J. M. PARK.

BRACING DEVICE FOR CONCRETE FORMS.

APPLICATION FILED SEPT. 22, 1919.

**1,357,418.** **Patented Nov. 2, 1920.**

FIG 1

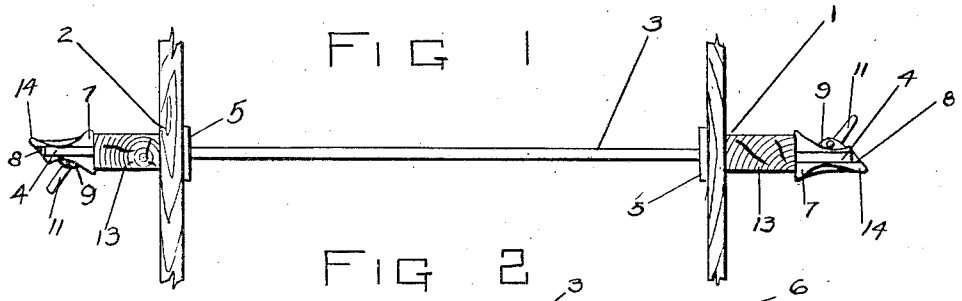



FIG 2

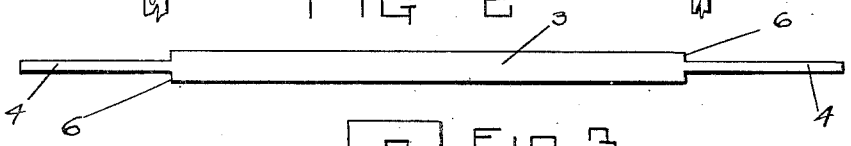



FIG 3

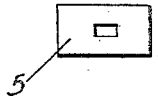



FIG 6

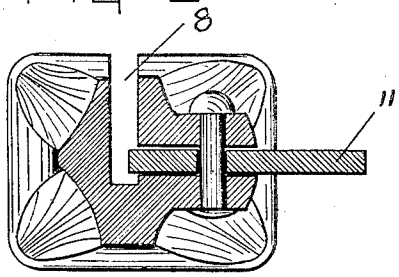



FIG 4

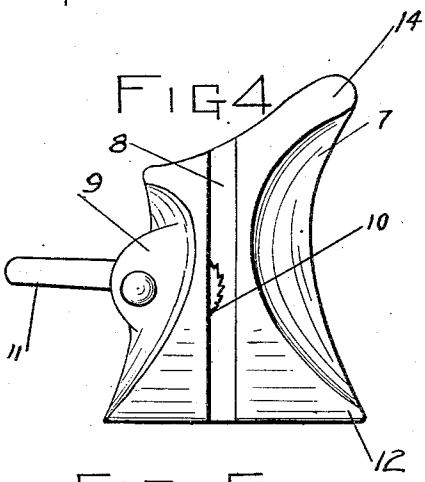



FIG 7

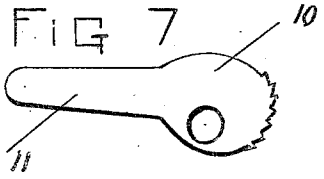
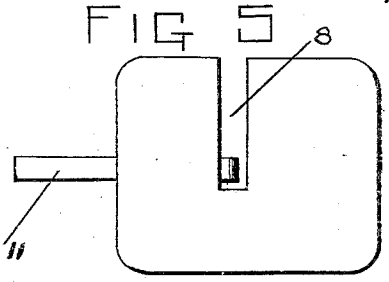



FIG 5




INVENTOR.

James M. Park,

BY Walter N. Haskell,

his ATTORNEYS.

# UNITED STATES PATENT OFFICE.

JAMES M. PARK, OF ROCK ISLAND, ILLINOIS, ASSIGNOR OF ONE-HALF TO ROBERT R. REYNOLDS, OF ROCK ISLAND, ILLINOIS.

## BRACING DEVICE FOR CONCRETE-FORMS.

1,357,418. Specification of Letters Patent. Patented Nov. 2, 1920.

Application filed September 22, 1919. Serial No. 325,427.

*To all whom it may concern:*

Be it known that I, JAMES M. PARK, a citizen of the United States, residing at Rock Island, in the county of Rock Island and State of Illinois, have invented certain new and useful Improvements in Bracing Devices for Concrete-Forms, of which the following is a specification.

My invention has reference to bracing devices for concrete forms, and is more particularly designed for use in connection with parallel wooden structures having an open space between the same into which the cement is poured to form a wall. These structures are usually formed of boards of ordinary thickness and strength, and it is necessary to brace them both inwardly and outwardly. The inward bracing has generally been accomplished by means of small wooden strips or spreaders, equaling in length the required space between the boards. The movement of such boards away from each other has been prevented by means of heavy wires passing through the adjacent boards, then looped and passed through the boards again. The ends of the wires were then twisted together to prevent their pulling out, as well as to hold the boards from separating. As it was necessary to use the wires and spreaders at frequent intervals a considerable quantity of material was required, which could not be successfully removed after the wall was constructed, and was therefore wasted.

The purpose of the present invention is to provide a combined spreading and clamping device, which, when in position, will prevent movement of the boards either away from or toward each other, and which can be readily removed after the wall has been completed. In connection therewith a novel form of clamp is also employed.

In the drawings:—

Figure 1 shows my invention in position, when in use. Fig. 2 is a detail of one of the plates 3, in side elevation. Fig. 3 is a view of one of the collars 5, detached. Fig. 4 is a side elevation of one of the clamps 7. Fig. 5 is an end view thereof. Fig. 6 is a cross-section in the line 6—6 of Fig. 4. Fig. 7 shows one of the dogs 7, detached.

1 and 2 represent sections of parallel boards or strips of wood, which are usually placed on end, forming continuous structures or barriers, spaced-apart from each other a desired distance for forming a foundation wall for a building, or for similar purposes. 3 is a metal plate having reduced ends 4, upon which are slidable collars 5, limited in their inward movement by shoulders 6 on the plates 3.

The plate 3 is positioned in the form by boring holes through the side pieces 1 and 2 thereof, and passing one of the ends 4 through one of such pieces, until the collar 5 engages the inner face of such piece, or a block positioned thereon. Assuming that the end of the plate is first positioned in the board 1, the board 2 is then caused to lean away therefrom until the other end 4 can be introduced in the opening in the board 2, such end being then passed through the same, and the board returned to a vertical position. The ends 4 are then held from release by means of a clamping device on each end thereof, the instrument of that kind which is shown in the drawings herein comprising a body member 7, having a longitudinal channel 8 of sufficient width to receive the end 4. At one side of such channel is a pair of ears 9, between which is pivoted an eccentric dog 10, provided with a handle 11. The inner end of the dog 10 is adapted to enter the channel 8, and when the end 4 of the plate 3 is in position therein, said dog can be engaged therewith so as to prevent the accidental release thereof. The edge of said dog is preferably provided with teeth in order that it may have a better hold upon the end 4.

When the clamp is in position the straight end 12 thereof is against the barrier, or against a strip 13 fixed thereto, and the clamps on opposite ends of one of the plates 3 determine the distance to which the boards 1 and 2 may separate. On the other hand the inside distance between said boards is fixed by the shoulders 6, and plates 5 in position against the same. If such distance is less than the proper gage for the thickness of the wall to be constructed, the distance can be increased by the use of blocks between the collar 5 and the board, as before mentioned. If the boards 1 and 2 are warped or twisted, or for other reason it is difficult to get them into the proper relation when the clamps are being positioned on the ends of the plate 3, the operation can be aided by engaging the projecting end 4 with a shackle-bar, such as is commonly used in stretching

wire, the end 14 forming a bearing therefor. By this means the clamp is forced inwardly, drawing the boards into a proper position, whereupon the clamp is secured in place by the dog 10. It will be evident that it will only be necessary to perform this operation at one end of the plate 3, the clamp at the other end thereof resisting the pull on the plate, and aiding in drawing the boards toward each other.

In a structure of considerable size the devices would be used at intervals both vertically and longitudinally of the work, the thin edges of the plates 3 being uppermost, so as to interfere as little as possible with the process of pouring the cement into the form. The devices are preferably placed in position before the boards are fastened together to any extent, and in case one side of the form is near a bank of earth or other obstruction, such side is leaned away therefrom until one end of the plate is placed in position, and the clamp attached thereto. That side is then straightened up and the plate secured in the other side of the form, as hereinbefore set forth.

After the wall has been formed, and has sufficiently hardened the clamps 7 are removed on one side of the form and such side removed. The plates can be then drawn out from the opposite side of the form. In case one side of the form is in proximity to an obstruction the clamps on that side can be released by striking the handles of the dogs 10 with a rod or other instrument. The plates 3 can then be drawn out on the opposite side of the form and used again.

The clamps 7 are equally useful with a heavy wire, of suitable size to enter the channel 8. It would only be necessary to employ one wire, in place of the two or double wire above mentioned. In operation, the wire would be extended transversely of the form, with the ends of such wire projecting through the openings in the boards. One of the clamps would then be secured to one end of the wire, outside the form, and close against the same. Another clamp would then be positioned on the opposite end of the wire, and forced against the form by means of a shackle-bar or other instrument having a grip on the wire and a bearing on the end 14 of the clamp. When a sufficient amount of tension had been applied to the wire, the clamp would be attached thereto by means of the dog 10. If wires should be used in this way, it would be necessary to have separate spreading devices.

The clamp 7 may be formed of cast or wrought metal and possesses all the qualities of compactness and strength combined.

What I claim and desire to secure, is:

1. In a device of the class described, a clamp provided with a longitudinal channel, having a straight face at one of its ends and a bearing point at its opposite end; and an eccentric dog, pivoted in said clamp and adapted to enter said channel, to hold an object therein from release.

2. In a device of the class described, a tie-member; a clamp-member having a longitudinal opening in one of its sides, adapted to receive an end of said tie-member; and an eccentric dog, pivoted in said clamp, and adapted to enter said opening, to hold said tie-member from movement.

In testimony whereof I affix my signature.

JAMES M. PARK.