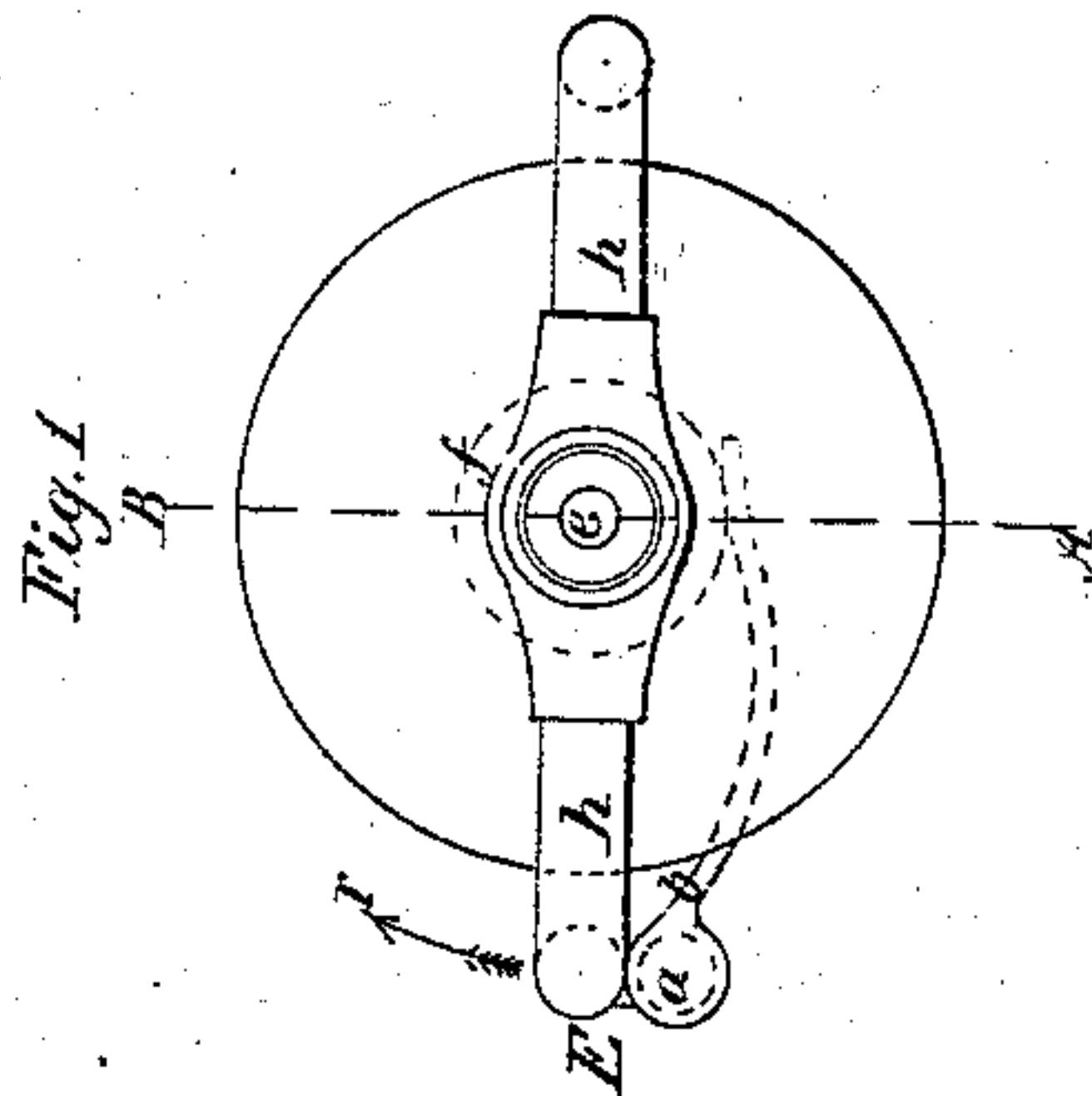
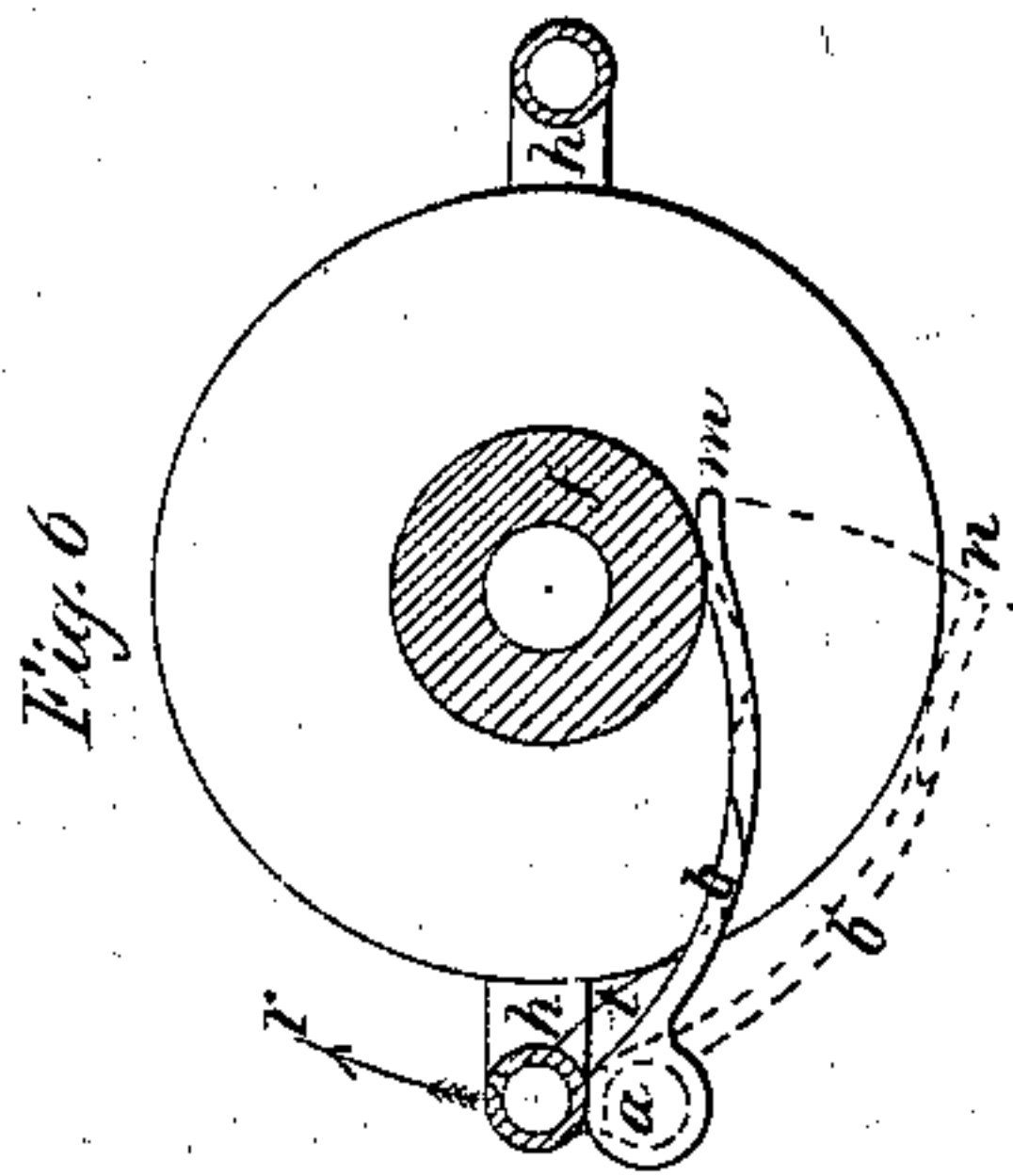
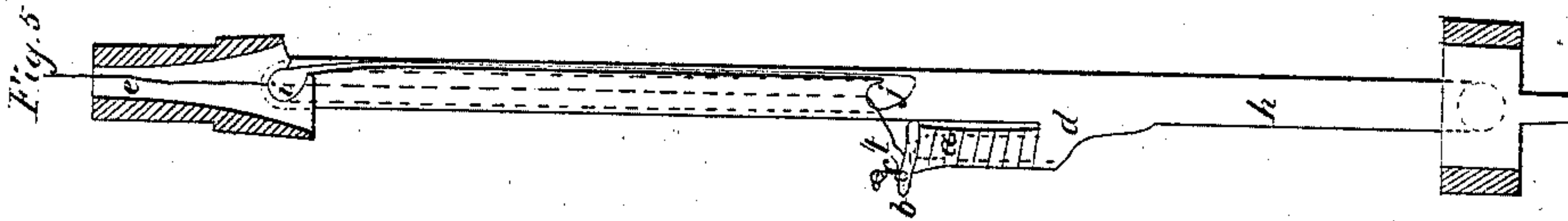
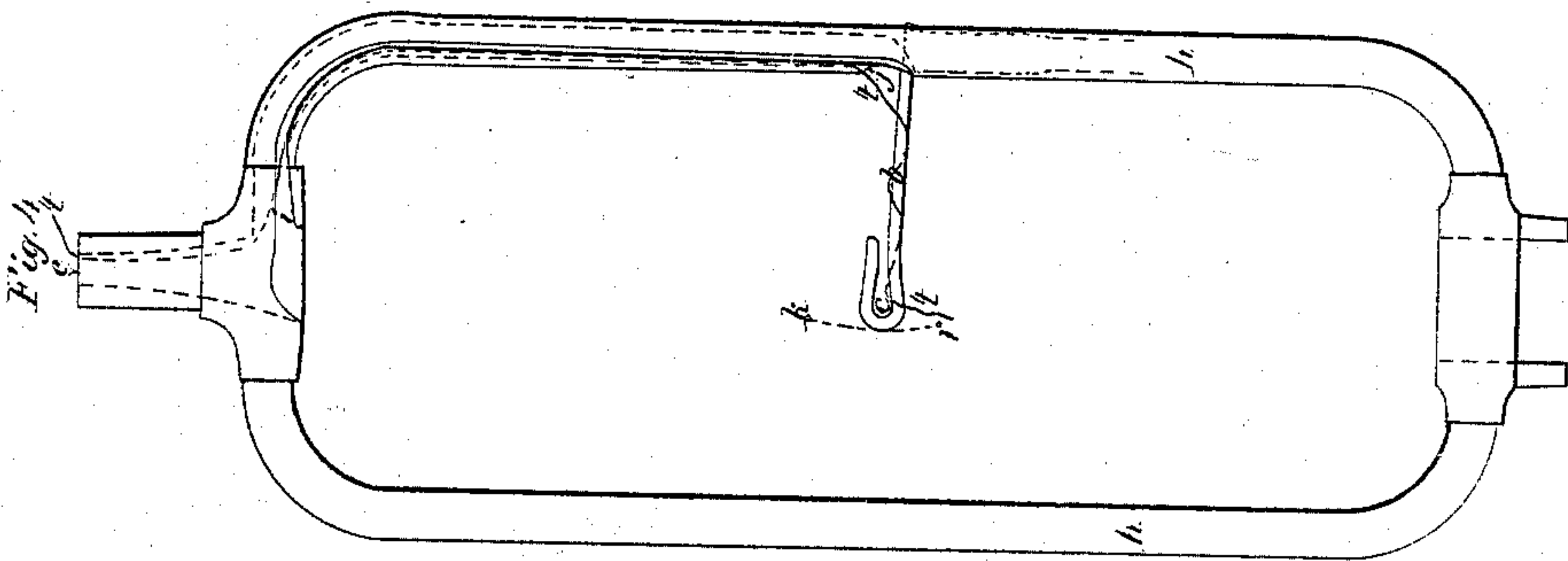
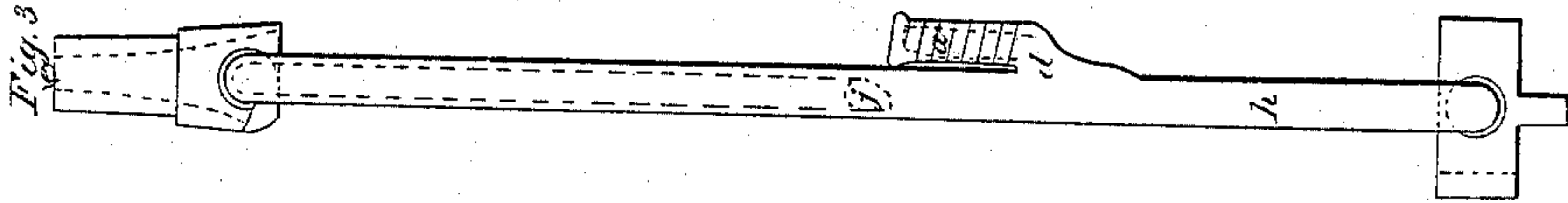
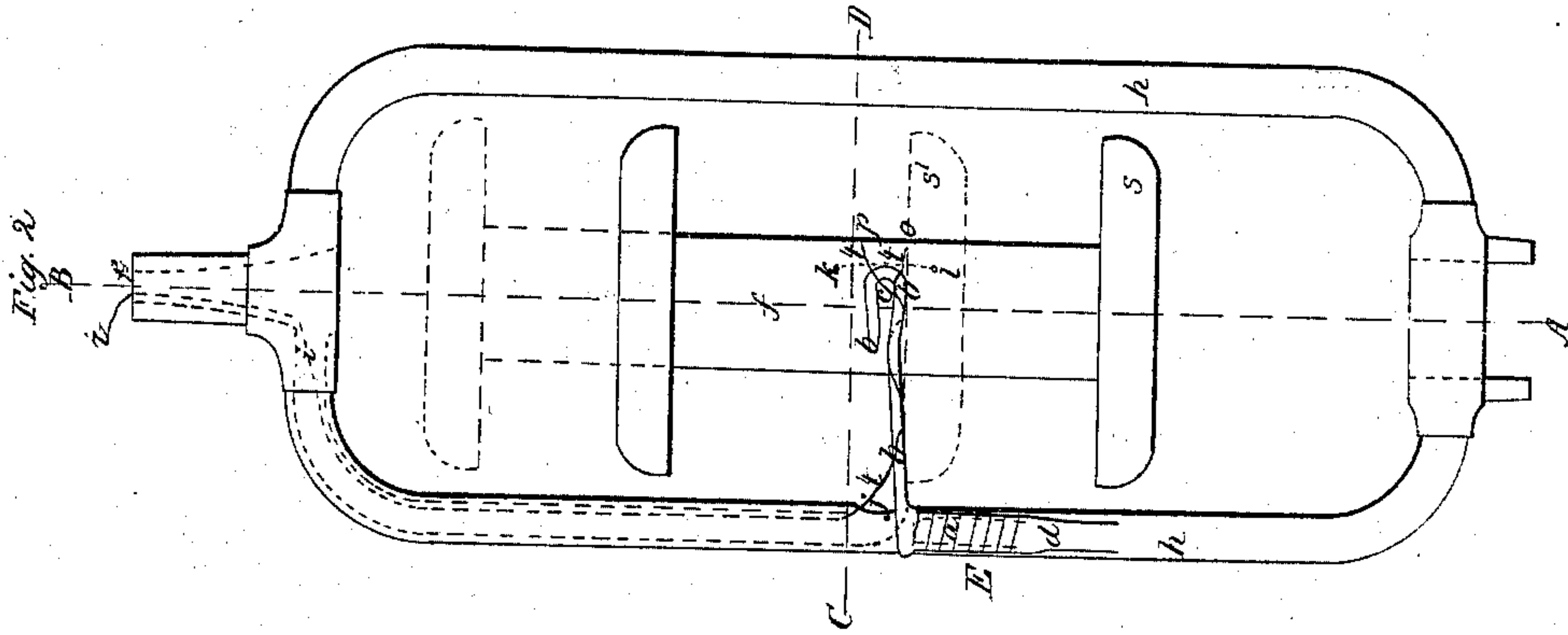


A. W. Smith.
Spinning Flyer.

N^o 36,864.

Patented Nov. 4, 1862.



Witnesses
Chas. W. Ring
Boiler

Inventor
A. W. Smith

UNITED STATES PATENT OFFICE.

AARON W. SMITH, OF MANCHESTER, NEW HAMPSHIRE.

IMPROVEMENT IN FLIERS FOR SPINNING.

Specification forming part of Letters Patent No. 36,864, dated November 4, 1862.

To all whom it may concern:

Be it known that I, AARON W. SMITH, of Manchester, county of Hillsborough, State of New Hampshire, have invented a new and Improved Mode of Constructing Presses for Spinning-Fliers; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, where similar parts are represented by like letters.

Figure 1 is a plan of flier and bobbin with presser attached; Fig. 2, elevation of side A, showing the bobbin; Fig. 3, elevation of side E, but not showing the bobbin; Fig. 4, elevation of side B, but not showing the bobbin; Fig. 5, vertical section on the line A B, looking toward E, but not showing the bobbin; Fig. 6, horizontal section on the line C D, showing a plan or horizontal view of the presser.

I will endeavor to explain the nature of my invention.

Pressers for spinning-fliers heretofore used are adapted to "headless" bobbins, so called, and cannot be applied to the sort of bobbins called "head-bobbins," and represented in Fig. 2. They cannot be so applied for two reasons—viz., first, the form of the presser's delivery-arm, and, second, the immobility of the presser-arm in more than one direction; and I claim to have overcome both of these objections by an improvement that will give to the millions of head-bobbins in use a treble value, inasmuch as by it not only three times the amount of roving can be wound upon such a bobbin, but the head-bobbin is thus made equal to any other, wound with a presser, in solidity and compactness.

It is difficult to explain how pressers now in use fail to fill the entire barrel of the bobbin—without drawings to illustrate, though I will refer to Letters Patent issued to myself December 3, 1861, for the common form of the delivery-arm. Such pressers will not permit the roving to run close to either head of the bobbin, but leave a space at the end of the band next to the head unwound and uncovered, into which the roving, as it increases upon the bobbin, falls and binds, thereby causing frequent breakage in both winding and unwinding the roving. So great in practice is this objection that it is believed that no press-

ers now in use are employed upon head-bobbins.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

In the first place I forge a piece of iron, *d*, Figs. 2, 3, 4, 5, with an elbow in same, and solder *d* to *h*, the flier-tube at a proper distance below *j*, Figs. 2, 3, 4, 5, this distance being very nearly the length of *d*, so as to bring arm *b*, when in use, opposite or equal in height to the lower part of the delivery-notch *j* in *h*, Figs. 2, 4. To *d*, near its junction with *h*, I solder the spiral spring *a*, made of steel and spring-tempered. *a* is then coiled around *d* to a point above *d* as far as necessary, for the purpose hereinafter described. Then *a* is extended at right angles with its coil, forming *b*, or arm of the presser, until it reaches the desired length of an arm, when *a* is crooked at *c* into the form of a hook, as shown in Figs. 2, 4. Thus *a* the spring, *b* the arm, and *c* the delivery, of the presser, are formed of one and the same piece of steel wire. The object of making these parts of one piece is to give the presser-arm sufficient elasticity to adapt itself to the head of the bobbin. As the bobbin, Fig. 2, in process of being wound goes upward with its spindle toward the dotted red lines above, the roving *t* winds in the direction indicated by the red line *t p*, Fig. 2. When the bobbin is fully raised, and the head *s* occupies the space *S'*, (indicated by dotted red lines,) the inner side of *S* strikes against *b* and bends or swings it upward, *t* in the meantime falling down toward *o*, Fig. 2. Then as the bobbin changes its direction to pass down this reversed motion throws *t* below the middle of the hook *c*, and as the bobbin falls *t*, by the bobbin's new direction and the thread already wound, takes the place *o t*, Fig. 2, and thus *t* closes around *f* at its junction with *s* as completely and evenly as upon any other portion of *f*, the barrel of the bobbin. This throwing *t* close to *s* is greatly aided by the smooth hook at *c*, over the end of which *t* readily moves.

In pressers for fliers now in use it will be observed that their arms *b* of the pressers are made to vibrate or move only in one direction—viz., a horizontal direction—corresponding to the line *n m*, Fig. 6, and their construction is such as to preclude motion of *b* in any

other direction. Now, I give to the presser-arm *c* an additional and new motion in the direction of dotted lines *kl*, Fig. 2—a perpendicular motion of *b*. By giving *b* this new motion at right angles with its common one on the line *nm*, Fig. 6, I am able to give to *b* at its end at *c* a sort of circular motion (see Fig. 4) that *c* describes as it plays over the bobbin at the time of the bobbin's shifting its perpendicular direction, and this resultant motion is peculiarly adapted to throwing the roving close to the head of a bobbin, assisted as it is by the hook *c*.

To adapt my improvement to the variations of the running of a bobbin, and also to the different lengths of head-bobbins, which vary frequently about one-fourth of an inch, I extend the coil of *a* a short space above *d*, where *d* is shown by dotted lines, Figs. 2, 3, 5, so that the presser-arm *b*, in addition to its own elasticity, may have the benefit of a slight lateral or side motion of the top of coil *a*, thus giving to *c* a greater perpendicular sweep than would be possible if *d* ran close up to the angle where coil *a* branches off at right angles to form *b*, and giving also to *b* sufficient play to meet the variations of the running of the same bobbin from time to time.

a is coiled and fashioned as above described before being soldered onto *d*, as described; but I contemplate using *a* on *d*, as described, without soldering *a* and *d* to each other, in this way, viz: At the lower end of *a*, I attach a stop that strikes against *h* and prevents *a* from turning around *d*, which contrivance is very serviceable in repairing *a*, *b*, or *c*, as all of these parts, made of one piece, can be taken off of *d* by lifting them up and off of *d*.

What I claim, and desire to secure by Letters Patent, is—

1. The construction of a presser for head-bobbins, by combining the spiral spring *a*, the arm *b*, and the hook *c* of one and the same piece of steel wire, formed and arranged substantially as described, for the purposes herein set forth.

2. The combination of the arm, spring, and hook, whether in one or more pieces, when so arranged as to give the hook or delivering-finger the vertical play necessary to lay the yarn close to the upper and lower heads of the bobbin, as set forth.

A. W. SMITH.

Witnesses:

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