April 5, 1938. W. A. JENNINGS 2,113,086

CENTERING AND LOCKING PIN DEVICE FOR MOLD FORMS

Filed May 24, 1937

Fig. 4.

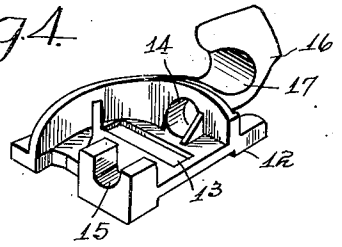



Fig. 1

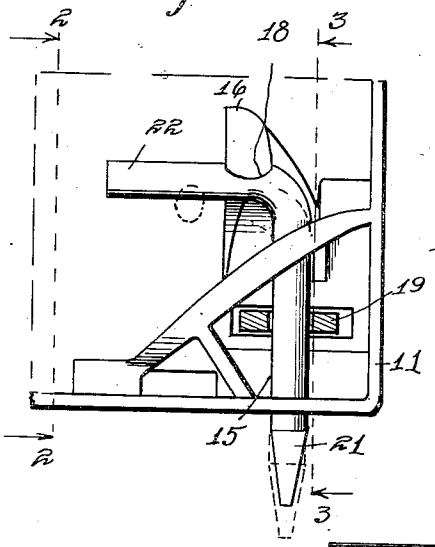



Fig. 2.

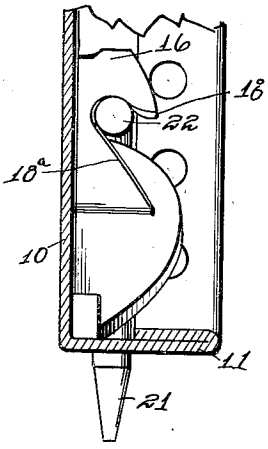
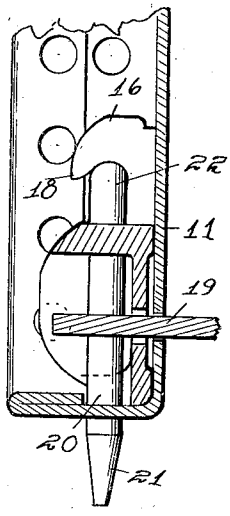



Fig. 3.



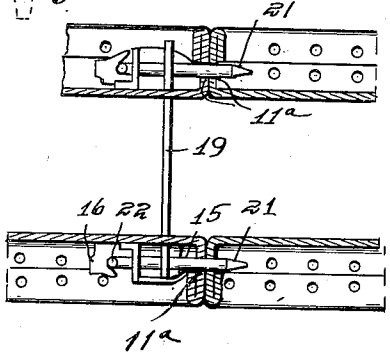




Fig. 5.

Inventor
William A. Jennings
by Owing & Hague Attys

Patented Apr. 5, 1938 2,113,086

# UNITED STATES PATENT OFFICE

2,113,086

## CENTERING AND LOCKING PIN DEVICE FOR MOLD FORMS

William Allen Jennings, Des Moines, Iowa, assignor to Economy Forms Corporation, Des Moines, Iowa, a corporation of Iowa

Application May 24, 1937, Serial No. 144,342

5 Claims. (Cl. 25—131)

My invention relates to that class of metal mold forms in which two adjacent mold forms are brought into alignment with each other by the use of centering pins and held in such position thereby, such, for instance, as illustrated in the patent issued to me June 30, 1936, No. 2,046,123.

The object of my present invention is to provide means of simple, durable and inexpensive construction for locking centering pins in their position for holding two forms in alignment to such an extent that they will be securely held in this position and resist all of the ordinary strains and stresses to which the mold forms and pins are subjected when in use, and particularly the strains and stresses which are set up when the mold forms are vibrated to cause the concrete between the form to settle, and further to provide a device of this class in which the centering and locking pins may be readily, quickly and easily inserted, and also readily, quickly and easily removed.

In the accompanying drawing, Figure 1 shows an elevation of a portion of a mold form with its marginal flanges and my improved pin locking device applied thereto, with a pin in locked position at the rear end.

Figure 2 shows a sectional view taken on the line 2—2 of Figure 1.

Figure 3 shows a sectional view taken on the line 3—3 of Figure 1.

Figure 4 shows a perspective view of the pin guiding and locking member detached; and

Figure 5 shows a sectional view of two mold form walls held in spaced apart positions and having my improved centering and locking pin devices applied thereto.

Referring to the accompanying drawing, I have used the reference numeral 10 to indicate the body of a mold form and 11 the marginal flange thereof, which flange is formed with an opening 11a through which a centering locking pin may be extended.

Fixed in position in a corner of the mold form adjacent the pin opening is a pin guiding and locking device which may be cast complete in one piece and which is illustrated in Figure 4. This device comprises a base 12 which is preferably permanently mounted by spot welding, or otherwise, upon the mold form. It is formed with a slot at 13, a pin opening at 14, a pin rest slot at 15 and a member 16 extended outwardly from one end of the device alongside of the longitudinal line through the pin opening 14. This member 16 is formed with a slot, indicated generally by the numeral 17, and inclined outwardly away from the body portion 10 in a direction toward the adjacent flange 11, as best shown in Figure 2. The upwardly extended end portion of this member 16 is formed with a curved guide 18 for purposes hereinafter made clear, and at the opposite side of the slot 17 is an inclined guide member 18a, for purposes hereinafter made clear.

For the purpose of holding two adjacent panels in properly spaced apart position there is usually employed spacing bars 19 having openings in their ends to receive the centering pins, as illustrated in Figure 1. The centering pins are of themselves of the ordinary construction, comprising a straight pin body 20, pointed at one end at 21, and having at the other end a handle 22 extended at right angles.

In practical use with my improvement the pin guiding and locking device is permanently fixed in one corner of the mold form with its pin opening 14 in line with a pin opening formed in the flange of the mold panel. When it is desired to center two adjacent mold forms the operator places the point of the pin in the opening 14, with the handle projected away from the panel, and when in this position the pin may freely slide in and out through the opening 14. When the pin has been moved far enough to enter the corresponding opening in an adjacent mold form flange, then the operator simply presses the handle downwardly toward the body of the panel. In doing this the inclined guide members 18 or 18a will first be engaged by the handle and thereby the handle will be guided into the inclined slot 17, and during this movement the body of the pin is moved longitudinally. This is illustrated in Figure 1 which shows by dotted lines the position of the handle when first started in its movement into the inclined slot, and when in this position the pin projects a maximum distance from the mold form member, then as the movement of the pin handle is completed, the pin moves to the position shown by solid lines in Figure 1. When the pin is in its position in the slot 17, and particularly when the pin has also passed through the spacing bars 19, there is usually considerable strain and stress applied to the pin to prevent its free longitudinal movement, and, hence, in order to remove the pin it is necessary to apply considerable force to the handle to move it toward its unlocking position, because during such movement the pin must be moved longitudinally as well as rotatably about its longitudinal axis.

In practice I have found that with the pins thus locked, accidental removal of the pins is avoided. It is customary with mold forms of this character to apply vibration to the concrete and mold forms to thereby cause the concrete between them to settle, and I have found in practice that without some means for locking the pins they are at times shaken out and thus the concrete wall being formed may be damaged. With my improvement, however, I have found in practice that the pins are sufficiently locked in their positions to prevent displacement due to such agitation of the mold forms. With my improvement the mold forms may be dissembled very readily, quickly and easily by simply grasping the handles **22** of the pins, turning them at right angles to their locked position and then sliding them out. This is usually done by means of a tool in the form of a pipe which may be placed upon the handle **22** to form a long extension of the handle to thereby make it easy for an operator to apply the necessary turning movement of the handle to give the pin its necessary longitudinal and rotary movement to put it in position for withdrawal.

I claim as my invention:

1. The combination with a mold form having a flange formed with a pin opening and a centering pin having a handle at approximately right angles to the pin, of a pin guiding and locking device, comprising a frame secured to the mold form adjacent the pin opening, said frame being formed with a pin opening spaced from and in line with the said pin opening in the flange, said frame being formed with a diagonally arranged slot shaped to receive said pin handle when the pin is in position in said pin openings and when the pin is turned to position with its handle substantially parallel with the body of the mold form, said diagonally arranged slot being so disposed that as the pin is being turned to position for removing the handle from the slot the pin must be both rotated and moved longitudinally.

2. The combination with a mold form having a flange formed with a pin opening and a centering pin having a handle at approximately right angles to the pin, of a pin guiding and locking device, comprising a frame secured to the mold form adjacent the pin opening, said frame being formed with a pin opening spaced from and in line with the said pin opening in the flange, said frame being formed with a diagonally arranged slot shaped to receive said pin handle when the pin is in position in said pin openings and when the pin is turned to position with its handle substantially parallel with the body of the mold form, said diagonally arranged slot being so disposed that as the pin is being turned to position for removing the handle from the slot the pin must be both rotated and moved longitudinally, said frame being also formed with an inclined guide member leading to the slot entrance for moving the pin longitudinally in the direction for moving the handle toward the slot during the time that the handle is being rotated to position for causing the handle to enter the slot.

3. The combination with a mold form having a flange formed with a pin opening and a centering pin having a handle at approximately right angles to the pin, of a pin guiding and locking device, comprising a frame secured to the mold form adjacent the pin opening, said frame being formed with a pin opening spaced from and in line with the said pin opening in the flange, said frame being formed with a diagonally arranged slot shaped to receive said pin handle when the pin is in position in said pin openings and when the pin is turned to position with its handle substantially parallel with the body of the mold form, said diagonally arranged slot being so disposed that as the pin is being turned to position for removing the handle from the slot the pin must be both rotated and moved longitudinally, said frame being also formed with two inclined guide members on opposite sides of and leading toward the slot entrance for moving the pin longitudinally in the direction for moving the pin toward the slot entrance during the time that the pin is being rotated to position for placing the handle in the slot.

4. The combination with a mold form having a flange and pin opening therein, of a centering pin mounted in said opening and formed with a handle substantially at right angles to the pin, and a pin locking member secured to the mold frame at one side of the longitudinal axis of the pin, and formed with an open-ended slot extended from the body of the mold form outwardly and toward the said pin opening in the mold flange, said slot being positioned to receive the handle when it is moved to position toward the mold form body and whereby the pin is forced to move longitudinally when the handle is moved to position for entering or moving out of the slot.

5. In a device of the class described, the combination of a mold form, a frame fixed to the mold form and having a pin opening, a pin having a handle at approximately right angles to the body of the pin, said frame being formed with a diagonally arranged slot shaped to receive the pin handle when the pin is extended through said pin opening, and when the pin is turned to position with its handle substantially parallel with the body of the mold form, said diagonally arranged slot being so disposed that as the pin is being turned to position for removing the handle from the slot the pin must be both rotated and moved longitudinally.

WILLIAM ALLEN JENNINGS.