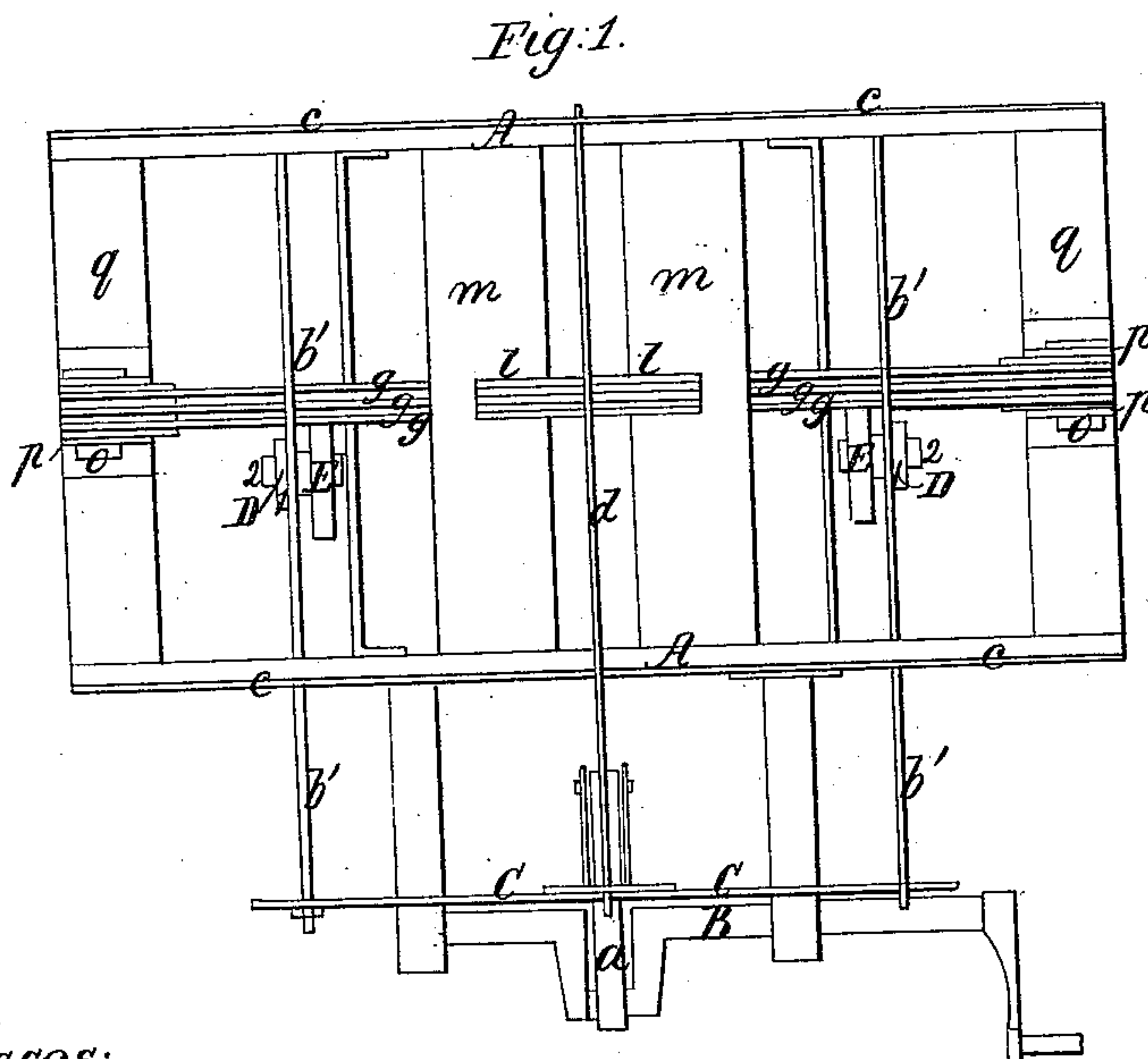
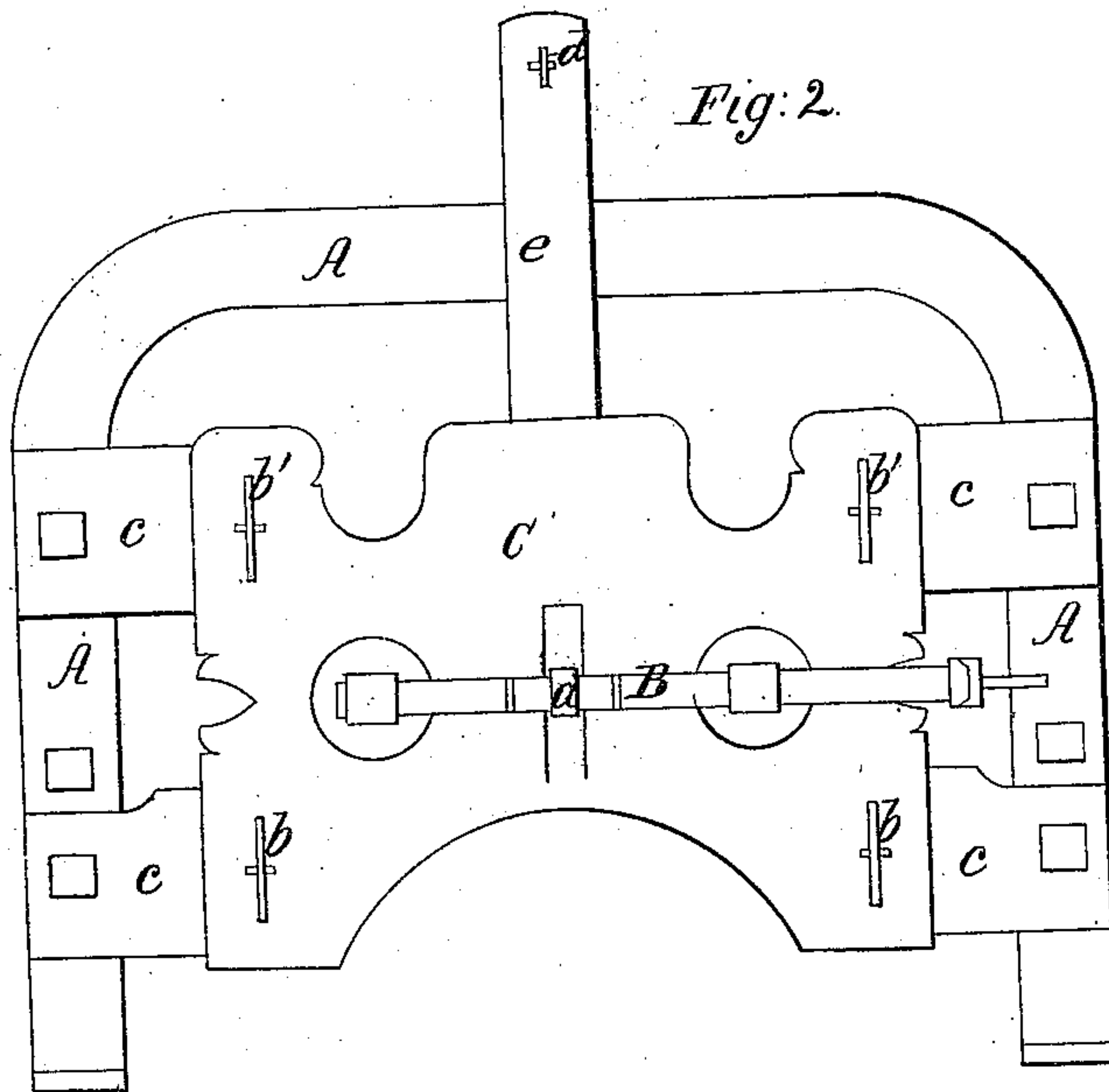


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Straight Knitting Mach.

N^o 53,386.

Patented Mar 20, 1866.



Witnesses;
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John Anderson

Inventor;
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Fig. 3.

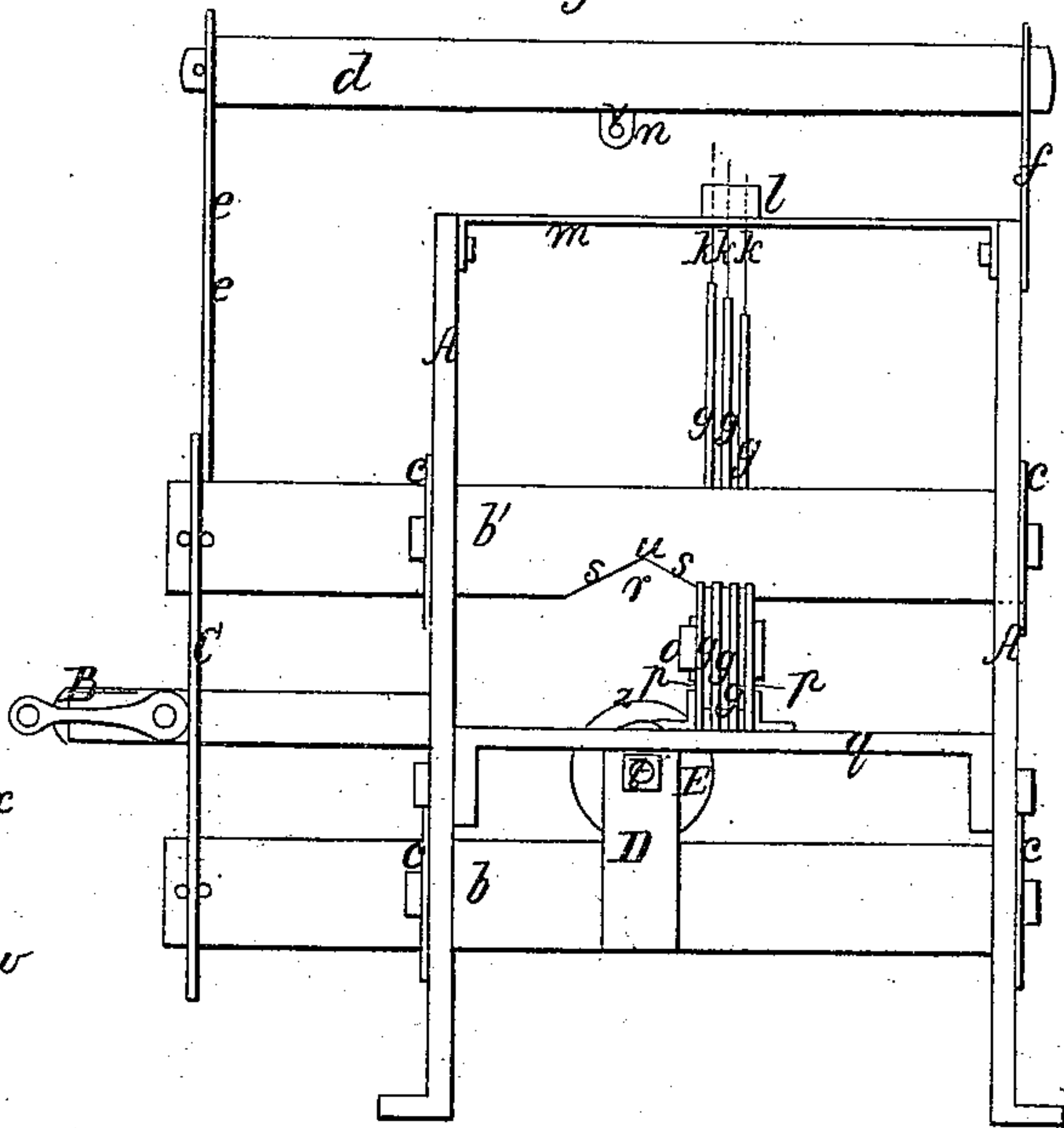


Fig:5.

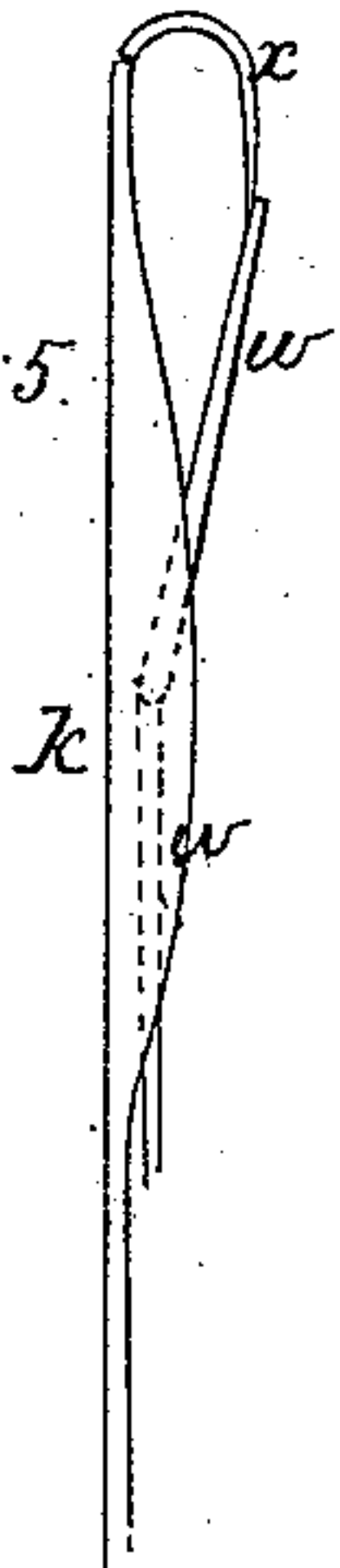
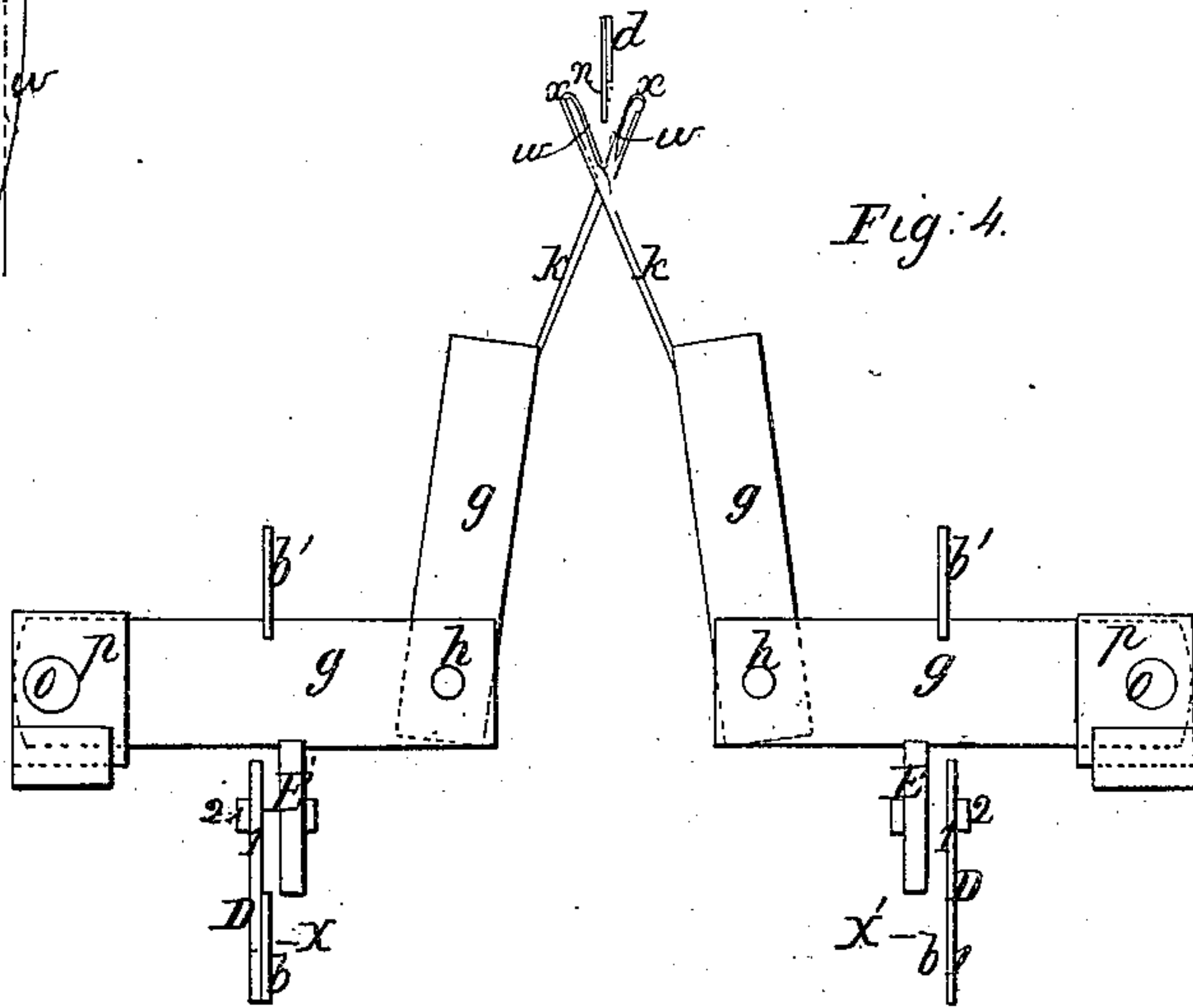


Fig: 4.



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UNITED STATES PATENT OFFICE.

HENRY THORNTON, OF NOTTINGHAM, ENGLAND.

IMPROVEMENT IN KNITTING-MACHINES.

Specification forming part of Letters Patent No. 53,386, dated March 20, 1866.

To all whom it may concern:

Be it known that I, HENRY THORNTON, of Nottingham, England, have invented an Improved Knitting-Machine; 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, and to the letters of reference marked thereon.

My invention consists of novel mechanism, fully hereinafter described, for knitting selvaged knit fabrics, as one and one rib, two and one rib, and also for plain and fancy knitted goods.

In order to enable skilled mechanics to make and use my invention, I will now proceed to describe its construction and operation.

On reference to the accompanying drawings, which form a part of this specification, Figure 1 is a plan view. Fig. 2 is a front elevation. Fig. 3 is a side view, showing the jack-trucks. Fig. 4 is a side view, showing the jacks, jack-trucks, slides, and needles; and Fig. 5 is an enlarged view of a looping instrument or needle, with its latch shown open and closed.

A is the frame of the machine. B is a cranked axis communicating by means of the connecting-rod *a a* a reciprocating rectilinear motion to the plate C.

b b b' b' are parallel slides placed in pairs on each side of the machine, the upper and lower ones of each side being in the same perpendicular planes at right angles to the axis B. These slides are attached to the plate C, and pass through and are guided by the cross-bars *c c c c* of the framing.

d is a thread-carrier slide sliding parallel with the slides *b b b' b'*. It is attached to the upright *e*, fastened to the plate C, and is guided by the upright *f* at the back of the framing. The slides *b b b' b'* and the thread-carrier slide *d* have a simultaneous reciprocating rectilinear motion imparted to them by the plate C.

g g g are jacks, jointed at *h* and vibrating on the pins *o o*, passing through and supported by the uprights *p p* on the cross-bars *q q*. The upright portions of the jacks carry the needles *k k k*, which pass through the needle-guides *l l* on the top pieces, *m m*, of the framing, and cross each other above the guides at an angle sufficient to allow the thread-carrier *n* to pass in the intersection. Their angularity is pre-

served by the work, which is suspended between them, being weighted.

The jack-trucks *D D* are attached to the lower slides, *b b*. The upper slides, *b' b'*, have the angular or double-inclined openings *r r* in their lower edges. The wheels *E E* of the jack-trucks raise the jacks and the sides *s s* of the angular or double-inclined openings depress the same. The needle-guides allow the needles moving longitudinally, but prevent lateral motion.

The centers *t t* of the wheels *E E*, the points of intersection *u u* of the double-inclined openings *r r*, and the eye *v* of the thread-carrier are fixed relatively to each other, and are in the same perpendicular plane parallel to the axis B. The center or eye *v* of the thread-carrier is always ahead of the engaged incline.

Both sides of the machine are alike in construction. Each has its own slides, jacks, jack-trucks, needles, and double-inclined openings, the thread-carrier being common to either. Any number of jacks can be used in a set by increasing the travel of the slides, and any number of sets may be employed by increasing the number of double inclines and jack-trucks to correspond with the increased number of sets.

Before proceeding to knit, a loop, which is termed the "former-loop," is applied to each needle below its latch, which is thrown open, the loops resting on the needle-guides or near them. Thread is passed through the eye of the thread-carrier. The machine being started, the jack-truck wheels *E E* lift the jacks and their attached needles. At the same time the thread-carrier passes through the angle or intersection made by the needles of one side, crossing those of the other, and pays out thread. The inclines then force the jacks down. The hook or beard of each needle in its downward movement catches the thread. The former-loops, not partaking of the motion of the needles, being held in place by the needle-guides, cause the latches to rise and close upon the hooks, closing in the thread and forming, as it were, bridges for the former-loops to slip over their tops, and allowing the thread closed in the hooks to take their places.

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

The arrangement of the jack-trucks D D, the double-inclined openings *rr*, and the thread-carrier *n* upon a single sliding frame or carriage, the centers of the jack-trucks and the center or eye *v* of the thread-carrier working in the same perpendicular plane parallel to the axis B, substantially as herein shown and described.

In testimony whereof I hereunto sign my name to this specification in presence of two subscribing witnesses.

HENRY THORNTON.

Witnesses:

FRANCIS D. PASTORIUS,
JOHN ANDERSON.