2 Sheets—Sheet 1.

# S. BLOOD.

## SPINNING FLIER.

No. 36,502. Patented Sept. 23, 1862.

*Fig: 4.*

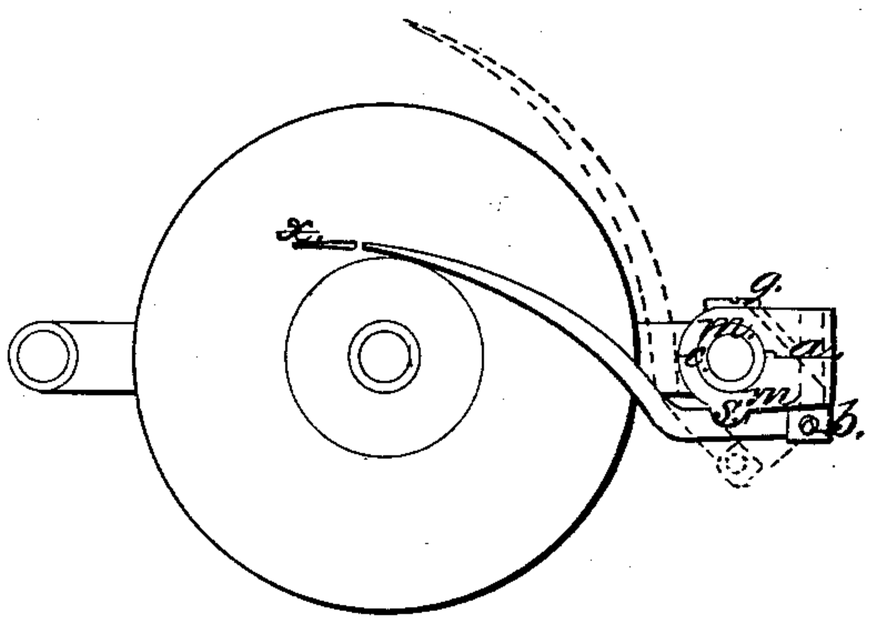



*Fig: 1.*

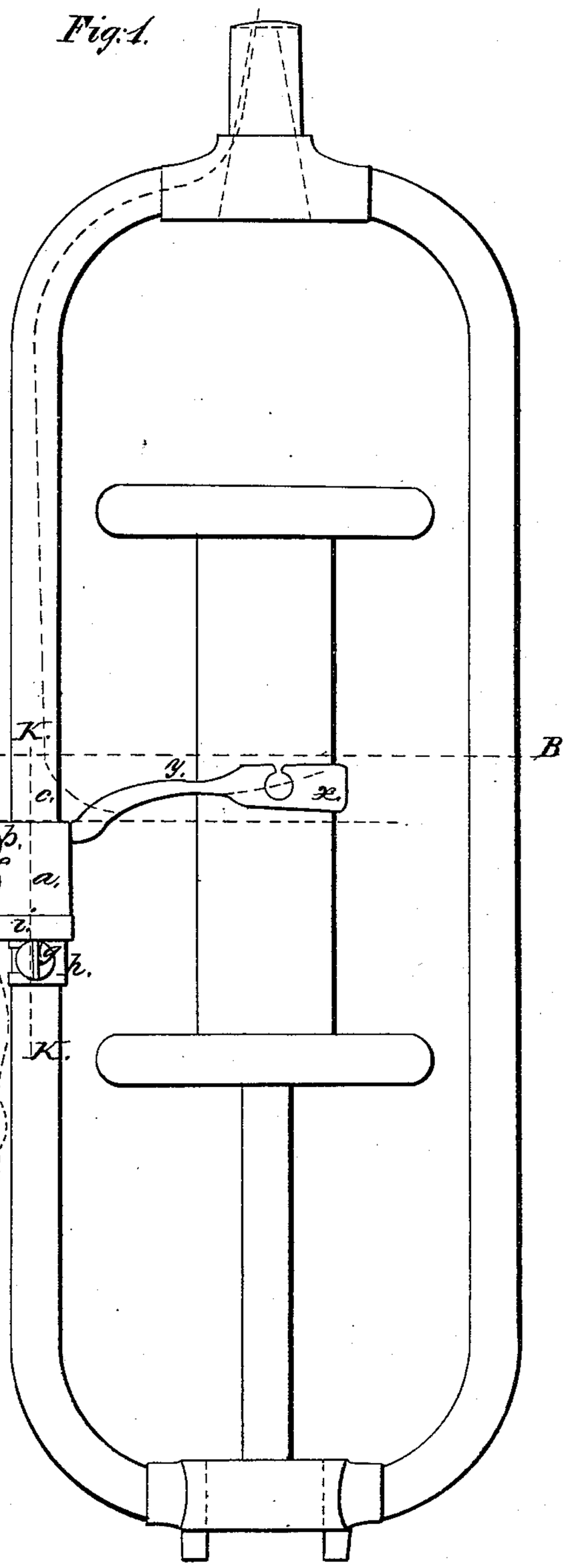



*Fig: 5.*

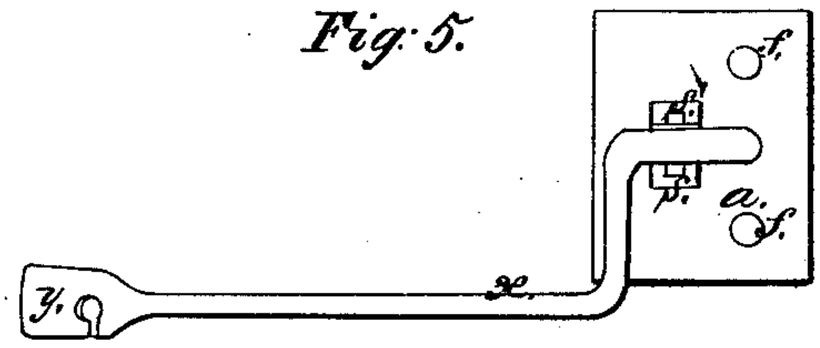
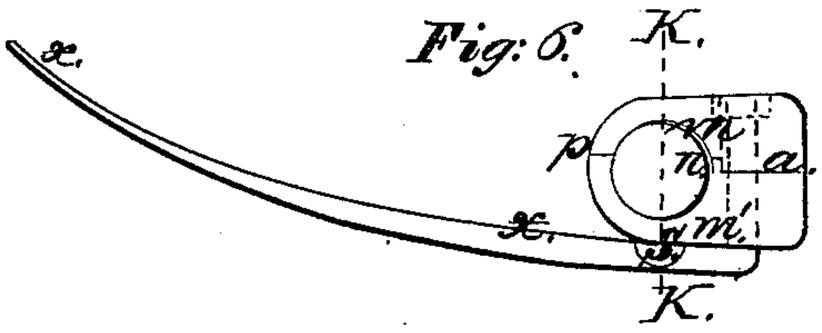



*Fig: 6.*

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2 Sheets—Sheet 2.

# S. BLOOD.

## SPINNING FLIER.

No. 36,502. Patented Sept. 23, 1862.

*Fig: 3.*

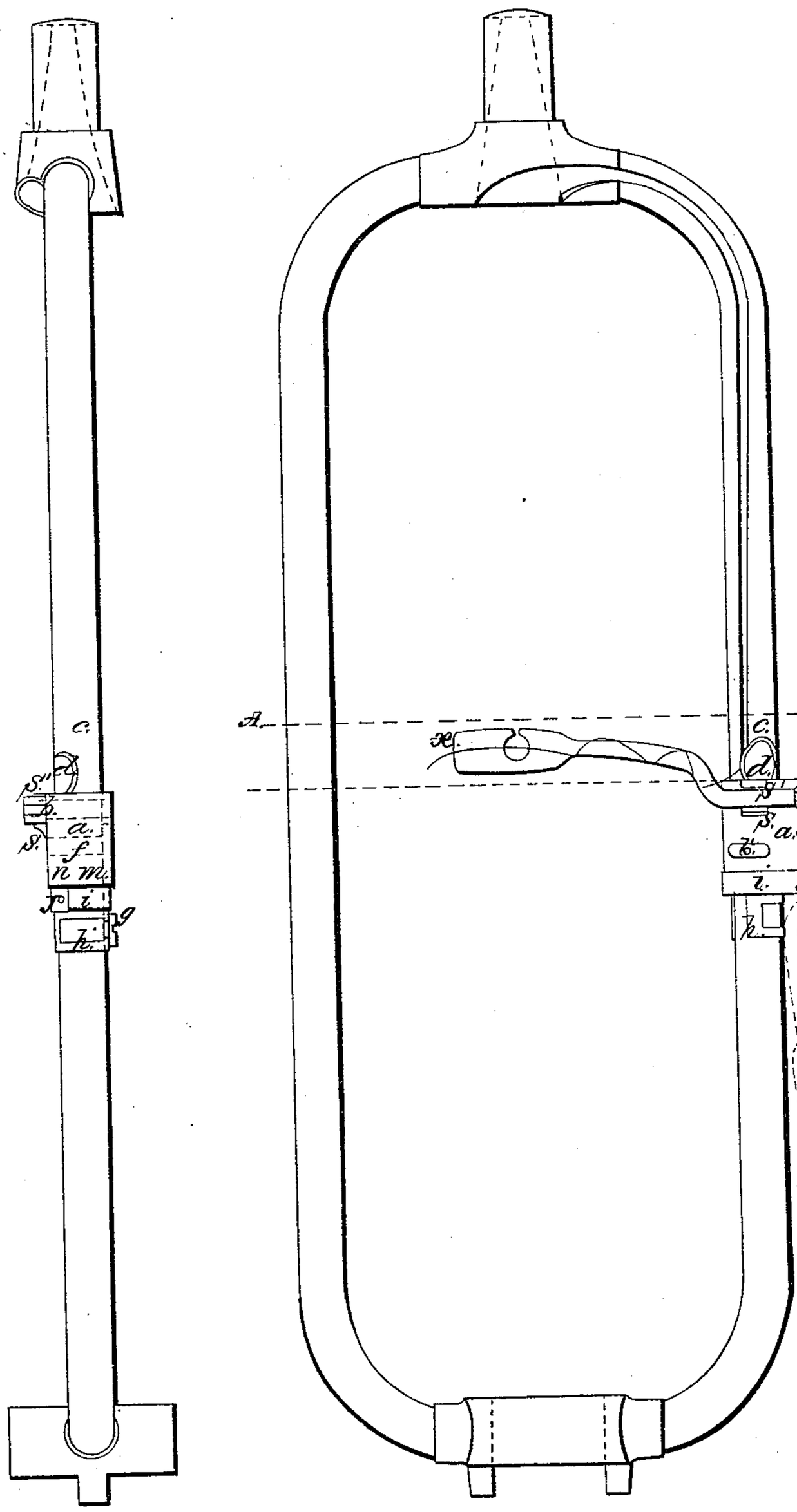


*Fig: 2.*



THE NORRIS PETERS CO. PHOTO-LITHO., WASHINGTON, D. C.

# UNITED STATES PATENT OFFICE.

SAMUEL BLOOD, OF MANCHESTER, NEW HAMPSHIRE.

## IMPROVEMENT IN SPINNING-FLIERS.

Specification forming part of Letters Patent No. **36,502**, dated September 23, 1862.

*To all whom it may concern:*

Be it known that I, SAMUEL BLOOD, of Manchester, in the county of Hillsborough and State of New Hampshire, have invented a new and useful Improvement in Bobbin-Presses; 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 the same letters in the several figures.

Figure 1 is an elevation of flier, showing presser and its bobbin; Fig. 2, an elevation of other side of flier, showing same without the bobbin; Fig. 3, a rear elevation of flier, showing part of the presser; Fig. 4, a section through line A B, Fig. 1; Fig. 5, an elevation of presser, full size, spring and hinge joint left off; Fig. 6, a plan of presser without joint and spring.

The object of my invention is to produce a cheap removable presser for winding the roving upon any kind of bobbins, so constructed as to be more useful than other pressers now in use designed for the same purpose.

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

In the first place I make a clamp, *a*, Figs. 1, 2, 3, 4, of two parts, *m' m*, Figs. 3, 4, 6, of brass or other metal, the inside of *a* made to fit the flier *c* loosely, so that *a* will easily turn on *c*. The parts or halves *m' m* are then put together, and a hole drilled through both for the reception of bolt *f*, Figs. 1, 2. One end of *f* is headed, and its opposite end is threaded and screws into *m'*, Fig. 3, and thus by means of *f* and shoulder *n*, Fig. 6, *m'* and *m* are held together, forming the clamp *a*. There is another hole drilled through *a*, Figs. 1, 2, into which is inserted a swivel bolt or stud, with its head at *b*, Fig. 1. Into its opposite end at *b*, Fig. 2, which projects beyond *a*, as shown by *b*, Fig. 3, is a notch or mortise, into which is inserted one end of the presser *x*, as shown at *b*, Fig. 2, *x* near *b* having a shoulder to confine it in place, and being held in *b* by means of a rivet passing through *b* and the flattened end of *x* at *b*, Fig. 4, and there riveted, thus making with *x* and *b* a hinge-joint at *b*, Figs. 1, 2, 3, 4, and by the revolution of *b* in its bearings a revolving hinge-joint, for a purpose hereinafter described.

From *a*, Figs. 1, 2, 3, I make a projection, *j*, to which is riveted one end of spring *i*, Fig. 3.

*i* is a flattened spring, which is coiled around the flier arm or tube *c*, Figs. 1, 2, several times, similar to the mainspring of a watch; and *i* at its other end is attached to the slotted segment *h*, Figs. 1, 2, 3.

*h* is a thin piece of iron or segment of a hollow cylinder, reaching half-way around *c*, with a slot running nearly its length, portions of which are seen in Figs. 1, 2, 3, *h* being first made separate and confined in its place by *g*, Fig. 1.

*g* is a screw that is let into *c*, the head of *g* being large enough (see Fig. 1) to cover the width of *h*, and the barrel of *g* small enough to permit it to play freely through the slot in *h*. On loosing *g*, *h* may be slid along under the head of *g* around *c* either way, and when the desired amount of tension on *i* has been attained *g* is screwed down into *c*, its head coming down on *h*, and *g* thus holds *h* and *i* at such tension as the pressure of *x* upon its bobbin may require, and thus the pressure of *x* may be regulated as from time to time is desired by tightening or loosening *i*, as described.

Whenever a bobbin is filled it must be removed from its spindle and an empty one placed thereon in its stead. In presses as heretofore constructed this removal has been difficult and somewhat troublesome, requiring both hands of the operative. To obviate this I have constructed the presser-arm *x* with its swivel elbow-joint, as described, for the purpose of readily throwing off the arm *x* from its bobbin when full in this way—viz., by grasping *c* with one hand and pressing the thumb on *a* near *f*, Fig. 1, whereby *x* is relieved from its guides *s' s*, Fig. 2, when *x* drops by its own weight into the position shown by the dotted lines of *x*, Figs. 1, 2. The bobbin, thus released of its presser, is removed and another is inserted in its place with the same hand, when *x* is again returned to its former position upon the bobbin, ready for another winding. All of this is readily performed with the same hand, while the other hand of the operative may be holding other bobbins or otherwise employed, causing a great saving of labor and time in this part of the work.

On *a* at *s'* and *s*, Fig. 2, I make two projections or guides to hold *x* in its proper place while the bobbin is being wound. The space

between $s'$ and $s$, Fig. 2, is a little greater than the width of $x$, where it rests in this space to allow of a slight perpendicular motion of $x$ on its bobbin, that $x$, by its shifting from $s'$ to $s$ as the bobbin rises and falls, may adapt its delivery to the head of a bobbin and run its roving close to either head of the bobbin, so as to wind the entire band of the bobbin equally and evenly.

Through $a$, I make a small slot, through which $v$ appears, as shown in Fig. 2.

$v$ is a pin set permanently in $c$ for the purpose of limiting the revolution of $a$ and of holding $a$ in its proper place on $c$, and also for holding $a$ from whirling around $c$, when $x$ is dropped, as before mentioned. After constructing $a$ as described and adding thereto its several parts, I proceed to balance or adjust my presser before placing it on its flier. I place the presser on a small spindle to see if its parts are equal in weight—that is to say, if the parts of the presser on the several sides of the dotted lines $k\,k$, Figs. 1, 6, are of equal weight, so that the portion of $a$ on the left of $k\,k$, Fig. 1, shall exactly counterbalance the portion of $a$ on the right of $k\,k$, Fig. 1, with the arm $x$ extended upon its bobbin, as represented in Fig. 1. If the parts of the presser on this line $k\,k$ do so balance, then, and not till then, do I attach the presser to the flier. After putting the presser upon its flier-tube, I again balance the presser and its tube with the opposite tube or arm of the flier that the flier itself may be equipoised.

Although the presser, as shown in Fig. 6, is balanced perpendicularly on line $k\,k$, as described, for experiment or test, yet the presser is also balanced horizontally in actual use in its horizontal turning upon tube $c$, Fig. 1, upon $k\,k$, which imaginary dotted line is intended to represent the center line or the center itself of tube $c$. This "heel" (it might be called) of $a$, Figs. 1, 2, that is always on the side of the tube opposite $x$, and thus always counterbalancing $x$ as $x$ is removed from the center of its bobbin in the process of filling, is the precise particular in which my presser differs from those permanently attached to their fliers. The object of this balancing of the presser is to obviate the disturbance of the equilibrium of the flier caused in other pressers by the presser's arm being removed from the center of the bobbin's revolution in process of filling the bobbin. By my arrangement the presser-arm $x$, being drawn back as it fills the bobbin, is always kept balanced by the opposite side of the presser, which turns in a direction opposite to that of the arm $x$, the two equipoised parts on the right and left of $k\,k$, Fig. 1, revolving around the center line of tube $c$, as before described, thus preserving always the equilibrium of the flier while the bobbin is being filled, a result that is believed never before to have been attained.

I contemplate the using of a spiral spring coiled around the flier tube and attached to the presser in a manner similar to $i$, if such a spring shall be found preferable to the one before described. The spring represented in the drawings by letter $i$ is made similar to a watch-spring, as before described, and coiled around itself several times, every diameter of the different coils being of different lengths and the spring itself covering a space on $c$ only equal to the width of $i$, as shown, Figs. 1, 2, 3; whereas by a "spiral spring," I mean a spring with each coil surrounding $c$, and each coil of the same diameter, winding like the worm or thread of a screw, thus making the spiral spring to occupy a space lengthwise of $c$ equal to the several widths of the spring coiled multiplied by the number of coils it makes around $c$.

Other advantages of my presser are that it can be more cheaply made and is put upon its flier at far less expense than pressers that are soldered or brazed to their fliers, is more readily repaired, and is less liable to be thrown off of its flier by the flier's revolution.

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

1. The revolving hinge-joint in the arm of a presser, for the purposes described.

2. The guides $s'\,s$ for the arm $x$, constructed substantially as described, whether $x$ is used with or without the spring and jointed arm.

3. The combination of the jointed presser-arm $x$, the guides $s'\,s$, the spring $i$, with its adjustments, and the construction and application of the presser to its flier, so that the presser shall always be equipoised in the act of winding, substantially as and for the purposes herein set forth.

SAMUEL BLOOD.

Witnesses:
ISAAC RIDDLE,
B. P. CILLEY.