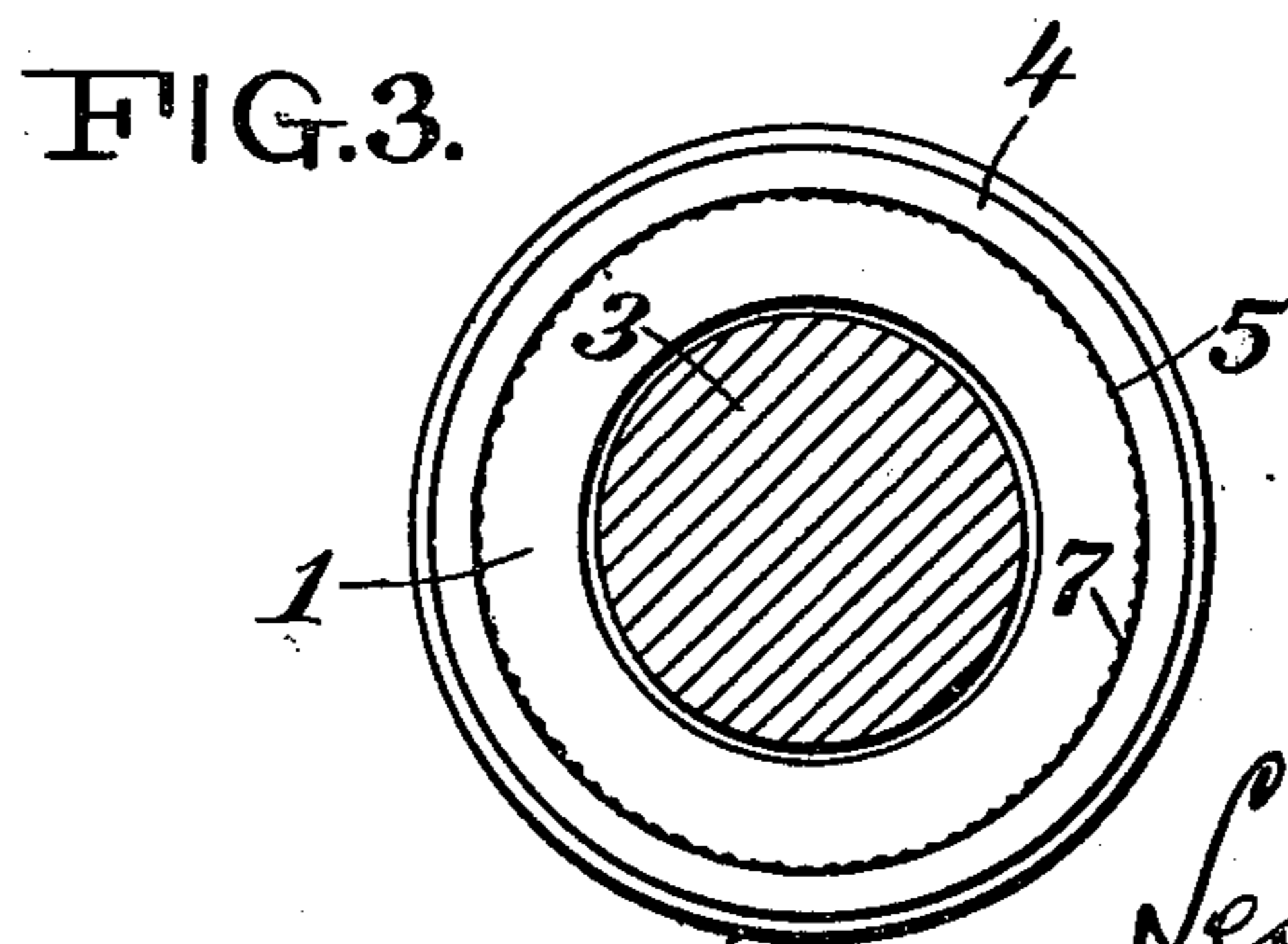
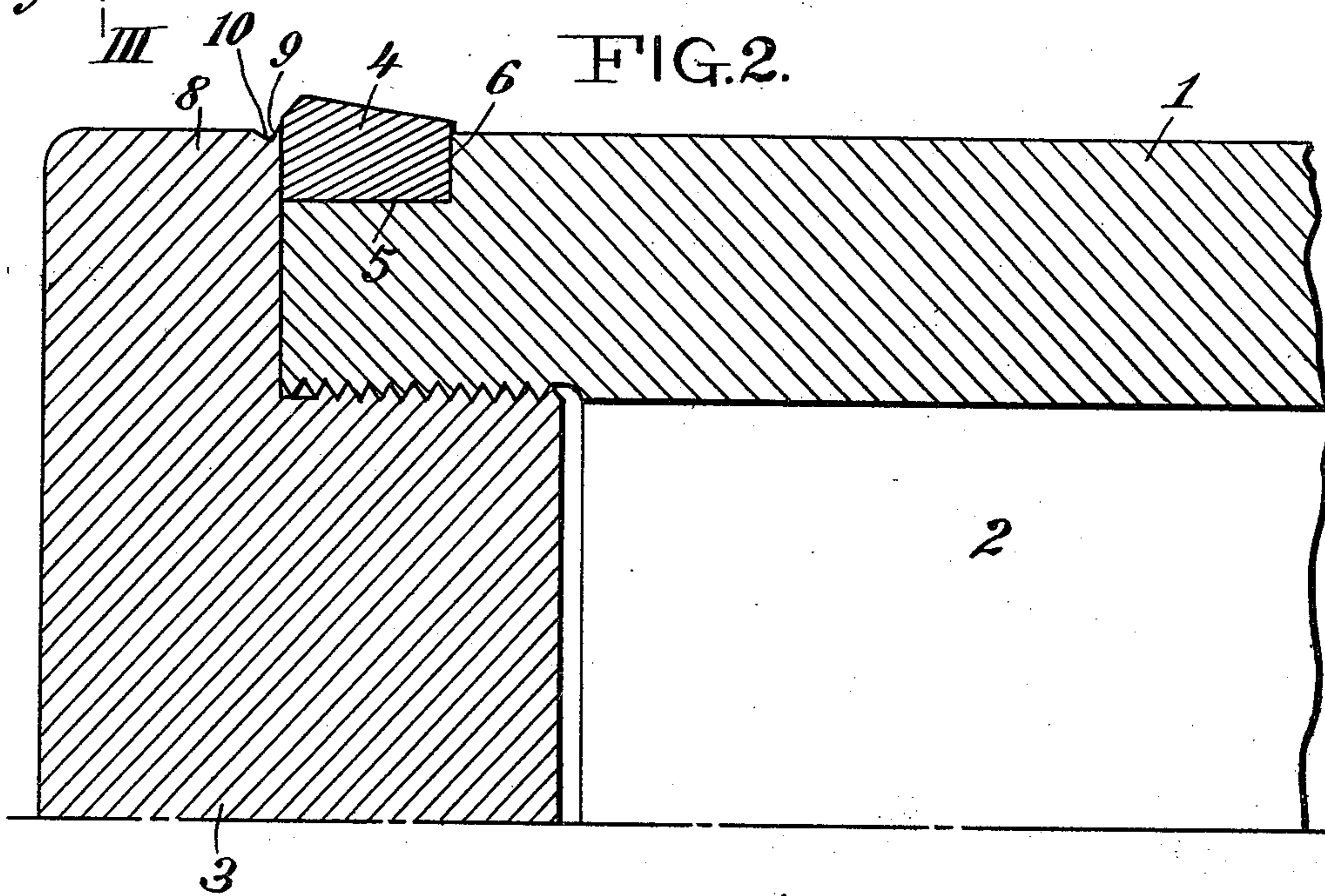
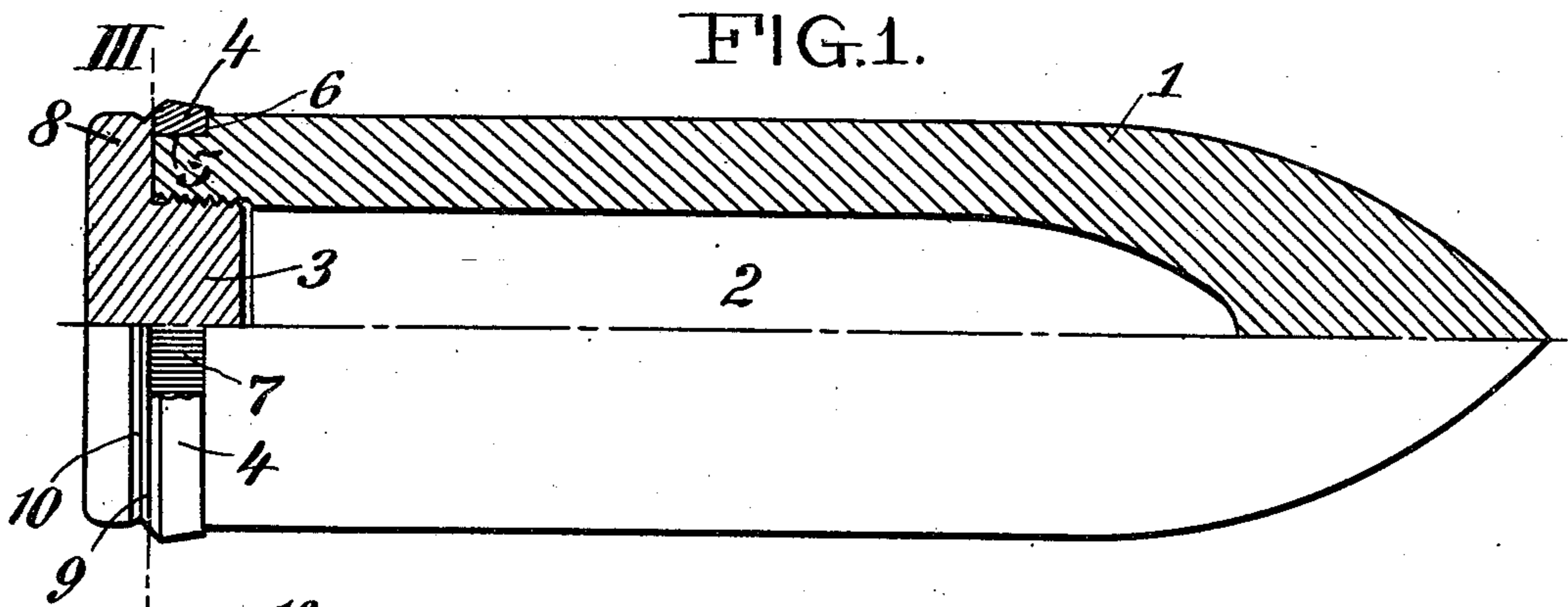


L. J. McNAIR.
PROJECTILE.
APPLICATION FILED JUNE 26, 1909.

998,712.

Patented July 25, 1911.



Witnesses:
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UNITED STATES PATENT OFFICE.

LESLEY J. McNAIR, OF THE UNITED STATES ARMY.

PROJECTILE.

998,712.

Specification of Letters Patent.

Patented July 25, 1911.

Application filed June 26, 1909. Serial No. 504,519.

To all whom it may concern:

Be it known that I, LESLEY J. McNAIR, a citizen of the United States of America, lieutenant in the United States Army, have
5 invented certain new and useful Improvements in Projectiles, of which the following is a specification.

My invention relates to projectiles and particularly to an improved construction
10 in which a rotating band of heavy cross section may be used and may be readily applied without the necessity of being upset or reduced in diameter and without the use of
15 any special apparatus such as dies, or hydraulic presses.

My invention also contemplates the use of improved means for preventing the leakage of gases under the rotating band and of means for preventing the slipping of the
20 rotating band on its seat.

In projectiles for use with rifled guns, a rotating band or ring must be secured to the projectile for engagement with the rifling to transmit rotation from the latter
25 to the projectile. These rings are usually made of relatively soft material, such as copper, which will be grooved by the lands of the rifling and thus take the rotation from the latter. It has heretofore been the
30 common practice to cut an annular channel in the surface of the projectile and into it to force a copper ring formed of sufficient diameter to slide over the projectile. These rings were originally upset or shrunk in, so
35 to speak, by hammering, but the result is now more commonly accomplished by forcing the projectile and ring through a tapered die, or by the use of a multiple plunger hydraulic press acting on several points of the
40 circumference of the ring simultaneously. All of these methods of reducing the circumference of a comparatively large ring to fit a seat of less diameter, are cumbersome and expensive and preclude the use of
45 a ring of more than a very limited thickness. As a consequence of the use of such rings of small cross section the rings frequently become broken by centrifugal force when the projectile leaves the gun, the flying
50 fragments of the broken ring being a serious menace to the safety of the gunners. By the use of my improved construction, all of these difficulties are obviated.

In the accompanying drawings, which
55 form a part of this specification, I have illustrated in detail one specific modification of

my invention, but it is to be understood that I do not desire to limit myself to the precise construction shown, as it is obvious that numerous changes may be made therein. 60

In these drawings Figure 1 is a side view of a projectile embodying my invention, one-half in section and one-half in elevation. Fig. 2 is a longitudinal sectional view upon an enlarged scale of a portion of the projectile shown in Fig. 1. Fig. 3 is a transverse section taken on the line III—III of Fig. 1. 65

Referring to the drawings in detail, 1 is a projectile having a cavity 2 for the reception of an exploding charge, a plug 3 being provided for closing this cavity. 4 is the rotating band or ring which is mounted upon the seat 5 and against the shoulder 6 formed on the projectile. The seat and shoulder or
70 one of them are preferably knurled or otherwise roughened as shown at 7, in order to insure a firm grip of the rotating band thereupon and prevent relative movement between the rotating band and the projectile. 80
To retain the rotating band upon the projectile and to take up the shock to which it is subjected when the projectile is seated in loading the gun, I provide the plug 3 with a flange 8 which engages the rear face
85 of the band 4 and prevents rearward movement of the latter. To seal the joint between the flange and the band and prevent the leakage of gases under the latter I preferably form a fin 9 at the forward edge of
90 the flange, which is sufficiently thin to be bent forward under the influence of the powder pressure and forced in close contact with the rotating band. The joint between the flange and the band is thus effectively sealed. I preferably form this fin by cutting a groove 10 in the periphery of the flange near the forward face of the latter. 95

To assemble the parts of my projectile the ring or band 4 which is made of a diameter to closely fit the seat 5 is forced over the latter and against the shoulder 6. The shell is then charged and the plug 3 screwed in, when the flange 8 will seat against the rear face of the band 4 and positively retain the
100 latter in position. The shell is now ready for use. 105

As will be seen from the foregoing description, a structure is provided in which the parts may be assembled without special
110 apparatus, such as tapered dies, or hydraulic presses. A rotating band of any thickness

or cross section desired may be used, no greater difficulty being experienced in applying a thick band than a thin one.

Having thus described my invention, I
5 claim:

1. In combination with a projectile having a seat for a rotating band and a cavity for the reception of a charge, a rotating band mounted upon said seat, and a plug for closing
10 said cavity having a flange engaging the rear face of said rotating band, said flange having a thin annular sealing fin lying in contact with said rear face.

2. In combination with a projectile having
15 a seat for a rotating band, a rotating

band thereon, a member secured to said projectile having an outwardly projecting flange engaging the rear face of said rotating band; and an annular groove cut in the periphery of said flange near the forward
20 face of the latter to form a wall or fin lying in contact with the rear face of said band, said wall or fin being sufficiently thin to bend under the influence of the powder pressure and seal the joint between the flange
25 and the rotating band.

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Witnesses:

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