

- [54] INDUCTION COOK-TOP WITH IMPROVED TOUCH CONTROL
- [75] Inventors: **Raymond M. Tucker; Clarence L. Dyer; Gregory P. Maman**, all of Cleburne, Tex.
- [73] Assignee: **Rangaire Corporation**, Cleburne, Tex.
- [21] Appl. No.: **35,083**
- [22] Filed: **May 1, 1979**
- [51] Int. Cl.³ **H05B 6/06; H05B 6/12; G08C 9/02**
- [52] U.S. Cl. **219/10.49 R; 219/10.77; 219/506; 307/116; 340/365 C; 340/365 E; 328/5; 200/DIG. 1**
- [58] Field of Search **219/10.77, 10.49 R, 219/10.55 B, 445, 453, 459, 492-494, 490, 497, 499, 501, 506; 200/DIG. 1; 307/116, 126, 96, 97, 308, 252 K, 252 M, 238, 239, 296; 363/57, 135, 95, 96; 361/94, 97; 328/48, 71, 5; 340/365 S, 365 C, 365 E, 366 R, 382, 716; 235/92 CT, 92 EV, 92 PE; 323/101**

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,530,310	9/1970	Adelson et al.	340/365 C
3,530,499	9/1970	Schroeder	219/10.49 R
3,637,970	1/1972	Cunningham	219/10.75
3,697,716	10/1972	Kornrumpf	219/10.49 R
3,697,717	10/1972	Kornrumpf	219/10.49 R
3,701,869	10/1972	Jacob et al.	200/167 R
3,710,062	1/1973	Peters, Jr.	219/10.49 R
3,711,672	1/1973	Moreland	219/10.49 R
3,715,550	2/1973	Harnden, Jr.	219/10.49 R
3,719,789	3/1973	Harnden, Jr.	219/10.49 R
3,742,173	6/1973	Kornrumpf et al.	219/10.41
3,742,174	6/1973	Harnden, Jr.	219/10.49 R
3,742,175	6/1973	Harnden, Jr.	219/10.49 R
3,742,178	6/1973	Harnden, Jr.	219/10.49 R
3,742,179	6/1973	Harnden, Jr.	219/10.49 R
3,742,337	6/1973	Digneffe	307/252 B
3,745,290	7/1973	Harnden, Jr. et al.	219/10.49 R
3,745,450	7/1973	Wilt	340/382
3,761,667	9/1973	Walden	219/10.49 R
3,761,668	9/1973	Harnden, Jr. et al.	219/10.49 R
3,770,928	11/1973	Kornrumpf et al.	219/10.49 R

3,775,577	11/1973	Peters, Jr.	219/10.49 R
3,777,094	12/1973	Peters, Jr.	219/10.49 R
3,781,503	12/1973	Harnden, Jr. et al.	219/10.49 R
3,781,504	12/1973	Harnden, Jr.	219/10.49 R
3,781,506	12/1973	Ketchum	219/10.49 R
3,781,508	12/1973	Steigerwald	219/10.49 R
3,786,219	1/1974	Kornrumpf et al.	219/10.49 R
3,786,220	1/1974	Harnden, Jr.	219/10.49 R
3,786,222	1/1974	Harnden, Jr. et al.	219/10.49 R
3,796,850	3/1974	Moreland et al.	219/10.49 R
3,806,688	4/1974	Mackenzie et al.	219/10.49 R
3,814,888	6/1974	Bowers et al.	219/10.49 R
3,820,005	6/1974	Steigerwald	219/10.77 X
3,823,297	7/1974	Cunningham	219/10.77
3,843,857	10/1974	Cunningham	219/10.49 R
3,852,558	12/1974	McCleerey et al.	219/10.49 R
3,886,342	5/1975	Peters, Jr.	219/10.49 R
3,887,781	6/1975	Peters, Jr.	219/10.49 R
3,887,848	6/1975	Larson et al.	200/DIG. 1
3,889,090	6/1975	Mackenzie	219/10.49 R
3,898,410	8/1975	Peters, Jr.	219/10.49 R
3,906,181	9/1975	Hibino et al.	219/10.49 R
3,925,633	12/1975	Partridge	219/10.49 R
3,927,336	12/1975	Carlson et al.	307/116 X
3,928,744	12/1975	Hibino et al.	219/10.49 R
3,932,801	1/1976	Peters, Jr.	219/10.49 R X
3,947,652	3/1976	Cobb	219/10.79
3,949,183	4/1976	Usami et al.	219/10.49
3,953,783	4/1976	Peters, Jr.	219/10.49 R X
3,966,426	6/1976	McCoy et al.	219/10.49 R X
3,974,472	8/1976	Gould, Jr.	219/506 X
4,010,342	3/1977	Austin	219/10.49 R
4,011,428	3/1977	Fosnough et al.	219/10.55 B
4,046,991	9/1977	Sefton et al.	219/497
4,074,101	2/1978	Kiuchi et al.	219/10.49 R
4,081,700	3/1978	Hamilton	328/5 X
4,105,902	8/1978	Iwai et al.	340/365 E X
4,149,217	4/1979	Tucker	219/10.77
4,158,759	6/1979	Mason	219/506 X

OTHER PUBLICATIONS

"Power on Reset For Machine Circuits", IBM Technical Disclosure Bulletin, vol. 9, No. 6, Nov. 1966.

G.E. Semiconductor Products Department, "A Low Cost, Ultrasonic Frequency Inverter using a Single SCR," Note 200.49, Neville Mapham, Feb., 1967.

Environmental/one, "Annual Report, Licensing Business".

IEEE Transactions on Industry Applications, "The

Induction Range: Its Performance and Its Development Problems", W. C. Moreland II, Jan./Feb., 1973, vol. 1A-9, No. 1.

IEEE Transactions on Industry Applications, "A Portable Cool-Surface Induction Cooking Appliances", Philip, Peters, Nov./Dec. 1974, vol. 1A-10, No. 6.

"Induction Range Circuits—Past, Present, Future", Jul. 30, 1973.

"Non-Heating Range Using Induction Method", Mitsubishi Electric Corp.

RCA, Solid State Division, Thyristors and Rectifiers "Characteristics and Applications of RCA Fast-Switching ASCR's", Application note AN6456, Henri Digneffe, Jan. 1976.

"Solid State Power Control Program", Dr. Richard G. Hoft, Aug. 21, 1973.

Primary Examiner—Gene Z. Rubinson

Assistant Examiner—Philip H. Leung

Attorney, Agent, or Firm—Richards, Harris & Medlock

[57]

ABSTRACT

An induction heating system (40) is provided and includes a plurality of induction heating coils (118). Touch control pads (50, 52, 70, and 72) are provided together with circuitry (80) for generating energization control signals. Circuitry (112 and 116) is provided for electrically energizing the induction heating coils (118). An electronic digital processor (82) is responsive to the energization control signals for generating energization signals for actuating and controlling the energization circuitry (112 and 116) to thereby vary the energization of the plurality of induction heating coils (118). Circuitry (150 and 152) is provided for maintaining touch control pads (50, 52, 70 and 72) operable when an operator is in contact with a pan disposed adjacent the plurality of induction heating coils (118).

13 Claims, 24 Drawing Figures

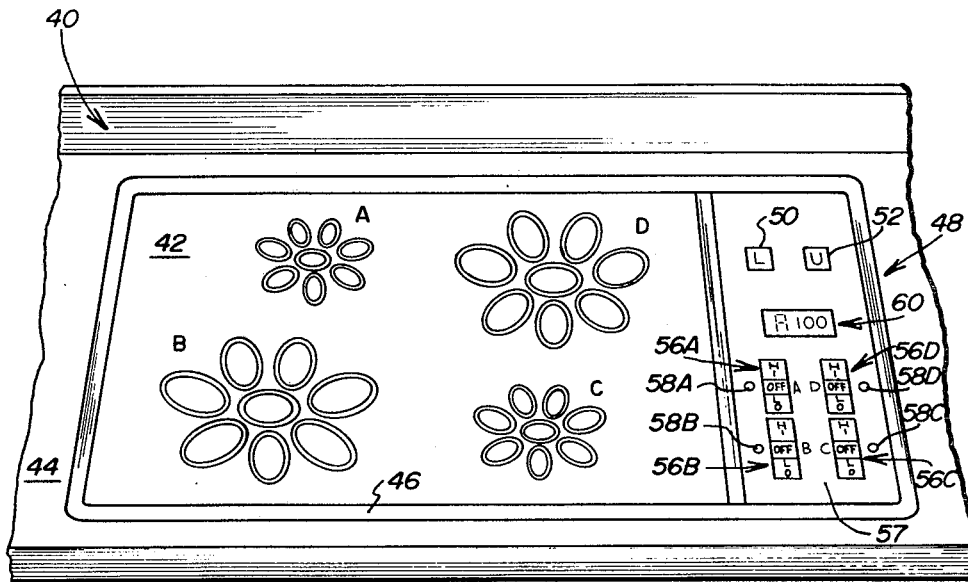


FIG. 1

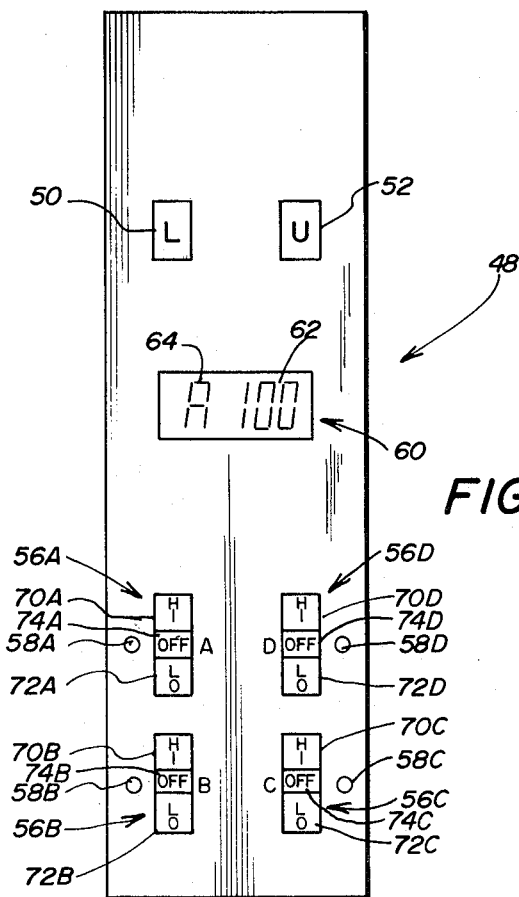


FIG. 2

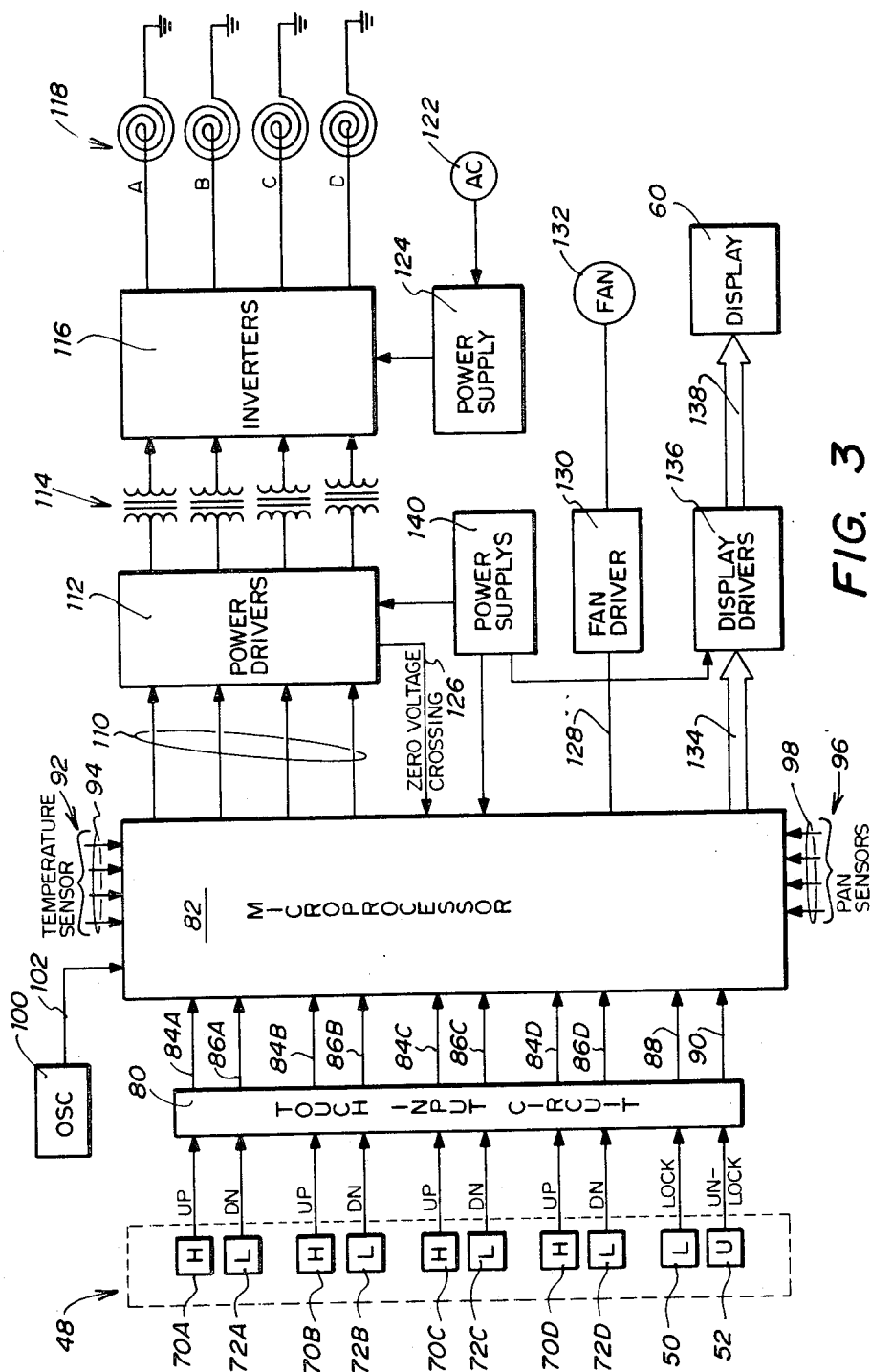


FIG. 3

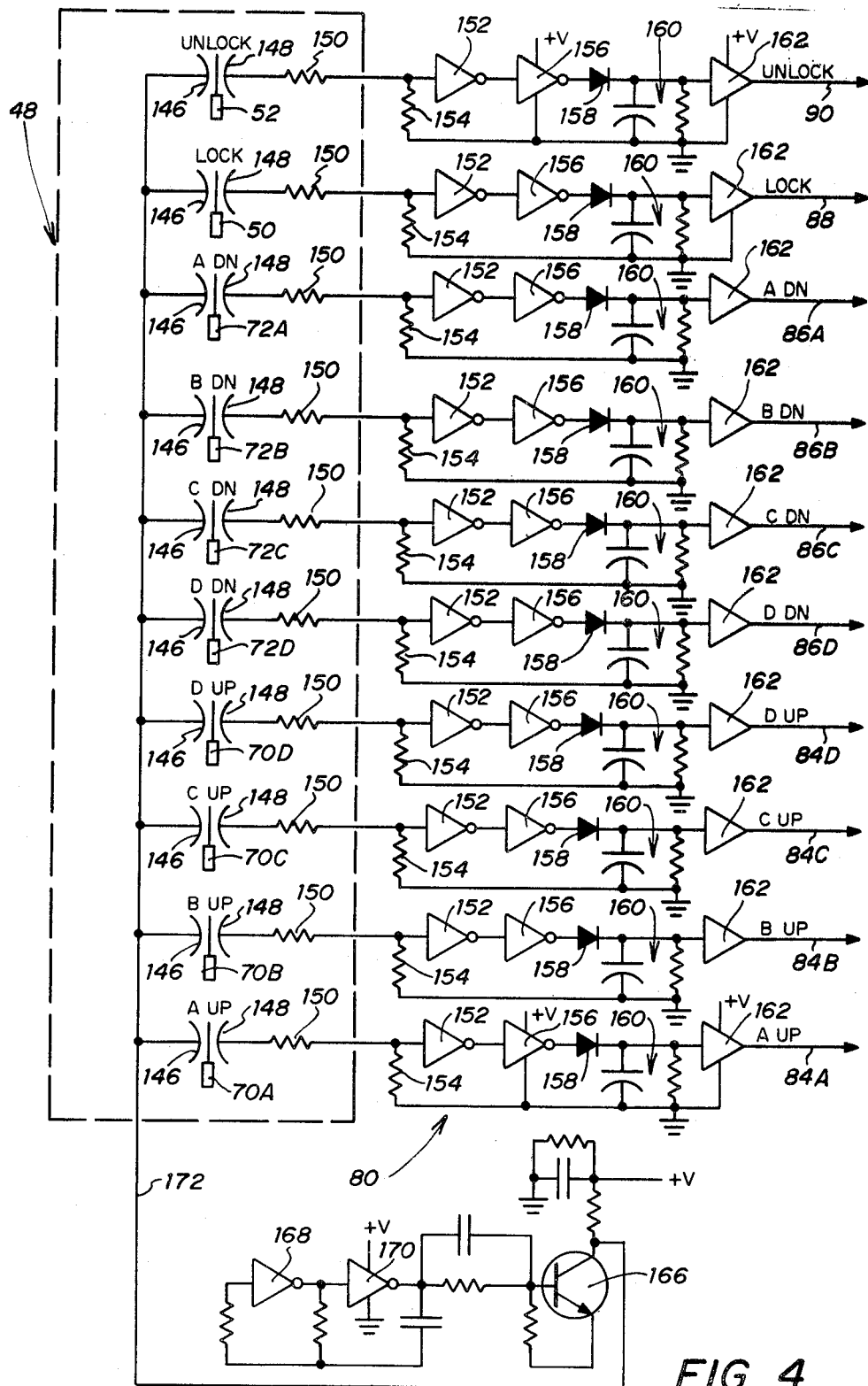


FIG. 4

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.