

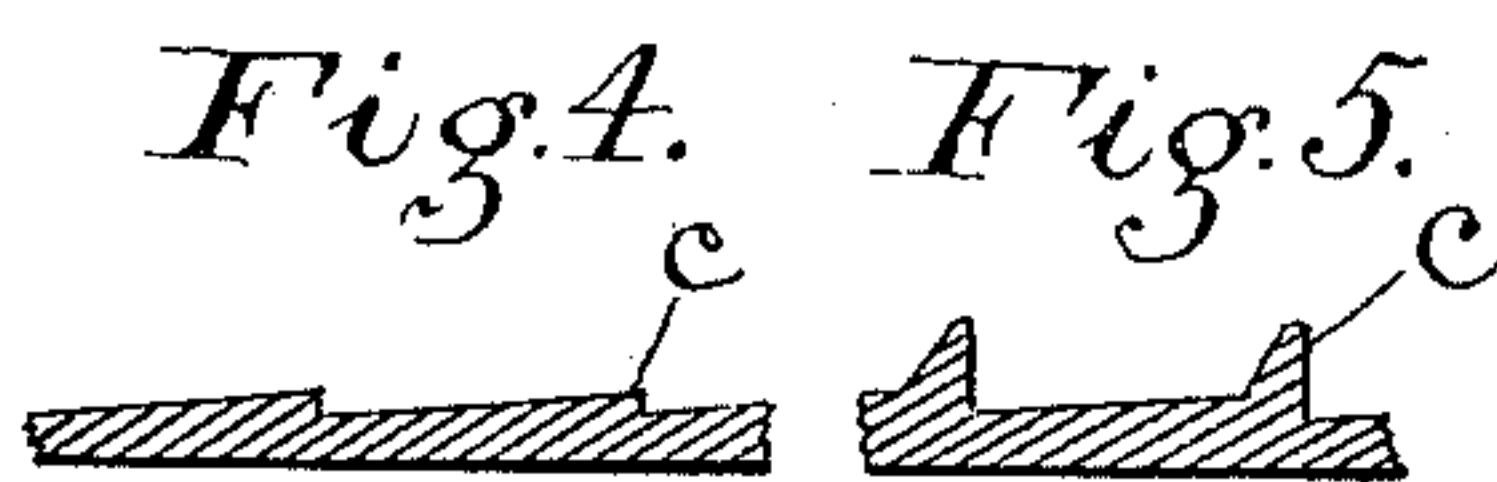
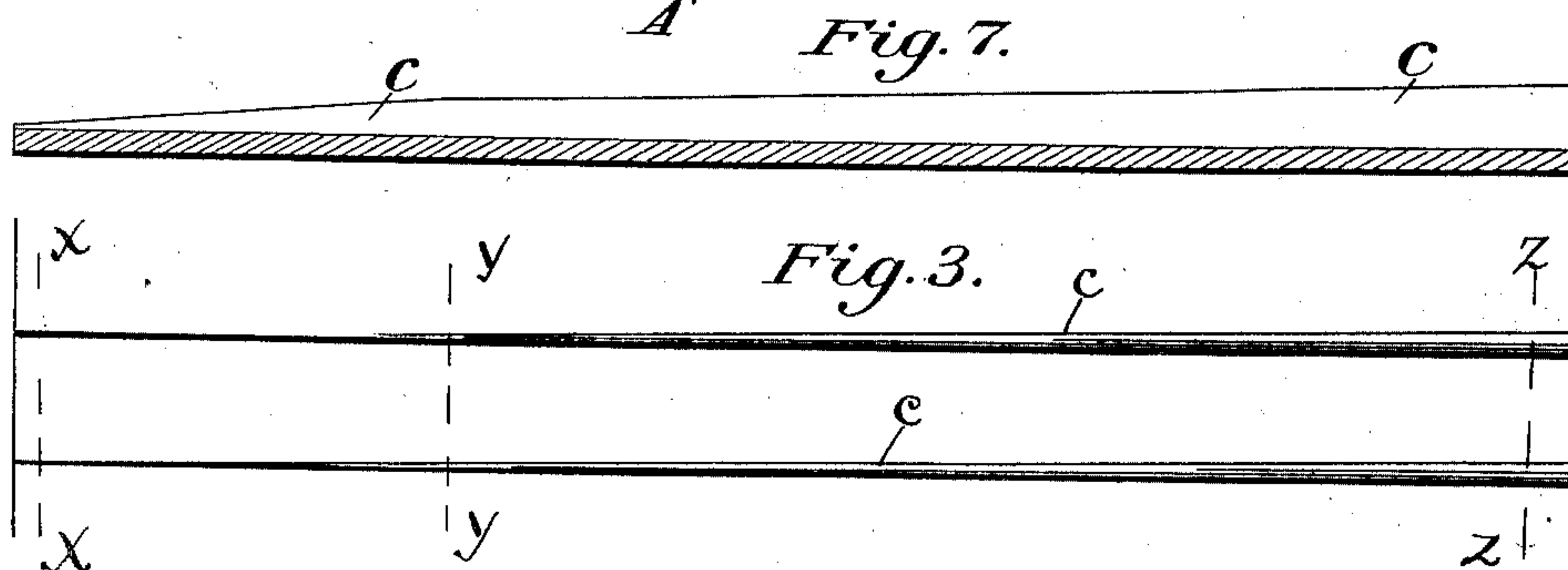
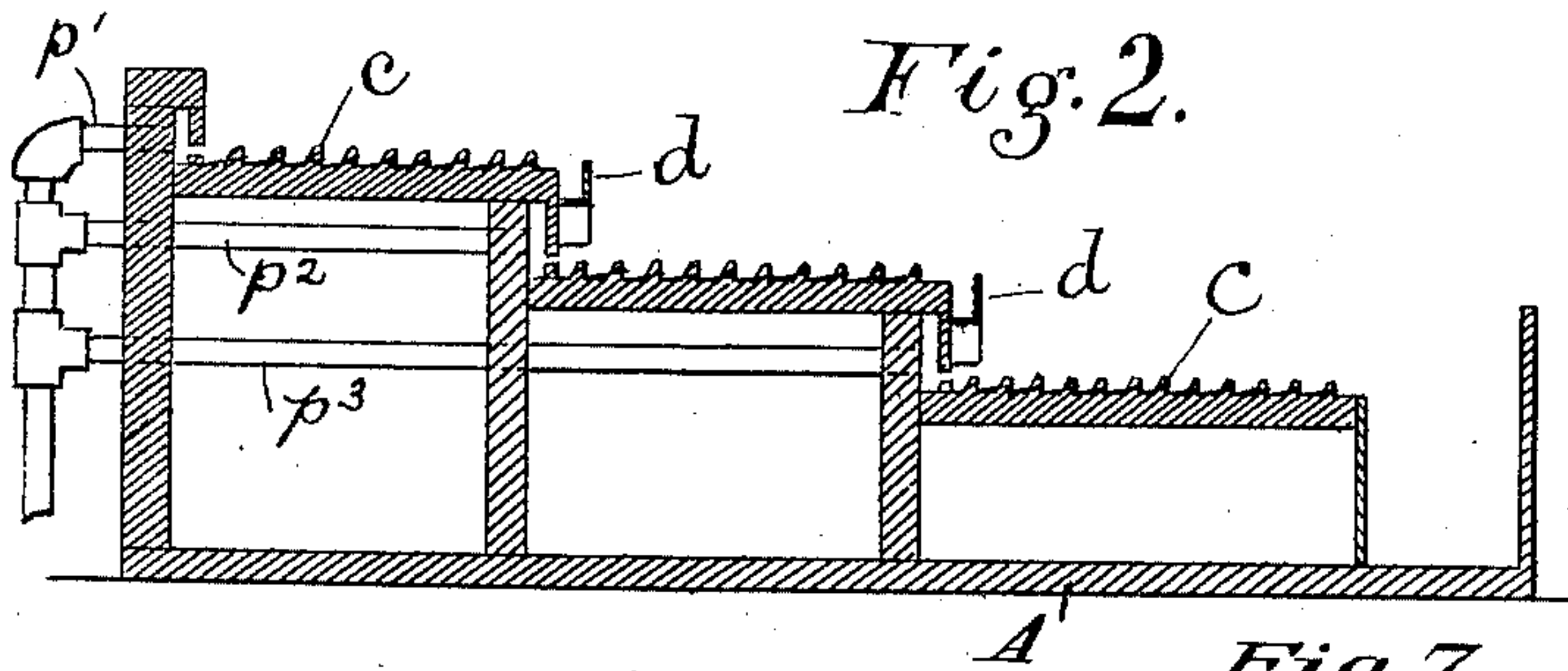
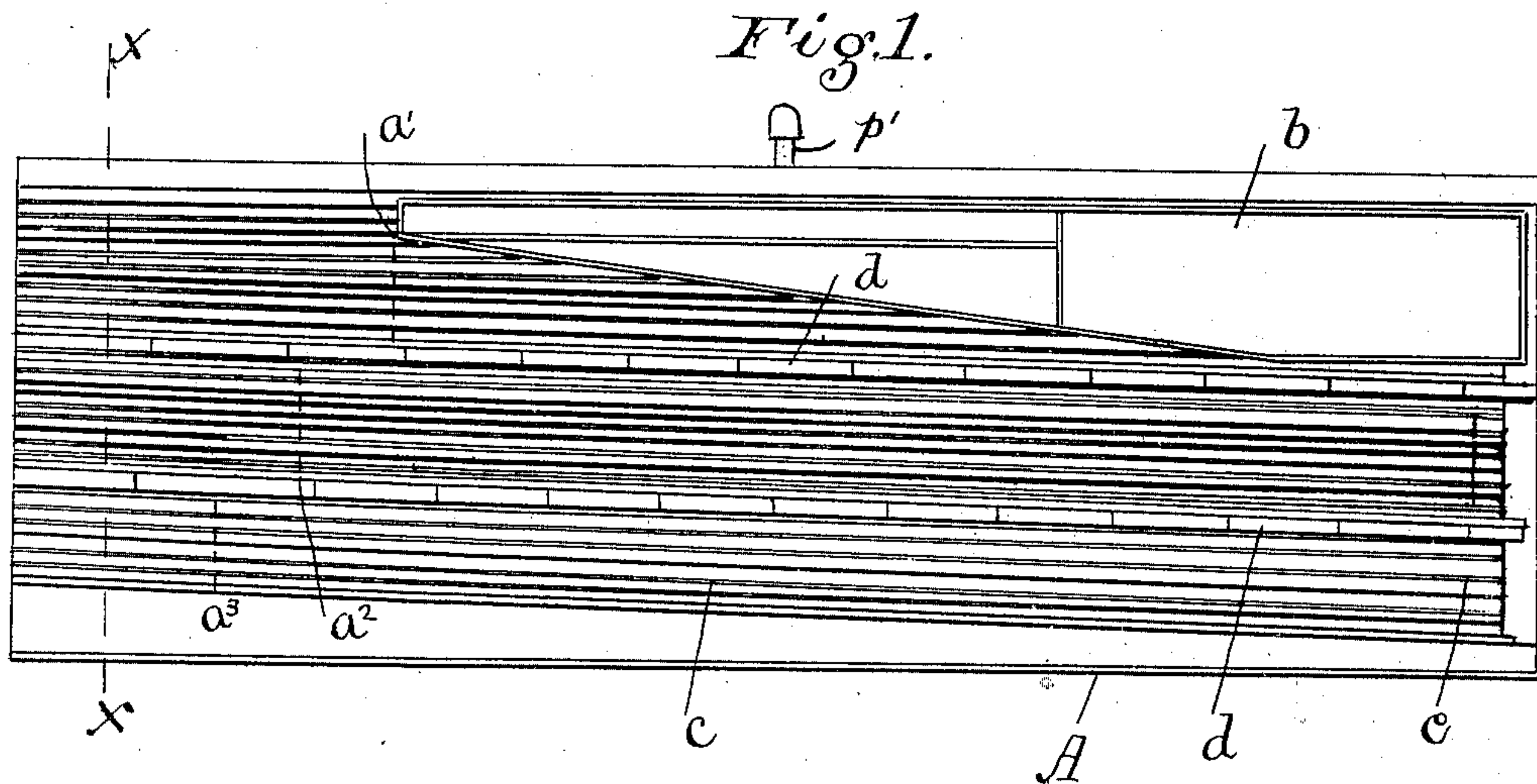
No. 718,970.

PATENTED JAN. 27, 1903.

F. L. BARTLETT.
ORE CONCENTRATOR.

APPLICATION FILED MAY 16, 1902.

NO MODEL.



Witnesses:
E. L. Lachue
L. C. Lachue

Inventor:
Frank L. Bartlett
by *S. W. Bates*
his atty.

UNITED STATES PATENT OFFICE.

FRANK L. BARTLETT, OF DENVER, COLORADO.

ORE-CONCENTRATOR.

SPECIFICATION forming part of Letters Patent No. 718,970, dated January 27, 1903.

Application filed May 16, 1902. Serial No. 107,560. (No model.)

To all whom it may concern:

Be it known that I, FRANK L. BARTLETT, a citizen of the United States of America, and a resident of Denver, Arapahoe county, State of Colorado, have invented certain new and useful Improvements in Ore-Concentrators, of which the following is a specification.

My invention relates to ore-concentrators; and it relates particularly to an improved construction of riffles adapted to be used on the shaking-table patented to me May 8, 1900, No. 648,908. I have found that in the operation of tables of this class where the ore is separated by a side wash of water carrying the light material laterally over the riffles the particular shape of the riffles is a very essential thing and that it is necessary to so construct them that the ore as it comes onto the table from the feed-box and travels along between the ribs should have sufficient time to settle and become stratified before it is subjected to the action of the fresh side wash-water. By allowing the ores to stratify before they are acted upon by the wash-water the finer and heavier ores have time to settle to the bottom of the grooves and are thus protected from being carried over the riffles when the wash-water comes on from the side.

According to my present improvement I carry the riffles from the upper end of the table well down toward the lower end with very nearly their entire height, so as to protect the slimes and fine ores as long as possible, then abruptly tapering them off to the end of the table and introducing the side wash-water across the abruptly-tapering portion near the lower end and not at any other point. By thus tapering the riffles and putting on the side wash within a comparatively short space at the lower end of the table the ore is allowed to remain a comparatively long time protected by the high riffles of the upper end of the table and with no wash-water except what comes on with the ore through the feed-box.

I illustrate my invention by means of the accompanying drawings, in which—

Figure 1 is a plan view of my table, showing the several descending shelves. Fig. 2 is a cross-section on the line xx of Fig. 1. Fig. 3 is a plan of the riffles, on an enlarged scale.

Figs. 4, 5, and 6 are cross-sections of the riffles, taken at x , y , and z of Fig. 3. Fig. 7 is a vertical sectional view showing one of the riffles in elevation, on an enlarged scale.

A represents the table proper, as shown in my said patent.

b is the feed-box, and $d d$ are the launders which discharge from the lower edge of one shelf to the upper side of the next shelf below.

p^1 , p^2 , and p^3 are the lateral feed-water pipes which feed the upper, the middle, and the lower shelves, respectively. These several features are all common to my said patent and need no further description.

The riffles c are molded in a solid rubber top, which forms the working surface of the table as I prefer to construct it. In practice I prefer to make the riffles perpendicular on the lower side, the upper side being curved or convex, somewhat thicker at the base than at the upper edge, and with the upper edge rounded.

The surface of the table is somewhat lower on the lower side of the riffles than on the upper side, the angle adjacent to the upper side of the riffles forming a channel into which the fine ores settle and stratify under the shaking action of the table.

In practice I make the riffles one-half inch in height at the upper end of the table, decreasing this height slowly and gradually to a point well down toward the lower end of the table and preferably to a point opposite or below the end of the feed-box. From this point the narrow riffles taper abruptly to the end of the table, coming down to the saw-tooth cross-section shown in Fig. 4. The line where the abrupt taper begins is nearer the lower end of the table on the lower shelf than on the middle shelf and lower on the middle than on the upper, so that any fine ores washed over by the wash-water are kept at the lower end of the table at all times and do not get mixed with the coarse material which comes over the upper end.

The dotted lines $a^1 a^1$, $a^2 a^2$, and $a^3 a^3$ represent the lines where the abrupt taper begins on the upper, middle, and lower shelves, respectively.

The side-wash-water pipes for clear wash-water are opposite the abruptly-tapering por-

tion of the riffles, so that the side wash is all applied near the lower end of the table and within a comparatively short distance.

By the time the ores reach the point a' , &c., the fine ores have had time to become stratified and settled to the bottom of the grooves, and when the point a' is reached the light material is thrown rapidly to the top of the riffles and washed over the side of the table, the fine material discharging over the end.

In practice on a twelve-foot table I continue the high riffles to within two feet of the lower end of the upper shelf, twenty inches on the middle shelf, and sixteen inches on the lower shelf, although it is evident that these proportions may be varied.

I claim—

1. The herein-described ore-concentrator consisting of a laterally-inclined shaking-table having longitudinal riffles which gradually and slowly decrease in height from the upper end to a point near the lower end and thence taper abruptly to the lower end of the table.

2. The herein-described ore-concentrator consisting of a laterally-inclined shaking-table having a feed-box extending along its upper edge and having longitudinal riffles which gradually and slowly decrease in height from the upper end to a point below the feed-box and thence taper abruptly to the lower end of the table.

3. The herein-described ore-concentrator consisting of a laterally-inclined shaking-table

having a feed-box extending along its upper edge and a feed-water-supply pipe extending along the upper edge below the feed-box and having longitudinal riffles which gradually and slowly decrease in height from the upper end to the lower end of the feed-box and thence taper abruptly to the lower end of the table.

4. The herein-described ore-concentrator consisting of a laterally-inclined shaking-table having a plurality of shelves arranged at descending levels, launders for discharging the overflow from the lower edge of each shelf onto the next lower shelf, each of said shelves being provided with longitudinal riffles gradually and slowly decreasing in height from the upper end of the table to a point near the lower end and thence tapering abruptly to the lower end of the table, the point where the abrupt taper begins being nearer the lower end in each successive shelf from the upper to the lower shelf.

5. The herein-described ore-concentrator consisting of a laterally-inclined shaking-table having longitudinal riffles tapering or decreasing in height more rapidly near the lower end of the table than through the body of the table.

Signed at Denver, Colorado, this 14th day of March, 1902.

FRANK L. BARTLETT.

Witnesses:

FRANK W. HOPKINS,
LLEWELYN JONES.