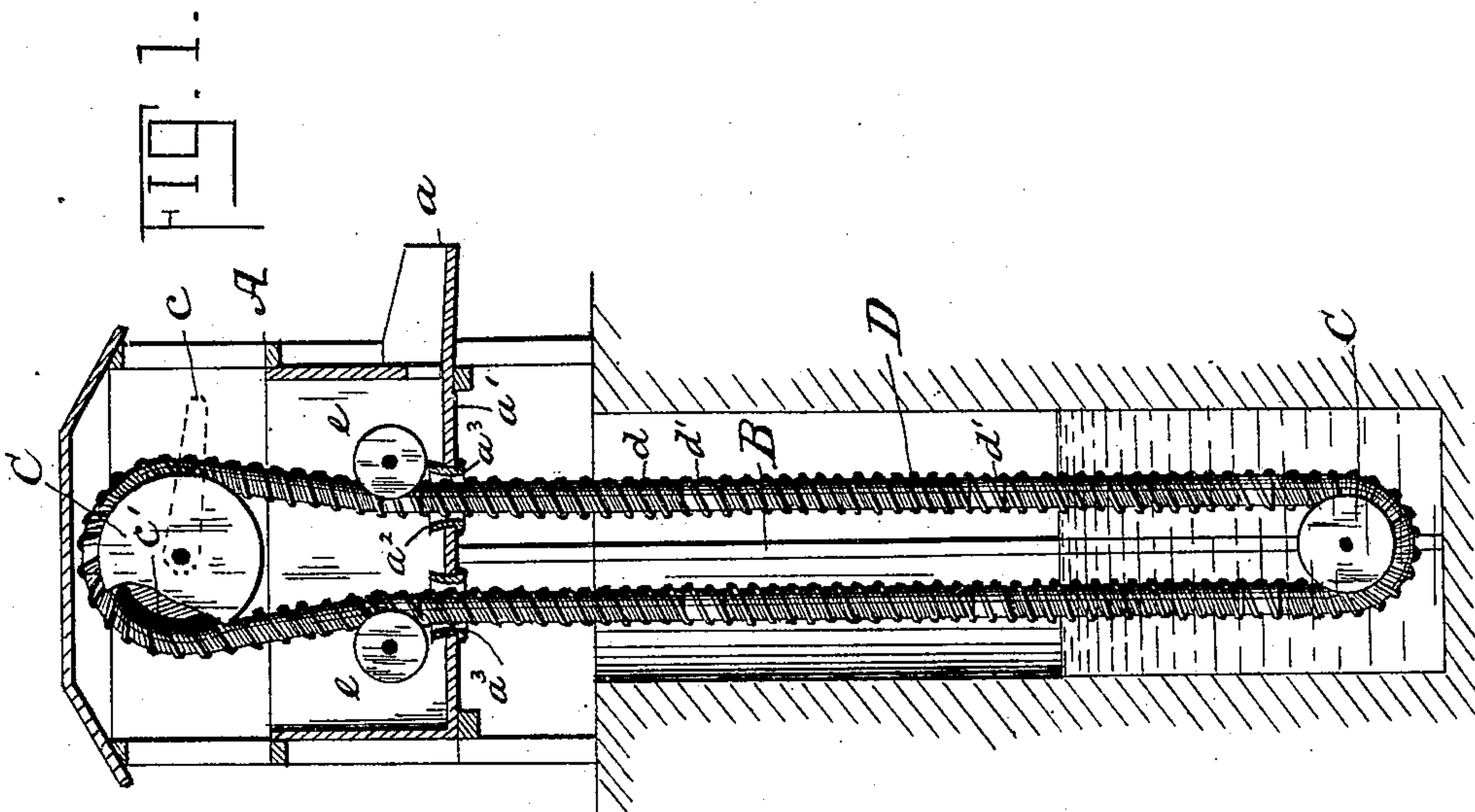
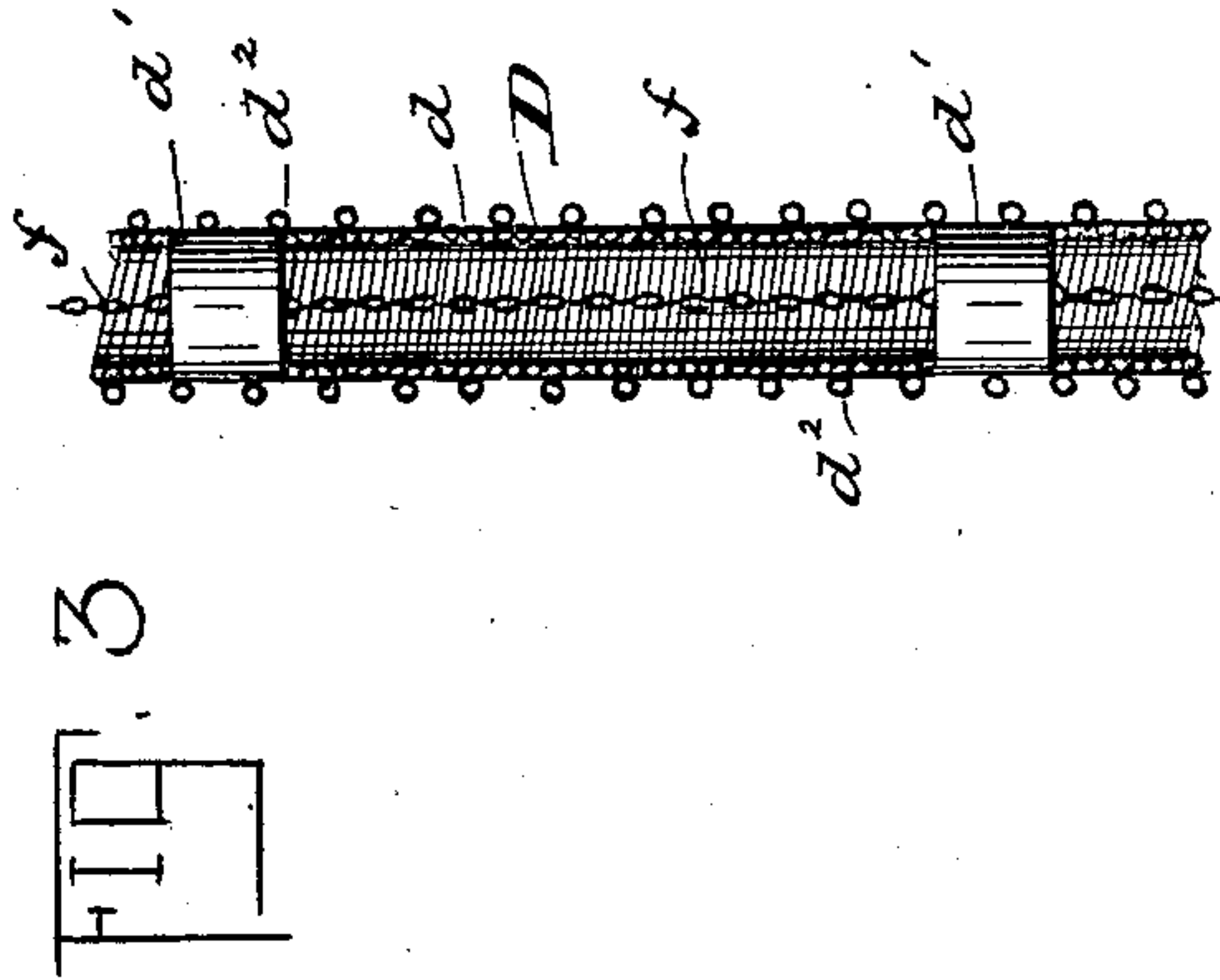
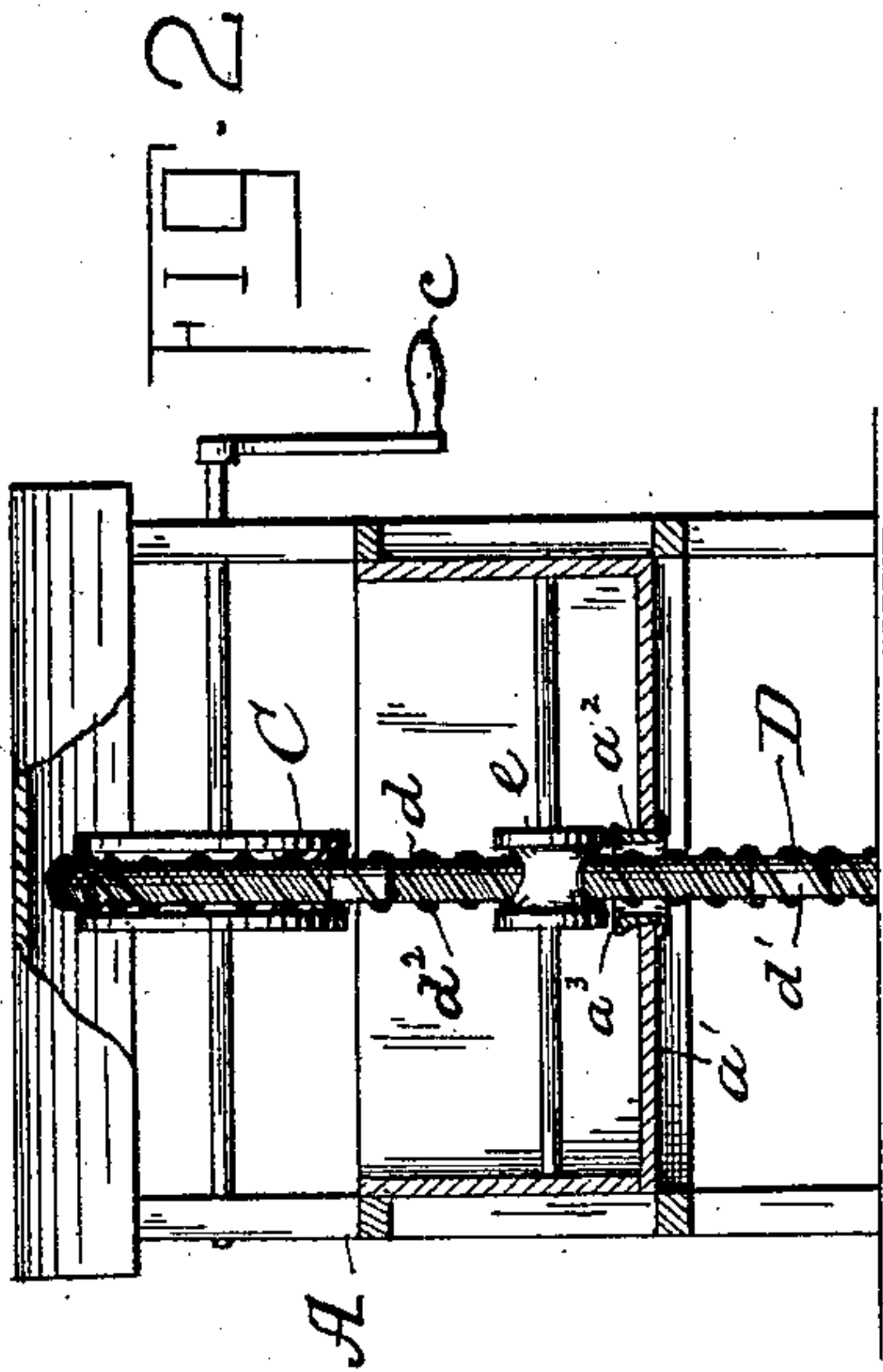


(No Model.)

W. W. JAMES.
PUMP.

No. 587,124.

Patented July 27, 1897.



Witnesses:

Sam R. Turner

Henry L. Byrne.

Inventor,
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by John Wedderburn
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UNITED STATES PATENT OFFICE.

WARREN W. JAMES, OF EVERGREEN, COLORADO.

PUMP.

SPECIFICATION forming part of Letters Patent No. 587,124, dated July 27, 1897.

Application filed December 7, 1896. Serial No. 614,807. (No model.)

To all whom it may concern:

Be it known that I, WARREN W. JAMES, a citizen of the United States, residing at Evergreen, in the county of Jefferson and State of Colorado, have invented certain new and useful Improvements in Pumps; 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 relates to improvements in pumps, and has more particular relation to pumps of the endless-conveyer type.

The invention consists of the combination, with suitable supporting-wheels mounted in the receptacle from which the water is to be elevated, of an endless tube formed of coil-springs and passing about said wheels, heads applied at intervals in said tube, and means for operating said tube.

The invention also consists of certain other novel constructions, combinations, and arrangements of parts, all of which will hereinafter be more fully described and claimed.

In the accompanying drawings, forming part of this specification, Figure 1 represents a side elevation of the devices embodying my invention applied to a well, parts broken away. Fig. 2 represents a front elevation of the same, and Fig. 3 represents a central vertical section through a portion of the endless tube embodying my invention.

A in the drawings represents the pump-casing; B B, the pendent arms connected to the same; C C, the grooved tube-supporting wheels, and D my improved endless conveying-tube. The said casing A may be of any desired construction and material and is provided with a discharge-spout a and pendent standards or arms B. One of the grooved wheels C is journaled in the casing A and is provided with an operating crank-handle c , by means of which it may be rotated from the exterior of said casing. This wheel may have its periphery corrugated laterally, or a rubber tire c' , corrugated in a similar manner, may be placed thereon, so that the endless conveyer will not slip upon said wheel. The other of said grooved wheels C is mounted between the lower ends of the pendent arms B. The said casing A is also provided with a horizontal partition a' , communicating with

the tube or support a and provided with two apertures $a^2 a^2$, through which the endless conveyer D is adapted to be passed. Each of said apertures a^2 is surrounded by an extended annular flange a^3 , so that the water above said partition a' cannot run down into the well through said apertures a^2 . My said improved conveying-tube D comprises a plurality of closely-coiled springs d , connected by solid heads d' , so as to form an endless conveyer. A plurality of extended coil-springs d^2 are applied over the said springs d , so as to normally exert an additional pressure to keep the coils of said springs d firmly together and prevent the escape of any water held in the coil between the heads d' .

It will be observed from the foregoing description that as the springs d pass about the lower wheel C, which is submerged, the coils of the same are opened, thus permitting the water to flow freely into the tube. As the tube straightens upon leaving the wheel the coils are closed and the water in the tube carried upward between the solid heads d' .

In order to cause the tube at its upper end to pass about the greater portion of the upper wheel C, I arrange two auxiliary grooved wheels $e e$, mounted in said frame A and adapted to bear against the outer side of the said endless conveyer upon opposite sides of the upper wheel C. As the said conveyer passes about the said upper wheel C the coils are again opened and the water permitted to escape and fall onto the tube or partition a' and thus escape by way of the spout a .

In order to strengthen the endless conveyer and prevent the weight of the water from opening the coils of the springs during the lifting operation, I preferably connect the solid heads d' by suitable chains f , mounted within the respective coils.

It will be observed that by the employment of my invention the water is taken from the bottom of the well, where it is purest, and also that after the conveyer discharges the water into the trough mounted in the casing A that air is received in the conveyer and carried down into the well and discharged at the lower wheel C, thus causing said air to pass upward through the water and assist in keeping the same sweet and fresh.

This device is so constructed that it may

be applied in bored wells as well as the ordinary form of well.

The device is of great simplicity and cheapness and having very few parts is not liable to become readily disarranged or inoperative.

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

1. In a pump, the combination with suitable supporting-wheels mounted in the receptacle from which the water is to be lifted, of an endless conveying-tube formed of coil-springs, and solid heads mounted at intervals in said tube, and means for operating said tube to lift the water, substantially as described.

2. In a pump, the combination with a suitable frame, of supporting grooved wheels, an endless conveying-tube formed of closely-coiled springs, solid heads placed at intervals in said tube, and auxiliary coil-springs applied about the first-mentioned springs and adapted to hold the coils of the same closely together, substantially as described.

3. In a pump, the combination with a suitable frame having grooved wheels mounted therein, of an endless conveying-tube applied about said wheels, and comprising a plurality of coil-springs, solid heads applied at intervals in said coils, and a trough through which said conveyer passes, adapted to catch the

water discharged from the upper end of the same, substantially as described.

4. In a pump, the combination with a suitable supporting-frame, of grooved wheels mounted therein, an apertured partition also mounted on said frame, extended vertical flanges about the apertures of said partition, an endless conveying-tube adapted to pass through said apertures, and about said wheels, and comprising a plurality of coil-springs and solid heads applied in said springs at intervals, substantially as described.

5. In a pump, the combination with a suitable frame, of grooved wheels mounted in the same, an endless conveying-tube mounted upon said wheels and comprising a plurality of coil-springs and solid heads applied in said springs at intervals, and auxiliary grooved wheels mounted on said frame and adapted to cause the endless conveying-tube to pass about the greater portion of the aforementioned upper grooved wheel, substantially as described.

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

WARREN W. JAMES.

Witnesses:

R. J. DAVIS,

E. M. MATHEWS.