

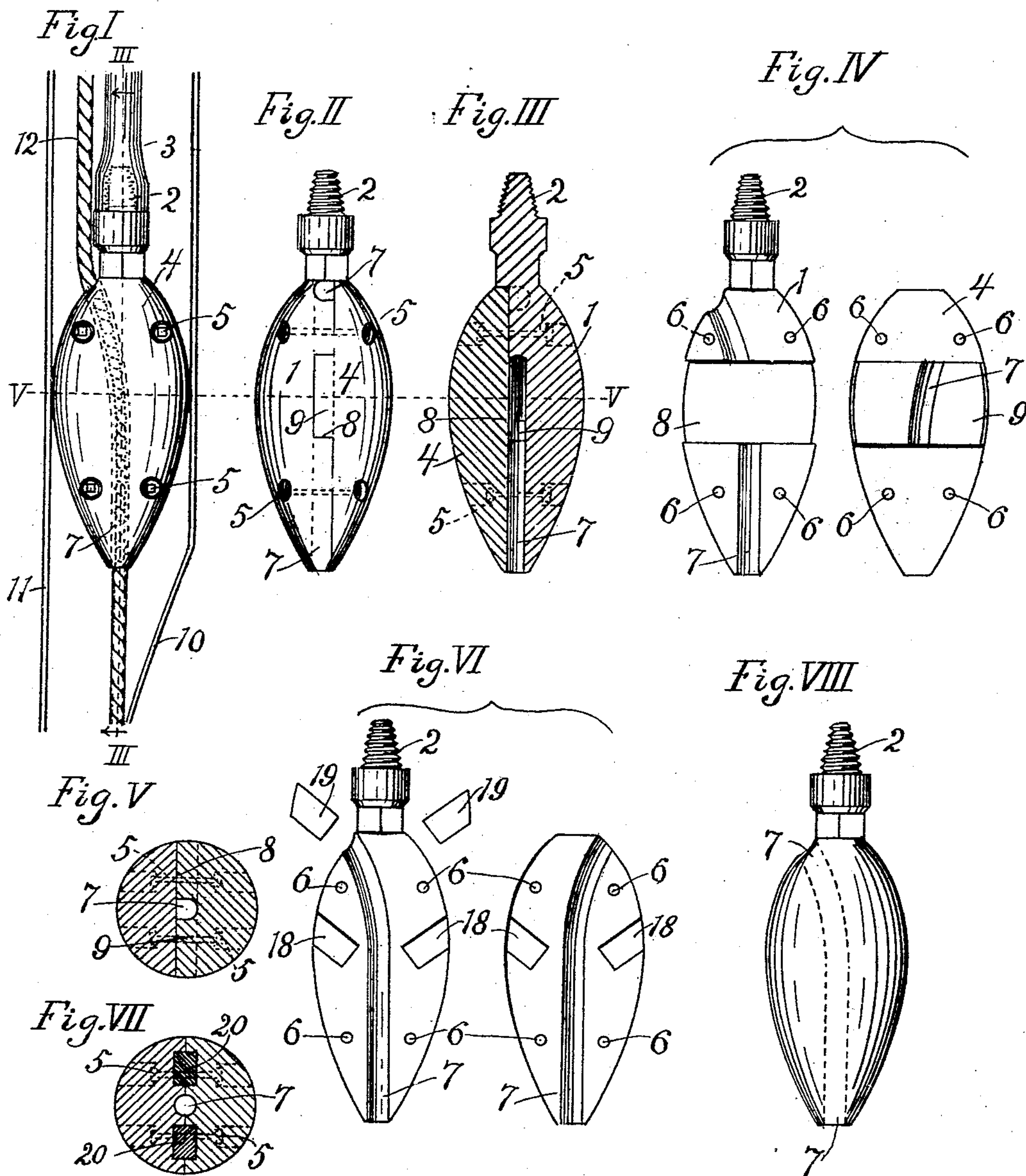
No. 684,363.

Patented Oct. 8, 1901.

F. A. GARBUTT.  
WELL CASING SWAGE.

(Application filed Apr. 8, 1901.)

(No Model.)



Witnesses  
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# UNITED STATES PATENT OFFICE.

FRANK A. GARBUTT, OF LOS ANGELES, CALIFORNIA.

## WELL-CASING SWAGE.

SPECIFICATION forming part of Letters Patent No. 684,363, dated October 8, 1901.

Application filed April 8, 1901. Serial No. 54,958. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK A. GARBUTT, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Well-Casing Swage, of which the following is a specification.

This invention relates to tools for straightening the casings of wells when the same are bent inward from external pressure.

Well-casingswages as heretofore constructed have a screw-threaded pin to screw into the tools, which are raised and lowered by a line, and it has been customary heretofore to groove the outer face of said swage to afford water and air passages to allow the swage to descend. The use of such grooved swages, however, is liable to result in injury to the well-casing at the place where the same is bent in, and in an effort to avoid this difficulty it has been customary to run the grooves spirally around the swage at the bulge thereof; but the difficulty is not thereby fully avoided, and damage to the casing still occurs with the use of swages as heretofore constructed. It also sometimes becomes necessary to use the swage in a well in which a string of tools is in the well below an inbent portion of the casing, so that in order to use the swage it is necessary to cut the rope which carries the string of tools and to operate the swage above such cut rope; but with this method it is not always possible to reach the damaged place with the swage, on account of the obstruction formed in the casing by the cut rope.

An object of this invention is to provide a well-casing swage which will not be subject to any of the foregoing objections.

Another object is to provide a well-casing swage which can be used in a well above a string of tools, while the rope for such string of tools is undetached from the derrick.

The accompanying drawings illustrate this invention.

Figure I is an elevation showing this newly-invented swage as applied with separable parts and in operation in a well for swaging the casing above a string of tools while the rope for said string of tools is in position. The well-casing is shown in vertical mid-section. Fig. II is an elevation of said swage

viewed at right angles to Fig. I. Fig. III is a vertical section of the swage on line III III, Fig. I, looking in the direction of the arrow. Fig. IV is a view of the detached parts of the swage which is shown in Figs. I, II, and III. Fig. V is a cross-section on line V V, Figs. I, II, and III. Figs. VI and VII show detail views illustrating modified forms of the invention. Fig. VIII is a view of a swage embodying the invention when made of a single piece.

1 indicates the main section of the swage furnished with the screw-pin 2 for attachment to the tool 3, which carries the swage. 4 indicates the detachable section, and 5 indicates bolts to pass through holes 6 to hold the two sections together. 7 indicates a passage extending up and down through said swage, the swage shown in Figs. I to V, inclusive, being grooved at the inner face of its separable sections for this purpose. The upper end of this passage opens above the bulge of the swage between the bulge and the pin and is large enough to allow a free water-passage therethrough and is also large enough to allow the passage of the rope or line which carries the string of tools. One of the sections is provided with a transverse groove 8, and the other section is provided with a transverse tongue 9 to fit said groove. The bolt-holes 6 are countersunk at their outer ends to chamber the bolt-head and the nut, and the bolts and nuts are entirely chambered within the swage when the parts are fastened together.

The advantage of the separable sections is that the swage can thereby be readily applied for operation in a well-casing in which a string of tools is held below the inbent portion of the casing.

With the form shown in Figs. I, II, III, IV, and V when the casing becomes inbent above a string of tools the detachable section 4 of the swage will be detached and the grooves 7 of the swage will be brought to inclose the rope 12 of the string of tools and then the detachable section will be fastened in place by the bolts and nuts. Then the swage will be used in the ordinary manner.

The passage 7 through the swage in either form shown in the drawings will be sufficiently large to allow a free water and air passage around the rope in said passage.



In the form shown in Fig. VIII the swage can be applied to the rope of the string of tools by passing the end of said rope through the passage in the swage.

5 The use of the swage when there is no rope in the casing down which the swage is to pass will be the same as with ordinary swages, excepting that there is no danger in any instance of injuring the casing by reason of the  
10 external grooves formerly present in well-casing swages.

In the form shown in Figs. I, II, III, IV, and V the grooves which form the passage 7 extend up and down across the tongue 9 of  
15 one member and across the portions of the other member which project above and below the tongue 9 when the parts are assembled together.

In the form shown in Fig. VI the two sections will be respectively provided with transversely-arranged grooves 18, which slant inward and downward across the inside of the sections, and keys 19 are provided to fit in  
20 said grooves, thus to take all the shearing strain off of the bolts 5. In Fig. VII dowels 20 serve a like purpose.

In practical operation the swage will be attached to the ordinary string of drilling-tools, consisting of stem, rope-socket, and jars,  
30 which are all to be understood from the stem 3, which is shown in Fig. I, and by means of these tools the swage is to be driven through the casing which it is desired to swage. By making the swage in two parts and providing  
35 it with the internal passage 7 and fastening the parts together rigidly the tool can be applied to the cable 12 when the tools at the lower end of the cable are in the well without stringing the cable through the passage, which  
40 would involve considerable labor, and by means of the internal passage the swage maintains the requisite form for performing the work required and also allows the swage and the tools in the well below the swage to be  
45 operated independently of each other. The passage 7 is of sufficient diameter, as indicated by the dotted lines in Fig. I, to allow the tool-rope 12 to run freely therethrough, so that the swage can be freely and forcibly moved down

and up in the casing above the tools (not shown) which are in the well below the portion 10 of the casing to be swaged. The passage 7 is preferably deflected from a vertical, as indicated in Figs. I, IV, VI, and VIII, in order to allow the tool-rope 12 to escape the  
55 tool 3, which carries the swage above the swage, and to hang below the swage in line with the axis of the casing, so as to avoid as much as possible the friction of the rope on the swage in said passage 7 as the swage is  
60 moved down and up along said rope 12 to perform the swaging.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. A well-casing swage provided with an interior open-ended passage which extends  
65 up and down through the bulge of the swage and opens between the bulge and the pin of the swage.

2. A well-casing swage comprising two sections separably fastened together rigidly and grooved to form an open-ended up-and-down interior passage for the rope of the tools in the well whereby the swage is allowed to move  
70 up and down freely in the well-casing to swage the same above the tools in the well.

3. A well-casing swage comprising two sections separably fastened together with interlocking portions and grooved to form an open-ended up-and-down interior passage; and  
80 bolts fastening said sections together.

4. A well-casing swage comprising two sections, one of which is provided with a transversely-arranged tongue and the other of which is provided with a transversely-arranged groove to receive said tongue; an up-and-down groove being provided to form an open-ended up-and-down passage through the swage; and means for holding the sections  
90 together.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, at Los Angeles, California, this 28th day of March, 1901.

FRANK A. GARBUTT.

Witnesses:

JAMES R. TOWNSEND,  
JULIA TOWNSEND.