

Nov. 30, 1943.

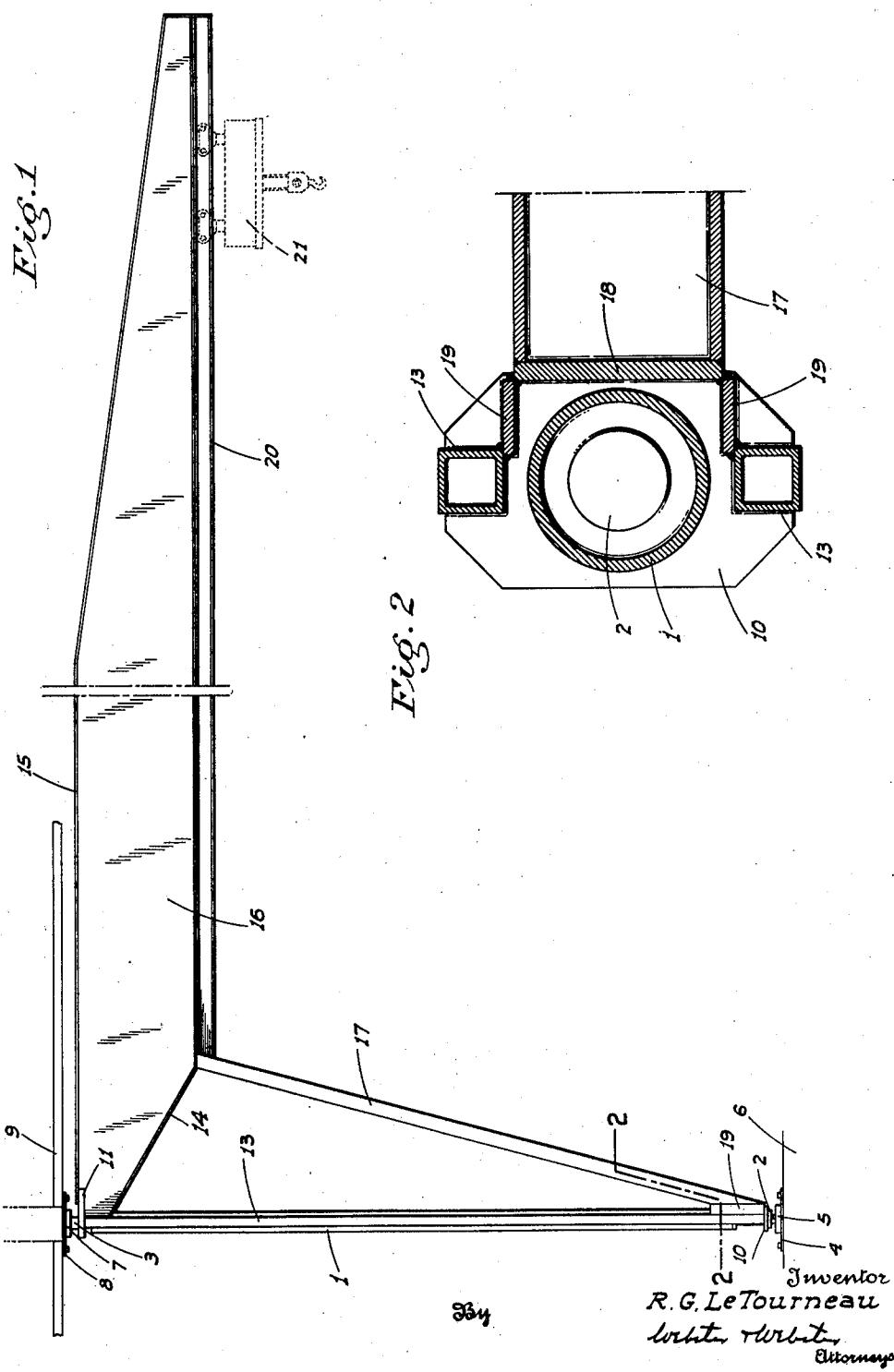
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2,335,522

FACTORY JIB CRANE

Filed Feb. 20, 1943

2 Sheets-Sheet 1



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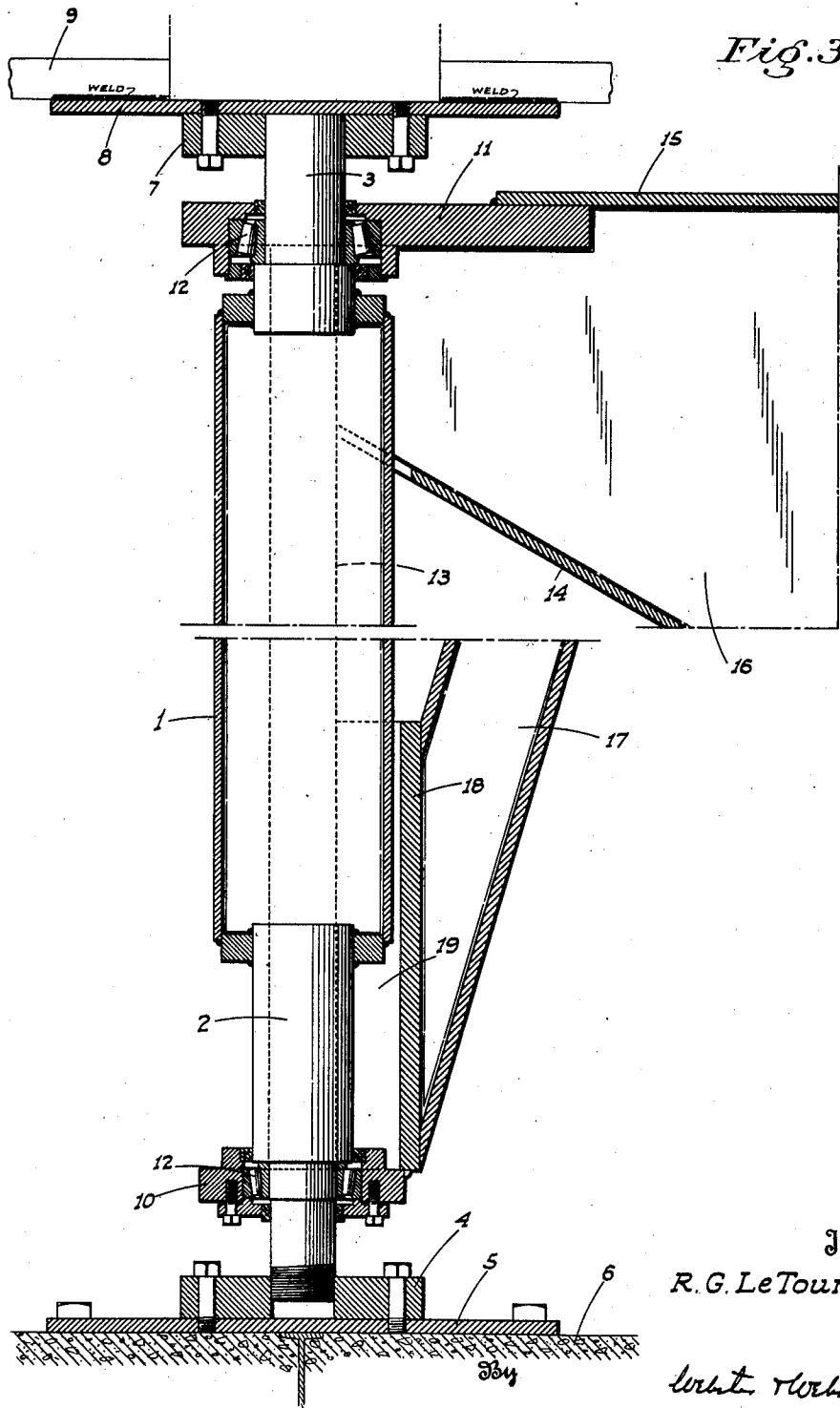
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2 Sheets-Sheet 2



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FACTORY JIB CRANE

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6 Claims. (Cl. 212—61)

This invention relates in general to an improved jib crane, and in particular the invention is directed to, and it is an object to provide, a unique jib crane especially designed for use in factories; the crane assembly being rotatably supported by a vertical post or column which extends from floor to roof of the factory in supporting relation to said roof.

Another object of the invention is to provide a jib crane which includes, in combination with a fixed vertical supporting post, a unique tension and compression beam assembly which is mounted for rotation about said post, and which assembly supports the jib beam or boom.

An additional object of this invention is to provide a jib crane which includes, in combination with a fixed vertical supporting post or column, a tension and compression beam assembly which includes vertically spaced collar plates journaled on said post for rotation thereabout adjacent its upper and lower ends, a pair of vertical tension beams connecting said plates on opposite sides of the post, a jib beam or boom secured in connection with the uppermost plate and adjacent upper end portions of the tension beams, and projecting horizontally therefrom, and a compression beam secured in connection with the lowermost plate and adjacent lower end portions of said tension beams and extending upwardly therefrom in diverging relation to the post; the upper end of said compression beam being secured to the jib beam or boom some distance outwardly of its inner end.

A further object of the invention is to produce a simple and inexpensive device and yet one which will be exceedingly effective for the purpose for which it is designed.

These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings similar characters of reference indicate corresponding parts in the several views:

Figure 1 is a side elevation of the crane.

Figure 2 is an enlarged cross section on line 2—2 of Fig. 1.

Figure 3 is an enlarged fragmentary sectional elevation of the crane, the view being foreshortened.

Referring now more particularly to the characters of reference on the drawings, the improved jib crane comprises a vertical post or column 1 which includes axially projecting end spindles 2 and 3. The spindle 2, which is lowermost, is ad-

justably screwed at its lower end as at 2a in a base block 4 which is seated on an enlarged attachment plate 5. The attachment plate 5 rests on the floor 6 of the factory and is secured thereto and against displacement by any suitable means.

The end spindle 3, which is uppermost, is secured at its upper end to a head block 7 on top of which is secured an enlarged attachment plate 8; such attachment plate being engaged against and secured to the roof 9 of the factory. The post or column 1, together with the end spindles 2 and 3, are non-rotatable and such assembly, as is apparent, provides a rigid and sturdy support for a portion of the factory roof 9.

The jib crane assembly is swingably mounted in connection with the post or column 1 and comprises the following:

Collar plates 10 and 11 are rotatably mounted on the end spindles 2 and 3, respectively, intermediate the ends thereof, by means of bearing units indicated generally at 12, and which units are of a type which secure the collar plates against axial movement.

The collar plates 10 and 12 are connected on opposite sides of the post 1 by vertical tension beams 13, said tension beams being of rigid, box beam configuration in cross section, as clearly shown in Fig. 2.

The crane includes a relatively long, horizontal jib beam or boom, indicated at 14, which is secured at its inner end to the collar plate 11 and adjacent upper end portions of the tension beams 13; the boom being of hollow construction and including a top 15 and sides 16, the top at its inner end being welded to the collar plate 11 and the sides 16 at their inner ends being welded to uppermost portions of corresponding tension beams 13.

A compression beam 17 is rigidly secured at its lower end in connection with the collar plate 10 by means of an upstanding member 18 which is not only secured on the collar plate 10, but is connected with the lower ends of the tension beams 13 by webs 19. From the collar plate 10 the compression beam 17 extends upwardly in diverging or diagonal relation to the post 1, and at its upper end said compression beam is rigidly fixed to the jib boom 14 some distance outwardly of its inner end and in supported relation to said boom.

The boom 14 at the bottom is formed with a horizontal rail 20 from which a traveling electric hoist, indicated at 21, is suspended, said hoist being movable along said rail, and such move-

ment, together with actuation of the motor, being controlled by the operator by depending control cords (not shown).

In use the crane assembly can be rotated about the post 1 to position the boom over the load to be elevated, and when the boom is in such position, the electric hoist can be adjusted therewith as necessary.

The tension and compression beam mounting of the boom as described is very advantageous, since it enables the boom to be relatively long and to be disposed near the roof, or as high as the building will allow, while leaving practically the entire area about the post undisturbed. The adjustable mounting of spindle 2 in block 4 allows for take-up to compensate for any discrepancy in the calculated or presumed height of the roof from the floor.

From the foregoing description it will be readily seen that I have produced such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described my invention what I claim as new and useful and desire to secure by Letters Patent is:

1. A jib crane comprising a vertical post, a vertical tension beam disposed in spaced relation alongside said post and extending substantially the full length of the latter, means mounting said beam at its ends in connection with and for rotation about said post but holding said beam against vertical displacement, a horizontal boom secured at its inner end in connection with the upper end portion of said tension beam, and a diagonal compression beam connected between the boom intermediate its ends and the lower end portion of the tension beam.

2. A jib crane comprising a vertical post, a pair of members rotatably mounted on said post in vertically spaced relation and held against vertical displacement, a pair of tension beams disposed parallel to and on opposite sides of said post, said tension beams being secured at their ends on corresponding ones of said members, a jib boom secured at its inner end in connection with the uppermost one of said members and the adjacent portions of said tension beams, and a diagonal compression beam secured at its upper end to the boom intermediate its ends and at its lower end being connected with the lowermost one of said members and the adjacent portion of said compression beams.

3. A jib crane comprising a vertical post, a vertical tension beam assembly including a pair of spaced tension beams rotatably mounted on said post, the tension beams being disposed on

opposite sides of said post, a jib boom rigidly connected at its inner end with said tension beam assembly adjacent the upper end of the latter, and a diagonal compression beam secured between the boom intermediate its ends and the tension beam assembly adjacent the lower end thereof; said members comprising collar plates, the boom being hollow and including a top member and spaced sides, the top member at the inner end being secured to the uppermost collar plate, and the sides at the inner end being secured to the upper end portions of corresponding tension beams.

4. A jib crane comprising a vertical, non-rotatable post having end spindles, a base block on the outer end of the lower spindle, a head block on the outer end of the upper spindle, said blocks being adapted to be secured to the floor and roof of a building, a collar plate rotatably mounted on each spindle and held against vertical displacement, rigid tension beams connecting said collar plates to form a tension beam assembly, a jib boom secured at its inner end to the upper end of said assembly, and a diagonal compression beam connected between the boom intermediate its ends and the lower end of said assembly.

5. A jib crane comprising a vertical post, a pair of tension beams, said tension beams being disposed in spaced parallel relation to and extending along opposite sides of the post for substantially the full length of the latter, means mounting said tension beams at their ends in connection with and for rotation about the post as a unitary assembly but holding said tension beams against vertical displacement, a jib boom rigidly connected at its inner end with said tension beam assembly adjacent the upper end of the latter, and a diagonal compression beam secured between the boom intermediate its ends and the lower end portion of the tension beam assembly.

6. A jib crane comprising a vertical post, a pair of tension beams, said tension beams being disposed in spaced parallel relation to and extending along opposite sides of the post for substantially the full length of the latter, means mounting said tension beams at their ends in connection with and for rotation about the post as a unitary assembly but holding said tension beams against vertical displacement, a jib boom rigidly connected at its inner end with said tension beam assembly adjacent the upper end of the latter, and a diagonal compression beam secured between the boom intermediate its ends and the lower end portion of the tension beam assembly; said post being tubular and having axially projecting end spindles secured thereto, and said mounting means comprising collar plates rotatably but axially immovably mounted on said spindles.

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