

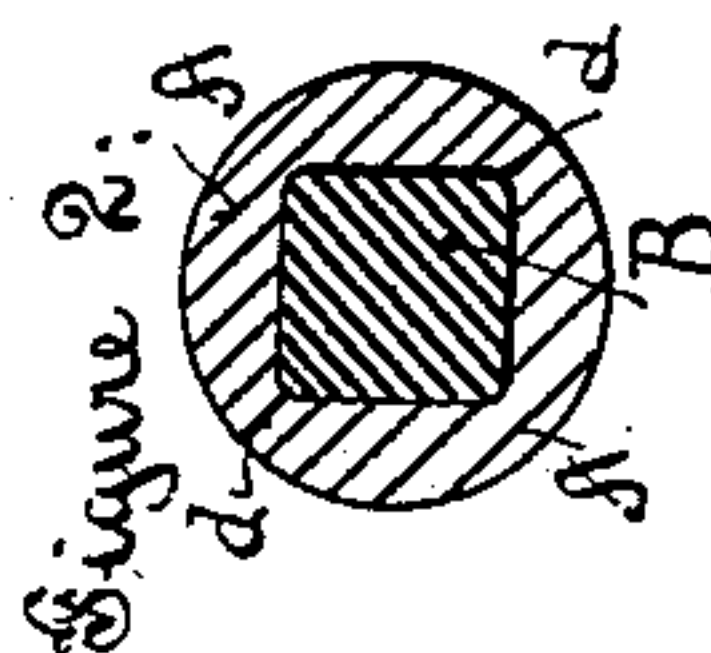
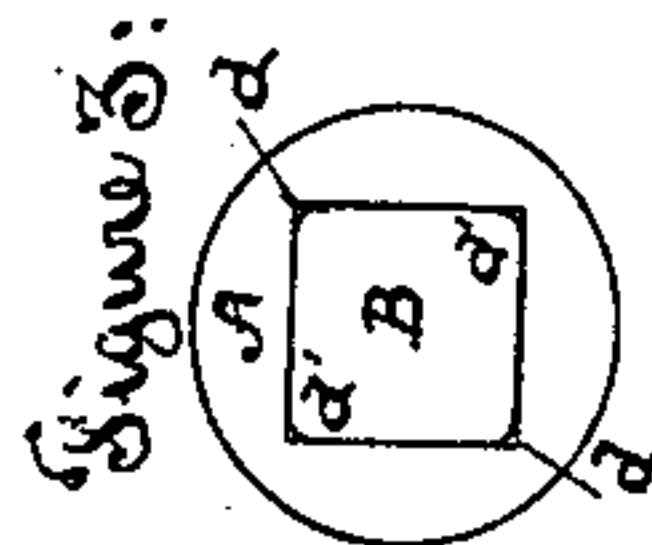
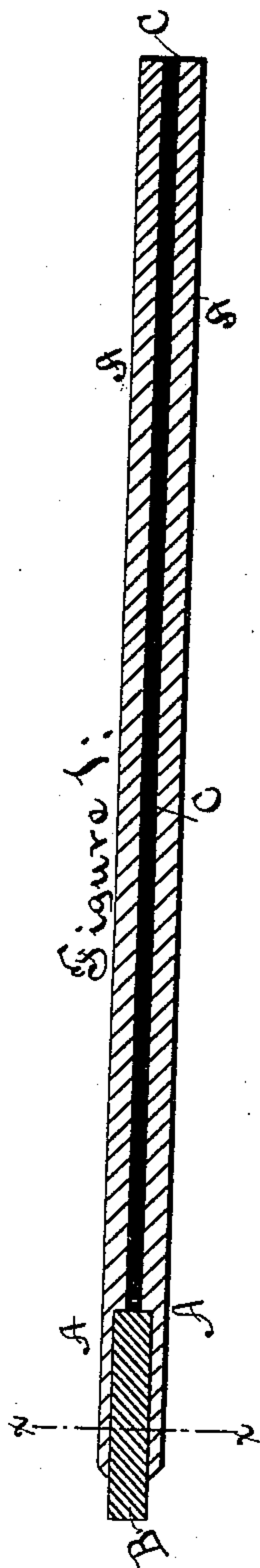
(No Model.)

J. HOFFMAN.

PENCIL.

No. 326,502.

Patented Sept. 15, 1885.



Witnesses:  
Joseph L. Levy  
Hatter H. Cuttenden

Inventor:  
Joseph Hoffman  
by Phillips Abbott  
his Attorney

# UNITED STATES PATENT OFFICE.

JOSEPH HOFFMAN, OF NEW YORK, N. Y., ASSIGNOR TO GUSTAVUS A. GOLD-SMITH, OF SAME PLACE.

## PENCIL.

SPECIFICATION forming part of Letters Patent No. 326,502, dated September 15, 1885.

Application filed April 7, 1885. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH HOFFMAN, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Lead-Pencils, of which the following is a specification.

My invention relates to the class of pencils in which a wooden stick or case incloses the lead throughout the greater portion of its length, and a piece of erasive material, preferably india-rubber, at the end opposite that at which the lead is exposed. Such pencils are well known and do not require extended explanation.

Heretofore the piece of erasive material inserted in such pencils has been either round or square in cross-section and with parallel sides. The square rubber is preferred to the round, because if made in that form it not only affords more erasive surface, thereby more quickly performing its function, but also because the corners of the rubber are found peculiarly useful for removing lines or dots in drawings and pencil-sketches prepared by draftsmen, architects, and others in which the lines or lines and dots are frequently close together. A serious imperfection, however, attends the use of square rubbers in such pencils as heretofore made, which is that the pencil-sticks being round, that being the preferred shape for the sticks, the sharp square corners of the recess cut in the sticks for the reception of the rubber approach so closely to the periphery of the pencil-stick that there is but very little wood left at such corners to sustain and hold the rubber, and it frequently happens that when using the eraser vigorously the lateral pressure will be sufficient to split the pencil-stick open at the corners of the rubber, and in this manner the rubber becomes loosened and drops out, and the pencil as a combination-pencil is ruined; and this objection to the square rubbers has been of such a serious character that the inferior round rubbers have almost entirely superseded the square ones in order that the corners which weaken the wooden case, as above set forth, may be avoided.

By my invention I secure the benefits of a

square erasive material with practically the strength of the round erasive materials.

I have found that the weakening of the stick, when square erasers are used, results very largely from the fact that the sharp corners of the cutting-tool employed to cut the recesses for the reception of the eraser during its forcible action upon the stick tear, and, as it were, disintegrate the wood at the very corners. This is particularly the case after the cutting-tool has become somewhat dulled at its corners, which it quite quickly does; and I have also found that if the sharp angle at the corners be but very slightly rounded off the wood left at such corners, although small in amount, will very greatly strengthen and, as it were, brace and support the sides of the pencil adjacent to such corners.

In the accompanying drawings I illustrate my invention.

In all the figures the same reference-letters indicate the same parts.

Figure 1 is a longitudinal central section of a pencil embodying my invention. Fig. 2 is a cross-section of a pencil embodying my invention on the line X X of Fig. 1. Fig. 3 is a cross-section of a pencil on the line X X, of Fig. 1, to illustrate the controlling feature of my invention. Figs. 2 and 3 are enlarged.

A is the wooden case. B is the erasive material, india-rubber in the present instance. C is the lead.

The eraser B is square in shape, and when the pencil is put together its sharp corners will be compressed by the inwardly-rounded corners of the recess in the pencil-stick, (Seen at *d'*.) The sharp corner of the recess, as heretofore made in pencils having square erasers, is seen at *d*, Fig. 3. The difference in the strength of the two pencils will be readily appreciated by measuring the difference in distance between the periphery of the pencil and the point *d* and the line *d'*. The compression of the corners of the eraser by the rounded corners of the recess in the stick will have the effect of displacing the rubber somewhat, and will cause an endwise projection of it beyond the end of the pencil in excess of such projection, were it not for such compression. The rubber soon attains a set in its compressed



condition, so that it exerts, practically, but little expansive force on the pencil-stick, and by reason of this compression of the corners of the rubber it is more firmly bound in its place  
5 in the stick.

I thus secure a square eraser, with all the benefits attached thereto, and also secure more firm union of the eraser with the stick of the pencil; and I also secure another practical advantage in the manufacture of the pencils, to wit, that the tool employed to cut the recess in the stick will remain in suitable working order longer than when provided with sharp cutting corners, which soon become dulled, and  
10 in the event of encountering a hard or cross-grained stick are very liable to fracture.

Having described my invention, I claim—

1. The herein-described pencil, having a square recess formed in the stick thereof for

the reception of the rubber, the corners of which recess are rounded inwardly, substantially as and for the purposes set forth. 20

2. The herein-described pencil, having a square recess formed in the stick thereof, the corners whereof are rounded inwardly and a square rubber inserted therein, whereby the corners of the square rubber are compressed by the inwardly-rounded corners of the recess in the stick, substantially as and for the purposes set forth. 25 30

Signed at New York, in the county of New York and State of New York, this 4th day of April, A. D. 1885.

JOSEPH HOFFMAN.

Witnesses:

SHERWOOD W. CONNELL,  
JOHN H. IVES.