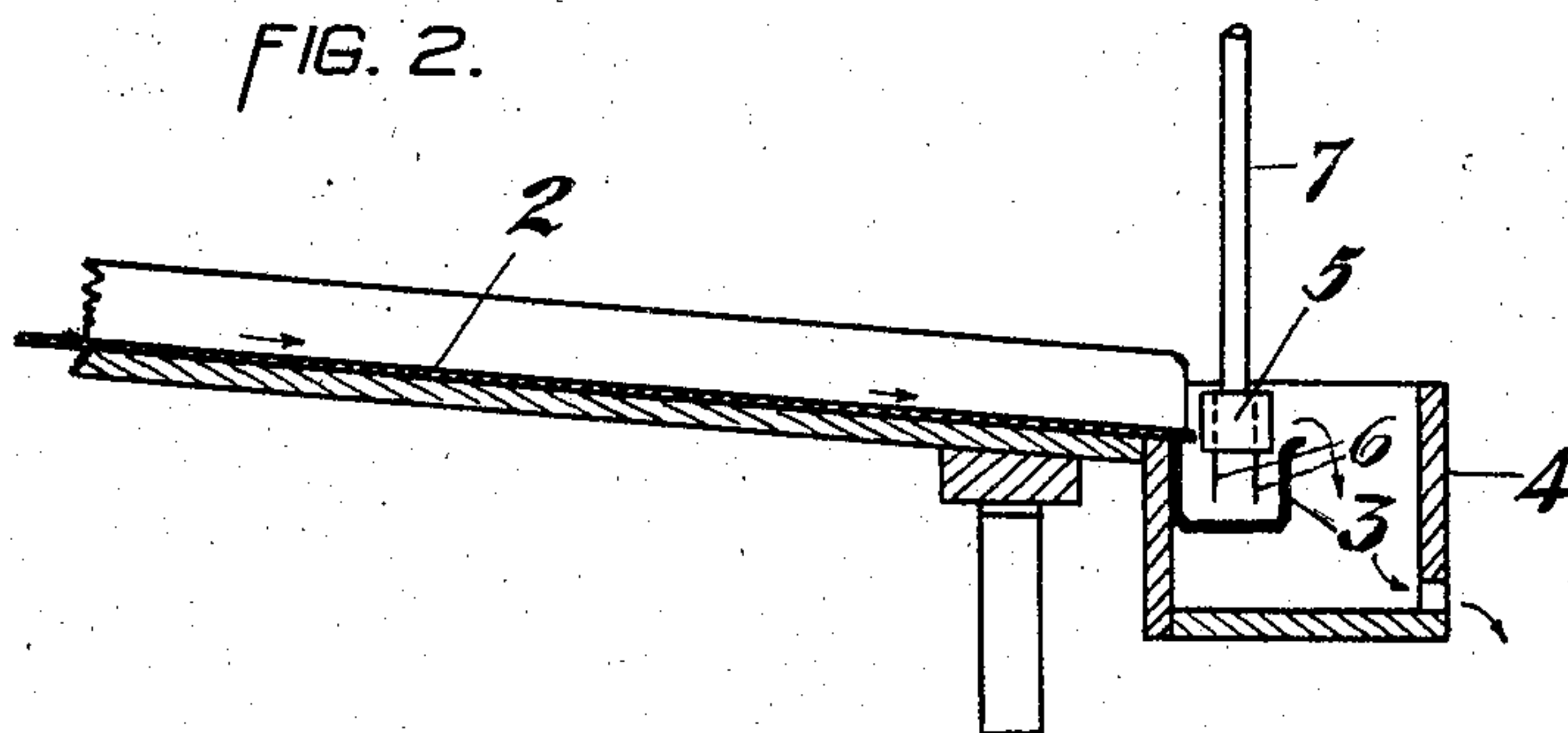
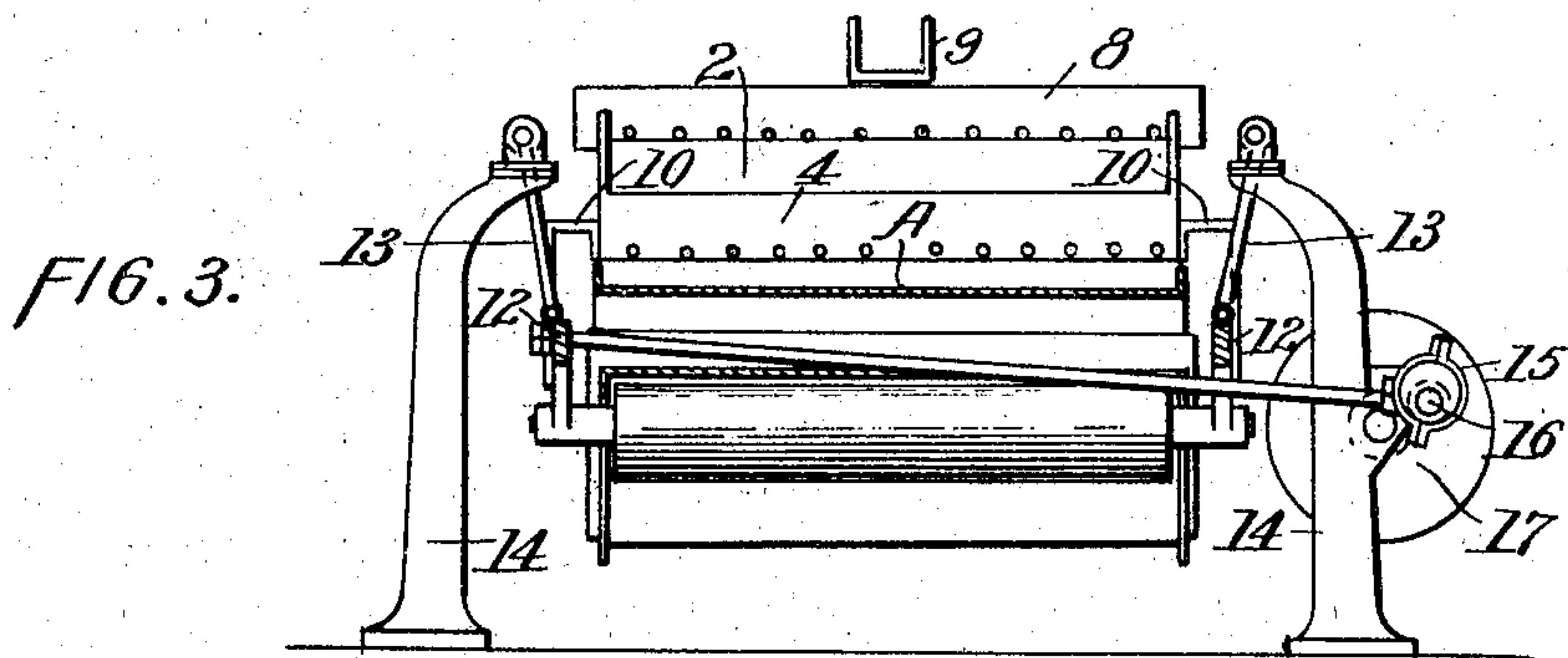
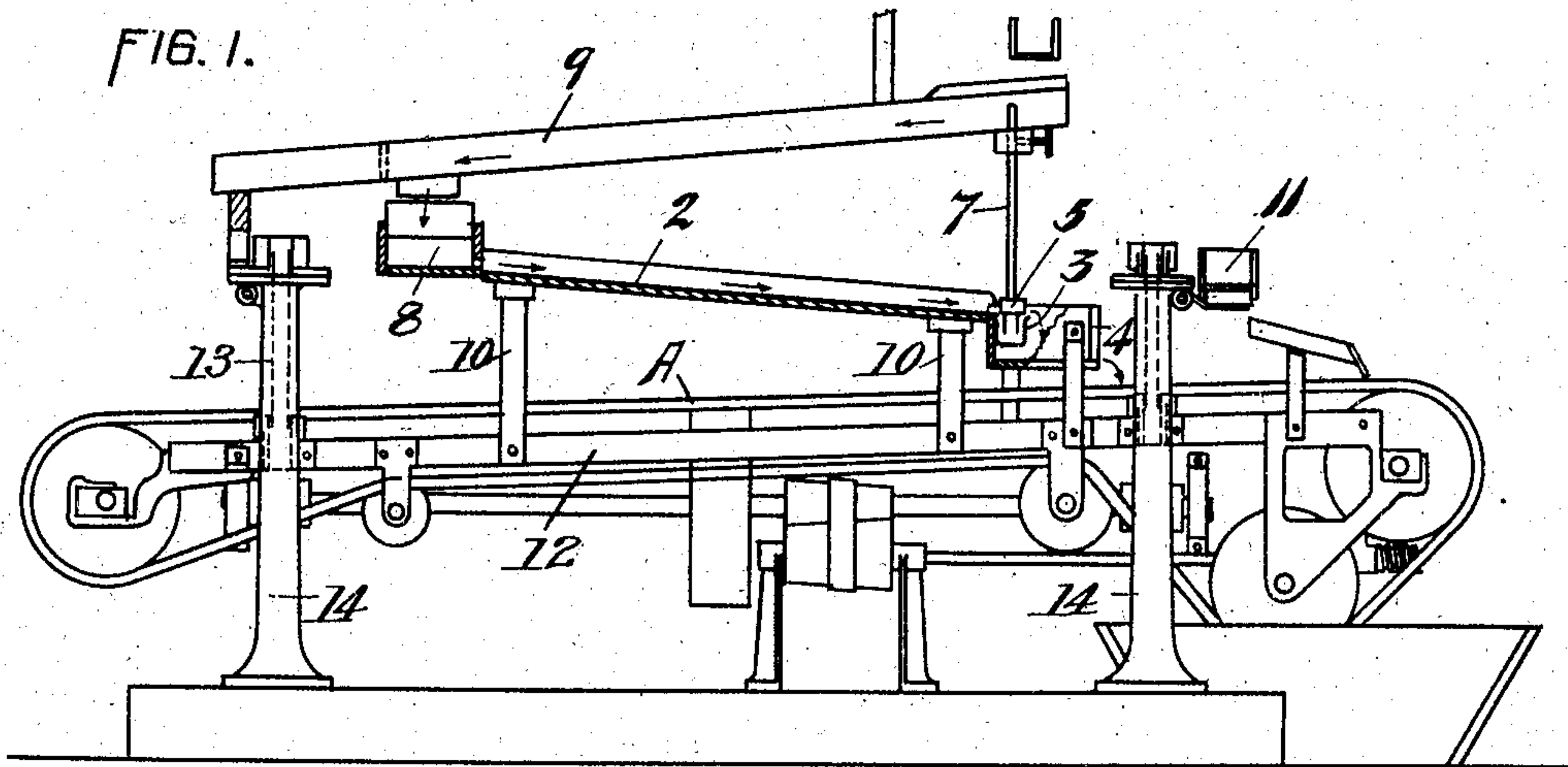


No. 791,711.

PATENTED JUNE 6, 1905.

F. S. MORGAN.
CONCENTRATOR ATTACHMENT.
APPLICATION FILED JULY 5, 1904.



WITNESSES,
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INVENTOR,

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By Geo. H. Strong, atty

UNITED STATES PATENT OFFICE.

FRANK S. MORGAN, OF NEVADA CITY, CALIFORNIA.

CONCENTRATOR ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 791,711, dated June 6, 1905.

-Application filed July 5, 1904. Serial No. 215,354.

To all whom it may concern:

Be it known that I, FRANK S. MORGAN, a citizen of the United States, residing at Nevada City, in the county of Nevada and State of California, have invented new and useful Improvements in Concentrator Attachments, of which the following is a specification.

My invention relates to a device which is especially designed for use in conjunction with concentrators for the purpose of saving gold and amalgam and separating these valuable substances from slimes and sulfurets with which they may be associated.

It consists of the parts and the constructions and combinations of parts which I will hereinafter describe and claim.

Figure 1 is a side view of concentrator, showing my attachment. Fig. 2 is a part section of plate and quicksilver-trap. Fig. 3 is a cross-sectional view showing the shaping mechanism.

In the separation of free gold, quicksilver, sulfurets, &c., from the valueless pulp and slimes with which they are associated after leaving the crushing apparatus difficulty is found in separating the free gold and quicksilver from the sulfurets.

It is the object of my invention to provide an effective device for this purpose.

As shown in the accompanying drawings, my apparatus is applied to an endless traveling-belt concentrator, the belt A of which passes over the usual drums or rollers and is gradually advanced up an inclination, while the pulp is deposited upon the belt with a current of water, and the belt is subjected to agitation, by which the heavier particles are settled and carried upward and over the upper end, while the lighter pulp is washed away over the lower end.

In my apparatus I have shown a copper plate 2, which is silver-plated and may be made of any suitable or desired size. I have found that a plate four feet by four is very suitable for this purpose. This plate is fixed in a suitable frame, which is supported by standards, as at 10, fixed to the frame of the belt A, so that the plate is supported a short distance above the belt. This plate is inclined, the highest end being above the lower end of the

belt and the lower end toward the upper end of the belt. The inclination of the plate may be about seven-eighths of an inch to the foot.

9 is a chute or sluice-box which conveys the material to be separated from the battery or other point from which it is delivered, and this sluice discharges into a distributing-box 8. This distributing-box has small holes or perforations which discharge upon the upper end of the plate 2, and the oscillation of the plate, which is produced by any suitable means well known for concentrators, insures the distribution of the material upon the surface of the plate. At the same time the material gradually moves over the plate toward the lower end. This plate being silver-plated and amalgamed, the greater portion of the fine gold and quicksilver which may be associated with the pulp will adhere to and be amalgamated on the plate.

While the means employed for oscillating the box and plate may be varied, I have herein shown the concentrator-table 12 as supported by the rods or links 13, pivoted to the corner-posts 14. An eccentric 15, the rod of which is connected to the under side of the table 12, is keyed to the horizontal shaft 16, carrying pulley 17, which may receive its motion from any suitable source of power, whereby when said shaft 16 is revolved an oscillating movement is imparted to the table and the plate and its adjuncts.

At the lower end of the plate is a trap 3, which consists of a narrow copper box extending from end to end of the plate and below the lower edge. Into this box the material discharged from the plate first falls.

Above the box is a bar 5, which is supported by hangers or connections 7 from a fixed point above. From the lower part of this bar points extend into the trap 3. These points may be formed by driving wire nails through the bar 5, if the latter be of wood, or otherwise fixing them, and they preferably project along each side of the bar and alternate with each other. The transverse shaking motion of the table and of the trap which is attached thereto constantly moves the material in the trap with relation to these points or nails 6, and this causes the sand and heavy material to be main-

tained in a loose condition and prevents its packing within the trap. The water which is supplied with the material will assist in keeping the mass loose, and the lighter portions
 5 will constantly flow over the edge of the trap and fall into the distributing-box 4, which is carried by the concentrator-table and lies beneath the trap. Any gold or quicksilver which has passed from the table into the trap will by
 10 reason of its gravity sink to the bottom, while the lighter pulp and sulfurets will be discharged over the edge of the trap into the distributing-box 4. This box has discharge holes or openings at the bottom in the usual man-
 15 ner for such boxes, and the material passing out from this box will fall upon the concentrating-belt and will thereafter be subject to the usual action of such belts.

11 is a box or supply device from which wa-
 20 ter is discharged upon the table in the usual manner.

By this construction I am enabled to place the attachment in a position where it will not occupy any extra room, standing, as it does,
 25 above the concentrator-belt, and there may be as many of these devices as there are concentrators employed in the mill. It needs no additional machinery and is subjected only to the shaking devices which are already pro-
 30 vided for the concentrator.

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

35 1. The combination with an endless traveling concentrator-belt and the oscillating frame thereof, of standards fixed to and rising above the frame, an amalgamed plate supported

upon said standards and inclined downwardly toward the head end of the belt, distributing-
 boxes at both ends of the plate, means adapted 40 to deliver pulp direct from a battery or feeder into the distributing-box at the higher end of the plate, means for imparting a transverse oscillation to the frame and plate, and means
 45 within the lower distributing-box to separate the free gold and amalgam as they flow with the pulp from the feeder to the belt.

2. The combination with an endless traveling concentrator-belt and the oscillating frame thereof, of standards fixed to and rising above 50 the frame, an amalgamed plate supported upon the standards and inclined downwardly toward the head end of the belt, a sluice leading from a feeder and inclined toward the higher end of the plate said sluice being fixed 55 relative to the plate and frame, a distributing-box at the higher end of the plate and into which the sluice discharges, a distributor-box at the lower end of the plate into which said plate delivers, a narrow trough fixed in the 60 second-named box adapted to separate the free gold and amalgam and deliver the lighter pulp and sulfurets over its edge into said box, and a fixed pendent support having points positioned in the trough to agitate the contents 65 during the oscillations of the frame and plate.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

FRANK S. MORGAN.

Witnesses:

HENRY P. TRICOU,
 S. H. NOURSE.