

(No Model.)

J. McNEIL.
 TEMPLET FOR BOILER HOLES.

No. 467,298.

Patented Jan. 19, 1892.

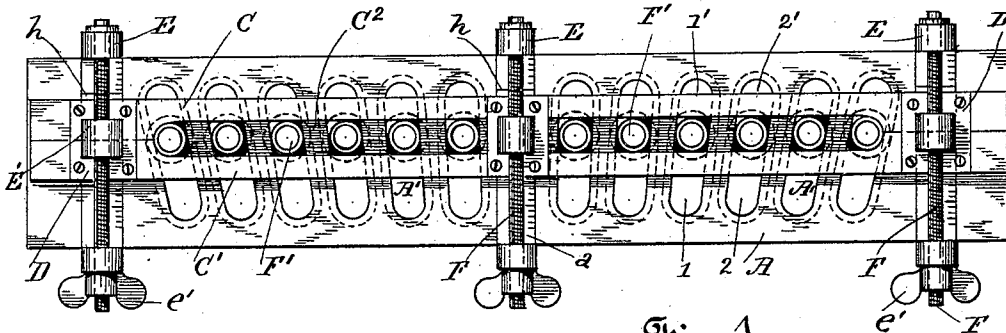


Fig. 1.

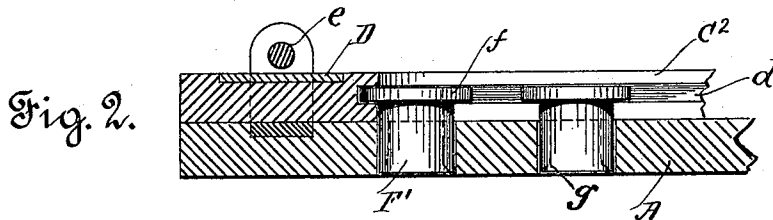


Fig. 2.

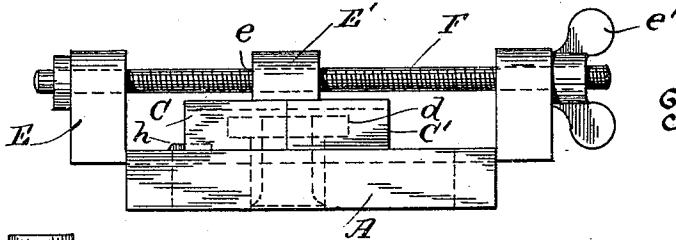


Fig. 3.

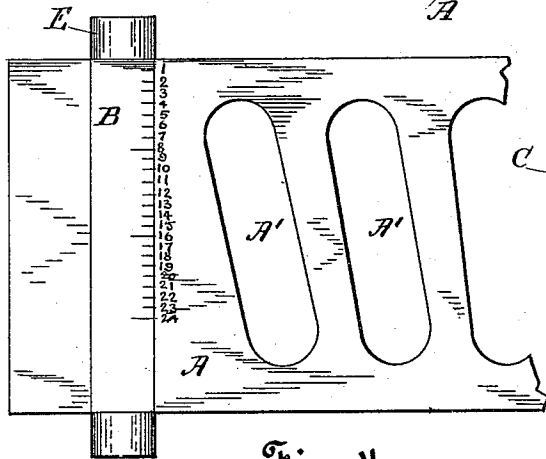


Fig. 4.

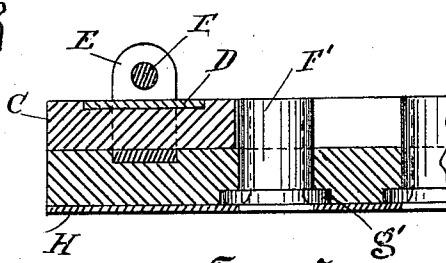


Fig. 5.

Witnesses.

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UNITED STATES PATENT OFFICE.

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TEMPLET FOR BOILER-HOLES.

SPECIFICATION forming part of Letters Patent No. 467,298, dated January 19, 1892.

Application filed September 15, 1891. Serial No. 405,763. (No model.)

To all whom it may concern:

Be it known that I, JAMES MCNEIL, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Spacers or Regulators; and I do hereby declare the following to be a full, clear, and exact description of said invention, such as will enable others skilled in the art to which it most nearly appertains to make, use, and practice the same.

My invention has relation to certain new and useful improvements in what I term "spacers" or "regulators" for boiler-making, which consists in the arrangement of parts and details of construction, as will be hereinafter more fully set forth in the drawings, described, and pointed out in the specification.

The object of my invention is to provide a spacer or regulator for the purpose of enabling an ordinary mechanic marking or laying off on the flat metal sheet the position of the boiler-holes, so that when the sheet is turned in order to form a boiler-body the holes will be true at an equal distance apart, thus dispensing with the necessity of forming minute calculation by dividers or use of patterns for this purpose, and which at the same time will allow for regulation, so as to increase or decrease the distance required to be given one hole from another, and which will further permit the laying off of the work, so as to bring the holes after being formed upon the arc of a circle.

For a more comprehensive understanding of my invention reference must be had to the accompanying drawings, wherein similar letters and figures of reference are used to denote corresponding parts throughout the entire specification and several views.

Figure 1 is a top plan view of my improved spacer with the parts in position for laying off holes; Fig. 2, a longitudinal sectional elevation, partly broken away in order to more fully illustrate hollow working shell; Fig. 3, an end view of Fig. 1; Fig. 4, an enlarged broken top plan of base-plate with adjusting-plate removed; and Fig. 5, a modification of Fig. 2, showing hollow marking-shell working within guideways formed in base-plate.

The letter A is used to indicate the base-

plate, which is provided with a series of elongated openings A', which are cut upon a true angle from a given center and of which a given number is placed to either side of the base-plate center. Inasmuch as I cut said openings on a true line from a given point corresponding with the center of the base-plate, it is obvious that the same will run diagonally to the center *a* of the plate, consequently their own centers increasing in distance from one another the further they are elongated. As shown in the drawings, the distance from center 1 to center 2 represents one and three-fourths inches, while at top of opening the distance from center 1' to 2' increases to two and one-half inches, and the center intermediate the top and bottom corresponding in distance to the measured point. As the openings are struck further from center *a* the inclination thereof increases, as will be observed by reference to Fig. 1. To the base-plate A, I secure the indicating-scales B, three in number, one at each end and one in the center, and upon said scales are indicated eight inches, commencing with the top at one-eighth and continuing increasing an eighth-inch in number until bottom of scale is reached. The numbers of each scale correspond, and the purpose thereof will be hereinafter more fully set forth and described. Upon said base-plate moves the spacer or regulating-plate, which consists of two bars C C', which run the entire length of the base-plate and are united by means of clamp or plate pieces D, which are bolted to each thereof. The plates C C' are cut away so as to form, when brought together, longitudinal openings C², and the inner face or wall thereof I cut away so as to form guideways *d*, (shown more clearly in Fig. 2,) within which the shouldered end of the hollow marking-shell works. Secured to the base piece or plate A and projecting upwardly therefrom at each end of the scales are the bearing-blocks E, and from the clamp-pieces D upwardly project the bearing-blocks E', which are provided with screw-threaded openings *e*. Through the screw-threaded opening of each block works the screw-rod F, the outer ends of which are plain and turn within bearing-blocks E. To one end of said rod is rigidly secured the thumb-screws *e'*, by means of

which the same is rotated. As said screw-
rods are turned to right or left the spacer or
regulating-plate is moved up or down by reason
of the rotating screw-rod working within
5 screw-threaded opening *e* of bearing-block *E'*.
The head *f'* or flange of the hollow marking-
shell *F'* works within the longitudinal guide-
ways *d* of the regulating-plates, as clearly
shown in Fig. 2, and the lower portion or shell
10 proper works in the elongated openings *A'*
of the base-plate. As the regulating-plate
moves up or down the hollow marking-shells
are allowed to move toward or from each other
in order to increase or decrease the distance
15 from their centers. The object of making and
employing hollow marking-shells is for the purpose
of allowing the operator of the spacer to
insert a piece of chalk or pencil therethrough
when the regulating-plate has been moved to
20 required point, in order to designate on the
metal sheet thereunder where hole is to be
bored. In order that a clear and distinct mark
shall be left upon the sheet, I incline or bevel
the lower end of the shell outwardly, as shown
25 at *g*, Fig. 2. If so desired, the regulating-plate
may be formed of one solid piece cut away
so as to provide the longitudinal opening *C'*,
and the base piece or plate has longitudinal
guideways *g'* formed therein, within which
30 enlarged or flanged head of hollow marking-
shell works, as shown in Fig. 5; but in this
case an extra face-plate *H* must be provided
for the purpose of holding the marking-shells
in proper position. The bearing-blocks *E'*
35 are provided with fingers or pointers *h* for
the purpose of indicating number of scale-
plate. When the regulating-plate has been
adjusted to proper position, each indicating-
finger will point to same number on the
40 scales. When it is desired that the holes be
marked upon a circle, the end bearing-blocks
are adjusted correspondingly and the center
one moved upward until the proper pitch is
allowed the spacing-plate, which, owing to the
45 ductility thereof, will permit of such bending.
However, if so desired, said plate need not be
formed solid, but may have a central joint, in
order to allow for central give when marking
upon a curve, but for all purposes the flexi-
50 bility of the metal is sufficient to answer this
purpose.

I am aware that minor changes may be
made in the arrangement of parts and details
of construction herein shown and described
55 without creating or necessitating a departure
from the nature and scope of my invention.

Having thus described my invention, what
I claim as new, and desire to secure protection
in by Letters Patent of the United States, is—

60 1. In a spacer or regulator for laying out
holes in sheet metal, the combination, with
the base-plate provided with a series of elongated
openings cut from a center, of the movable
spacing-plate connected to the base-plate,
65 and the marking-shells working within the
openings of the base-plate and by the movement
of the spacing-plate adapted to increase

or decrease the marked centers, as and for the
purpose set forth.

2. In a spacer or regulator for laying out 70
holes in sheet metal, the combination, with
the base-plate provided with a series of openings
cut from a center, of the movable spacing-
plate, marking-shells carried by said plate,
and mechanism for adjusting said plate in 75
order to increase or decrease the distance between
the marked centers, as and for the purpose
set forth.

3. In a spacer or regulator for laying out 80
holes in sheet metal, the combination, with
the base-plate provided with a series of openings,
said plate having indicating-scales secured
thereto, of an adjustable spacing-plate for
increasing or decreasing the distance between
the marked centers and marking-shells 85
carried by said plate, as and for the purpose
set forth.

4. The combination, with a spacer or regu-
lator for laying out holes in sheet metal, of
the hollow movable marking-shells adapted to
be adjusted so as to increase or decrease the 90
distance from center to center, as and for the
purpose set forth.

5. The combination, with a spacer or regu-
lator for laying out holes in sheet metal, of 95
the hollow movable marking-shells working
in guideways, said shells adapted to be moved
up or down with adjustment of the spacer, as
and for the purpose set forth.

6. In a spacer or regulator for laying out 100
holes in sheet metal, the combination, with
the base-plate provided with a series of elongated
openings, of an adjustable spacing-plate
having an elongated slot formed therein, hollow
marking-shells movably working within 105
the base and spacing-plates, and the screw-
rods for giving adjustability to the spacing-
plate, as and for the purpose set forth.

7. In a spacer or regulator for laying out 110
holes in sheet metal, the combination, with
the base-plate provided with a series of elongated
openings, of the adjustable spacing-
plate, said plate consisting of two sections
suitably united and cut away so as to form
a longitudinal opening, guideways formed 115
therein, hollow marking-shells working in said
guideways and openings of the base-plate, and
mechanism for giving adjustment to the spacing-
plate, as and for the purpose set forth.

8. In a spacer or regulator for laying out 120
holes in sheet metal, the combination, with
the base-plate, of the adjustable spacing-plate
of greater ductility than the base-plate, so as
to allow of the same being adjusted to the
arc of a circle, and mechanism for imparting 125
adjustability to the spacing-plate, as and for
the purpose set forth.

9. In a spacer or regulator for laying out 130
holes in sheet metal, the combination, with
the base-plate, of upwardly-projecting bearing-
blocks secured thereto, an adjustable
spacing or regulating plate, bearing-blocks
secured thereto, said blocks provided with
screw-threaded openings, and the screw-

threaded rods working within the bearing-blocks of the base-plate and through the screw-threaded opening of spacing-plate and bearing-blocks and adapted with the rotation
5 thereof to raise or lower the spacing-plate, as and for the purpose set forth.

10 10. In a spacer or regulator for laying out holes in sheet metal, the combination, with the base-plate, of a graduated scale-plate secured thereto, a spacing-plate provided with

indicating-fingers, and mechanism for adjusting said spacing-plate, as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES MCNEIL.

Witnesses:

N. A. ACKER,
J. W. KEYS.