

No. 729,939.

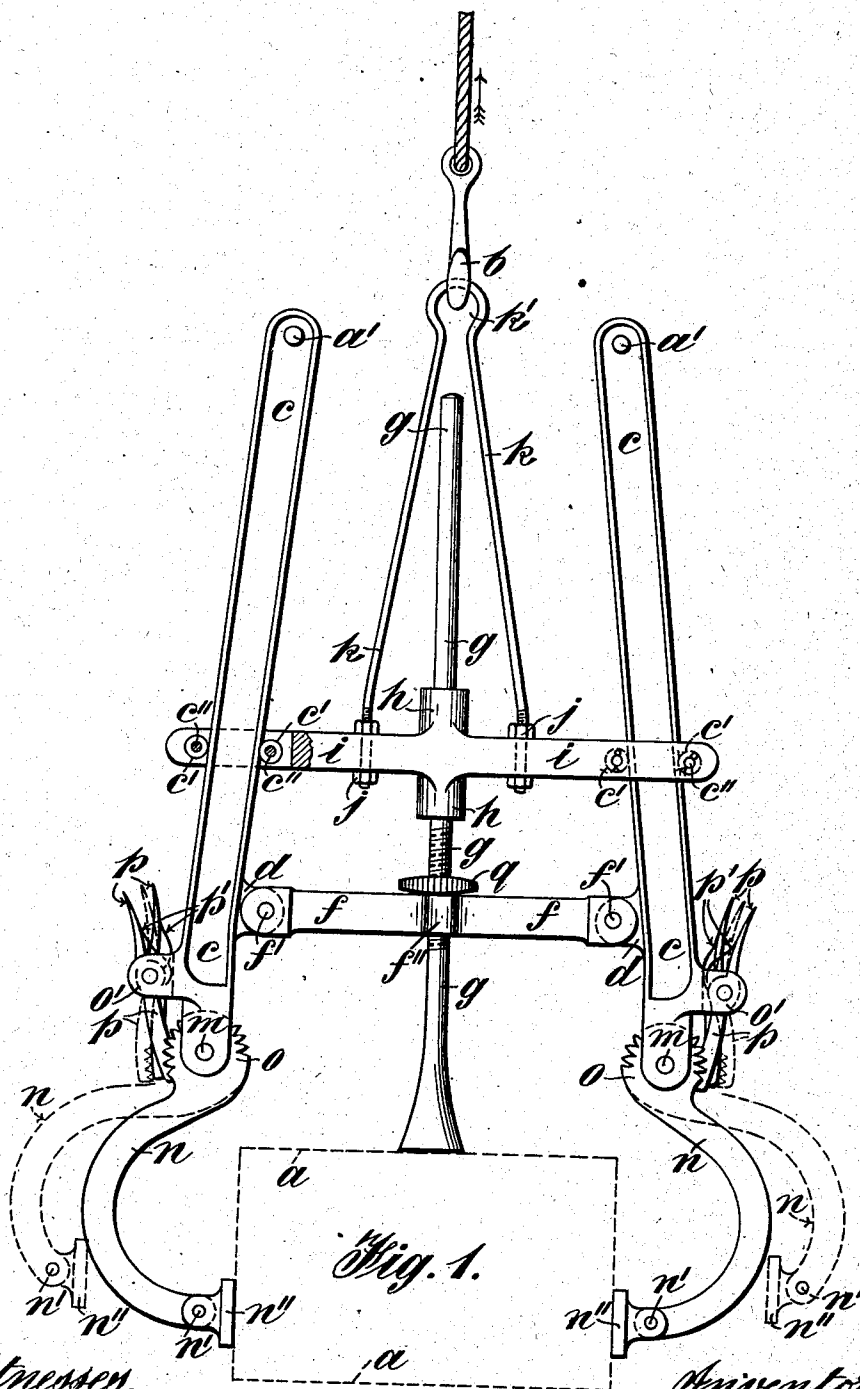
PATENTED JUNE 2, 1903.

J. JONES.
APPARATUS FOR LIFTING STONE, &c.

APPLICATION FILED JAN. 19, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



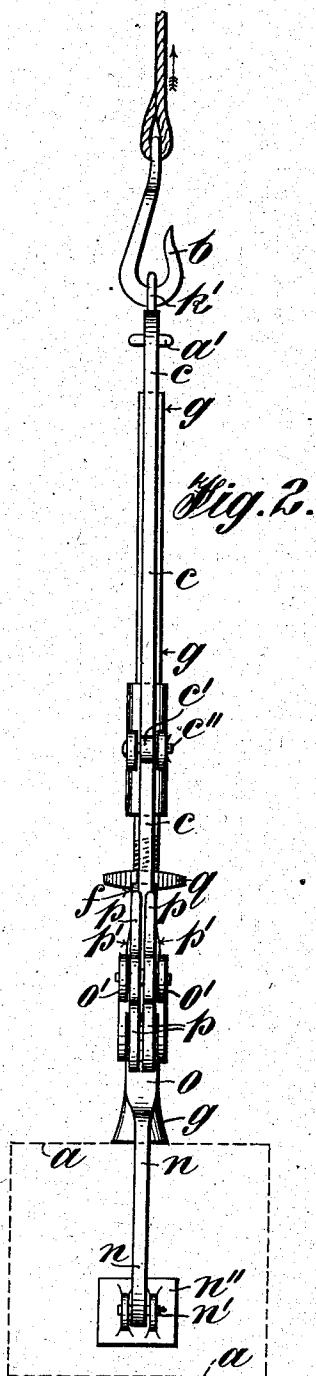
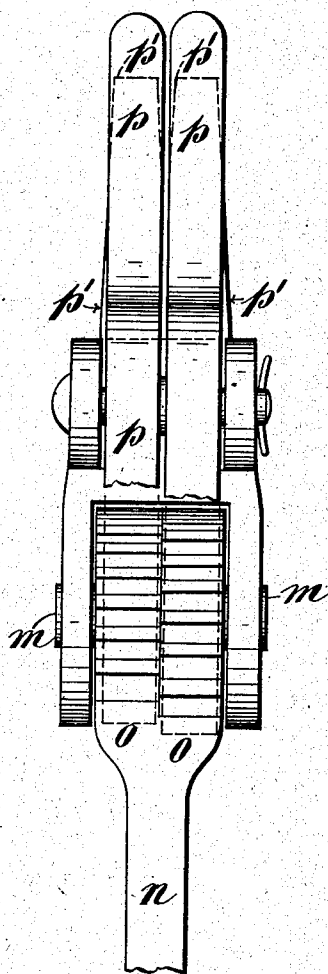
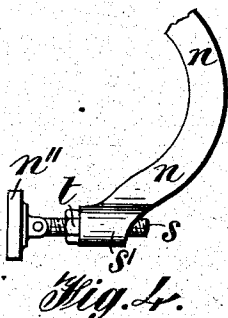
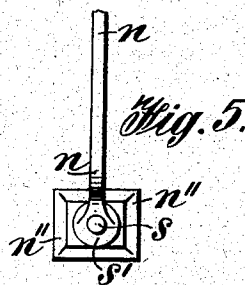
Witnesses.
William A. Colebourne
Mabel Lee.

Inventor.
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

JOHN JONES, OF ASHTON-UNDER-LYNE, ENGLAND.

APPARATUS FOR LIFTING STONE, &c.

SPECIFICATION forming part of Letters Patent No. 729,939, dated June 2, 1903.

Application filed January 19, 1903. Serial No. 139,617. (No model.)

To all whom it may concern:

Be it known that I, JOHN JONES, journeyman stone-mason, a subject of the King of Great Britain and Ireland, residing at 24 Canterbury street, Ashton-under-Lyne, in the county of Lancaster, England, have invented an Improved Apparatus for Lifting Stone or other Material, of which the following is a specification.

10 This invention relates to an improved apparatus for lifting stone or other material, the object being to provide a device principally to take the place of the ordinary "lewis-bolts" used prior to the date of my invention
15 and one by the use of which it is not necessary to drill any holes in the stones for lifting purposes, and consequently there is no liability to damaging the faces of dressed stone or similar material and no probability of stones
20 being released or breaking away from the grip except as required.

My invention will be fully described with reference to the accompanying drawings, in which—

25 Figure 1 is a side elevation of the improved apparatus constructed in accordance with my invention; Fig. 2, an end elevation of same, and Fig. 3, an enlarged view of a detail of a portion of the apparatus. Figs. 4 and 5
30 are side and end elevations, respectively, of a slight modification.

In carrying out my invention with reference to the drawings, *a* represents the stone or other material to be lifted, while *b* indicates the hook of a crane or other hoisting-tackle.

The improved device consists of two side levers *c*, each corresponding in shape and construction to the other. At the lower ends
40 these levers are provided with projecting ears *d* on the inside, to which is suitably connected a cross-bar *f*, preferably by means of pins *f'* passing through the ears and cross-bar, so as to enable the levers *c* to be moved about the
45 pins *f'*, so as to come nearer to or farther away from the center line of the apparatus. The cross-bar *f* is provided with a boss at the center of its length, which is chased or tapped with an internal thread, through which passes
50 a screwed rod *g*, the lower end of which may engage with the stone or other material to be

lifted or may have coupled to it a suitable loose foot. The rod *g* is capable of being screwed in one direction or the other through the boss *f''*, so as to bring its lower end away 55 from or nearer to the stone to be lifted. The upper end of the rod passes freely and loosely through a boss *h*, forming part of a bracket provided with arms *i*, the extreme ends of which are slotted so as to embrace the side 60 levers *c*. The arms and boss forming the brackets have connected to them by means of bolts *j*, pins, or other suitable means stiff iron or like rods *k*, the upper end of which is provided with a loop *k'* for directly attaching 65 the rods to the lifting-hook *b*, or a ring may be interposed between the hook and the rods. The rods and bracket therefore practically form, as it were, a portion of the lifting chain or rope, and in order to eliminate friction as much as possible between the slots in the arms *i* and side levers *c* antifric-tion-bowls 70 *c'* may be mounted in the arms *i* on pins *c''* on one or both sides of the side levers *c*. It will be observed that the latter always incline 75 toward the center line of the apparatus, so that when the arms *i* are in their lowermost position prior to lifting a stone the free ends of the levers *c* are nearest to the lifting-chain, and when the latter is drawn up the antifric-tion-bowls bear against the inside faces of the 80 side levers *c* and open them out, so as to turn the said side levers about the pins *f'*, and so bring the lower ends of the levers nearer to the center of the apparatus. The lower ends of 85 the levers have pivoted to them on pins *m* suitable levers or arms *n*, which are preferably curved. The lower ends of the arms *n* have also pivoted to them on pins *n'* plates or shoes *n''*, preferably, though not necessarily, faced 90 with rubber or similar material that will not damage the faces of dressed stone during the lifting of the latter. I would have it understood, however, that the shoes *n''* may be provided with any suitable form of face—plain, 95 roughened, spiked, or the like—in accordance with the character of the material to be lifted. The upper ends of the arms *n* are embraced by the lower ends of the side levers *c* and, as will be seen, are provided with toothed sectors 100 or portions of spur-wheels. Each lever may be provided with one toothed wheel or sector

only or with two. In the latter case, which is the one indicated in the drawings, the teeth of one wheel are arranged opposite the spaces between the teeth of the other, though both wheels are formed in one piece. At the outside of each side lever *c* is a projecting ear *o'*, to which is pivoted two pawls or catch-levers *p*, each of which at the lower end may be provided with one tooth to engage with the spaces in its corresponding spur-wheel *o*, or with several teeth for greater safety, as indicated in the drawings. One catch-lever on each side is only in engagement at a time with its wheel, the other resting on the top of the teeth, thus allowing of greater variety of adjustment of the arms in relation to the angle of the side levers *c*. The catch-levers are normally kept in contact with the spur-wheels by means of springs *p'*. Pins *a'* or projections are formed on the upper ends of the side levers *c* to prevent the arms *i* being withdrawn from them, and a hand-wheel or nut *q* may be fixed to or adjustably arranged on the screwed rod *g*, either for the purpose of adjusting the latter in the boss *f''* or for locking it in position when adjusted.

The action of the apparatus is as follows: Assuming that *a* is the stone or other material to be lifted and the improved lifting apparatus is suspended from the hook *b* of the hoisting-tackle, it will be understood that as the hook is lowered the lower end of the screwed rod *g* comes in contact with the top surface of the stone. So soon as this occurs the arms *i*, forming the part of the bracket before referred to, continue to pass downward from a position near the upper ends of the side levers *c* until they assume a position nearer to the cross-bar *f*, as indicated in the drawings. In doing this the upper ends of the side levers *c* are brought nearer to the lifting-hook, thereby making acute angles with relation to the cross-bar *f*, the lower ends of the levers *c* extending outward. As this is being done or prior to it the arms *n* can be moved about their pivot-pins *m* to a position such as indicated by broken lines in Fig. 1 by first releasing the pawls or catch-levers *p* from the toothed wheels or sectors *o*. When the apparatus is in its lowest position, the arms *n* can be closed so as to bring the pivoted feet or plates or shoes *n''* against the surfaces of the stone, the catch-levers *p* engaging with the teeth of wheels *o*, so as to lock the arms in position. Hoisting may now proceed, and in doing so the inner ends of the slots formed in the arms *i* or the anti-friction-bowls carried by the said arms engage with the inside faces of the side levers *c*, and therefore tend to force them apart and cause the shoes *n''* to tightly grip the stone and lift it as sufficient pressure is applied. When the stone has been hoisted to the proper position, the shoes are disengaged from it by lowering the hoisting-hook when the lower end of the screwed rod *g* holds the

whole apparatus in position with the exception of the arms *i*, which continue to lower the outer ends of the slots in the said arms or the anti-friction-bowls carried by them, forcing the levers *c* toward the center, and so disengaging the shoes from the stone.

I would have it understood that the constructional details of the invention may be altered without departing from the spirit of the invention. Thus instead of or in addition to the adjustment of the arms *n* being made by means of toothed wheels and pivoted catches the shoes *n''* may be provided with circular screwed shanks *s*, as in Figs. 4 and 5, passing through screwed bosses *s'* at the lower ends of the arms *n*, so that the said shoes could be screwed nearer to the material to be lifted, as required. The screws can be locked in position by nuts *t* or hand-wheels.

The apparatus, I would say in conclusion, has considerable advantages over the lewis-bolts in use prior to my invention and obviates the necessity of drilling the stones, as when such bolts are used.

What I claim as my invention, and desire to protect by Letters Patent, is—

1. An improved apparatus for lifting stone and other material comprising rising and falling arms suspended from the hook of the lifting-tackle, pivoted levers passing there-through, a cross-bar to which the levers are pivoted carrying a screw for adjustment in relation to the stone to be lifted, levers pivoted to the side levers previously referred to provided with shoes or plates at one end to engage with the material to be lifted and at the other end with one or more toothed wheels or sectors and pivoted catch-levers operating in connection with the toothed wheels substantially as described.

2. An improved apparatus for lifting stone and other material comprising rising and falling arms suspended from the hook of the lifting-tackle, pivoted levers passing there-through and embraced by said arms, a cross-bar to which the levers are pivoted carrying a screw for adjustment in relation to the material to be lifted and levers pivoted to the lower ends of the first-named levers provided with plates or shoes to engage with the material to be lifted, the said shoes being capable of adjustment substantially as described and for the purposes set forth.

3. In apparatus for lifting stone or other material, the combination with side levers operated outwardly and inwardly by the rising and falling of a cross-bar connected with the lifting chain or rope and with a cross-bar embracing said side levers of a pair of gripper-levers adjustably pivoted to the lower ends of said side levers and provided with shoes for engagement with the material to be lifted substantially as described.

4. In apparatus for lifting stone or other material the combination with the gripper-

levers provided with shoes for engagement
with the material to be lifted of means for
holding said levers in a fixed position com-
prising teeth formed on the pivoted ends of
5 the levers and catch levers or pawls engage-
able with said teeth into which they are
pressed by springs substantially as described.

In witness whereof I have hereunto set my
hand in the presence of two witnesses.

JOHN JONES.

Witnesses:

WM. A. COLEBOURN,

JAS. STEWART BROADFOOT.