

CHARLES H. WILLCOX
AND 116520
CYRUS CARLETON.

SEWING MACHINE.
PATENTED JUN 27 1871
SPOOL HOLDER.

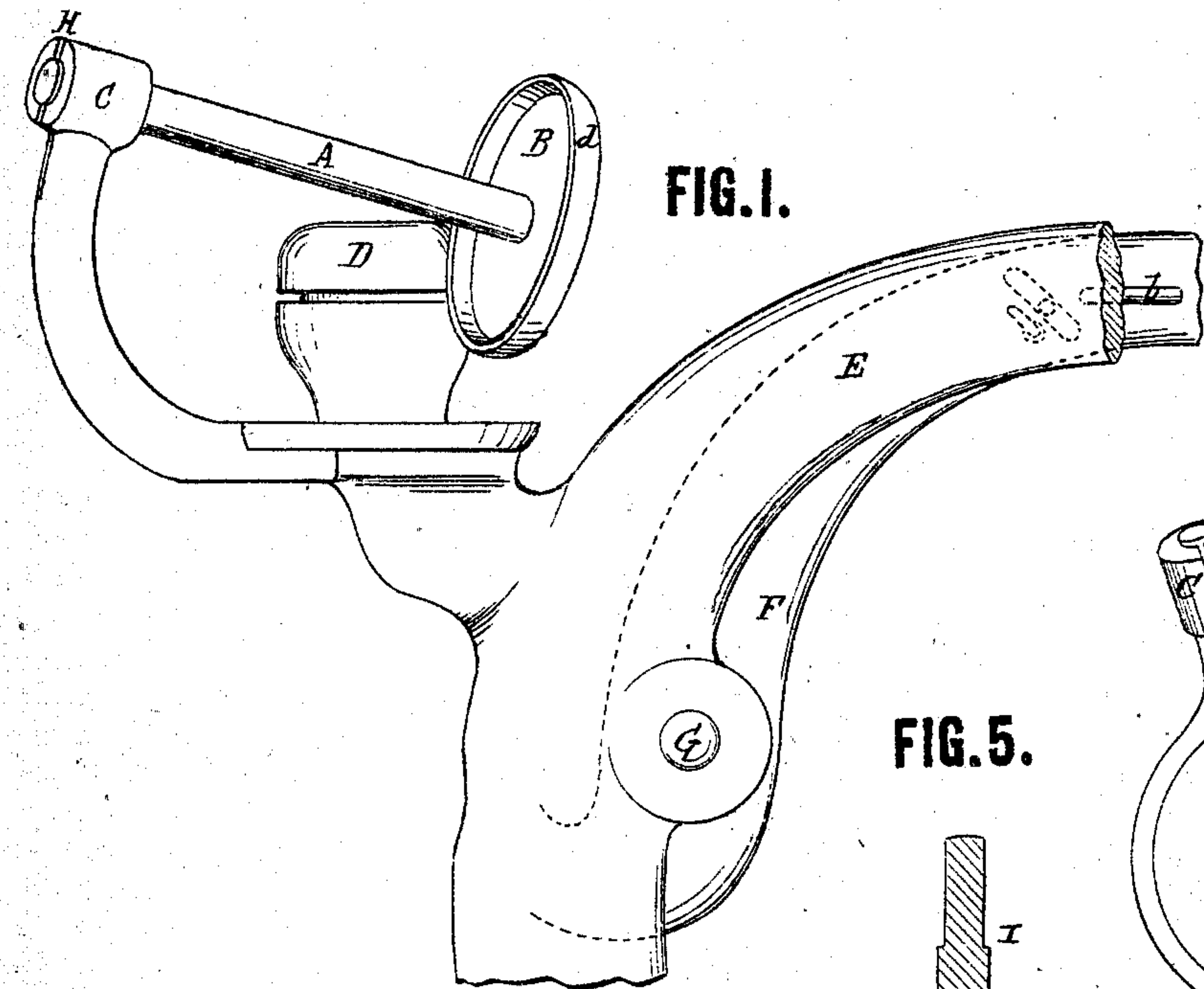


FIG. 1.

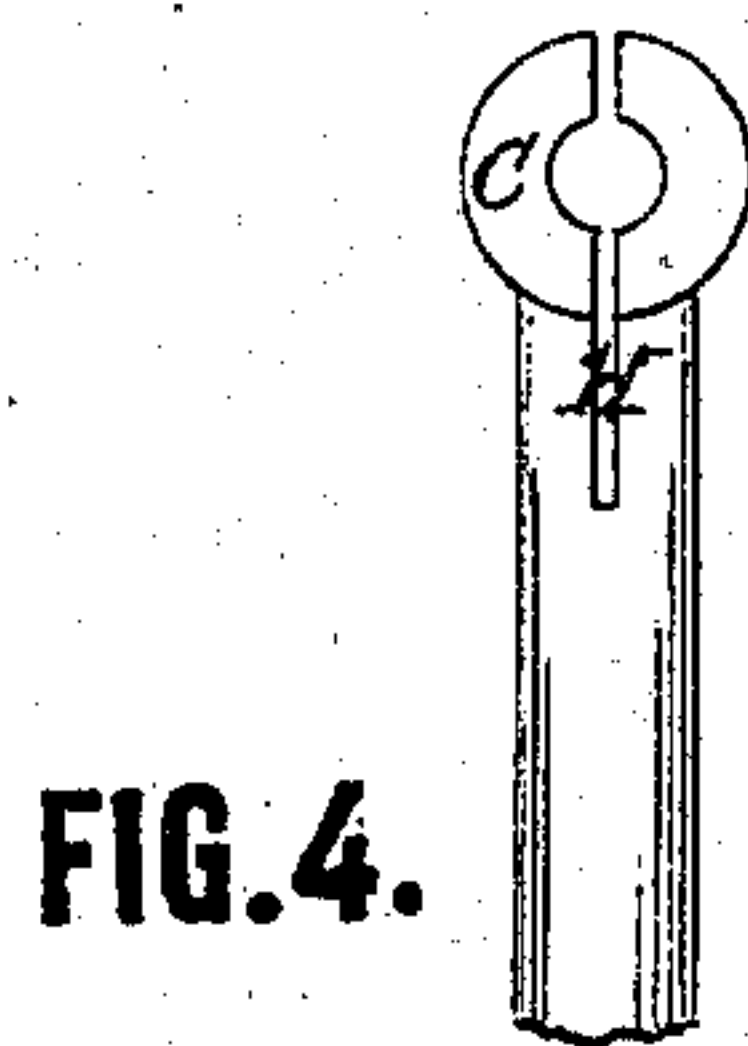


FIG. 4.

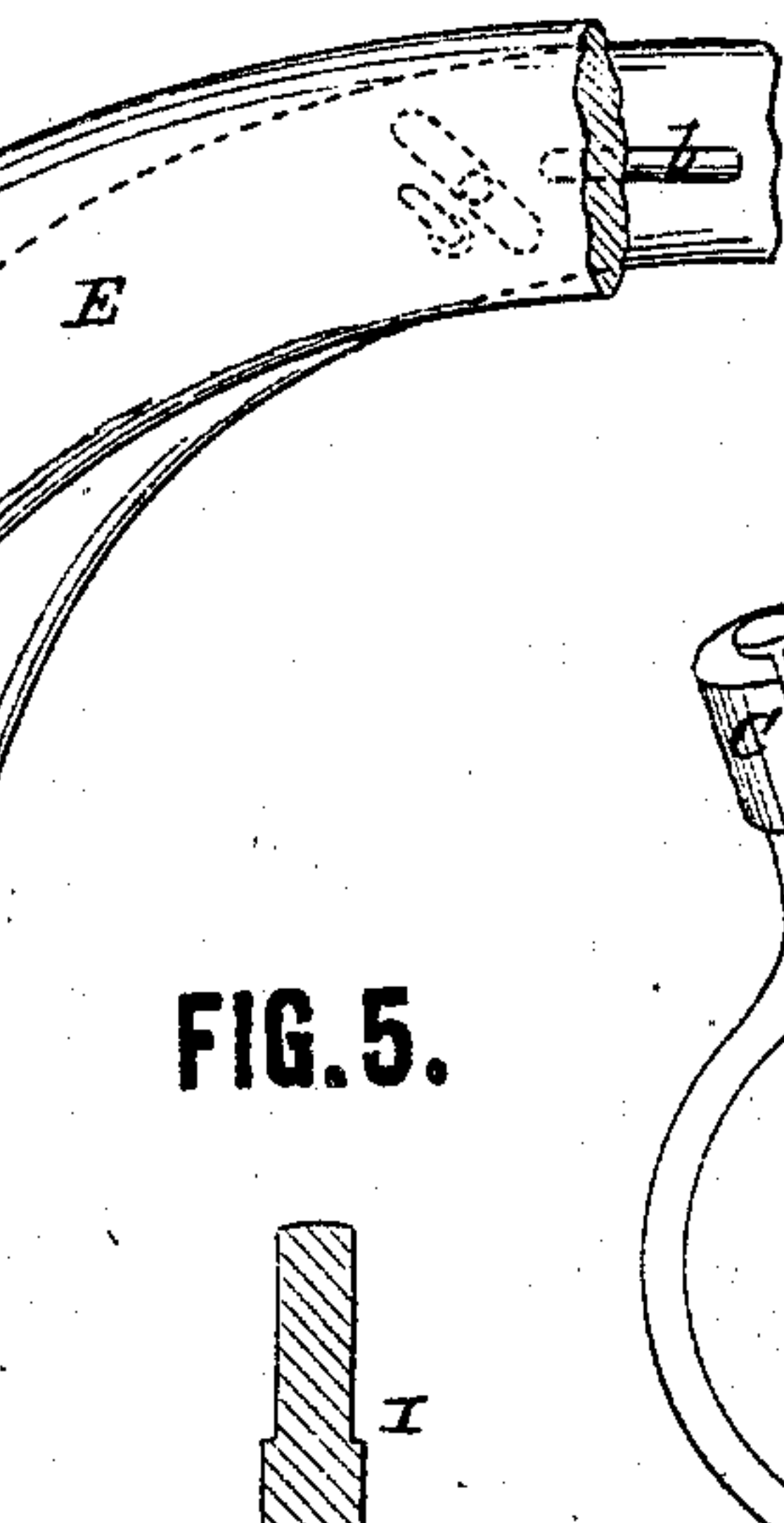


FIG. 5.

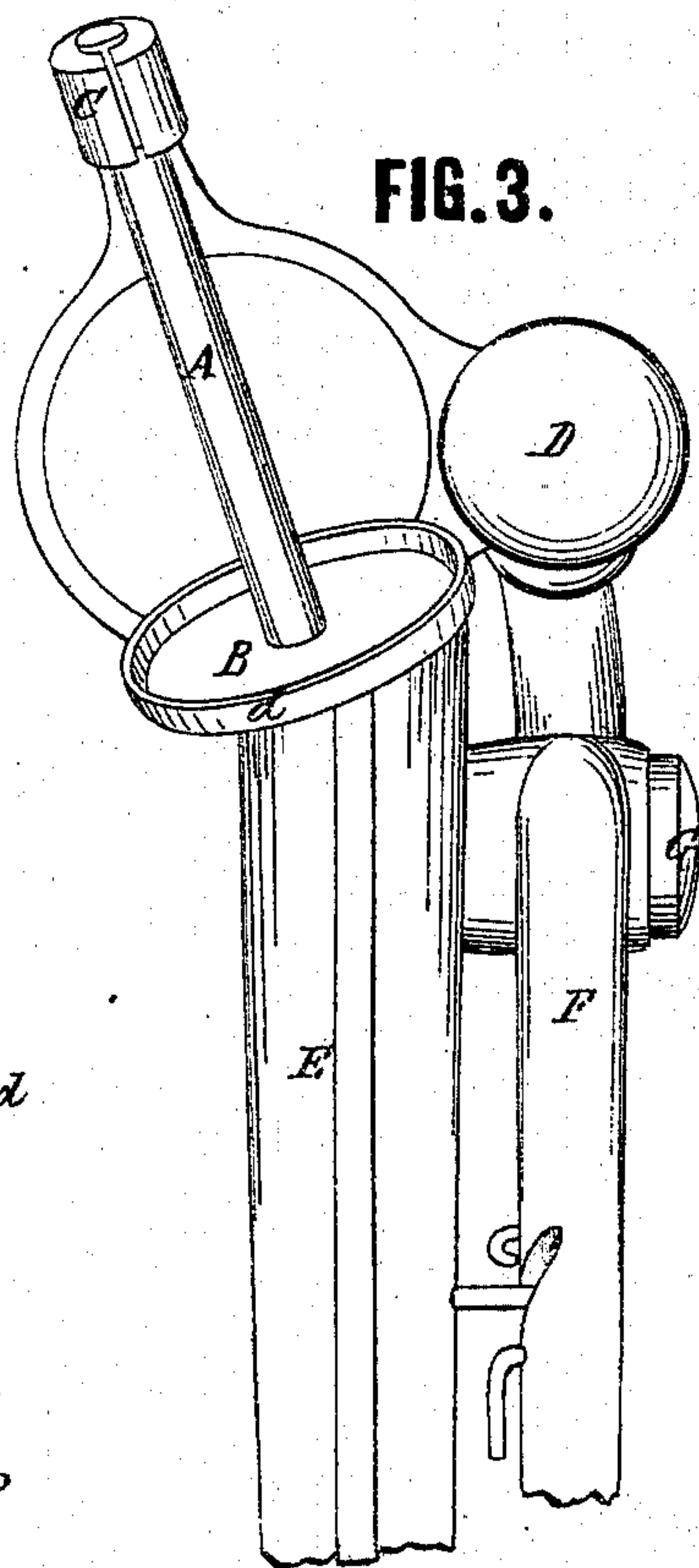


FIG. 3.

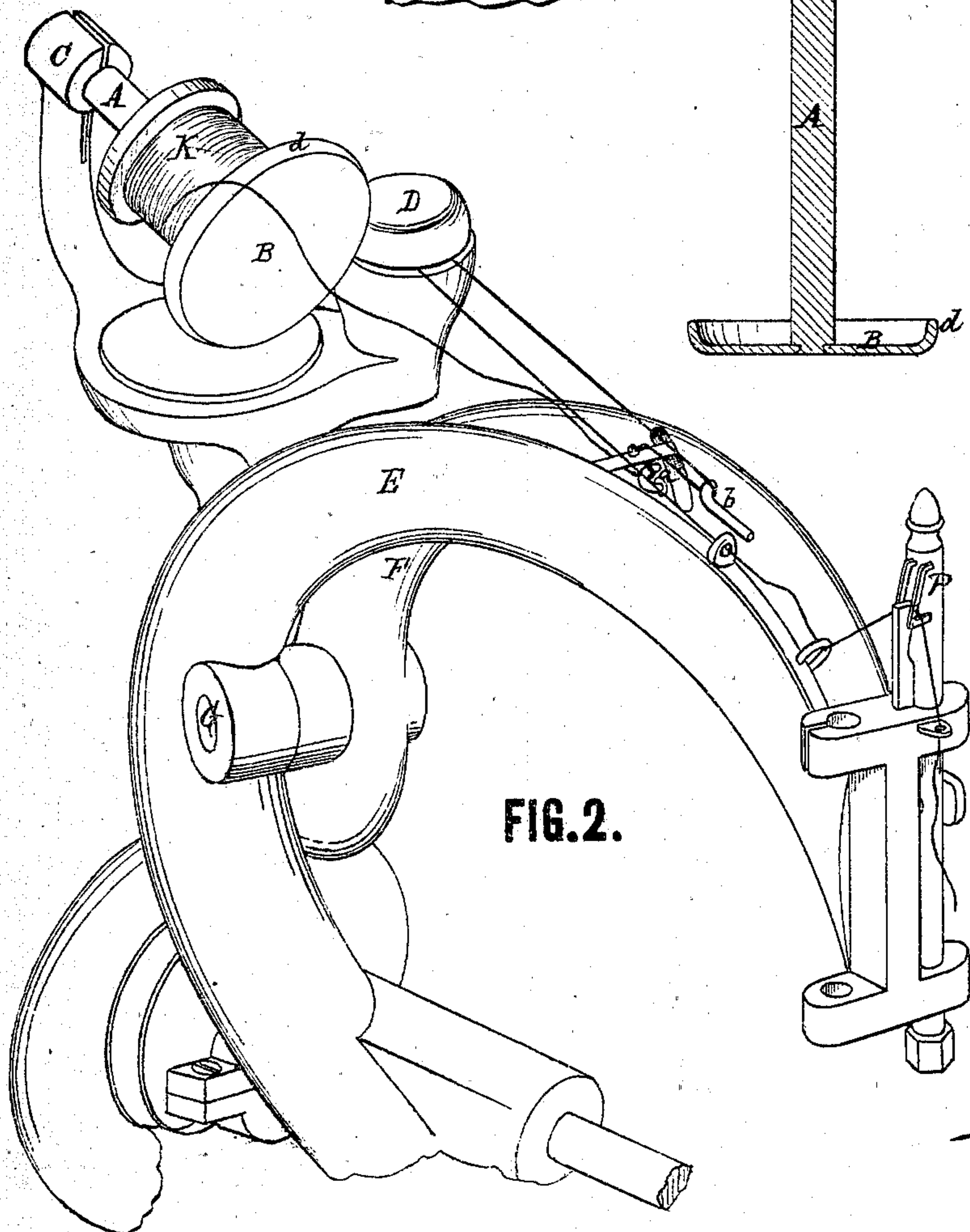


FIG. 2.

Charles H. Willcox
& Cyrus Carleton by
A. Hollis
their atty
WITNESSES.
W. B. Nottingham
D. D. Parmelee

UNITED STATES PATENT OFFICE.

CHARLES H. WILLCOX, OF NEW YORK, AND CYRUS CARLETON, OF BROOKLYN, NEW YORK, ASSIGNORS TO THE WILLCOX & GIBBS SEWING-MACHINE COMPANY, OF NEW YORK CITY.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 116,520, dated June 27, 1871.

To all whom it may concern:

Be it known that we, CHARLES H. WILLCOX, of the city, county, and State of New York, and CYRUS CARLETON, of Brooklyn, in the county of Kings, and State of New York, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a specification:

The invention which is the subject of this patent relates to spool-holders for sewing-machines, and is adapted more particularly to that class of sewing-machines where the thread is clamped firmly between two surfaces until the loop is almost or quite drawn up to the cloth and then suddenly released. But, while particularly adapted for use in this connection, it may also be employed with other machines of ordinary or suitable construction. The objects of our invention are: First, to get rid of the noise which arises from the spool being jerked back and forth against the spool-pin in the operation of sewing. Second, to overcome liability of the thread falling over the end of the spool and getting wound around the spool-pin, in which case the tension is entirely too great—generally so great that the thread in the end is broken.

To enable those skilled in the art to understand and use our invention, we will proceed to describe the manner in which the same is or may be carried into effect by reference to the accompanying drawing, in which—

Figure 1 is a side elevation of so much of a sewing-machine as is needed to illustrate our invention. Fig. 2 is an isometric perspective view of that portion of a machine in which our invention is embraced. Fig. 3 is a top view of the parts shown in Fig. 1. Fig. 4 is an end view of the upper part of the holder or bracket for the spool-pin. Fig. 5 represents a longitudinal section of the spool-pin or spool-holding disk or plate.

The machine represented in the drawing for the purpose of illustrating the manner in which our invention may be carried into effect is a Willcox & Gibbs' machine.

E is the frame, and F the needle-beam which vibrates upon the stud or pivot G. At the rear of the frame is the spool-holder, consisting of the spool-pin A and the disk or plate B, formed upon or attached to the front end of the pin. The other end of the pin is intended to be fitted and

held in the arm or bracket C, which is fastened to the frame E. By reference to Fig. 5 it will be seen that the end of the pin inserted in the holding-bracket is turned down so as to form a shoulder, I, to limit the extent to which the pin may be inserted in the socket in the arm C—the design being to have the pin long enough between the shoulder I and the disk B to receive the largest spools used in connection with such machines. The pin can be readily fitted in or withdrawn from the holder C, and we prefer, in order to exert a spring pressure upon it which, while serving to it firmly in place, will, at the same time, permit its ready withdrawal and replacement to split longitudinally the upper end of the holding-arm C by a saw-cut through the pin-socket, as indicated at H, so as to form two spring-jaws which will grasp tightly the end of the pin inserted between them. The end, however, may be held by any other suitable means which will allow it to be readily removed. The thread pull-off is represented as consisting of the hooks *a b*, attached to the vibratory needle-beam, and the intermediate pin *c*, attached to the frame E, with its outer end fitting a curved slot in the needle-beam.

We arrange the spool-holder so that the pin shall be in line, or nearly so, with the pull-off, or, in other words, so that its axis, if prolonged, would meet or pass through the thread-receiving eye of the pull-off, or nearly so, the object of this arrangement being to allow the thread to be drawn off equally well from any part of the disk B without any jerking or uneven motion. We also arrange it so that the spool on the pin will always rest by its gravity against the disk B. This arrangement of the spool-holder is fully represented in Figs. 1, 2, and 3 of the drawing, the spool-pin being set at an angle with the frame both vertically and horizontally, its rear end being inclined upward and outward, so that not only is it brought in line with the pull-off but it is also tilted or inclined in such manner that the spool it carries will always rest by its gravity against the disk B. The lateral inclination of the pin to the frame is, however, incidental to its arrangement, in the present instance, on one side of the machine. Whatever may be the location of the spool-pin, all that is necessary is that the end to which the spool-holding disk or plate is applied

should point or be inclined toward the pull-off or toward any other thread-receiving eye or pin to which the thread is conducted from the spool, so that the thread may be drawn over the edge of the plate or disk. The thread from the spool is, by the action of the pull-off, uncoiled and drawn over the edge of the circular plate or disk B. Owing to the fact that the pin is inclined toward the receiving-eye of the pull-off, the latter is, at all times, practically equidistant from all parts of the circumference of the disk, so that the thread is drawn evenly and without jerking; and, moreover, as the disk is greater in diameter than the spool, the thread is lifted and uncoiled from the latter with the greatest ease and facility, and, unless it be underwound, without causing the movement or rotation of the spool. We provide the spool-holding plate or disk B with an annular flange, *d*, which extends back a sufficient distance to hang over or surround the end of the spool in contact with the plate. The object of this arrangement is to prevent liability of the thread dropping over the front end of the spool and winding around the spool-pin. This flange is a complete protection against such an occurrence.

With the machine is also combined a tension, D, and a take-up, P; but the construction of these devices forms no part of this patent and requires no detailed description. Any suitable pull-off, take-up, and tension may be used, the same being combined with the frame of the machine in any appropriate manner.

The manner in which the spool-holder is used and operated is as follows: The detachable spool-holder A B is removed from the machine and a spool of thread, K, is slipped upon the pin, over which it should pass freely. The end of the pin is then replaced in the holder C. The thread is drawn from the spool over the edge of the disk B into the pull-off, passing under the movable hook *a*, over the intermediate stationary pin *c*, and under the hook *b*; thence back and around the tension D, between its intermittently-clamping surfaces; thence through the thread-eye or pin L to the take-up P; and thence to the stitch-forming mechanism. The path of the thread is plainly indicated in Fig. 2. When the needle-beam F, to which the two movable pins or hooks of the pull-off are fastened, begins to descend, the clamping surfaces of the tension D close upon the thread and hold it firmly, and, as the needle-beam continues to descend, the thread is bent over the stationary pin of the pull-off and drawn from the spool over the edge of the disk D by merely uncoiling, and without drawing or putting in motion the spool K, except when the thread is underwound, in which case the spool, being free to move

on the pin, can be drawn around. The spool rests on the pin A in a position but very slightly inclined—in fact, very nearly horizontal—and there is no tendency of the thread to drop over the end which rests against the disk B, especially as the flange of the disk overhangs the spool, and the thread, in pulling off, is inclined toward the center of the spool when it uncoils from the end nearest the disk. As the pull of the thread is always toward the disk end, there is no tendency of the thread to fall over the opposite end of the spool, and as the spool is rarely, if ever, jerked around, which, on the contrary, is always taking place in sewing-machines like the Wheeler & Wilson machines, which employ the ordinary horizontal spool-pin, perfect security against winding around the spool-pin is insured.

Having described our invention and the manner in which the same is or may be carried into effect, what we claim, and desire to secure by Letters Patent, is—

1. The spool-pin or spindle, so arranged that its axis shall be in line with or inclined toward the thread-receiving eye, as described, in combination with a disk or other device for holding the spool thereon, substantially as and for the purposes set forth.

2. The inclined spool-pin arranged as specified in the preceding clause, in combination with a bracket or other suitable holder, in which the pin is held at one end, substantially in the manner described, so that it may be removed from and replaced in said holder at pleasure.

3. The spool-pin bracket or holder, having the end which receives the pin split, substantially as described, so as to form two spring-jaws between which the end of the pin may be inserted and held, as shown and set forth.

4. The combination, with the spool-pin, so arranged that its axis shall be in line with or inclined toward the thread-receiving eye, as specified, of a spool-holding plate or disk provided with an annular flange, arranged, substantially as described, to overhang the end of the spool in contact with the disk and prevent the thread from winding upon the spool-pin.

5. The combination, with the herein-described spool-holding device, of a tension pull-off and take-up, under the arrangement and for operation as shown and set forth.

In testimony whereof we have signed our names to this specification before two subscribing witnesses.

CHAS. H. WILLCOX.

CYRUS CARLETON.

Witnesses:

THEO. A. TAYLOR,

HENRY L. BESSEY.