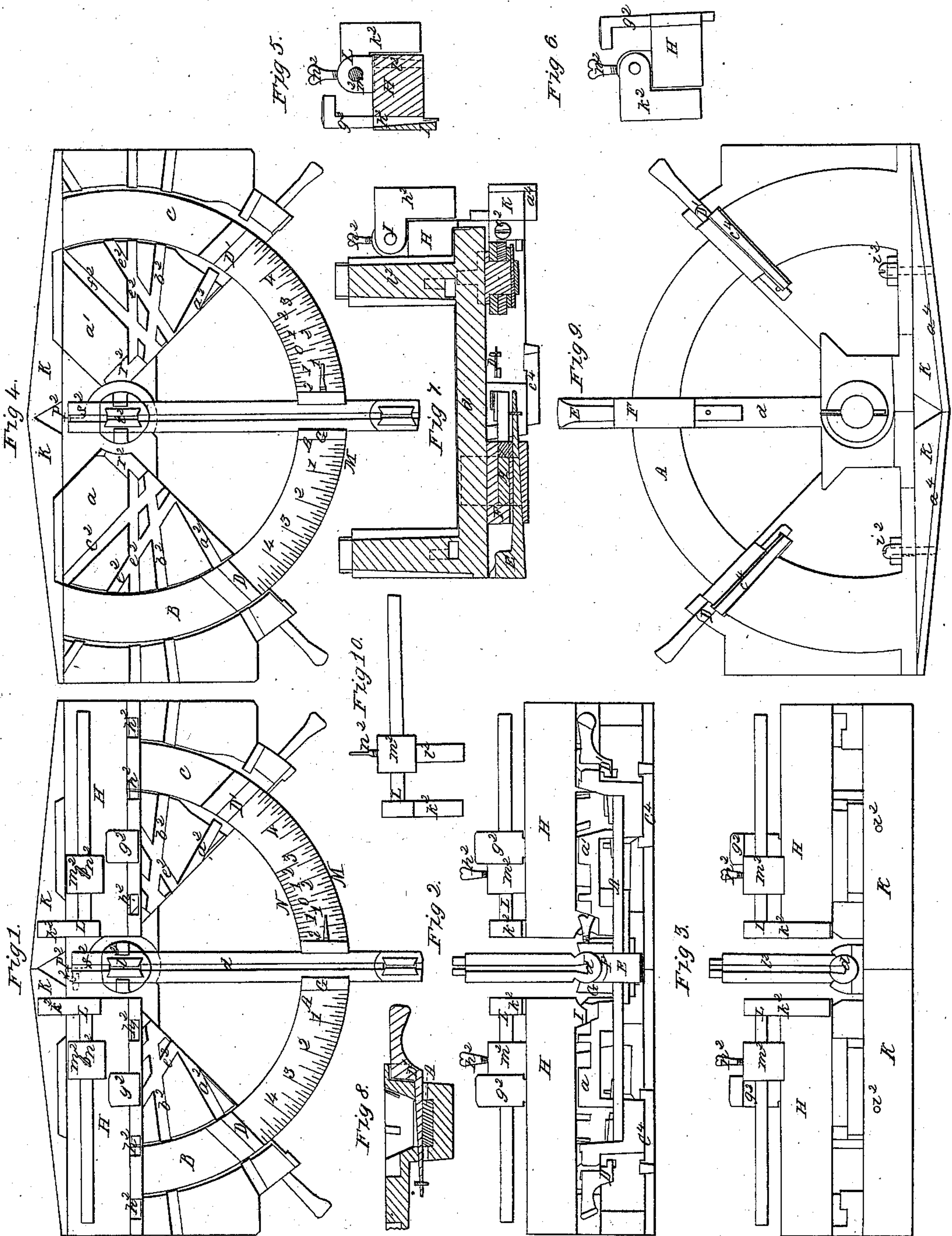


M. Spear,
Miter Box,

No. 12,796,

Patented May 1, 1855.



UNITED STATES PATENT OFFICE.

MATTHEW SPEAR, OF BOWDOINHAM, MAINE.

MITER-BOX.

Specification of Letters Patent No. 12,796, dated May 1, 1855.

To all whom it may concern:

Be it known that I, MATTHEW SPEAR, of Bowdoinham, in the county of Sagadahoc and State of Maine, have invented certain
5 Improvements in the Improved Miter-Box, for which Letters Patent No. 10,936 were granted to me on the 16th day of May, 1854; and I do hereby declare that the same is fully described and represented in the following
10 specification and the accompanying drawings, letters, figures, and references thereof.

Of the said drawings Figure 1, denotes a top view of my new or improved miter box as it appears when entirely open. Fig. 2 is
15 a front elevation of the same. Fig. 3 is a rear elevation. Fig. 4 is a top view as it appears with its edge supporters removed. Fig. 5 is a transverse section of one of the edge supporters. Fig. 6 is an inner edge
20 view of the said edge supporter.

The substantial part of my invention as patented consisted in two supporters a , a' , connected and turning about a common center, in combination with a saw guide, d , attached to the same pivot or center. The
25 drawings herewith presented show these supporters or lumber bearers and their saw guide which are marked a , a' , and d . They have connected to them a graduated arc or
30 curved beam A, which is arranged with respect to them as seen in Figs. 1, and 2, and made to play in curved recesses B, and C, formed respectively in the two supporters a , a' . Each supporter is provided with a
35 sliding clamp wedge D, or D', or the equivalent therefor by which it may be clamped to the graduated arc. The movable saw guide d , is also provided with a suitable clamp wedge or contrivance as seen at E, in Fig. 2,
40 and also in Fig. 7, which is a vertical and transverse section of the machine taken through the saw guide.

Fig. 8, shows a section of one of the clamp wedges D, D', its supporter and graduated
45 arc, such section being taken transversely of the arc and longitudinally through the clamp wedge. The clamp wedge, E, extends through a box, F, that is adapted to the arc so as to slide freely upon it, it being
50 clamped thereto by the wedge, E. This box carries a bearing, G, by which the saw guide is supported and in which it turns, it being so applied to the machine as to be capable of being turned down laterally and set
55 or fixed at any proper angle. On each of said supporters a , a' , is placed an edge sup-

porter, H, formed as seen in Figs. 1, 2, 3, 5, and 6. The lower surface of said edge supporter being provided with a projection or lip, I, arranged as seen in the drawings, 60 such projecting lip being intended to be placed in either of the grooves formed in the upper surface of its supporter, a , or a' , such grooves being seen at a^2 , b^2 , c^3 , or c^2 , f^2 . When placed in either of said grooves, 65 the edge supporter is confined in place by means of a clamp wedge g^2 , which may be inserted in either of sundry holes or passages h^2 , made down through the edge supporter, the wedge being made to operate against 70 the side of the groove. The grooves, f^2 , are for the purpose of adjusting the edge supporters to proper positions to enable stuff to be cut at right angles, when the saw guide is adjusted to the middle of the arched 75 beam when the machine is closed together. The extra grooves, b^2 , are made parallel to the external edges of the two movable edge pieces K, K, affixed to the outer edges of two supporters, a , a' , and so as as to be capable of 80 being slid or moved toward or away from one another and fixed in position by means of clamp screws i^2 , l^2 , arranged as seen in Fig. 9, which is an under side view of the machine. 85

By making the bars K, K, movable on their supporters they may be slid up toward one another so as to extend close up into the vertex of any angular space to which it may be desirable to adjust the machine preparatory to mitering or abutting with it. The
90 auxiliary grooves a^2 are for the purpose of mitering at a less angle, than is formed by the external edges of the machine when closed.

Each edge supporter is provided with an
95 adjustable gage L, constructed as seen in the drawings or with a bent or right angular head, k^2 , which when the machine is used for mitering to the supplement of an angle not contained in the scale, N, may be turned 100 down into the position as represented in Figs. 5, 6, and 7, so as to serve to increase the bearing surface against which the stuff is to be placed that is to be mitered, it being understood that such stuff is to be supported 105 against the inner end of the edge supporter and to project through the saw guide.

Fig. 10, represents a side view of one of the adjustable gages as it appears when removed from its edge supporter. The support 110 block, m^2 , is provided with a projection or tenon, l^2 , which may be inserted in either

of the holes, h^2 , and when placed in either of said holes, the gage may be used to regulate the length of any piece of stuff to be cut, the said piece being made to abut at one end
5 against the head of said gage while the other is made to overlap the saw guide. The rod of the gage, L, slides in the support block m^2 , and is fastened in position by a clamp-screw n^2 .

10 Into one of the inner ends of the supporters, a , and in front of their joint as seen in Fig. 1, there is introduced a screw, o^2 , it being represented by dotted lines. Against this screw the inner end p^2 , of the other supporter abuts, when the outer edges of the
15 two supporters are brought into a straight line with each other or the machine opened entirely. In case of any derangement of the parts of the joint of these supporters or any wear of the parts of the machine that would
20 cause the outer edges of the supporters not to range in a straight line, the adjusting screw may be set or turned so as to correct the difficulty.

25 In using the machine, the lumber or stuff that is to be sawed is to be laid upon the supporters, a , a' , and so as to extend through the saw guide and made to rest against one or both of the edge supporters as the case
30 may be.

To saw stuff at a right angle it should be borne against the inner edges of the edge supporters when their lips are confined in the grooves, c^2 , c^2 , the machine being entirely
35 opened.

In order to miter a piece of stuff to a right angle, I close the machine entirely, while the lips of the edge supporters are in the grooves c^2 , c^2 . In order to miter at a greater angle,
40 the lips of the edge supporters may be placed in the grooves, b^2 , the angle being determined by opening the machine and setting it at the angle required, and when so set, clamping it to the arch beam and moving
45 the saw guide so as to bisect the angle formed between the two clamp wedges D, or D'.

The sawing of a piece of stuff at a right angle may also be accomplished by entirely closing the machine and fixing the lips in the grooves f^2 , f^2 . The said grooves, f^2 , f^2 ,
50 are arranged in line with one another and at right angles to the saw guide when the machine is closed. There are two other grooves e^2 , e^2 , one being formed on each of the supporters, a , a' . Each of the said grooves is
55 arranged so that it shall make a right angle with the saw guide when such saw guide is placed in contact with the supporter a , or a' , of the opposite groove and the two outer edges of the movable edge pieces K, K, are
60 set at a right angle to each other. The object of the grooves, c^2 , c^2 , is to enable a person to cut stuff at any angle to which the outer edges of the machine may be
65 placed. In order to accomplish this, an

edge supporter is fixed in one of the grooves e^2 , and the saw guide moved up against the lumber supporter, a , or a' , then if a piece of wood be placed with one edge against the inner edge of the edge supporter and so
70 as to project through the saw guide, it may be sawed to the angle required by a saw running in the guide and to such angle corresponding with that of the outer faces of the two pieces K, K.

The divisions of the outer index or scale M, are placed at equal distances asunder. Besides this, there is a scale, N, made upon the graduated arc A, and termed the inner index scale. The commencement of this
80 scale is where the inner edge of the right hand clamp, D', intersects the arc, A, when the instrument is closed. The termination or other extremity of this scale is where the said edge of the said clamp intersects the
85 arc, A, when the two outer faces of the edge pieces K are arranged at an angle to each other, which is the supplement to that which they make with one another when the machine is closed. The arc between the two
90 extremes of the scale has its middle division, termed the zero of the scale; such scale being divided into equal divisions or distances, numbered each way from the said zero or
95 middle division.

The object of the inner index scale, N, is to adjust the machine so as to miter to the supplement of any angle which the outer pieces, K, K, may make with one another. In order to set the machine for such pur-
100 pose when the pieces K K are arranged at such an angle with each other, observe the distance, on the scale N, from the zero point to the inner side of the wedge, D', then move the lumber supporter of such wedge until
105 the said side of such wedge is at the same distance from the said zero point on the opposite half of the scale N, the saw guide being moved into bisecting the angle formed between the two edge supporters placed in
110 the grooves, b^2 , b^2 , the machine will then be ready to miter to the supplement of the angle required.

The inclined recesses, r^2 , r^2 , formed in the lumber supporters and the projection, s^2 , of the horizontal part of the saw guide are for the purpose of enabling the saw guide to be
115 moved backward and turned downward to a mitering angle when the machine is closed. Besides the recesses forming steps for the upright standard, t^2 , of the saw guide to bear against.
120

In Fig. 9, a^4 , a^4 , denote lips or projections from the underside of the movable pieces, K, K, the inner edges of these lips being
125 made parallel respectively to the outer edges of the pieces, K, K.

c^4 , c^4 , are dovetail feet which are made to slide into the lower parts of the lumber supporters and to project from the lower sur-
130

faces as seen in the drawings. On removing these feet from their dovetailed sockets, the lips a^4 , a^4 , may be used for obtaining the angle of the edges of any piece of board that may be placed between them, the same being for adapting the machine for cutting at such angle, or the miter of it.

Having thus described my machine what I claim is—

10 1. The additional improvement made by me, viz, the sliding index arch, A, as combined with the lumber bearers or supporters, a , a' , and the saw guide and made to operate therewith essentially as specified.

15 2. I also claim the combination of the extra grooves, f^2 , with the lumber supporters the same being for the purpose as above set forth.

20 3. I also claim the combination of the grooves e^2 , and said lumber supporters such being for the purpose as set forth.

25 4. I also claim the combination of the adjustable gage with the edge supporter the same being to determine the length of the stuff to be operated upon.

5. I claim also the above described mode of constructing the head, h^2 , of the adjustable gage so that it may serve to increase the bearing for the stuff during the operation of mitering the supplement of an angle as described. 30

6. I also claim the movable edge pieces, K, K, in combination with the lumber bearers.

7. I also claim combining with the curved 35 arc, A, the inner index scale for the purpose of enabling a person to adjust the machine for the purpose of mitering to the supplement of any angle required as specified.

8. And I also claim combining with the 40 movable pieces, K, K, the projecting lips, a^4 , a^4 , the same being for the purpose above specified.

In testimony whereof I have hereunto set my signature this twenty first day of October A. D. 1854. 45

MATTHEW SPEAR.

Witnesses:

R. H. EDDY,

F. P. HALE, Jr.