

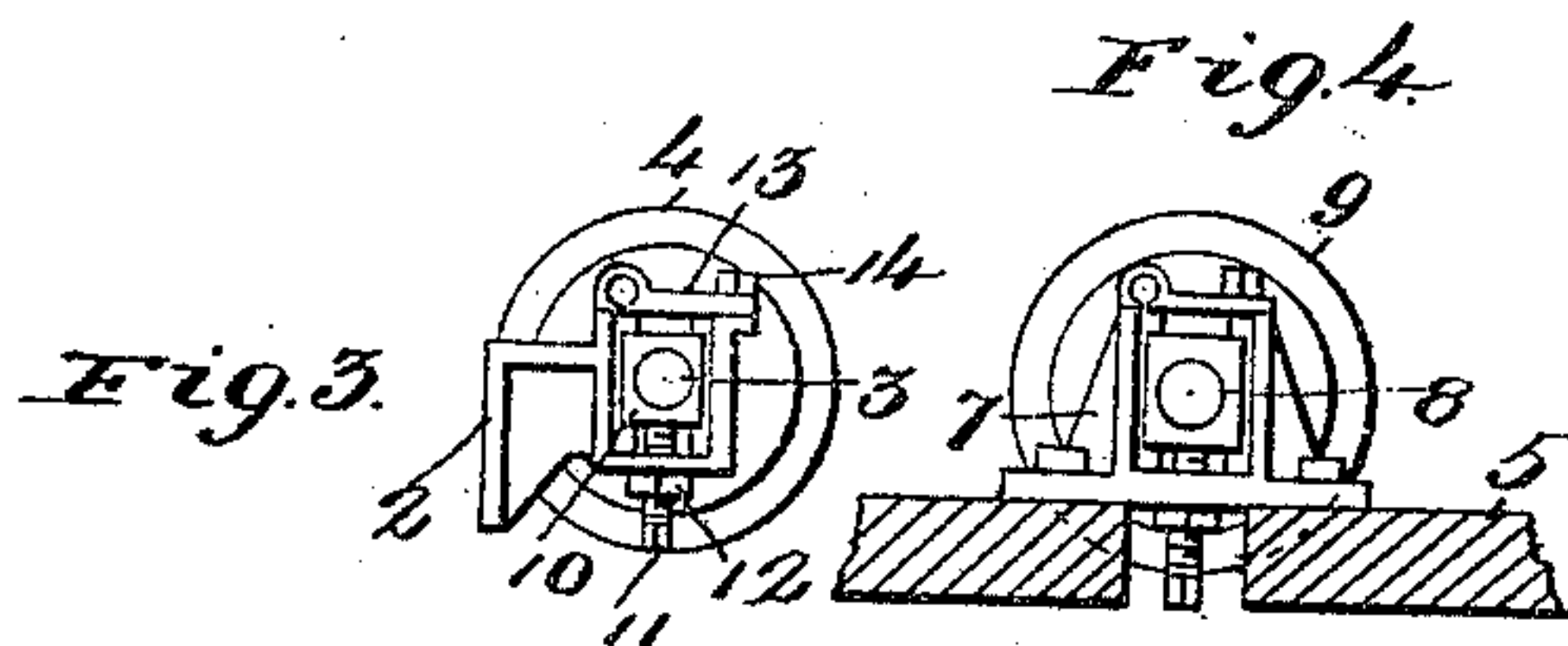
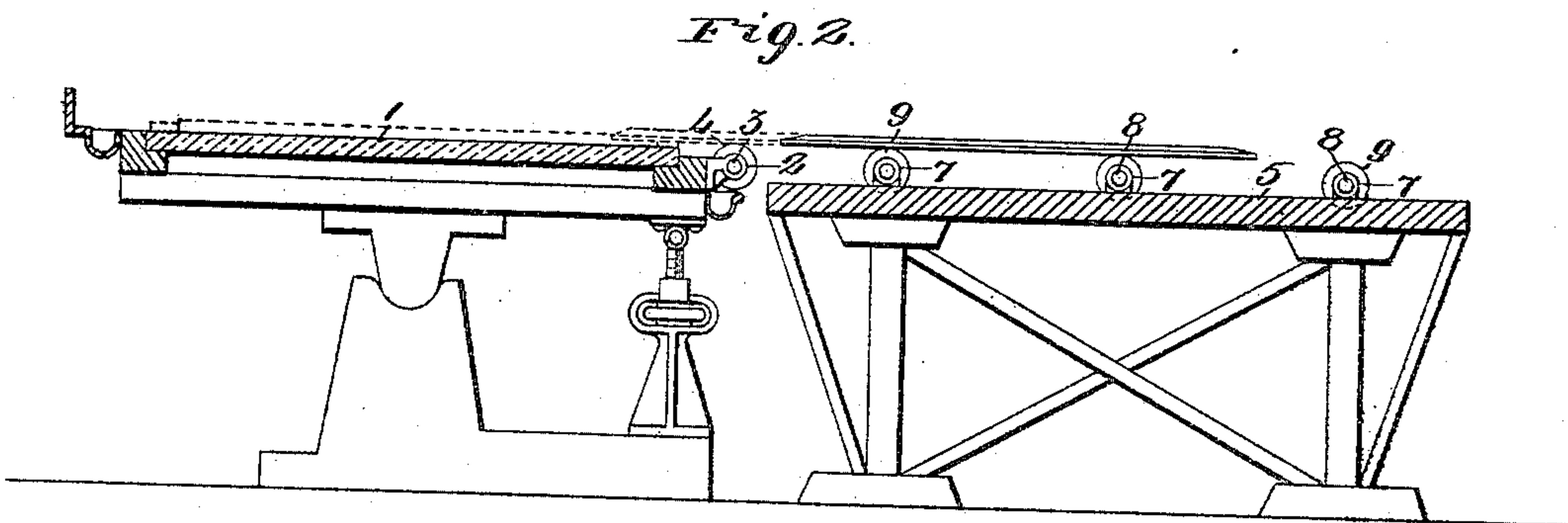
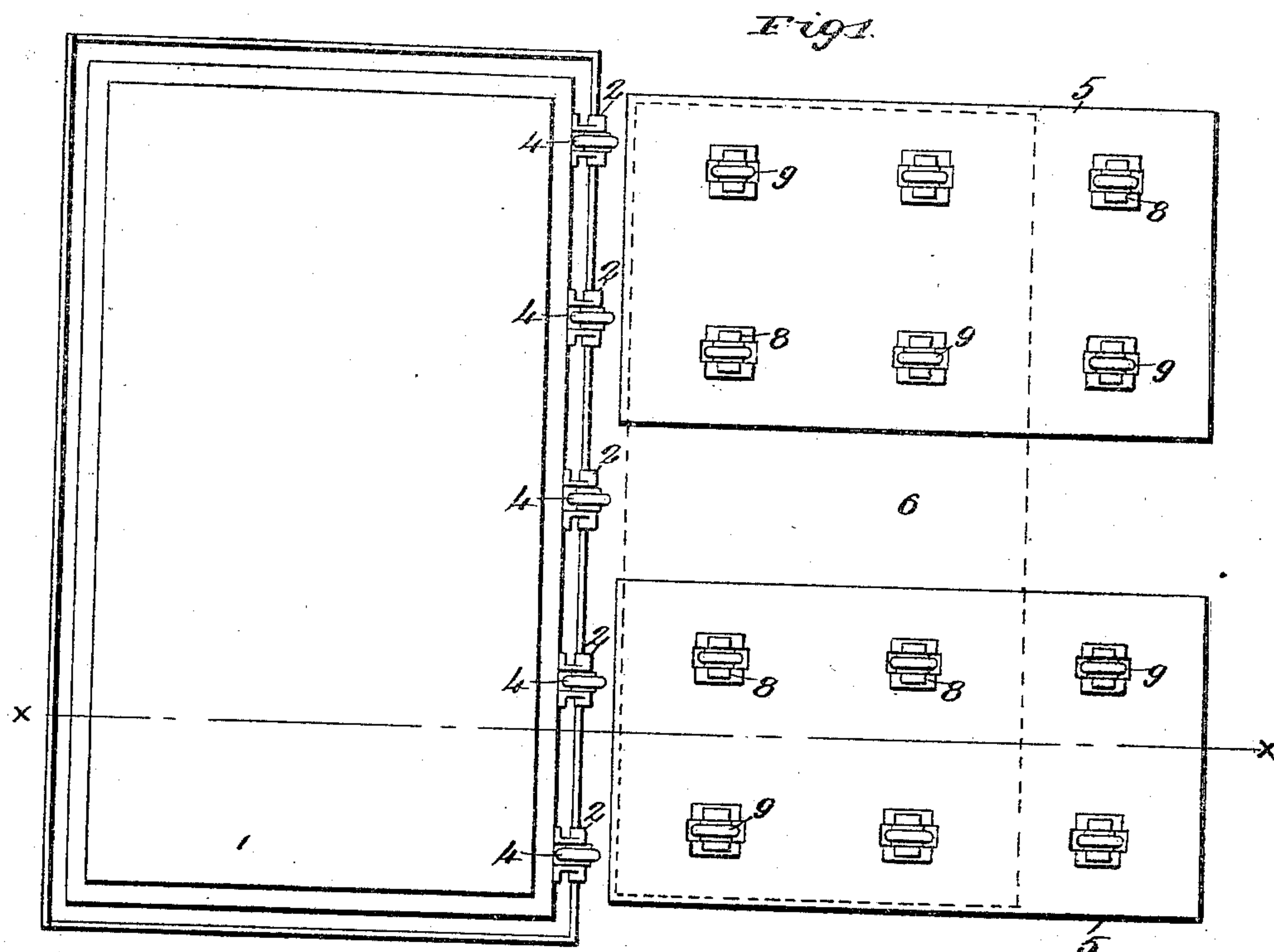
No. 622,513.

Patented Apr. 4, 1899.

D. J. MURNANE.  
APPARATUS FOR MANUFACTURING MIRRORS.

(Application filed Feb. 2, 1898.)

(No Model.)



WITNESSES:

Alfred A. Mathew,  
E. E. Elliott.

INVENTOR

Daniel J. Murnane.

BY

Heller & Heller.  
ATTORNEYS.



# UNITED STATES PATENT OFFICE.

DANIEL J. MURNANE, OF TUXEDO PARK, MISSOURI, ASSIGNOR TO THE  
NATIONAL MERCURY MIRROR COMPANY, OF ST. LOUIS, MISSOURI.

## APPARATUS FOR MANUFACTURING MIRRORS.

SPECIFICATION forming part of Letters Patent No. 622,513, dated April 4, 1899.

Application filed February 2, 1898. Serial No. 668,842. (No model.)

*To all whom it may concern:*

Be it known that I, DANIEL J. MURNANE, a citizen of the United States, residing at Tuxedo Park, in the county of St. Louis and State of Missouri, have invented certain new and useful Improvements in Apparatus for Manufacturing Mirrors, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to improvements in an apparatus for manufacturing mirrors; and it consists in the novel combination and arrangement of parts, as will be hereinafter described more particularly, and pointed out in the claims.

In the drawings, Figure 1 is a top plan view of my complete invention. Fig. 2 is a vertical longitudinal section taken on the line  $xx$  of Fig. 1. Fig. 3 is a detail side elevation of one of the roller-supporting bearings arranged along one edge of the mercury-table, and Fig. 4 is a similar view of one of the roller-supporting bearings arranged upon the feeding-tables.

My invention is designed to be used in combination with a mercury-table of well-known construction for manufacturing what are commonly known as "mercury-back" mirrors, wherein tin-foil is first carefully spread or laid upon the bed of the table, and upon said foil mercury is poured over and held upon the same, after which the glass to be coated on one side to produce a mirror is slowly and carefully floated over and upon the mercury, slightly below the surface of the same, and the glass allowed to remain upon said mercury for a given length of time until the desired result is obtained. Heretofore it has been necessary to employ only skilled men for this class of work from the fact that the glass to be coated must be carefully and slowly fed and floated over the mercury slightly below its surface by hand, the greatest care being taken to always hold the glass in such a position that its lower surface or that side to be coated is brought in contact with the mercury on a horizontal line or plane with the surface of said mercury; otherwise it is impossible to obtain a perfect mirror. Mirrors

made according to this method are lasting and more desirable; but the cost of producing them has been so great on account of the uncertainty of producing them, and the great loss of time and material has caused the discontinuance of their manufacture to a large extent. In order to dispense with the skilled handling of the glass, I employ one or more fixed and rigid supporting-tables, which are located adjacent and in close proximity to the feeding edge of the mercury-table and the said supporting-tables being provided with a suitable number of fixed bearings supporting rollers located a suitable distance above the bed of the mercury-table, upon which the glass to be coated is first placed and subsequently moved in a horizontal plane through the mercury on the mercury-table. In order to more thoroughly guide and hold the glass in the proper plane, I also arrange any number of rollers along the feeding edge of the mercury-table, also located a suitable distance above the bed of the mercury-table. By the employment of the supporting-tables and rollers for same and the rollers on the feeding edge of the mercury-table, upon which the glass rests and is moved, an inexperienced person can easily move the glass in the proper plane in respect to the mercury, slightly below the surface of the same, and consequently a perfect mirror is produced at every operation.

Referring to the drawings, 1 represents a mercury-table of the well-known construction, upon the bed of which the tin-foil and mercury are placed in the well-known manner. Arranged along and fixed to the longitudinal edge of the table 1 are any number of bearings 2, which are adapted to receive the spindles 3 of suitable rollers 4, the latter projecting a suitable distance above the bed of the said table, whereby the mercury when placed upon the table will be slightly above said rollers, it being understood that glass or other strips are fixed to the bed for holding the mercury in the well-known manner.

In carrying out my invention one or more supporting-tables 5 may be used; but I preferably employ two of sufficient height and dimensions, leaving a space 6 between them,



permitting the operator to handle the glass from the center thereof, and thereby have perfect control of the same.

Secured to the upper surface of the tables 5 and arranged in any position in respect to one another are bearings 7, which receive the spindles 8 of the rollers 9, the said rollers being on a plane with the rollers 4, upon which the glass is first placed and subsequently moved or fed over and upon the rollers 4 to the mercury located on the table 1.

In carrying out my invention it will be observed that the rollers 4 and 9 are arranged at a height sufficient to cause the glass to be fed and floated slightly below the surface of the mercury located on the bed of the mercury-table, which is absolutely necessary to produce the necessary results.

In further carrying out my invention it is necessary that the rollers 4 and 9 be kept at all times as clean as possible in order that no marks or streaks may be made upon the glass, and, further, it may become necessary to slightly adjust the spindles of the rollers in order that the glass may be fed at a proper level in respect to the mercury, and for these reasons I employ such bearings as will accomplish the desired results, as plainly shown in Figs. 3 and 4 of the drawings.

The spindles 3 of the rollers 4 are received by bearing-blocks 10, which blocks are adjustable vertically within the bracket 2 by a screw 11, which is screwed through the bottom of said bracket and bears against and supports the block 10, the parts being held in an adjusted position by a nut-lock 12. The top of the bracket 2 or its open end is covered by a hinged plate 13, the same being securely

held in place by a nut 14. By this construction the rollers and bearing-blocks may be removed from the brackets at any time for cleaning said rollers. The bearings 7, arranged upon the tables 5, are likewise constructed for the same purposes and need no further description.

I do not limit myself to the employment of rollers along the feeding edge of the mercury-table, as supports may be substituted and arranged at intervals in a like manner, over which the glass may be slid or moved; but the rollers are preferably used, for the reason that by their use the friction is reduced to a minimum.

Having fully described my invention, what I claim is—

1. An apparatus for manufacturing mercury-back mirrors comprising an ordinary mercury-table, rollers arranged along the feeding edge of the same, and means in rear of said rollers for supporting the glass previous to being floated as and for the purpose described.

2. An apparatus for manufacturing mercury-back mirrors, comprising an ordinary mercury-table, one or more supporting-tables located adjacent to the feeding edge of the said mercury-table, and rollers arranged upon the upper surface of the supporting-tables, and along the feeding edge of the mercury-table, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

DANIEL J. MURNANE.

Witnesses:

ALFRED A. MATHEY,  
C. F. KELLER.