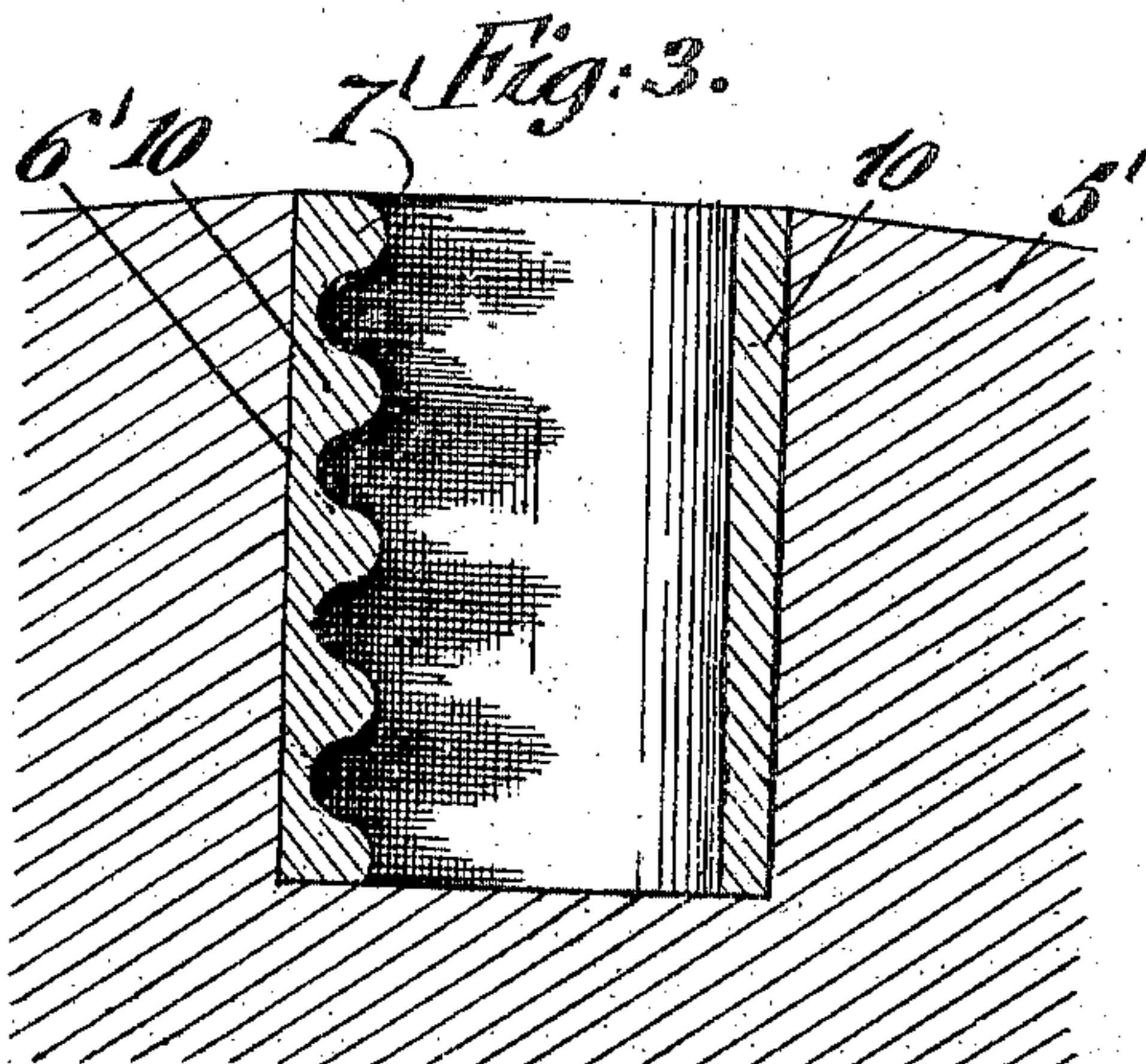
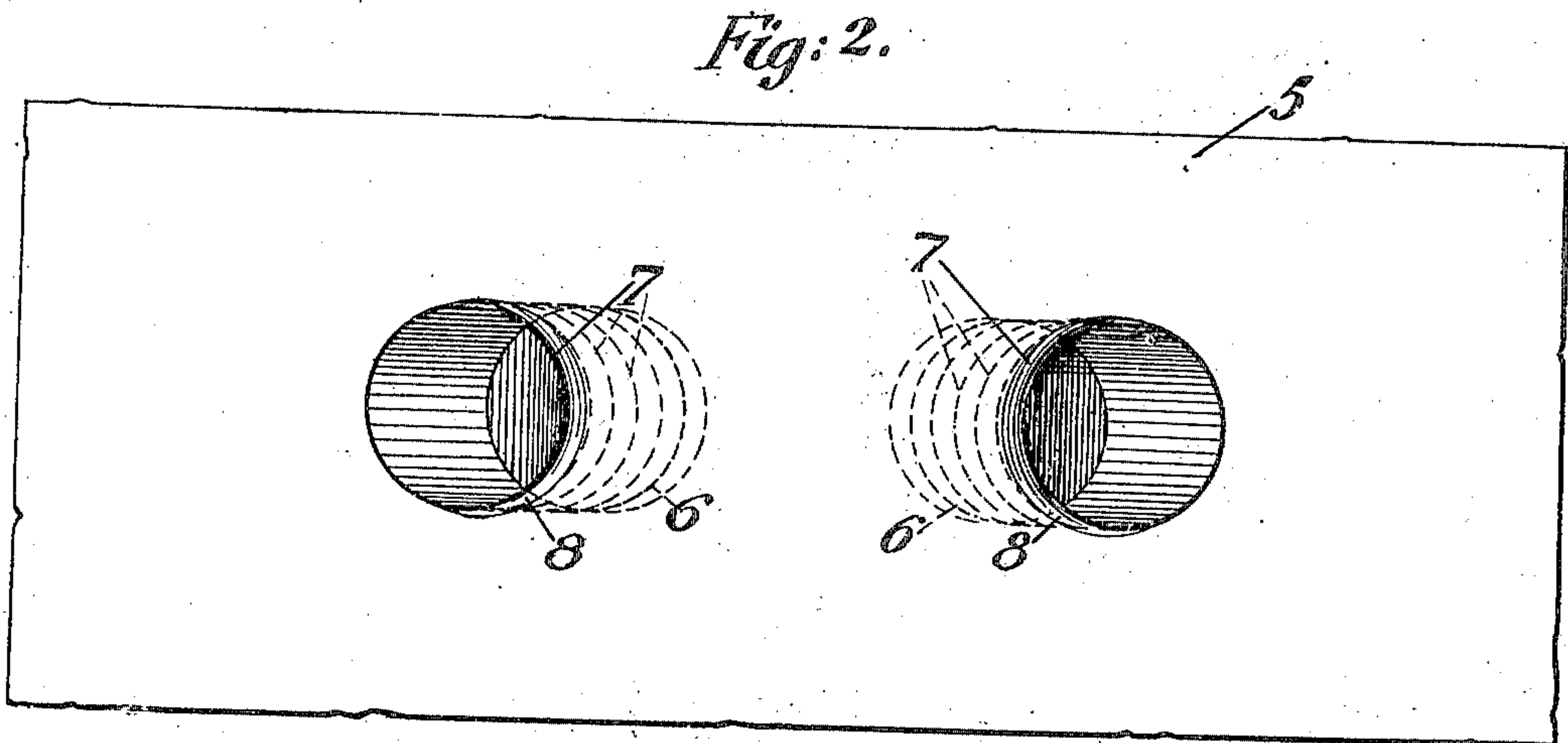
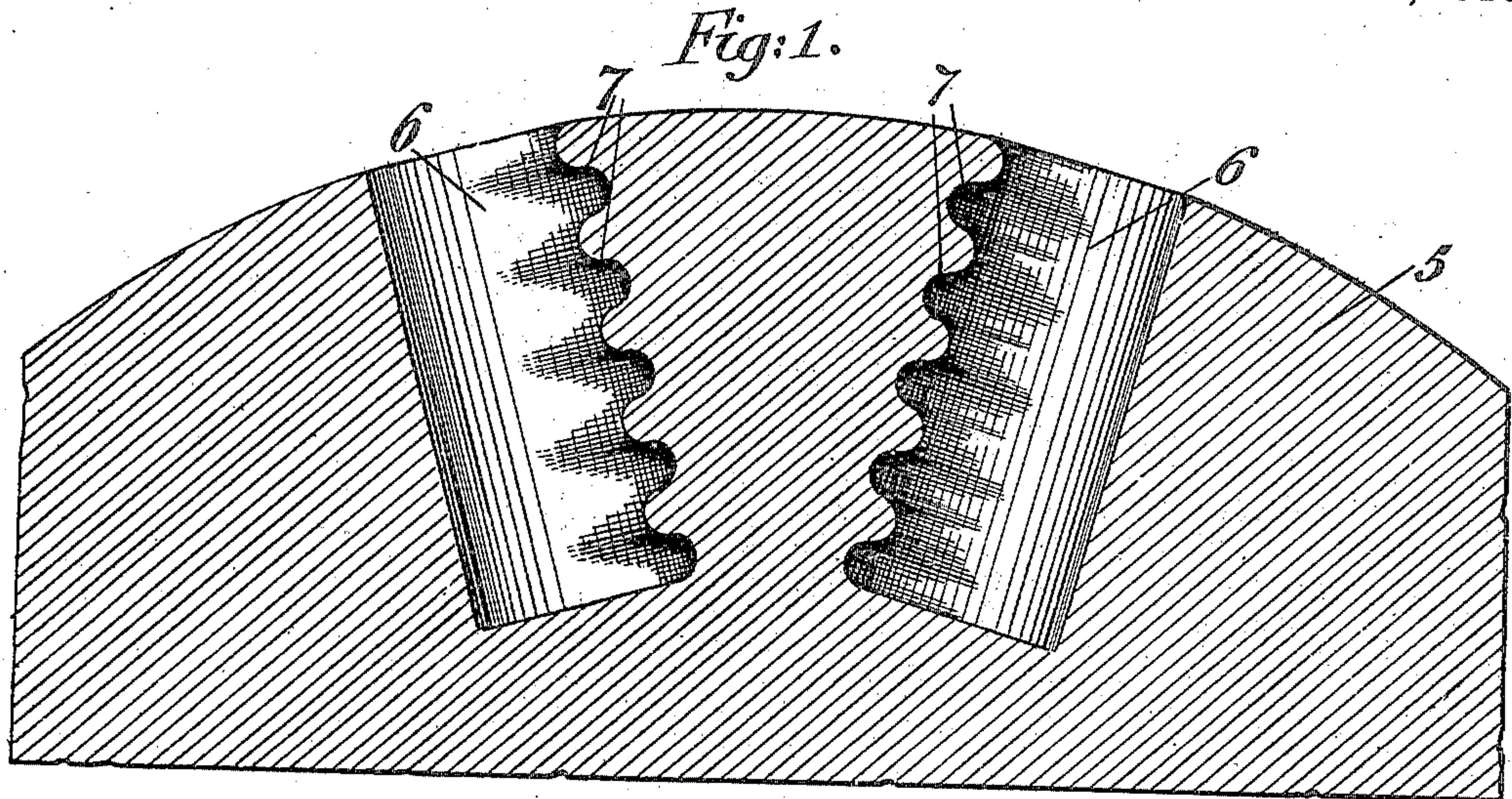


M. CAVANAGH.  
TENPIN BALL.  
APPLICATION FILED NOV. 5, 1909.

950,838.

Patented Mar. 1, 1910.



Witnesses:  
*John Murtagh*  
*James Fick*

Inventor  
*Michael Cavanagh*  
By his Attorneys  
*Joseph Goepfer*



# UNITED STATES PATENT OFFICE.

MICHAEL CAVANAGH, OF NEW YORK, N. Y.

TENPIN-BALL.

950,838.

Specification of Letters Patent.

Patented Mar. 1, 1910.

Application filed November 5, 1909. Serial No. 526,323.

*To all whom it may concern:*

Be it known that I, MICHAEL CAVANAGH, a citizen of the United States of America, residing in New York, in the borough of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Tenpin-Balls, of which the following is a specification.

This invention relates to an improved tenpin ball and has for its object to provide a ball which may be easily and conveniently grasped for rolling or bowling, in such a manner as to prevent the ball from slipping out of the bowler's hand and at the same time not injure the tender skin at the back of the finger and thumb.

For this object the invention consists in a tenpin ball provided with substantially radial bores or holes close enough together to receive the thumb and finger of the player, which holes are provided at their adjacent curved surfaces with corrugations extending substantially from top to bottom of one side of the hole, whereby a convenient surface for preventing the slipping of the hand of the operator is secured, the remaining surface of the holes being smooth.

In the accompanying drawings forming a part of this specification, Figure 1 is a central section through a portion of the ball and showing the corrugated holes in inside elevation, Fig. 2 is a plan view of a portion of a ball, and, Fig. 3 is a view showing a modified form of ball, in that separate members with corrugations are inserted in the holes of the balls.

Similar reference characters indicate corresponding parts.

Referring more particularly to the drawing, an embodiment of my invention is shown comprising a ball 5 provided with substantially radial bores or holes 6 near enough to each other to be conveniently grasped by inserting the thumb and finger of the hand of the player. These holes converge toward each other as shown, and to prevent the slipping of the thumb and finger of the player, the surface of the holes on the sides nearest each other are provided with corrugations 7 which may be of any desired or suitable dimensions. The corrugations are so arranged as to be deepest at the part gripped by the player and gradually de-

crease in depth until they pass practically imperceptibly into the uncorrugated portion. This gradual change of depth is clearly shown at 8 in Fig. 2. This arrangement provides a smooth surface at the back of the thumb and finger whereby contact with said surface will not injure the tender skin at the back of the thumb and finger when the ball is leaving the hand.

The ball is handled in the usual manner and the corrugations form a convenient and comfortable grasping surface, whereby the ball may be easily and securely held without fatiguing or straining the fingers, thus rendering the game more pleasant and enjoyable.

In Fig. 3 a modified form of ball 5' is shown, which consists in having separately inserted members 10, having the corrugations 7', as described, and which may be readily inserted in the holes 6' of the balls.

It is of course understood that I do not limit myself to the particular form of hole or corrugations shown, or to their relation to each other, since my invention consists in providing the gripping side of holes of bowling balls with corrugations, each varying in depth from maximum to minimum where they pass into the smooth bore of the remaining part of the hole.

I claim:

1. A ten-pin ball having a pair of holes adapted to receive the thumb and finger, the surface of each of said holes being corrugated on the side nearest the other hole where it is adapted to be grasped, the remaining portion of said surface being uncorrugated.

2. A ten-pin ball having a pair of holes adapted to receive the thumb and finger of a player, the curved surface of each hole being corrugated on one side of the hole, the surface of the other side of the holes being smooth, the corrugations gradually diminishing in depth and merging into the smooth side.

In testimony, that I claim the foregoing as my invention, I have signed my name in presence of two subscribing witnesses.

MICHAEL CAVANAGH.

Witnesses:

FANNIE FISK,  
J. A. COOK.