(No Model.)

B. F. HOUSE.

PROCESS OF SEPARATING ORES.

No. 590,739. Patented Sept. 28, 1897.

FIG. 1.

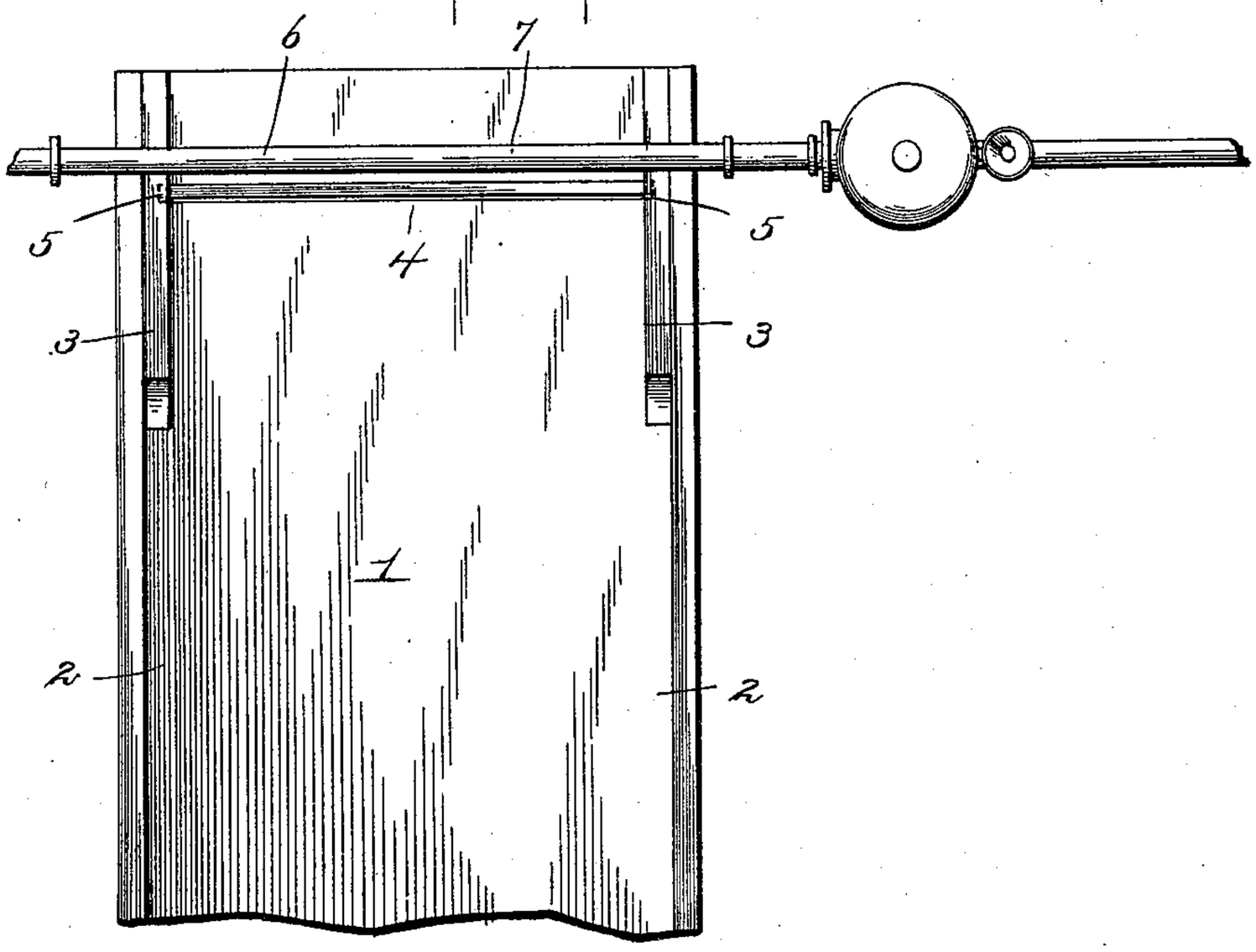


FIG. 2.

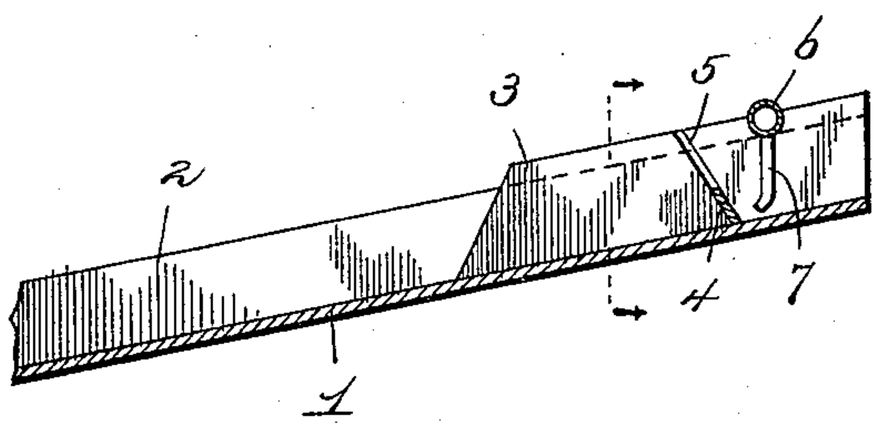
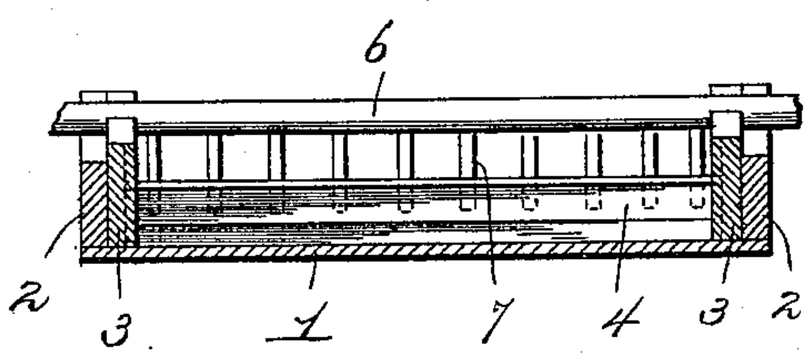


FIG. 3.



WITNESSES
Harry L. Amer.
J. E. Tappan

INVENTOR,
Bruce F. Howse.
by John Weddurburn
Attorney

UNITED STATES PATENT OFFICE.

BRUCE F. HOUSE, OF DENVER, COLORADO.

PROCESS OF SEPARATING ORES.

SPECIFICATION forming part of Letters Patent No. 590,739, dated September 28, 1897.

Application filed October 5, 1896. Serial No. 607,833. (No specimens.)

To all whom it may concern:

Be it known that I, BRUCE F. HOUSE, a citizen of the United States, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Processes of Separating Ores; and I do hereby 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 appertains to make and use the same.

This invention has reference to a novel process of separating ores; and it consists in the steps of the process hereinafter fully described in the claims.

In the accompanying drawings, illustrating one construction by which this novel process can be carried out, Figure 1 is a top plan view. Fig. 2 is a vertical section, and Fig. 3 is a transverse section.

My process is designed more especially for the separation of ores from arsenic, in which it is sometimes incased, and also for the precipitation of ores which are held in suspension by the water or pulp passing from the stamp-mill. It is understood that this process can be employed for the separation and precipitation of various kinds of ores, and in the following description I will select gold as an example and describe the process in connection therewith. It is found that small particles of gold are incased or are in combination with arsenic, and therefore such particles of ore in passing over the amalgamating-plate are not attracted thereby, but pass on with the water or pulp, while in other cases it is found that small particles of gold have attached thereto minute air-bubbles, which cause the gold to be held in suspension in the water or pulp and are therefore not precipitated, but pass along beyond the amalgamating-plate and are not collected. This process consists of introducing into the water or pulp ammoniated air, which, rising therethrough, combines with the arsenic and separates the arsenic from the gold and allows the gold to be precipitated. In connection with particles of ore held in suspension by minute air-bubbles this ammoniated air also combines with the air and collects all the air-bubbles, and also in this case allowing the particles of gold to be precipitated.

In the said drawings, 1 indicates the plate leading from the stamp-mill battery, and 2 the sides thereof. To the inner face of the sides 2 are secured the auxiliary pieces 3, standing in an upright position and which prevent the pulp or water from flowing over the sides and serve also to hold the small amalgamating-plate 4. This amalgamating-plate 4 is situated within inclined grooves 5 in the auxiliary pieces 3 and extends across the plate 1 in the manner shown to afford a partial dam, as it extends only about one-third of the distance from the bottom of the auxiliary side pieces 3.

Adjacent to the amalgamating-plate 4 and supported upon the side pieces is a transverse pipe or passage 6, provided with a plurality of depending nozzles 7, that terminate near the upper face of the plate 1. The said pipe or passage communicates with a suitable source supplying ammoniated air under pressure, so that it will be seen that when the pulp or water from the stamp-mill battery passes over the plate 1 this ammoniated air enters the same below the surface and near the bottom of the stream.

It will be understood, of course, that the source for supplying ammoniated air under pressure can be arranged in any suitable manner, but as it does not form a part of my invention I have not illustrated the same nor referred to the manner in which the ammoniated air is made, as my invention simply consists in the use of this ammoniated air in the manner above described.

By "ammoniated" air is meant air that is impregnated with ammonia and which can be made conveniently by passing air through ammonia.

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

1. The herein-described process which consists in admitting ammoniated air below the surface of water or pulp for the purpose of precipitating the ore held therein, in the manner and for the purpose herein set forth.

2. The herein-described process of sepa-

rating ores from arsenic which consists in bringing said ores and arsenic in the presence of ammoniated air, in the manner and for the purpose herein set forth.

3. The herein-described process of precipitating ores held in suspension by air-bubbles, which consists in bringing said ores into the presence of ammoniated air, in the manner and for the purpose herein set forth.

4. The herein-described process which consists in forcing ammoniated air into a stream of water or pulp in which ores are held in suspension, in the manner and for the purpose herein set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

BRUCE F. HOUSE.

Witnesses:
MORRIS SELIGSOHN,
FRED H. HANCHETT.