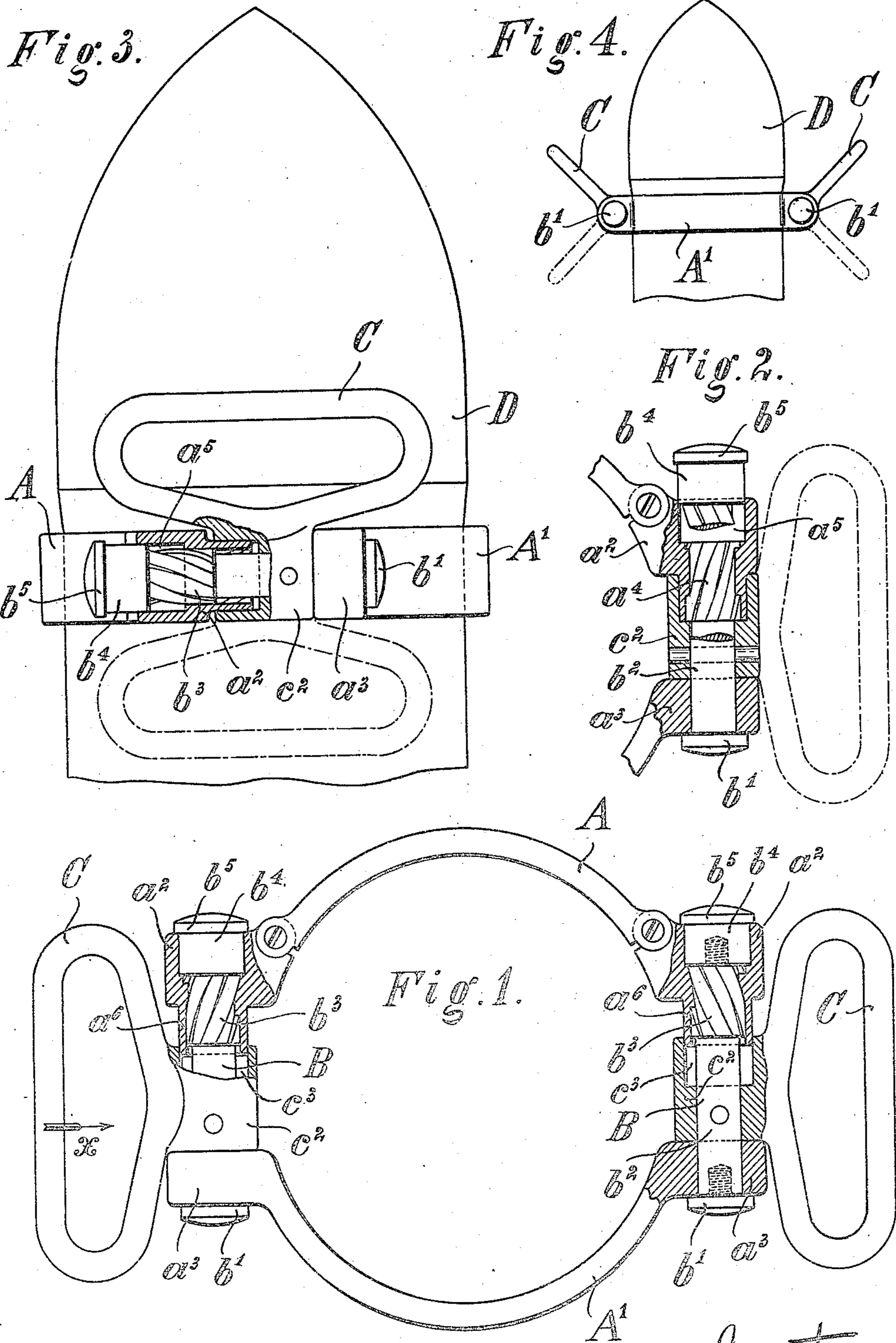


No. 844,239.

PATENTED FEB. 12. 1907.

J. BOGEL.
LIFTER.

APPLICATION FILED JUNE 18, 1906.



Witnesses
J. M. Hylleberg
H. A. Lott.

Inventor,
By Josef Bogel,
Freight Broker Attys

UNITED STATES PATENT OFFICE.

JOSEF BOGEL, OF ESSEN-ON-THE-RUHR, GERMANY, ASSIGNOR TO FRIED. KRUPP AKTIENGESELLSCHAFT, OF ESSEN-ON-THE-RUHR, GERMANY.

LIFTER.

No. 844,239.

Specification of Letters Patent.

Patented Feb. 12, 1907.

Application filed June 18, 1906. Serial No. 322,343.

To all whom it may concern:

Be it known that I, JOSEF BOGEL, a subject of the Emperor of Germany, and a resident of Essen-on-the-Ruhr, Germany, have invented certain new and useful Improvements in Lifters, of which the following is a specification.

The present invention relates to that kind of lifting devices that is provided with two jaws which are movable toward one another; and an object of the invention is to provide a lifter which is simple, reliable, and rapidly-acting.

Other and further objects will appear in the following description and will be more particularly pointed out in the appended claims.

One embodiment of the invention is shown in the accompanying drawings by way of example.

Figure 1 is a plan view, partly in section, of my improved lifter. Fig. 2 shows the right-hand side of Fig. 1 with changed position of the parts, one part being broken away. Fig. 3 is a front view of the lifter looking in the direction of the arrow x , Fig. 1, a projectile being arranged in the lifter and the several parts of the lifter being in the position which they assume when the projectile is firmly clamped therein. Fig. 4 is a front view of the lifter looking in the direction of the arrow y , Fig. 1, the view being on a reduced scale and a projectile being firmly clamped in the lifter.

The lifter consists of the clamping-jaw A, having eyes a^2 hinged thereto, the clamping-jaw A', the two bolts B, and the handles C. The clamping-jaws A A' are curved to correspond to the circumference of a projectile or other object. Each of the bolts B has a head b' screwed into the bolt, a smooth cylindrical portion b^2 , a part provided with screw-threads b^3 of great pitch, and an enlarged smooth cylindrical part b^4 , screwed to the screw-threaded part and provided with a head b^5 . The bolt B is rotatably mounted in the eye a^3 of the clamping-jaw A' by means of the part of its smooth portion b^2 that is adjacent to the head b' , and on the adjoining part of this portion b^2 the handles C are secured by a pin or other means in such a manner that when the

parts are in the position shown in Fig. 1 the handles assume the position shown in dotted lines in Figs. 3 and 4 relatively to the clamping-jaws A A', and their naves c^2 lie against the eyes a^3 of the clamping-jaw A'. The bolt shown to the right in Fig. 1 has left-hand threads, while the bolt shown to the left has right-hand threads. The screw-threads b^3 of the bolt B engage with internal screw-threads a^4 , Fig. 2, on the eyes a^2 of the clamping-jaw A, while the enlarged smooth cylindrical parts b^4 of the bolt fill bores a^5 , Fig. 2, of the eyes a^2 when the parts are in the position shown in Fig. 1. Each of the eyes a^2 is provided with a cylindrical projection a^6 , which is coaxial with the screw-threads a^4 and with the bore a^5 , the projection corresponding to a bore c^3 in the nave c^2 of the handle C. The diameter and the height of the projection a^6 and of the bore c^3 are so selected that the projection a^6 exactly fills the bore c^3 when the parts are in the position shown in Fig. 2.

When used as a projectile-lifter, the dimensions and the relative arrangement of the parts are so selected that when the parts are in the position shown in Fig. 1 the area inclosed by the clamping-jaws A A' is greater than the greatest cross-sectional area of the projectile to be transported. If the handles C of the empty lifter are swung from the position shown in full lines in Fig. 1 and in dotted lines in Fig. 4 toward the position shown in full lines in Fig. 4, the two bolts B and their screw-threads b^3 perform a turning movement, the left-hand-threaded bolt shown to the right in Fig. 1 turning to the left looking from the head b' , while the right-hand-threaded bolt turns to the right. The eyes a^2 , which are prevented from turning due to their being connected by the clamping-jaw A, will consequently move with the clamping-jaw A toward the clamping-jaw A' and the nave c^2 of the handle C. If the handles C are swung farther until they have passed a little beyond the position shown in full lines in Fig. 4, the projections a^6 of the eyes a^2 completely enter the bores c^3 , while at the same time the cylindrical parts b^4 of the bolts B almost leave the bores a^5 , and the parts then assume the relative position shown in Fig. 2, the area inclosed by the

clamping-jaws A A' being in this instance smaller than the smallest cross-sectional area of the projectile to be transported.

By comparing the above remarks with the showing in Figs. 1 and 2 it will easily be understood that the screw-threads b^3 of the bolts B and the internal threads A^4 of the eyes a^2 are continuously closed toward the exterior by means of the telescoping parts b^4 a^5 and a^6 c^3 , so as to be protected against dirt and damage.

The mode of operation of my improved lifter is as follows: While the several parts assume the relative positions shown in Fig. 1, the lifter is inserted over the centering enlargement D, Figs. 3 and 4, of the projectile. The lifter is thereupon lifted by means of the handles C, and due to the weight of the other parts the handles will automatically swing to the position shown in full lines in Figs. 3 and 4. During the swinging movement of the handles the clamping-jaws A A' are moved toward one another in the above-described manner, so as to lie against the projectile, and when the lifter is lifted farther the projectile must be lifted too, as the centering enlargement D prevents the projectile from passing through the lifter. When the projectile is subsequently set down, the clamping-jaws are released for removal of the lifter by swinging the handles C from the position shown in full lines in Figs. 3 and 4 to the position shown in dotted lines in the same figures.

A comparison of Figs. 3 and 2 will show that in the relative position shown in Fig. 3 of the clamping-jaws A A' it is possible to draw the jaws a little closer together, so as to insure clamping action of the jaws in case of projectiles having a little smaller diameter than the normal one.

As the clamping-jaw A is hinged to its eyes a^2 , and as there is always play in the hinge and between the threads b^3 and a^4 , the clamping-jaw A can thus move toward the clamping-jaw A' at one end only. It is therefore possible to obtain a sufficient clamping action even when one of the eyes a^2 is rigidly connected to the opposing end of the clamping-jaw A'—that is to say, when there is only one bolt B, with handle C.

Having described my invention, what I claim as new is—

1. In a lifting device, the combination of two clamping-jaws, and means connecting adjacent ends of the jaws, adapted to move the jaws relatively to one another and carrying handles positioned between the ends of the jaws and by which said means is controlled.

2. In a lifting device, the combination with a pair of jaws, of a pair of handles extending from opposite ends of the jaws, one

of said handles having screw connection with the jaws to cause them to close when the handles are gripped to lift an object.

3. In a lifting device, the combination of a pair of clamping-jaws, screw-threaded means engaging the adjacent ends of the jaws for moving the jaws relatively to one another and handles positioned between the ends of the jaws and controlling the screw-threaded means.

4. In a lifting device, the combination of a pair of clamping-jaws, and a handle between the ends of the jaws movably mounted in one of the jaws and having screw-threaded engagement with the other jaw to cause relative movement of the jaws when the handle is moved.

5. In a lifting device, the combination of a pair of clamping-jaws, and a handle positioned between adjacent ends of the jaws and rotatably mounted in one of the jaws and having screw-threaded engagement with the other jaw to cause relative movement of the jaws when the handle is rotated.

6. In a lifting device, the combination of a pair of clamping-jaws, and a handle rotatably mounted in one of the jaws and having screw-threaded engagement with the other jaw to cause relative movement of the jaws when the handle is rotated, and means for closing the screw-threaded parts toward the exterior.

7. In a lifting device, the combination of a pair of clamping-jaws, and handle rotatably mounted in one of the jaws and having screw-threaded engagement with the other jaw to cause relative movement of the jaws when the handle is rotated, and telescoping means for closing the screw-threaded parts toward the exterior.

8. In a lifting device, the combination of a pair of clamping-jaws, means connecting adjacent ends of the jaws and adapted to move the jaws relatively to one another; and a handle controlling said means and positioned between the adjacent ends of the jaws, one of said jaws, consisting of a plurality of parts movable relatively to one another.

9. In a lifting device, the combination of a pair of clamping-jaws, screw-threaded means connecting adjacent ends of the jaws and adapted to move the jaws relatively to one another; and a handle controlling said means and positioned between the adjacent ends of the jaws; one of said jaws consisting of a plurality of parts hinged to one another to permit relative movement of the parts.

10. In a lifting device, the combination of a pair of clamping-jaws, a pair of handles positioned between the adjacent ends of the jaws rotatably mounted in the ends of the one of the jaws and having screw-threaded engagement with the ends of the other jaw to

move the jaws relatively to one another when the handles are rotated.

11. In a lifting device, the combination with the lifting-jaws, of a handle extending
5 beyond the ends of the lifting-jaws and a screw rotated by the handle and drawing the jaws together.

The foregoing specification signed at Dusseldorf this 28th day of April, 1906.

JOSEF BOGEL.

In presence of—

WILLIAM ESSENWEIN,
ALFR. POHLMAYER.