

No. 740,914.

PATENTED OCT. 6, 1903.

H. PLATZ.
ENVELOPED PROJECTILE.
APPLICATION FILED JULY 1, 1903.

NO MODEL.

Fig. 1

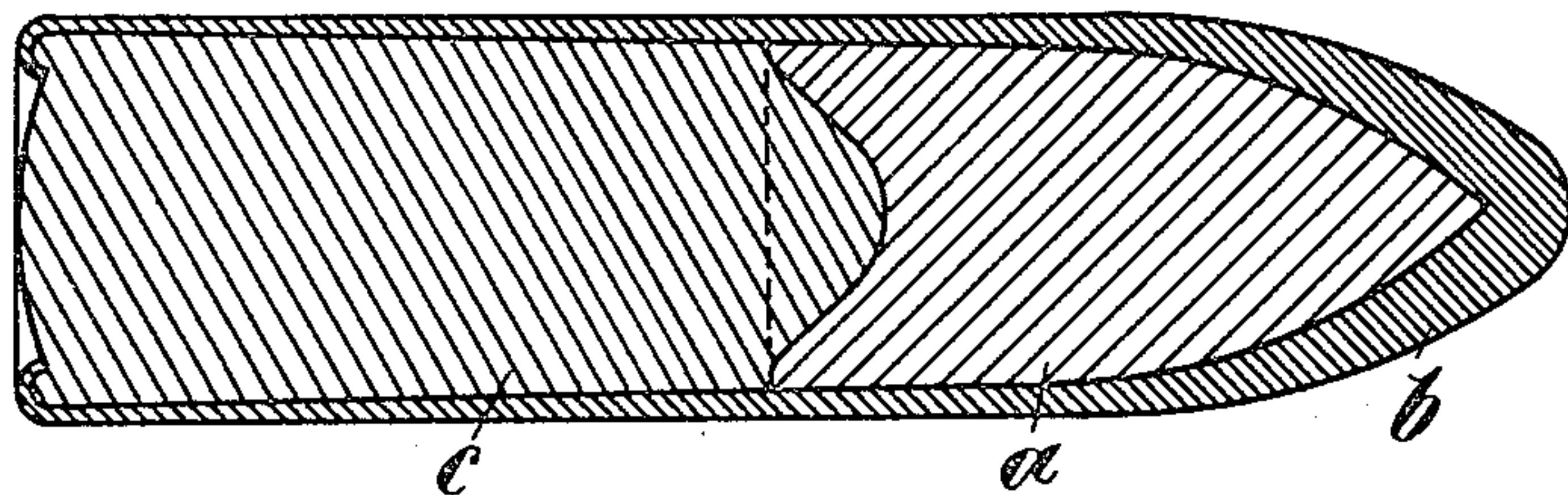


Fig. 2

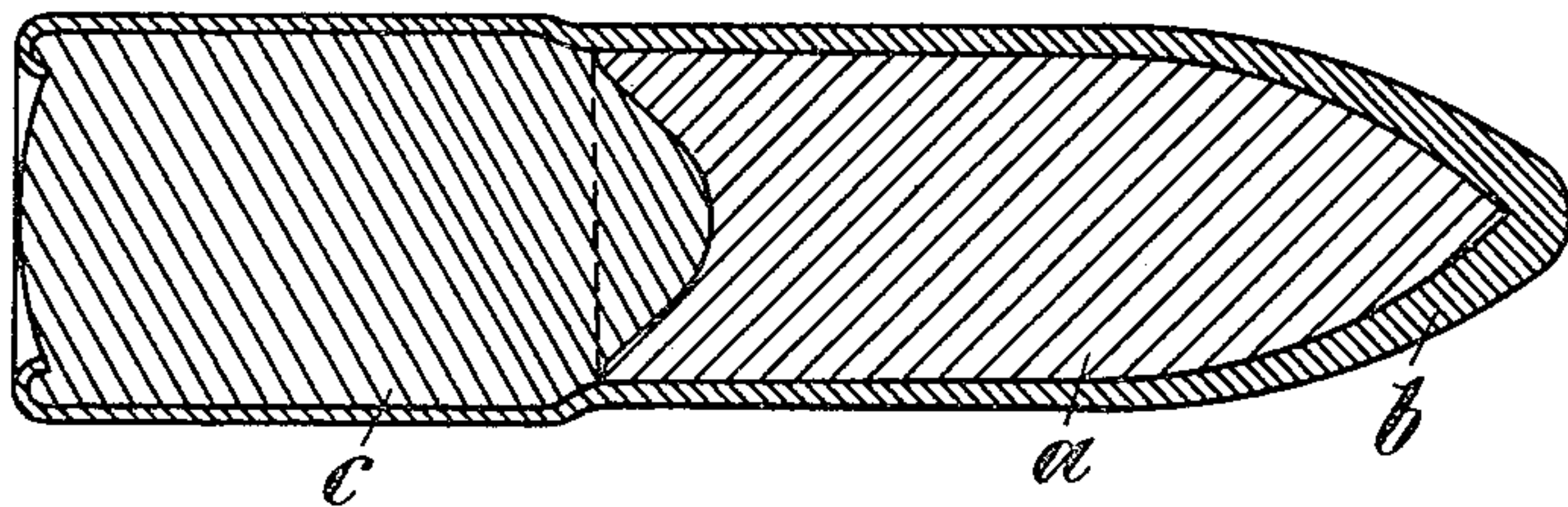


Fig. 3

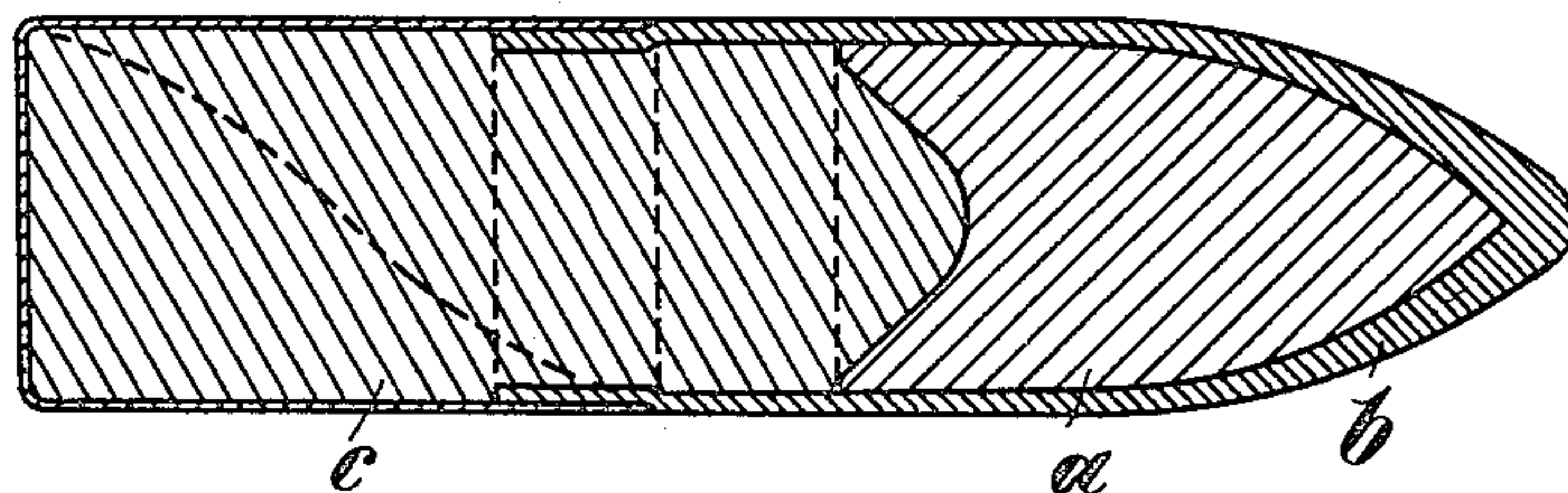
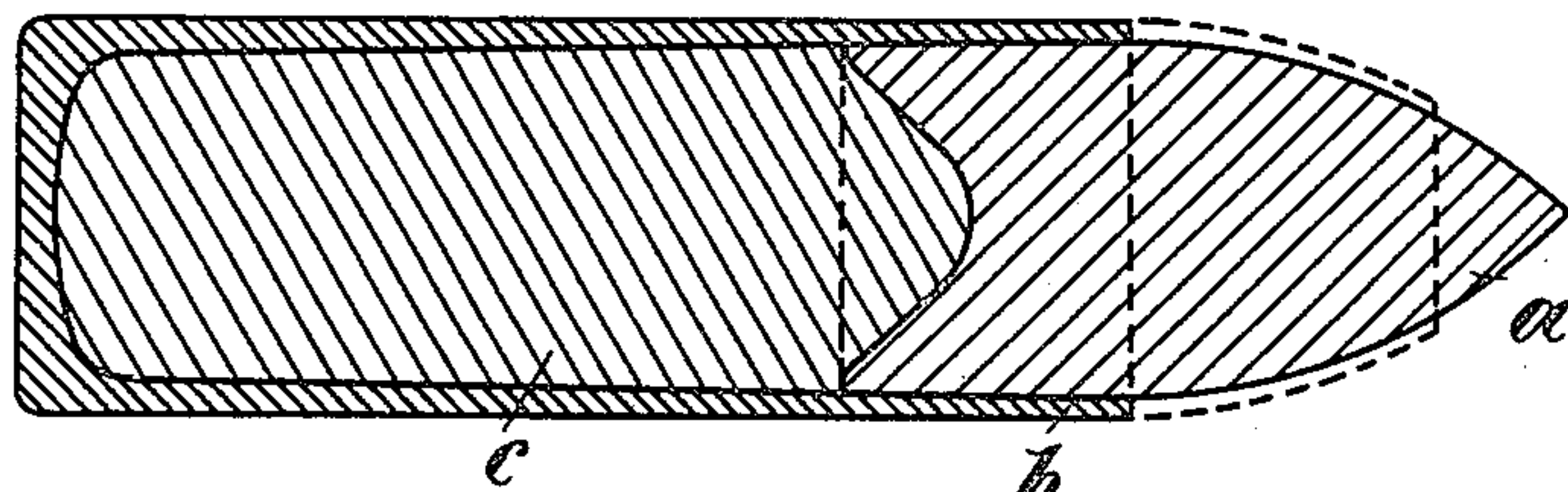


Fig. 4



Witnesses:

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by Georgii Massie
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UNITED STATES PATENT OFFICE.

HERMANN PLATZ, OF KARLSRUHE, GERMANY.

ENVELOPED PROJECTILE.

SPECIFICATION forming part of Letters Patent No. 740,914, dated October 6, 1903.

Application filed July 1, 1903. Serial No. 163,952. (No model)

To all whom it may concern:

Be it known that I, HERMANN PLATZ, managing director, a subject of the Grand Duke of Baden, residing at No. 9 Helmholtzstrasse, in Karlsruhe, in the Grand Duchy of Baden, have invented a new and useful Enveloped Projectile, of which the following is a specification.

The constantly-increasing intensification of the protectives against guns has the result that endeavors are constantly being made to increase the piercing power of the projectiles to be used against the same. A projectile intended to pierce armor-plate or other object of great resistibility, such as offered by steel or iron, requires besides a strong *vis viva* also a corresponding strength, and with respect to certainty of aim a good guidance in the grooves of the barrel.

The object of the present invention is to combine these properties in a measure exceeding by far that heretofore attained.

In order to make my invention perfectly clear, I refer to the accompanying drawings, in which similar letters denote similar parts throughout the several views, and in which—

Figure 1 is a longitudinal section through a projectile constructed according to my invention. Fig. 2 is a similar view showing a slightly-modified form of construction. Fig. 3 is also a similar view showing another modification; and Fig. 4 is a fourth form of construction, which will all be duly described hereinafter.

The subject-matter of the invention consists in the combination, with a hardened-steel head *a* and a body *c* of a soft metal of high specific gravity, of an envelop *b*, made of a suitable metal, compound metal, or alloy. The envelop *b* may inclose the whole of the parts *a* and *c*, as in Figs. 1 and 2, or it may inclose only a portion of the same, as in Figs. 3 and 4, the free portion being, in Fig. 3, at the base of the projectile and, in Fig. 4, at the head of the same. In the form of construction shown in this figure the envelop may extend upward either only so far as shown in full lines or farther up, as indicated in dotted lines.

The relative proportions of the head *a* and the body *c* may vary according to the circumstances—i. e., the one may be longer or shorter

than the other—and the head may have, if desired, a chamber or compartment at a place located in the neighborhood of the body *c*. The purpose of the head *a* is to penetrate into the object and to pierce it. Therefore the head *a* must be very strong and powerful. The purpose of the body *c* is to impart to the whole projectile as great a weight as is consistent with the dimensions given, these latter depending on certain constructional details of the gun. Therefore the body *c* is made of a metal or alloy of high specific gravity—for instance, of lead, particularly soft lead, a wolfram alloy, or the like. Another object of the soft body *c* is to guide the projectile in the barrel of the gun. Therefore no special guide parts are necessary. The shape of the projectile as a whole may be made to suit the circumstances. Generally the rear part or half is cylindrical, whereas the other part tapers toward the front and ends in a point. The diameter of the rear part may be somewhat greater than that of the adjacent part, as shown as an example in Fig. 2. This refers not only to the body *c*, but to the corresponding part of the envelop *b* also. The envelop *b* is made of a suitable tough metal, compound metal, or alloy—for instance, steel, copper, nickel-copper, nickel-copper-plated sheet-steel, or the like.

When the projectile hits a mark or object, the *vis viva* of the absolutely as well as relatively heavy body *c* comes into action, so that the piercing power of the projectile is correspondingly great. Where the mark or object consists of a hard material, such as iron or steel plates, the steel head *a* pierces the same, but the leaden body *c*, too, while the envelop *b* is stripped from the steel and lead portions by the plate after having served to retain the body *c* intact and preventing the deformation of the same until it shall have been guided into the opening made by the steel head *a*. The explosive or mushrooming effect of the body *c* takes place beyond the armor-plate and at a point where much greater damaging effect is obtained.

Having now described my invention, what I desire to secure by a patent of the United States, is—

1. In a projectile, the combination, with a front part of steel, and a rear part of approxi-

mately the same cross-section but formed of a metal having a greater specific gravity, of a comparatively thin casing of tough metal forming an envelop for the two parts.

5 2. In a projectile, the combination, with a front part of hardened steel having a concave base, and a rear part of lead of approximately the same cross-section and resting in contact with the front part, of a comparatively thin casing of tough metal forming an envelop for the two parts.

3. In a projectile, the combination, with a front part of hardened steel of approximately the same cross-section as the bore of the gun
15 in which it is to be used, and a rear part of lead of substantially the same cross-section, of a casing of tough metal forming an envelop for the two parts.

4. In a projectile, the combination, with a
20 front part of hardened steel having a concave base, and a rear part of lead adapted to fit

within the concave base and of approximately the same cross-section as the front part, of a casing of tough metal forming an envelop surrounding the two parts and extending for a considerable distance upon each side of the line of junction. 25

5. In a projectile, the combination, with a front part of hardened steel, and a rear part of comparatively heavy metal, the front part
30 having one end pointed and the other end concave, and the rear part having one end fitted in contact with the concave end of the front part, of a casing of tough metal surrounding the two parts, and extending to a point near the pointed end of the front part. 35

In witness whereof I have hereunto set my hand in presence of two witnesses.

HERMANN PLATZ.

Witnesses:

FRIEDR. PIETZSCH,
JACOB ADRIAN.