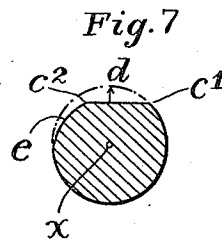
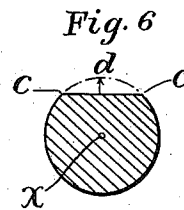
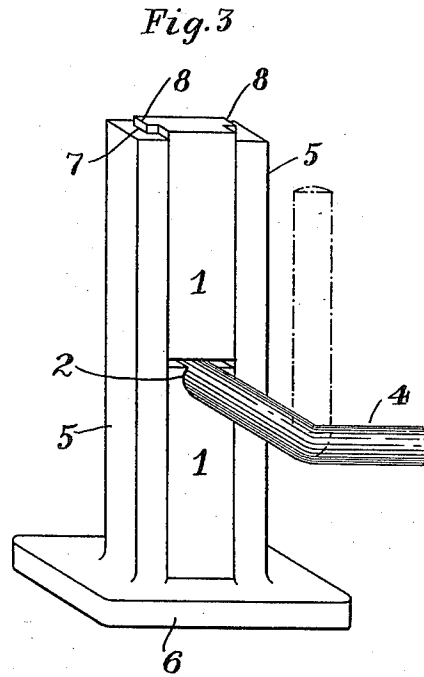
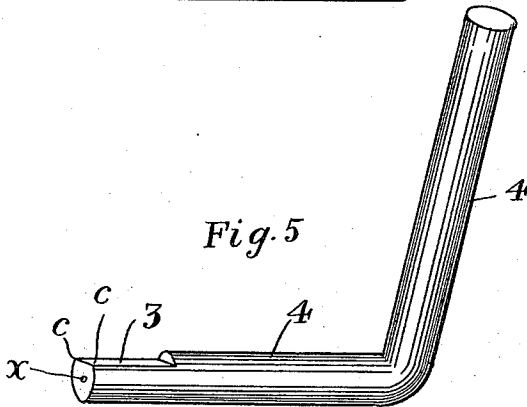
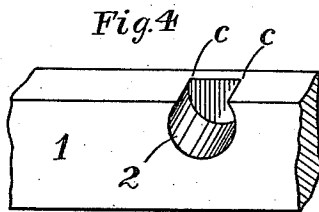
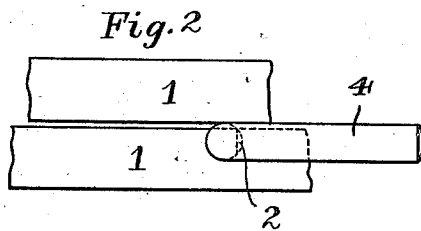
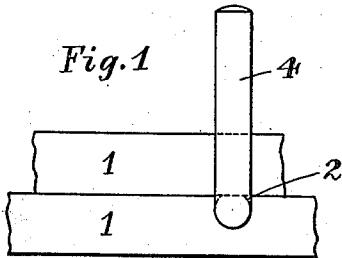


H. WILLSON.
LIFTING KEY.
APPLICATION FILED OCT. 29, 1909.

1,023,775.

Patented Apr. 16, 1912.



WITNESSES:

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HENRY WILLSON, OF NEW YORK, N. Y.

LIFTING-KEY.

1,023,775.

Specification of Letters Patent.

Patented Apr. 16, 1912.

Application filed October 29, 1909. Serial No. 525,314.

To all whom it may concern:

Be it known that I, HENRY WILLSON, citizen of the United States, residing at New York, county and State of New York, have invented new and useful Improvements in Lifting-Keys; and I do hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to a new and improved lifting key.

It relates particularly to a lifting key, which, while not an eccentric in the ordinary sense of the term, does not have its bearing at its center, but is fulcrumed at all points of the circular portion.

The object of my invention is to furnish a cheap, simple and compact device by means of which either light or heavy objects may be lifted through a comparatively small space, with the exertion of a minimum amount of power.

To carry out my invention, I provide a lifting key whose operative portion forms a segment of a circle.

In the drawings: Figure 1 shows my key inserted between two flat surfaces, the lower one being provided with the segmental hole for receiving the key; Fig. 2 shows the operation of the key; Fig. 3 shows its application to a lifting jack, or similar device; Fig. 4 is an elevation of the circular segment forming the key-hole; Fig. 5 is a side elevation of the key; Fig. 6 is a cross-section of the operative portion of the key, and Fig. 7 is a cross-section of a modified form of the same.

Referring to the drawings: 1 are the surfaces to be separated, one of them having formed therein the segmental hole 2, into which is inserted the lifting key 3, which, for convenience of manipulation, is generally provided with a curved handle 4.

5 are two vertical side pieces provided with a base 6, and with grooves 7 in which slide lugs 8 integral with the piece 1. This arrangement forms a lifting-jack.

cc is the chord of the segment. d the lift of the key, and x , the center of the circle of which the segmental end of the lifting key forms a part.

The operation of the key is seen at a glance. Nothing more is necessary than to insert the segmental lifting key 3 into the segmental hole 2 and turn the key either to the right or left.

The segmental portion may form any part

of the circle, the length of the chord cc determining the amount of lift for any given key. It is evident that the greatest lift will be obtained when the chord cc equals the diameter of the circle, and the amount of lift each time is equal to the distance d (Fig. 6), or to the radius minus the distance of the chord from the center.

In Fig. 7 is shown a form of key, in which a portion of the lifting surface is straight and the rest a curve. In this case, it is evident that the lift would be more gradual along the curve c , but the leverage would be more.

There are many uses for such a lifting key, one of which is shown in Fig. 3. With such a jack as there shown it would be easy to raise a heavy object, like a piano, clear of the floor, etc.

Having thus fully illustrated and described my invention, what I claim, is:

1. In lifting devices the combination of a pair of relatively movable members having adjacent faces, one of said faces being provided with a recess having an entirely open outer end and an open side toward the other one of said adjacent faces, said recess having substantially the shape of a segment of a cylinder greater than half of a cylinder; and a lifting key substantially the same shape as said recess and fitting therein and adapted to be turned to contact the face adjacent to the one provided with the recess, and to move said members relative to each other, said key being freely movable in the direction of its axis through said open end.

2. In lifting devices the combination of a pair of relatively movable members having adjacent faces, one of said faces being provided with a recess having an entirely open outer end and an open side toward the other one of said adjacent faces, said recess having substantially the shape of a segment of a cylinder greater than half of a cylinder; and a lifting key substantially the same shape as said recess and fitting therein and adapted to be turned to contact the face adjacent to the one provided with the recess, and to move said members relative to each other, said key being freely movable in the direction of its axis through said open end, said lifting action taking place from the circumference rather than from the center.

3. In lifting devices, the combination of a lower member having a flat upper face provided with a horizontally disposed recess

having an entirely open outer end, an open upper side and having substantially the shape of a segment of a cylinder; an upper member having a lower flat face opposing and adapted to be moved toward and from said upper face; a lifting key of substantially the same shape as said recess and fitting therein and adapted when turned to contact and raise said lower face, and adapted to be freely moved longitudinally into and out of said recess; and means for rotating said key, said means being remote from the recess engaging face of the key.

4. In lifting devices, the combination of a lower member having a flat upper face provided with a horizontally disposed recess having an entirely open outer end, an open upper side and having substantially the shape of a segment of a cylinder; an upper member having a lower flat face opposing and adapted to be moved toward and from said upper face; a lifting key of substantially the same shape as said recess and fitting therein and adapted when turned to contact and raise said lower face, and adapted to be freely moved longitudinally into and out of said recess; and means for rotating said key, said key being adapted to make a complete rotation in the recess in contact with the upper member.

5. In lifting devices, the combination of a lower member having a flat upper face provided with a horizontally disposed recess having a closed inner end and an open outer end and upper side and having the shape of a segment of a cylinder; an upper member

having a flat lower face opposing said flat upper face, a loose key having substantially the shape of said recess and movable freely horizontally into or out of said recess and having an angularly disposed handle at its outer end remote from the part engaging in said recess.

6. In lifting devices, the combination of a lower member having a flat upper face having therein a horizontally disposed recess having the shape of a cylindrical segment larger than a half cylinder and having an entirely open outer end, an open upper side and a closed flat inner wall perpendicular to the axis of the recess; an upper member having a lower flat face opposed to said upper flat face and adapted to rest thereon and to be moved therefrom; a loose key having substantially the same shape as said recess and adapted to fit snugly therein and having a flat end face adapted to contact said wall and having a shoulder adapted to contact the outer face of the lower member, said key being as large in cross-section as said recess and adapted to be moved longitudinally freely into and out of said recess; and an angularly disposed handle at a point on said key at a point remote from said shoulder.

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

HENRY WILLSON.

Witnesses:

ALBERT STETSON,
WM. J. MARTWICK.