PORTABLE AUTOMATIC CONE KILN

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Editor's note. U. S. Patent No. 2,825,153 has been assigned to the United States of America by Karl B. Lanquist, for a portable automatic cone kiln that he invented (fig. 1). The kiln consists of an electrically heated metal box enclosing a tumbling cage for the cones. A time clock on a motor automatically causes the cage to revolve for a desired interval, such as 10 minutes during each hour (fig. 2). Infrared bulbs generate heat controlled by a thermostat.

The novel patentable feature of this kiln lies in its having double sheet metal walls about 1 inch apart. Since the outer wall is always cooler than the inner one, moisture driven from the cones condenses on it and runs to the bottom of the box where it drains through weep holes.

Seed shaken from the cones collect in a tray lying in the bottom on the inner wall.

The portable automatic cone kiln can be made smaller or larger depending on the circumstances. It takes about 8 to 10 hours to dry pretreated cones. The capacity of the kiln is 3 bushels of Jeffrey pine, 31 to 4 of ponderosa pine, or 5 of Douglas-fir or similar sized cones. The cones should not be put in green, but should be dried in sacks for 2 or 3 days. The kiln is entirely automatic: a time clock turns the tumbler on once an hour. It runs for about 10 minutes, and then shuts off. This operation is repeated during the process. The thermostat is set at 120F., apparently a good drying temperature. The thermostat is adjustable, as is the time clock.

The kiln is portable so that it can be moved from place to place on a stake-side truck. The capacity of the present kiln is not great, but if more kiln space is needed, a similar larger kiln could be made, or a battery of small kilns could be set up and operated efficiently and economically. We have manufactured several kilns lately in California, and the bid price for construction was somewhat over $1,000 each.

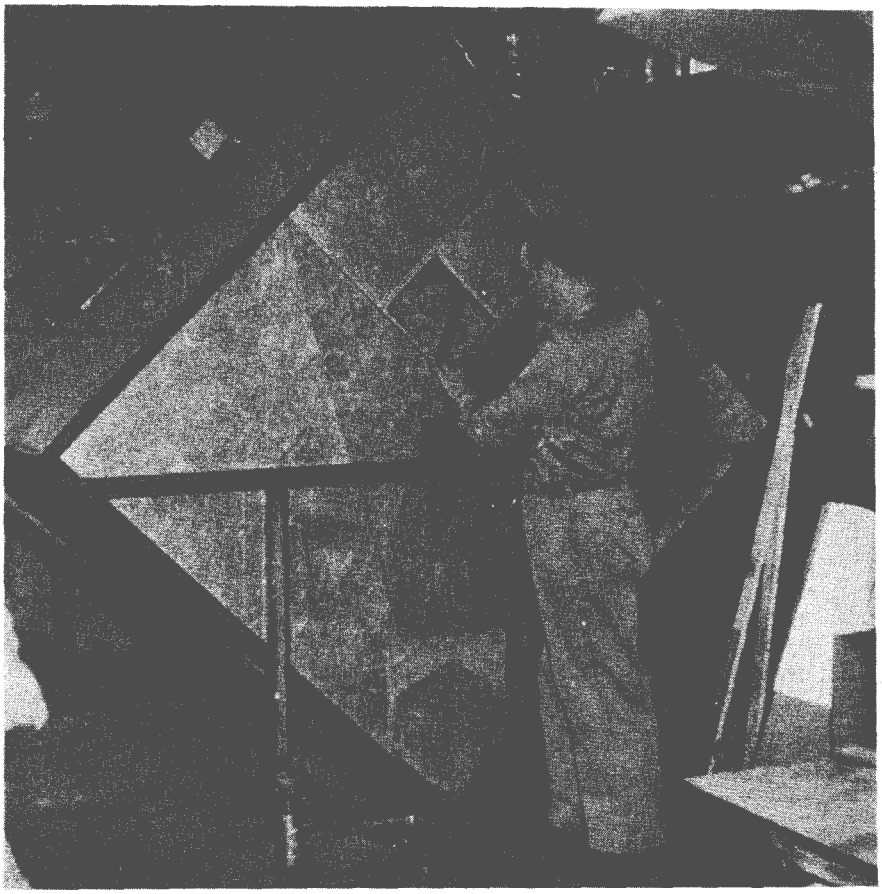


Figure 1. End view of kiln.

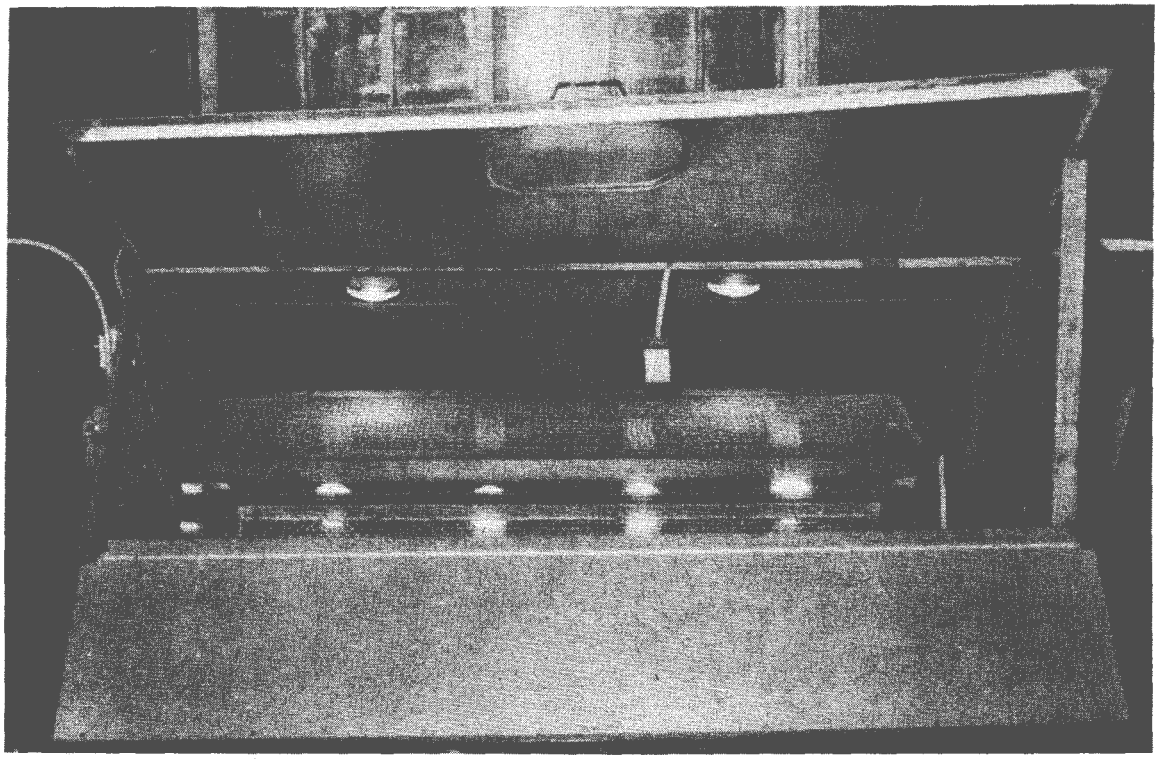


Figure 2. Interior view of kiln showing portion of hexagonal tumbling cage for cones and some of the infra-red heat lamps.

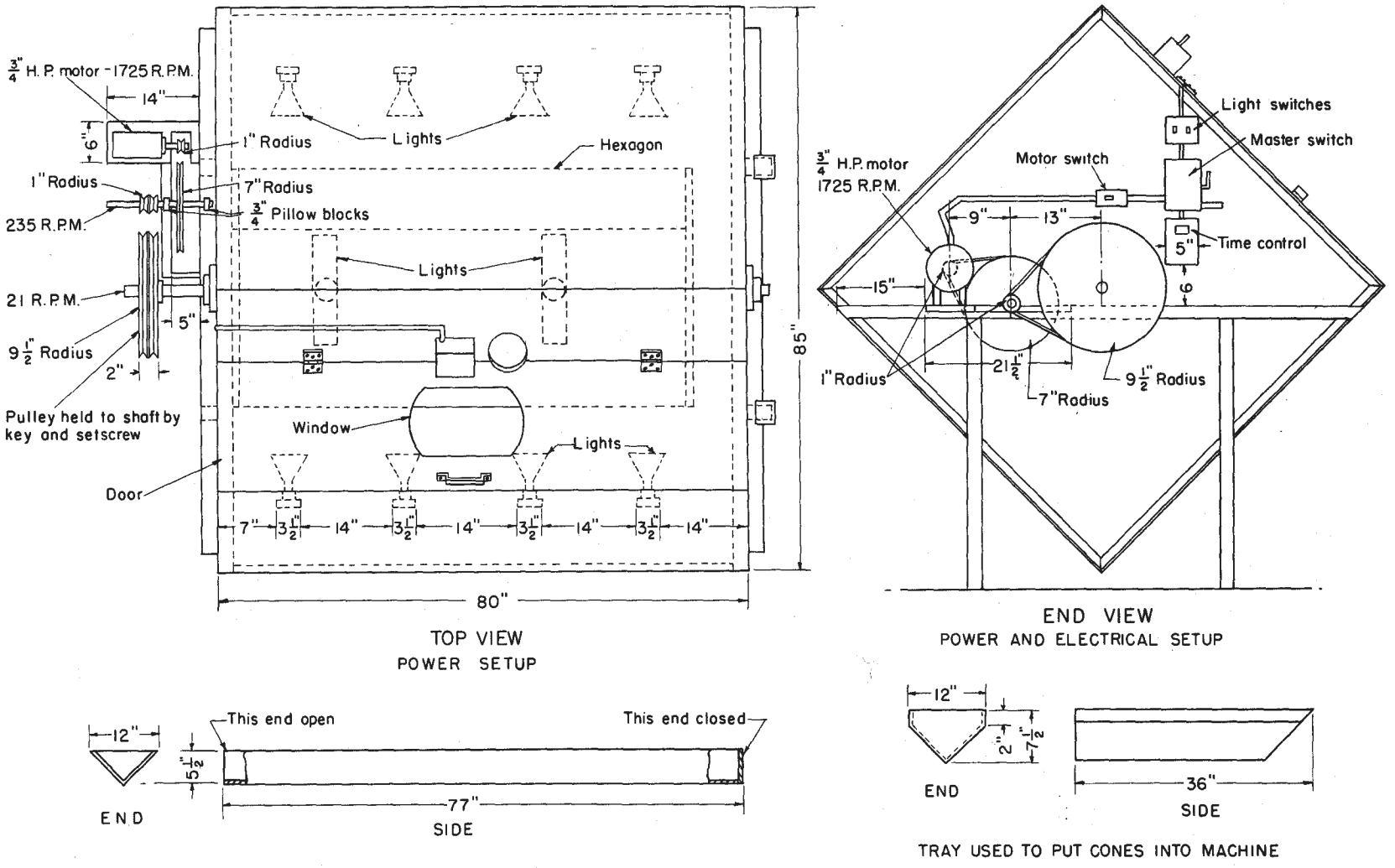
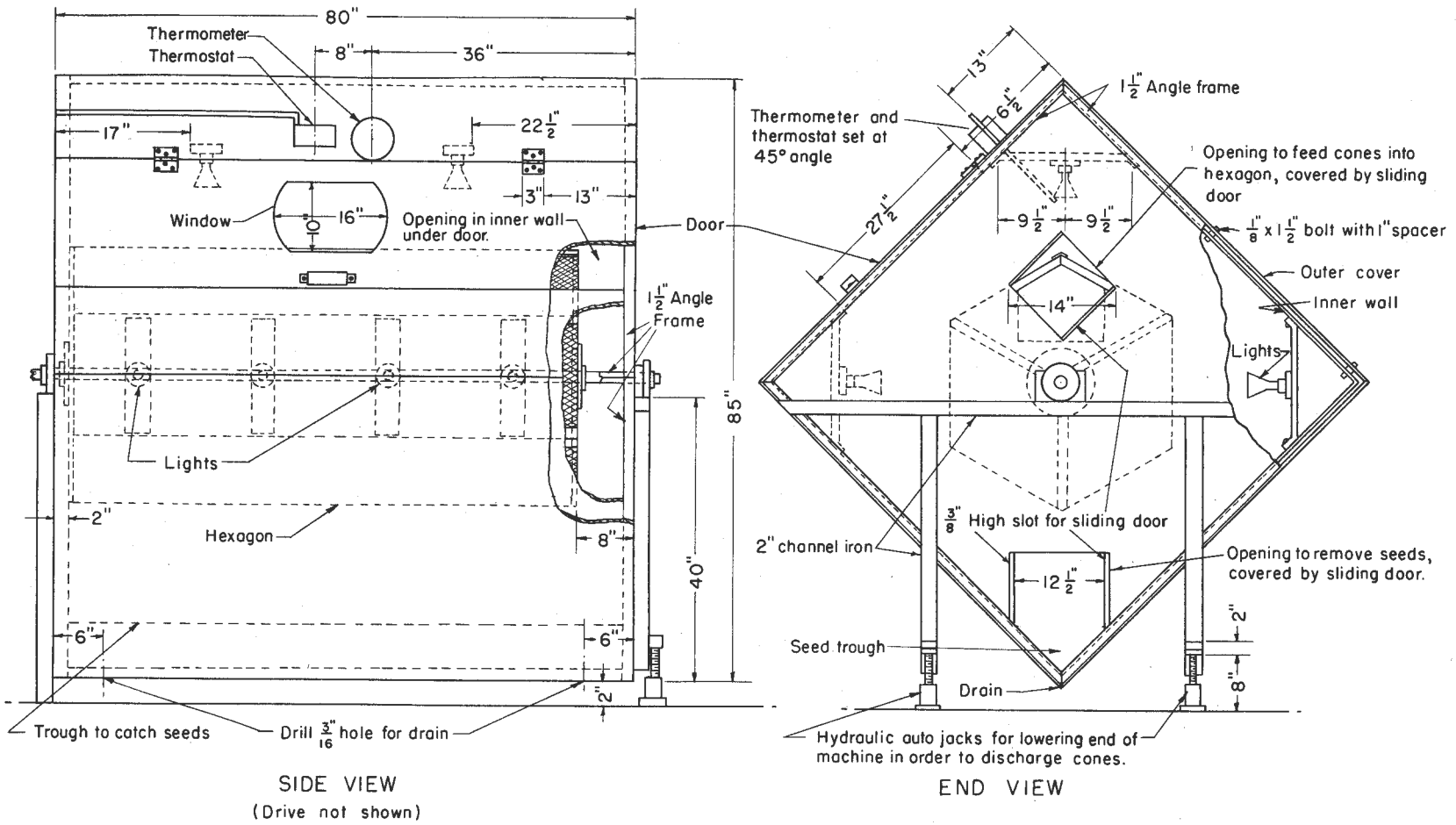

¾" H.P. motor - 1725 R.P.M.
14"
6"
1" Radius
1" Radius
235 R.P.M.
21 R.P.M.
9½" Radius
2"
5"
Pulley held to shaft by key and setscrew
Door
Lights
Hexagon
7" Radius
¾" Pillow blocks
Lights
Window
Lights
85"
7"
3½"
14"
3½"
14"
3½"
14"
3½"
14"
80"
TOP VIEW
POWER SETUP
Light switches
Master switch
¾" H.P. motor
1725 R.P.M.
Motor switch
9"
13"
5"
Time control
6
15"
1" Radius
21½"
7" Radius
9½" Radius
END VIEW
POWER AND ELECTRICAL SETUP
12"
This end open
This end closed
5½"
77"
END
SIDE
TRAY USED TO CATCH SEEDS
12"
2"
7½"
END
36"
SIDE
TRAY USED TO PUT CONES INTO MACHINE

Figure 3.



Notes: Outer covering of 22 ga. galv. steel, held to angle iron frame by ⅛" stove bolts 12" apart.

Inner wall of 22 ga. aluminum, spaced from outer cover by ⅛" x 1½" stove bolts with 1" spacers, this space needed for condensation.

Light fixtures held to inner wall by 4 sheet metal screws. Each fixture holds a G.E. 250w infrared pyrex bulb.

Figure 4.

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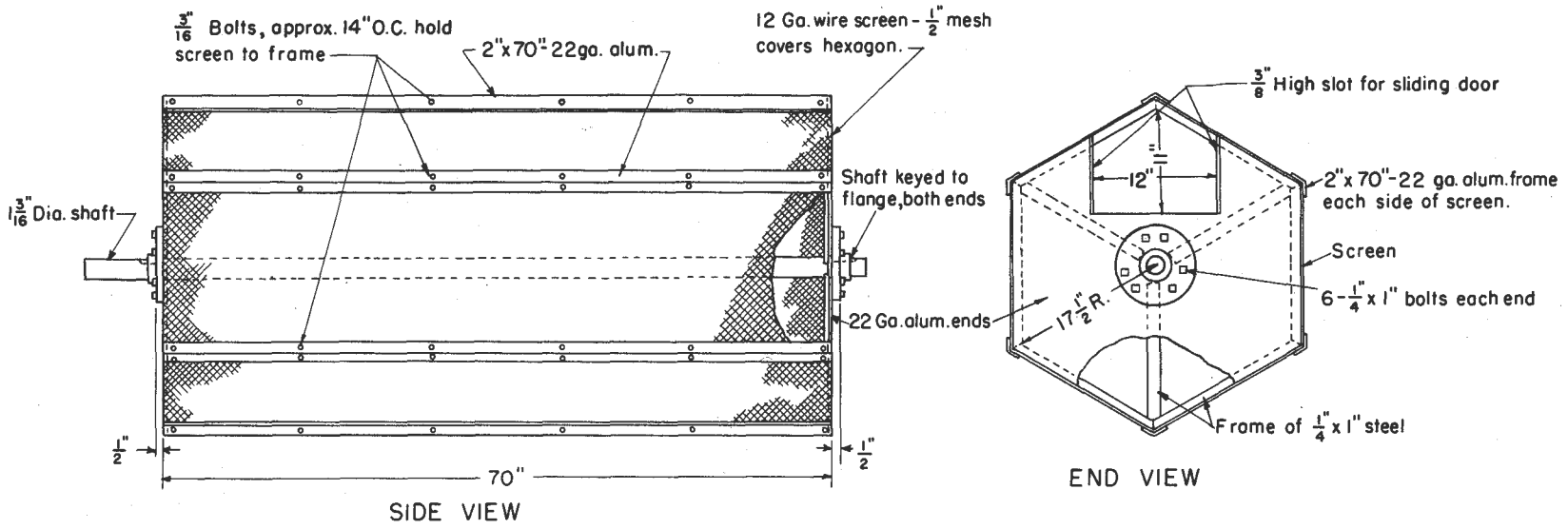
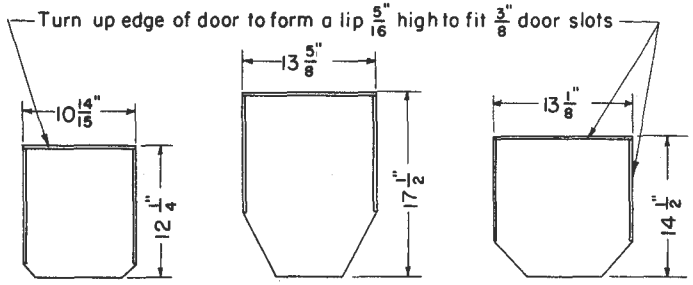


HEXAGON REMOVED FROM MACHINE

Note; Capacity of hexagon.
3 Bu. Ponderosa pine
5 Bu. Douglas-fir



SLIDING DOORS
ONE EACH SIZE REQ'D.
22 GA. GALV. STEEL

BILL OF MATERIAL OF STOCK ITEMS			
QUANTITY	NAME	SIZE	REMARKS
2	Link belt	1 3/16"	
10	Infrared bulbs		250 watts
1	Temp. guage	5" dia. dial - 12" stem	Weston heavy duty
2	Pillow blocks	3/4"	
1	Time control		Form Master
1	Pulley	1" R. - 3/4" bore	Two groove
1	Pulley	9 1/2" R. - 1 3/16" bore	Two groove
1	Pulley	1" R. - 3/4" bore	Single groove
1	Pulley	7" R - 3/4" bore	Single groove
1	Electric motor	3/4" H.P.	1725 R.P.M.

Figure 5.