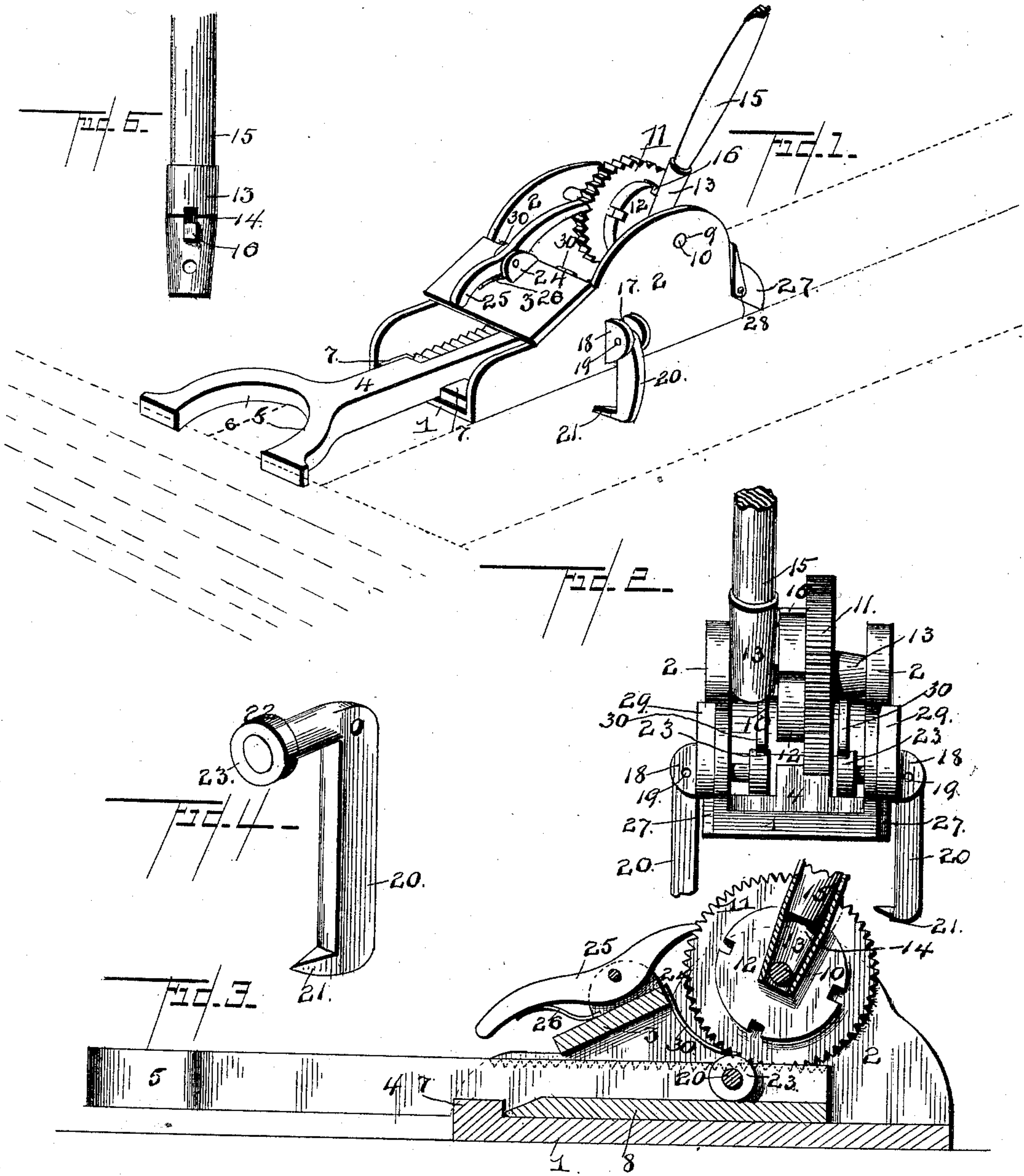


(No Model.)

O. J. GRAHAM.
FLOOR CLAMP.

No. 475,855.

Patented May 31, 1892.



Witnesses:

H. G. Seitz
W. S. Duval

Inventor

Orpheus J. Graham

By *his* Attorneys,

Cashnow & Co.

UNITED STATES PATENT OFFICE.

ORPHEUS J. GRAHAM, OF FARWELL, MICHIGAN.

FLOOR-CLAMP.

SPECIFICATION forming part of Letters Patent No. 475,855, dated May 31, 1892.

Application filed June 9, 1891. Serial No. 395,708. (No model.)

To all whom it may concern:

Be it known that I, ORPHEUS J. GRAHAM, a citizen of the United States, residing at Farwell, in the county of Clare and State of Michigan, have invented a new and useful Floor-Clamp, of which the following is a specification.

This invention relates to improvements in floor sets or clamps; and the objects in view are to provide a cheap and simple construction of floor set or clamp adapted to be applied to joists in laying single floors and to automatically lock itself thereon, and to be adapted, also, for laying double floors.

Other objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a perspective of a floor-clamp constructed in accordance with my invention, the same being in position upon a joist. Fig. 2 is a rear end elevation. Fig. 3 is a vertical longitudinal section. Fig. 4 is a detail in perspective of one of the bell-cranked clamping-arms. Fig. 5 is a detail in elevation of the lower end of the operating-lever and its socket.

Like numerals of reference indicate like parts in all the figures of the drawings.

1 designates the base of the frame-work of the device, and 2 the opposite side walls located at the opposite longitudinal edges of the base, said side walls being connected near their front ends by a cross-bar 3.

Mounted for sliding within the base is a rack-bar or floor-clamping plunger 4, the same being toothed upon its upper side and bifurcated, as at 5, at its front end and by the latter forming a recess 6. The bar 4 is guided in its movements by means of blocks 7, located upon the base at its front end, and is provided at opposite sides, near its rear end, with a pair of cam-plates 8.

In bearings 9, formed in the side walls, a shaft 10 is revolvably mounted and carries a ratchet-wheel 11 and a notched hub 12. At one side of the notched hub a cylindrical socket 13 is mounted on the shaft and is provided at one side with an opening 14. A handle or lever 15 is mounted loosely in the socket 13, and from the same and through the slot 14 of the socket projects a lug 16, designed to

engage any one of the notches of the hub 12. It will be seen that the lever 15, being loose in the socket 13, may be reciprocated, so as to engage and be disengaged from the notches of the hub. The opposite side walls 2 are provided with openings 17, and at each side of each opening is a bearing-lug 18, said lugs being perforated and having pivoted therein by pins 19 bell-cranked levers 20, the lower ends of which depend at each side of the floor-clamp and terminate in inwardly-disposed spurs 21. The upper or horizontal portions of the bell-cranks pass inwardly through the openings 17, formed in the side walls, and terminate in bearings 22, each of which has mounted thereon a roller 23, adapted to ride over the cam-plates 8 of the toothed rack-bar.

Upon the cross-bar 3 is formed a pair of bearing-lugs 24, in which is pivoted a pawl 25, the rear end of which normally engages the ratchet-wheel, and is pressed in such engagement by means of a flat spring 26, inserted between the pawl and cross-bar 3.

The operation is as follows: The device is mounted upon a joist a short distance from the edge of the flooring being laid and the lever 15 drawn outwardly, so that its lug is disengaged from the notches of the hub, after which the lever is swung forward and its lug thrown into engagement with a convenient notch in the hub and said lever swung to the rear, so that it serves to rotate the shaft upon which the socket, notched hub, and ratchet-wheel are mounted. The teeth of the ratchet-wheel engaging with those of the rack-bar force the latter to the front and its bifurcated end against the line of flooring, and in this manner the boards composing the flooring may be squeezed together or clamped. As the ratchet-wheel is rotated to the rear, the operating end of the spring-pawl rides loosely thereover, successively engaging with the teeth until when finally the pressure upon the lever is removed the wheel, shaft, and rack-bar are locked against retrograde movement by the pawl 25. By reason of the rack-bar being bifurcated at its front end, and thus forming the recess 6, nails for securing the flooring may be readily driven into the boards opposite the point of clamping. As the rack-bar is fed forward to its clamping position, the

cam-plates pass under the loose rollers 23 of the bell-cranks, so that their upper ends are elevated and the lower ends of the bell-crank clamps are inwardly drawn, their spurs engaging with the joist upon which the device is mounted. In this manner a secure anchorage is automatically formed by the operation of the device.

Recesses 27 are formed in the rear ends of the side walls, and in each is pivoted, as at 28, a dog 29. These dogs are intended to be used as anchoring devices when employing the device for laying double floors, and when not so employed are swung up out of position. It will of course be understood that the bearing-pins 19 are removable, so that the bell-crank clamps may be removed from their positions when the dogs are employed.

When employing the device to clamp single flooring and after having set or laid one set of boards, the pawl 25 is depressed at its front end, so as to be disengaged from the ratchet-wheel, and the parts thus relaxed. When thus relaxed, the bell-cranks are thrown out of engagement with the joist by means of flat springs 30, secured to the cross-bar 3, and at their free ends bearing upon the inner ends of the bell-cranks.

Having described my invention, what I claim is—

1. In a floor-clamp, the combination, with a frame, opposite bell-cranks pivoted therein and terminating at their lower ends in spurs adapted to embrace the opposite sides of joists, and springs for normally spreading the

lower ends of the bell-cranks, of a floor-clamping plunger mounted for reciprocation in the frame and having cam-surfaces taking under and adapted to elevate the inner ends of the bell-cranks, and means for operating the plunger, substantially as specified.

2. In a floor-clamp, the combination, with the base, the opposite side walls having openings and pairs of perforated lugs, a cross-bar connecting the walls, bell-crank clamps loosely mounted therein, terminating at their lower ends in spurs and provided at their upper ends with loose rollers, the toothed bar mounted upon the base and provided with opposite cam-plates 8, and the springs connected to the cross-bar and at their free ends bearing on the inner ends of bell-cranks, of the shaft 10, journaled in the side walls, the toothed wheel 11, having the notched hub 12, the socket mounted on the shaft and having an opening, the lever loosely mounted in the socket and having a lug passed through the opening and adapted to engage the notches of the hub, the cross-bar 3, having the lugs, and the spring-pressed pawl 25, mounted in the lugs and engaging the ratchet-wheel, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

ORPHEUS J. GRAHAM.

Witnesses:

JAMES GREGORY,
W. H. SAFFORD.