Jan. 8, 1924. 1,479,819

A. J. KLUEVER

HEATER

Filed Feb. 2, 1922 2 Sheets-Sheet 1

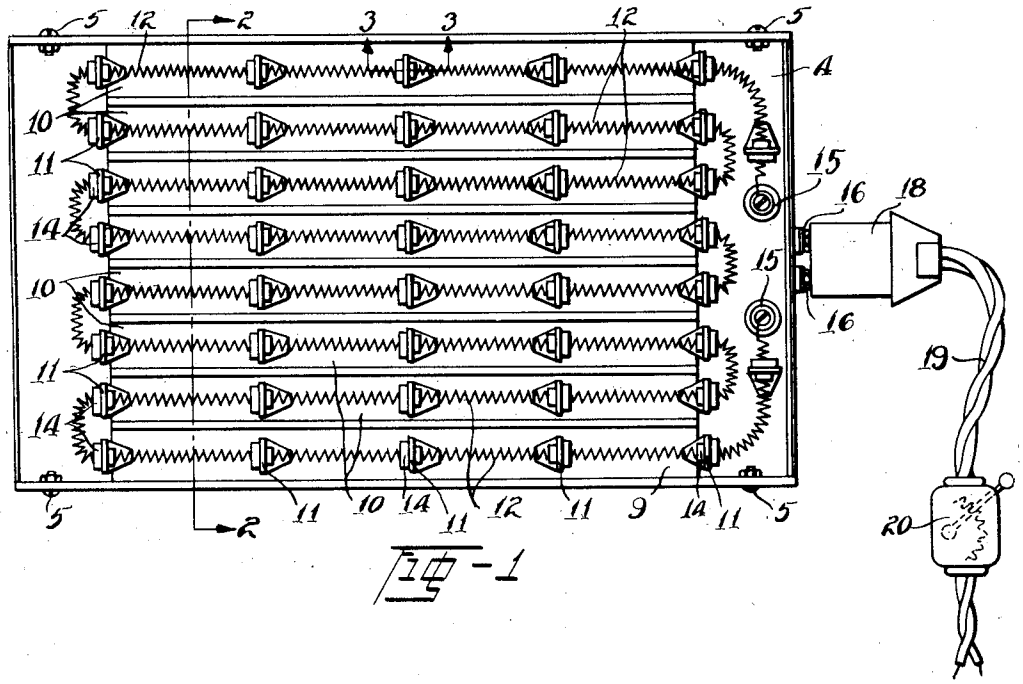

Fig-1

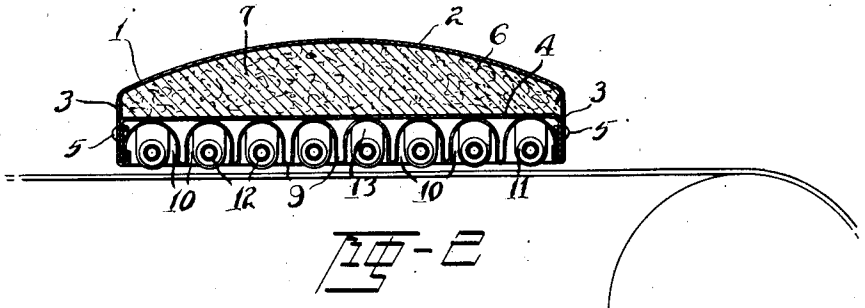

Fig-2

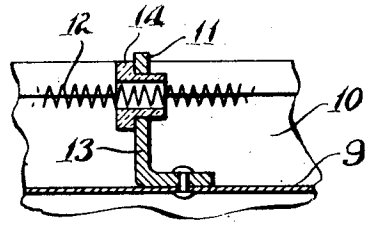

Fig-3

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HEATER

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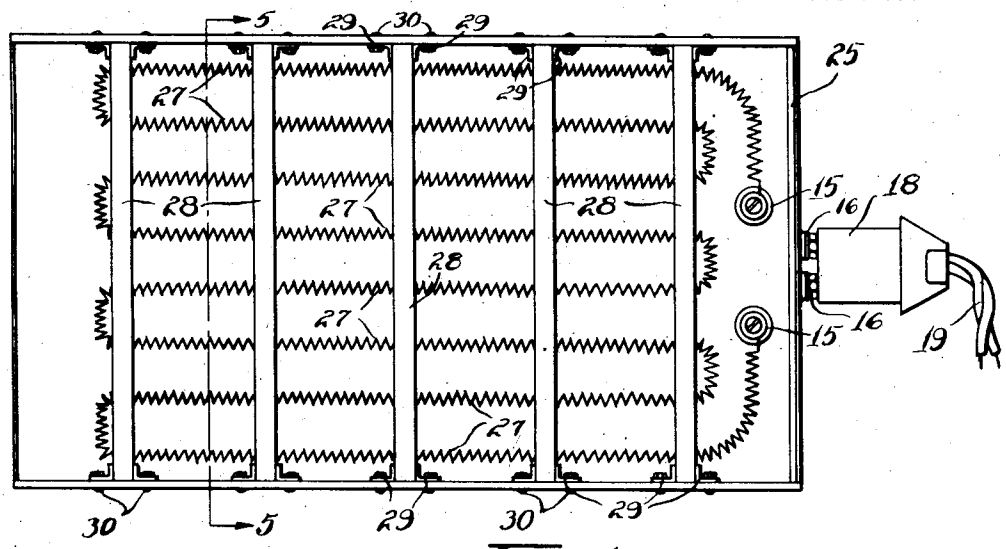


Fig-4

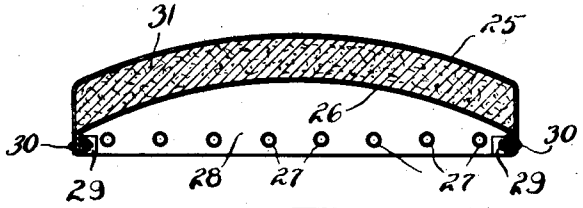
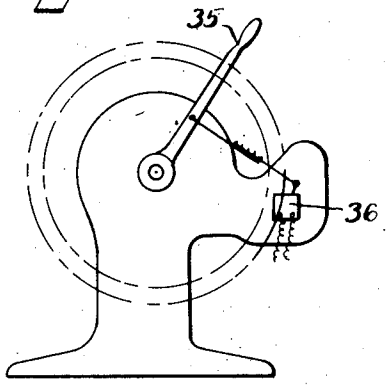


Fig-5

Fig-6



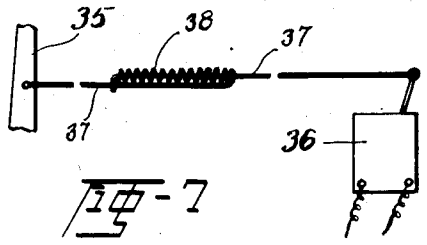


Fig-7

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Patented Jan. 8, 1924. 1,479,819

UNITED STATES PATENT OFFICE.

ANNE J. KLUEVER, OF LAKEWOOD, OHIO.

HEATER.

Application filed February 2, 1922. Serial No. 533,514.

To all whom it may concern:

Be it known that I, ANNE J. KLUEVER, a citizen of the United States, residing at Lakewood, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Heaters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates to heaters and dryers and is directed more particularly to a heater and dryer for use in connection with printing presses and the like.

The primary object of the present invention is to provide an electric heater which shall quickly and thoroughly dry the printed material as it passes through the press and thus prevent the ink on a printed sheet from backsetting on an adjacent sheet of printed material.

Another object is to provide a device of this character which shall be capable of directing the heat upon the material as it passes through the machine and dispel and prevent the formation of static electricity thereon so that the material may be easily handled and neatly piled.

Another object is to provide a heater and dryer for accomplishing the foregoing results which shall be simple in construction, inexpensive to manufacture, and which shall be capable of emitting the required heat for long continuous periods or intermittent service involving frequent heating and cooling of the heating element, without deterioration.

A still further object is to provide means for simultaneously breaking the heater circuit when the press is stopped, thus avoiding the possibility of burning or otherwise damaging the material which might be passing the heater at the time the press is stopped.

With these and other objects in view, the invention consists in the various novel features of construction or arrangement and combination, all of which will be fully described hereinafter and pointed out in the appended claims.

In the accompanying drawing wherein I have shown certain illustrative embodiments of my invention, Fig. 1 is an elevation of one form of my heater; Fig. 2 is a transverse sectional view taken on the line 2—2 of Fig. 1; Fig. 3 is a detail sectional view taken on the line 3—3 of Fig. 1; Fig. 4 is an elevation of a modified form of heater; Fig. 5 is a transverse sectional view taken on the line 5—5 of Fig. 4; Fig. 6 is a side elevation of a portion of a press showing the gear lever thereof connected with the heater switch; and Fig. 7 is an enlarged detailed view of the connection between the gear lever and heater switch.

Describing by reference characters, the various parts illustrated and referring particularly to Fig. 1, 1 indicates a casing for my heater which is preferably formed from sheet metal and provided with a back 2 and sides 3. Secured within this casing and spaced from the back 2 is a partition plate 4 which is fastened to the sides 3 in any suitable manner as by means of bolts 5. The partition 4 and back 2 define a space therebetween as indicated at 6 which is filled with a suitable heat insulating material 7 such as asbestos. A corrugated plate 9 is placed against partition 4. As shown in Fig. 2, the peripheral edges of the sides 3 of the casing are deflected over the edges of the corrugated plate 9 and partition plate 4, and in this manner serve to secure these elements together.

The corrugated plate defines a series of longitudinal grooves 10 in which are fastened a plurality of supports 11 which are adapted to support a heating element indicated at 12. Each of these supports consists of a sheet metal bracket 13 which is riveted to the corrugated plate, and is provided with an insulating bushing 14 which is capable of withstanding high temperature and also electrically insulating the heating element from said bracket.

Suitable insulated terminals 15, 15 are mounted in one end of the partition plate 4 and serve to secure each end of the heating element 12. These terminals are electrically connected with a pair of pins 16, 16 which are electrically insulated from the end of the casing 1 through which they project. A separable connector block 18 is adapted to receive the pins 16, 16 in the usual manner and establish electrical connection therewith. A conductor 19 extending from the source of current supply to the block 18 has connected therewith, a suitable rheostat switch indicated at 20 which enables the operator to regulate the heat emitted from the heating element 12.

In order to increase the efficiency of the heater I preferably enamel the metal parts thereof which are exposed to the heat, so

that the heat waves will be reflected rather than absorbed. The enamel also serves to secure the insulating bushings 14 in the sheet metal supports 13.

Referring to Figs. 4 and 5 it will be seen that I have shown a modified form of construction wherein 25 indicates a suitable casing which has secured therein a semi-cylindrical reflector plate 26. This plate is preferably formed from a metal capable of receiving a high polish, such as copper, so that efficient radiation of the heat will be obtained from a heating element 27 supported therein by suitable transversely arranged insulating bars 28. These bars are secured in position by suitable brackets 29 which are fastened to the sides of plate 26 by bolts 30 which extend through said plate and also through the heater casing 25 and fasten said parts together. As shown in Fig. 5 the reflector plate 26 is spaced from the casing so that heat insulating material indicated at 31, such as asbestos, may be placed therein.

In practice a heater of this general type is usually supported by a suitable bracket on the press so that the heat therefrom is radiated to the printed material as it passes through the press. This may be accomplished by arranging the heater above or below the printed material but I preferably position a heater of this type above the printed material so that the heat will be radiated directly to the printed side thereof.

The press is usually fitted with a gear shift lever 35 such as shown in Fig. 6 and in order to prevent the operator from stopping the press without breaking the heater circuit, I interpose a switch, indicated 36 in the heater circuit. This switch is connected with lever 35 through a pair of links 37—37, the inner ends of which are slidably connected with each other and a spring 38 is interposed therebetween. This connection permits the lever 35 to be moved a greater distance than the switch lever so that when the operator throws lever 35 to a neutral position to stop the press, the switch lever will be disconnected from its contact and the heater circuit broken. When lever 35 is rotated to operate the press, the switch will automatically close and bring the heater in operation.

Having thus described my invention, what I claim is:—

1. In a heater of the character set forth, the combination with a casing, of a reflector plate arranged within said casing, a portion of said reflector plate being spaced from said casing, heat insulating material interposed between said reflector and casing, a plurality of supports secured to said reflector, and a heating coil carried by said supports.

2. In a heater of the character set forth, the combination with a casing, of a reflector plate arranged within said casing, said reflector plate being corrugated to form a series of parallel grooves, and heating elements disposed within said grooves.

3. In a heater of the character set forth, the combination with a casing, of a corrugated enameled reflector plate arranged within and spaced from said casing, heat insulating material interposed between said reflector and casing, a plurality of heating coil supports secured to said reflector, and heating coils carried by said supports and arranged in the corrugations of said reflector.

4. In a heater of the character set forth, the combination with a casing, of a partition plate arranged within said casing, a portion of said partition plate being spaced from said casing, heat insulating material interposed between said partition and casing, a reflector disposed within said casing, a plurality of supports secured to said reflector, and a heating coil carried by said supports.

In testimony whereof, I hereunto affix my signature.

ANNE J. KLUEVER.