United States Patent [19]

Powell

[11] **3,883,117**

[45] **May 13, 1975**

[54] **DEVICE FOR SQUARING THE STUDS AND PLATE MEMBERS OF A WALL SECTION**

[76] Inventor: **Earl A. Powell,** 1030 Fifth St., West Des Moines, Iowa 50265

[22] Filed: **Oct. 19, 1973**

[21] Appl. No.: **407,805**

[52] **U.S. Cl.** **254/16;** 254/113; 254/131; 29/468

[51] **Int. Cl.**..... **B66f 11/00;** B66f 15/00; B66f 3/00

[58] **Field of Search** 254/15, 16, 113, 114, 119, 254/129, 131

[56] **References Cited**

UNITED STATES PATENTS

634,561	10/1899	Manwaring	254/15
2,823,011	2/1958	Jones	254/15
3,678,561	7/1972	Mautz	254/131

Primary Examiner—Othell M. Simpson
Attorney, Agent, or Firm—Rudolph L. Lowell

[57] **ABSTRACT**

The aligning or jack device is used for leveling or squaring a wooden wall section that is formed of floor and ceiling plates interconnected by studs and including a brace member loosely attached to diagonally opposite portions of the section. The device includes a pair of clamp assemblies, one for embracing the floor plate and the second one for embracing the brace member. The second clamp assembly is movably mounted on a handle or lever member that has one end pivoted on the first clamp assembly for pivoted movement about a horizontal axis. On actuation of the lever the studs and plates are relatively moved by the brace member to positions extended normal to each other, and are retained in such positions by rigidly securing the brace member to the wooden section.

7 Claims, 5 Drawing Figures

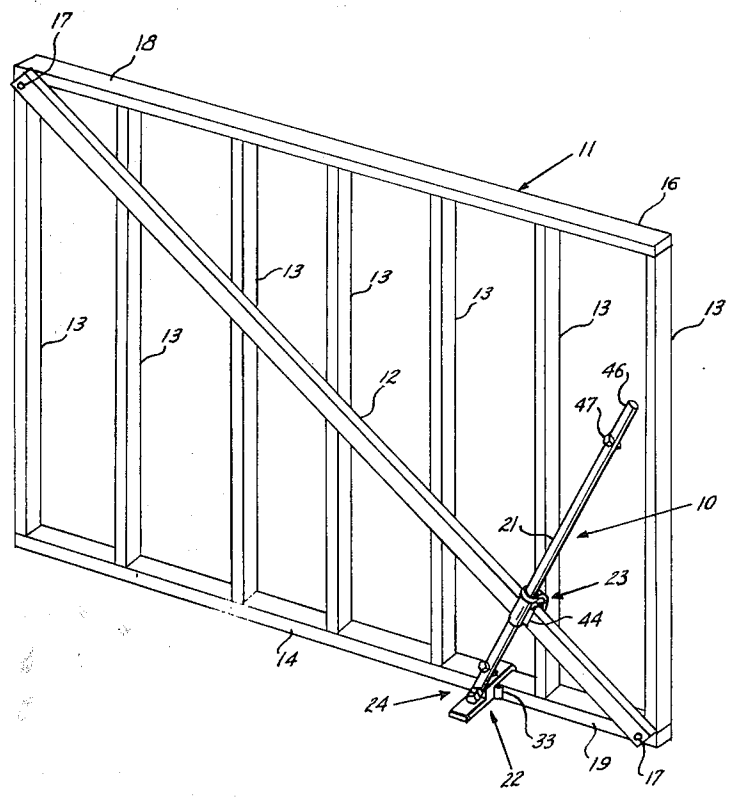


FIG. 1

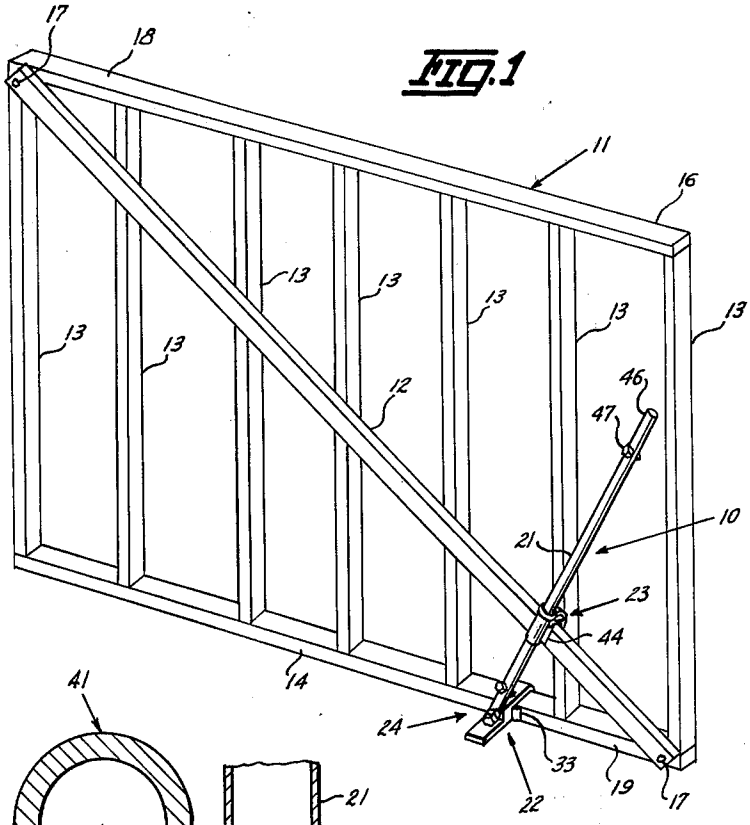


FIG. 2

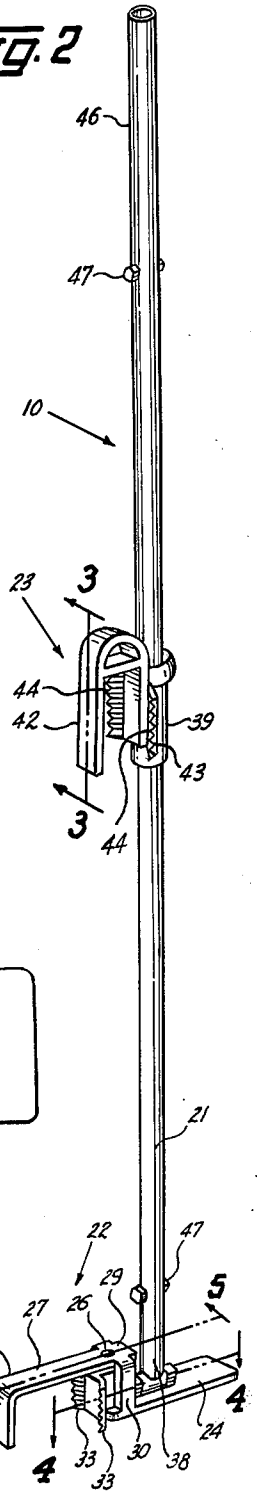


FIG. 3

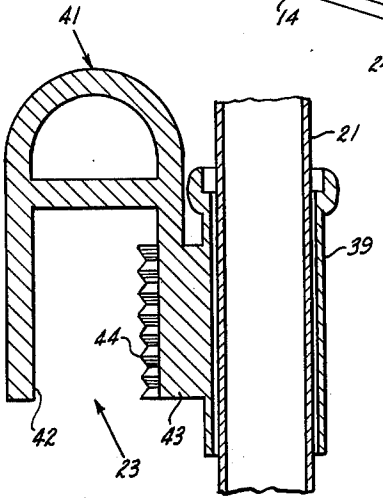


FIG. 4

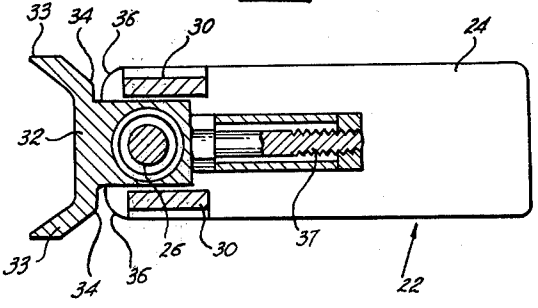
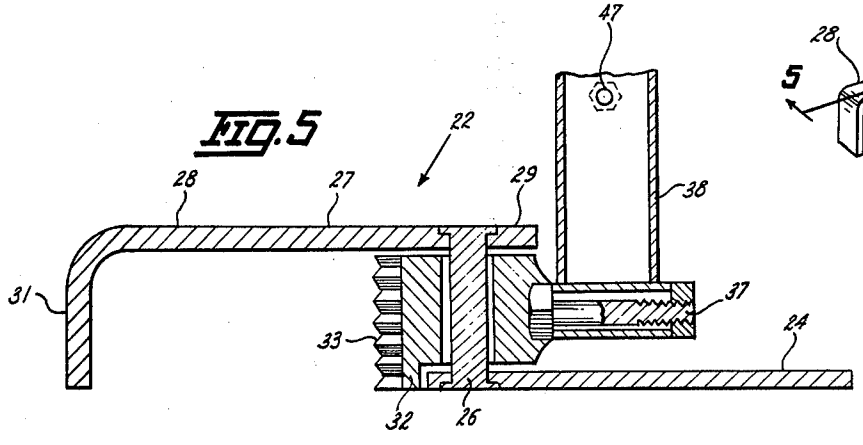


FIG. 5



DEVICE FOR SQUARING THE STUDS AND PLATE MEMBERS OF A WALL SECTION

SUMMARY OF THE INVENTION

The device is of a compact and light-weight construction and is easily manipulated to quickly level or plumb the usual wooden wall section of a building that is under construction with a minimum of time and manpower. The leverage force is manually applied by one man while a second man checks the adjustment of the section to a plumb position wherein the studs are normal to the floor and ceiling plates of the wall section. The plumb position is then retained by the first man while the second man rigidly secures the diagonal brace to the section.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a perspective view of the device shown in assembly relation with a wooden wall section;

FIG. 2 is an enlarged perspective view of the jack device shown in FIG. 1;

FIG. 3 is an enlarged detailed sectional view as seen along the line 3—3 in FIG. 2; and

FIGS. 4 and 5 are enlarged detailed sectional views taken on the lines 4—4 and 5—5, respectively, in FIG. 2.

DETAILED DESCRIPTION OF THE INVENTION

Referring to FIG. 1 of the drawing the jack device of this invention, indicated generally at **10** is shown in assembly relation with a prefabricated wooden wall section **11** having a brace member **12** extended diagonally of the wall section. The wall section comprises a plurality of studs **13** connected to a floor plate **14** and a ceiling plate **16.** The brace member **12** is loosely attached only at the ends thereof to the diagonally opposite portions of the wall section **11.** As illustrated in FIG. **1,** each such attachment is by a nail **17** which is driven through the brace member into the diagonally opposite end portions **18** and **19** of the upper and lower plates **16** and **14,** respectively.

The jack device (FIGS. **1** and **2**) includes an elongated handle lever member **21** composed of a round tubular pipe material, and a pair of clamp assemblies **22** and **23.**

The clamp assembly **22** includes a flat base or floor supported member **24** having rigidly secured adjacent one end thereof an upright pin or rod **26** (FIG. **5**). A stationary clamping arm **27** is of a generally L shape having a long leg **28** rigidly secured at its free end **29** to the top of the rod **26** and a short leg **31** spaced from and opposite the rod **26.** The arm **27** and base **24** (FIGS. **2** and **4**) are additionally interconnected by a pair of brace members **30** arranged to opposite sides of the rod **26.** A pivoted clamping arm **32** for the assembly **22** is pivotally mounted intermediate the ends thereof on the rod **26** (FIG. **5**). The end of the pivoted clamping arm **32** opposite the short leg **31** of the stationary clamping arm **27** is formed with a pair of transversely spaced gripping fingers **33** which extend generally in a direction radially of the rod **26** (FIG. **4**). The terminal edges of the fingers **33** are of a serrated construction for a purpose to appear later. The pivotal movement of the clamping arm **32** about the rod **26** is limited by the coacting engagement of a stop portion **34** on each finger **33** with a corresponding stop portion **36** on the base plate **24.**

Projected outwardly from the end of the pivoted clamping member **32** (FIGS. **4** and **5**), remote from the short leg **31,** is a pivot member **37,** illustrated as a bolt, which has the axis thereof arranged normal to the axis of the rod **26.** Pivotally mounted on the pivot member **37** is one end **38** of the handle or lever member **21.** The clamp assembly **23** (FIGS. **2** and **3**) includes a tubular body member **39** which is rotatably and slidably mounted on the lever member **21.** Suitably secured to one side of the body member **39** is a clamping unit **41** of a U-shape including leg sections **42** and **43** extended in a direction toward the pivoted end **38** of the lever member **21.** The leg section **43** is adjacent to the body member **39** and is integrally formed with a pair of transversely spaced diverging gripping fingers **44.** It is seen, therefore, that the clamp assembly **23** is movable axially of the lever **21** along with being rotatable through 360° about the axis of the lever.

The clamp assembly **23** is maintained against movement off the free end **46** of the lever member **21** by a stop member **47,** illustrated in FIGS. **1** and **2** as a bolt assembly extended transversely of the lever **21** adjacent to the lever end **46.** To eliminate movement of the clamp assembly **23** against the clamp assembly **22** a bolt assembly **47** is arranged adjacent the pivoted end of the lever **21** at a position such that the clamp unit **41** is spaced from the stationary clamping arm **27** a distance sufficient to prevent either the foot or hand of an operator from being pinched there-between.

In the use of the jack device **10,** and as shown in FIG. **1,** the floor plate **14** is located within the clamp assembly **22** so that the base member **24** projects laterally outwardly from one side of the floor plate **14.** When thus arranged, it is seen that the lever member **21** is pivotally movable in a plane which is parallel to the plane of the wooden wall section **11.** The clamp assembly **23** is then positioned over the brace member **12.** To effect a maximum leverage efficiency of the device **10,** the clamp assembly **22** is arranged adjacent the lower end of the brace member **12** with the lever member **21** extended in a plane substantially normal to the longitudinal axis of the brace member **12.**

The lever member **21** is then manipulated in a direction providing for a relative longitudinal movement between the floor plate **14** and ceiling plate **16** providing for the studs **13** being moved to positions square with or normal to the plates **14** and **16.** During this procedure the lever member **21** is manually operated by one man, while a second man checks the squaring of the studs **13** with the plates **14** and **16** by the use of a usual leveling device. The wall section **11** is then retained in its squared condition by the jack operator while the second man rigidly secures the brace member **12** to the wall section to permanently retain the squared condition.

In the manipulation of the lever member **21** limited pivotal movement of the clamping arm **32** will take place relative to the rod **26** to firmly embed one or the other of the fingers **33** into the floor plate **14** depending upon the direction of pivotal movement of the lever member **21.** As a result the clamp assembly **22,** during a squaring operation, is in a firm gripping relation with the floor plate **14** regardless of tolerance variations in the floor plate. It will be understood, of course, that a similar positive gripping action is accomplished by the clamp assembly **23** with the brace member **12** on rotational movement thereof relative to the lever member

21. It is to be further noted that during manipulation of the lever member 21 some sliding movement thereof may take place relative to the body member 39.

Although the invention has been described with respect to a preferred embodiment thereof, it is to be understood that it is not to be so limited since changes and modifications can be made therein which are within the full intended scope of this invention as defined by the appended claims.

I claim:

1. A jack device for squaring a wooden wall section having floor and ceiling plates interconnected by stud members and a brace member loosely attached to diagonally opposite end portions of said section, said device comprising:

a. an elongated lever member,

b. a pair of clamp assemblies of an inverted U-shape, with a first one of said assemblies corresponding to said floor plate, and the second one of said assemblies corresponding to said brace member, each of said clamp assemblies including a pair of oppositely arranged clamp arms,

c. means pivotally supporting a clamp arm of said first clamp assembly adjacent one end of said lever member for pivotal movement about an axis extended transversely of the lever member, and other means pivotally supporting the opposite arm of said first clamp assembly for pivotal movement about an axis parallel to the axis of said lever member, and

d. means mounting the second clamp assembly on one clamp arm thereof for longitudinal movement relative to the lever member and for rotational movement about the axis of the lever member,

e. said lever member, when the floor plate is received within the first clamp assembly and the brace member is received within the second clamp assembly, being manually pivoted relative to the first clamp assembly about said transverse axis to a position wherein the stud members and plate members of the wooden wall section are extended in planes normal to each other.

2. A jack device for squaring a wooden wall section having floor and ceiling plates interconnected by stud members and a brace member loosely attached to diagonally opposite end portions of said section, said device comprising:

a. a clamp assembly including a base member and a first clamping unit for transversely embracing the floor plate, said clamping unit comprised of a stationary clamp arm and a pivoted clamp arm,

b. means pivotally supporting the pivoted clamp arm on the base member for pivotal movement about an axis projected upwardly from said base member,

c. an elongated handle member pivoted at one end on said pivoted clamp arm for pivotal movement about an axis normal to the axis of said pivoted clamp arm, and

d. a second clamping unit for transversely embracing said brace member mounted on said handle member for relative rotational and sliding movement,

e. said handle, when the floor plate and brace member are embraced by the first clamping unit and second clamping unit, respectively, being manually operated to move said brace member to a position wherein the stud members are normal to the floor and ceiling plates.

3. The jack device according to claim 2 wherein:

a. said pivoted clamp arm includes a pair of gripping portions spaced transversely of said first clamping unit,

b. said pivotal supporting means comprises a rod secured at one end to said base member and at the opposite end thereof to said stationary clamp arm,

c. said stationary clamp arm and said base member projected outwardly from opposite sides of said rod, and said pivoted clamp arm mounted on said rod between the ends thereof.

4. The jack device according to claim 2 including:

a. co-acting portions on said base member and on said pivoted clamp arm for limiting the pivotal movement of said pivoted clamp arm.

5. The jack device according to claim 2 wherein:

a. said second clamping unit is of a U-shape facing said one end of the handle and including a pair of leg sections, with one of said leg sections having a pair of transversely spaced gripping portions.

6. The jack device according to claim 2 including:

a. a pivot means for the one end of said handle secured to said pivoted clamp arm and projected outwardly from the side thereof remote from said stationary clamp arm.

7. A jack device for squaring a wooden wall section having a floor plate and ceiling plate interconnected by stud members and a brace member movably attached to diagonally opposite portions of the section, said device comprising:

a. a floor-supported base plate,

b. a rod secured to and projected upwardly from one end of said base plate,

c. a plate holding clamp unit including a stationary clamping arm secured at one end portion to the upper end of said rod and having an opposite end portion spaced from and located in a facing relation with said rod,

d. a pivoted clamping arm pivotally mounted on said rod having a pair of gripping fingers at one end spaced transversely of said stationary clamping arm,

e. an elongated handle member pivotally supported on the other end of said pivoted clamping arm for pivotal movement about an axis normal to the axis of said rod, and

f. an inverted U-shape clamping unit mounted on said handle member for slidable and rotational movement relative thereto,

g. said handle member on reception of the floor plate within the stationary clamping arm and said brace member within the U-shape clamping unit, being manually actuated to adjust said brace member to a position wherein the stud members are normal to the floor and ceiling plates.

* * * * *