

(No Model.)

E. B. DEMAREST.
APPARATUS FOR RAISING OR LOWERING HEAVY WEIGHTS OR BUILDING
MATERIALS.

No. 587,301.

Patented Aug. 3, 1897.

FIG. 1

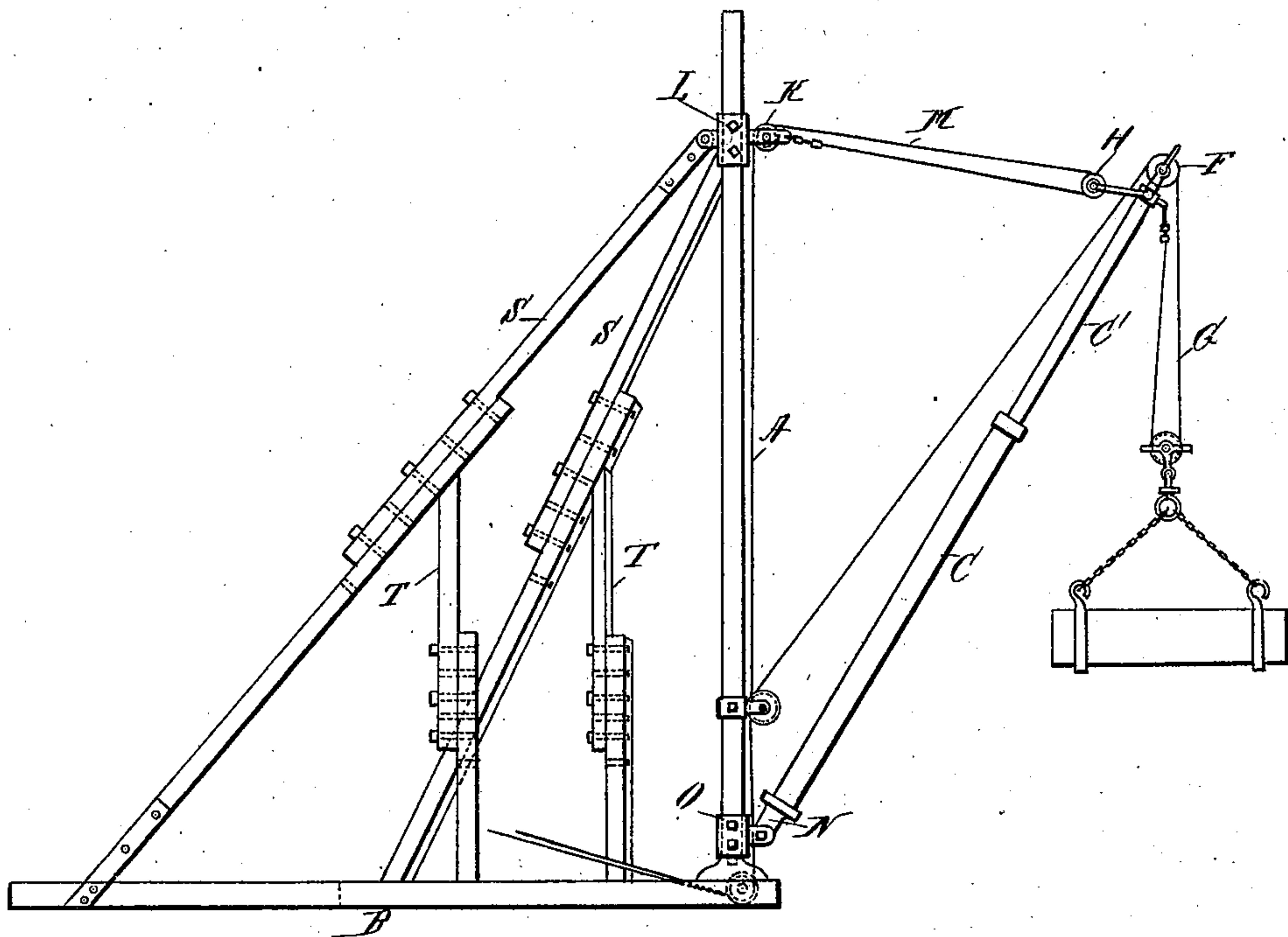


FIG. 2.

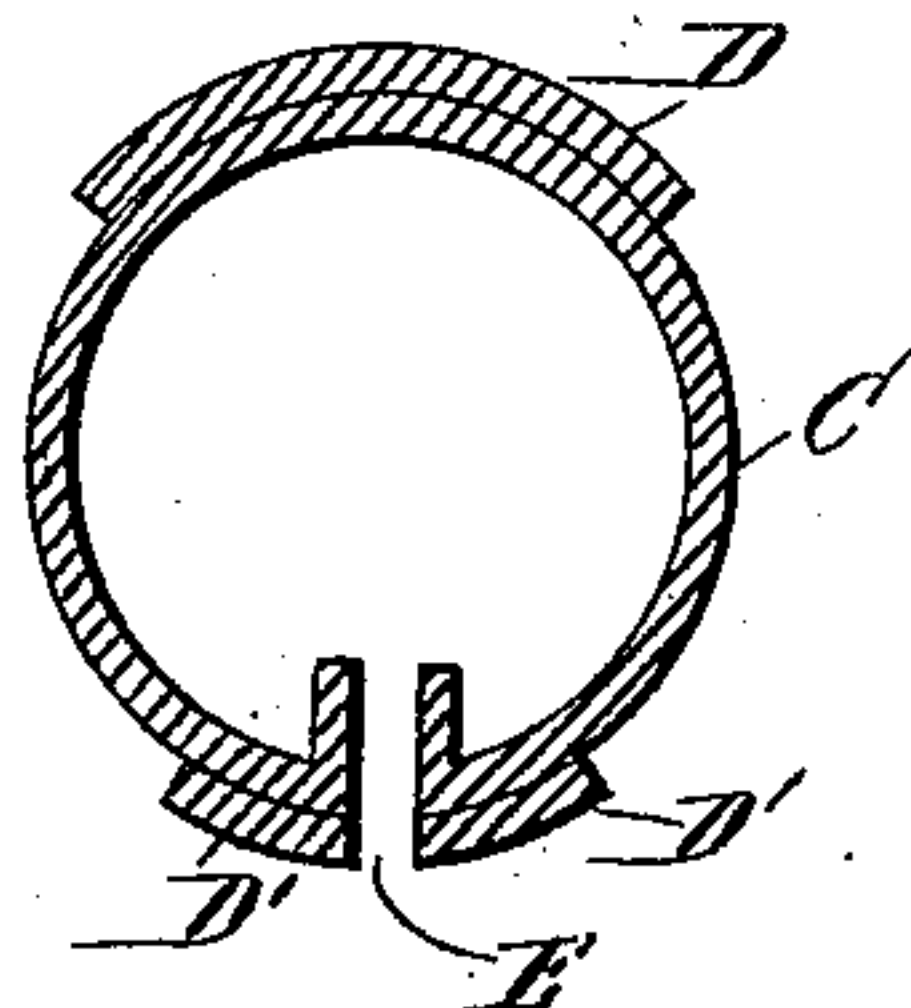


FIG. 3.

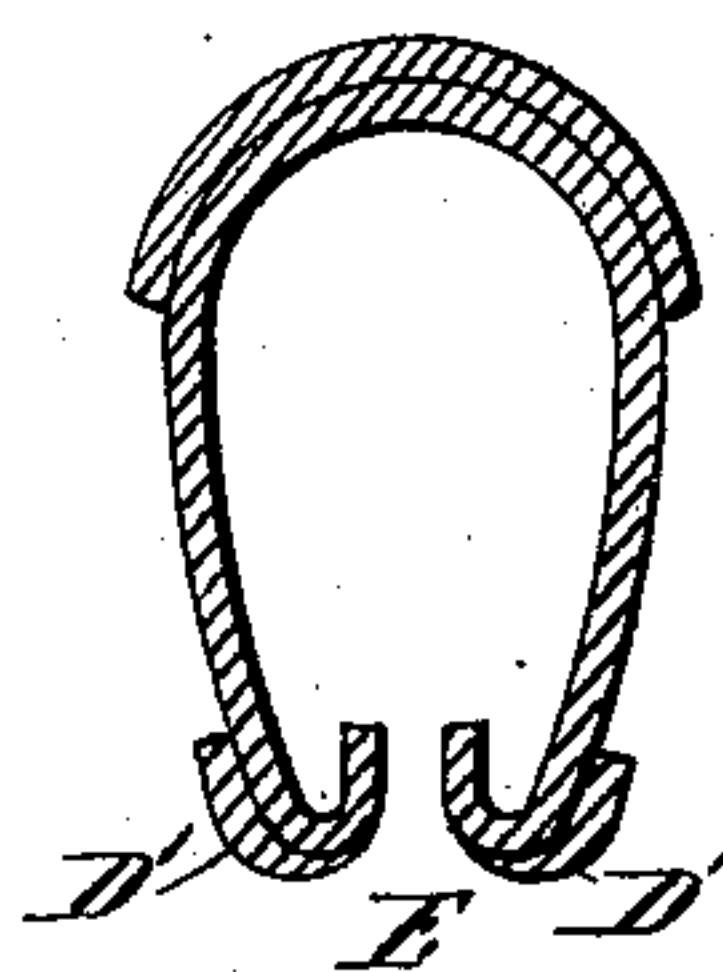
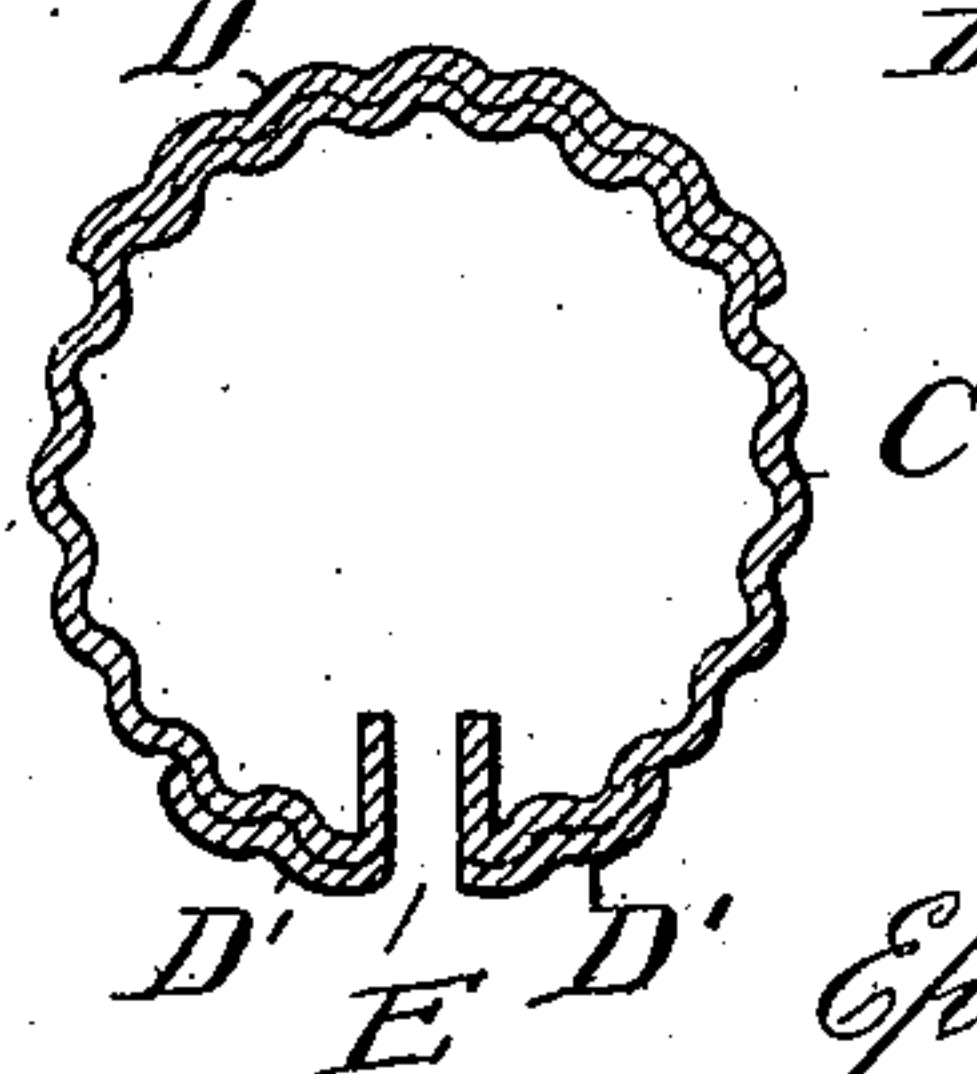


FIG. 4.



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APPARATUS FOR RAISING OR LOWERING HEAVY WEIGHTS OR BUILDING MATERIALS.

SPECIFICATION forming part of Letters Patent No. 587,301, dated August 3, 1897.

Application filed May 23, 1895. Renewed September 12, 1896. Serial No. 605,644. (No model.)

To all whom it may concern:

Be it known that I, EPHRAIM B. DEMAREST, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Apparatus for Raising or Lowering Heavy Weights, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof, in which similar letters of reference indicate corresponding parts.

This invention relates to derricks or apparatus for raising or hoisting heavy weights for building and similar purposes, and the object thereof is to provide an improved apparatus of this class for elevating building and similar material; and with this and other objects in view the invention consists in the construction, combination, and arrangement of parts hereinafter described and claimed.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which—

Figure 1 is a view in elevation of my improved hoisting apparatus. Figs. 2, 3, and 4 represent sectional views of a detail of the construction.

My improved hoisting apparatus consists of a derrick of suitable power and capacity, having an upright mast A, preferably composed of wood, but which may be composed of metal, either hollow or solid and of any desired form in cross-section, said mast being stepped in and working on ground frame or base composed of bottom plate and beam B, which extend radially from the foot of the mast and at such an angle as to afford a proper support for the apparatus. Pivotaly connected with or mounted on the base of the mast, so as to be revoluble thereon, is a boom or jib C, which may be solid or composed of one piece when such a boom would be suitable for the work, but which is preferably made in sections which are telescopic and which are of the required length, and which may be formed of wrought iron or steel made circular in cross-section, as shown in Fig. 2, or oval in form, as shown in Fig. 3.

The separate sections of the beam may be also longitudinally corrugated or grooved, so as to give strength thereto, and said sections are preferably reinforced by longitudinal

straps or plates D D', secured upon their upper and lower surface. Each of the aforesaid sections is strongly collared or provided with a strong metal band at each end thereof, and in operation, if desired, each may be provided with stops to prevent the telescoping or extension of said sections beyond determined points.

The outer telescoping section C', which may be either hollow or solid, is fitted with a lifting sheave or block F at any proper point on its length, but preferably at the outer end thereof, through and over or upon which works the lead-lifting line or cable G, and said outer section is provided in its outer end with a block or sheave H, which, in combination with a block or sheave K, secured to the mast or a sliding head L near the top thereof, through which blocks or sheaves on the boom and mast runs the line or cable M for swinging, raising, or lowering said boom.

The innermost section of the boom which carries the telescopic section or sections is swiveled or pivotally supported in a socket N, which is pivotally connected with a sleeve O, mounted on the base of the mast, so as to provide for the radial and perpendicular movement thereof, which latter is rendered free and without jam by the rounded heel or butt of the end of the inner section of the boom.

The arrangement for telescoping the sections of the boom may be of any desired character and may consist of a rack-bar P, formed on the telescopic section or sections, and a set pin or screw R, which passes through the collar at the end of the section in which the telescoping section is adapted to slide, or I may employ hauling-lines and travelers thereto and work by hand or by a motor, and the object of the longitudinal slots E in the bottom of the sections of the boom is to provide means for operating these travelers.

At the top of the mast is a strong metal head or cap L, which is also capable of vertical adjustment and to which is attached the top sheave or block, as hereinbefore described, and to this cap or block is also attached the upper sections of the longitudinally-adjustable braces S, said braces being formed in sections and united in any desired manner, and means for uniting the same, as

shown in the drawings, consisting of bolts which pass through said sections, the separate sections of the braces being provided with additional holes for said bolts by which
 5 the length thereof may be adjusted, as will be readily understood. My invention is not limited, however, to any means for adjusting the length of the braces S, and any desired number of said braces may be employed, and
 10 this is also true of the ground plates or beams B. The braces S may be composed of metal or wood, and they may also be telescopic, if desired, and the lower ends of said braces or the lower sections may be connected with the
 15 bottom plates or beams B in any desired manner. I also provide supplemental vertical braces or supports T for the braces S, which are also composed of sections and longitudinally or vertically adjustable, and these
 20 supplemental braces may also be made telescopic, if desired.

My invention is not limited to the exact form, construction, and arrangement of parts shown and described, and I therefore reserve
 25 the right to make all such alterations therein as fairly come within the scope of the invention.

Having fully described my invention, I claim and desire to secure by Letters Patent—
 30 ent—

1. In a derrick or hoisting apparatus the combination with a suitable base plate or beam, of a mast mounted thereon, sectional braces or stays the lower ends of which are
 35 connected with the base plate or beam and the upper ends of which are pivotally connected with an adjustable sliding sleeve mounted near the upper end of the mast, substantially as described.

40 2. A derrick or hoisting apparatus, provided with a vertical mast, which is pivotally mounted on the base-frame, a boom pivotally connected with the bottom of said mast by means of a head, said boom being composed of sections which are longitudinally
 45 adjustable, and the upper part of said mast consisting of a sliding or adjustable sleeve, substantially as shown and described.

3. A derrick or hoisting apparatus, provided with a vertical mast, which is pivotally mounted on the base-frame, a boom pivotally connected with the bottom of said mast by means of a sliding head, said boom being composed of sections which are longitudinally
 50 adjustable, and the upper part of said mast consisting of a sliding or adjustable sleeve, said mast being also provided with braces or stays, which are composed of sections and said braces or stays being pivotally connected
 55 with or hinged to the sleeve at the top of the mast, substantially as shown and described.

4. In an apparatus for lifting or hoisting building material, a derrick provided with a mast, sectional braces, and an adjustable
 60 sectional boom, said mast being provided with a sleeve at the top thereof with which

said braces are connected and to which the block or sheave for operating the boom is attached, and the outer end of said sectional boom being also provided with a hoisting
 70 block or sheave and with an operating block or sheave, substantially as shown and described.

5. The combination in a derrick or hoisting apparatus of the character described, provided with a vertical mast, pivotally mounted upon the base-frame, a boom hollow or oval and having cross-sections similar to a horse-shoe in shape, and being longitudinally corrugated and reinforced upon the upper and
 80 lower faces and strongly collared at each end, said boom being pivotally connected with the bottom of said mast by means of a sliding head, and being formed of sections longitudinally adjustable, the head or adjustable sleeve
 85 upon the upper part of the mast, the braces or stays which are secured to the mast and composed of sections, which are pivotally connected with, or hinged to the top of the mast, substantially as herein set forth and
 90 described.

6. In a derrick or hoisting apparatus, in combination with the vertical mast pivotally mounted therein, a boom hollow, oval or circular, and having the cross-section similar
 95 to a horseshoe in shape, and provided with longitudinal corrugations and being reinforced on the upper and lower faces thereof and strongly collared by each end of the same, said boom having a groove or opening in the
 100 under side thereof, adapted to receive a traveler and a sliding head pivotally connecting said boom and the mast, said boom being formed of sections longitudinally adjustable, the adjustable sleeve upon the upper part of
 105 the mast, the braces or stays which are secured to the mast and composed of sections pivotally connected therewith, and the braces or stays composed of slidable sections, which are pivotally connected or hinged to the top
 110 of the mast, substantially as set forth.

7. The combination in an apparatus for lifting or hoisting building material, of a base-plate, a mast pivotally mounted thereon, an adjustable boom, sectional braces, said
 115 mast being provided with a sleeve at the top thereof with which said braces are connected and carrying a block or sheave for operating the boom, the outer end of said boom being provided with a hoisting-sheave, and a
 120 traveling sheave in combination with a carrier, consisting of the body portion, having connected therewith straps or bands, passing beneath the same, said straps being provided at their free ends with hooks or eyes, and
 125 chains connecting said eyes and the traveling sheave, substantially as described.

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Witnesses:

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