

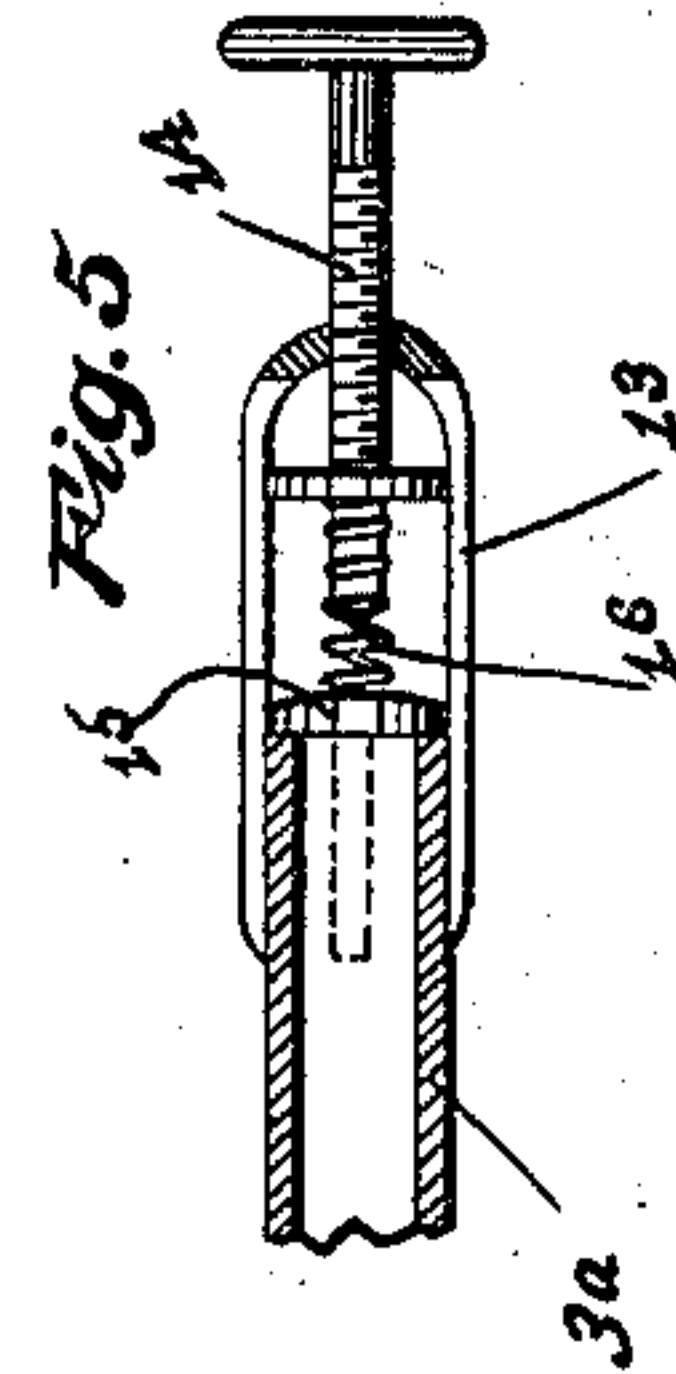
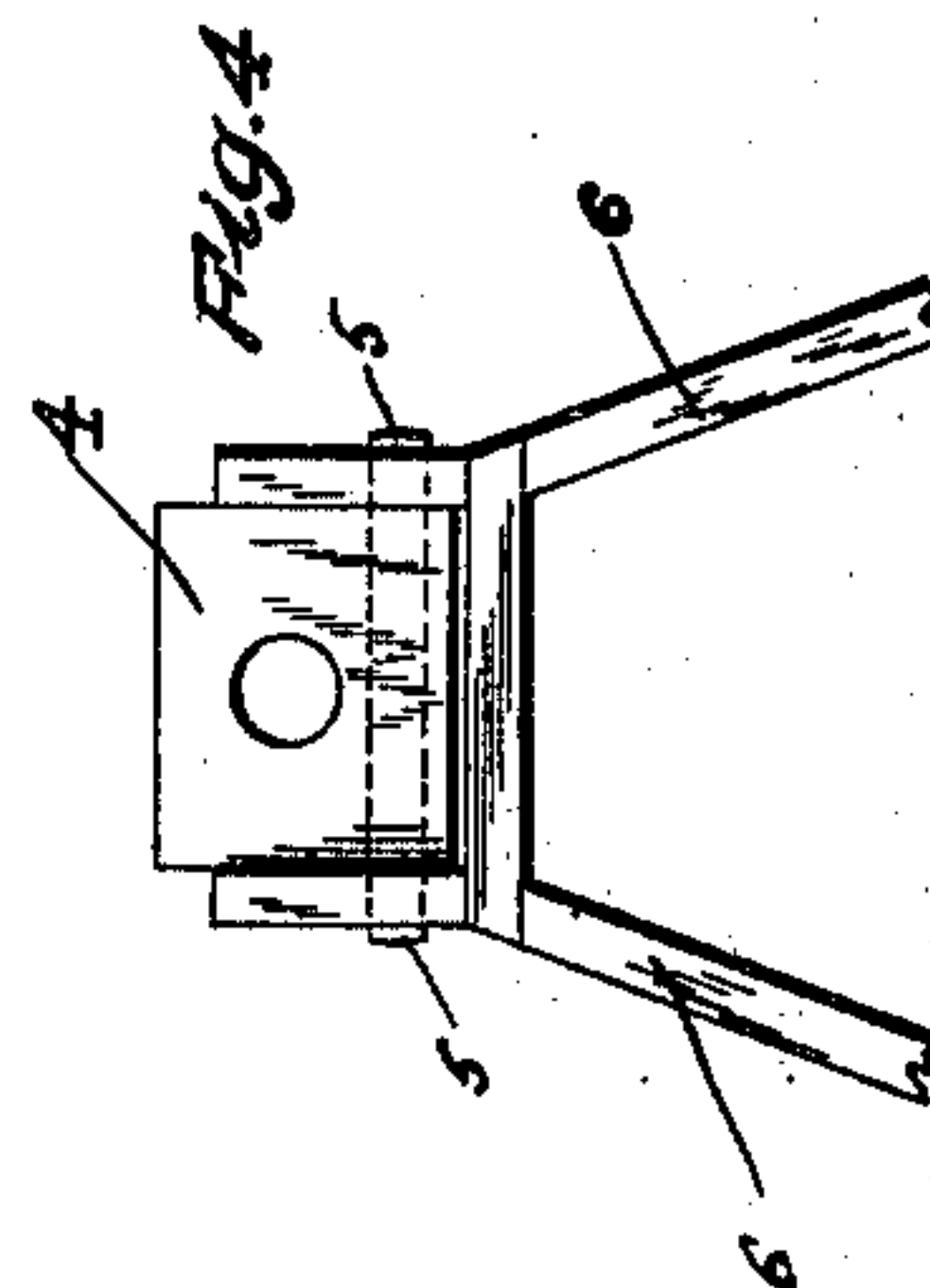
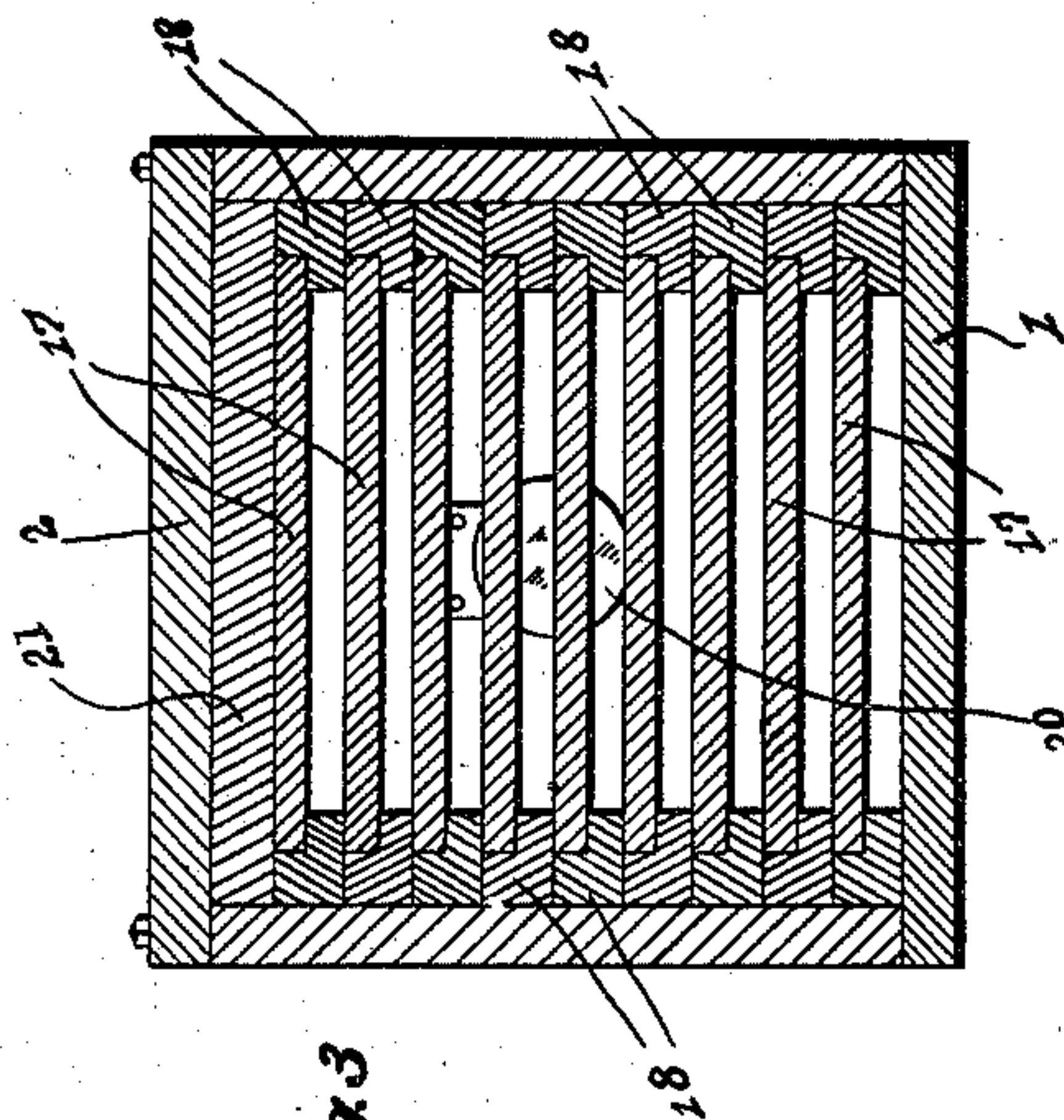
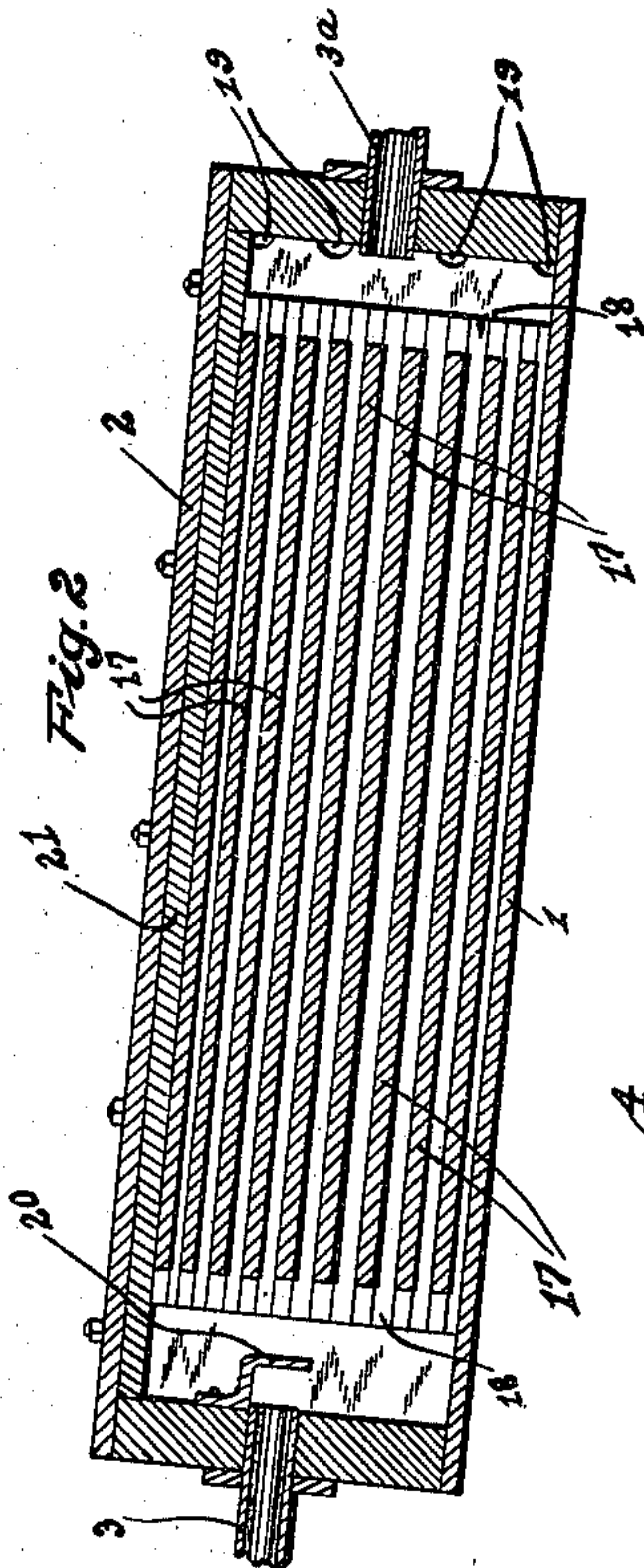
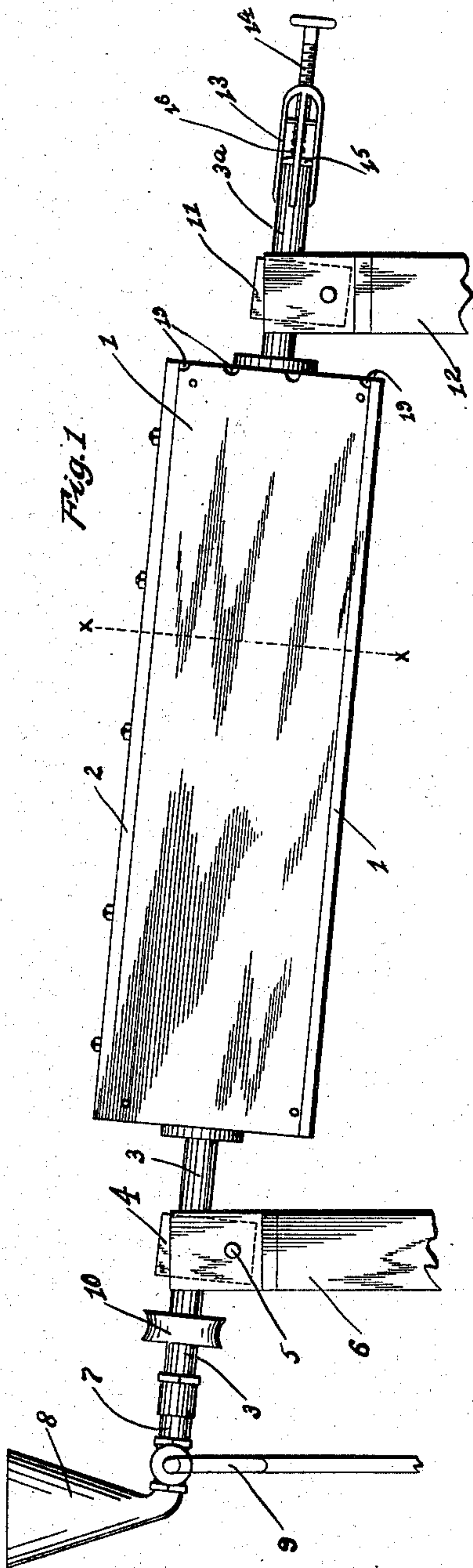
No. 734,618.

PATENTED JULY 28, 1903.

G. C. SCOTT.  
AMALGAMATOR.

APPLICATION FILED MAR. 20, 1902.

NO MODEL.



WITNESSES:

*F. D. Giverner*  
*A. L. Phelps*

INVENTOR.

*Gerard C. Scott*

BY

*C. C. Shepherd*  
ATTORNEY.



# UNITED STATES PATENT OFFICE.

GERARD C. SCOTT, OF COLUMBUS, OHIO.

## AMALGAMATOR.

SPECIFICATION forming part of Letters Patent No. 734,618, dated July 28, 1903.

Application filed March 20, 1902. Serial No. 99,082. (No model.)

*To all whom it may concern:*

Be it known that I, GERARD C. SCOTT, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented a certain new and useful Improvement in Amalgamators, of which the following is a specification.

My invention relates to the improvement of amalgamating-machines; and the objects of my invention are to provide a simple and effective ore-amalgamating device of improved construction and arrangement of parts and to produce certain improvements the details of which will be pointed out hereinafter. These objects I accomplish in the manner illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of my improved machine. Fig. 2 is a central vertical longitudinal section of the casing. Fig. 3 is an enlarged transverse section on line X X of Fig. 1. Fig. 4 is an end view of a portion of one of the inlet-pipe-supporting frames; and Fig. 5 is a detail sectional view through the end portion of the outlet-tube, showing the valve in connection therewith.

Similar numerals refer to similar parts throughout the several views.

In carrying out my invention I employ a suitable oblong or elongated casing 1, which may be formed of suitable material. This casing may be provided with a suitable removable lid 2 and is supported at opposite ends by the ends of pipe-section trunnions 3 and 3<sup>a</sup>, which are rigidly connected with said box or casing. Of these the tubular or pipe-section trunnion 3 has a rotatable bearing in a swinging bearing-block 4, which is pivotally supported, as indicated at 5, in the upper portion of a suitable supporting-frame 6. The outer end portion of the tubular trunnion 3 is rotatably connected with a supply-pipe arm 7, which extends from the base of a hopper 8, this hopper or ore-pulp receptacle being suitably supported, as indicated at 9. Upon the trunnion 3 is mounted a pulley 10. The rear end pipe-section trunnion 3<sup>a</sup> is also rotatably mounted in a swinging block, which is indicated at 11 and pivotally supported in a suitable supporting-frame 12, the supporting-block 11 being, as shown, on a lower plane than the supporting-block 4, so as to

impart a desirable incline to the box or casing 1 and its inlet and outlet pipe trunnions 3 and 3<sup>a</sup>. Connected with the periphery of the outer end portion of the outlet-pipe section or trunnion 3<sup>a</sup> is a rearwardly-extending valve-inclosing frame or cage 13, within a threaded outer end opening of which is adapted to turn the threaded outer portion of a valve-stem 14, the inner end of which carries a valve-disk 15, adapted to close the end of the pipe 3<sup>a</sup>. Between the valve 15 and a shoulder of the stem 14 is carried a spring 16, the normal tendency of which is to retain said valve in a closed position. It will of course be understood that the valve-stem terminates short of the valve-disk, with the helical spring forming the sole connection between the disk and the stem, whereby the tension of the spring may be varied by adjusting the stem in an endwise direction. By this arrangement the valve may be adjusted to open at any predetermined pressure of the tailings.

Within the casing or box 1 I provide parallel horizontally-arranged and separated amalgamated plates 17, these plates being preferably of less length than the casing or box and having their edge portions supported, as indicated more clearly in Figs. 2 and 3 of the drawings, in inner side recesses or separating-strips 18, which are arranged one upon the other against opposite side walls of the box.

As best indicated in Fig. 3, it will be seen that the strips or cleats 18 have their inner edges rabbeted to form seats or recesses for the edges of the plates 17, and each strip overhangs the next-below rabbet, and thereby bears against the top of the plate therein to prevent looseness of the plate.

In the outer or lower end of the box or casing 1 I form the desired number of outlet-openings 19. I also provide the inner side of the upper end of the case with an ore-pulp-deflecting plate 20, which, as shown in Fig. 2 of the drawings, is substantially of an angular form and the depending portion of which is arranged at such distance from the end of the tubular trunnion 3 as to operate to prevent the discharge of ore-pulp from said tubular trunnion directly against the center of the amalgamating-body, which is composed of the



heretofore-described plates 17. These plates 17 prior to their insertion within the casing or box are treated or coated with mercury, and in order that they may be held against undesirable movement within the casing I preferably provide a filling-plate 21 between the lid 2 and the outer plate 17.

In utilizing my invention rotary motion is imparted to the casing and its trunnion-sections 3 and 3<sup>a</sup> by a belt leading from a suitable source of power over the pulley 10. The ore-pulp is fed into the casing from the hopper 8, through the pipe-section 7, thence through the rotatable trunnion-section 3 into the higher end of the casing. The pulp thus introduced into said casing passes in its descent to the lower end thereof between the mercurially-treated amalgamating-plates 17, this contact of said pulp and plates operating to produce the desired separation and accumulation of the precious metal from the ore-pulp. It is obvious that the openings 19 at the lower end of the case may provide means of outlet of the tailings or treated pulp; but in case these openings should be insufficient and the pressure of the pulp on the valve 15 becomes sufficient to overcome the pressure of the spring 16 it is evident that the tubular trunnions 3<sup>a</sup> will provide an additional outlet.

From the description of my improved amalgamator it will be seen that the same is of simple construction and that the inclination of the amalgamating-bodies coupled with the rotation thereof will insure a substantially uniform frictional contact of the pulp with the amalgamating-surfaces of the plates during the passage of the pulp between the same. It will also be observed that the invention herein described is distinguished from that class of amalgamating-machines in which the casing is adapted to contain a body of mercury.

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

1. An amalgamator, embodying a rotatable casing, a series of spaced longitudinal substantially parallel amalgamated plates within the casing and terminated short of the opposite ends thereof, a tubular journal piercing one end of the casing and forming an in-

let communicating with the space between the said end of the casing and the adjacent end of the series of plates, a baffle disposed across the open inner end of the tubular inlet, and an outlet at the opposite end of the casing.

2. In an amalgamator, the combination of a rotatable casing, longitudinal cleats within the casing at opposite sides thereof and provided with rabbets in their inner edges, a series of amalgamated plates having their opposite edges supported in corresponding rabbets and separated by longitudinal interspaces, the opposite ends of the plates being terminated short of the corresponding ends of the casing to form compartments between the ends of the series of plates and the ends of the casing, and journals piercing the ends of the casing, one of the journals being tubular and forming an inlet communicating with the adjacent terminal compartment of the casing, and the opposite compartment having an outlet.

3. In an amalgamator, the combination with opposite supports, of bearings thereon at different elevations, a polygonal rotatable casing between the supports, tubular journals piercing the respective ends of the casing and mounted to rotate in the adjacent bearings, the upper journal forming an inlet and the lower journal forming an outlet, a series of longitudinal spaced substantially parallel amalgamated plates extending from side to side of the casing with the ends of the series terminated short of the ends of the casing, the tubular journals communicating with the respective spaces between the corresponding ends of the casing and the series of plates, a baffle disposed across the inner open end of the tubular inlet-journal, the side walls of the casing being provided with discharge-openings at the lower end thereof, a cage carried by the outer end of the discharge-journal, a normally closed valve for said journal, an adjustable screw-threaded stem piercing the outer wall of the casing, and a spring connecting the valve to the stem.

GERARD C. SCOTT.

In presence of—

C. C. SHEPHERD,  
A. L. PHELPS.