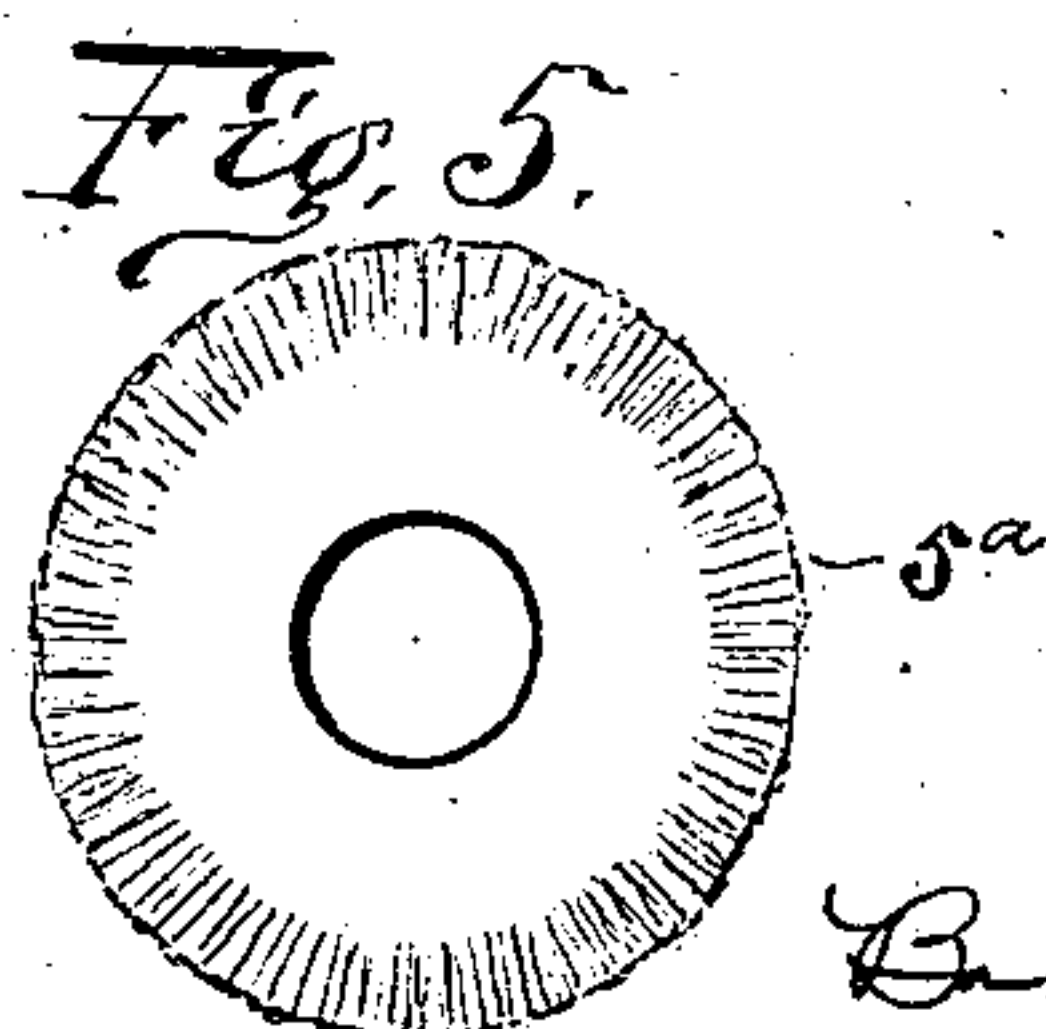
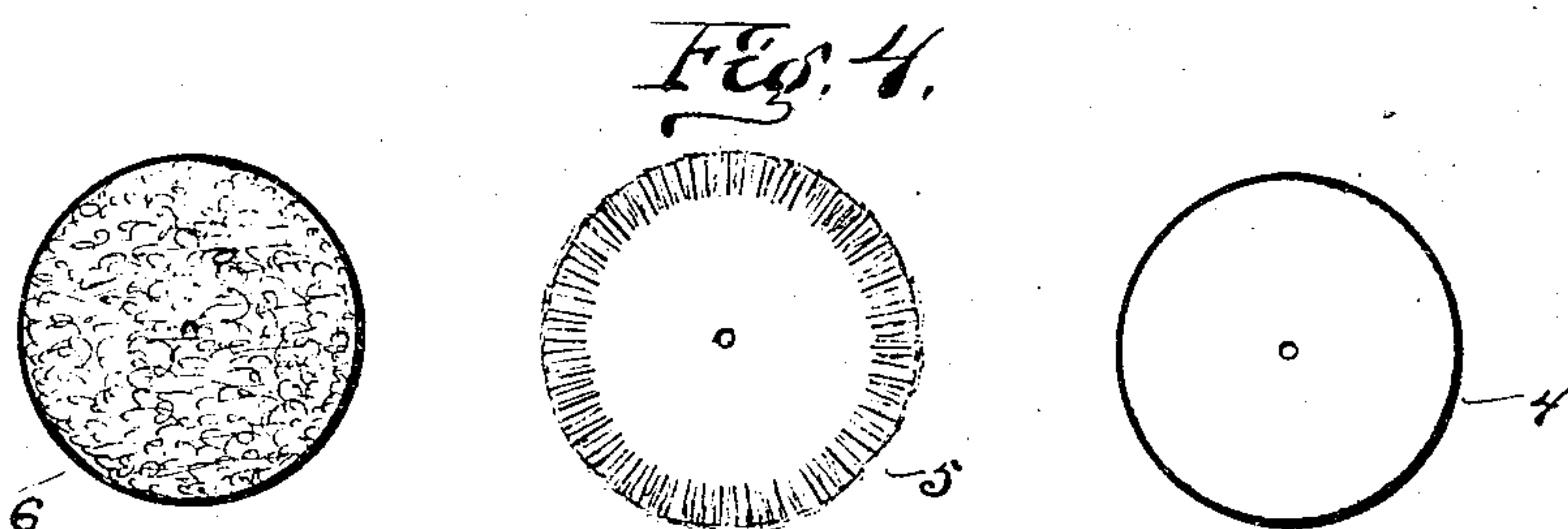
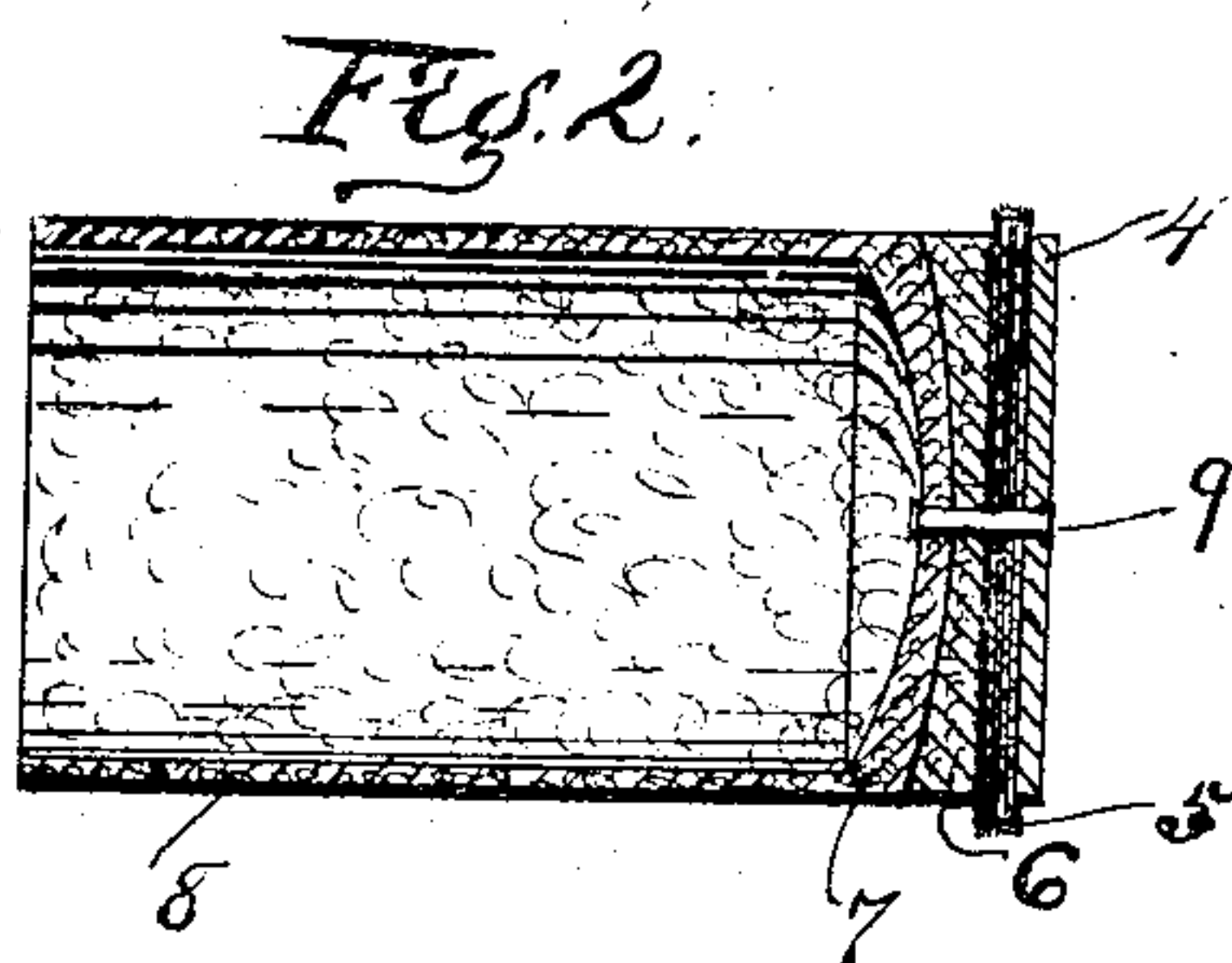
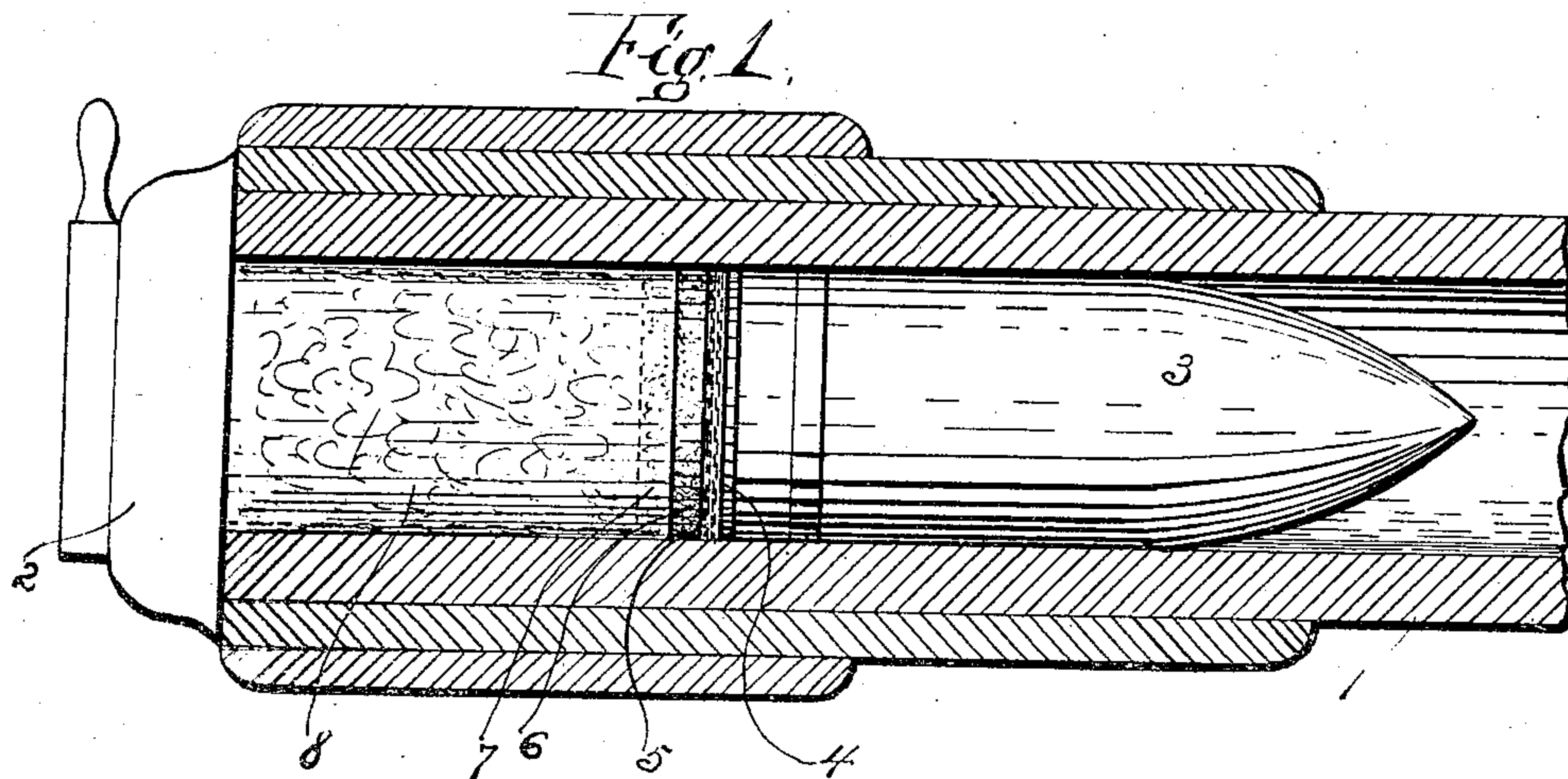


No. 894,416.

PATENTED JULY 28, 1908.

B. C. WINSLOW.
MEANS TO PREVENT EROSION IN GUNS.
APPLICATION FILED NOV. 12, 1907.



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UNITED STATES PATENT OFFICE.

BARCLAY C. WINSLOW, OF KANSAS CITY, MISSOURI.

MEANS TO PREVENT EROSION IN GUNS.

No. 894,416.

Specification of Letters Patent.

Patented July 28, 1908.

Application filed November 12, 1907. Serial No. 401,829.

To all whom it may concern:

Be it known that I, BARCLAY C. WINSLOW, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Means to Prevent Erosion in Guns, of which the following is a specification.

My invention relates to improved means for preventing erosion in guns and particularly in large guns using modern smokeless powder, where it is generally conceded that the efficient life of the gun is limited to less than one hundred rounds by reason of the enormous wear of the barrel interior due to erosion, whether of the solid or gaseous constituents of the charge, under the extraordinary high velocities or temperatures or both.

Whatever may be the cause of the erosion, I have discovered that it can be greatly minimized and its disastrous effects avoided, with a resultant gain of life of the gun, accuracy of aim, range and flatness of trajectory by the employment of my invention which is hereinafter particularly set out in the claims and which will now be fully described in connection with the accompanying drawings representing a preferred embodiment thereof.

In these drawings: Figure 1 is a longitudinal section through a gun with the invention in place; Fig. 2 is a longitudinal section through the device; Fig. 3 is a rear elevation; Fig. 4 represents certain of the component parts disassociated; and Fig. 5 illustrates a modification.

Describing the invention in detail with reference to the drawing, 1 is the gun barrel, 2 the breech block of any ordinary construction, and 3 the projectile in place. Immediately to the rear of the projectile and between it and the powder is found my improved nonerosion device comprising the following parts: A plate 4 of copper or other suitable soft metal in the form of a disk forms a base for the support of the other elements of the device, which plate should be of substantially the same diameter as the projectile and with a thickness of from .125 to .25 inch. Back of this base plate or disk are a plurality of copper fringe plates 5, each having a diameter considerably in excess of that of the base plate 4 and fringed from its periphery inwardly towards the center. I

have found it advantageous to make these fringe plates of a size sufficient to extend beyond the edge of the base plate from one half inch to two inches, depending upon the caliber of the gun, and of a thickness about the same as the base plate, the periphery being slitted at intervals of .125 to .25 inch inwardly to or slightly within the periphery of the base plate. A number of these individually fringed plates 5 are then superposed with the slits hit and miss and arranged concentrically with the base plate and with each other. These fringe plates may all be solid or some or all may be annular as shown at 5^a, or obviously the central portion of the forward one may serve as the base plate. Back of these metal elements is a composition pad 6 formed of tightly compacted and matted fibrous asbestos 85% graphite 10% and tallow paraffin or the like 5%, and back of this again a second composition pad 7 of graphite 80% borax 15% and tallow or paraffin or the like 5% on a backing of silk or other suitable fabric. These two pads are of a diameter loosely corresponding to the caliber of the gun and each has a thickness of from one to three inches dependent upon conditions of use.

The second or graphite-borax pad may be extended to the rear as a thimble with walls 8 from one half inch to two inches in thickness and forming a lining to the powder chamber to receive and inclose the powder bag, or this lining 8 may be separate from the pad 7 and formed as an outer envelop or shield to the powder bag and be inserted therewith into the gun.

The component parts of the device, the disk 4, the fringe plates 5, the asbestos-graphite pad 6, and the graphite-borax pad 7, are secured tightly together as one compact whole by a rivet or rivets 9 or the like clamping the parts together centrally, axially of the bore of the gun, the central rivet causing a cupping to the rear of the superposed plates and pads as seen in Fig. 2.

The manner of employment is as follows: The projectile 3 having been positioned, the device is inserted base plate 4 to the front and rammed home against the projectile, the base plate 4 and the pads 6 and 7 fit the barrel snugly and without distortion, but the fringe plates 5, being larger than the bore of the gun, the fringed periphery bends back-

ward cup-like while pressing outwardly against the walls. The powder charge is then inserted within the graphite-borax thimble 8 and the breech closed in the usual
5 manner.

Upon firing, the thimble 8, being a poor conductor of heat and incombustible, forms a protecting coating and prevents overheating and oxidation of the combustion chamber walls, while the graphite-borax pad 7 is
10 driven forward upon the asbestos-graphite pad 6 and forms therewith a compacted mass which is in turn driven upon the fringe plates forcing the copper fringes into the rifling and filling all crevices. The composition mass formed of the two pads, being
15 incombustible and bound together by the coarse fibers of the asbestos, is not consumed and does not blow through the copper strips forming the fringes but coöperates therewith to form a perfect barrier to the exit of
20 gases around the projectile while protecting the barrel against oxidation and overheating.

The use of the invention greatly lengthens the life of the gun and improves its action; there is no residue left after each shot to corrode or foul the gun; no injurious or objectionable gases are formed; the device is
25 cheaply made, easily inserted, does not interfere with the usual charge, and is found to be eminently satisfactory in every way.

The dimensions hereinbefore given, both absolute and relative, of the several component parts of the device are those which I
35 have found to be most desirable under ordinary conditions, but they, as well as the proportions of ingredients entering into the composition pads, are subject to variation within quite wide latitudes under different
40 conditions of use such as to caliber, velocity, powder employed etc.

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

45 1. Means to prevent erosion in guns comprising a metal disk, a soft metal fringed plate, a fibrous composition pad, and means securing the parts together, the whole arranged to be inserted in the gun between the
50 powder charge and projectile.

2. A device to prevent erosion in guns comprising a metal disk, a soft metal peripherally fringed plate, an incombustible lubricant composition pad, and means securing
55 the parts together, the whole arranged to be inserted in the gun between the powder charge and projectile.

3. A device to prevent erosion in guns comprising a soft metal disk, a soft metal laminated peripherally fringed plate, an incombustible fibrous lubricant composition
60 pad, and means securing the parts together, the whole arranged to be inserted in the gun between the powder charge and the projectile.

4. A device to prevent erosion in guns comprising a soft metal disk corresponding in diameter to the bore of the gun, a soft metal laminated peripherally fringed plate of a diameter larger than the bore, an incombustible
70 fibrous lubricant composition pad of substantially the same diameter as the disk, and means securing the parts together axially, the whole arranged to be inserted in the gun between the powder charge and the projectile.

5. A device to prevent erosion in guns comprising a copper disk, a peripherally fringed copper plate, a composition pad containing asbestos, graphite and a binder, and
80 means securing the whole together, the device arranged to be inserted in the gun between the powder charge and the projectile.

6. A device to prevent erosion in guns comprising a copper disk; corresponding in diameter to the bore of the gun, a laminated peripherally fringed copper plate of a diameter larger than the disk, a composition pad
85 containing asbestos 85% graphite 10% and tallow 5% and having a diameter substantially the same as the disk, and means securing the parts together axially, the whole arranged to be inserted in the gun between the powder charge and the projectile.

7. A device to prevent erosion in guns comprising a copper disk, a peripherally fringed laminated copper plate, a composition pad containing asbestos, graphite and a binder, a second composition pad containing
95 graphite, borax and a binder, and means securing the parts together, the whole arranged to be inserted in the gun between the powder charge and the projectile.

8. A device to prevent erosion in guns comprising a copper disk, corresponding in diameter to the bore of the gun, a laminated peripherally fringed copper plate of a diameter larger than the disk, a composition pad
105 containing asbestos 85% graphite 10% and tallow 5%, a second composition pad containing graphite 80% borax 15% and tallow 5%, the two composition pads having a diameter substantially the same as the disk, the whole secured together axially and arranged to be inserted in the gun between the
110 powder charge and the projectile.

9. A device to prevent erosion in guns comprising a copper disk, a peripherally fringed copper plate, a composition pad containing asbestos graphite and a binder, a second composition pad of graphite, borax and
120 a binder, a thimble of graphite borax and a binder lining the powder chamber, the disk, plate and pads secured together in one body, and the whole arranged to be inserted in the gun back of the projectile.

10. A device to prevent erosion in guns comprising a copper disk, a peripherally fringed laminated copper plate, a composition pad containing asbestos, graphite and a
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binder, a second composition pad containing graphite, borax and a binder, the second pad extended to the rear as a thimble lining the powder chamber, means to secure the parts
5 together axially, the whole arranged to be inserted in the gun back of the projectile with the thimble inclosing the powder charge.

In testimony whereof I affix my signature in presence of two witnesses.

BARCLAY C. WINSLOW.

Witnesses:

J. D. BENDER,
M. A. EATON.