

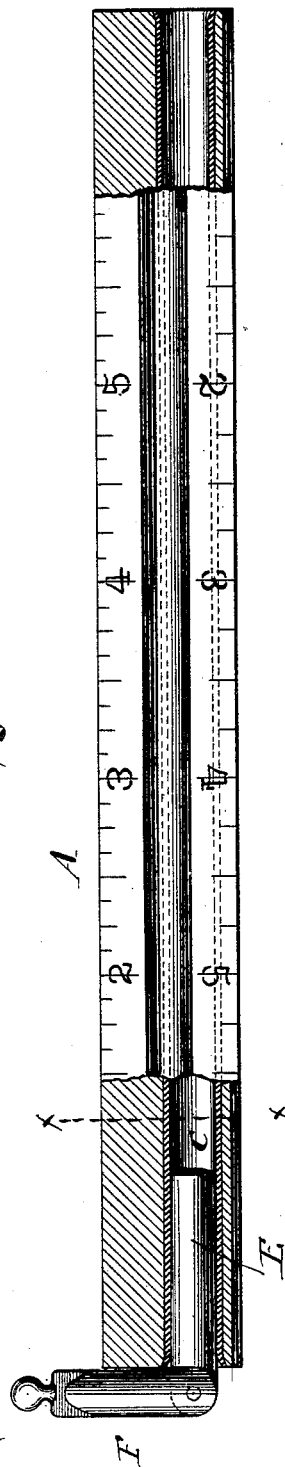
(No Model.)

F. BENZINGER & H. E. GRABAU.
TRIANGULAR RULE.

No. 418,967.

Patented Jan. 7, 1890.

fig. 1.



WITNESSES:

J. H. Rosenbaum
W. H. Meimke

fig. 3.

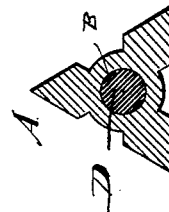
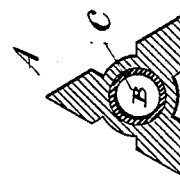


fig. 2.



INVENTOR

Fred. Benzinger &
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UNITED STATES PATENT OFFICE.

FREDERICK BENZINGER, OF NEW YORK, N. Y., AND HANS EDGAR GRABAU,
OF HOBOKEN, NEW JERSEY.

TRIANGULAR RULE.

SPECIFICATION forming part of Letters Patent No. 418,967, dated January 7, 1890.

Application filed September 26, 1889. Serial No. 325,202. (No model.)

To all whom it may concern:

Be it known that we, FREDERICK BENZINGER, of the city, county, and State of New York, a citizen of the United States, and HANS EDGAR GRABAU, of Hoboken, in the county of Hudson and State of New Jersey, a citizen of the German Empire, have invented certain new and useful Improvements in Rules, of which the following is a specification.

10 This invention relates to improvements in the rules of triangular cross-section, such as are used by draftsmen, engineers, architects, &c. These rules are usually made of box-wood, which is very light and very apt to warp, especially if the scale is of considerable length.

15 The object of our invention is to provide a rule of this kind which is weighted, so as to be heavier than the ordinary box-wood rule.

20 The further object of our invention is to prevent the warping of the rule, and another object of our invention is to provide an indicator which shows which scale on the rule is being used.

25 The invention consists in a draftsman's rule of triangular cross-section, provided with a reinforcing tube or rod extending lengthwise through the same for the purpose of weighting the scale, and also to provide against warping and bending.

30 The invention further consists in the combination, with an indicator provided at the end of the rule and which can be adjusted to point to any one, of the scales on the rule.

35 The invention also consists in the construction and combination of parts and details, as will be fully described hereinafter, and finally pointed out in the claims.

40 In the accompanying drawings, Figure 1 is a face view of our improved draftsman's rule, parts being broken out and others shown in longitudinal section. Fig. 2 is a transverse sectional view of the same on the line $x x$, Fig. 1. Fig. 3 is a similar transverse sectional view showing a modification.

45 Similar letters of reference indicate corresponding parts.

The rule A, which is preferably made of box-wood, but can be made of other suitable ma-

terial in cross-section, has the shape of an equilateral triangle, and on each side is provided with two graduated scales—one at each edge of each side—in the usual manner. The rule is provided with a central longitudinal bore B, in which a metal tube C is inserted, said tube serving to increase the weight of the rule, and also serving to prevent bending and warping. In place of the tube, a rod D may be inserted in the bore B, as shown in Fig. 3. A cylindrical piece E is inserted in one end of the tube C in such a manner that it can turn in the same, and on the end of said piece E the indicator F is hinged. When the hinged pieces E and F are swung in line, they both can be inserted into the tube B, so as to be out of the way.

65 When the rule is being used, the piece F is drawn out sufficiently to permit of its being swung upward, and then it and the piece E in the tube C are so turned that said piece F rests against or is adjacent to the end of that scale that is being used, so that if by accident the rule is overturned or placed in another position the draftsman can at once tell which of the scales he has been using.

70 Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. A draftsman's rule made triangular in cross-section and provided with a longitudinal metal tubular filling-piece surrounded by the material of which the rule is made, substantially as set forth.

2. The combination, with a draftsman's rule having an aperture in the end, of a plug adapted to be inserted in said aperture and an indicator hinged to said plug, substantially as set forth.

In testimony that we claim the foregoing as our invention we have signed our names in presence of two subscribing witnesses:

FRED. BENZINGER.
HANS EDGAR GRABAU.

Witnesses:
OSCAR F. GUNZ,
M. REIMHERR.