R. N. EGGLESTON.

PORTABLE CRANE.

APPLICATION FILED MAR. 2, 1916.

1,266,569. Patented May 21, 1918.

Fig. 1.

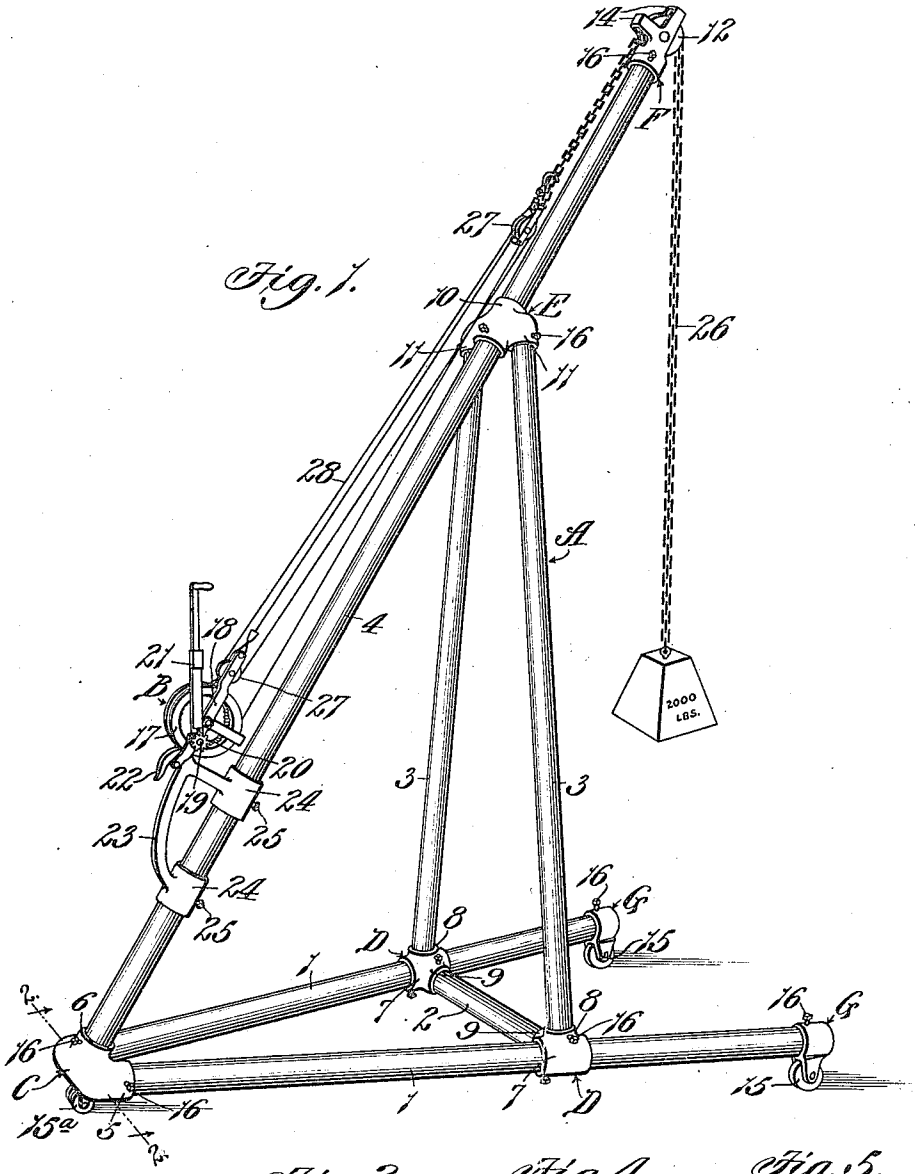


Fig. 2.

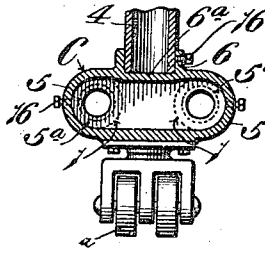


Fig. 3.

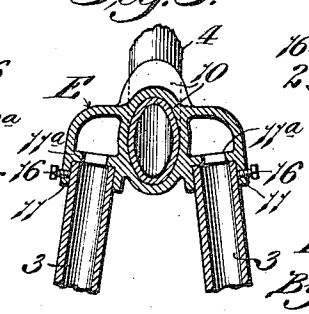


Fig. 4.

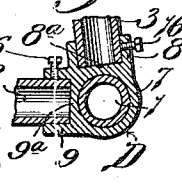
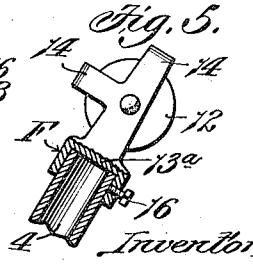


Fig. 5.



Inventor,

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By Bakewell & Church Attys.

UNITED STATES PATENT OFFICE.

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PORTABLE CRANE.

1,266,569. Specification of Letters Patent. Patented May 21, 1918.

Application filed March 2, 1916. Serial No. 81,712.

To all whom it may concern:

Be it known that I, ROBERT N. EGGLESTON, a citizen of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Portable Cranes, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to cranes.

One object of the invention is to provide a strong and compact portable crane that can be used in shops, factories and other places for enabling a workman to convey heavy objects from one place to another.

Another object is to provide a crane of the character referred to which is so constructed that it can be shipped in knock-down form from the manufacturer and easily assembled by the purchaser or user without the aid of a skilled mechanic.

Another object is to provide a portable crane that is composed of a few castings and pieces of metal pipe or tubing combined in such a manner that the crane can be manufactured and sold at a low cost.

Other objects and desirable features of my invention will be hereinafter pointed out.

Figure 1 of the drawings is a perspective view of a hoisting and carrying apparatus constructed in accordance with my invention.

Fig. 2 is a vertical transverse sectional view, taken on the line 2—2 of Fig. 1.

Fig. 3 is a vertical transverse sectional view through the connecting member that joins the jib and the uprights of the crane together.

Fig. 4 is a vertical transverse sectional view through one of the connecting members that joins one of the uprights to the base of the crane; and

Fig. 5 is a vertical longitudinal sectional view of the sheave housing mounted on the upper end of the jib.

Referring to the drawings, which illustrate the preferred form of my invention, A designates a crane or movable structure that is mounted on wheels, rollers or casters, and B designates a winding mechanism that is mounted on said crane, the crane being composed of a base, a standard that projects upwardly from said base and a stationary jib supported by said standard in an inclined position and having its lower end bearing upon said base and secured in fixed relation with same.

In the preferred form of my invention, as herein shown, the base of the crane comprises two members 1 arranged in the same horizontal plane and at such an angle to each other that they form a substantially V-shaped frame and a cross member 2 arranged between the members 1 intermediate the ends of said members. The standard of the crane is formed by two uprights 3 connected to the base members 1 intermediate the ends of same and having their upper ends inclined toward each other and joined together by a connecting member. The stationary jib of the crane is formed by an inclined member 4 connected to said base and standard, preferably at the apices of same, and projecting forwardly and upwardly from the upper end of the standard. The jib 4, the uprights 3 and the base members 1 and 2 are preferably formed from pieces of heavy pipe or tubing that are detachably connected together in such a manner that they can be taken apart and assembled easily. Said members can be connected together in various ways without departing from the spirit of my invention, but I prefer to use slip-joint fittings for joining said members together, so as to reduce the cost of manufacturing the crane and enable the crane to be assembled or disassembled easily without the assistance of a mechanic. In the crane herein shown the side members 1 of the base are joined together and connected to the lower end of the jib 4 by a fitting or connecting member C which consists of a casting provided with two tubular-shaped portions 5 that receive the ends of the members 1 and having a tubular-shaped portion 6 that receives the lower end of the stationary jib 4. The connecting member C is provided with an abutment or thrust bearing 6^a against which the lower end of the inclined jib 4 bears, and a similar abutment or thrust bearing 5^a is provided for the base members 1, as shown in Fig. 2. Each of the uprights 3 is connected to its coöperating base member 1 and to one end of the cross member 2 of the base by means of a fitting or connecting member D of the kind shown in Fig. 4, which comprises an open-ended, tubular-shaped portion 7 through which the base member 1 passes, an up-

wardly-projecting, tubular-shaped portion 8 that receives the lower end of the upright 3 and a laterally-projecting, tubular-shaped portion 9 that receives one end of the cross member 2. The connecting member D is also preferably provided with abutments or thrust bearings 8^a and 9^a against which the members 3 and 2, respectively, bear. The fitting or connecting member E that is used to join the uprights 3 together and to connect the standard and the jib of the crane together comprises an open-ended, tubular-shaped portion 10 through which the jib 4 passes and two downwardly-projecting, tubular-shaped portions 11 that receive the upper ends of the standards 3, the member E having abutments or thrust bearings 11^a against which the upper ends of the uprights 3 bear. A sheave or pulley 12 is mounted on the upper end of the jib 4 in a housing F that forms a cap piece for the upper end of the jib 4, said housing having an abutment or thrust bearing 13^a against which said jib bears, as shown in Fig. 5. If desired, the sheave housing F may be provided with two yoke-shaped guides 14 that prevent accidental displacement of the flexible member which passes over the sheave. Any suitable type of wheels, rollers or casters may be used on the base of the crane, but I prefer to provide the base with two casters 15 arranged at the ends of the side members 1, and a swivel caster 15^a arranged at the apex of the base and connected to the fitting C, the casters 15 being carried by members G that form cap pieces for the base members 1. The various fittings or connecting members above referred to are detachably secured to the parts with which they coöperate by means of set screws 16, or other suitable fastening devices.

The base, the standard and the jib are so proportioned and arranged with relation to each other that there is no liability of the crane toppling over when it is used to raise and carry a load of the greatest weight that it is capable of sustaining, this being due to the fact that the load is suspended from a point within the marginal limits of the base, and part of the weight is transmitted to the apex end of the base by means of the inclined jib 4. The crane is exceedingly strong and rigid, as it is formed from pieces of metal pipe or tubing that are securely connected together by castings, and it can be manufactured cheaply on account of the comparatively low cost of such material and the needlessness of many machine operations to fit the parts together. In fact, the only operations involved in building the crane is to cut the pipe to the proper length and tap holes in the connecting members to receive the set screws 16. Furthermore, a crane of the construction above described can be shipped in knock-down form from the manufacturer and assembled easily by the purchaser or user without the aid of a mechanic, the only operations required in assembling the crane being to insert the ends of the pipes in the proper connecting members, and thereafter tighten the set screws 16, so as to retain the pipes in position.

The winding mechanism B is mounted on the jib 4 adjacent the lower end of same, and while it is immaterial, so far as my broad idea is concerned, what particular means is used for raising and lowering the flexible member to which the load is connected, I prefer to use a winding mechanism that comprises a drum 17 that is rotatably mounted in a frame 18, a shaft 19 rotatably mounted on the frame 18 and provided with a pinion that meshes with an internal gear 20 on the drum 17 and a lever 21 for turning the shaft 19. One convenient way of supporting the winding mechanism and holding it in position is illustrated in Fig. 1, wherein the reference character 22 designates a hook to which the frame 18 is detachably connected, said hook being formed integral with a bracket 23 provided with sleeves 24 through which the jib 4 passes, said sleeves being secured to said sheave by means of set screws, or other suitable fastening devices, 25. The load or object to be moved is connected to the lower end of a chain, cable or other suitable flexible member 26 that passes over the sheave 12 and leads downwardly from same to a block and tackle mechanism that comprises pulley blocks 27 and a cable or rope 28 that is adapted to be wound onto and off of the drum 17 when said drum is rotated in opposite directions, one of the pulley blocks 27 being connected to the frame 18 of the winding mechanism and the other pulley block being connected to the flexible member 26, as shown in Fig. 1.

With a hoisting and carrying apparatus of the construction above described a single workman can raise a load weighing three thousand pounds and convey it from one place to another, by simply turning the lever 21 of the winding mechanism, so as to raise the load from the floor or support on which it is resting, and then moving the crane to the place where the load is to be deposited. The apparatus is compact and takes up but little space in a factory and it is so designed and constructed that a comparatively small crane provided with a 6 ft. base, a 6 ft. standard and a jib 10 ft. long can be used for transporting a load weighing over a ton.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is:

1. A portable knock-down crane, comprising a base, a standard on the base, and an inclined jib, formed from pieces of metal tubing and castings detachably connected together, the casting at the upper end of the

standard being provided with an open-ended sleeve or tubular portion through which the jib passes.

2. A portable knock-down crane, comprising a base, a standard on said base and an inclined jib, the standard being formed from two pieces of pipe or metal tubing and a casting that joins the upper ends of said pieces of pipe or tubing together, said casting having an open-ended sleeve through which the jib passes and also abutments that bear against the upper ends of the standard members.

In testimony whereof I hereunto affix my signature in the presence of two witnesses, this twenty eighth day of February 1916.

ROBERT N. EGGLESTON.

Witnesses:
WELLS L. CHURCH,
GEORGE BAKEWELL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."