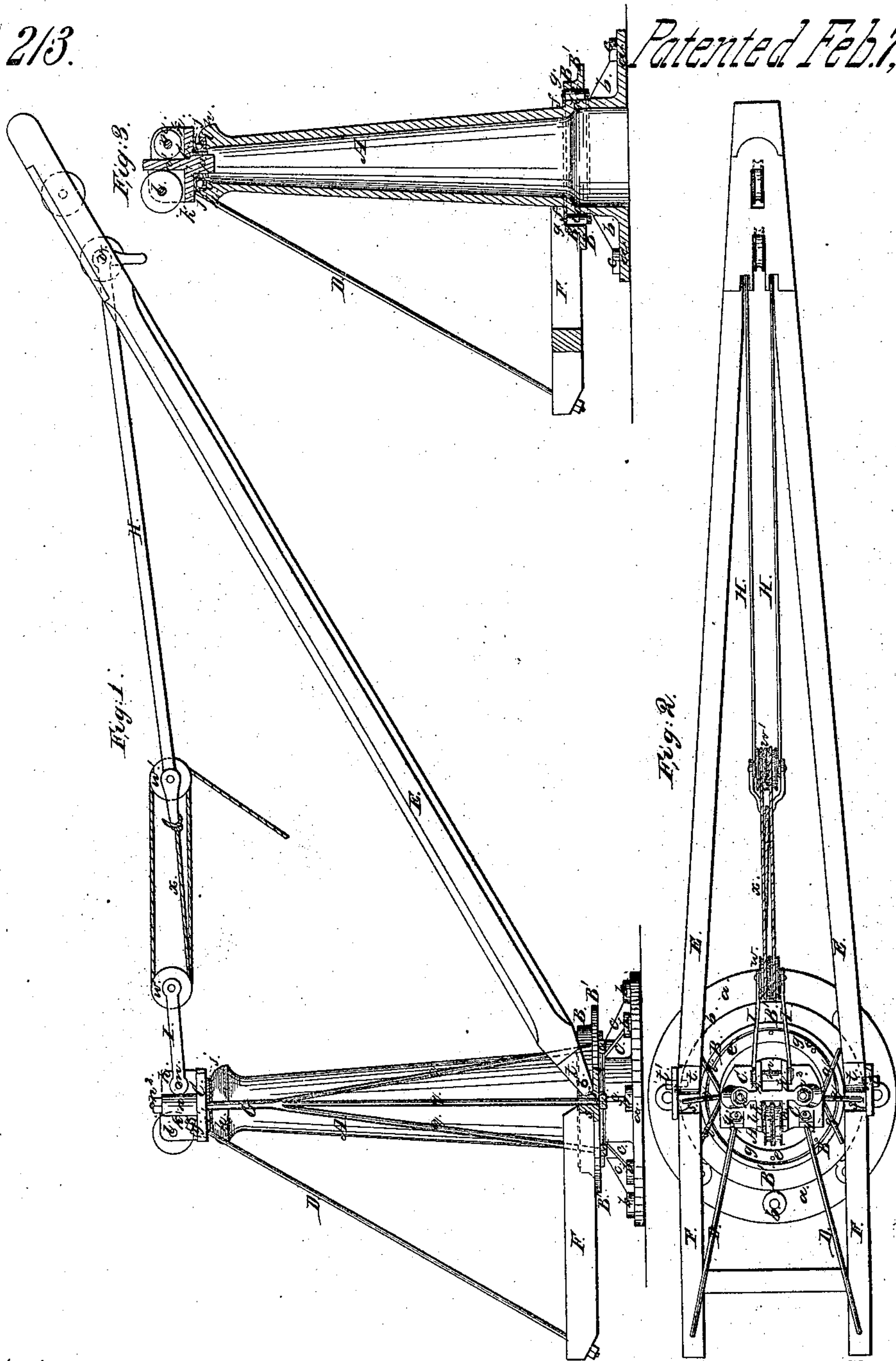


B. J. Burnett

Derrick.

No. 46,213.

Patented Feb. 7, 1865.



Witnesses:
J. W. Coombs
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UNITED STATES PATENT OFFICE.

BENAJAH J. BURNETT, OF MOUNT VERNON, NEW YORK.

IMPROVEMENT IN CRANES.

Specification forming part of Letters Patent No. 46,213, dated February 7, 1865.

To all whom it may concern:

Be it known that I, BENAJAH J. BURNETT, of Mount Vernon, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Cranes; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation of a crane with my improvements, with part of the traveling roller frame in section. Fig. 2 is a plan of the same. Fig. 3 is a vertical section of the supporting tower or column and counter-weight frame.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to cranes in which the whole weight of the jib and the body to be lifted is received on top of a supporting tower or column, around which the jib is capable of revolving.

It consists in an improved construction of this tower of cast-iron; also, in an improvement in the construction of and mode of supporting on the top of the tower or column the revolving cap or head, from which the whole weight of the jib and its load (when loaded) is suspended; also, in an improved construction of what I term the "circular traveler," which revolves around the lower part of the tower or column, and on which the weight of the jib is suspended from the revolving cap or head, and by which the horizontal thrust of the lower part of the jib is transmitted to the lower part of the tower or column; and it further consists in an improved method of suspending the traveler from the said revolving cap or head. These improvements enable the crane to be made of the necessary strength and stability to be given to it with a less weight of material, its construction to be simplified and the friction of its parts reduced in the swinging of the jib around the tower or column.

To enable others skilled in the art to construct a crane according to my invention, I will proceed to describe it with reference to the drawings.

A is the supporting tower or column, constructed of cast-iron, hollow, and in one or more pieces in height, with a bottom horizon-

tal flange, *a*, forming a base on which are bosses *b b* for the reception of holding-down bolts, the said bosses being connected by ribs *c c* with the tower and flange. The lower part of this tower or column is formed with a vertical cylindrical surface, *d*, concentric with its axis, to form a bearing for the vertical anti-friction rollers *e e* of the circular traveler B, as the said traveler revolves around the tower, and a square shoulder, *f*, is formed on the tower or column above this vertical cylindrical surface for the support of the upper ring, *g*, of the frame which contains the said anti-friction rollers. The top of the tower or column is made with a surrounding flange or protuberance, *h*, to give it the necessary strength of metal to enable the formation within it of a circular seat for the fixed wrought-iron or steel ring, *i*, in which work the anti-friction balls *j j*, which support the cap or revolving head C, from which the weight of the jib and other revolving parts of the crane are suspended.

The cap or revolving head C is of cast-iron or other metal, having a flat base with ribs or inverted brackets *k k*, for the necessary sheave and tension bar pins *l m*, beveled bosses *y y* for the reception of the counter-weight tension-rods D D, side hubs, *n n*, for the branch side rods, G *q q q*, a rib, *n'*, connecting the latter bosses across the center of the cap, and a central downwardly-projecting journal, *p*, which enters the circular box in which the balls *j j* work, the said journal receiving upon and having attached firmly to it the revolving wrought-iron or steel ring *i'*, which combines with the lower ring, *i*, before mentioned, to form an annular box in which the anti-friction balls *j j* work. The ring *i* is of such angular or other form in its transverse section as to form the bottom and the outer sides of the said box, and the ring *i'* is of such angular or other form in its transverse section as to form the top and inner sides of said box. This box, while the rollers fit in such manner as to be capable of revolving freely within it, has its annular cavity of such width as to prevent any movement of the cap except its revolution.

The circular traveler B is constructed with a flange, B', to receive the branch side rods *q q q*, and with seats *r s*, for the reception of the lower ends of the jib-sheets E E and

counter-weight sills *F F*, each acting against the other. The jib-sheets are furnished with shoes *t*, which form rolling joints in the seats *r*, to admit of the raising and lowering of the jib-head, and which are held in place by lip-pins *t'*.

The branch side rods on each side of the column are made single at the top, as shown at *G* in Fig. 1, to pass through the side hubs, *n n*, of the cap or revolving head *C*, above which they are secured by screws and nuts *n² n²*, and with two or more branches, *q q q*, diverging toward the bottom and secured at their lower ends to the circular traveler *B* by screws and nuts *u u* below the flange *B'* of the traveler.

The jib-head is connected with the cap or revolving head *C* by means of two sets of tension-bars, *H H* and *I I*, the latter attached by the pin *m* to the cap or revolving head, and the former by a pin, *v*, to the jib-head, and the two sets being connected together by pulleys *w w'* and a tackle, *x*, which serves to raise and lower the jib-head, as may be required.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The cast-iron tower or column, of one or more pieces in height, with bottom flange or base, *a*, vertical cylindrical surface *d*, and shoulder *f*, all substantially as and for the purpose herein specified.

2. The construction of the top of the said tower, substantially as herein described, with a seat in its interior for the reception of the lower ring, *i*, of the box which contains the anti-friction balls, upon which the cap or revolving head of the crane is supported.

3. The cast-metal cap or revolving head *C*,

provided with ribs or inverted brackets *k k*, for the reception of the sheave and tension bar pins *l m*, and central downwardly projecting journal *p*, entering the box which receives the anti-friction balls upon which the said cap or head is supported, and receiving upon it the upper ring, *i'*, of the said box, all substantially as herein specified.

4. The annular box for the reception of the anti friction balls which support the cap or revolving head *C*, constructed of two rings, *i, i'*, the one forming the bottom and outer sides of the box, fitted into a seat in the top of the tower or column, and the other forming the top and inner sides of the box, fitted to the journal of the cap or revolving head, substantially as herein described.

5. The construction of the circular traveler *B*, with a flange for the reception of the suspending side branch rods, and with bearings for the reception of the jib shoes and counter-weight sills, so that each thrusts against the other, and a rolling joint is provided for the said shoes to permit the adjustment of the jib, all substantially as herein set forth.

6. The branch side rods for suspending the circular traveler from the revolving head or cap, constructed with their upper parts single, as shown at *G*, and with their lower parts in two or more branches, as shown at *q q q* in Fig. 1, and combined with the cap or revolving head and traveler, substantially as herein described.

BENAJAH J. BURNETT.

Witnesses:

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