a carrier including means for moving a shoe press along a path having a cement heating station, a supply coupling coil in a stationary position near said carrier at said station for inductive coupling cooperation with a coupling coil connected in a shoe press electrical circuit designed to include spaced condenser electrodes with work therebetween, means to stop the press at said heating station to bring the coils into inductive coupling relation, an oscillator for producing high frequency current in said supply coupling coil, an electric motor for operating the press moving means, a relay connected to the supply leads of said motor controlling opening and closing operations of a switch in a circuit of said oscillator whereby said switch is closed when said motor circuit is opened and opened when said motor circuit is closed, a synchronous motor timing device for opening a second switch in the same circuit a determined period of time after the press stops at said heating station, an electromagnetic device connected to the carrier motor supply leads for re-

setting said synchronous motor timing device when said carrier motor is started, and a relay connected to the carrier motor supply leads for opening a switch in the synchronous motor circuit when said carrier motor is started.

42. In apparatus for use in cementing shoe parts together, the combination comprising a carrier including means for moving a plurality of successively arranged shoe presses along a path, each press when loaded having a pair of spaced condenser electrodes with work therebetween, means inductively to supply high frequency current to the condenser electrodes, and means causing the high frequency current supplying means to supply current to said condenser electrodes simultaneously with movement of the carrier.

43. In apparatus for use in cementing shoe parts together, the combination comprising a carrier including means for moving a plurality of successively arranged shoe presses along a path, each press when loaded having a pair of spaced condenser electrodes with work therebetween, means to supply high frequency current to the condenser electrodes, and means closing and holding closed a circuit of the high frequency current supplying means only during movement of the carrier.

44. In apparatus for use in cementing shoe parts together, the combination comprising a carrier, means to cause said carrier to move a plurality of successively arranged shoe presses along a path, each press when loaded having a pair of spaced condenser electrodes with work therebetween, means to supply high frequency current to the condenser electrodes, and automatic switch means for making and breaking a circuit of the high frequency current supplying means simultaneously with starting and stopping the carrier moving means.

45. Apparatus for use in cementing shoe parts together, comprising in combination a plurality of shoe parts presses each having an inflatable pad, means for holding shoe parts thereon with means for producing heat adjacent or in the work to be cemented including an electrical circuit having a coupling coil therein; a carrier including means for moving said press along a path having a loading station, a pad inflating locality and a cement heating zone; a supply coupling coil near said carrier, means for holding said supply coupling coil in inductive coupling relation to said press coupling coil during movement of said press through said heating zone; means for releasing said supply coupling coil from inductive relation to said press coupling coil after travel of said press through said heating zone; and means to supply electrical energy to said supply coupling coil.

46. Apparatus for use in cementing shoe parts together, comprising in combination a plurality of shoe presses each having an inflatable pad, means for holding a shoe thereon with means for producing heat adjacent or in the work to be cemented including an electrical circuit having a coupling coil therein; a carrier including means for moving said press along a path having a loading station, a pad inflating locality and a cement heating zone; a guide along the path of said carrier; a carriage slidable along said guide through said heating zone; a supply coupling coil mounted on said carriage; means for holding said supply coupling coil in inductive coupling relation to said press coupling coil during movement of said press through said heating zone; means for releasing said supply coupling coil from inductive relation to said press coupling coil after travel of said press through said heating zone; and means to supply electrical energy to said supply coupling coil.

47. Apparatus for use in cementing shoe parts together, comprising in combination a plurality of shoe presses each having an inflatable pad, means for holding a shoe thereon with means for producing heat adjacent or in the work to be cemented including an electrical circuit having a coupling coil therein; a carrier including means for moving said press along a path having a loading station, a pad inflating locality and a cement heating zone; a supply coupling coil near said carrier; means for holding said supply coupling coil in inductive coupling relation to said press coupling coil during movement of said press through said heating zone; means for releasing said supply coupling coil from inductive relation to said press coupling coil after travel of said press through said heating zone; means to supply electrical energy to said supply coupling coil; and a switch device operable during forward movement of said supply coupling coil through said heating zone to close a circuit of the electrical energy supplying means.

48. In apparatus for use in cementing shoe parts together, the combination comprising a carrier including means for moving a plurality of successively arranged shoe presses along a path having a loading station, a pressure applying locality and a cement heating zone; a guide along the path of said carrier; a carriage slidable along said guide through said heating zone; a supply coupling coil mounted on said carriage for inductive coupling cooperation with a coupling coil connected in a shoe press electrical circuit including means adapted to produce heat adjacent or in the work to be cemented; means for holding said supply coupling coil in inductive coupling relation to the press coupling coil during movement of a press through said heating zone; means for releasing said supply coupling coil from inductive relation to the press coupling coil after travel of the press through said heating zone; means for returning said carriage to its initial position for cooperation with succeeding presses; means to supply electrical energy to said supply coupling coil; and a switch device movable with said carriage and operable by movement thereof to close a circuit of the electrical energy supplying means during forward movement of said carriage through said heating zone and to break said circuit during return movement of said carriage.

49. In apparatus for use in cementing shoe parts together, the combination comprising a carrier including means for moving a shoe press along a path having a cement heating station, a supply coupling coil in a stationary position near said carrier at said station for inductive coupling cooperation with a coupling coil connected in a shoe press electrical circuit designed to include means adapted to produce heat adjacent or in the work to be cemented, means to stop the press at said heating station to bring the coils into inductive coupling relation, means to supply electrical energy to said supply coupling coil, and means closing a circuit of the electrical energy supplying means when the press is stopped at said heating station and breaking said circuit when the press is moving.

50. In apparatus for use in cementing shoe parts together, the combination comprising a car-

rier including means for moving a shoe press along a path having a cement heating station, a supply coupling coil in a stationary position near said carrier at said station for inductive coupling cooperation with a coupling coil connected in a shoe press electrical circuit designed to include means adapted to produce heat adjacent or in the work to be cemented, means to stop the press at said heating station to bring the coils into inductive coupling relation, an oscillator for producing high frequency current in said supply coupling coil, an electrical motor for operating the press moving means, and a relay connected to the supply leads of said motor controlling opening and closing operations in a circuit of said oscillator whereby said oscillator produces high frequency current in said supply coupling coil when the motor circuit is broken and discontinues such operation of said oscillator when said motor circuit is closed.

51. In apparatus for use in cementing shoe parts together, the combination comprising a carrier including means for moving a shoe press along a path having a cement heating station, a supply coupling coil in a stationary position near said carrier at said station for inductive coupling cooperation with a coupling coil connected in a shoe press electrical circuit designed to include means adapted to produce heat adjacent or in the work to be cemented, means to stop the press at said heating station to bring the coils into inductive coupling relation, an oscillator for producing high frequency current in said supply coupling coil, said oscillator including a plate circuit, an electric motor for operating the press moving means, and a relay connected to the supply leads of said motor operating a switch controlling the current supply to the plates in said plate circuit to energize said plate circuit when the motor circuit is broken and deenergize the same when said motor circuit is closed.

52. In apparatus for use in cementing shoe parts together, the combination comprising a carrier including means for moving a plurality of successively arranged shoe presses along a path having a cement heating locality, a supply coupling coil near said carrier at said heating locality for inductive coupling cooperation with a coupling coil on each of the presses connected in an electrical circuit thereon designed to include means adapted to produce heat adjacent or in the work to be cemented, means to bring the coils into inductive coupling relation at said heating locality, means to supply electrical energy to said supply coupling coil, means closing a circuit of the electrical energy supplying means when a press is at said heating locality and breaking said circuit when the press moves away from said heating locality.

53. In apparatus for use in cementing shoe parts together, the combination comprising a carrier including means for moving a shoe press along a path having a cement heating station, a supply coupling coil in a stationary position near said carrier at said station for inductive coupling cooperation with a coupling coil connected in a shoe press electrical circuit designed to include means adapted to produce heat adjacent or in the work to be cemented, means to stop the press at said heating station to bring the coils into inductive coupling relation, means to supply electrical energy to said supply coupling coil, and a timing device for opening a circuit of the electrical energy supplying means a determined period of time after the press stops at said heating station.

54. In apparatus for use in cementing shoe parts together, the combination comprising a carrier including means for moving a shoe press along a path having a cement heating station, a supply coupling coil in a stationary position near said carrier at said station for inductive coupling cooperation with a coupling coil connected in a shoe press electrical circuit designed to include means adapted to produce heat adjacent or in the work to be cemented, means to stop the press at said heating station to bring the coils into inductive coupling relation, means to supply electrical energy to said supply coupling coil, an electric motor for operating the press moving means, a timing device for opening a circuit of the electrical energy supplying means a determined period of time after the press stops at said heating station, and means associated with said motor for resetting said timing device when said motor is started.

55. In apparatus for use in cementing shoe parts together, the combination comprising a carrier including means for moving a shoe press along a path having a cement heating station, a supply coupling coil in a stationary position near said carrier at said station for inductive coupling cooperation with a coupling coil connected to a shoe press electrical circuit designed to include means adapted to produce heat adjacent or in the work to be cemented, means to stop the press at said heating station to bring the coils into inductive coupling relation, means for supplying electrical energy to said supply coupling coil, an electric motor for operating the press moving means, a relay connected to the supply leads of said motor controlling opening and closing operations of a switch in a circuit of said electrical energy supplying means whereby said switch is closed when said motor circuit is opened and opened when said motor circuit is closed, a synchronous motor timing device for opening a second switch in the same circuit a determined period of time after the press stops at said heating station, an electromagnetic device connected to the carrier motor supply leads for resetting said synchronous motor timing device when said carrier motor is started, and a relay connected to the carrier motor supply leads for opening a switch in the synchronous motor circuit when said carrier motor is started.

56. In apparatus for use in cementing shoe parts together, the combination comprising a carrier including means for moving a plurality of successively arranged shoe presses along a path, each press when loaded having an electrical circuit including means for producing heat adjacent or in work to be cemented, means inductively to supply electrical energy to said press electrical circuit, and means causing the electrical energy supplying means to supply current to said press electrical circuit simultaneously with movement of the carrier.

57. In apparatus for use in cementing shoe parts together, the combination comprising a carrier including means for moving a plurality of successively arranged shoe presses along a path, each press when loaded having an electrical circuit including means for producing heat adjacent or in work to be cemented, means to supply electrical energy to said press electrical circuit and automatic switch means for making and breaking a circuit of the electrical energy supplying means simultaneously with starting and stopping the carrier moving means.

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