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DEVICE FOR ELEVATING AND ALIGNING BUILDING MATERIAL

Filed Nov. 18, 1957

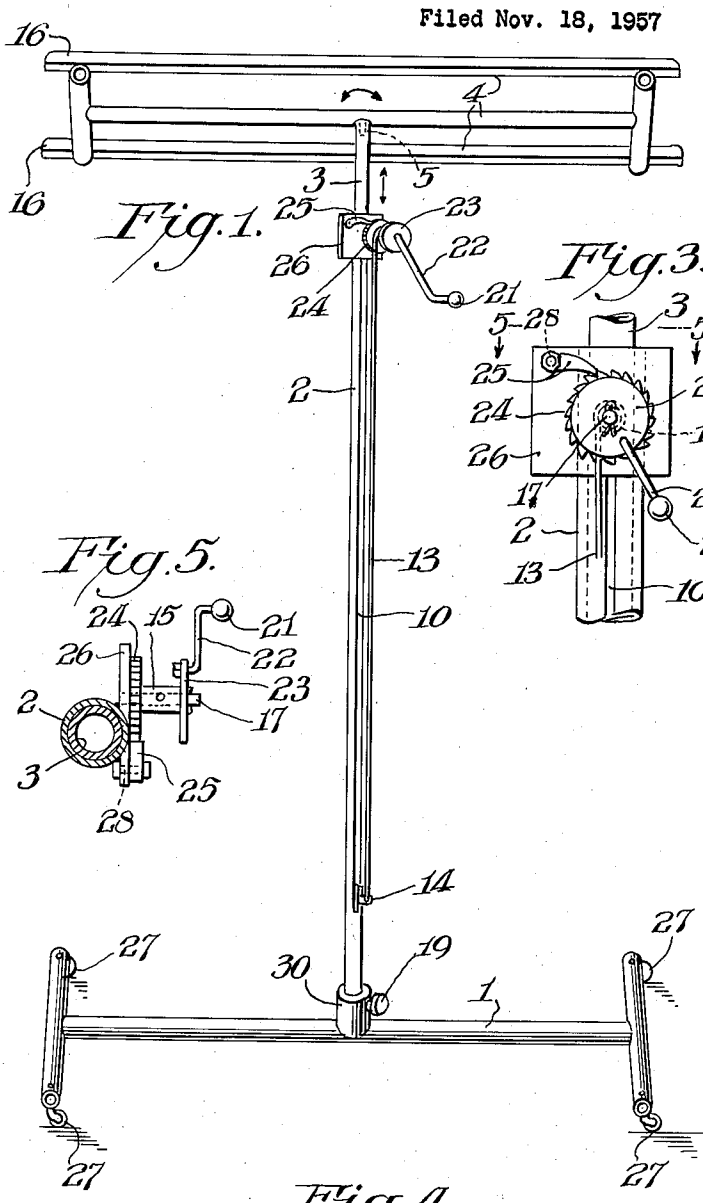

Fig. 1.

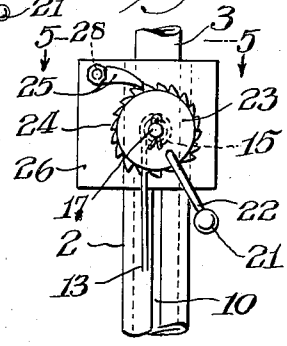

Fig. 3.

Fig. 5.

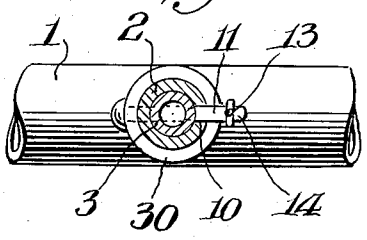

Fig. 4.

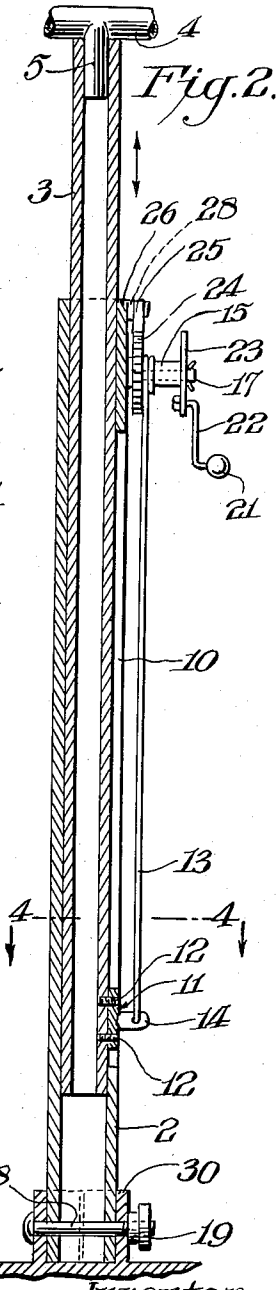

Fig. 2.

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DEVICE FOR ELEVATING AND ALIGNING BUILDING MATERIAL

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1 Claim. (Cl. 254—4)

This invention relates to builders' tools and especially to tools for elevating building material, such as strips of wall board into place and placing them exactly in position for permanent attachment to the ceiling.

Strips of wall board to be mounted as ceiling members, say strips four feet wide and eight feet long are ordinarily cumbersome and difficult to handle manually. As a consequence the surfaces of such ceiling members are often soiled and damaged while being raised for mounting on the ceiling. The operation always requires the services of more than one workman when done manually. The need for a device which will enable a single workman to handle strips of wall board in a manner which will not mar or damage the surface or edges of the board is therefore indicated. The devices of the present invention provide for this want and for other operations.

It is among the objects of this invention to provide a device for raising building materials and other objects into elevated positions for performing desired operations thereon.

Another object of the invention is to provide a device which will elevate elongated, somewhat thin sheets of building material to desired heights, such as ceiling heights, and adjust them in exact position for mounting or other operations, using a minimum of manual labor.

Still another object of the invention is to accomplish the foregoing objects without defacing or impairing the appearance of the object being elevated.

Other objects of the invention will become apparent from the following description which is made with reference to the drawings which are illustrative of a specific embodiment of the invention in which:

Fig. 1 is a perspective view of the device.

Fig. 2 is a cross sectional elevational view through the main upright parts, particularly illustrating the arrangement of an elevator.

Fig. 3 is a fragmentary side elevational view of a reeling arrangement.

Fig. 4 is partial top plan view partly in cross section taken along the line 4—4 of Fig. 2; and

Fig. 5 is a top sectional-plan view taken along the line 5—5 of Fig. 3.

In general the devices made in accordance with the invention comprise an elongated tubular elevator guide within which an elongated elevator or push rod is fitted to operate axially within the guide. The elevator guide has a longitudinally extending slot in its wall which is preferably, but not necessarily, parallel to the axis of the guide. A sliding member or slot guide is fitted to slide along the slot and is secured to the elevator near its lower end. Releasable means for retaining the elevator in raised position is attached to the slot guide, and preferably a device for raising the elevator is provided. One such device may comprise a cord or cable attached at one end to the slot guide and arranged to be wound upon a drum or reel which is mounted on the upper part of the elevator guide. Means for retaining the elevator in raised position may comprise a pawl and ratchet operating on

the reel. Another device for retaining the elevator in raised position may comprise a pawl mounted on the slot guide and an elongated ratchet mounted on the elevator guide along the slot therein for the pawl to engage; but other means for raising and retaining the elevator may be used. A suitable platform or table is pivotally mounted on the top of the elevator for aiding in positioning the elevated material.

Referring to the drawings the device in a preferred form comprises more particularly a standard 1 provided with means, such as castors 27 or rollers for moving the entire device and its load about a floor or pavement. On the standard is securely mounted a perpendicularly disposed tubular elevator guide 2 which may be round and of uniform bore, or may be of other cross section. Within the elevator guide an elevator carriage or thrust rod 3 is mounted to freely slide up and down. A horizontally disposed platform 4 is pivotally mounted on the upper end of the elevator 2 to turn freely in a horizontal plane. The thrust rod 3 or elevator is preferably round and tubular, in which case the space within the tube at the top may provide the receptacle and guide for a platform pivot 5 enabling the platform to be freely manipulated as desired. In case the thrust rod 3 is solid or otherwise constructed the upper end of the thrust rod may be provided with a male or female member of a pivot forming a guide for turning the platform in a plane transverse to the axis of the elevator.

The upright tubular elevator guide 2 is provided with a longitudinally extending guide slot 10 the facing surfaces of which are parallel and the outer margins of which are also parallel to the axis of the elevator guide. The width of the slot 10 is considerably less than the diameter of the thrust rod 3 so that a relatively large bearing area will be provided and the thrust rod will be retained within the elevator guide 2, except that the elevator may be moved axially within the guide 2. The facing opposed surfaces of the guide slot are preferably, but not necessarily parallel to the axis of the elevator guide, but they must be formed in a manner to enable mounting and manipulating the slide member 11 along the length of the slot. The slide member extends through the slot and is secured near the lower end of the elevator by set screws 12, or other appropriate means, as by welding. The slide 11 is fitted to slide freely throughout the length of the guide slot, and a cable 13, or other resilient elongated tension means, such as a steel band is secured to a lug 14 on the slide member 11. The cable 13 is extended upwardly and wound upon a windlass or reel which is fixedly mounted on the tubular guide 2 near its upper end, whereby the inner elevator tube or thrust rod may be raised or lowered by winding the cable 13 upon or unwinding it from the drum 15 of the reel.

In use the load, such as a ten foot length of a somewhat pliable wall board which is destined to be mounted as a ceiling member of a room, may be placed upon the elevator platform which may be lowered within easy reach of the floor, say about four feet. The platform is desirably rectangular in shape and is faced on top with smooth strips of suitable material, such as wood strips 16 which are desirably rounded at the upper sides and ends to permit bending, sliding and manipulation of the wall board thereon without defacing its lower surface. When the strip of wall board is suitably balanced on the platform the thrust rod and platform are elevated by turning the reel and winding the cable on drum 15 of the reel, whereby the wall board is brought into mounting position vertically. By wheeling the entire device and its load about on the castors 27 the wall board may be positioned approximately in the horizontal plane, but exact horizontal alignment is difficult solely by the use of the castors, particularly in conditions often met where the floor or

pavement is in a littered or roughened condition. The pivoted platform provides the means for exact angular adjustment in horizontal planes, thereby easily and promptly bringing the margins of the wall board, such as the ends and edges into exact alignment and contact, thereafter to be secured in place.

In mounting a long strip of wall board as a ceiling member with this device, the work can be done easily and conveniently by one workman, whereas the mounting of such a strip without the aid of this device necessitates the services of at least two workmen, one or more of which would be required to hold the wall board in place and position it. Permanent positioning of the board is thus easily attained without defacing the board or changing its relative position with respect to the platform upon which it rests. In case the wall board is found to need further fitting operations performed upon it after it is first elevated, the board can be lowered with equal ease, trimmed and again raised without damaging the surface of the board. The lowered platform may also serve as a bench in such an operation.

The windlass or reel comprises a drum 15 upon which the cable 13 is wound by operating the crank 22 which has a ball handle 21 at its outer end. The crank 22 is integrally mounted on the outer circular guard plate 23 of the reel. The drum 15 of the reel is integral with the outer and inner circular guard plates 23 and 24, thereby forming a spool. The inner guard plate 24 has teeth in its outer periphery suitably formed to provide a ratchet wheel for engaging the pall 25 for retaining the platform in elevated position when engaged. Alternatively a ratchet wheel may be constructed and attached to the inner surface of the inner guard plate 24 and in alignment with the pall 25. The reel is suitably journaled and supported by plate 26 which is fixedly mounted in turn on the upper part of the elevator guide 2. This journaled mounting may comprise a horizontal stub shaft 17 welded to the plate 26. Provision is then made at the outer end of stub shaft 17 for retaining the journaled drum thereon, as by inserting a cotter pin through the protruding end of the shaft 17, or by mounting a set screw in the end of the shaft which has an enlarged head.

The base portion may desirably be constructed of tubes or pipes wherein provision is made for mounting the castors 27 in a rectangular pattern sufficient to give stability, but three or more castors may be mounted in the base in the manner and in number to accomplish stability as the need may appear. A convenient arrangement comprises that shown in Fig. 1 in which provision is made for mounting four castors in a rectangular pattern having a spread about that of the rectangular platform. Referring to Fig. 2 the upright tubular elevator guide 2 may be mounted at its lower end in a short length of an up-struck pipe 30 which is positioned at the center of the base and secured to the cross bar of the H-formed base. The elevator guide 2 may be mounted on the up-struck pipe 30, as by welding, by a threaded connection or by splitting the pipe 30 and mounting a clamp thereon which together with the bolt 18 and the threaded thumb nut 19 provides for contracting the socket and securing the lower end of the member 2 therein, as indicated in Fig. 2. The latter arrangement is convenient for disassembling the device when it is moved from place to place, but other securing or dis-assembling means may be provided.

The platform comprises an H-shaped tubular construction similar to the base but having a pivot means at its center. The pivot is desirably formed by securing a short post 5 (Fig. 2) at the center of the cross bar of the H-formed structure, and fitting the post into the end of a tubular thrust member or elevator 2. Wood slats 32 are secured by screws or bolts to join the outer ends of the opposite legs of the H-formed structure, thereby forming a rectangular support or table. As mentioned the wood slats are smoothed and rounded on all upper surfaces and edges to avoid marking the wall board during the time when the board is being manipulated into place. In cases where greater adhesion is desired between the platform and the material to be loaded thereon, the surface of the platform may be suitably roughened, or a non-skidding material, such as sheet rubber may be mounted on the slats.

From the foregoing description it will be recognized that the invention is susceptible of various modification without departing from the spirit and scope thereof, and it is to be understood that the invention is not restricted to the specific illustrations thereof which are herein set forth.

I claim:

A device of the kind described which comprises an outer tubular elongated elevator guide having upper and lower cylindrical end portions and an intermediate portion having a longitudinal slot which extends downwardly from said upper cylindrical end portion and terminates at said lower cylindrical portion; a base comprising a single elongated horizontally disposed cross member and horizontally disposed supports attached transversely to the ends of said cross member; castoring means on said supports for facilitating the manipulating and positioning of the load to be carried by said device; means mounted intermediate the ends of said cross member for demountably securing said upright guide member on the base, said means comprising a receptacle formed to fit the lower cylindrical end portion of said outer tubular guide and manually operable means for securing the lower cylindrical end portion in said receptacle; an elongated tubular elevator member fitted to slide within said upright slotted guide and being surrounded along a part of its length by said upper cylindrical portion of the guide, said slotted portion of said tubular guide being formed to surround another part of said elongated elevator sufficiently to prevent a lateral emergence of the elevator through said slot; a horizontally disposed frame for carrying a load; pivotal means for manually mounting said frame on the upper end of said tubular elevator; a laterally projecting member secured to the lower end of said elevator, said member being formed to project through and slide along said slot and to be engaged by said upper and lower cylindrical portions of said guide for limiting the vertical throw of said elevator member; a winch for raising and lowering said elevator, said winch being mounted externally on said upper cylindrical portion of said guide; releasable holding means for retaining said elevator in raised position; a cable attached at one end to said projecting member and extending vertically and upwardly outside the guide member; and means for winding said cable on said winch for raising the elevator.

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