

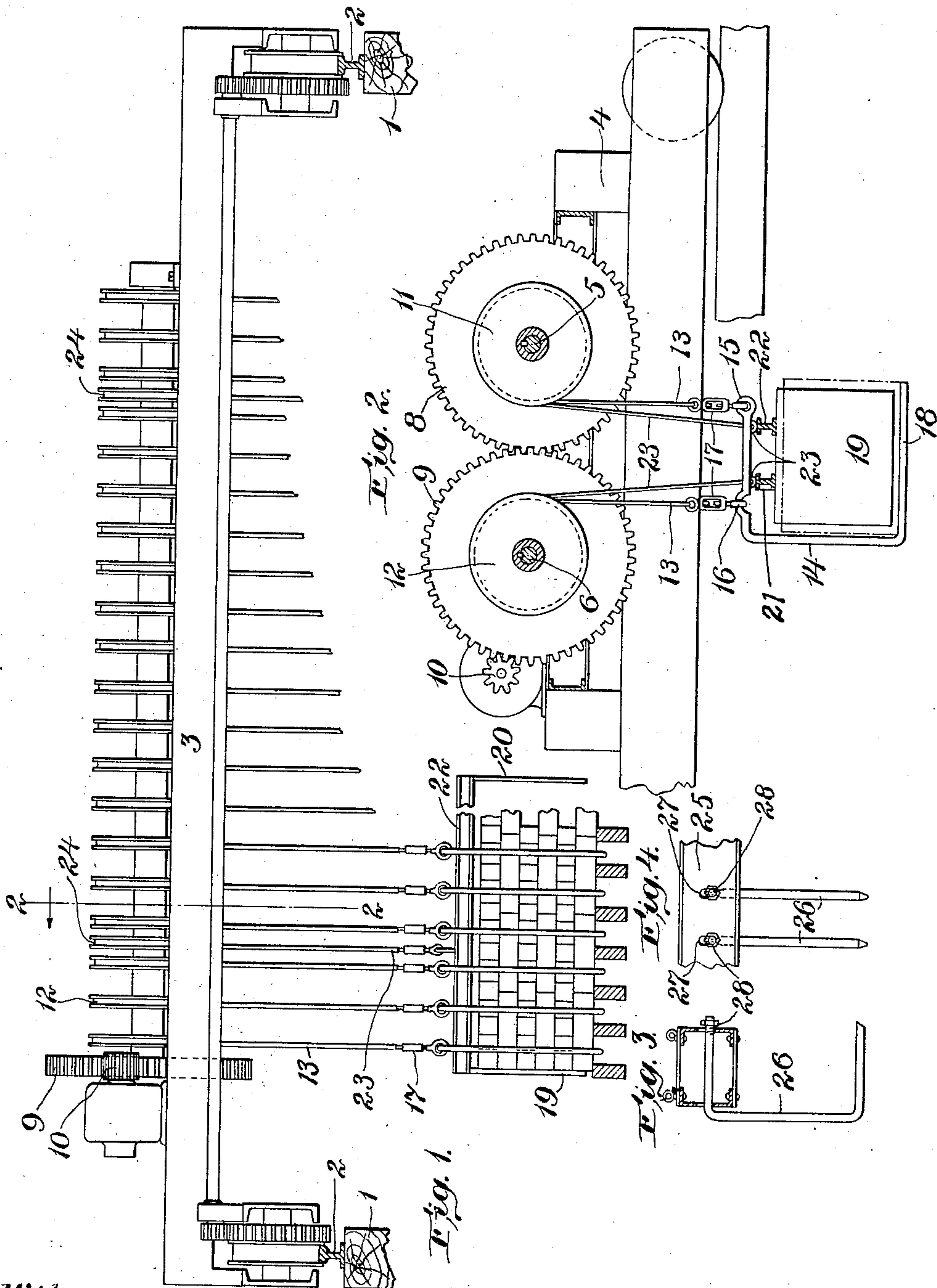
J. P. B. FISKE.

BRICK LIFT.

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898,733.

Patented Sept. 15, 1908.



Witnesses:

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BRICK-LIFT.

No. 898,733.

Specification of Letters Patent.

Patented Sept. 15, 1908.

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To all whom it may concern:

Be it known that I, JONATHAN P. B. FISKE, a citizen of the United States, residing at Newton, in the county of Middlesex and State of Massachusetts, have invented an Improvement in Brick-Lifts for Handling Bricks, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention is an improvement on the kind of apparatus set forth in my Patent No. 646,207 patented March 27, 1900, for handling large bodies of bricks in stacked formation, as fully explained in said patent.

Under some conditions I have found that the bricks do not maintain perfect stacked formation, and in practice it is difficult to deposit and maintain the bricks as originally stacked, so that they get out of alinement more or less and hence it is difficult to use the rigid lifting means set forth in my patent above. For instance, in burning large quantities of stacked bricks considerable shrinkage takes place, as is well known, and during the burning period accordingly the kiln "settles", as it is called in the trade, and shrinks in width and in length, said shrinkage being always accompanied by irregularity, due to various causes, so that the bricks are not only displaced from their original position, but more or less irregularly displaced. For this reason it has been difficult to employ my before mentioned handling apparatus for unloading or emptying the burned kilns in stacked bodies or units.

My present invention provides means for accomplishing readily and rapidly the above object, and to this end I make the various lifting arms or carrying devices yielding or independently movable, so that they can accommodate themselves to the more or less irregular apertures into which they must enter beneath the bricks for lifting a stacked unit of the latter.

While my invention may be carried out in a wide variety of embodiments, I prefer to provide independent hook shaped lifters separately supported by laterally movable means, such as chains or bands suspended from the raising and lowering apparatus. My invention however will be more particularly defined and explained in the course of the following description taken with reference to the accompanying illustrative draw-

ings, in which I have shown two embodiments of the invention.

In the drawings, Figure 1 is a front elevation of the preferred form of my invention; Fig. 2 shows the same in cross section on the line 2, Fig. 1; and Fig. 3 is a transverse sectional view of a modification; and Fig. 4 shows the same in front elevation.

While I do not intend to confine myself, unless specified to the contrary in the claims, to any particular transporting and hoisting means, I prefer the traveling crane type of apparatus, and accordingly have shown opposite uprights 1 on whose tracks 2 travels a crane 3 whose carriage 4 is provided with opposite longitudinal shafts 5, 6 caused to rotate in opposite directions by intermeshing gears 8, 9 driven by any suitable means as by a pinion 10. The shafts 5 and 6 are provided with a series of hoisting pulleys 11, 12, each provided with chains or equivalent lifting means, herein shown as steel bands or ribbons 13. The pulleys are spaced apart to correspond to the distances apart which the lifting hooks 14 should normally have, and the bands or chains 13 are connected thereto at 15, 16, and made adjustable by turn buckles 17, so that the lifting portions or fingers 18 of the hooks may be kept in absolutely true horizontal position as desired.

By suspending the individual hooks separately as thus explained, it will be evident that if the bricks have shrunk or from other cause changed their original regular stacked formation so that the openings between them are not quite as regularly and accurately positioned as at first, the front ends of the lifting portions or fingers 18 will readily find their way into the openings, shifting slightly toward one side or the other as necessary, and changing their relative angle slightly if required until they get into proper position beneath the stack of bricks. If any one of the hooks should not find its opening it will simply swing back or rather remain outside of the stack while the other hooks are moving forward beneath the stack into position for lifting the bricks. Then after all the hooks that can do so have automatically found their proper position, the hooks which have been obliged to remain outside can be inserted by hand.

In view of the fact that the separate hooks are capable of swinging or yielding toward

and from each other there would be danger of the bricks collapsing or swinging apart and thereby dumping the load, especially if there is much irregularity in their stacked formation. Therefore I provide means for co-operating with the independently yielding lifting devices to retain the bricks and prevent the hooks from yielding laterally after they have been lifted into supporting and lifting engagement with the stack of bricks. This means may be provided in various ways, but I prefer to employ opposite end-holders or stack maintainers 19, 20 connected by suitable means as by top cross beams 21, 22, which are supported from the crane by any suitable means as by bands or chains 23 passing over pulleys 24 and operating to raise and lower the stack maintainers simultaneously with the hooks. The stack maintainers 19, 20 and their supporting girders 21, 22 are so proportioned and located as not to interfere with a reasonable amount of movement in all directions on the part of the hooks or lifting devices 14.

In Figs. 3 and 4 I have shown another means of permitting the hooks or lifters to yield in all directions, which approximates more nearly the construction shown in my Patent No. 646,207 above mentioned. In this modification I have provided a carrying beam 25 in which the separate hooks or lifters 26 are movably supported in vertically elongated openings 27 in said beam, being retained by nuts 28 at one end. It will be evident that this construction permits the hooks to swing toward or from each other and the elongated holes or slots 27 permit the hooks to tip angularly with reference to each other or to be raised and lowered by hand within reasonable limits, so that substantially the same movements in these respects are permitted by this construction as in the chain or band suspended construction previously described, and at the same time greater strength and slightly greater precision of forward and backward movement with relation to the bricks are secured, although I prefer the chain construction on account of its greater flexibility, adjustability and economy of construction.

In use the crane is moved nearly over the bricks which are to be lifted, which it will be supposed are in a kiln which has just been burned. The lifting apparatus is lowered by the gears 8—10 to one side and facing the stack of bricks until the portions 18 of the hooks 14 come directly opposite the openings in the bricks which they must enter in order to get beneath the load. Thereupon the crane is run forward slowly, thereby permitting the hooks to feel their way and automatically accommodate themselves to the holes or channels which it is intended that they shall enter. If any individual hook

should strike squarely against a brick or fail to enter or move forward, it may be aided by hand. Also as the hooks are finding their way, the stack maintainers 19—22 slide over the opposite ends of the stack or unit of bricks so that when the hooks have finally reached lifting position the stack as a whole is firmly retained at its ends by the rigid wing-shaped stack holder or maintainers 19—22. Thereupon the hoist is set in operation lifting the stack of bricks bodily without any danger of their tipping apart or collapsing, and when they have been lifted to the height required the crane is caused to travel forward or backward to the position where the bricks are to be deposited. The hoist is again set in motion so as to lower the bricks, which is accomplished quickly, quietly and without any injury to the bricks, notwithstanding the fact that such a large mass has been transported bodily.

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

1. In an apparatus for handling bricks, a lifting apparatus having yielding lifting fingers for entering between rows of bricks in stack formation said fingers being separately movable horizontally and means for lowering and raising the same.

2. In an apparatus for handling bricks, a lifting apparatus having yielding lifting fingers for entering between rows of bricks in stack formation, said apparatus being provided with means permitting the fingers to move vertically with relation to each other, and means for lowering and raising the same.

3. In an apparatus for handling bricks, a lifting apparatus having separably movable fingers provided with means permitting said fingers to move vertically with relation to each other for entering between rows of bricks in stack formation, and means for lowering and raising the same.

4. In an apparatus for handling bricks, a lifting apparatus having separably movable fingers provided with means permitting said fingers to yield laterally and vertically with relation to each other for entering between rows of bricks in stack formation, and means for lowering and raising the same.

5. In an apparatus for handling bricks, a lifting apparatus having yielding lifting fingers for entering between rows of bricks in stack formation, stack maintainers cooperating with said fingers in holding a stack of bricks as an entire body for transportation, and means for lowering and raising the same.

6. In an apparatus for handling bricks, lifting means for lifting an entire stack of bricks, and stack maintaining means cooperating therewith for preventing the stacked bricks from swaying endwise and tumbling

from said lifting means said two means having independent relative movement in a horizontal plane.

7. In an apparatus for handling bricks, lifting means for lifting an entire stack of bricks, opposite vertical wall-like end members, means located entirely out of interference with the stack of bricks and with said lifting means holding said members parallel to each other and preventing their separation, said members being located with relation to the lifting means to prevent the stacked bricks from swaying endwise and tumbling from the lifting means.

8. In an apparatus for handling bricks, a lifting apparatus comprising a series of hook-shaped members, and means for simultaneously lifting all of said members, each member being separately movable horizontally back and forward with relation to the other members.

9. In an apparatus for handling bricks, an overhead movable support, a transverse series of lifting hooks, hoisting means connecting the individual hooks with said overhead

movable support and comprising means normally maintaining said hooks in alinement with each other and permitting the temporary swinging of any individual hook away from said alinement.

10. In an apparatus for handling bricks, an overhead traveling crane, transverse hoisting shafts, a series of lifting pulleys thereon, a corresponding series of hook-shaped lifting devices, and separate flexible connections for said lifting devices to said pulleys constructed and arranged to normally maintain all of the lifting devices at the same level and in alinement with each other but permitting any one of said lifting devices to swing independently of the others as required.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

JONATHAN P. B. FISKE.

Witnesses:

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