

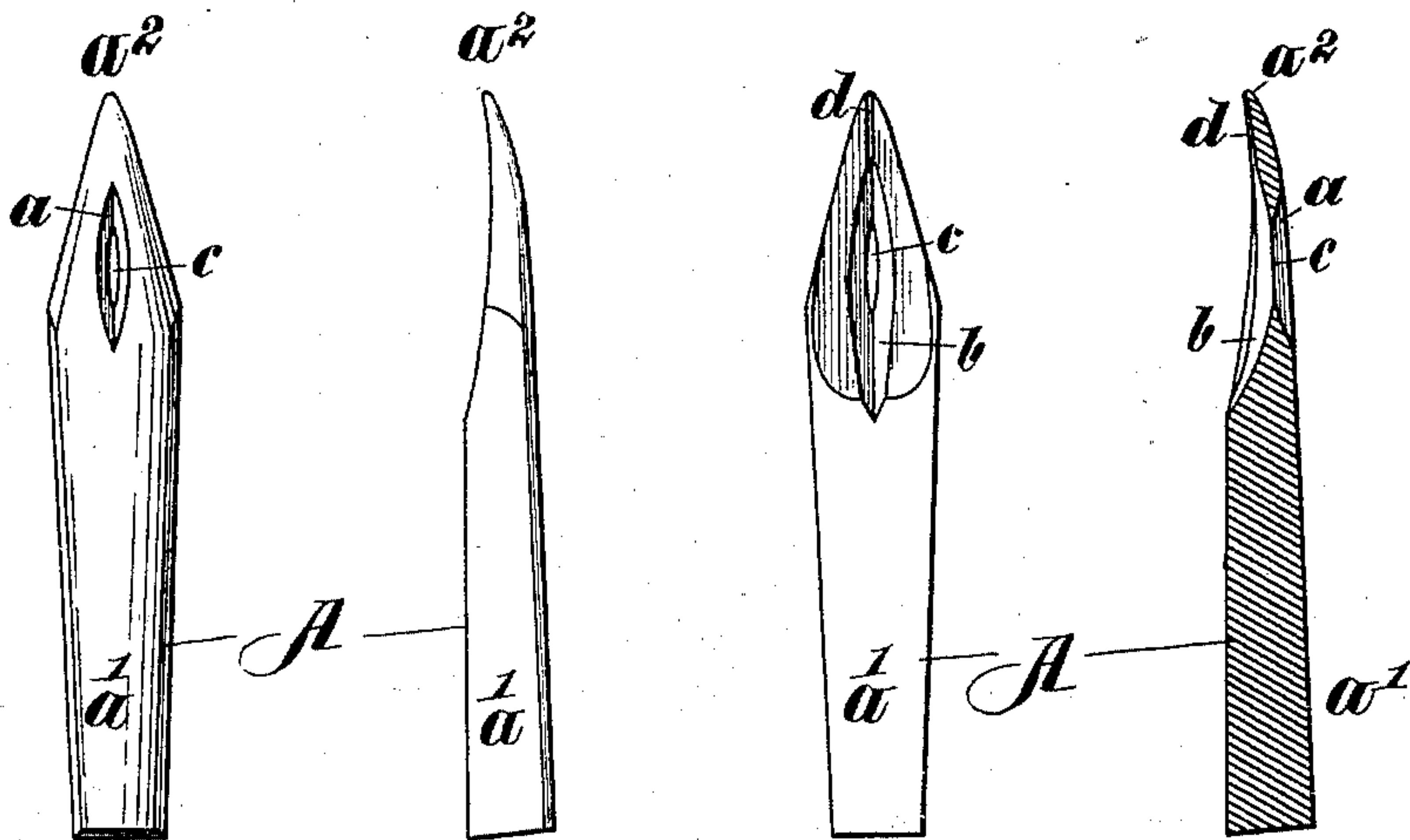
(No Model.)

H. SULZER.  
PEN.

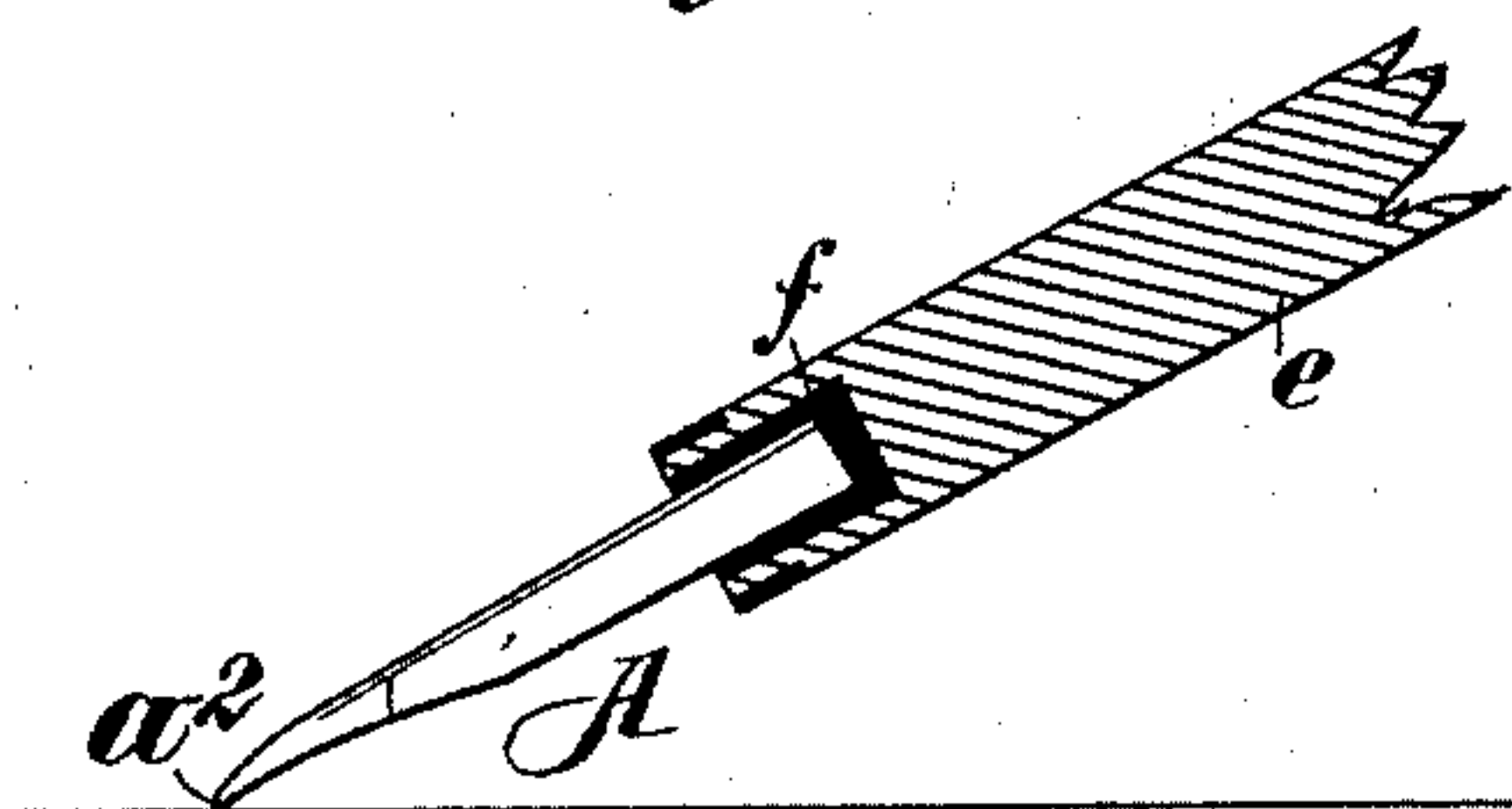
No. 477,080.

Patented June 14, 1892.

*Fig.1. Fig.2. Fig.3. Fig.4.*



*Fig.5.*



*Witnesses:*  
*H. G. Dietrich*  
*P. H. Sommers*

*Inventor:*  
*Hans Sulzer*  
*by Henry M. M.*  
*Atty.*

# UNITED STATES PATENT OFFICE.

HANS SULZER, OF WINTERTHUR, SWITZERLAND.

## PEN.

SPECIFICATION forming part of Letters Patent No. 477,080, dated June 14, 1892.

Application filed December 10, 1891. Serial No. 414,610. (No model.)

*To all whom it may concern:*

Be it known that I, HANS SULZER, a citizen of the Republic of Switzerland, residing at Winterthur, in the Republic of Switzerland, have invented certain new and useful Improvements in Onyx Pens, of which the following is a specification.

The invention relates to the manufacture of writing-pens, and has for its object the construction of a pen of a material that is non-corrodible and of sufficient hardness to stand a great deal of wear.

To these ends the invention consists in a writing-pen constructed of a hard non-elastic substance—such as a mineral substance—that is not affected by any of the writing fluids in use, and that is provided with an ink-reservoir and a channel leading from said reservoir to the point, as will now be fully described, reference being had to the accompanying drawings, in which—

Figure 1 is a top view, Fig. 2 a side elevation, Fig. 3 an under side view, and Fig. 4 a longitudinal section, of a pen constructed according to this invention; and Fig. 5 shows the pen secured in a holder, a portion of which is shown in section.

In the construction of my improved pen any mineral substance may be used that will not absorb ink, either when said substance is in a raw state or after having been polished, and that will resist the corrosive action of the writing fluids generally used. I preferably employ semi-precious stones—as, for instance, agate, jasper, silex, tiger's eye, or analogous stone which possesses the properties referred to and is capable of acquiring a very high polish.

The pen A, which is made of a solid piece of mineral, such as above set forth, may, in order to facilitate its construction and save labor, have its shank  $a'$  of a polygonal form in cross-section, the upper face thereof being more or less convex, and is ground to or otherwise fashioned with a point  $a^2$  of substantially the form of an ordinary pen-point. In the opposite faces of the pen are formed cavities  $a$  and  $b$ , respectively, the latter being preferably wider and longer, extending nearly

to the point  $a^2$ , and is connected with said point by a narrow feed-channel  $d$ , Figs. 3 and 4, that feeds the ink from the cavities  $a$   $b$ , which communicate with each other by a narrow slit  $c$  to the point  $a^2$ , said cavities serving as an ink-reservoir. Inasmuch as the point  $a^2$  is not split, as is the case in the pens usually employed, it is non-elastic, and inasmuch as the material from which the pen is made is non-elastic, as well as non-corrodible and extremely hard, said pen will last indefinitely and may be used as a stylus for any purpose. The cavities  $a$   $b$  referred to may be produced by grinding the pen from opposite sides, whereby the communicating-slot  $c$  is also obtained, the ink being fed to the point by capillary attraction.

Any suitable holder provided with a socket adapted to receive the pen and firmly hold the same may be employed, and, if desired, the pen may be secured in the socket of the holder  $e$ , Fig. 5, by means of cement, as shown at  $f$  in said Fig. 5.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. A pen constructed of a non-elastic material, as a mineral substance, having a curved unslitted point, a convex upper face, an ink-cavity extending near to the pen-point, and an ink-channel centrally of the pen on its under side leading from said cavity to the pen-point, as set forth.

2. A pen constructed of a non-elastic material, as a mineral substance, having a solid shank, a curved point, a convex upper face, inter-communicating ink-cavities in its opposite faces, and an ink-channel formed centrally in the under side of the pen and connecting the ink-cavities with the pen, as set forth.

In testimony whereof I hereunto sign my name, in the presence of two subscribing witnesses, this 23d day of November, 1891.

HANS SULZER.

Witnesses:

EMIL BLUM,  
ADAM LEHR.