

(No Model.)

C. L. BETTS.  
INJECTOR FOR LANTERNS.

No. 417,661.

Patented Dec. 17, 1889.

FIG. 1.

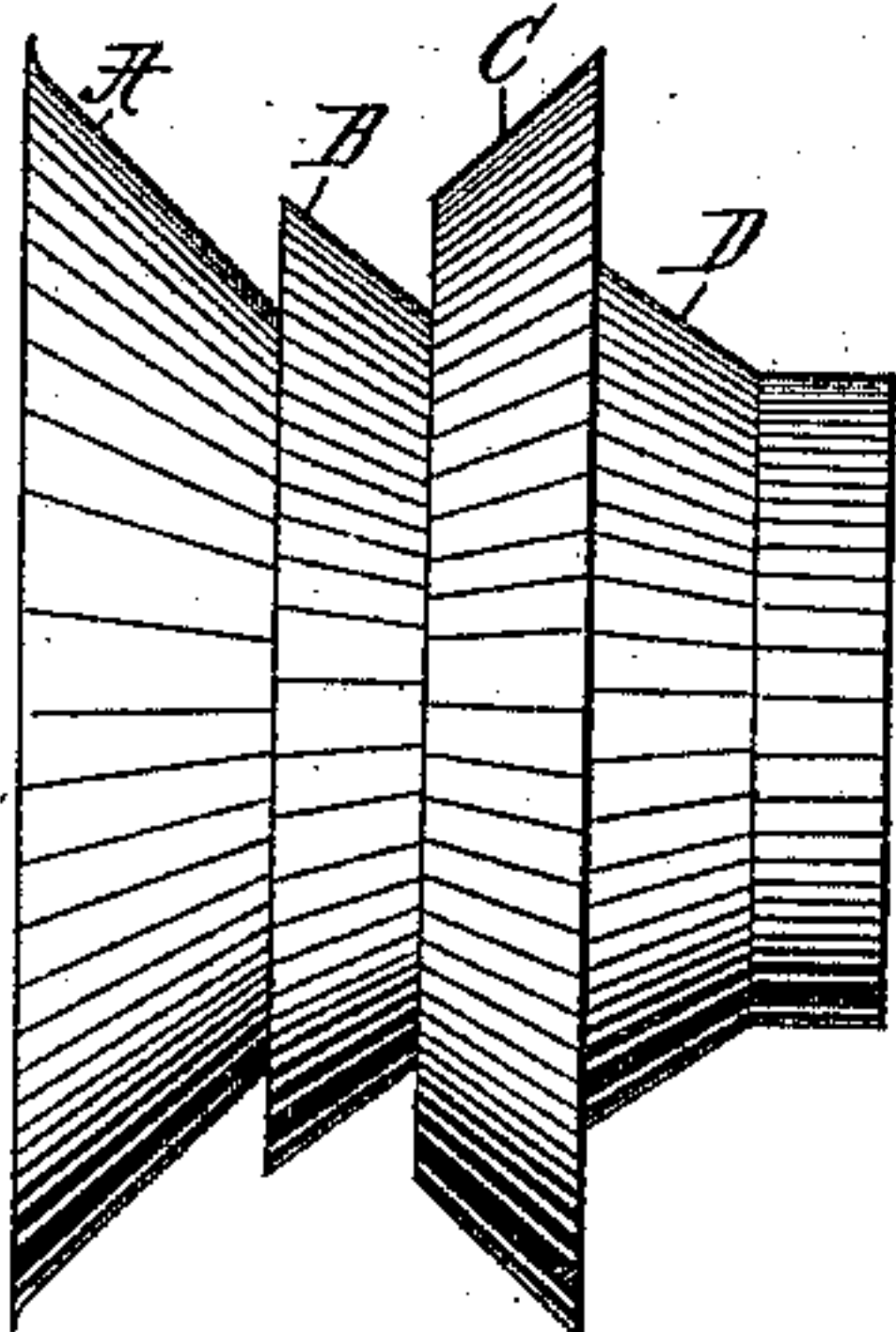


FIG. 2.

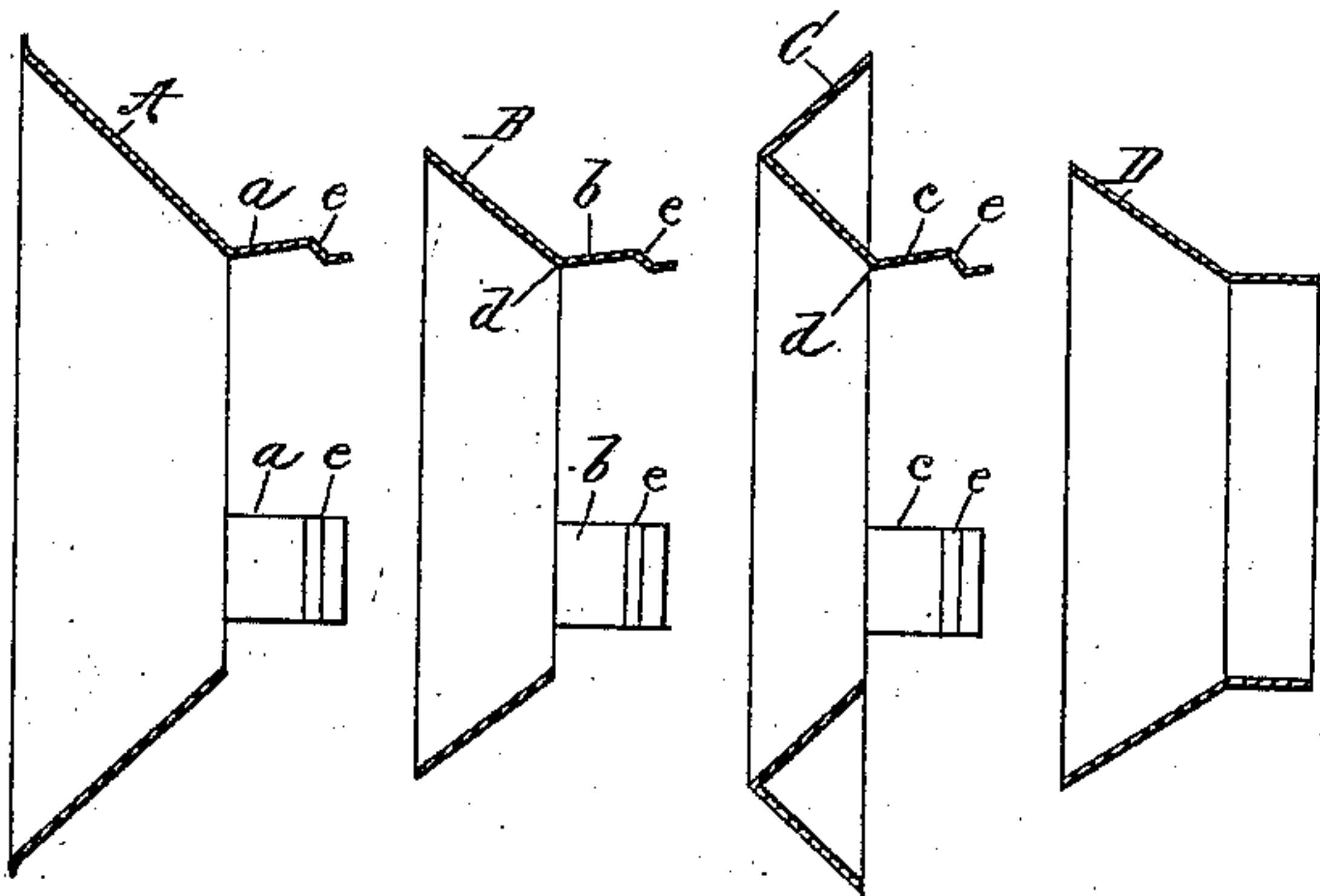
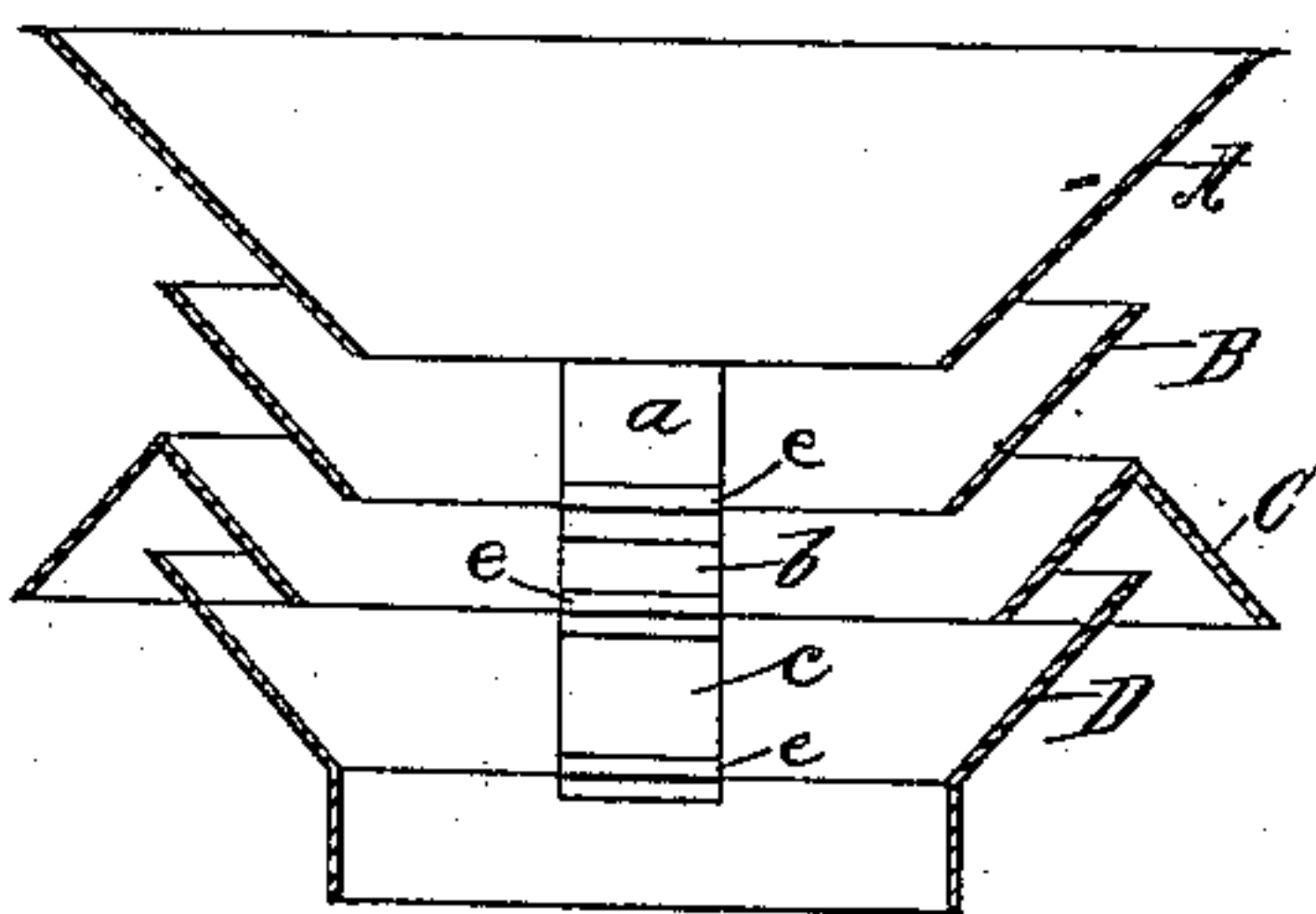


FIG. 3.



Witnesses  
John Buckle,  
L. H. Osgood.

Inventor:  
Charles L. Betts,  
By *Wm. Osgood*  
Attorney.



# UNITED STATES PATENT OFFICE.

CHARLES L. BETTS, OF BROOKLYN, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE  
STEAM GAUGE AND LANTERN COMPANY, OF SYRACUSE, NEW YORK.

## INJECTOR FOR LANTERNS.

SPECIFICATION forming part of Letters Patent No. 417,661, dated December 17, 1889.

Application filed July 17, 1889. Serial No. 317,753. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES L. BETTS, of Brooklyn, county of Kings, and State of New York, have invented certain new and useful

5 Improvements in Injectors for Lanterns and Lamps, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

10 My invention relates to that well-known class of air-injectors which are applied upon lanterns and lamps for the purpose of gathering and injecting air-currents to maintain combustion and prevent reversal of the cur-  
15 rents passing to the flame. These injectors are applied with their axes horizontal, vertical, or inclined according to the style and position of the lamp or lantern, and they are made up of several parts or sections, to the  
20 easy, rapid, accurate, and substantial union of which my invention is directed.

It has not been deemed necessary to show herein any lamp or lantern or more than one form of air-injector, inasmuch as my improve-  
25 ments are applicable to all the forms of injectors of the general class referred to, and the injectors are in turn to be mounted upon any pattern of illuminating apparatus intended for their use.

30 Examples of the application of air-injectors to lamps and lanterns will be seen in United States patents to J. H. Irwin, No. 211,405, of January 14, 1879, and No. 212,470, of February 18, 1879.

35 Accordingly I have shown at Figure 1 of the drawings an elevation of an air-injector ready for application and use, the parts being properly joined. Fig. 2 represents the various parts or sections of Fig. 1 in sectional  
40 elevation, the parts being separated from each other, but ready to be joined according to my invention; and Fig. 3 is a sectional elevation of the completed injector corresponding with Fig. 1, though having its axis vertical instead  
45 of horizontal.

In all the figures like letters of reference, wherever they occur, indicate corresponding parts.

50 The injector chosen for illustration is made up of four parts or sections. (Represented in order at A B C D.) Some injectors may in-

clude a greater number of sections and some a less number. These sections are usually stamped up of sheet metal in suitable dies, and as to size and shape they are generally  
55 as accurate as may be desired. In uniting the sections to form the injector, however, much difficulty has been experienced in properly spacing and accurately aligning them, so as to insure perfect working under all cir-  
60 cumstances, to say nothing of the time consumed and expense and waste incurred in their manufacture. It has been the practice to slide the sections upon a soapstone rod, to gage the spacing by the eye, and then to dip  
65 in molten tin or solder, all of which required skillful handling, consumed time and labor, and resulted in frequent inaccuracies, to the detriment and sometimes ruin of the article so finished. To insure absolute accuracy of  
70 spacing and alignment and facilitate the assembling of the sections, I provide the parts, except D or the last in the series, with legs or projecting pieces, as *a a*, *b b*, and *c c*, preferably formed with the sections and of proper  
75 length. The legs are bent out slightly as they leave the wall of the section, thus forming slight ledges or angles, as at *d d*, upon which the legs of the preceding section may abut, and the ends of the legs at the proper points  
80 are bent inwardly to form shoulders, as *e e*. This formation of the shoulders is accomplished by use of a suitable die or tool, by which all are accurately located, as required. To assemble the parts thus formed, the legs  
85 of one section are sprung to place upon the ledges *d* of the next succeeding section, the two parts being thus held in accurate alignment and at the required exact distance from each other. Another section is joined in the  
90 same way, and so on to the last, all being held in proper position and requiring no labor or adjustment other than what is necessary to snap the parts together. The injector is then complete, except the dipping, which is accom-  
95 plished by picking up the article upon any wire or suitable tool and plunging it in molten tin or solder, by which the joints are all firmly secured. The manner of uniting and holding the parts before dipping insures complete  
100 soldering of all the joints in the bath of metal and obviates all danger of displacing or dis-

arranging them while undergoing the dipping process.

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

1. In an injector of the character herein set forth, the combination, with the sections of legs or projecting parts integral therewith, each bent to form shoulders, which shoulders are fitted and arranged to engage with and bear upon ledges upon the next succeeding section to sustain the parts in proper relative position, substantially in the manner and for the purpose set forth.

2. The herein-described injector, composed

of several sections having legs integral therewith, provided each with a shoulder at its lower end, the legs of one section engaging with and bearing upon a ledge on the next succeeding section, the joints being finally secured by tinning or soldering, substantially as and for the purposes explained.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of two witnesses.

CHAS. L. BETTS.

Witnesses:

J. A. ALLEN,

N. J. CONSIDINE.



It is hereby certified that Letters Patent No. 417,661, granted December 17, 1889, upon the application of Charles L. Betts, of Brooklyn, New York, for an improvement in "Injectors for Lanterns," was erroneously issued to "The Steam Gauge and Lantern Company, of Syracuse, N. Y.," as assignee of the entire interest in the patent; that said Letters Patent should have been issued to *The R. E. Dietz Company, and the said Steam Gauge and Lantern Company jointly*, said R. E. Dietz Company being owner of one-half interest in said invention as shown by assignments of record in this office; and that said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 24th day of December, A. D. 1889.

[SEAL.]

CYRUS BUSSEY,  
*Assistant Secretary of the Interior.*

Countersigned:

C. E. MITCHELL,  
*Commissioner of Patents.*