

(Model.)

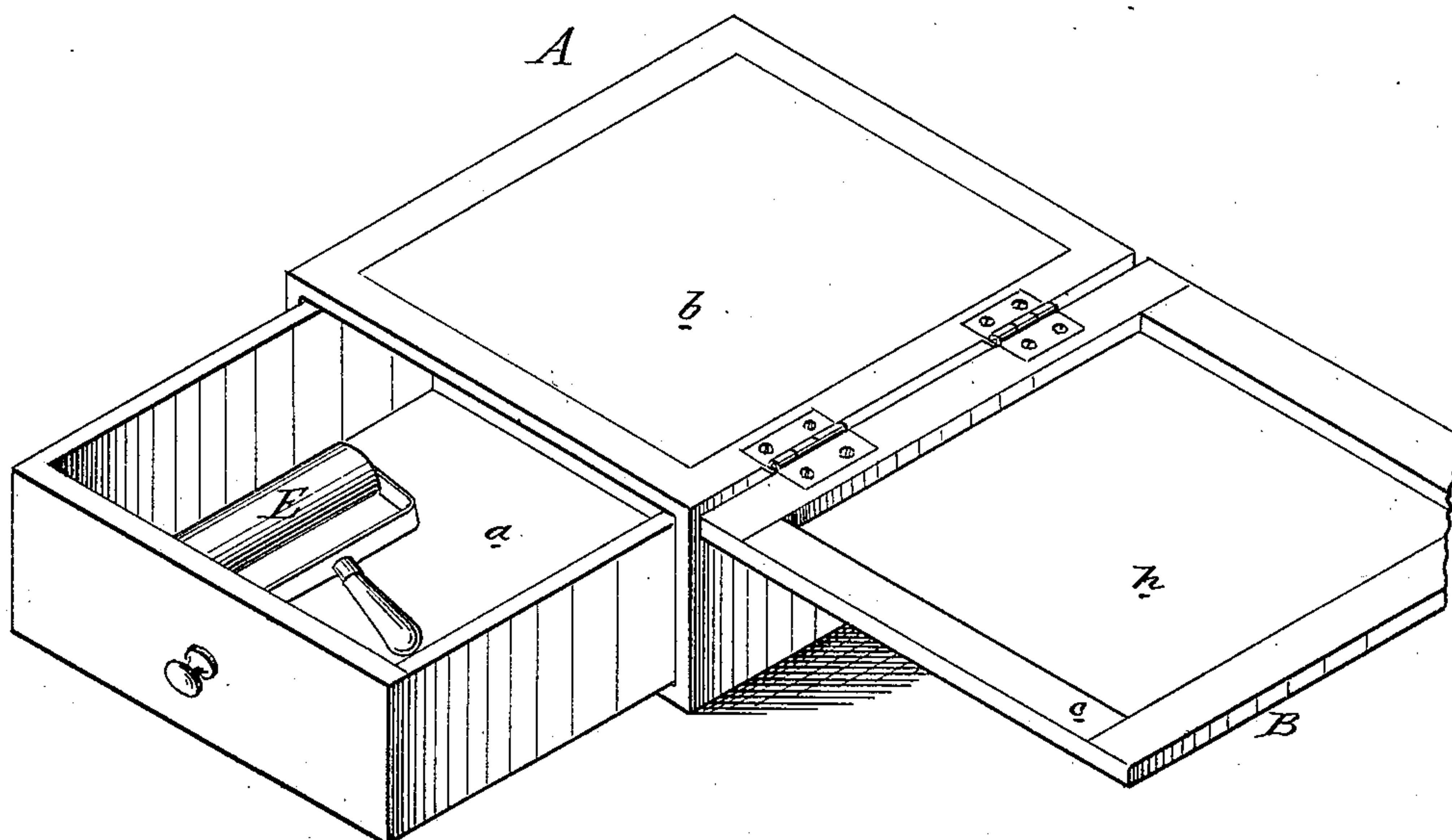
A. J. UNDERHILL.

Apparatus for Producing Copies of Writings.

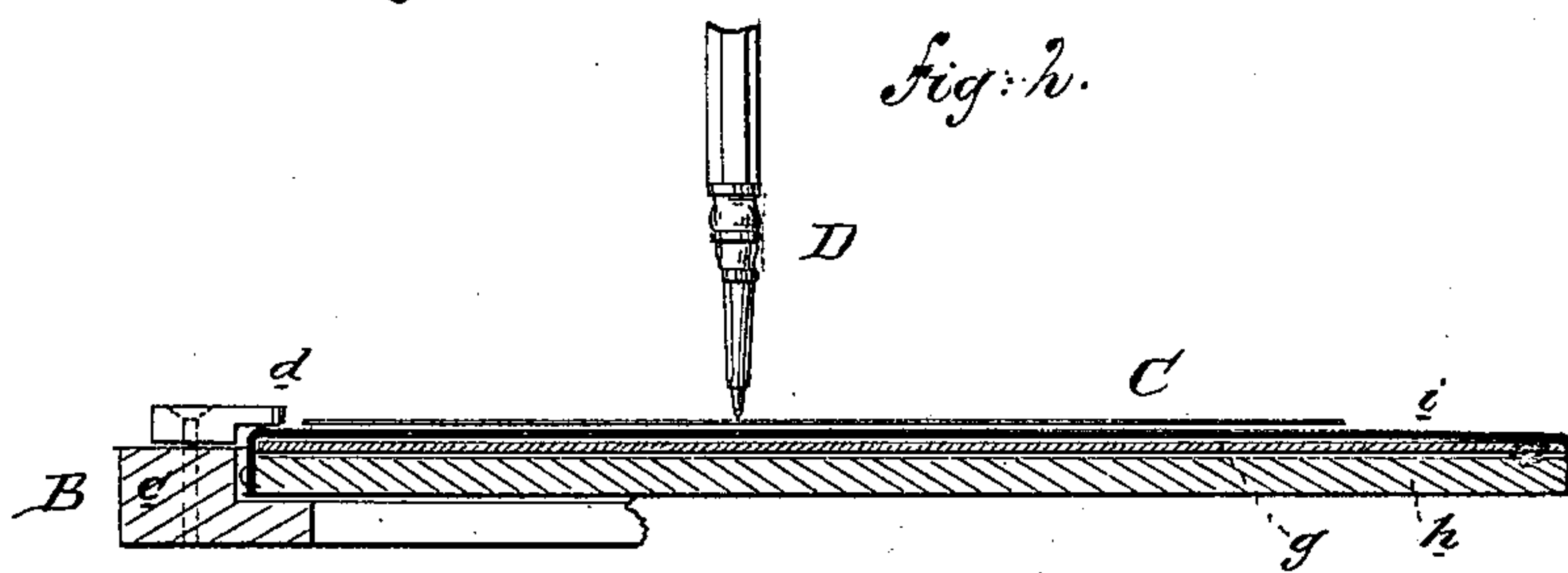
No. 231,122.

Patented Aug. 10, 1880.

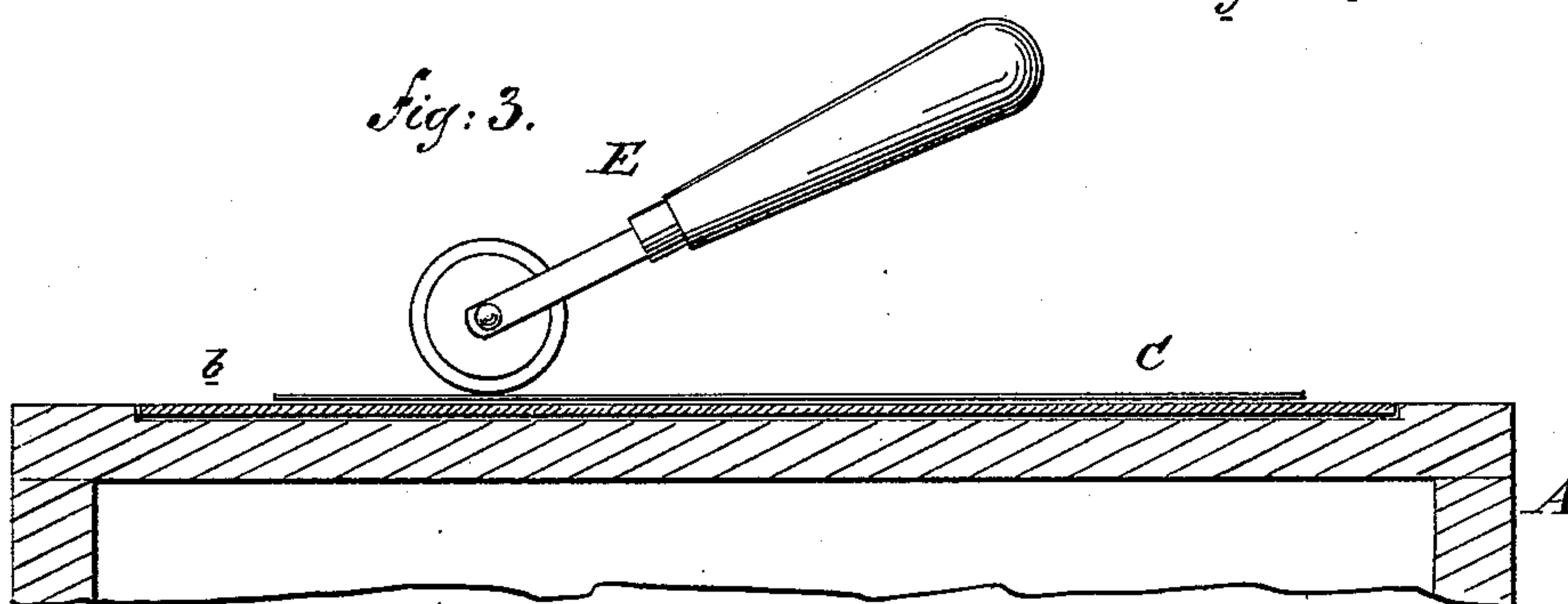
*Fig: 1.*



*Fig: 2.*



*Fig: 3.*



WITNESSES:

*Chas. Nida*  
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INVENTOR:

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BY

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# UNITED STATES PATENT OFFICE.

AARON J. UNDERHILL, OF APPLETON, WISCONSIN, ASSIGNOR TO HIMSELF  
AND EDGAR M. PRATT, OF SAME PLACE.

## APPARATUS FOR PRODUCING COPIES OF WRITINGS.

SPECIFICATION forming part of Letters Patent No. 231,122, dated August 10, 1880.

Application filed March 16, 1880. (Model.)

*To all whom it may concern:*

Be it known that I, AARON J. UNDERHILL, of Appleton, in the county of Outagamie and State of Wisconsin, have invented a new and  
5 Improved Apparatus for Producing Copies of Writings, &c., of which the following is a specification.

The object of this invention is to provide means for producing fac-simile copies of writings, drawings, or delineations in a more simple, inexpensive, and expeditious manner than  
10 has heretofore been done.

Figure 1 is a perspective view of the printing-case open and containing the elastic roller.  
15 Fig. 2 is a transverse sectional elevation of the hinged cover of the printing-case, showing a sheet of stencil-paper in position on the writing-tablet and a stylus in position for producing the stencil. Fig. 3 is a transverse sectional  
20 elevation of a portion of the printing-case, showing the application of the elastic roller to the inked stencil, which stencil is laid upon the exposed glass plate of the printing-case.

Similar letters of reference indicate corresponding parts.

The stencil-paper is produced by saturating a soft-finished paper—that is, a paper without  
30 much or any sizing—with a liquid preparation in the following proportions—*i. e.*, turpentine, one pound; glycerine, two ounces; sulphuric acid, a half-ounce, and nitric acid a quarter-ounce. The paper is then thoroughly dried and afterward coated with a spirit-varnish of any kind,  
35 but preferably with a varnish composed of gum-dammar dissolved in alcohol, in the proportions of about one ounce of the former to six ounces of the latter; or the spirit-varnish may be added to the saturating mixture above described, and the paper be saturated with the stencil  
40 compound and the varnish at the same time, thus obviating the necessity of the intermediate drying.

The varnish is applied to the paper simply to protect it from moisture and from being  
45 unfavorably affected by changes of temperature.

The ink used in the process of producing copies from the stencil is composed of the following ingredients in about the following proportions, varying only with the quality of the  
50 chemicals—*i. e.*, glycerine, one pound; log-

wood-extract, two ounces; bichromate potash, or chrome-alum, one ounce, and aniline of any desired color, one ounce; or logwood may be substituted for the aniline.

In the drawings, A represents the printing-case, consisting of a rectangular box provided with a drawer, *a*, for holding the instruments and material used in the copying process, with a glass plate, *b*, fixed in the top of the box over the drawer *a*, and with a hinged cover, 55  
60 B, which consists of the rabbeted frame *c*, into which frame *c* is fitted and secured, by buttons *d*, the writing tablet or surface *g h i*, upon which the stencil-paper is to be placed to be written or marked upon, and thereby be converted into a stencil. This writing-tablet *g h i*  
65 is composed of a sheet of glass, *g*, backed with wood *h*, and covered evenly and smoothly with rubber cloth *i*, the woven surface of the said cloth being next the glass and the rubber surface outermost. 70

The glass plate *b* serves to support the stencil as copies are taken from it, the stencil being laid on said plate *b* with inked face down, the glass being superior to other substances  
75 for this purpose, because it does not absorb the ink from the stencil.

A sheet of the stencil-paper is arranged on the writing-tablet *g h i* and the stylus placed perpendicularly upon it, so that an opening 80  
85 may be made in the sizing as the desired words or characters are inscribed. The ink passes through the opening in the sizing to the fibers of the paper, and is thence forced through the paper by the pressure of the elastic roller E. 85  
The stencil being thus formed by the stylus D, the sheet C is then covered on the face to which the said stylus was applied with the ink made as hereinbefore described, and said sheet or stencil C is then placed, inked face downward, 90  
95 on the glass plate *b*. Then, in order to obtain copy from said stencil C, a sheet of paper is placed over the said stencil, and the elastic roller E rolled over said sheet of paper with sufficient pressure to force ink through the  
open lines of the stencil upon the covering-sheet of paper.

Many copies may be taken from a stencil of this kind without making a second application  
of ink to it; and it is found that the elastic 100

roller prevents the stencil from cracking or wrinkling as copies are taken, and that this elasticity of the roller prevents the ink from being forced in excess to the ends or sides of  
5 the stencil.

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

The apparatus above described for produc-

ing copies from stencil-paper, consisting of the case A, provided with fixed glass plate *b* and a writing-tablet composed of glass covered with rubber, as shown and described. 10

AARON J. UNDERHILL.

Witnesses:

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S. P. MING.