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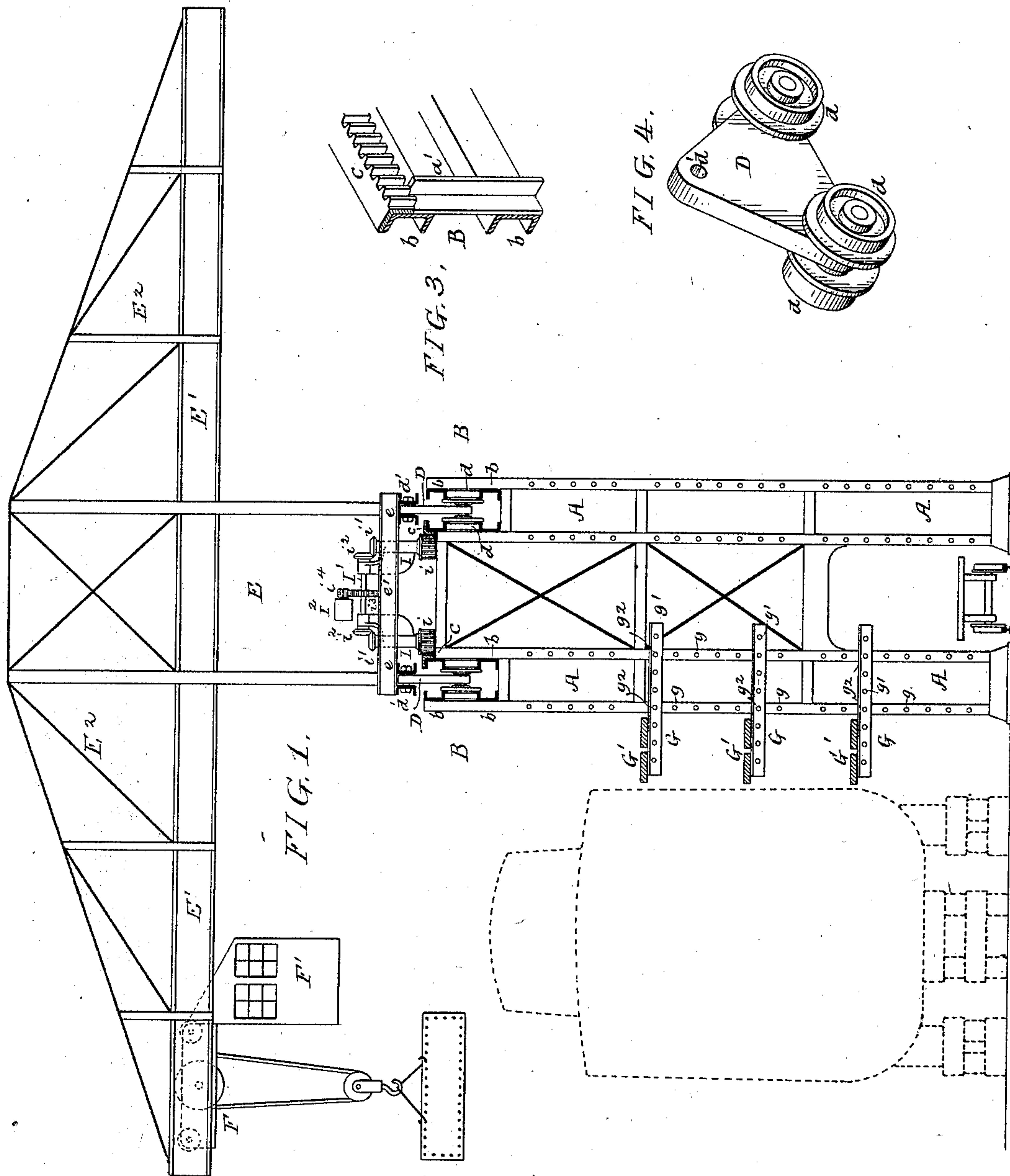
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CRANE AND SCAFFOLDING.

(Application filed Dec. 17, 1897.)

(No Model.)

2 Sheets—Sheet 1.



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UNITED STATES PATENT OFFICE.

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CRANE AND SCAFFOLDING.

SPECIFICATION forming part of Letters Patent No. 698,423, dated April 22, 1902.

Application filed December 17, 1897. Serial No. 662,297. (No model.)

To all whom it may concern:

Be it known that we, SAMUEL T. WELLMAN, JOHN W. SEAVER, and CHARLES H. WELLMAN, citizens of the United States, and residents of Cleveland, Ohio, have invented certain Improvements in Cranes and Scaffolding, of which the following is a specification.

The object of our invention is to construct a scaffolding and runway for traveling cranes to be used especially in ship-yards. We also use the scaffolding to support brackets on which rest suitable planks, and we utilize the weight of part of the runway to resist the overturning tendency of the crane.

In the accompanying drawings, Figure 1 is a view in cross-section, showing the scaffolding and the crane mounted thereon. Fig. 2 is a side view. Fig. 3 is a perspective view of a portion of Fig. 1. Fig. 4 is a perspective view of one of the trucks, and Figs. 5 and 6 are views illustrating modifications.

The ordinary arrangement for a traveling crane of a ship-yard consists of a wooden trestle-work supporting rails upon which the crane travels. Against this trestle-work is built a temporary scaffolding to support the planks upon which the workmen stand when riveting and doing other work at the side of the ship. The crane simply rests upon the rails at the top of the scaffolding, and should there be a tendency to overturn the crane such tendency is only resisted by the weight of the crane itself, and one of the main objects of our invention is to resist the overturning tendency of the crane by utilizing the weight of part of the runway, and we dispense entirely with the temporary scaffolding and substitute therefor adjustable brackets, which are mounted directly upon the uprights which support the runway. These brackets can be secured in any suitable manner and can be adjusted either vertically or toward and from the body of the ship, as desired.

A A are the posts which support the runway. These posts may be built in pairs and braced, as shown, the bracing depending upon the height, width, and character of the structure, and at the top of each post are two lines of stringers B B. As shown in Figs. 1, 2, and

3, these stringers are made of channel-irons b. There are two sets of channel-irons for each post, one line of channels being beneath the trolley-wheels d d and the other line of channels being directly above the wheels, so as to prevent the tipping of the crane. These channels besides being connected by the posts A are also connected together by the knee-braces a and the angle-irons a', which are arranged at intervals between the posts, so that the channels not only act as rails for the trolleys, but also aid materially in strengthening the scaffolding.

We prefer to make the trucks or trolleys D in the form shown in Fig. 4. Each truck or trolley has four wheels d, adapted to the rails or channels on the scaffolding and are connected to the crane E by means of pins d', thus permitting the track to deflect or otherwise get out of line without seriously interfering with the running of the crane.

The crane E has a base-framework formed of longitudinal channel-bars e, cross channel-bars, and I-beams e', and on this base rests the framework e'', supporting the horizontal girders E' and trusswork E''.

A trolley F of the usual construction traverses the rails f f on the girders E', and this trolley is provided with the ordinary operator's cage F'. The arrangement is such that material can be lifted from any portion of the yard, carried down the runway, and placed in position upon the ship at the side of the runway. In the present instance on two of the upper channel-beams b of the runway is a rack-plate c, with which gear the pinions i on vertical shafts I, adapted to suitable bearings on the base-frame of the crane, and on the upper end of these shafts are bevel-wheels i', gearing with bevel-wheels i'' on a cross-shaft I', having in the present instance a gear-wheel i''', meshing with a pinion i''' of a motor I''. We have shown in the present instance an electric motor; but it will be understood that any suitable motive power may be used.

In order to support the gang-planks upon which the workmen stand when riveting or doing other work at the side of a ship the posts A A of the structure have a series of

holes g at short intervals, preferably extending the full length of the posts, as shown in Fig. 1.

G represents brackets also having a series of holes g' , so that by passing bolts g^2 in the holes in the brackets and the posts the brackets can be secured in any position to which they may be adjusted, and upon these brackets are placed the planks G' . In some instances the holes may be dispensed with and clamps substituted therefor, or the brackets may be bolted to the posts in a manner differing from that shown in the drawings, and they may consist of rods with screw ends provided with nuts.

It will be seen by the above description that the planks can be arranged in any manner along the side of the ship and can be adjusted either vertically or horizontally and can be removed entirely, if necessary, and that the crane is not only supported by the structure, but is prevented from overturning by the arrangement of the upper and lower rails between which the truck-wheels travel, so that should there be any tendency to overturn the crane it is held down by the upper line of rails on either side, and as the two channels are tied together at intervals the full strength of both channels is utilized to resist either upward or downward strains.

In addition to the dead-weight of the structure we firmly anchor the legs of the scaffolding or trestle-work to their foundations, thereby utilizing the weight of the foundations to help resist the overturning tendency of the crane when carrying a load at the end of either arm.

By traversing the crane by means of spur-wheels which engage with the racks the crane is moved evenly, and the tendency to move diagonally on the track is prevented.

While our invention relates particularly to scaffolding and runways for traveling cranes in ship-yards, it will be understood that the invention may be used in connection with other large structural work.

The two sets of posts may be suitably braced from top to bottom by tie-rods and cross-bars; but if it is wished to lay a track or runway between the posts at the base, as shown in Fig. 1, we prefer to use a heavy arch, as shown, and continue the stay rods and bars above the arch.

We claim as our invention—

1. In a crane-supporting structure, the combination of a scaffolding carrying horizontal girders, a crane supported thereon, said crane being carried on wheels constructed to run between and upon adjacent pairs of said girders, substantially as described.

2. In a crane-supporting structure, the combination of a scaffolding having its upper portion connected by sets of horizontal girders, the girders of each set being vertically over one another and having bracing members extending between them, with a crane supported by said scaffolding having wheels placed to run between the girders of said sets, substantially as described.

3. The combination of a scaffolding, a series of upper rails and a series of lower rails mounted on the scaffolding, trucks having wheels adapted to the space between the two sets of rails, a crane carried by said trucks and having overhanging girders and a trolley adapted to travel on the girders, substantially as described.

4. The combination of a scaffolding, rails thereon, four trucks having wheels adapted to the rails, the base-frame of a crane, and a horizontal pivot-pin securing each truck to the base-frame, substantially as and for the purpose set forth.

5. The combination of a scaffolding carrying rails and longitudinal racks and a substantially horizontal framework having a truck provided with wheels for supporting each of the corners of said framework, said trucks running on said rails, vertical members carried by the framework and a truss structure supported by said vertical members, gear-wheels carried by the framework, and means for revolving said wheels and thereby causing the framework with its attached parts to move over the scaffolding, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

SAMUEL T. WELLMAN.
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Witnesses:

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