

July 11, 1933.

G. H. CHESTER

1,917,239

TEMPLATE

Filed June 16, 1930

3 Sheets-Sheet 1

Fig. 1.

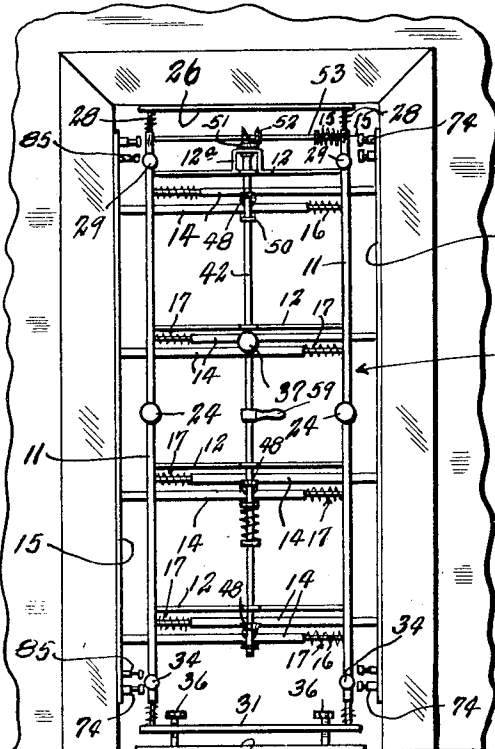


Fig. 5.

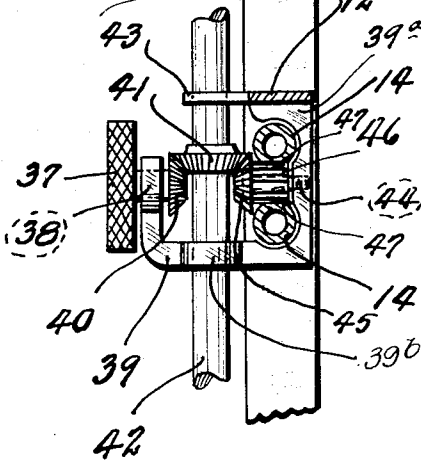


Fig. 6.

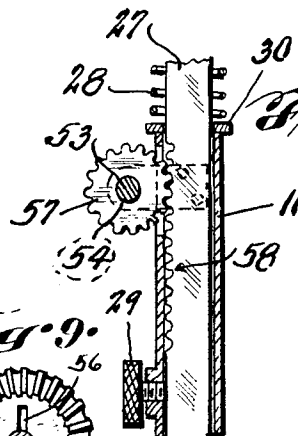


Fig. 7.

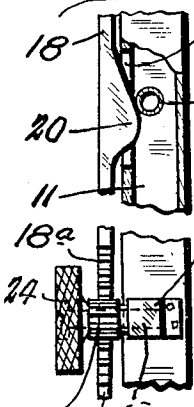


Fig. 8.

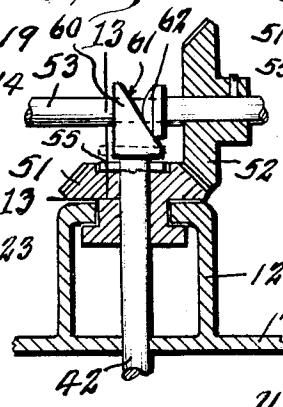


Fig. 9.

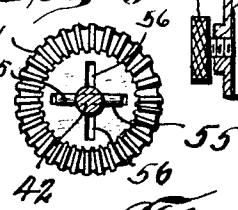


Fig. 11.

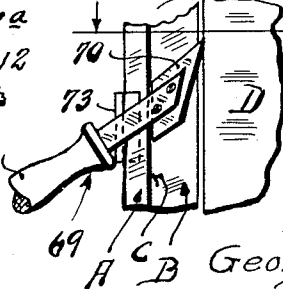


Fig. 12.

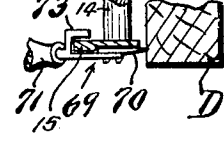
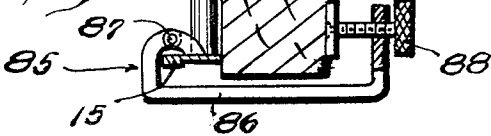


Fig. 10.



INVENTOR
George H. Chester
By *William Janus*
ATTORNEY

July 11, 1933.

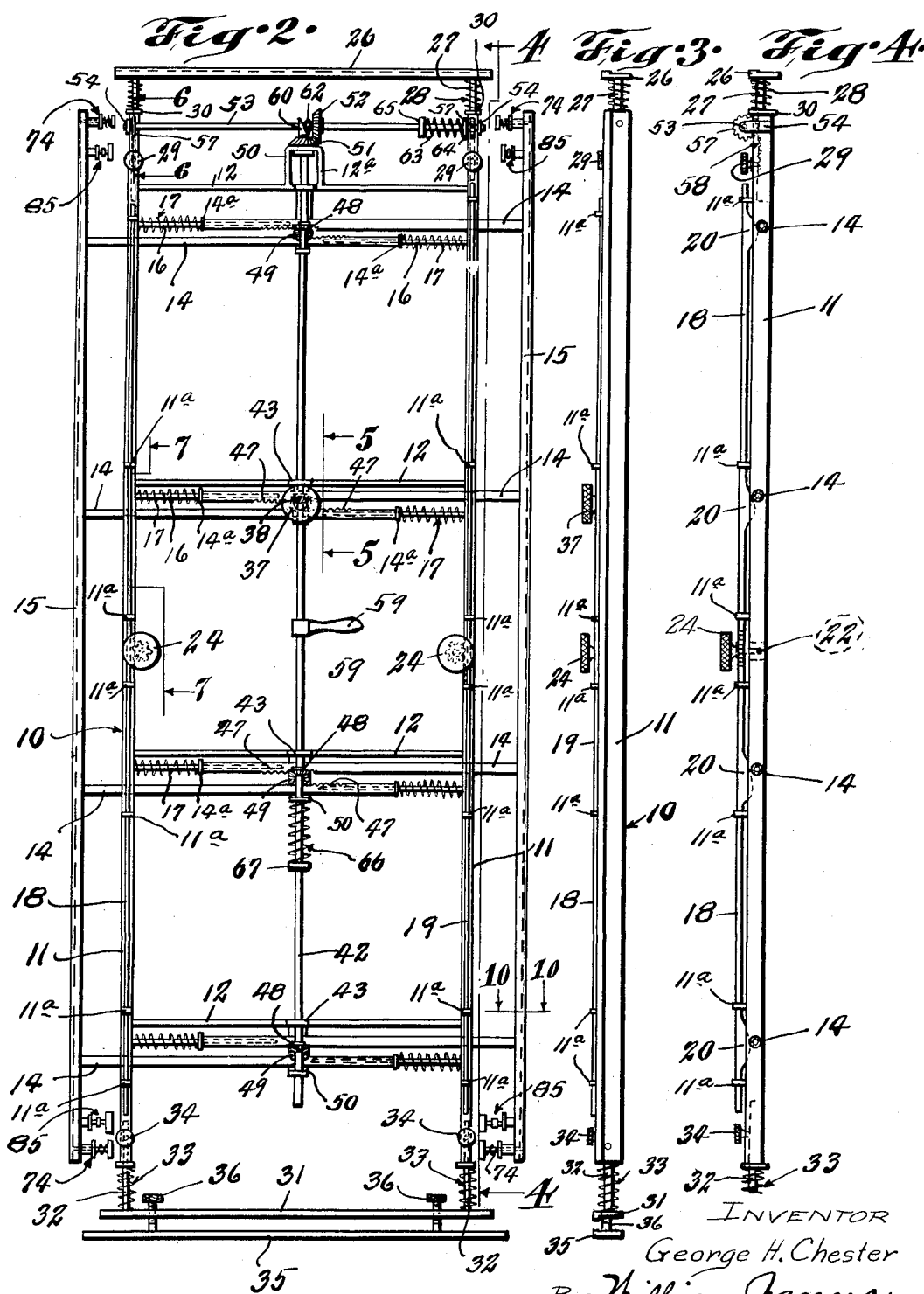
G. H. CHESTER

1,917,239

TEMPLATE

Filed June 16, 1930

3 Sheets-Sheet 2



July 11, 1933.

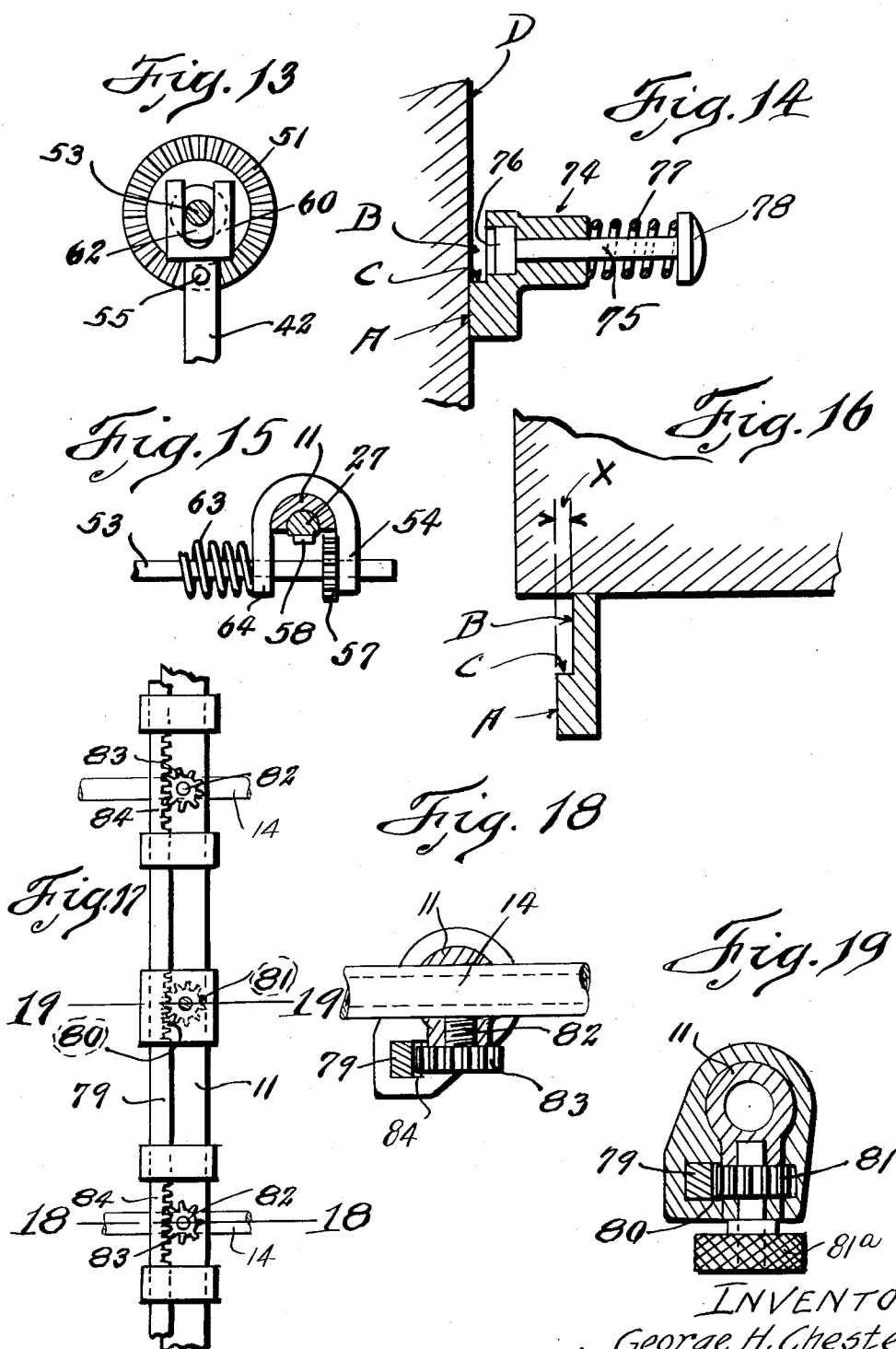
G. H. CHESTER

1,917,239

TEMPLATE

Filed June 16, 1930

3 Sheets-Sheet 3



INVENTOR
George H. Chester,
By William Jannus ATT'Y.

UNITED STATES PATENT OFFICE

GEORGE H. CHESTER, OF RICHMOND HEIGHTS, MISSOURI

TEMPLATE

Application filed June 16, 1930. Serial No. 461,389.

This invention relates to new and useful improvements in templates for doors and windows, the objects of the invention being to provide a template which is of light weight and sturdy construction and is readily adjustable so that it can be manipulated by one man.

Further objects of the invention are to provide a device of the class described which is spring-actuated into expanded position and which is provided with means for locking the expanded members in moved positions so that the template can be used with convenience in transcribing the exact dimensions of the door opening upon the door.

Additional objects of the invention are to provide a template of the class described having marks manually operable when the template is in position in the door opening to mark on the door frame the exact positions of the door hinges.

Other objects of the invention are to provide a template having its marginal members provided with track portions and having a scribe movable in said track portions and operable to mark the outline of the template on the door when said template is placed in position thereon.

Still other objects of the invention are to provide a template having its end and side members spring-actuated into expanded positions and adapted to be locked in such positions and having means for clamping said template in a fixed position on the door preparatory to the scribing operation.

With these and other objects in view, my invention consists in certain novel features of construction and arrangement of parts, hereinafter more fully described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is an elevational view showing the template in position in the door opening.

Figure 2 is an enlarged front elevational view of the template.

Figure 3 is a side elevational view of same.

Figure 4 is a vertical cross section taken on line 4—4 of Figure 2.

Figure 5 is an enlarged detail view taken on line 5—5 of Figure 2.

Figure 6 is an enlarged detail view taken on line 6—6 of Figure 2.

Figure 7 is an enlarged detail cross sectional view taken on line 7—7 of Figure 2.

Figures 8 and 9 are detail views showing the operative connections between the vertical and the horizontal shafts.

Figure 10 is a cross sectional view taken on line 10—10 of Figure 2 and showing the template clamped in position on the door.

Figure 11 is a fragmental side elevational view showing the scribe in position on the template.

Figure 12 is a cross sectional view taken on line 12—12 of Figure 11.

Figure 13 is a cross section taken on line 13—13 of Figure 8.

Figure 14 is an enlarged detail view showing the hinge marker.

Figure 15 is an enlarged detail view taken on line 15—15 of Figure 1.

Figure 16 is an enlarged detail view showing one of the contact members in cross section in position on the door.

Figure 17 is a fragmental detail view of a modified form of a locking means.

Figure 18 is an integral cross section taken on line 18—18 of Figure 17.

Figure 19 is an enlarged cross section taken on line 19—19 of Figure 17.

Referring by numerals to the accompanying drawings, 10 indicates a rigid rectangular frame comprising a pair of vertically disposed members 11 and a series of cross members 12, which latter are secured at their ends to the respective vertical members 11. Each vertical member 11 has slidably mounted thereon and extending therethrough at a number of points spaced from each other a series of tubular members 14 which are disposed transversely of said members 11. The outer ends of these tubular members have fixed thereto side members 15. Each side member 15 is arranged adjacent to vertical member 11 and is movable substantially in parallelism relatively thereto.

The inner ends of tubular members 14 engage and slide upon guide rods 16 which are fixed to and project from members 11 in opposed relation with the respective tubular

members 14. The inner ends of said transverse members 14 terminate short of the opposed vertical members 11 and interposed therebetween and threaded on the respective
 5 guide rods are coiled compression springs 17 which, when tubular members 14 are released, tend to move the side members 15 into extended positions away from frame 10. Preferably each end of tubular member 14
 10 terminates in a collar 14^a which provides an efficient bearing for the respective ends of spring 17 and also limits the outward movement of members 14 and 15.

Side members 15 can be held immovable
 15 either in expanded positions or in retracted positions by locking bars 18. These bars are each disposed longitudinally of each vertical member 11 and are slidably mounted in bearings 11^a extending transversely therefrom.
 20 At each point where bar 18 crosses tubular member 14 an opening 19 is formed in member 11 adjacent to bar 18 and the latter is provided at these points with inclined rearwardly presented projections or cams 20 which extend inwardly into members 11 (see Fig. 7).
 25 These cams, when bar 18 is moved longitudinally, (in the present case upwardly) are brought against tubular members 14 and hold the same against movement by frictional engagement as shown in Figure 7.

Each bar 18 is provided with a rack portion 18^a with which is meshing a pinion 21 fixed to a shaft 22, which latter is journaled in bearing 23 arranged on one side of member
 35 11. A hand wheel 24 is fixed to shaft 22 adjacent to pinion 21 so that by operating pinion 21, through said hand wheel 24, bar 18 can be actuated longitudinally either to bring the cams 20 into frictional engagement with
 40 tubular members 14 and lock the respective side members 15 in position or to disengage said cams from members 14 and permit the latter to move into extended positions under the influence of their respective springs.
 45 Bars 18 extend substantially the entire length of vertical members 11 and are adapted to engage all of the tubular members 14 arranged on that side.

Side members 15 are arranged to contact
 50 with the vertical members of a door frame or other opening. The upper member of the door frame is engaged by a horizontally disposed top or end member 26 which is arranged above the upper end of frame 10. Extending downwardly from top member 26,
 55 near the ends thereof, are bars 27 which are slidably mounted in the upper ends of vertical members 11. A coiled spring 28 is interposed between the upper end of each vertical member 11 and the underside of member 26 so
 60 as to maintain the latter in yielding extended position. A screw 29 is screw-seated in the outer face of member 11 and extends thereinto and has its inner end adapted to bear
 65 against bar 27. Thus by turning said screw

29 in the proper direction the inner end thereof is brought against said bar 27, clamping the latter in position. Preferably a collar 30 is arranged on the upper end of each member 11 to provide efficient bearing for the
 70 lower end of spring 28.

A horizontally disposed bottom member 31 having upwardly extending bars 32 is arranged on the lower end of the frame and is moved into extended position by coiled
 75 springs 33. A screw 34 is arranged near the lower end of each member 11 for engagement with respective bar 32 whereby member 31 can be locked in proper position.

Members 15, 26 and 31 are used to define the exact size of the opening into which the closure member, such as a door, is to be fitted. In order to provide clearance between the lower end of the door and the floor in cases where a rug is used, member 31 has mounted thereon a member 35 which is disposed parallel to the first member a suitable distance therebelow and is adjustable relatively thereto by means of screws 36. Thus by manipulating said screws, the distance between members 31 and 35 can be regulated so as to keep member 31 a suitable distance above the floor and provide the necessary clearance between the door and the rug placed on the floor.

After the members 15 and 26 are moved into extended positions, it is necessary to retract said members before the template can be used again. In my device, the means for effecting this retractile movement consists of a single hand wheel 37 which is manually operable. Thus by turning said wheel in proper direction, members 15 and 26 can be simultaneously retracted. This hand wheel is carried by a stud shaft 38 which is revolvably mounted in a bearing 39. This bearing is fixed to one of the cross pieces 12, as indicated at 39^a. The inner end of shaft 38 carries a beveled gear 40 which meshes with a beveled gear 41. A vertically disposed shaft 42 extends substantially the entire height of frame 10 and is journaled in bearings 43 formed on cross members 12 and in a bearing 39^b formed in bearing member 39. Beveled gear 41 is fixed to said shaft 42 above beveled gear 40 so that by actuating hand wheel 37, shaft 42 is rotated in the desired direction.

A stud shaft 44 is fixed in bearing member 39 in axial alignment with shaft 38 and in opposed relation thereto. A beveled gear 45 is arranged on said shaft and meshes with beveled gear 41. A spur gear 46 is conjoined to beveled gear 45 and meshes with the rack portions 47 of the adjacent bar of members 14 (see Figure 5). Thus when hand wheel 37 is manually operated, causing actuation of shaft 42, gears 45 and 46 are operated and cause longitudinal move-
 130

ment of the corresponding transverse members 14 in opposite directions.

Shaft 42 is provided with a series of beveled gears 48, similar to beveled gear 41, and each of said beveled gears 48 meshes with a beveled gear 49, journaled in a bearing 50 and having a spur gear similar to spur gear 46 which meshes with rack portions 47 of the corresponding pair of transverse members 14 so that when shaft 42 is actuated by hand wheel 37, all of the transverse members 14 are simultaneously operated to extend or retract said members 15.

The operative connection between shaft 42 and the top member 26 is effected by means of a beveled gear 51 engageable with the upper end of said shaft and a beveled gear 52 fixed to a horizontally disposed shaft 53, which latter is slidably mounted in bearings 54 arranged on the upper ends of vertical members 11.

Gear 51 is revolubly mounted in a bearing 12^a carried by the uppermost cross member 12. Gear 51 is revoluble in said bearing but is held thereby against axial movement. Shaft 42 extends slidably through said gear and is provided with pins or diametrically opposed projections 55 which are adapted to be seated in diametrically disposed seats 56 formed in the face of gear 51 (see Figures 8 and 9). Shaft 42 is movable longitudinally and when it occupies depressed or lowermost position, projections 55 are seated in seats 56 so that gear 51 is interengaged with said shaft and is capable of transmitting rotating movement to shaft 53. This shaft is provided near each end with a pinion 57 which meshes with a rack portion 58 of each bar 27. When shaft 53 is actuated, bars 27 of member 26 are caused to move longitudinally through the interengagement of gears 57 and rack portions 58.

In order to permit side members 15 and top member 26 to move under the influence of respective springs into contacting positions with the walls of the opening, it is necessary to disconnect the driving connection between the shaft 42 and the gears 44, 48 and 52 so that the transverse members 14 and 27 are free to move outwardly. To this end, shaft 42 is slidably mounted in its bearings and is movable upwardly by means of a handle 59. Gears 41 and 48 being arranged above the beveled gears with which they are meshing are displaced upwardly by the upward movement of shaft 42 and the transverse members 14 are not impeded in their outward movement.

When shaft 42 is raised, projections 55 carried by the upper end thereof are moved out of seats 56, thereby disengaging said shaft from gear 51. It is desirable to disengage gears 57 from rack portions 58 of bars 27, so that member 26 can adjust itself freely to the contour of the door lintel. In order to

effect this disengagement of gears 57, shaft 53 is moved longitudinally when shaft 42 is raised. This movement is effected by means of a bifurcated upwardly presented member 60 fixed to the upper end of shaft 42 above gear 51. This member 60 has an inclined face 61 presented toward gear 52 and engaging a collar 62 fixed on said shaft 53. Thus when shaft 42 is raised, the cam face 61 bears against the corresponding face of collar 62, thereby causing longitudinal displacement of shaft 53 and the gears carried thereby.

As soon as shaft 42 is moved to its normal position, shaft 53 is restored, whereby beveled gears 51 and 52 become interengaged. Shaft 53 is restored to normal position, preferably by means of a coiled spring 63, one end of which bears against a fixed bearing 64 fixed to one side of member 11 and the other end of which bearing bears against a collar 65 fixed to shaft 53. A coiled spring 66 is used to assist shaft 42 to retain normal position. One end of this spring bears against one of the bearings 50 and the other end of said spring bears against a collar 67 fixed on shaft 42.

The outwardly presented face A of each contact member is provided with a reduced portion B, thereby forming a shoulder C. When the template is placed within the door frame, the face A is brought in contact with the face of the door frame member D (see Figure 14). When the template is placed in position on the door, the edge of the reduced portion B is placed on the face of the door and a scriber or marker 69 is used to mark the outer face of said edge on the face of said door. Thus it will be seen that the door so marked is slightly smaller than the size of the opening as defined by the face A, and the difference between the two dimensions, as indicated by X in Figure 16, provides the necessary operating clearance between the door and the door opening.

The marker 69 comprises a blade 70 attached to a handle 71. The shank of the handle is provided with an overhanging portion 73 which extends over the outer edge of the contact member and engages the inner face thereof so that the marker is held and guided in proper marking position thereon. Preferably the outer edge of blade 70 rides upon the shouldered portion C.

The marker is used only when the template is in position on the door and is detached from the template after use.

The vertical members 15 are provided with hinge markers 74 by means of which the height of the hinge on the door jamb is marked. Each marker comprises a plunger 75 slidably mounted in a bearing formed on member 15 and provided on its outer end with a blade 76. This blade is normally held in retracted position by means of a coiled spring 77 which is interposed between the bearing

and the head 78 of the plunger. When the template is in position in the door opening, the head of the appropriate hinge marker is manually pressed, thereby causing the blade 76 to move outwardly and produce an impression on the face of the jamb showing the exact location of the hinge.

In the modified form shown in Figure 17, a locking bar 79 is shown mounted on vertical member 11. This locking bar is provided with a rack portion 80 which meshes with a pinion 81 manually operable by a knurled member 81^a. A plurality of screws 82 are screw-seated in vertical member 11 and adapted, when turned in the proper direction, to move against the appropriate member 14 and secure them in position. Each screw 82 is provided on its outer end with a pinion 83 which meshes with a rack portion 84 formed on locking bar 79. Thus when said bar is moved longitudinally all the screws 82 are simultaneously actuated, either to lock the transverse members 14 in position or to release them, depending upon the direction of movement of the locking bar.

The device is held in position on the door by a series of clamps 85. Each clamp consists of an arm 86 pivotally mounted at 87 on the inner side and near each end of each member 15. Arm 86 is considerably longer than the thickness of the door and the free end of each arm is presented laterally and inwardly in spaced relation with the face of the door. A clamp screw 88 is arranged in said end and can be actuated to bear against the respective face of the door and draw members 15 against the other face thereof and thereby securely hold them in position thereon.

The contact or marginal members 15 and 26 are flexible so as to enable them to follow the contours of the walls of the door opening. As the bottom member 31 is generally not brought into contact with the floor or threshold member, this member can be rigid or have a lesser degree of flexibility than the first mentioned member.

Each transverse member 14 is movable independently of the other members, thereby insuring the proper disposition of the side members 15. Vertical members 27 are also movable independently of each other as are also members 32 of the bottom member 31. Thus it will be observed that the contact or marginal members are adjustable independently of each other and that portions of said marginal members are also adjustable independently of the remainder of such members. This insures accurate fitting of the door and registers any irregularities in the faces of the door openings.

An important feature and a very decided advantage of my device is the single manually operable member for retracting said marginal members 15 and 26. The bottom

member 31 is not operatively connected to the restoring members since it supports the entire device when the latter is located in the door opening. Member 31 is adjusted only when it is desired to increase or decrease the height of the device. The floor member 35 is disposed relatively to the member 31 to compensate for the thickness of the floor covering near the door opening.

The ends of the contacting or marginal members terminate short of each other, the corners of the door opening being defined by the extension of the lines scribed on the face of the door. This eliminates complicated corner construction of the template without impairing the usefulness thereof. The template is of light construction and its operating mechanism is arranged so that it may be manipulated by one man in an efficient manner.

While I have shown the preferred form of my invention, it is obvious that various changes in the construction and arrangement of parts of my improved template can be made and substituted for those herein shown without departing from the spirit of my invention.

I claim:

1. A template of the class described comprising a rigid rectangular frame, a plurality of independently movable marginal members, a plurality of transverse members slidably mounted in said frame and attached at their outer ends to the respective marginal members for supporting the same, coiled springs carried by said frame and operatively associated with said transverse members for yieldingly moving said marginal members into expanded positions, and manually operable means engaging said transverse members for simultaneously retracting all of said marginal members and compressing said springs.

2. A template of the class described comprising a rigid rectangular frame, a plurality of independently movable marginal members, a plurality of transverse members slidably mounted in said frame and attached at their outer ends to the respective marginal members for supporting the same, coiled springs carried by said frame and operatively associated with said transverse members for yieldingly moving said marginal members into expanded positions, manually operable means engaging said transverse members for simultaneously retracting all of said marginal members and compressing said springs, and manually operable locking bars for locking said transverse members and securing their marginal members in their positions.

3. A template of the class described comprising in combination a rigid rectangular frame, a plurality of independently movable marginal members, a plurality of transverse

members slidably mounted in said frame and attached at their outer ends to the respective marginal members for supporting the same, coiled springs operatively associated with said frame and with said transverse members for yieldingly moving said marginal members into expanded positions, manually operable members engaging said transverse members for simultaneously retracting all of said marginal members and compressing said springs, manually operable locking bars for locking said transverse members and securing said marginal members against movement, and clamps hingedly mounted on each marginal member and swingable into positions to secure the template on to the door.

4. A template of the class described comprising a frame, a plurality of marginal members movable relatively to said frame and independently of each other, transverse members secured to said marginal members and projecting inwardly and having slidable bearings in said frame to provide supports for said marginal members; coiled springs for yieldingly moving said marginal members into expanded positions, locking bars manually operable for securing said transverse members relatively to said frame, and means for fixedly positioning said template on to a door.

5. A template of the class described comprising a rigid frame, a plurality of marginal members movable in the same plane with said frame and independently of each other, transverse members having their outer ends fixed to said marginal members and slidably mounted in said frame and extending inwardly thereof to provide supports for said marginal members, guides fixed to said frame and engaging and providing bearings for the inner ends of said transverse members, coiled springs cooperating with said guides for yieldingly moving said marginal members into expanded positions, and manually operable means including rack portions on said transverse members and revoluble pinions for simultaneously retracting all of said marginal members.

6. A template of the class described comprising a rigid frame, a plurality of marginal members movable in the same plane with said frame and independently of each other, transverse members having their outer ends fixed to said marginal members and slidably mounted in said frame and extending inwardly thereof to provide supports for said marginal members, guides fixed to said frame and engaging and providing bearings for the inner ends of said transverse members, coiled springs cooperating with said guides for yieldingly moving said marginal members into expanded positions, manually operable means including rack portions on said transverse members and revoluble

pinions for simultaneously retracting all of said marginal members, locking bars mounted on said frame for longitudinal movement, and means cooperating with said locking bars and operable thereby to engage said transverse members and hold them immovable.

7. A template of the class described comprising a rigid rectangular frame, a plurality of flexible marginal members movable transversely thereof and in the same plane therewith for contacting with the walls of an opening, a plurality of transverse members movably mounted in said frame and having their outer ends secured to the respective marginal members for movably supporting said marginal members, a plurality of resilient means for yieldingly forcing said marginal members away from said frame, and manually operable means cooperating with said transverse members for rendering said marginal members immovable relatively to said frame.

8. A template of the class described comprising a rigid rectangular frame, a plurality of flexible marginal members movable transversely thereof and in the same plane therewith for contacting with the walls of an opening, a plurality of transverse members movably mounted in said frame and having their outer ends secured to the respective marginal members for movably supporting said marginal members, a plurality of resilient means mounted on said frame and engaging said transverse members for yieldingly forcing said marginal members into extended positions, and manually operable means operatively associated with said transverse members for simultaneously retracting all of said marginal members and compressing said resilient means; said manually operable means including a main shaft which is manually displaceable to release said marginal members.

9. A template of the class described comprising a rigid rectangular frame, a plurality of flexible marginal members movable transversely thereof and in the same plane therewith for contacting with the walls of an opening, a plurality of transverse members movably mounted in said frame and having their outer ends secured to the respective marginal members for movably supporting said marginal members, a plurality of resilient means mounted on said frame and engaging said transverse members for yieldingly forcing said marginal members into extended positions, manually operable means operatively associated with said transverse members for simultaneously retracting all of said marginal members and compressing said resilient means, said manually operable means including main shaft which is manually displaceable to release said marginal members engaging said transverse members, and manually operable members for locking the lat-

ter and said marginal members against movement.

10. A template for closure members comprising a rigid frame, a plurality of marginal members arranged exteriorly thereof, said members having transverse inwardly projecting members slidably mounted in said frame and being supported thereby, coiled springs cooperating with said frame and said transverse members for yieldably forcing the latter into expanded positions, and manually operable members engageable with said transverse members for locking said marginal members in positions.

11. A template for closure members comprising a rigid frame, a plurality of marginal members arranged exteriorly thereof, said members having transverse inwardly projecting members slidably mounted in said frame and being supported thereby, coiled springs cooperating with said frame and said transverse members for yieldably forcing the latter into expanded positions, manually operable members engageable with said transverse members for locking said marginal members in positions, and a manually operable hand wheel operatively engageable with the transverse members of certain of said marginal members for retracting the latter against said frame and compressing said coiled springs.

12. A template for closure members comprising a rigid frame, a plurality of marginal members arranged exteriorly thereof and in the same plane therewith, transverse members secured at their outer ends to said marginal members and projecting inwardly and transversely therefrom and slidably mounted in said frame, coiled springs arranged on the inner ends of said transverse members and cooperating with the latter and with said frame for yieldingly maintaining said marginal members in extended positions, rack

portions formed on said transverse members, and gears cooperatively arranged with said rack portions for forcibly retracting said marginal members against the influence of said springs, said gears being displaceable from operative positions to permit free outward movement of said marginal members under the influence of said springs.

13. A template for closure members comprising a rigid frame, a plurality of marginal members arranged exteriorly of said frame and having transverse portions slidably mounted in said frame, resilient means cooperating with said frame and said transverse portions for yieldably forcing said marginal members into extended positions, rack portions formed on the transverse portions of said marginal members, gears meshing with said rack portions, and an actuating member for simultaneously operating all of said gears and racks to retract the corresponding marginal members relatively to said frame.

14. A template for closure members comprising a rigid frame, a plurality of marginal members arranged exteriorly of said frame and having transverse portions slidably mounted in said frame, resilient means cooperating with said frame and said transverse portions for yieldably forcing said marginal members into extended positions, rack portions formed on the transverse portions of said marginal members, gears meshing with said rack portions, and a manually operable member for simultaneously actuating all of said gears and rack portions to move said marginal members into retracted positions, said actuating member being displaceable to release said gears and permit said marginal members to move into extended positions under the influence of said resilient means.

In testimony whereof I hereunto affix my signature this 9th day of June 1930.

GEORGE H. CHESTER.

45

50

55

60

65

70

75

80

85

90

95

100

105

110

115

120

125

130