(No Model.)

M. HARTSOUGH.

METHOD OF AND APPARATUS FOR TRANSFERRING AND ENLARGING PORTRAITS.

No. 301,232. Patented July 1, 1884.

Fig. 1

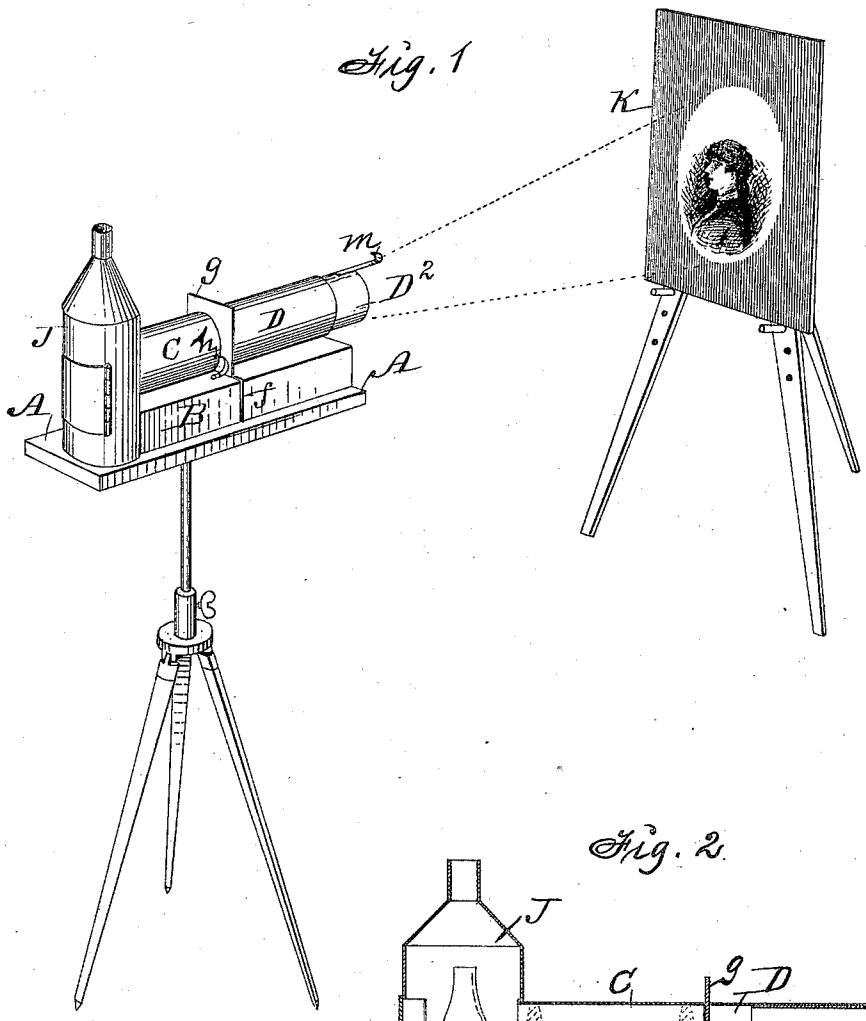
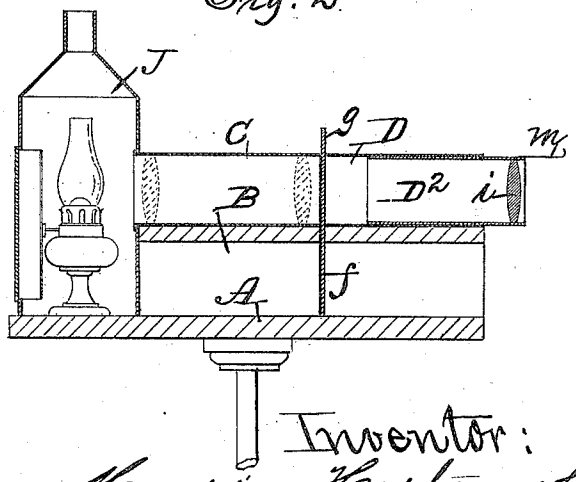


Fig. 2



Witnesses:
Orra C. Moore,
D. S. Devin,

Inventor:
Maurice Hartsough,
By Thomas G. Orwig, Atty.

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

MAURICE HARTSOUGH, OF DES MOINES, IOWA.

METHOD OF AND APPARATUS FOR TRANSFERRING AND ENLARGING PORTRAITS.

SPECIFICATION forming part of Letters Patent No. 301,232, dated July 1, 1884.

Application filed April 11, 1884. (No model.)

To all whom it may concern:

Be it known that I, MAURICE HARTSOUGH, of Des Moines, in the county of Polk and State of Iowa, have invented a Method of and Apparatus for Transferring, Enlarging, and Outlining Photos and Pictures upon Canvas, of which the following is a specification.

My object is to facilitate the labor and improve the workmanship and accuracy in transferring pictures from cards, papers, books, &c., to canvas or other suitable surface, as required in making true portraits of persons, animals, buildings, landscapes, &c., of any size desired.

My invention consists in the construction, arrangement, and combination of an instrument with an artificial light, a transparency, and a canvas, and method of operating the complete apparatus, as hereinafter fully set forth.

Figure 1 of my accompanying drawings is a perspective view showing the apparatus in position as required for practical use. Fig. 2 is a longitudinal section of my instrument. Jointly considered, these figures clearly illustrate the construction of the apparatus and my method of operation.

A represents the base of my instrument in the form of a board adapted to be placed flat upon a table or affixed to a portable tripod or other suitable device for retaining it in an elevated position.

B represents an oblong box or other suitable tube-support fixed on top of the base A.

C is a tube, made of sheet metal or glass, in such a manner that it will be opaque and have a polished surface inside adapted to reflect rays of light.

D is a tube corresponding in structure and size with the tube C. These two tubes C and D are fixed upon the support B, so that their contiguous ends come nearly together, while their bodies extend in a straight line.

f is a slot that extends down through the tube-support B in a vertical line with the open space between the contiguous ends of the two tubes to admit the insertion of a transparency, *g*.

h represents a spring-clasp or other suitable fastening device fixed to the tube or tube-support in such a manner that it will engage the transparent glass or card *g* and retain it at any point of elevation desired.

D^2 is an auxiliary tube that slides longitudinally in the tube D.

i is a magnifying-lens fixed in the outer end of the sliding tube. Dotted lines indicate that one or two lenses may be fixed in the tube C to increase the power of the instrument.

J represents an opaque case or shield adapted to retain and shield an artificial light. It is preferably made of sheet metal, and has a hinged or sliding door, through which a lamp can be readily passed in and out. It is fixed to the base A, and has a circular opening coinciding with the open end of the tube C, through which opening light is transmitted from the lamp into the tube and through the transparency *g*, tubes D and D^2, and the lens *i*, and from thence upon a canvas, K, that is supported in the front of the instrument upon an easel or other suitable portable device, as clearly shown in Fig. 1.

m is a handle projecting from the tube D^2, for the purpose of sliding that tube and lens in and out of the fixed tube, and thereby focusing the rays of light as required to regulate the size of the picture transmitted from the transparency *g* to the canvas K by the rays of light. Drawing the tube and lens out diminishes the size of the picture reflected from the transparency to the canvas, and pushing it in enlarges the picture on the canvas. The size of the picture desired can therefore be readily obtained by simply adjusting the sliding tube that carries the lens, while the lamp and instrument and the canvas remain stationary.

My method of transferring and enlarging a picture by means of the apparatus described is as follows: I first place a transparent glass or card-board over the photo or picture that is to be copied, and with a pencil trace the outlines of the picture upon the prepared surface of the transparency, and then place the transparency containing the traced image or picture into the slot *f* of the instrument (camera obscura) and a lighted lamp into the case J. I then darken the room and adjust the instrument and canvas relative to each other

so as to bring the center of the image at the point desired upon the canvas. To then enlarge or contract the image or picture upon the canvas, I simply slide in or out the tube carrying the magnifying-lens. After the proper focus and size of image is secured I take a pencil and trace the shadow-picture with pencil-marks upon the canvas, as required to produce a fixed image or picture upon the canvas, to be subsequently shaded and colored by means of a pencil or brush.

I claim as my invention—

1. The herein-described method of transferring and enlarging a photo or picture, which method consists, first, in placing a transparent glass plate or card-board over a picture, and then tracing the picture upon the transparent plate or card with a pencil making dark lines; second, in placing the transparency thus prepared in a tube to intercept rays of artificial light in rear of an adjustable tube carrying a lens and a canvas at some distance from the lens; third, in adjusting the lens relative to the canvas and light to focus the reflected rays and regulate the size of the shadow-picture transferred from the transparency to the canvas by the rays of light passed through the transparency and the lens; fourth, in tracing the lines of the shadow-picture upon the canvas with a pencil to fix the shadow-picture upon the canvas.

2. An instrument for transferring and enlarging pictures, composed of a portable base, two fixed open-ended tubes having an open space between their contiguous ends adapted to receive a transparent card or glass plate, a sliding tube within one of the fixed tubes carrying a lens in its outer end, and a case adapted to inclose an artificial light and direct the light through the tubes, in the manner set forth.

3. The combination of the base A B, having a slot, *f*, the fixed tubes C and D, the sliding tube D^2, carrying a lens, *i*, and a handle, *m*, and a lamp-case, J, substantially as shown and described, for the purposes specified.

MAURICE HARTSOUGH.

Witnesses:

THOMAS G. ORWIG,

GEO. F. HENRY.