

J. Pepper
Circular Knitting Mach.

N^o 68,107.

Patented Aug. 27, 1867.

Fig. 1.

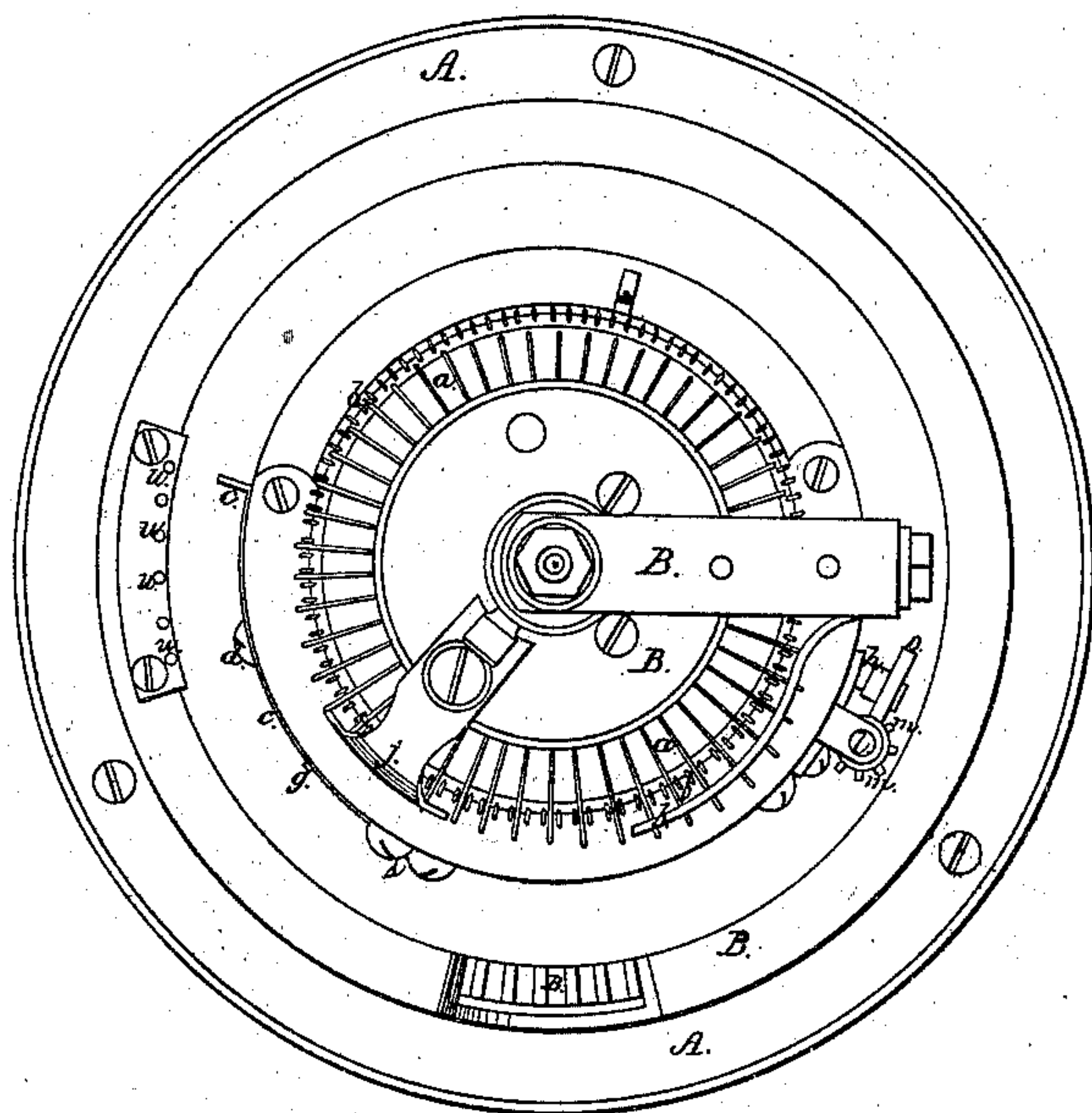


Fig. 2.

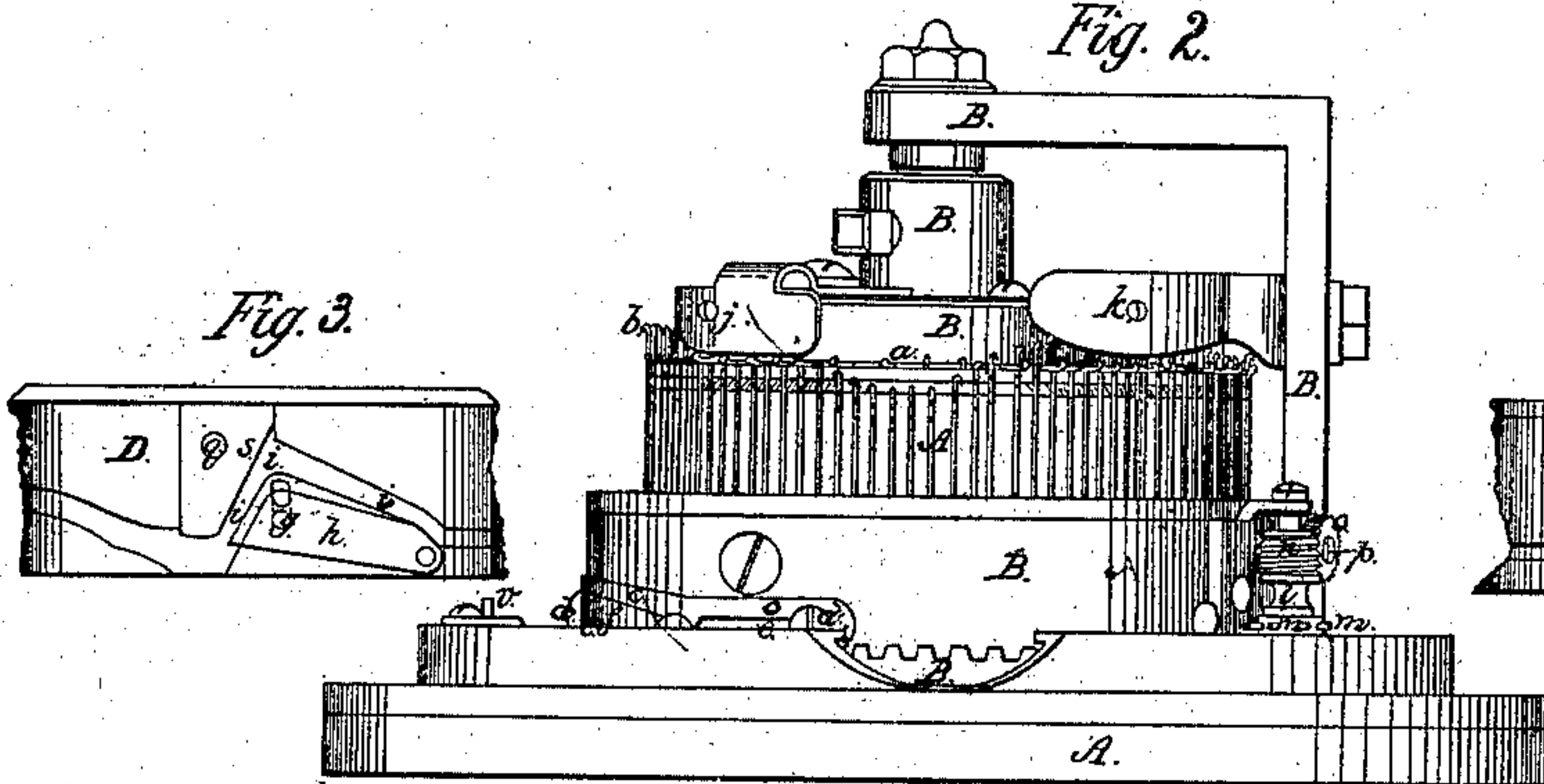


Fig. 3.

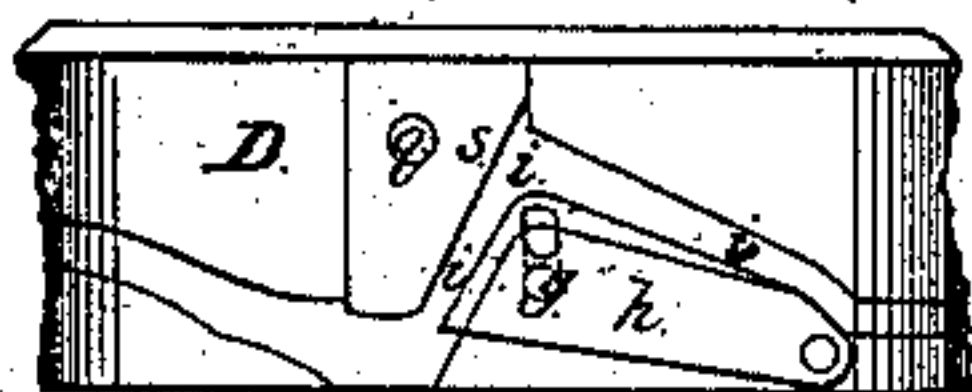


Fig. 4.

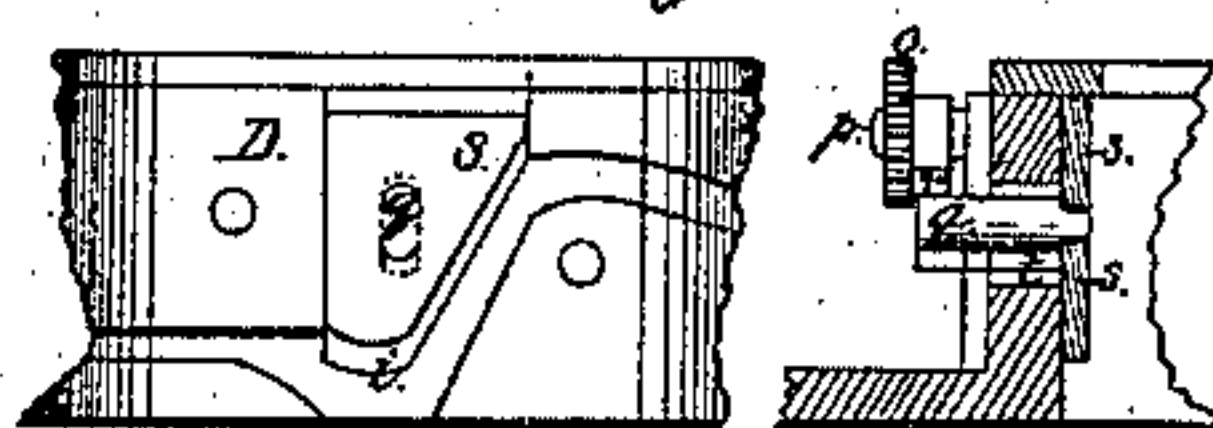
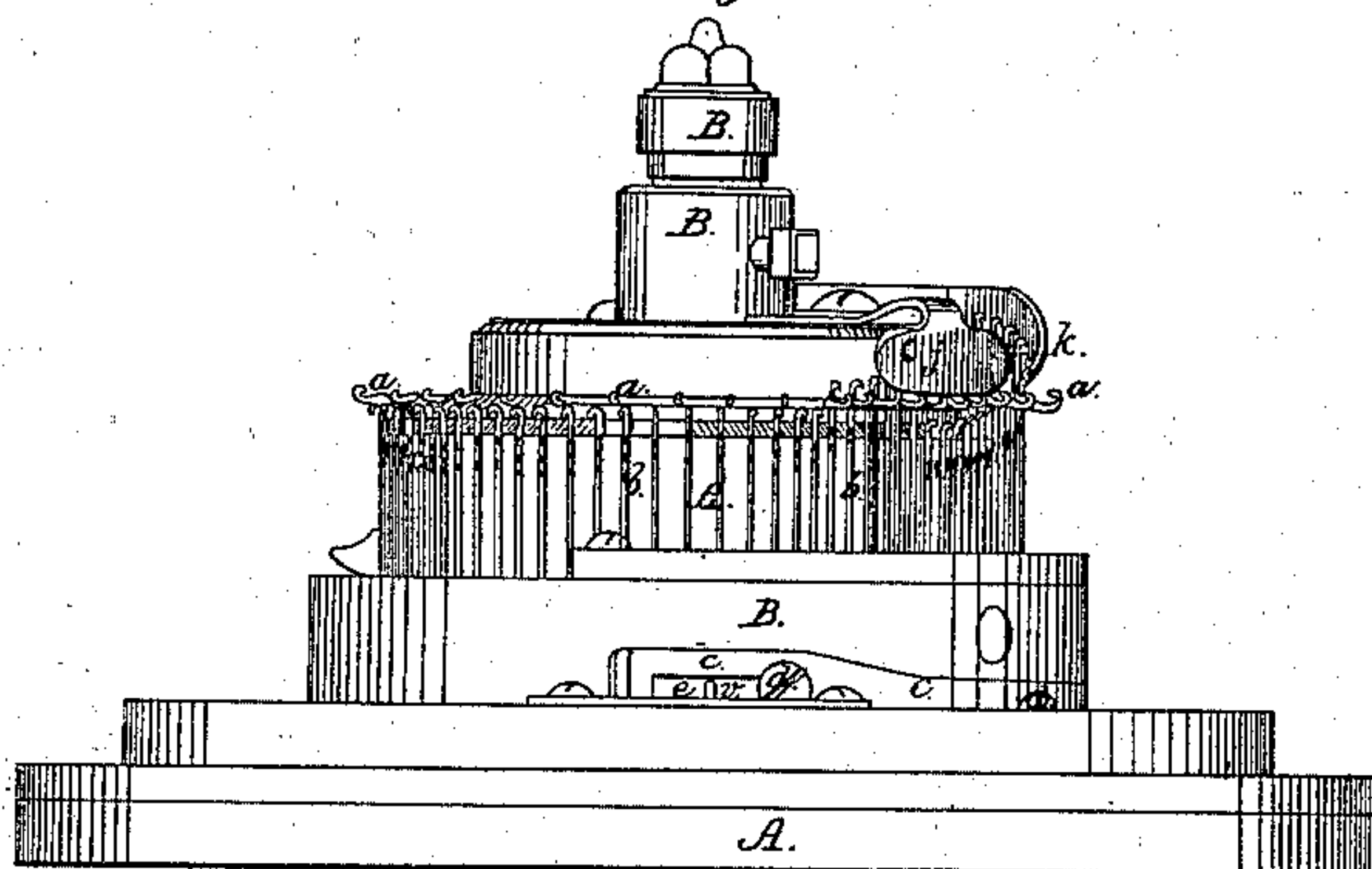


Fig. 5.



Witnesses,

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Inventor,

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United States Patent Office.

JOHN PEPPER, OF LAKE VILLAGE, NEW HAMPSHIRE.

Letters Patent No. 68,107, dated August 27, 1867.

IMPROVEMENT IN KNITTING MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, JOHN PEPPER, of Lake Village, in the county of Belknap, and State of New Hampshire, have invented certain new and useful improvements in Knitting Machines; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a top plan of the machine.

Figure 2 represents an elevation thereof.

Figures 3 and 4 represent details of the interior mechanism mainly, with an external portion to the extreme right in section.

Figure 5 represents an elevation looking towards a separate part of the machine from that shown in fig. 2.

Similar letters of reference where they occur in the several separate figures denote like parts in all the drawings.

The object and purpose of this invention is to so construct a knitting machine as to make it capable of doing several kinds of work, such as occur in knit goods, viz, plain or common ribbed, and plaited ribbed work, and this, too, whilst the machine may continue in motion, or without rearranging the machine. And my invention consists, first, in a slide or its equivalent for raising or lowering an interior cam, which cam when lowered keeps the needles down so low that their loops will not be cast off, and with one thread in this condition the machine knits common ribbed work, and which cam, when raised up and another thread thrown in, causes the machine to knit plaited ribbed work. And my invention consists further in the use of a spur-wheel and pin, (or series of adjustable pins,) for throwing down a cam or its equivalent, which causes the needles to come further down, and thus make a longer stitch and looser knitting, and which, on being raised, makes a shorter and tighter stitch or loop, the object being to knit the fabric tighter or looser in some places than in others, as, for instance, loose at the top of a stocking, gradually tightened up to and throughout the calf or central portion, and quite tight or close at the ankle, or for making slack courses for ribbed tops.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

The external appearance of my machine does not differ much from many others now in use. I use two series of circularly-arranged needles, viz, a horizontal revolving and radially-arranged series, *a*, that is projected and withdrawn as they revolve, and a vertical series, *b*, that does not revolve, but which is projected and withdrawn, or raised and lowered, as will be hereafter explained.

The parts *A* of the machine are stationary, whilst the portion *B* is moved or revolved thereon by a spur-wheel or pinion gearing into the circular rack *C* on the moving portion. On the perimeter of the moving portion *B* there is attached a slide, *c*, by means of set-screws *d* passing through horizontally-formed slots *e*, which control the extent of movement of said slide. There is also cut or formed in the slide *c* an inclined slot, *f*, into which a pin, *g*, fastened in an interior pivoted switch, *h*, (fig. 3,) projects, so that as the external slide *c* is moved, so will be correspondingly moved the internal switch *h*, which changes the cam-way or groove *i* on the perimeter of the interior cylinder *D*, and correspondingly changes the raising or lowering of the needles which are governed in their movement by said cam-path or groove *i* at that point. The object in raising and lowering the needles by raising and lowering the switch or cam-way has been stated, viz, to change the machine to plaited ribbed work or to common ribbed work, as may be desired. There are two thread-guides, *j* *k*; when knitting common ribbed work one thread only is used, when knitting plaited ribbed work a second thread is thrown in, and when two threads are used of different colors they will form longitudinal ribs of different colors. On the moving portion *B* there is arranged a vertical shaft, *l*, having at its lower portion a series of radial pins, *m*, and on its upper portion a worm-gear, *n*, that takes into a worm-wheel, *o*, on a horizontal shaft, *p*, fig. 4. On the shaft *p* there is a cam, *r*, that bears upon a stud, *q*, attached to a vertically sliding cam or switch, *s*, also attached to the interior cylinder *D*, (see figs. 3 and 4;) and a spring, *t*, under the stud *q*, keeps the latter up against the cam *r*. On the stationary part of the frame *A* there is a series of holes, *u*, into one or more of which a pin, *v*, may be placed, so that at every revolution of the revolving portion of the machine one of the pins *m* will strike the stationary pin *v* and give the shaft *l* a partial rotation, and the shaft, through its worm-

gear, moves the cam *r* and sliding-switch *s*, thus drawing down or moving up the needles, as may be desired in knitting loose or tight work. If more than one pin *v* be used, more motion will be given to the cam and to the switch *s*; if none are used, then the parts will remain in one fixed position. The pins may be inserted or taken out as the machine is in motion, or increased or diminished in number, thus graduating the tightness or looseness of the knit fabric at pleasure.

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

In combination with an interior pivoted cam or switch, a slide, or its mechanical equivalent, for raising or lowering said cam or switch, and thus changing the cam-groove and lowering or raising the needles, for changing the machine from common ribbed to plaited ribbed work, or *vice versa*, substantially as described.

I also claim the revolving pin-wheel *m*, in combination with a stationary pin or pins, for the purpose of moving an interior cam or switch, and changing the traverse of the needles at that point, for changing the machine from tighter to looser knitting, or *vice versa*, substantially as herein described.

JOHN PEPPER.

Witnesses:

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