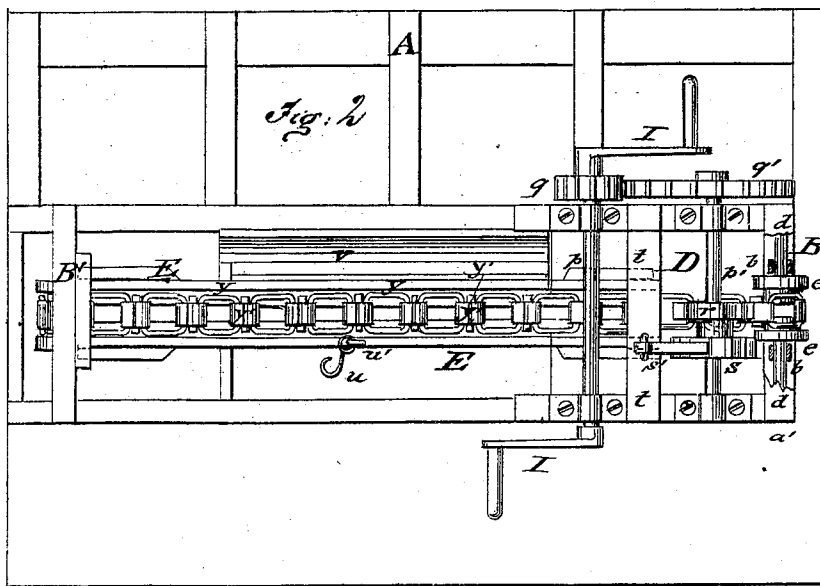


Hoisting and Conveying Apparatus.

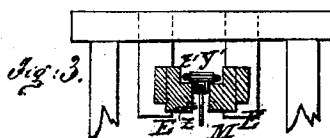
Patented July 29, 1873.



Inventor:

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UNITED STATES PATENT OFFICE.

CHARLES B. STOUGH, OF MONTICELLO, ILLINOIS.

IMPROVEMENT IN HOISTING AND CONVEYING APPARATUS.

Specification forming part of Letters Patent No. **141,297**, dated July 29, 1873; application filed June 7, 1873.

To all whom it may concern:

Be it known that I, CHARLES B. STOUGH, of Monticello, in the county of Piatt and State of Illinois, have invented a new and Improved Hoisting and Conveying Apparatus for Brick-Layers, &c., of which the following is a specification:

In the accompanying drawing, Figure 1 represents a sectional side elevation of my improved hoisting and conveying apparatus; Fig. 2, a plan view of the same, partly in section; and Fig. 3, a detail vertical transverse section of the chain-guides, showing, also, method of suspending the same.

Similar letters of reference indicate corresponding parts.

The object of my invention is to furnish for the use of brick-layers, plasterers, builders, and others, an improved hoisting and conveying apparatus, by which the materials can be hoisted to any height of the building and conveyed to the place of work where the same are wanted. The materials can all be prepared on the ground and be sent up rapidly, saving thereby time, labor, and many inconveniences.

My invention consists of a portable apparatus, having a crank-frame and roller-frames, over which an endless chain is stretched, which is provided with adjustable links and hook-carriages at suitable distances for hoisting and conveying the boxes, platforms, or other receptacles for the materials. Two of the roller-frames are placed on the ground; two others are combined with the crank-frame at any required height above the lower frames and connected by guides which convey the boxes to the place of work. The chain is so constructed that it can pass over the rollers, which have separate shafts and are placed at some distance from each other, to allow the passage of the hooks between them.

In the drawing, A represents the frame-work of a building, scaffold or other structure, to which the hoisting and conveying apparatus is attached. The apparatus may be arranged for any height of the building, as the same progresses, the portable frames being only changed and the connecting-chain lengthened. The apparatus is composed mainly of roller-frames B¹ B², over which the endless chain C is stretched, two or more of these roller-frames conducting the chain near the ground,

two or more to and over the upper story of the building. One of the upper roller-frames is hung in connection with the crank-frame D, which communicates with the other upper roller-frame by guides E, leading to or near the place of deposit of the materials. The lower roller-frame B consists of a centrally-recessed upright block, *a*, which carries on both sides in journals *b* the roller-shafts *d*, to which are keyed at their inner ends in the recess the rollers *e*. The rollers *e* have projecting parts *e'* of smaller diameter, with a clear place between them for the passage of the hooks of chain C. The block *a* rests on beams of frame A, and connects by a board, *f*, with a piece, *f'*, resting on the next beam. Below board *f* is a cross-piece, *g*, extending from beam to beam, to which board *f* is connected by strong screw or bolt connection *g'*, giving a firm base to roller-frame B. By loosening the bolts the roller-frame B may be placed into longitudinal or lateral direction on the beams, and connected rigidly therewith by tightening bolts *g'* to cross-piece *g*. An inclined table, F, with central recess *h* for passage of the hooks, is secured in suitable manner to frame B, and the boxes G, which contain the materials for the workmen, placed thereon and moved up to the hooks to be hoisted. The boxes G are for this purpose provided at their upper ends with staples *i*, and also with movable bottoms and spring-hooks *l* to drop their contents when passing along the place of destination. A boy may be stationed there to tap the spring-hooks *l*. These boxes G may be made of wood, sheet metal, or other suitable material. Above the first lower frame B is arranged the crank-frame D, of sufficient width for the convenient passage of the boxes G. A platform, H, may also be used for sending up buckets of water, tools, sills, workmen, &c., which is hooked to the links of chains C. The objects may be connected with platform H by a rope-and-hook device, *m*, of the same. Crank-frame D has handles *n* for setting the same in position, and two inclined fenders, *o*, between which chain C passes up. They bear against the boxes G to keep them off the chain C while the hooks are passing the upper rollers, preventing thereby the disconnecting or jerking of the same. The upper rollers *e* are hung to the lower side of a lateral piece or block, *a'*, in similar manner as

in lower block *a*. The cranks *I* are placed on crank-shaft *p*, with cog-wheel *q*, which gears into a wheel, *q'*, of shaft *p'*, both shafts being placed laterally on crank-frame *D*. A spur-wheel, *r*, keyed on shaft *p'*, meshes into the open links of chain *C*, the spurs being placed at the same distance as the open links of the chain. A ratchet-wheel, *s*, of shaft *p'* and pawls *s'* prevents the backward motion of the chain *C* when the motion of the cranks is stopped. From a lateral piece, *t*, of frame *D*, are hung two short vertical pieces, *t'*, which are provided with slotted recesses, into which the side supports *t''* of the chain-guides *E* are placed. The chain-guides *E* are parallel to each other, and extend up to the lower side of spur-wheel *r* to take up the chain *C* and guide it along to the upper roller-frame *B'*. The distance of the guides *E* is equal to that of the rollers *e*, so that the hooks may pass along between them. The upper part of each guide *E* is recessed for the width of the chain-links, guiding them smoothly and safely along the same. When the crank-frame *D* and upper roller-frame *B* are placed at great distance from each other the guides *E* may be further supported by an intermediate auxiliary frame with pendent pieces. A hook, *u*, placed in staple *u'* of guide *E*, can be locked into one of the links of chain *C*, and the chains be then placed around the different rollers for putting the apparatus into working order. By passing it under the spur-wheel, and operating the cranks, the chain is stretched, and the exact length of the chain obtained by connecting the proper link to the one held by hook *u*. The ends of guides *E* hang in similar pieces *t'* of upper roller-frame *B'*, and guides *E* may be somewhat inclined from the higher crank-frame toward the roller-frame. The rollers *a* are hung in the same manner to the lower side of the connecting top piece of frame *B* as in the crank-frame, the frame having an opening of the same width for the passage of boxes *G*. The bottom pieces of frame *B'* are attached firmly, in suitable manner, to the beams or flooring of frame *A* to form a stable and secure support for the chain *C*. An inclined board, *V*, and flooring between crank-frame *D* and upper roller-frame *B*, serve for depositing on them the materials when passing along to be taken off for use by the workmen. The lower roller-frame *B''* is constructed like frame *B*, and inclined so that, in connection with an inclined board, *w*, and plane *L*, the empty boxes *G*, on passing down along the chain, are detached and roll over, to be taken up again for refilling, to be again placed on table *F* and the hooks for hoisting. The chain *C* is made of open links *y*, of rectangular form, alternating with solid links *y'*, of cross-shape and the same width, which have two sides bent up over links *Y* to form the connection with them. The chains *C* may, by any one of the links *y'*, be shortened or lengthened, as required. The open part of links *y'* is at the outer side of the chain, the sides of the links

passing along the inner rims of the rollers *e*. As many hooks *M* as necessary may be placed on chain *C*, each hook *M* being pivoted to lugs *z* of link *y'*, which is also provided with small side rollers *z'* for carrying the box *G* easily over the rollers *a* and guides *E*. These small hook-carriages reduce the friction and give a steady motion to the chain with the boxes attached.

The different parts of the apparatus are detachable, and can be changed during the progress of the building, or be removed, as the state of the work demands it.

The rapid and economical working of the apparatus is obvious, so that the progress of the brick-laying, plastering, and other work is greatly expedited thereby.

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

1. The hoisting and conveying apparatus, consisting of frame *A*, roller-frames *B* *B'* *B''*, and crank-frame *D*, in connection with chain *C*, guides *E*, table *F*, boxes *G*, platform *H*, and inclined plane *L*, substantially as and for the purpose described.
2. The roller-frame *B*, consisting of recessed blocks *a*, pieces *f* *f'*, connecting-piece *g*, and bolts *g'*, as described.
3. The roller-block *a*, with journals *b*, carrying-shafts *d* having rollers *e*, with projecting parts *e'*, arranged substantially as set forth.
4. The table *F*, having recess *h* for passage of hook *M*, as set forth.
5. The crank-frame *D*, provided with lateral piece *a'*, with rollers *e*, recessed lateral piece *t*, handles *n*, and fenders *O*, and carrying-shafts *p* *p'*, with cranks *I*, cog-wheels *q* *q'*, spur-wheel *r*, ratchet-wheel *s*, and pawl *s'*, substantially as described.
6. The crank-frame *D*, having lateral piece *a'*, with rollers *e*, as described.
7. The crank-frame *D*, having lateral piece *t*, with vertical pieces *t'*, recessed for support *t''* of guides *E*, as specified.
8. The recessed guides *E*, having side supports *t''*, arranged as described.
9. The guides *E*, having staple *u* and hook *u'* for stretching chain *C*, as set forth.
10. The upper roller-frame *B'*, having rollers *e* and vertical pieces *t'*, substantially as set forth.
11. The chain *C*, constructed of open links *y* and solid links *y'*, and connected as described.
12. The link *y'* having lugs *z*, rollers *z'*, and hook *M*, forming the hook-carriage, substantially as set forth.
13. In combination with lower roller-frame *B''*, the inclined plane *L* and board *w*, for the purpose described.

CHARLES B. STOUGH.

Witnesses:

NATHAN E. RHOADES,
JOHN A. HEATH.