G. E. DUNTON.

METHOD OF PREPARING MOLDS FOR ELECTROTYPES.

APPLICATION FILED OCT. 30, 1908.

914,816.

Patented Mar. 9, 1909.

3 SHEETS—SHEET 1.

Fig. 1.

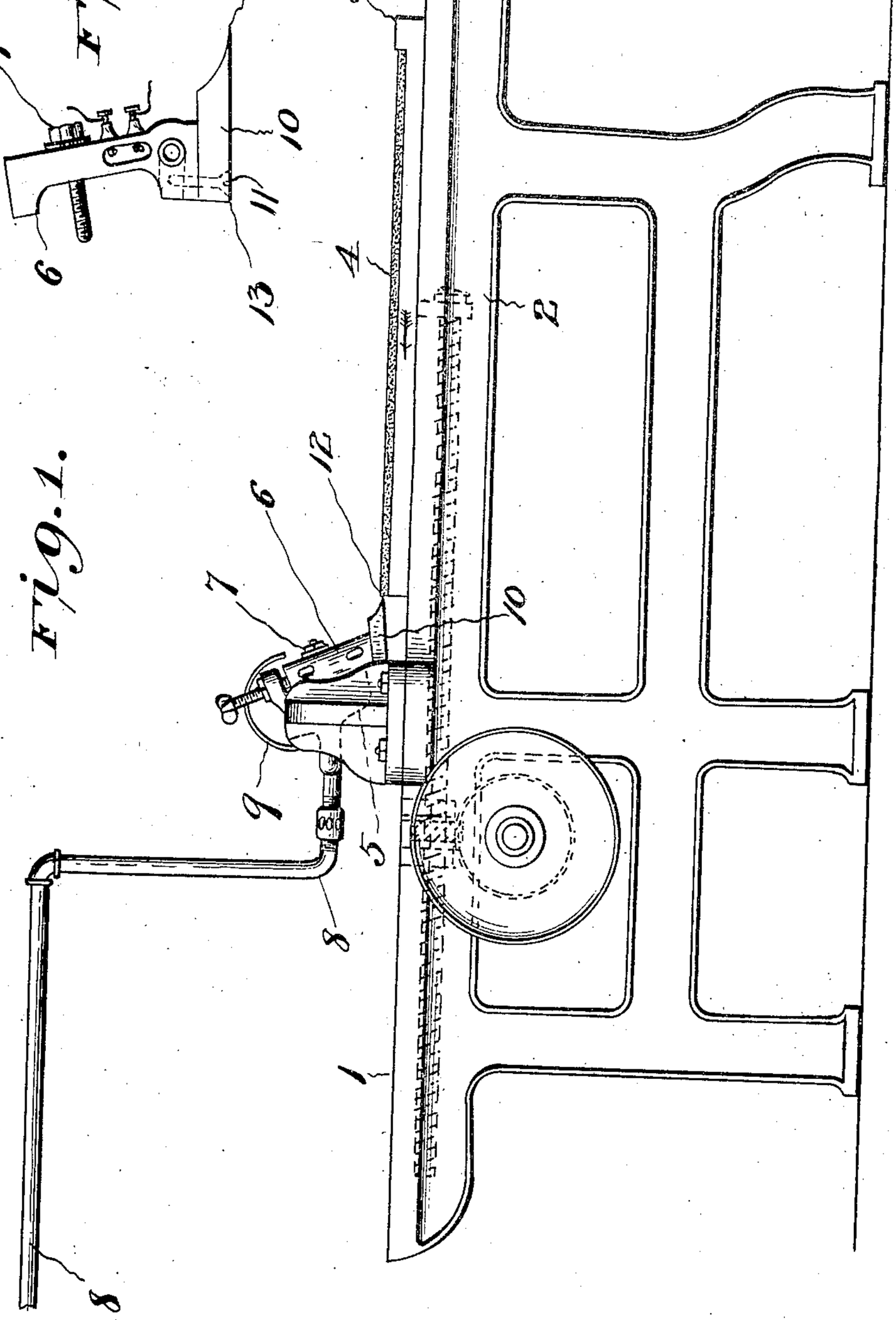

Fig. 6.

WITNESSES

W. E. Jones Jr.

Thomas Barr

INVENTOR

George E. Dunton

by Blackwood Bros

Attorneys.

G. E. DUNTON.

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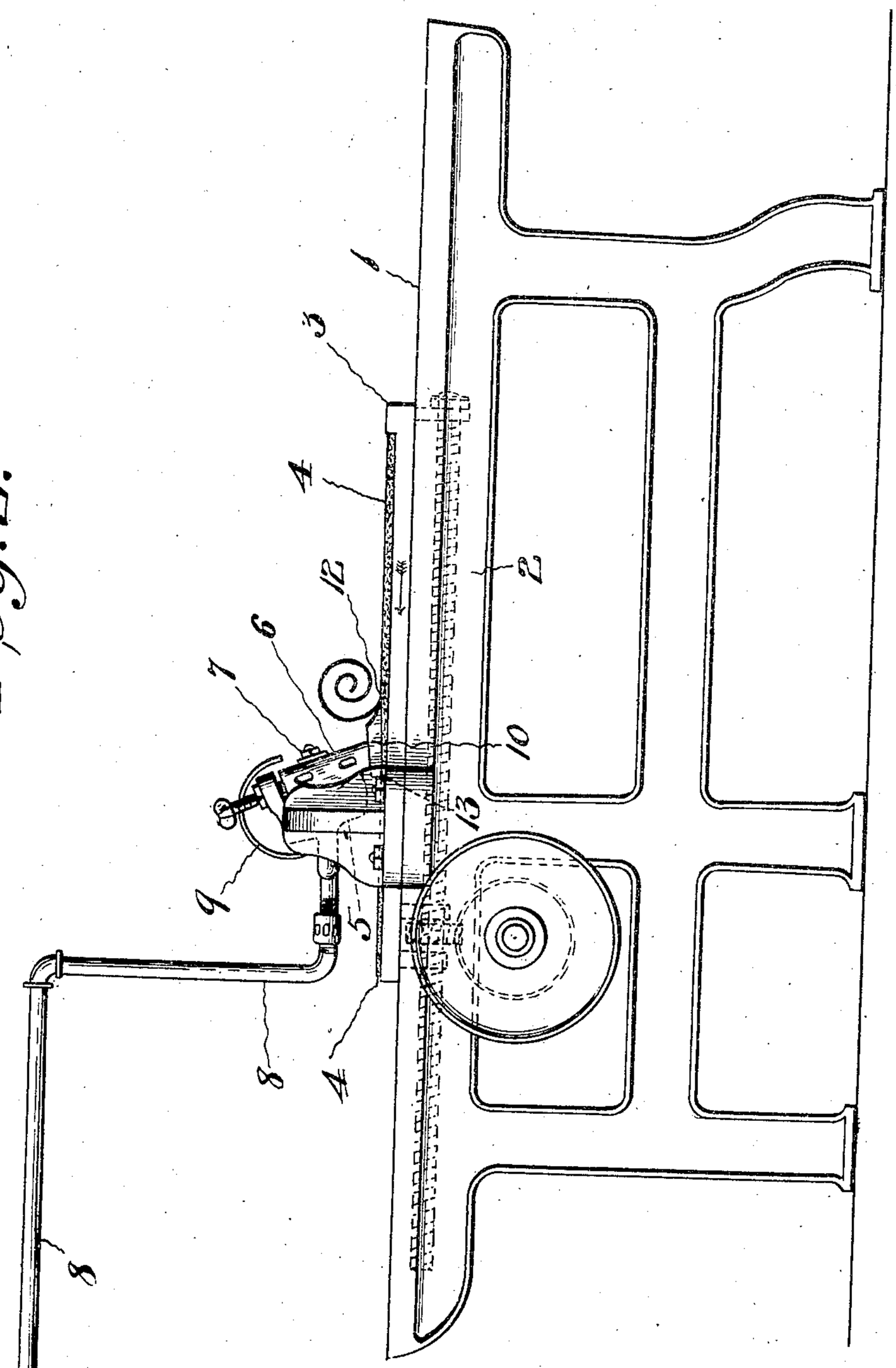
3 SHEETS—SHEET 2.

Fig. 2.



WITNESSES

W. C. Jones Jr.

Thos. B. Kerr.

INVENTOR

George E. Dunton

by Blackwood & Bros.

Attorneys

G. E. DUNTON.

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3 SHEETS—SHEET 3.

Fig. 4.

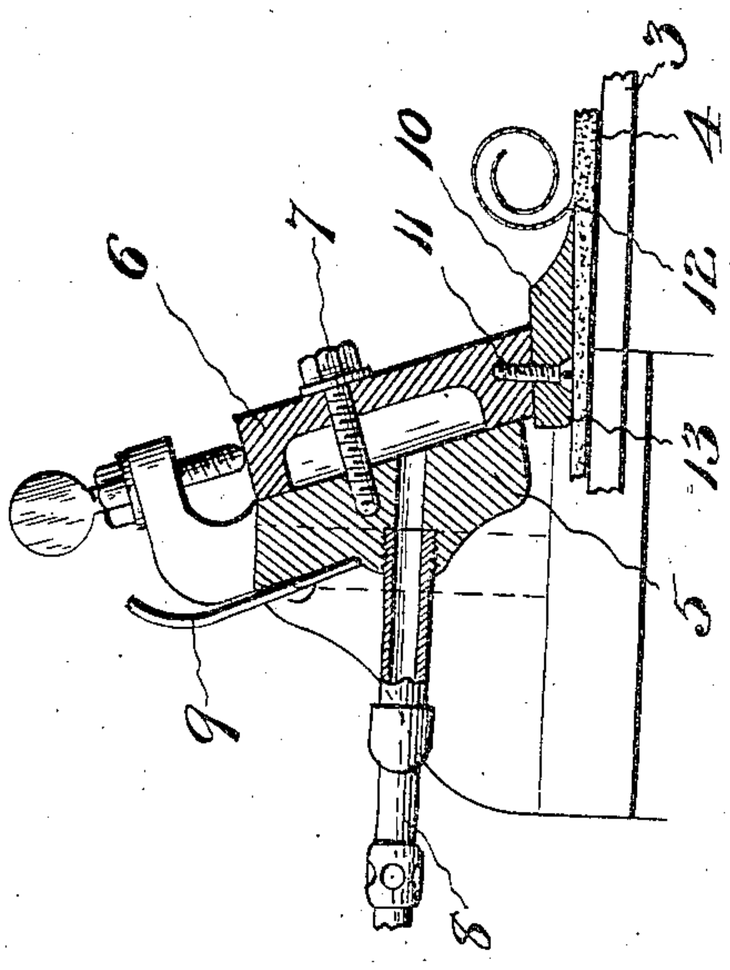


Fig. 5.

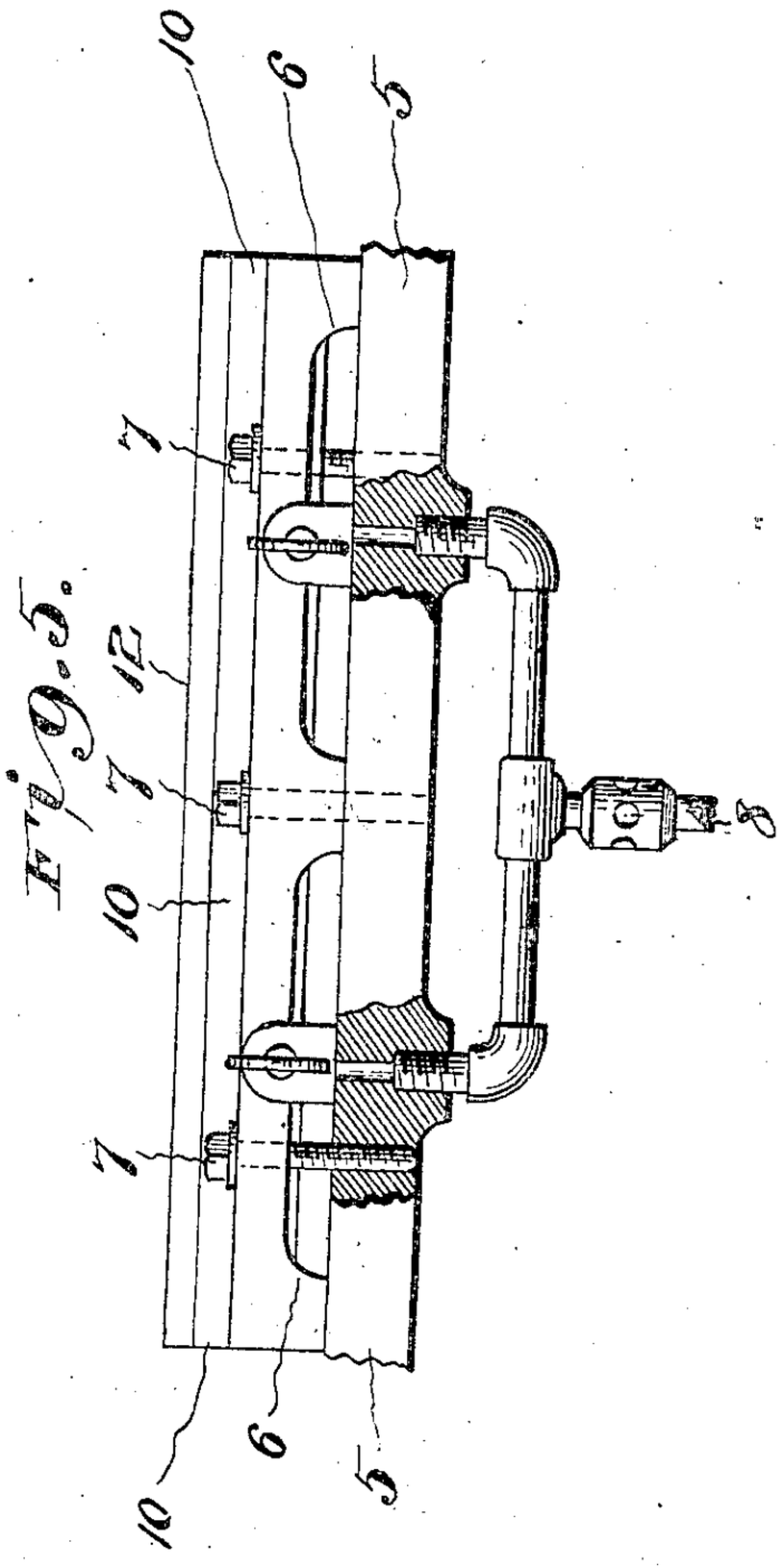
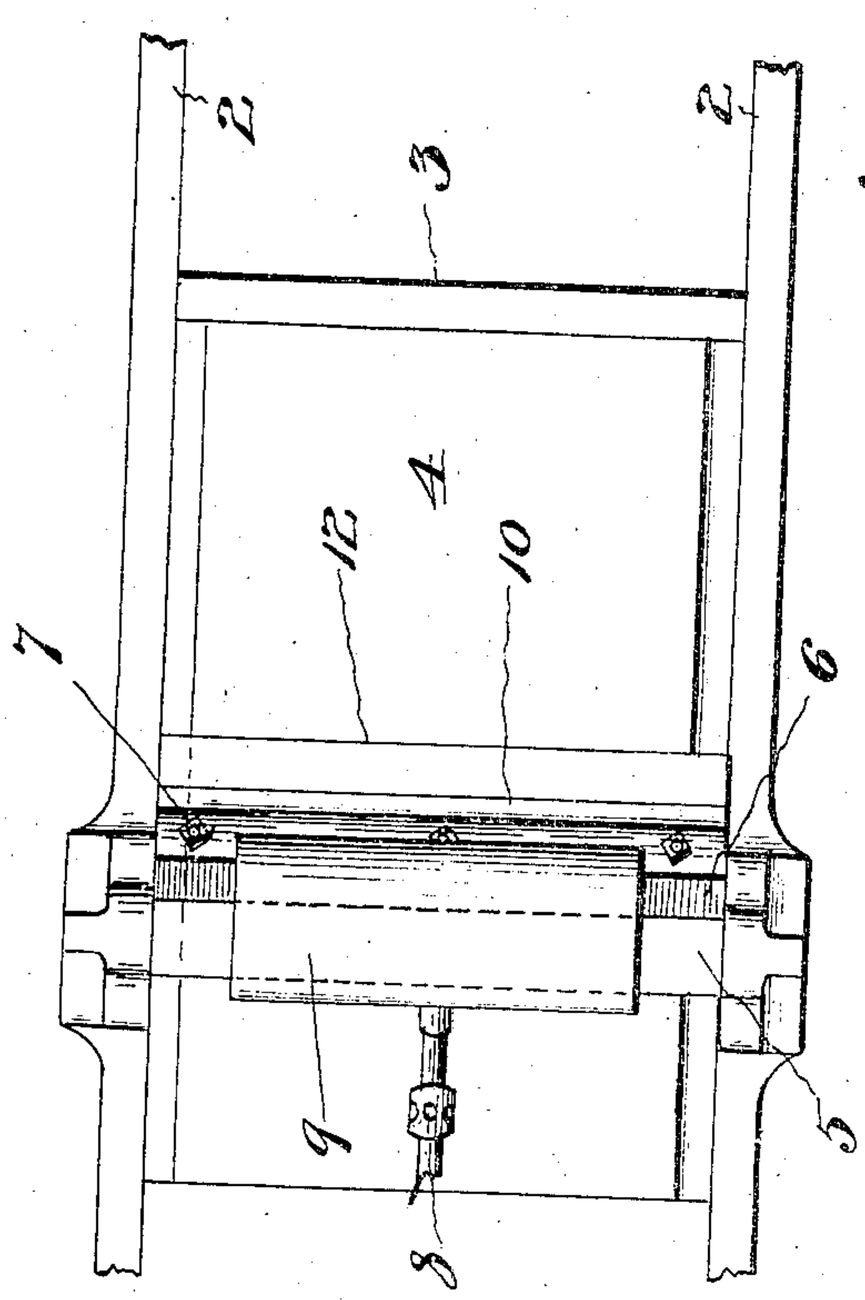


Fig. 3.



WITNESSES

W. E. Jones Jr.

Thomas Parr

INVENTOR

George E. Dunton

by Blackwood Bros.

Attorneys

UNITED STATES PATENT OFFICE.

GEORGE E. DUNTON, OF NEW YORK, N. Y.

METHOD OF PREPARING MOLDS FOR ELECTROTYPES.

No. 914,816. Specification of Letters Patent. Patented March 9, 1909.

Application filed October 30, 1908. Serial No. 460,288.

To all whom it may concern:

Be it known that I, GEORGE E. DUNTON, residing at New York city, county of New York, State of New York, a citizen of the United States, have invented certain new and useful Improvements in Methods of Preparing Molds for Electrotypes; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to an improved method of preparing molds for electrotypes, and more especially to a method of shaving or planing and polishing the surfaces of wax molds used by electrotypers in the molding of their forms.

It has for its object the shaving or planing by heated means the surface of the mold, which may be made of wax or other suitable material, and polishing or burnishing said shaved surface, as it is shaved, with heated means, thus combining the shaving and polishing in one operation and producing a mold with a perfectly smooth, level and even surface, free from pits, indentures or other imperfections, and imparting to the surface of the wax a polished or burnished appearance.

It further has for its object to provide means whereby the mold is held in place during the operation of shaving or ironing and polishing its surface.

It still further has for its object to provide a method of preparing molds for electrotypes which is simple and inexpensive and which accomplishes the desired result perfectly.

The method now universally used is as follows:—The wax case, which is a thin sheet of metal copper or electrotype metal, having been filled, placed on a table having a rim along its edges and melted wax or other suitable composition having been poured over the surface of the case, it is allowed to cool, set, and become hard, when it is subjected to the knife of a wax shaving machine. By this method all the molds are made to the one standard thickness and are primarily given what has been desired to be a smooth surface, but after being subjected to the scraping action of the knife due to its relative position to the bed of the machine and to the fact that it has not been heated, the scraped surface of the wax will be rough and if the knife has been nicked or gapped along its so-called "cutting edge" the surface will be streaked, each gap leaving a little ridge along the surface of the wax along the direction in which the knife is carried or the mold travels. It is then generally necessary to again scrape these molds, especially if they are to be used for the molding of halftones or other fine cuts, by hand or to "flame" them by passing an open flame of gas over the surface of the wax. This latter method has a very decided disadvantage in that it leaves the surface of the wax full of minute little pits, which become very pronounced when examined through a magnifying glass. Each of these pits fills with molding lead more or less of which it will retain leaving minute rough spots over the surface of the electrotype plate later on. These methods of rescraping or flaming are not only unsatisfactory, but they are expensive as the operation consumes considerable time to either flame or scrape each mold by hand.

My method in the main is to prepare the surface of a wax mold by shaving or slicing off the top or upper layer or strata of wax, which I accomplish by the position in which I place the knife with relation to the wax mold, instead of scraping off the top of the wax mold as is done by machines in use at the present time. To further facilitate the shaving or slicing of the wax I apply heat to the shaving knife, and the cutting edge of the knife being heated, softens or melts the wax as it comes in contact with it, consequently the wax offers very little resistance to the passage of the knife and greatly reduces the amount of power required to operate the machine.

The application of heat to the knife is not wholly to facilitate its easy cutting action, but also to allow said knife to be used as a polisher, burnisher or means to iron out any imperfections or unevenness in the surface of the mold and give a polish or gloss.

Referring to the drawings which illustrate an apparatus adapted to carry out my method:—Figure 1 is a side elevation. Fig. 2 is a side elevation, showing the apparatus in the act of shaving or planing and polishing the surface of a mold. Fig. 3 is a top plan view. Figs. 4 and 5 are detail views of the knife and its heating means. Fig. 6 is a detail view of the knife showing means for heating the same with either electricity or steam.

In the drawings in which like numerals of reference denote like parts throughout the several views, 1 represents the apparatus or machine by which I carry out my method, which comprises a framework 2, provided with a reciprocally movable bed or table 3 which is designed to carry a wax mold 4, said framework having a bridge piece 5 extending across the same. To the face of the bridge piece a hollow heating chamber 6 is secured by means of cap screws 7, gas being fed to the same by means of a pipe 8, from any desired source of supply, which when ignited heats said heating chamber, and 9 is a hood or shield which covers the gas flame and prevents it being blown out. The heating chamber 6 has a knife 10 secured on its under side by means of suitable screws 11 and heat is transmitted thereto from said heating chamber.

Steam, electricity or other heating medium may be substituted for the gas flame for heating the chamber 6, which heats the knife, or the knife may be heated direct.

The front of the cutting edge 12 of the knife 10 is elevated or raised slightly above its rear edge 13 so that the knife has a tendency to cut in a plane with its under surface, which is upward, which prevents the knife from scraping or pulling the surface of the wax, and causes the rear edge of the knife to be pressed upon the surface of the wax mold 4 and to hold said mold down firmly and polish or burnish its surface. If the knife was pitched downward toward its cutting edge the tendency would be to pull the wax mold up on to the knife instead of shaving off its surface.

The polishing or burnishing of the surface of the mold may be accomplished by using the rear edge of the knife for such purpose as before described, or instead of using the knife as a polisher or burnisher means, separate and distinct from the knife, may be used such as a roller, bar or the like, or both a roller and a bar which may be heated or not as desired, said means being placed in proximity to the rear of the knife or any other desired position in relation to the knife.

Where the polisher or burnisher is separate from the knife it will be heated independently thereof.

The operation is as follows: The knife 10 shaves off a portion of the wax in the form of a shaving and as the mold passes under the rear edge 13 of the knife 10, in the direction of the arrows, the rear edge 13 being lower or closer to the moving wax mold than the cutting edge 12 and being heated it smooths, irons, polishes or burnishes the surface of the wax by slightly melting the surface and smoothing it down. The bed or table 3 reciprocates on the framework under the knife and when one mold is finished and taken off the bed is returned to its first position ready for other molds.

What I claim is:—

1. The method of preparing molds for electrotypes consisting in forming the mold and allowing it to cool, and shaving and polishing the surface of said mold with heated means, substantially as described.

2. The method of preparing molds for electrotypes consisting in forming the mold and allowing it to cool, shaving the surface of the mold with heated cutting means, and then polishing the surface of said mold with heated polishing means, substantially as described.

3. The method of preparing molds for electrotypes consisting in forming the mold and allowing it to cool, shaving the surface of the mold with the cutting edge of a heated knife and polishing the surface of the said mold with the opposite edge of said knife, substantially as described.

4. The method of preparing molds for electrotypes, which consists in simultaneously shaving and polishing the surface of the mold with heated means, substantially as described.

5. The method of preparing molds for electrotypes, which consists in forming the mold and shaving the surface thereof with a heated knife, substantially as described.

6. The method of preparing molds for electrotypes which consists in shaving and polishing the surface thereof with a heated knife, substantially as described.

7. The method of preparing molds for electrotypes which consists in simultaneously shaving and polishing the surface of the mold with a heated knife, substantially as described.

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

GEORGE E. DUNTON.

Witnesses:
HENRY BECKER,
ANNA B. WEIS.