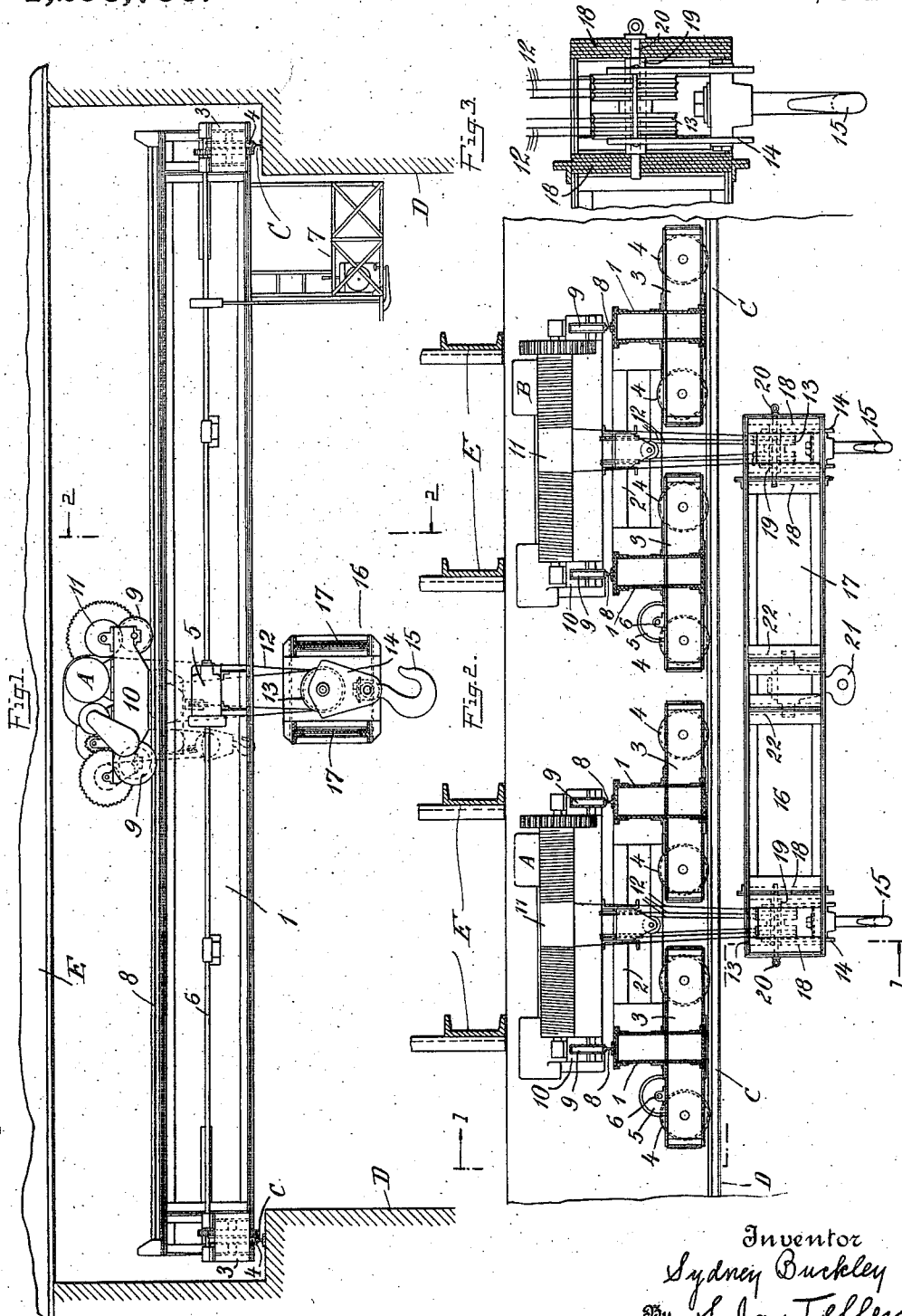


S. BUCKLEY.
LIFTING BEAM FOR CRANES.
APPLICATION FILED JULY 22, 1918.

1,296,756.

Patented Mar. 11, 1919.



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LIFTING-BEAM FOR CRANES.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, SYDNEY BUCKLEY, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Lifting-Beams for Cranes, of which the following is a specification.

This invention relates to a lifting beam which is adapted to be used in connection with two companion traveling cranes to enable them to cooperate with each other for the lifting of a single unitary load. I am aware that lifting beams have been heretofore used in connection with two companion cranes, but by my invention I secure certain important advantages which are not attainable by lifting beams as heretofore constructed. The principal object of the invention is to provide a lifting beam and parts associated therewith whereby the beam may be supported at a position considerably above the ordinary crane hooks.

In the accompanying drawing I have shown the embodiment which I now deem preferable, but it will be understood that various changes may be made without departing from the spirit of the invention as set forth in the claims appended to this specification.

Of the drawing:

Figure 1 is a side view of a traveling crane, the lifting beam to which my invention particularly relates being shown in transverse section along the line 1-1 of Fig. 2.

Fig. 2 is a sectional view taken along the line 2-2 of Fig. 1.

Fig. 3 is a detail view of one of the sheave blocks.

Referring to the drawing, it will be seen that I have shown two traveling cranes A and B mounted to travel on the same rails C, C forming parts of suitable runways. The rails C, C are supported on the walls D, D of the inclosing building, the walls in the present instance being indicated as formed of concrete. The roof of the building is suitably supported, as for instance by means of trusses E. For the sake of economy of construction the roof trusses are placed as low as possible, only a small working clearance being allowed between them and the top parts of the cranes.

The two cranes A and B are indicated as

being identical in construction, and this is preferable, but it will be understood that so far as the present invention is concerned the cranes A and B may be somewhat different. As shown, each of the cranes comprises longitudinal girders 1, 1 which are spaced apart but which are connected together at their ends by cross elements 2. Each girder at each end is mounted on a truck 3, each truck having two wheels 4, 4 engaging the corresponding track rail C. For moving the crane bodily along the rails C, C there is provided an electric motor 5 connected with the wheels 4, 4 by means of a shaft 6 and by means of suitable gearing not shown in detail. The motor 5 is controlled by suitable mechanism located in an operator's cage 7.

Extending longitudinally along the tops of the girders 1, 1 are rails 8, 8 which are engaged by the wheels 9 of a trolley 10. This trolley can be of any usual or preferred construction and need not be described in detail. It is sufficient to say that it includes an electric motor connected with the wheels 9 for moving the trolley along the rails 8, 8, and that it includes a winding drum 11 driven by another electric motor. Both motors of the trolley are controllable from the cage 7.

Wound upon the drum 11 are cables 12 which pass around sheaves 13 in a bottom block 14. The bottom block 14 is provided with a lifting hook 15 which is ordinarily used for the attachment of the loads to be lifted by the crane.

16 represents as a whole a lifting beam which is adapted to be supported at its ends by the two bottom blocks 14, 14 and which has means near its center for the attachment of a load. As shown, this lifting beam is made up of suitable steel plates and rolled shapes riveted together and arranged to provide a beam of the required strength. The beam is formed with two main side elements 17, 17 which are far enough apart to permit the blocks 14, 14 to be positioned between them. Preferably there are transverse elements 18, 18 extending between the side members 17, 17 of the beam near each end thereof. The transverse members 18, 18 are suitably made up of plates and structure elements. Block receiving recesses are formed by the said side and transverse elements.

I provide means whereby the beam can be supported on the bottom blocks 14, 14 at a position above the hooks 15, 15, such support being preferably effected entirely independently of the hooks. When the beam is constructed as described the blocks are positioned in the said recesses at the ends.

As shown in Fig. 3, each bottom block 14 comprises a pin 19 upon which the sheaves 13 are rotatably mounted. Use is preferably made of the pins 19, 19 of the two blocks for connecting the blocks with the lifting beam. By preference the pins are hollow and steel pins 20, 20 are provided which are adapted to be inserted in the apertures of the sheave pins 19, 19. The transverse end members 18, 18 of the lifting beam are provided with apertures also adapted to receive the pins 20, 20. When the lifting beam is to be used, the sheave blocks are inserted in the recess at the ends of the beam in the positions indicated, and the steel pins 20, 20 are inserted through the apertures in the transverse members 18, 18 and through the central apertures in sheave pins 19, 19. In this way the lifting beam is securely connected with the lifting blocks to be supported thereby and is positioned considerably above the hooks 15, 15.

As shown, the lifting beam has at or near its center a suitable eye 21 which is pivotally supported on transverse members 22, 22 extending from side to side of the beam. This eye 21 is adapted to be used for the attachment of the load to be lifted.

It will be seen that with the arrangement shown a suitable load can be attached to the eye 21 and that the combined lifting power of the two cranes can be utilized for lifting this load.

According to prior practice, lifting beams have been suspended from the usual crane hooks, such as 15, 15. On account of this suspended position of the lifting beam one or the other of two conditions resulted. Either it was impossible to lift the load as high as was sometimes desirable, or it was necessary in order to secure the desired lift to build the crane runways, and in fact the whole building, several feet higher than would otherwise have been necessary. By my improved construction I secure the necessary lift and at the same time avoid additional height for the crane runways and for the building, it being possible with a lifting beam constructed and supported as shown to lift the load as high as a load could be lifted by means of one of the usual hooks 15, 15.

What I claim is:

1. The combination of a lifting beam, means near the center of the beam for the attachment of a load, and means at the ends of the beam for supporting the beam on crane bottom blocks independently of the hooks thereof.

2. The combination of a lifting beam, means near the center of the beam for the attachment of a load, and means at the ends of the beam for supporting the beam on crane bottom blocks above the hooks thereof.

3. The combination of a lifting beam, means near the center of the beam for the attachment of a load, and means at the ends of the beam for supporting the beam on the sheave pins of crane bottom blocks.

4. The combination of a lifting beam, means near the center of the beam for the attachment of a load, and supporting means at the ends of the beam comprising apertured spaced elements on the beam and pins adapted to be inserted in the apertures and in central apertures in the sheave pins of crane bottom blocks.

5. A lifting beam for cranes having means near the center for the attachment of a load and comprising two spaced side elements adapted to receive the crane bottom blocks between them at their ends.

6. The combination of a lifting beam for cranes having means near the center for the attachment of a load and comprising two spaced side elements adapted to receive the crane bottom blocks between them at their ends, and means for supporting the beam on the said blocks.

7. The combination of a lifting beam for cranes having means near the center for the attachment of a load and comprising two spaced side elements adapted to receive the crane bottom blocks between them at their ends, and means for supporting the beam on the sheave pins on the said blocks.

8. The combination of a lifting beam for cranes having means near the center for the attachment of a load and comprising two spaced side elements adapted to receive the crane bottom blocks between them at their ends, and means for supporting the beam on the said blocks, the said means comprising removable pins extending through central apertures in the sheave pins of the blocks.

9. The combination of a lifting beam for cranes having means near the center for the attachment of a load and comprising two spaced side elements and transverse elements forming end recesses adapted to receive the crane bottom blocks, and means for supporting the beam on the said blocks.

10. The combination of a lifting beam for cranes having means near the center for the attachment of a load and comprising two spaced side elements and transverse elements forming end recesses adapted to receive the crane bottom blocks, and means for supporting the beam on the said blocks, the said means comprising removable pins extending through central apertures in the sheave pins of the blocks.

11. The combination of a lifting beam for cranes having means near the center for the

attachment of a load and comprising two spaced side elements and transverse apertured elements forming end recesses adapted to receive the crane bottom blocks, and means for supporting the beam on the said blocks, the said means comprising removable pins extending through central apertures in the sheave pins of the blocks and through the apertures in the transverse elements.

10 12. The combination of two similar traveling cranes movable along the same runways, a lifting beam, means near the center of the beam for the attachment of a load, and means at the ends of the beam for supporting the beam on the bottom blocks of the cranes above the hooks thereof.

15 13. The combination of two similar traveling cranes movable along the same runways, a lifting beam having means near the cen-

ter of the beam for the attachment of a load 20 and comprising two spaced side elements adapted to receive the crane bottom blocks between them at their ends, and means for supporting the beam on the said blocks.

14. The combination of two similar travel- 25 ing cranes movable along the same runways, the said cranes having bottom blocks provided with hollow sheave pins, a lifting beam, means near the center of the beam for the attachment of a load, and means at the 30 ends of the beam for supporting the beam on the bottom blocks of the cranes, the said means comprising pins adapted to be inserted in the said sheave pins.

In testimony whereof, I hereto affix my 35 signature.

SYDNEY BUCKLEY.