June 20, 1950 T. E. BRYANT 2,511,900

DOOR SIZER AND MEASURING DEVICE

Filed April 5, 1949

FIG 1

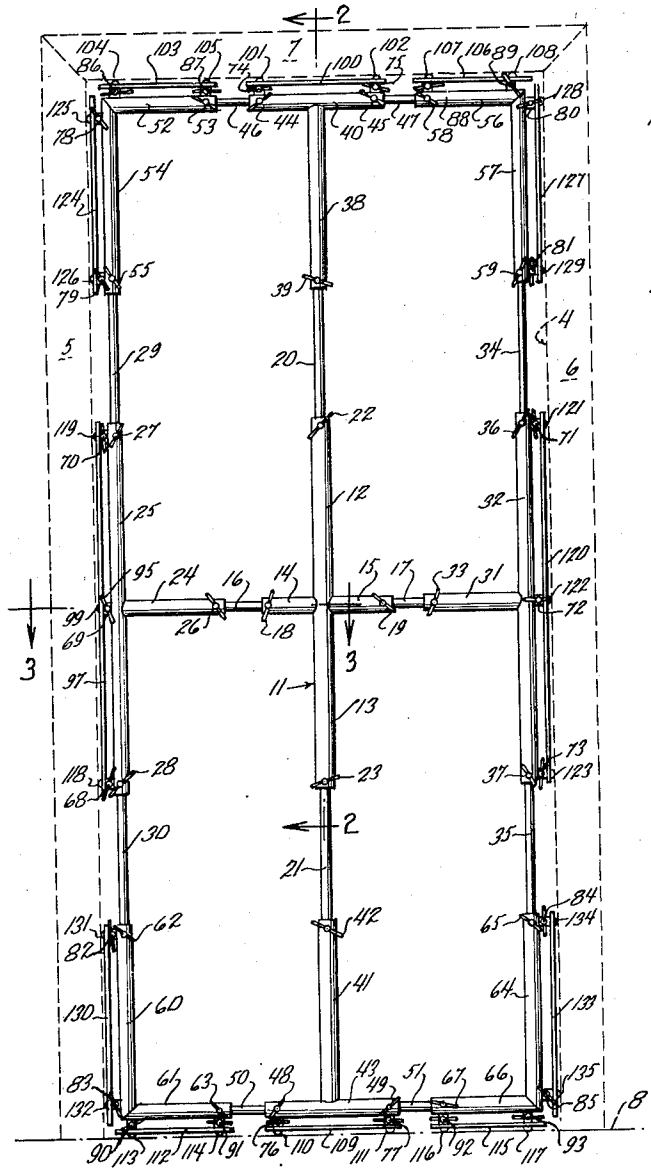


FIG 2

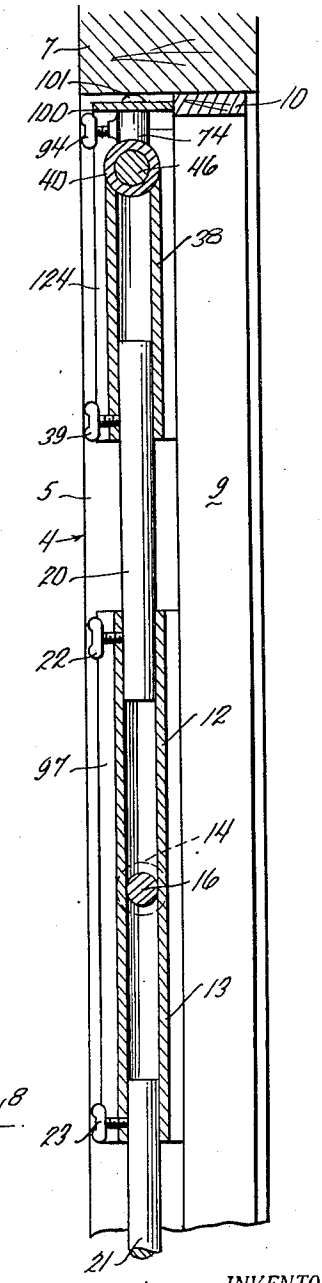
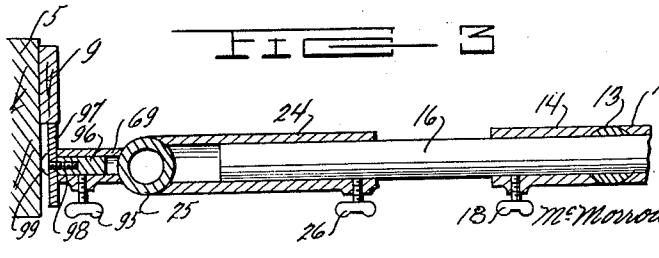


FIG 3



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DOOR SIZER AND MEASURING DEVICE

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4 Claims. (Cl. 33—194)

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This invention relates to mensuration devices and scales, and particularly to a door sizer and measuring device.

The main object of my invention is to provide means for taking the dimensions of a door opening wherein the door is to be hung in order to facilitate trimming the door to proper size and form in a single operation.

Another object is to provide a door sizer and measuring device which is built up of a plurality of adjustable sections including corner sections, side sections and top and bottom sections held together by a plurality of connecting members.

A further object is to have a door-measuring device of the character indicated in which the sections are slidably and adjustably interconnected and provided with additional outer strips for indicating the actual size to which the door is to be trimmed.

It is also an object to have such a door-measuring device provided with a plurality of small spacing members of predetermined size upon the outer strips making direct contact with the door posts, lintel and threshold, so that the strips will indicate the size of the door opening, while the strips indicate the size to which the door is to be trimmed.

A practical object is, of course, to have a door-measuring device as indicated which is light and simple in construction and easy to apply and adjust.

Other objects and advantages of the invention will appear in further detail as the specification proceeds.

In order to facilitate ready comprehension of this invention for a proper appreciation of the salient features thereof, the invention is illustrated on the accompanying drawing forming part hereof, and in which:

Figure 1 is a front elevation of the door sizer and measuring device made according to the invention and embodying the same in a practical form;

Figure 2 is an enlarged vertical fragmentary section taken on line 2—2 in Figure 1;

Figure 3 is an enlarged transverse fragmentary section taken on line 3—3 in Figure 1.

In the views the same reference numerals indicate the same or like parts.

When hanging doors, carpenters and trimmers usually find it necessary to trim and mark the top, the sides and the bottom of the door in successive steps necessitating repeated placing of the door in position adjacent to the door posts until finally the door is planed to proper size to fit

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in the door opening. Such fitting is, of course, laborious, and especially if a large and heavy door is involved, it is true that a great deal of time and labor is wasted merely in placing and marking the door and removing it for partial planing and trimming and repeatedly performing a similar maneuver with the door. The result is that the hanging of the door is a tedious and laborious, and therefore expensive, operation which obviously should not be.

Upon consideration this problem, it has occurred to me that a special measuring device should be available to be set into position in a door opening and adjusted to fit the same, which should then be placed on the door and the latter scribed according to the device thus adjusted, after which the door should be trimmed accordingly in a single operation. As a result of such consideration, I have succeeded in producing a door sizer and measuring device as outlined which will now be more particularly described.

Hence, in the practice of my invention, and referring again to the drawing, in a door opening, generally indicated at 4, door posts 5 and 6 are capped by a lintel 7 and extend to the floor 8 which, for the present purpose, may be a threshold, in case there is such in a door opening, while upon the inner sides of the door posts and at the top are provided door stops 9 and 10. In order to take not only the dimensions of the opening between door posts 5 and 6 and between lintel 7 and threshold 8, but also accurately the form of the opening, a door sizer or measuring device, generally indicated at 11, is placed in position in the opening in such fashion as to rest against the door stops 9 and 10, etc., when the device or frame is adjusted to fit the opening, as will now be detailed.

The meausuring device primarily includes a tubular cross consisting of upwardly and downwardly-extending tubes 12 and 13 and two intermediately-disposed and outwardly-directed tubular arms 14 and 15 welded or brazed to vertical tubes 12 and 13 at the junction thereof to form an integral unit. Into the outer ends of the side arms 14 and 15 extend a pair of connecting rods 16 and 17 slidably adjustable in the tubular arms and normally secured in place by a pair of thumb screws 18 and 19. In similar fashion into the upper and lower ends of tubes 12 and 13 extend a pair of connecting rods 20 and 21 slidably adjustable in these tubes, but normally held in place by friction by means of the two thumb screws or wing screws 22 and 23 at the ends of the mentioned tubes. The outer

end of rod 16 extends into a tubular arm 24 which at its outer end is brazed or welded to the intermediate portion of a vertical tube 25 of equal length with the two tubes 12 and 13 already described, the inner end of tube 24 having a wing screw 26 by which to clamp the rod 16 in attained adjustment within the tube. At the upper and lower ends of the outer vertical tube 25 a pair of wing screws 27 and 28 serve to hold the upper and lower connecting rods 29 and 30 extending selected distances into tube 25. Tubes 24 and 25 constitute a T-shaped unit of which a counterpart is provided upon the other side of the device in tubes 31 and 32 forming an opposite T-shaped unit in which rod 17 extends into horizontal tube 31 and is fixed in attained position by means of wing screw 33, while a pair of further connecting rods 34 and 35 extend into the upper and lower ends of the vertical tube 32 and are secured in position by wing screws 36 and 37.

At the upper end of connecting rod 20 the latter extends into the lower end of a depending tube or pipe 38 provided with a wing screw 39 by which to fix rod 20 in attained position, while at the upper end the tube 38 is brazed to the intermediate portion of horizontal upper tube 40 forming a T therewith, and in similar fashion the lower end of connecting rod 21 extends into the upper end of a vertical tube 41 in which it may be secured in selected position by means of wing or thumb screw 42, tube 41 being brazed or welded at the lower end thereof to a horizontal tube 43 forming with tube 41 an inverted T. At the ends of the upper horizontal tube 40 the latter is provided with wing screws 44 and 45 for adjustably securing the connecting rods 46 and 47 in extending position from the ends of tube 40, while in similar fashion the bottom tube 43 has two end wing screws 48 and 49 for securing a pair of lower connecting rods 50 and 51 adjustably extending from the ends of said tube 43.

The corners now remain to be considered upon the device, and thus at the upper left corner a horizontal tube 52 extends in upon connecting rod 46 and is adjustably secured thereon by thumb screw 53, the other end of tube 52 being brazed or welded at a right angle to the upper end of a vertical tube 54 which at the lower end extends down upon the previously-mentioned vertical connecting rod 29 and is adjustably secured thereon by wing screw 55. In the upper right corner, the horizontal tube 56, which is permanently secured to the vertical tube 57, extends in upon connecting rod 47 and is secured thereon by wing screw 58, while the lower end of the vertical tube 57 extends down upon the connecting rod 34 and is adjustably secured thereon by the wing screw 59.

In a manner corresponding to the corner members just described with reference to the upper corners of the door opening, the lower corners are similarly provided, as for example, at the lower left corner is the vertical tube 60 permanently fixed to the lower horizontal tube 61, and extending up on connecting rod 30 and being adjustably secured thereon by wing screw 62, while the lower horizontal tube 61 extends in upon connecting rod 50 and is secured adjustably thereto by wing screw 63. In similar fashion the vertical tube 64 at the lower right extends up on connecting rod 35 and is adjustably secured thereon by wing screw 65 and at the lower end tube 64 is permanently secured to the lower horizontal tube 66 which is adjustably secured upon connecting rod 51 by wing screw 67.

Thus far described, the device includes a central tubular cross, four T-shaped tubular units and four extreme units forming the four L-shaped corner units, all interconnected by straight connecting rods held in selected positions by means of thumb or wing screws and serving all purposes of adjustment for the device in order to provide for the taking of measurements of narrow and wide doors as well as low and high doors ranging from a width of approximately 23½ inches in width and 6 feet or less in height to about 36½ inches in width and 7 feet and ½ inch in height, these dimensions being, however, arbitrary and capable of variation.

Upon the vertical tubes 25 and 32 are brazed or welded three equidistantly-spaced nipples 68, 69 and 70. In similar fashion tube 32 is provided with outwardly-projecting nipples 71, 72 and 73, and the upper and lower tubes 40 and 43 are likewise provided with such nipples 74, 75, 76 and 77, and the vertical corner tubes 54 and 57 are also provided with the nipples 78, 79, 80 and 81, and the lower vertical corner tubes 60 and 64 are likewise provided with such nipples at 82, 83, 84 and 85. The upper horizontal corner tubes 52 and 56 have nipples 86 and 87, as well as 88 and 89 secured thereto, and finally the lower horizontal tubes 61 and 66 are similarly provided with downwardly-projected nipples 90, 91, 92 and 93. The purpose of the nipples will now be explained, it being noted that the central cross, as well as tubes 24, 31, 38 and 41, are not thus provided.

As best seen in Figures 2 and 3, the rigidly-fixed nipples 74 and 69 are provided with thumb or wing screws 94 and 95, the nipple 69 illustrating the presence of a short stud 96 projecting into the outer end of the nipple and fixed in place by wing screw 95, while a measuring strip of metal 97 is secured to the outer end of stud 96 by means of a screw 98 having a head 99 exteriorly of the strip which may vary from $\frac{3}{32}$ to ⅛ of an inch in height, the latter dimension being preferred. The upper strip 100, seen in Figure 2, is held by the head 101 of a screw, not shown, within nipple 74 also receiving a stud in which the screw is secured. All of the nipples upon the entire device are similarly constructed as described in connection with Figure 3, and strip 100 is provided not only with screw head 101, but also 102, and similarly nipples 86 and 87 are provided with measuring strip 103 held by screw heads 104 and 105 and nipples 88 and 89 having the strip 106 held by screw heads 107 and 108 in line with strips 100 and 103. At the bottom, nipples 76 and 77 are provided with the measuring strip 109 held by screw heads 110 and 111, while the nipples 90 and 91 have the measuring strip 112 held by screw heads 113 and 114, and nipples 92 and 93 are provided with the strip 115 held in line with strips 109 and 112 by screw heads 116 and 117. The intermediate vertical strip 97 at the left is held not only by the screw head 99, but also by screw heads 118 and 119 exteriorly of nipples 68 and 70, while on the opposite side measuring strip 120 is held upon nipples 71, 72 and 73 by screw heads 121, 122 and 123. At the upper left, the two nipples 78 and 79 are provided with a measuring strip 124 held by screw heads 125 and 126, and on the opposite side, nipples 80 and 81 are provided with the measuring strip 127 held by screw heads 128 and 129. At the lower

left, nipples 82 and 83 on tube 60 are provided with a vertical measuring strip 130 held by screw heads 131 and 132, and at the lower right, nipples 84 and 85 on tube 64 are provided with the measuring strip 133 held by screw heads 134 and 135.

The arrangement is such that when a device is placed in position in the door opening 4, a sufficient number of the wing screws upon the various tubes are loosened in order to allow the connecting rods to slide until the screw heads upon the outer sides of the various measuring strips strike the door posts 5 and 6, the lintel 7 and the threshold or floor 8, when the screws are tightened so that all of the screw heads on the measuring strips are held in actual contact with the various parts of the door opening mentioned.

Due to the large number of wing screws involved, as well as the various tube elements, it is possible to obtain a faithful measurement of all portions of the door opening including the corners, the top and bottom, and the sides, and when all of the thumb screws are tightened, the entire measuring device is carefully slid out of the door opening and then laid upon the door which is then scribed along the various measuring strips, as for example, 97, 124 and 130 upon the left, 120, 127 and 133 upon the right, 109, 112 and 115 at the bottom, and 103, 100 and 106 at the top, ignoring all of the screw heads and the scribing being performed upon the outer sides of the strips. The thickness of the screw heads provides just the proper amount of clearance between the door and the door posts, as well as the lintel and the floor or threshold, so that it will be possible to open and close the door smoothly without contact thereof against any portion of the door opening. When the door has been thus scribed about the two side edges and top and bottom edges, it is a simple matter to plane these edges to the scribed lines and the hinges then placed in position and the door hung in a single operation.

The adjustment of the various connecting rods and tubes into which they project allow for a very great variation in the sizes of the doors both in width as well as height, and when the device is adjusted to minimum size, then all of the tubes are brought virtually together so that the connecting rods are concealed within as then all of the tubes meet and wholly enclose the mentioned connecting rods.

From the foregoing, it is evident that it will be possible to take the dimensions of any door opening, whether it be perfectly rectangular or not, and the measurements obtained may thus be directly transferred to the door that is to be hung.

Manifestly, variations may be resorted to and parts and features may be modified or used without others within the scope of the appended claims.

Having now fully described my invention, I claim:

1. A door sizer and measuring device including a plurality of tubular elements arranged to form a quadrilateral frame with at least two aligned tubes on each of the four sides thereof and the tubes at the ends of each side joined to the tubes at the adjacent ends of two other sides disposed at right angles thereto to form the four corners of said frame, connecting rods extending into the inner opposite ends of the tubes on each of the four sides, wing screws upon the latter ends of the tubes for securing the connecting rods in said tubes, rigid projections spaced apart and fixed on the outer sides of all of said tubes, elongated measuring strips mounted on the projections upon all of said tubes, and means for adjustably securing said measuring strips in place on said projections.

2. A door sizer and measuring device including a plurality of tubular elements arranged to form a quadrilateral frame with at least two aligned tubes on each of the four sides thereof and the tubes at the ends of each side joined to the tubes at the adjacent ends of two other sides disposed at right angles thereto to form the four corners of said frame, connecting rods extending into the inner opposite ends of the tubes on each of the four sides, wing screws upon the latter ends of the tubes for securing the connecting rods in said tubes, rigid hollow projections spaced apart and fixed on the outer sides of all of said tubes, a plurality of short studs individually fitting slidably in the outer ends of all of the hollow projections, wing screws upon all of the latter for securing the studs in fixed positions in said hollow projections, a plurality of elongated measuring strips individual to all of the tubes mounted upon the outer ends of the studs in the hollow projections thereon, and headed screws individually extending transversely through the measuring strips into said studs with the heads of said screws exposed on the outer sides of said strips.

3. A door sizer and measuring device including a plurality of tubular elements arranged to form a quadrilateral frame with three aligned tubes on each of the four sides and the two extreme tubes at the ends of each side joined to the tubes at the adjacent ends of two other sides disposed at right angles thereto to form the four corners of said frame, a group of tubes individually secured to the intermediate aligned tubes on all four sides and extending inwardly of the frame to form tubular T elements, a tubular cross occupying the intermediate area in the frame having the four arms thereof individually aligned with the last-mentioned group of tubes upon the tubular T elements, a plurality of connecting rods extending into each pair of adjacent aligned ends of all of said tubes, wing screws on all of said ends of said tubes for securing the rods therein, a plurality of elongated measuring strips located individually exteriorly of all three aligned tubes on all four sides of said frame, and means for adjustably securing said measuring strips in spaced relation to said aligned tubes at will.

4. A door sizer and measuring device including a plurality of tubular elements arranged to form a quadrilateral frame with three aligned tubes on each of the four sides and the two extreme tubes at the ends of each side joined to the tubes at the adjacent ends of two other sides disposed at right angles thereto to form the four corners of said frame, a group of tubes individually secured to the intermediate aligned tubes on all four sides and extending inwardly of the frame to form tubular T elements, a tubular cross occupying the intermediate area in the frame having the four arms thereof individually aligned with the last-mentioned group of tubes upon the tubular T elements, a plurality of connecting rods extending into each pair of adjacent aligned ends of all of said tubes, wing screws on all of said ends of said tubes for securing the rods therein, a plurality of rigid hollow tubular projections spaced apart and fixed upon the outer sides of all three aligned tubes on each of the four sides of said frame, a plurality of studs individually fitting slidably in the outer ends of all of the hollow projections, wing screws upon all of

the latter for securing the studs in fixed positions in said hollow projections, a plurality of elongated measuring strips individual to all of the tubes mounted upon the outer ends of the studs in the hollow projections thereon, and headed screws individually extending transversely through the measuring strips into said studs with the heads of said screws exposed on the outer sides of said strips.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
408,496	Macker	Aug. 6, 1889
1,003,517	Scelza	Sept. 19, 1911
1,917,239	Chester	July 11, 1933