Aug. 19, 1924. 1,505,810

O. H. SCHUH

LIFTING APPARATUS

Filed Feb. 15, 1923

FIG. 1.

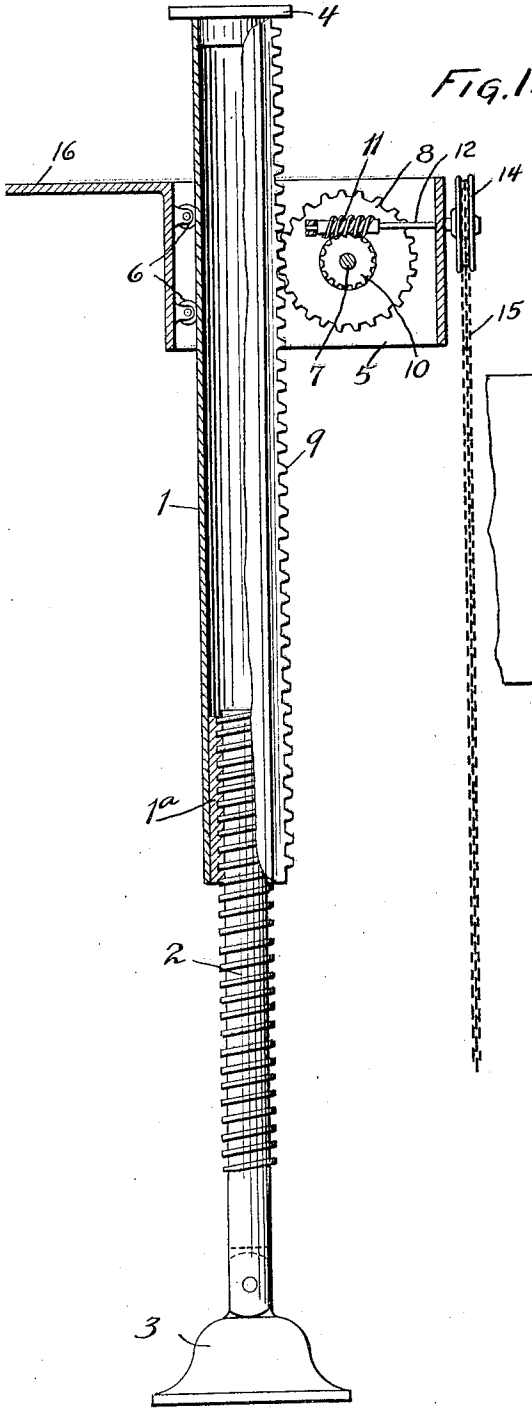
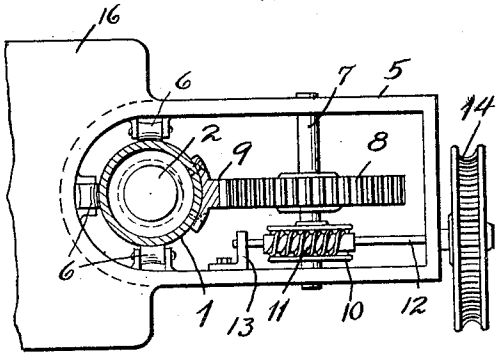


FIG. 2.



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UNITED STATES PATENT OFFICE.

OTTO H. SCHUH, OF WHEATLAND, WYOMING.

LIFTING APPARATUS.

Application filed February 15, 1923. Serial No. 619,288.

To all whom it may concern:

Be it known that I, OTTO H. SCHUH, a citizen of the United States, residing at Wheatland, in the county of Platte and State of Wyoming, have invented a new and useful Lifting Apparatus, of which the following is a specification.

This invention relates to improvements in lifting apparatus of a type particularly adapted for use in buildings in lifting heavy steam pipes and radiators adapted to be suspended from the ceilings or side walls of the rooms in said buildings.

An object of the invention resides in providing a pair of relatively movable interconnected members adapted to be moved into engagement with the floor and ceiling of a room or other portion of a building where it is desired to locate a steam pipe on which is mounted a lifting member having a connection with the above mentioned members operable to move the member thereon for lifting pipes or radiators to a desired position in said room.

Another object of the invention resides in providing a special connection between the lifting member and the ceiling engaging element arranged to prevent tilting of the lifting member relative to the ceiling engaging element and also for insuring a positive and firm connection between the operating means carried by the lifting member and the ceiling engaging element for insuring against a possible disengagement of these parts.

The invention also comprehends improvement in the details of construction and arrangement of parts which is clearly pointed out in the following detailed description and claim and shown in the accompanying drawings, in which:

Figure 1 is a vertical sectional view thru the improved lifting apparatus in assembled relation.

Figure 2 is a plan view thereof with parts shown in section.

1 indicates the ceiling engaging element which is of tubular form for the reception of a sleeve member 1^a at the lower end thereof adapted to receive the floor engaging element 2 for threaded cooperation therewith to provide for a relative movement between this element and the ceiling engaging element 1. The element 2 has a floor engaging foot 3 pivotally secured to the lower end thereof as clearly shown in Figure 1, which is provided with a relatively large floor engaging surface, and the ceiling engaging element 1 removably receives a head 4 having a relatively large surface on the top portion thereof for engagement with the ceiling. A lifting member is provided with a frame portion 5 of substantially rectangular form having the forward end of semi-circular form to receive the tubular ceiling engaging element 1, the frame being provided with a plurality of pairs of rollers 6, a pair of rollers being arranged at each side of the frame and another pair at the forward portion thereof to provide a bearing between the frame of the lifting member and the tubular element 1 to permit of the easy movement of the frame on said element. A shaft 7 is rotatably mounted between the sides of the frame 5 and a spur gear mounted thereon meshes with the rack 9 secured to the rear portion of the tubular element 1 which is co-extensive with said element. A worm gear 10 is also mounted on said shaft 7, and a pinion 11 mounted on the shaft 12 intermeshes therewith so that in the rotation of the shaft 12, a rotative movement will be imparted to the shaft 7 for rotating the gear 8 and thereby moving the lifting member up or down on the tubular element 1. The shaft 12 has one end thereof rotatably mounted in a bracket 13 mounted on the inner side of one of the sides of the frame 5 and the other end extends through the rear wall of the frame 5 is rotatably mounted therein and receives a member 14 adapted to have an endless chain 15 cooperating therewith so that a manual operation of the chain 15 will produce a rotary movement of the shaft 12 for consequently operating the lifting member. A shaft 16 extends from the forward end of the frame 5 for receiving the pipes or radiators which are desired to be lifted for suspension from the wall or ceiling.

In the use of this lifting member, the element 2 is rotated in the tubular element 1 to produce a relative movement axially between the elements to engage the lock 3 with the head 4 with the floor and ceiling at a point where it is desired to suspend heavy pipes or radiators, in order to secure said elements in a rigid position between the floor and ceiling. A manual operation of the

chain 15 will then operate the gear 8 for moving the lifting member up or down on the tubular element 1, it being first moved downwardly to the lower end of said member to receive the pipe or radiators to be lifted, after which the same may be lifted by the upward movement of the member on the tube, the worm and pinion connection serving to prevent a subsequent downward movement of the lifting member under the weight of the articles being lifted after the chain 15 is released. This lifting device will hold the pipe or radiator in any desired position until the suspension means have been put in place, after which the lifting member may be moved downwardly away from the pipe or radiator and the element 2 moved relative to the element 1 for releasing the same from the secured position between the wall and ceiling for movement to another place for further use.

It will be noted that the rollers 6 being arranged in pairs in the frame 5, the rollers of each pair being arranged in vertical spaced relation relative to each other, cooperate together with the spur gear 8 by providing a rigid movable mounting of the lifting member on the tubular element 1.

What I claim as new is:

Lifting apparatus comprising a cylindrical support, means provided at the ends of the support for holding the same in an upright position, an open center frame receiving the support and provided with an arcuate end which is disposed concentric with the axis of the support, rollers having concaved peripheries and carried at the arcuate end of the frame and engaging the periphery of the support at spaced intervals, two of the said rollers being located diametrically opposite each other and one of them at each end of the arcuate portion of the frame, another of the said rollers being located upon the arcuate portion of the frame and at a point midway between the first mentioned rollers, a set of rack teeth disposed longitudinally of the support and located thereon diametrically opposite the last mentioned roller, said rack teeth standing out from the periphery of the support, a gear wheel journaled upon the frame and meshing with the rack teeth, and means mounted upon the frame for rotating the gear wheel.

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