D. B. WHITEHILL.

DRIVE HEAD OR CAP FOR WELL PIPES OR CASINGS.

APPLICATION FILED MAR. 5, 1908.

900,140. Patented Oct. 6, 1908.

Fig. 1.

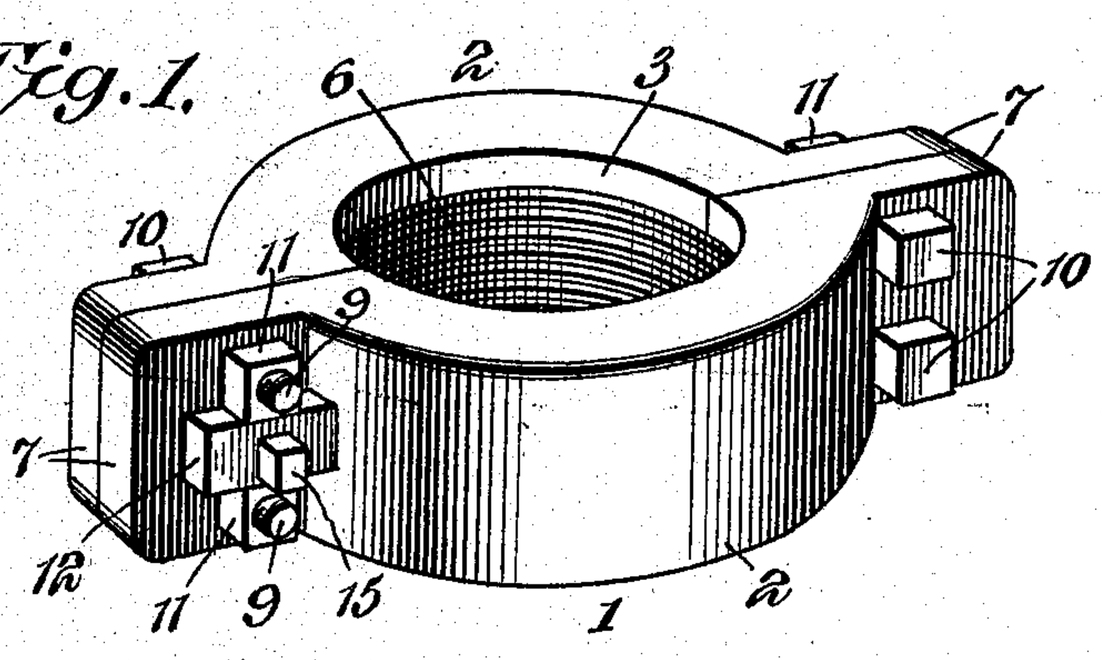


Fig. 2.

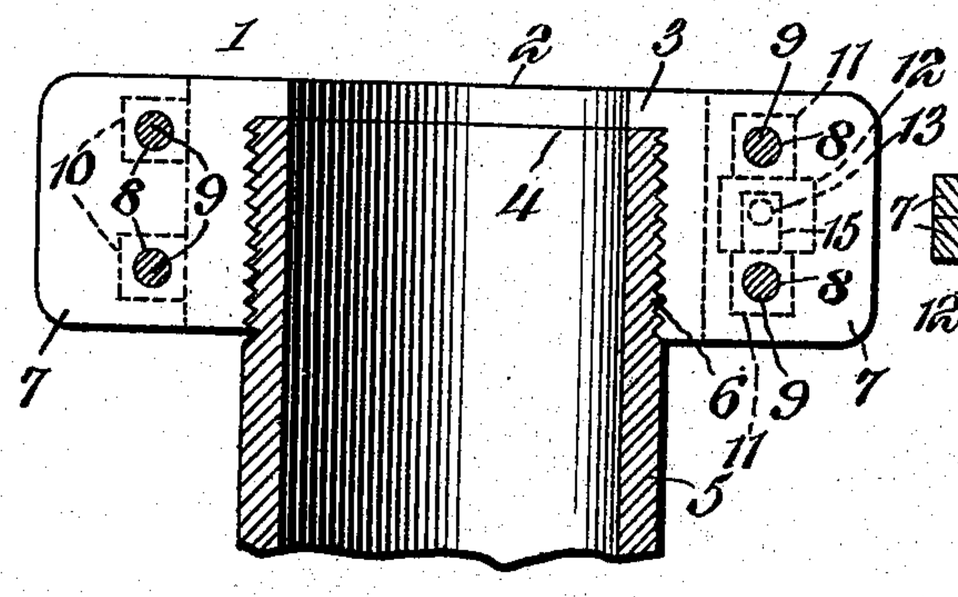


Fig. 3.

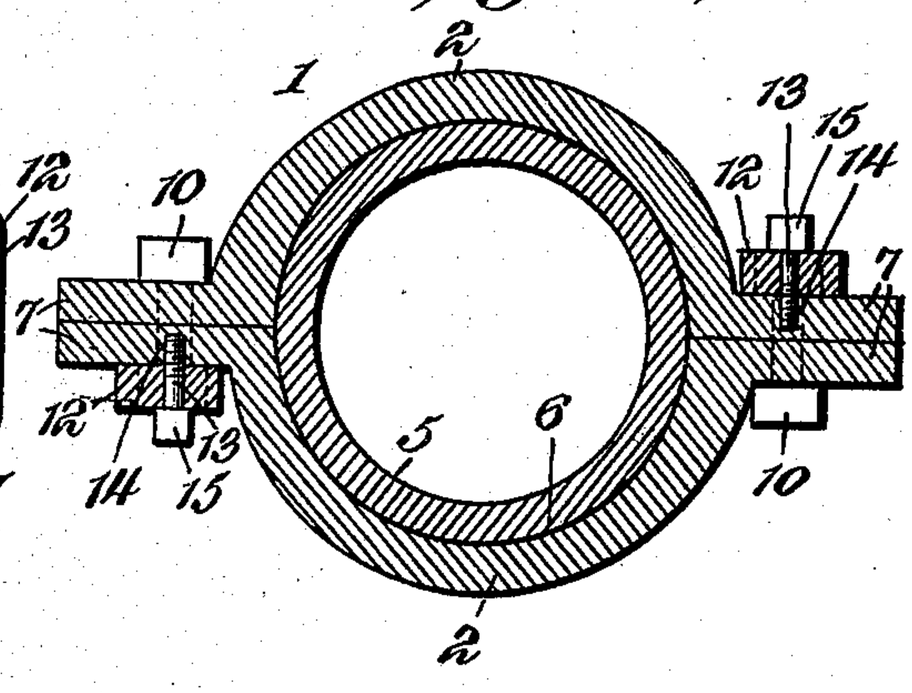


Fig. 4.

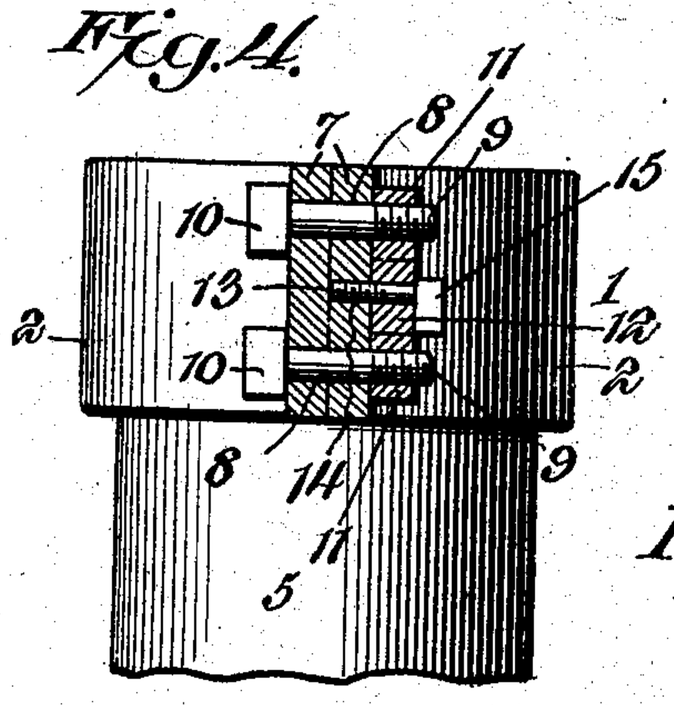


Fig. 5.

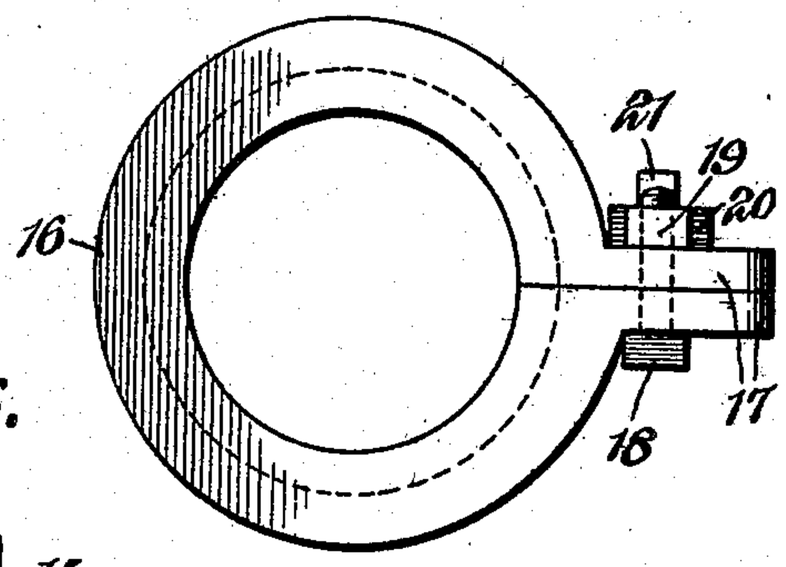
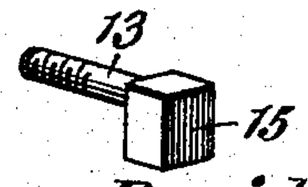


Fig. 6.



Witnesses

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UNITED STATES PATENT OFFICE.

DAVID BROWN WHITEHILL, OF NORTH CLARENDON, PENNSYLVANIA.

DRIVE HEAD OR CAP FOR WELL PIPES OR CASINGS.

No. 900,140. Specification of Letters Patent. Patented Oct. 6, 1908.

Application filed March 5, 1908. Serial No. 419,309.

To all whom it may concern:

Be it known that I, DAVID BROWN WHITEHILL, a citizen of the United States, residing at North Clarendon, in the county of Warren and State of Pennsylvania, have invented a new and useful Drive Head or Cap for Well Pipes or Casings, of which the following is a specification.

The invention relates to improvements in drive heads or caps for well pipes or casings.

In drilling wells where the bed rock is at any considerable depth, a well pipe or casing is driven into the well to prevent the walls thereof from caving in. The well pipe or casing is usually driven in with the auger stem. In practice the well is drilled a certain distance and then the pipe or casing is driven in. After the driving operation, the pipe or casing is cleaned out and another portion of the well is drilled, the driving of the pipe and the drilling of the well being repeated until the bed rock is reached.

Heretofore drive heads or caps have been made in one piece or solid, some in the form of a collar to screw on the pipe or casing, and others to screw into a collar, but all being designed to be screwed downward until the end of the pipe or casing abuts against the shoulder on the cap or drive head. The threads of the sections of the pipe or casing vary slightly and are often imperfect so that the cap or head cannot be screwed onto the pipe or casing far enough for the latter to abut against the shoulder and as a result thereof, the threads are either stripped or otherwise damaged during the driving operation.

The sections of the pipe or casing must be screwed into the couplings until their ends abut, or otherwise the sections are liable to telescope, and when the threads are damaged in driving the well pipe or casing, it is impossible to properly couple the sections, which are frequently entirely ruined.

Another defect of the solid cap is that when the same is struck with considerable force by a heavy weight, the cap rebounds or springs back and loosens sufficiently to damage the threads.

The object of the present invention is to obviate the above objections, and to provide a simple and comparatively inexpensive drive head or cap, capable of expansion and contraction to enable it to be properly screwed onto the end of a section of a well pipe or casing and to be also clamped thereon, whereby it will be effectually prevented from rebounding or otherwise damaging the screw threads. A further object of the invention is to provide simple and efficient means for effectually preventing the nuts of the clamping screws from being jarred loose by the driving of the well pipe or casing.

With these and other objects in view, the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawing, and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawing:—Figure 1 is a perspective view of a divided drive head or cap, constructed in accordance with this invention. Fig. 2 is a vertical sectional view, showing the same applied to a well pipe or casing. Fig. 3 is a horizontal sectional view. Fig. 4 is a vertical sectional view, illustrating the means for preventing the nuts of the bolts from unscrewing. Fig. 5 is a plan view, illustrating a modification of the invention, one side only of the drive head or cap being divided. Fig. 6 is a detail perspective view of the screw having the gravity head.

Like numerals of reference designate corresponding parts in all the figures of the drawing.

1 designates a divided drive head or cap, composed of two substantially semi-cylindrical sections 2 and provided at its upper portion with an interior annular flange 3, forming a horizontal shoulder for abutting against the upper edge 4 of a well pipe or casing 5. The drive head or casing is provided with interior screw threads 6 to engage the screw threads of the upper end of the well pipe or casing, as clearly illustrated in Fig. 2 of the drawing.

The sections of the drive head or cap are provided at their ends with laterally extending ears or flanges 7, having registering perforations 8 for the reception of bolts 9, arranged in pairs for adjustably connecting the sections of the drive plate or cap. The heads 10 of the bolts are rectangular and engage the body portion of the drive head or cap, whereby the bolts are held against rotation. The threaded ends of the bolts are equipped with nuts 11, spaced apart and

engaged by a rectangular block or member 12, interposed between the nuts of each pair of bolts and secured to the contiguous ear or flange 7 by means of screws 13, piercing the block or member 12 and engaging the threaded perforation 14 of the said ear or flange. The rectangular block or member 12 prevents the nuts from rotating so that there is no liability of the bolts being loosened by the jar and vibration incident to the driving of the well pipe or casing. The screw 13 is provided with a gravity head 15 of rectangular form, eccentrically connected with the body portion of the screw and forming a weighted extension, which is turned down so as to depend from the screw, as illustrated in Fig. 4 of the drawing. This weighted extension operates by gravity to prevent the screw from rotating.

In Fig. 5 of the drawing is illustrated a modification of the invention, the drive head or cap 16 being split or divided at one side only and provided thereat with ears or flanges 17, connected together by bolts 18 having nuts 19, which are locked against rotary movement by means of a block or member 20. The block or member 20 is secured to the contiguous ear by means of a screw 21 having a gravity head similar to the screw 13 heretofore described. The split or divided drive head or cap, shown in Fig. 5, is capable of expansion and contraction to enable it to be properly screwed onto a section of a well pipe or casing, and to be securely clamped on the same after it has been screwed in proper position.

Preparatory to applying the drive head or cap to the well pipe or casing, it is loosened slightly to permit it to be easily screwed onto the pipe or casing until the upper edge of the latter abuts firmly and properly against the interior shoulder of the drive head or cap. The bolts are then tightened to firmly clamp the sections of the well pipe or casing, whereby the drive head or cap is effectually held against movement independently of the well pipe or casing. This will enable the pipe or casing to be driven into a well with any desired force without injuring the screw threads of the former by reason of the drive head or cap moving on the pipe or casing.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. An expansible drive head or cap for well pipes or casings interiorly threaded to engage the threads of a well pipe or casing and provided with an interior shoulder to abut against the said pipe or casing, and means for clamping the head or cap in engagement with the well pipe or casing.

2. An expansible drive head or cap for well pipes or casings provided with an interior shoulder to fit against the upper end of a well pipe or casing, said head or cap being provided with projecting ears or flanges, and adjustable means for connecting the ears or flanges to clamp the head or cap on the well pipe or casing.

3. An expansible drive head or cap for well pipes or casings provided with interior threads and having an interior shoulder, said head or cap being split and provided at the split portion with projecting ears or flanges, and bolts connecting the ears or flanges for clamping the head or cap on a well pipe or casing.

4. An expansible drive head or cap for well pipes or casings split and provided with projecting ears or flanges, bolts piercing the ears or flanges and having heads engaged with the head or cap, nuts arranged on the bolts, and a block or member interposed between the nuts for holding the same against rotary movement.

5. An expansible drive head or cap for well pipes or casings split and provided with projecting ears or flanges, bolts piercing the ears or flanges and having heads engaged with the head or cap, nuts arranged on the bolts, a block or member interposed between the nuts for holding the same against rotary movement, and a screw piercing the block or member and provided with an extended gravity head to prevent it from rotating.

6. A drive head or cap provided with interior threads and having an interiorly arranged flange forming a shoulder for engaging a drive pipe or casing, said drive head or cap being composed of two sections provided at their ends with projecting ears or flanges, and fastening devices piercing the ears or flanges and adjustably connecting the shoulders for clamping the drive head or cap on a well pipe or casing.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

DAVID BROWN WHITEHILL.

Witnesses:

MARGRETTE BENNINGHOFF,

L. N. BENNINGHOFF.