April 28, 1953 A. J. KRONQUIST 2,636,282

DOORFRAME SETTING GAUGE

Filed Feb. 14, 1950 2 SHEETS—SHEET 1

Fig. 1.

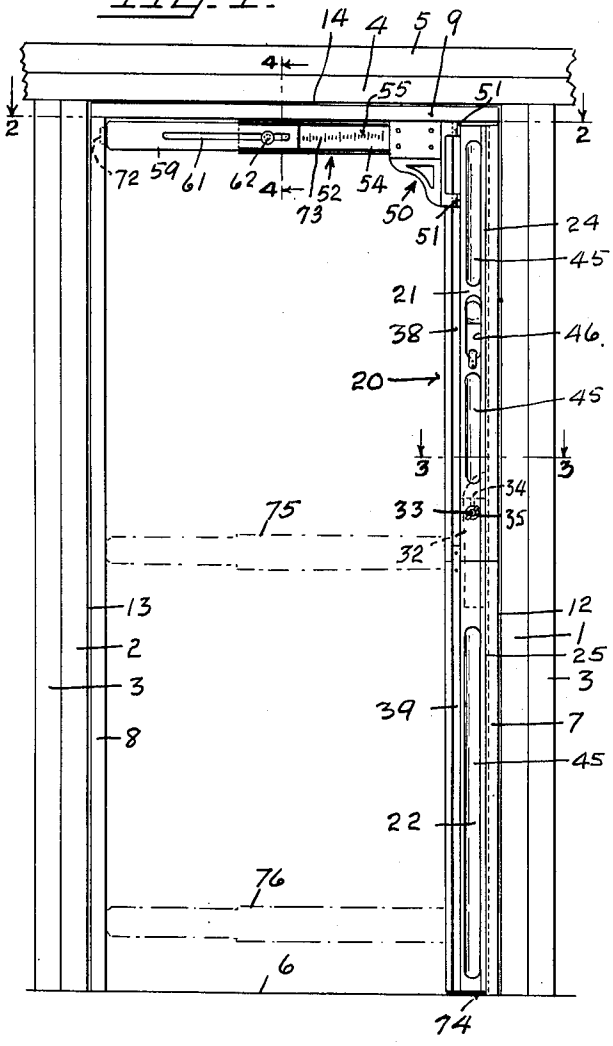
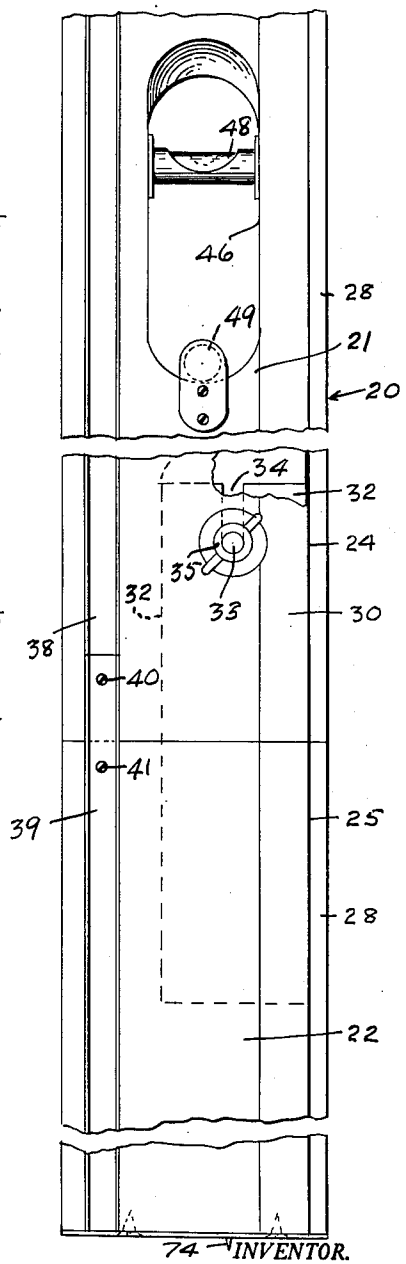


Fig. 5.



INVENTOR.
ALFRED J. KRONQUIST
BY
Boyken, Mohler & Beckley
ATTORNEYS

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Fig. 2.

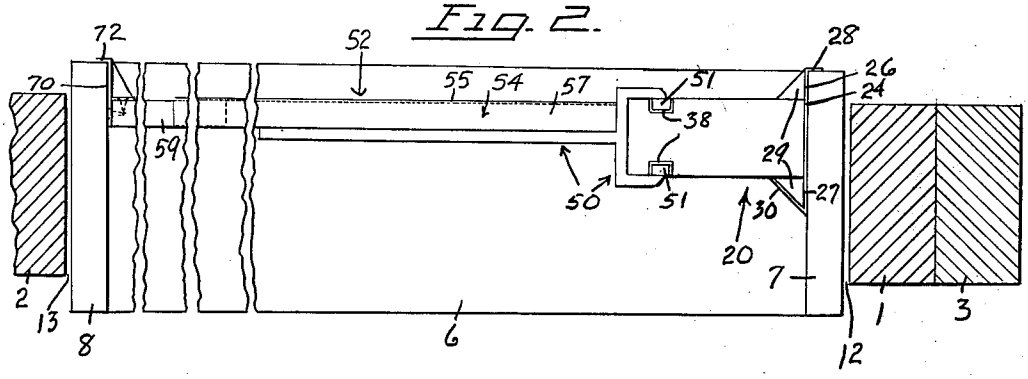


Fig. 3.

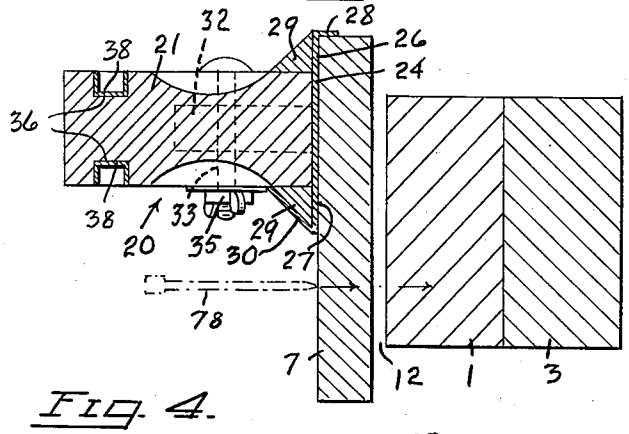
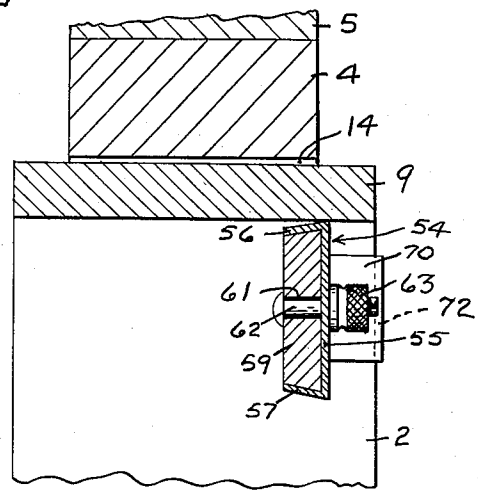


Fig. 4.



INVENTOR.
ALFRED J. KRONQUIST
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ATTORNEYS.

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DOORFRAME SETTING GAUGE

Alfred J. Kronquist, San Francisco, Calif.

Application February 14, 1950, Serial No. 144,172

4 Claims. (Cl. 33—194)

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This invention relates to a door frame setting gauge, and has for one of its objects the provision of means for enabling a workman to quickly and accurately set the jambs and head of a door frame so that the jambs are actually vertical at all points therealong, and so that the head or upper end of the frame is horizontal.

A normal door opening in the framework of a house comprises a pair of horizontally spaced vertically extending members and a head member extending across or between their upper ends. These members are usually two inch by four inch pieces and no great attempt is made for precise accuracy in setting the upright members vertical, nor the horizontally extending head member horizontal. The door frame that includes jambs and a head are intended to easily fit within the area defined by the aforesaid members with the jambs extending alongside the opposed faces of the upright members and the head below the head member.

The accuracy with which the door frame is "set" in the door opening defined by the members above described determines the speed with which the door will be hung in said door frame, and it will also determine to a great extent the accuracy with which the door is hung. A skilled and fast workman may hang about eight doors during an eight hour day. Such workmen are highly paid and if the door frames are badly set, they may not be able to hang more than five or six doors a day and even those doors may, of necessity, be poorly fitted.

With the present invention, the accurate "setting" of the door frames is made a relatively easy and fast job thereby enabling a man who is skilled in hanging doors to hang considerably more doors each day than heretofore, and such doors will be far more accurately hung.

The doors, themselves, as supplied by the mill, are usually quite accurate, with parallel vertical edges spaced the regulation distance, and with their upper and lower edges parallel and at right angles to the vertical edges, and also spaced apart the regulation distance. When the door frame is rectangular with the jambs vertical and spaced the regulation distances for the door, and when the head is at right angles to the jambs (and the sill is also at right angles to the jamb when used for outside doors), there is very little planing, if any, to be done by the man that hangs the doors.

The present invention does not require any unusual skill on the part of the workman, and may be collapsed to a compact size when not in use.

An added object of the invention is the provision of a door frame setting gauge that may be held in its operable position in the frame during the time when the frame is nailed in its adjusted position, which facilitates the setting operation.

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A still further object of the invention is the provision of a door frame setting gauge that may be used by a workman facing in either direction toward the frame opening.

Other objects and advantages will appear in the description and in the drawings.

In the drawings,

Fig. 1 is a side view of a door frame in the door opening in a building with the gauge of this invention in said frame in position for use.

Fig. 2 is an enlarged cross sectional view taken along line 2—2 of Fig. 1, the figure being broken in length to accommodate the same to the sheet.

Fig. 3 is an enlarged cross sectional view taken along line 3—3 of Fig. 1.

Fig. 4 is an enlarged cross sectional view taken along line 4—4 of Fig. 1.

Fig. 5 is an enlarged fragmentary side elevational view of part of the vertical standard of the gauge.

In detail, the door opening in the frame of a frame building normally comprises a pair of horizontally spaced vertical two by four inch members 1, 2, and each usually has a second similar member 3 in side by side engagement therewith as seen in Fig. 1.

Extending across or between the upper ends of members 1, 2 is a horizontally extending head member 4, also a two by four inch piece, and a second similar member 5 may be above and parallel with member 4 and in engagement with the latter.

The members 1, 2, 4 and floor level 6 (Fig. 1) ordinarily define the door opening for a door frame.

The conventional door frame comprises a pair of horizontally spaced, vertically extending jambs 7, 8, the jamb 7 being alongside the inner side of member 1 and jamb 8 being alongside the member 2 in opposedly facing relation to the jamb 7. A horizontal head, or jamb head 9, connects the upper ends of jambs 7, 8 and is directly below the head member 4.

The spacing between the members 1, 2 is such that narrow spaces 12, 13 normally exist between jamb 7 and member 1, and between member 2 and jamb 8. The head 9 may also be slightly spaced from the head member 4 as indicated at 14.

This spacing of the door frame within the area defined by the building frame members 1, 2 and 4, is to permit setting the jambs and head 9 so that the jambs will be vertical and the head horizontal. Pieces of shingles are usually driven into said spaces 12, 13, 14 at the desired points to square the frame, and the jambs and head 9 are then nailed to the members 1, 2 and head member 4.

The usual practice has heretofore been to use the normal level, which may be several feet in length, in setting the jambs, and these may be set one at a time with as much accuracy as is

possible, since the jamb may be vertical in one direction and inclined in the other, or it may be warped so that it is vertical at one point along its length, but not vertical at another point. After the frame setter has finished his job to the best of his ability, the door hanger must hang the door in the frame, and he attempts to shape the edges of the door so as to approximate the linear contour of the jambs and head of the frame. If the jambs are too narrowly spaced, a considerable amount must be planed off one of the door edges at considerable waste. If the jambs are warped, little can be done, and if they are not vertical, the edges must be planed to different depths along the edge to attempt to follow the inclination of the jamb.

The present invention provides an elongated vertical standard, generally designated **20** that is absolutely straight along its outer edge.

Inasmuch as the standard **20** must extend from substantially head **9** to floor **6**, a distance usually in excess of six feet by about eight inches, or 6 feet, 8 inches, the same is preferably made in two portions, there being an upper portion **21** and a lower portion **22**. These portions are preferably made from a good hardwood, such, for example, as mahogany. This hardwood is initially in strips or pieces that may be about one and one half by three and one half inches in cross sectional contour, and across one of the corresponding edges of said strips are metal face plates or strips **24**, **25** respectively secured to strips **21**, **22** (Fig. 5).

The strips or face plates **24**, **25** are preferably substantially wider than the edges of the wooden pieces **21**, **22** to which they are secured, hence they will extend oppositely outwardly of the opposite sides of said pieces as indicated at **26**, **27** in Fig. 2. The projecting portion **26** of each strip **24**, **25** terminates in a right angle flange **28**, and these projections are respectively backed by strips **29** that are triangular in cross sectional contour, and that may also be of wood and glued or otherwise secured to the opposite sides of the strips **21**, **22**. These backing pieces merely fill the reentrant angles between the said opposite sides of the strips **21**, **22** and the projecting portions **26**, **27** of the metal strips **24**, **25**. The portions **27** may continue over the outer exposed side of the strips **29** that are against said portions, as best seen at **30** (Fig. 3). It is to be understood that the triangular strips **29** and the flanges **28** do not continue past the adjacent ends of strips **21**, **22** when the latter are in end to end abutting relation (Fig. 5).

The strip **22**, which is the lowermost strip of the pair, has an upwardly projecting dowell **32** at its upper end that is adapted to fit into a complementarily formed recess in the lower end of the upper strip **21** for securing said strips in longitudinal alignment with their outer corresponding sides and edges flush at the juncture between said strips. The lower end portion of the upper strip **21** is provided with a cross bolt **33** and the upper end of the upwardly projecting dowel **32** is formed with an upwardly opening slot **34** (Fig. 5) that is adapted to pass said bolt when said strips are together in alignment. Upon tightening the thumb nut **35** on said bolt, the two strips **21**, **22** will be securely locked together.

The two opposite sides of the strips **21**, **22** along the edges remote from the metal face plates **24**, **25** are formed with outwardly opening grooves **36** (Fig. 3) that are rectangular in cross sectional contour, and that extend parallel with the edges and sides of the strips **21**, **22**. The grooves in each of the sides of strips **21** are in longitudinal alignment with the corresponding grooves in lower strip **22**. The said grooves in the upper strip **21** have rectangular channel members **38** fitted therein with their open sides opening oppositely outwardly relative to the strip **21**. Lower strip **22** has similar channel members **39** fitted in the grooves in said lower strip.

Channel members **38** terminate short of the lower ends of the grooves in which they are secured while the upper ends of the channel members **39** (Fig. 5) carried in the grooves in the lower strip **22** project upwardly, and are adapted to abut the lower ends of channels members **38** when the strips **21**, **22** are in longitudinal alignment. Thus the channel members **38**, **39** are definitely in alignment at their junctures. Inasmuch as said channel members constitute guide ways for slidably retaining a gauge arm on the standard **20** for sliding the length of the latter, it is essential that the juncture between the channel members be in absolute alignment when the strips forming said standard are secured together. Screws **40**, **41** may respectively secure the upper ends of channel members **38**, **39** to the adjacent end portions of strips **21**, **22** as seen in Fig. 5. This structure at the joint between strips **21**, **22** also materially contributes to the rigidity of the joint.

While, as above mentioned, the separation of strips **21**, **22** is made possible by the central joint connecting them, it is also submitted that this structure materially increases the accuracy of the standard as a straight edge, which is highly desirable. A single strip of metal or wood that is over six feet in length and that remains straight, is almost impossible to obtain, whereas it is relatively simple to provide a straight piece that is no more than three or four feet in length, and such shorter pieces will not tend to warp nor to become distorted if selected with reasonable care.

The opposite sides of the strips **21**, **22** may be relieved slightly by shallow central grooves or recesses **45** extending longitudinally thereof, and which recesses also provide finger grips for easily holding the standard by the hand.

The upper piece or strip **21** is preferably formed with a through opening **46** that extends longitudinally of said strip, and which opening is slightly below the eye level of the average man standing beside the standard when the lower end of the latter is upright and is supported at its lower end on the floor **6**.

Extending across this opening and secured to said strip **21** at their ends are a pair of horizontal spirit levels **48**, **49** (Fig. 5) that extend at right angles to each other and that are respectively parallel with two adjacent right angle sides of the strip. These spirit levels are fully protected against injury, as they are within the planes of the opposite sides and edges of the strip **21**.

A bracket member **50** (Fig. 1) is provided or formed with upper and lower pairs of shoes **51**, with the shoes of each pair being in opposed relation (Figs. 1, 2) and fitting within the oppositely outwardly opening channel members **38**, **39** carried by the standard **20** for sliding longitudinally of said standard. This bracket member carries an arm **52** that extends at a right angle to the standard **20**, and which arm is in two sections made up of a horizontally elongated laterally opening channel member **54**, being a vertical, horizontally extending bottom or closed side **55** (Fig. 4), and upper and lower sides **56**, **57** that extend convergently in direction transversely of the length of the arm and away from the

upper and lower edges of the bottom 55, and a strip telescopically slidable in said channel member as will be later described.

The outer end of said channel member 54 is open, and a strip 59 preferably of wood, slidably extends into said open end, the external cross sectional contour of said strip being such as to correspond with that of the inner faces of said channel member 54, hence the sides 56, 57 will hold the strip 59 therein, and at right angles to the standard 20.

The strip 59 is formed with a slot 61 extending longitudinally thereof and the channel member 54 carries a clamping bolt 62 with a thumb nut 63 thereon for clamping the strip 59 to channel member 54 at any desired degree of extension of the strip 59 (Fig. 4).

From the foregoing, it will be seen that the strip 59 and channel member 54 provide two telescopic sections of an arm that extends at right angles to the standard 20, and that the upper edge of the channel member or section 54 and the face plates 24, 25 on standard 20 may simultaneously engage the laterally inwardly facing side of either of the jambs 7, 8 and the lower surface of the head 9 when the bracket carrying the section 54 is at the top of the standard, as seen in Fig. 1.

The outer end of section or strip 59 carries a plate 70 (Figs. 2, 4) that is disposed in a vertical plane that is in parallel opposed relation to the plane in which plates 24, 25 on standard 20 are disposed. This plate 70 projects laterally from the outer end of strip 59 to the same side as the portions 26 of plates 24, 25 and is formed with a vertically extending flange 72 along its outer edge that is remote from strip 59. Flange 72 extends in a direction away from the flange 28 and is in the same plane as flange 28.

In operation, assuming the desired finished distance between the jambs 7, 8 is three feet or thirty six inches, the distance between the oppositely outwardly facing surfaces of the plates 70, 24 and 70, 25 along a horizontal line in each instance, should be three feet, and this is readily obtained by observing the numbered graduations 73 on the inner side of the bottom 55 of the channel sections 54 (Fig. 1). When the inner end of the strip 59 is even with the graduation "36" or "3," according to whether the graduations are in inches or in feet, and fractions thereof, the distance between the said oppositely outwardly facing surfaces of said plates along a horizontal line will be thirty six inches or three feet.

The next step in "setting" the door frame is to position the lower end of the standard 20 on the floor or sill adjacent one of the jambs. A downwardly directed pointed projection 74 on the lower end of the standard will engage the floor to prevent slippage of said lower end.

When the jamb in Fig. 1 is vertical, the flanges 28 of plates 24, 25 will engage the jamb from top to bottom and the outer faces of said plates will also engage the inwardly facing surface of said jamb. This position of the jamb can be determined by observing the spirit levels 48, 49. Wherever there may be a variation from vertical along the length of the jam, wooden wedges, such as pieces of wooden shingles, are driven into the space 12 between the jamb 7 and member 1 to either force the jamb inwardly or else the jamb is forced toward said member by nailing. In any event the jamb is nailed to the member 1, preferably by finishing nails such as indicated at 79 in Fig. 3 in dot dash lines. It is important

to note that the width of the plates 24, 25 is such as to permit nailing without removing the standard. Should the jamb be vertical without necessitating the forcing of the same toward or away from the member 1, nevertheless a filler, such as pieces of shingles, are placed or driven into space 12 to provide a rigid backing for the jamb at the points where the nails are driven into the member 1.

By the foregoing step, the jamb 7 can readily be set vertically in both directions at right angles to each other, even though part of the jamb may be twisted or warped. Such warpage is quite frequent, and has heretofore escaped notice of the workman installing the door in many instances, unless the ordinary level is placed on the portion of the door that is out of vertical, and even then the workman usually assumes that the entire jamb is out of plumb, and the rectifying of the warped part may throw the remainder out of vertical.

With the present invention, the workman can see exactly where rectification is required along the entire length of the jamb, and can easily make the desired corrections.

Once the jamb 7 is vertical and is nailed to the member 1, the arm 52, which comprises the sections made up of strip 59 and channel member 54 is slipped to the upper end of the standard in the position shown in full line in Fig. 1. If the head 9 is not at right angles to the jamb 7, this fact will instantly appear since the upper edge of the channel member is at right angles to the plates 24, 25 on standard 20, and these plates will be flat against the jamb 7 when the latter is set vertically. If the head is not at right angles to jamb 7 it is readily secured at right angles by the use of shingles or wedges in the same manner as employed for jamb 7.

When the jamb 7 is vertical and the arm 52 is at the top of the standard, the jamb 8 should practically touch the outwardly facing side of plate 70 and flange 72 on said plate will engage the edge of the jamb 8 as seen in Fig. 2. If the jamb 7 is spaced too great a distance from jamb 8, wedges may be driven into space 13 between jamb 8 and the member 3 that is alongside the latter to move it over toward jamb 7. When the upper end of jamb 8 is properly spaced from jamb 7 the arm 52 may be slipped downwardly toward position 75, indicated in dot dash lines, and if the jamb 8 is not vertical, this fact will be readily seen from relationship between plate 70 and the jamb 8, and the same steps as described for making jamb 7 plumb may be taken for jamb 8. From position 75 the arm 52 may be moved to the lowermost position 76. Corrections in the position of jamb 8 between positions 75, 76 may be made as the arm is moved to position 76.

It is obvious that, after the above steps, the two surfaces of jamb 7 engaged by elements 24 and 28 are in vertical planes and the corresponding side edges of jambs 7 and 8 are in the same vertical plane. Also, the jambs are properly spaced apart, and the head 9 is horizontal. By placing the standard adjacent jamb 8 the latter may be quickly checked to see that it is vertical, and if not, it may be quickly corrected.

It is immaterial which of the two jambs is initially corrected, inasmuch as the gauge may be used from either side of the frame. Also, many times, the operator may wish to check the jambs from the edges opposite the ones that were engaged by the flanges 28, 72 during the first

checking operation. This may be done by placing the standard against jamb 8 and along the edge opposite the one that is shown as being engaged at the present time by flange 72.

The nailing of a jamb 8 to the member 2 that is alongside the same is readily accomplished during the procedure of moving the arm 52 vertically while flange 72 engages the edge of said jamb for the reason that there is ample space alongside the plate 70 for nailing. When the gauge is removed, and the jambs are set, another nail may be driven through the jambs and into members 1, 2 to complete the proper degree of securement between said jambs and the building frame members adjacent thereto.

The operation of setting the jambs is one that is quickly performed and with the greatest accuracy. The door to be hung is, as has been explained, relatively accurate in its dimensions, hence the minimum amount of work remains for properly hanging the door. In ordinary practice, the workman setting the jambs will take substantially less time to set the jambs by use of the present invention, than formerly, and a much higher degree of accuracy is obtained, thereby making it possible for the person hanging the doors to complete his work in a fraction of the time heretofore required, and to accomplish it with a much greater degree of accuracy than by the conventional methods.

I claim:

1. A door frame setting gauge for setting the horizontally spaced vertically extending jambs and horizontal head of said frame comprising, an upright standard adapted to extend substantially from said head to the lower ends of said jambs, an arm extending at right angles to said standard a distance substantially equal to the desired distance between said jambs when said standard is between said jambs, means slidably securing said arm to said standard for relative movement longitudinally of the latter, and a spirit level on said standard for positioning said standard vertical in the plane of said jambs, a pointed element rigid with the lower end of said standard for engaging the floor to prevent slipping of said lower end.

2. A door frame setting gauge for setting the horizontally spaced vertically extending jambs and horizontal head of said frame comprising, an upright standard adapted to extend substantially from said head to the lower ends of said jambs, an arm extending at right angles to said standard a distance substantially equal to the desired distance between said jambs when said standard is between said jambs, means for securing said arm to said standard for sliding longitudinally of the latter, and a spirit level on said standard for positioning said standard vertical in the plane of said jambs, said standard being in several separable elongated portions for dismantling, means for releasably securing said portions together in alignment including guide ways for one end of said arm extending longitudinally of said standard and in longitudinal alignment, said arm including projections extending into said guideways in slidable engagement therewith, said guideways being metal channel members several of which extend across the juncture between said portions, but terminate adjacent said juncture.

3. A door frame setting gauge for setting the horizontally spaced, vertically extending jambs and the horizontal head of said frame comprising, an upright standard adapted to extend substantially from said head to the lower ends of said jambs, vertically extending oppositely outwardly opening grooves formed in two opposite sides of said standard providing guideways extending substantially the full length of said standard, a bracket member provided with rigid oppositely inwardly extending projections slidably fitted within said grooves for movement of said member the length of said grooves, an arm carried by said bracket member extending at right angles to said standard, said arm being formed in two elongated sections one being secured at one end to said member and the other being telescopically slidable on said one member to an extended position in which the overall lengths of said sections is substantially the distance between said jambs, means for securing said sections in said extended position, and spirit levels carried by said standard for use in positioning said standard in a vertical position with the said jambs parallel to said standard and with their corresponding side edges in a common vertical plane.

4. A door frame setting gauge for setting the horizontally spaced, vertically extending jambs and the horizontal head of said frame comprising, an upright standard adapted to extend substantially from said head to the lower ends of said jambs, vertically extending oppositely outwardly opening grooves formed in two opposite sides of said standard providing guideways extending substantially the full length of said standard, a bracket member provided with pairs of rigid oppositely inwardly extending projections spaced longitudinally of said standard and slidably fitted within said grooves for movement of said member the length of said grooves, an arm carried by said bracket member extending at right angles to said standard, said arm being formed in two elongated sections, one being secured at one end to said member and the other being telescopically slidable on said one member to an extended position in which the overall length of said sections is substantially the distance between said jambs, means for securing said sections in said extended position, and spirit levels carried by said standard for use in positioning said standard in a vertical position with the said jambs parallel to said standard and with their corresponding side edges in a common vertical plane, said spirit levels being positioned slightly below the eye level of an upright man of average height when the standard is vertical with its lower end on the floor at the lower end of said frame.

ALFRED J. KRONQUIST.

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