

(No Model.)

E. W. NAYLOR.
JIB CRANE.

No. 491,126.

Patented Feb. 7, 1893.

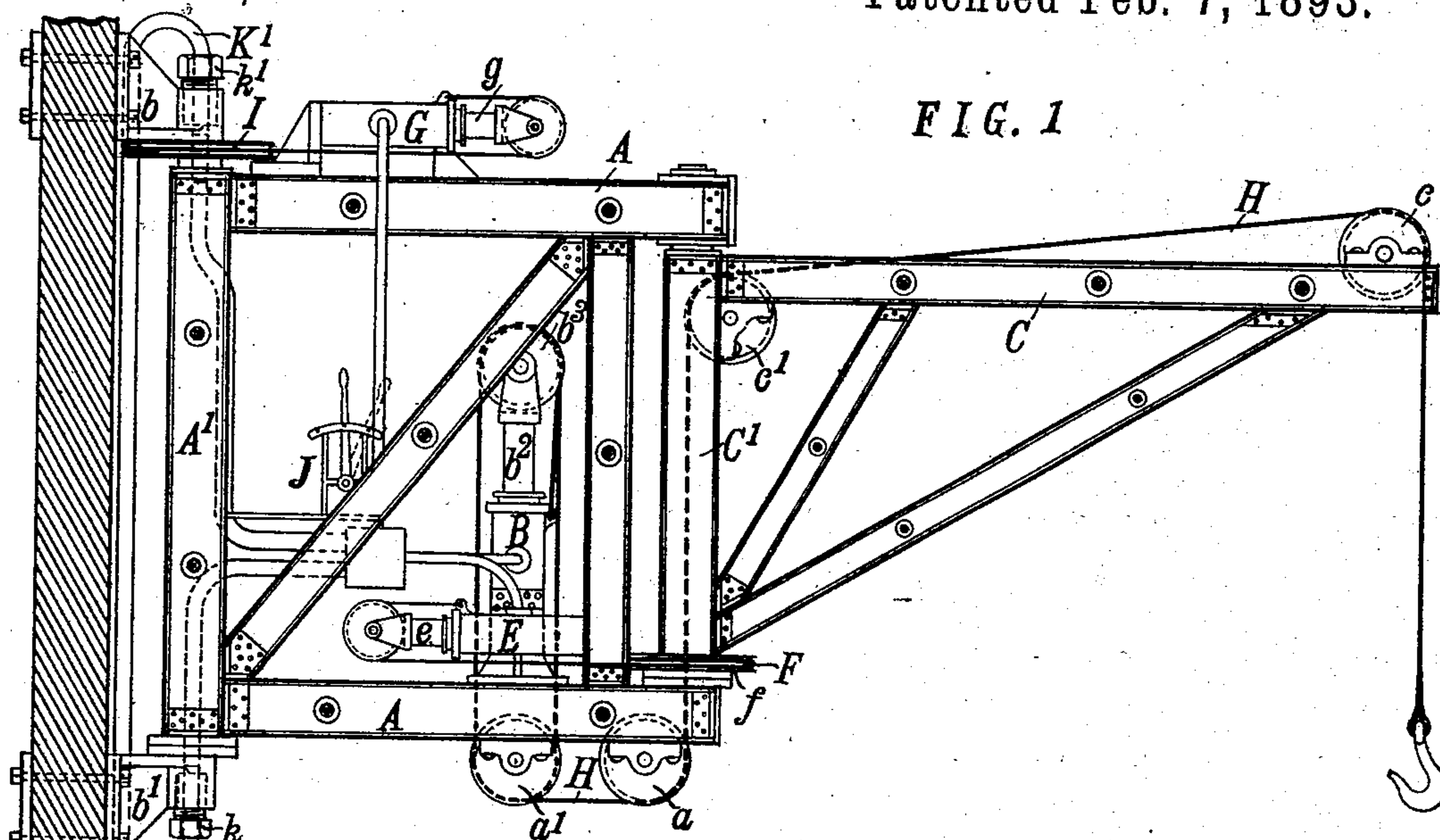


FIG. 1

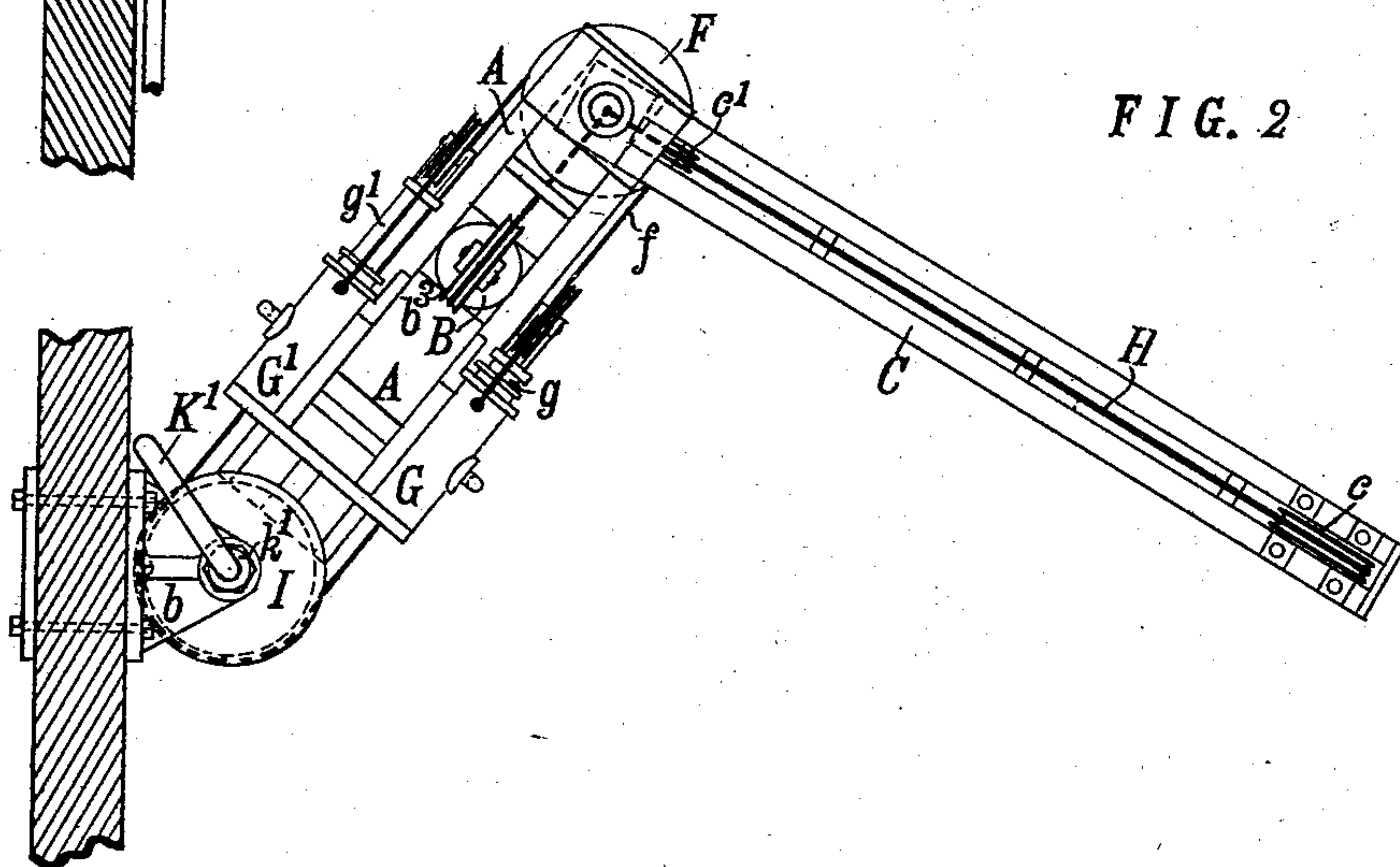


FIG. 2

WITNESSES.

Frank Miller.
M. S. Ingham.

INVENTOR.

Ernest W. Naylor
by E. L. Thurston
his atty.

UNITED STATES PATENT OFFICE.

ERNEST W. NAYLOR, OF CLEVELAND, OHIO.

JIB-CRANE.

SPECIFICATION forming part of Letters Patent No. 491,126, dated February 7, 1893.

Application filed April 25, 1892. Serial No. 430,574. (No model.)

To all whom it may concern:

Be it known that I, ERNEST W. NAYLOR, a subject of the Queen of Great Britain, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Jib-Cranes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The object of my invention is to provide a jib crane, and mechanism for operating its various parts, which is adapted to range a large floor space without the employment of a trolley or crab.

My invention relates to the construction and arrangement of the various parts of the crane and its operating mechanism; and it consists in the construction and combination of parts hereinafter described and pointed out definitely in the claims.

In the drawings, Figure 1 is an elevation of my improved crane, and Fig. 2 a top view of the same.

I will now proceed to describe in detail the embodiment of my invention which is shown in the drawings, after which I will definitely point out the invention in the claims.

Referring to the parts by letters, A represents the main jib, the post A' of which is hinged to the wall brackets b b' or is supported by any other suitable means. A supplemental jib C is hinged to the outer end of the main jib as shown. On the outer end of the supplemental jib a sheave c is mounted. A sheave c' is also carried by the crane, and over it the hoisting cable H passes from the sheave c. In order that this sheave c' may always maintain the proper relation with the sheave c, whatever be the relative position of the two jibs, the sheave c' must have a swiveling movement, on a vertical axis, with reference to the main jib. I secure this result and an operative connection between the take-up mechanism and the hoisting cable by the following construction and arrangement of parts;—The post C' of the supplemental jib is hollow, whereby the hoisting cable may pass axially through it. The sheave c' is mounted on the supplemental jib at a point where its face on one side of its axis is in the

axial line of the post C'. A sheave a is mounted on the main jib with its face on one side of its axis in the same axial line. The hoisting cable H passes up and over the sheave c, over and down from the sheave c', in the axial line of the post C', around and under the sheave a, around a sheave a', also mounted on the main jib, to the take up mechanism which is carried on the main jib. By the above described construction and arrangement of parts the hoisting cable may be taken in or paid out regardless of the relative positions of the main and supplemental jibs.

The take up mechanism shown in the drawings consists of a hydraulic cylinder B, its ram b², and the desired number of sheaves b³. The construction of this mechanism is familiar to all acquainted with hydraulic engineering, and its details are no part of the invention herein shown. In fact any kind of hoisting mechanism which may be carried on the main jib may be used to take up the cable.

The supplemental jib is swung on its pivot by means of two hydraulic cylinders E E' and their rams e e', either of which may be connected with the pressure column when the other is connected with the exhaust column. A sheave or drum F is secured to the post of the supplemental jib, and is placed axially with reference thereto. A cable f is attached at or near its middle to this sheave, and one end is connected with one ram e and the other with the other ram e'. By these means the sheave F may be turned in either direction, thereby causing the supplemental jib to turn on its pivot in either direction. The main jib is swung on its pivot by substantially the same kind of mechanism. Two hydraulic cylinders G G' and their rams g g' are carried on the main jib. A cable is fastened at its ends, to said rams respectively, and, at or near its middle, to a fixed sheave I which is placed axially with reference to the main jib post and is fastened to the bracket b. The hydraulic pressure and exhaust columns are carried to the main jib by means of pipes K K' connected by stuffing boxes k k' arranged in the axial line of the main jib. Both columns pass to and are connected, by a nest of valves at J on the main jib. A single operator sitting on the main jib can control the op-

eration of all the hydraulic rams hereinbefore explained, and therefore of both jibs and the hoisting mechanism.

It is not believed that any power jib crane
5 has ever been constructed which could range such a large floor space without the use of a traveling trolley. An object on the floor at any point from within a few feet of the main post to the extreme reach of both jibs, may be
10 lifted and carried to and deposited at any other point within said limits, by the crane, and all of the movements may be controlled by a single operator at the valves.

Having thus described my invention, what
15 I claim as new and desire to secure by Letters Patent is;—

1. The combination of a fixed support, a main jib hinged thereto, a supplemental jib hinged to the main jib, two independent mo-
20 tors mounted on the main jib, mechanism connecting one of said motors with the supplemental jib whereby the latter may be swung on its axis, and mechanism connecting the other motor with the fixed support where-
25 by the main jib may be swung on its axis, substantially as and for the purpose specified.

2. The combination of a fixed support, a main jib hinged thereto, a supplemental jib hinged to the main jib, a sheave c fixed to the
30 supplemental jib, a hoisting cable which

passes over said sheave, sheaves over which said cable passes to the main jib, three independent motors mounted on the main jib, mechanism connecting one motor with the fixed support, mechanism connecting another
35 motor with the supplemental jib, and cable take up mechanism suitably connected with the third motor, whereby the main jib and the supplemental jib and hoisting cable may be independently operated, substantially as
40 and for the purpose specified.

3. The combination of a main jib, and a supplemental jib hinged thereto, mechanism for turning the main jib on its axis, mechanism for turning the supplemental jib on its
45 axis, independent hydraulic motors for operating said turning mechanisms, with two pipes arranged axially with reference to the main jib, for conveying the hydraulic pressure to and from the main jib, and a nest of
50 valves on the main jib for controlling the movement of the hydraulic columns, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ERNEST W. NAYLOR.

Witnesses:

J. W. SMITH,

E. L. THURSTON.