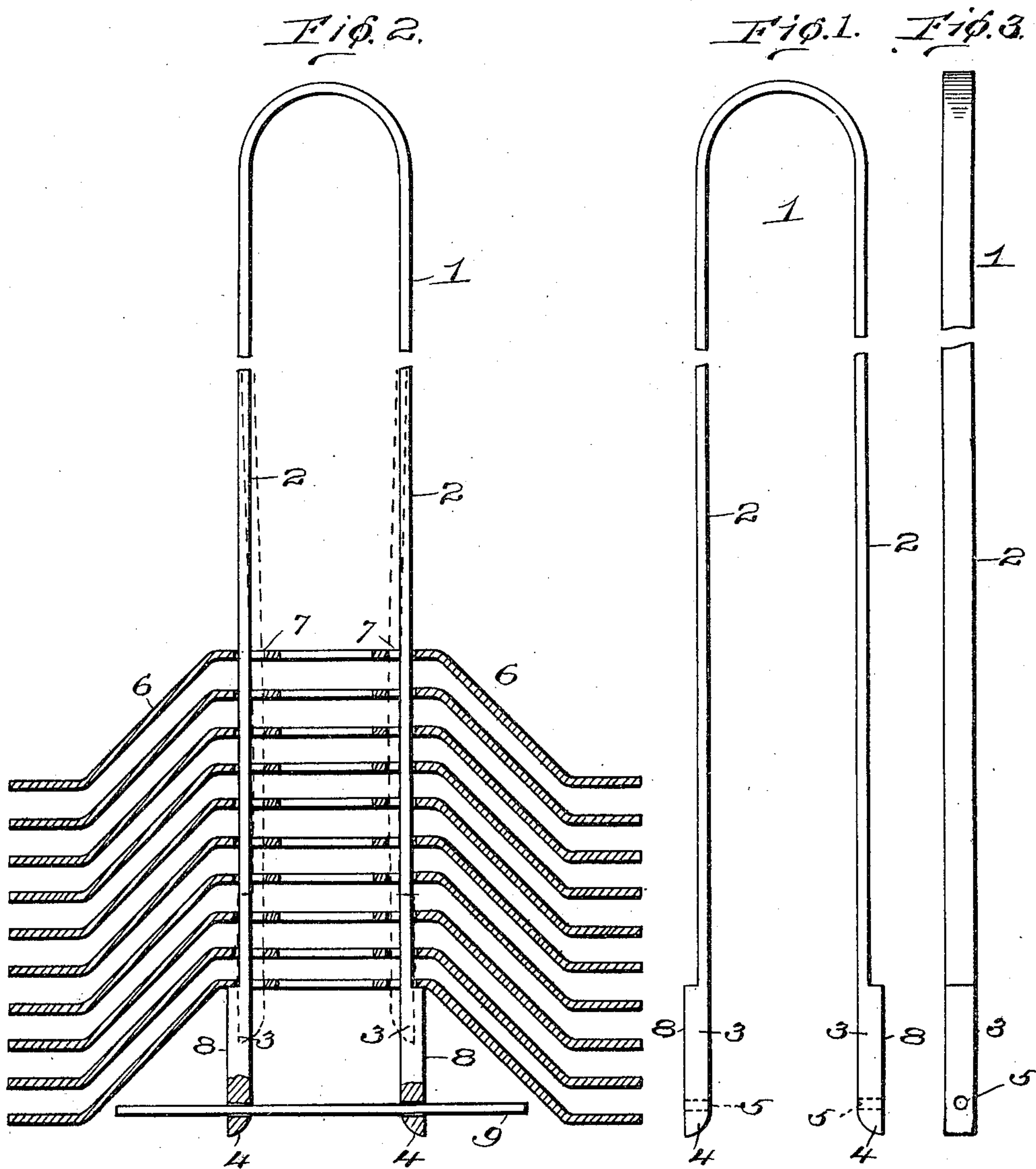


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 LIFTER FOR LINER PLATES OF CENTRIFUGAL SEPARATORS.  
 APPLICATION FILED AUG. 24, 1906.

999,341.

Patented Aug. 1, 1911.



Witnesses

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By

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# UNITED STATES PATENT OFFICE.

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LIFTER FOR LINER-PLATES OF CENTRIFUGAL SEPARATORS.

999,341.

Specification of Letters Patent.

Patented Aug. 1, 1911.

Application filed August 24, 1906. Serial No. 331,876.

*To all whom it may concern:*

Be it known that I, ANDERS THORBJÖRN SALENIUS, a subject of the King of Sweden, and resident of Handtverkaregaten 38, Stockholm, in the Kingdom of Sweden, have invented certain new and useful Improvements in Lifters for Liner-Plates of Centrifugal Separators, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to lifters or devices for quickly and easily removing a stack of liner plates from the drums of centrifugal liquid separating machines for the purpose of cleaning them and by which such stack of plates may be readily returned to place in the centrifugal machine without disarranging them.

It is the object of this invention to provide inexpensive and effective means whereby an entire stack of liner-plates may be quickly removed, cleaned and reinserted in place in the drum of the centrifugal machine.

With these objects in view, the invention consists in a bifurcated spring lifter having spring legs which are provided at their ends with shoulders so constructed that they pass through the registering openings in the stack of plates without being caught between any two adjacent plates and which, when the lifter has been thrust entirely through the stack, automatically holds the same so that it may be lifted out of the centrifugal drum.

My invention consists also, in such further features and combination of parts as will hereinafter be set forth and described in the claims.

In the accompanying drawing, Figure 1 represents an elevation of a liner plate embodying my invention; Fig. 2 a similar view of the same, partly in section and shown in connection with a stack of liner plates, and Fig. 3 an elevation viewed at right angles to Fig. 1.

Referring to this drawing, it will be noted that a lifter constructed according to my invention consists of a bifurcated rod 1 comprising two spring legs 2 2, said legs being so arranged that they will spring into the position indicated in Figs. 1 and 2, but may be bent into the position indicated in dotted lines in Fig. 2, and have a tendency to spring still farther apart than indicated in the Figs. 1 and 2.

The spring legs 2, as shown, are provided at their lower extremities with shoulders 3 3, said shoulders being of substantial length, that is to say, of a length greater than the distance between two liner plates when stacked in the usual manner, and having an outer continuous surface preferably, as shown, parallel to the legs 2 for a purpose to be set forth below. As shown in the drawing these shoulders are formed by thickened portions at the extremities of the legs 2 and, as shown, the said shoulders are tapered or pointed at their ends, as shown at Fig. 4. The shoulders are, moreover, provided at their ends with perforations 5 5 in line with each other and in the plane of the two legs.

In operation, when it is desired to remove a stack of liner plates from the centrifugal drum, the lifter is grasped and the legs are compressed into the position indicated in dotted lines in Fig. 2. Thereby, the operator is enabled to thread or impale the entire stack of liner plates 6, the shoulders 3 being readily guided through the perforations 7 in said liner plates by the continuous outer surface 8 of said shoulders, such guiding being, moreover, assisted by the tapered form of the ends of said shoulders. When the lifter has been thrust entirely through into the position shown, it will automatically spring from its position in dotted lines to the position in full lines, as shown. Thereupon a rod or pin 9 can be thrust through the perforations 5, thereby serving as a bail or handle. The whole may then be grasped by the rod 9 as a handle and inverted and carried to the cleaner and back again to the drum. After the plates are cleaned they are replaced in the drum in the position shown in Fig. 2, the legs are pressed together to disengage the shoulders from the lowermost liner plate by pressing it again in the dotted line position in Fig. 2, whereupon the lifter may be withdrawn from the plates and they are again ready for use in the centrifugal separator.

What I claim and desire to secure by Letters Patent is:—

1. A lifter for liner plates of centrifugal machines and the like, consisting in a bifurcated spring rod having two substantially parallel legs, the extremities of said legs being formed with shoulders of substantial length and having outer continuous



surfaces, whereby the shoulders can be thrust past a stack of liner plates without catching in the space between two plates.

2. A lifter for liner plates of centrifugal machines and the like, consisting of a bifurcated spring rod having two substantially parallel legs, the extremities of said legs being somewhat thickened to form shoulders of substantial length on the outer sides, the surface of the thickened portion being substantially parallel to the legs.

3. A lifter for liner plates of centrifugal machines, and the like, consisting in a bifurcated spring rod having two substantially parallel legs, the extremities of said legs being formed with shoulders of substantial length projecting outwardly from and substantially parallel to said legs.

4. A lifter for liner plates of centrifugal machines and the like, consisting of a bifurcated spring rod having two substantially parallel legs, the extremities of said legs being somewhat thickened to form

shoulders of substantial length on the outer sides, the surface of the thickened portion being substantially parallel to the legs, the shoulders being tapered at their ends.

5. A lifter for liner plates of centrifugal machines and the like, consisting in a bifurcated spring rod having two substantially parallel legs, the extremities of said legs being formed with shoulders of substantial length and having outer continuous surfaces, whereby the shoulders can be thrust past a stack of liner plates without catching in the space between two plates, the shoulders being perforated in the plane of the two legs.

In witness whereof I have hereunto signed my name this 10th day of August 1906 in the presence of two subscribing witnesses.

ANDERS THORBJÖRN SALENIUS.

Witnesses:

CARL FRIBERG,

ROBERT APELGREN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."