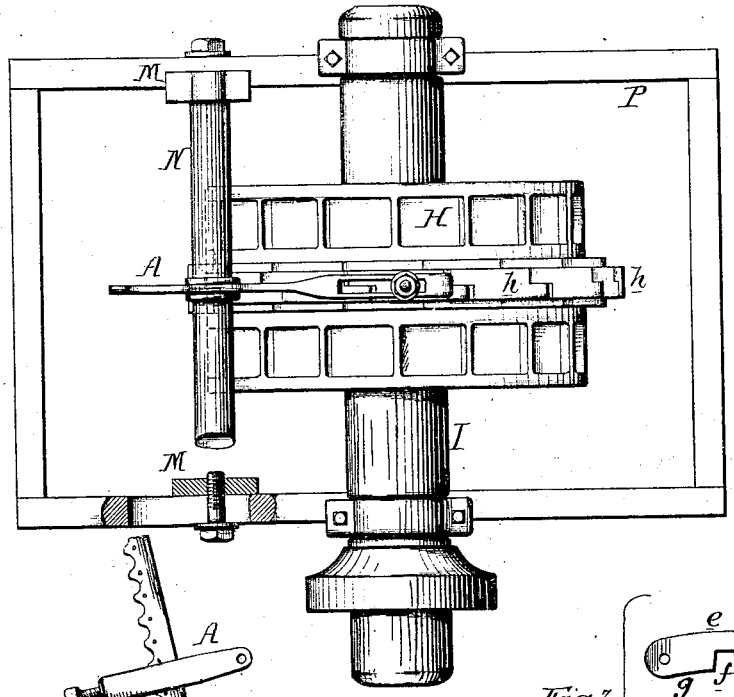
J. SIBSON.

KNITTING-MACHINE.

No. 191,186. Patented May 22, 1877.

Fig. 2



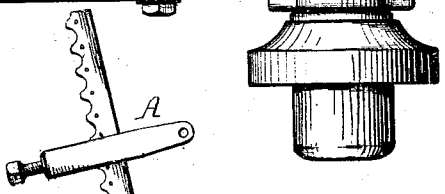
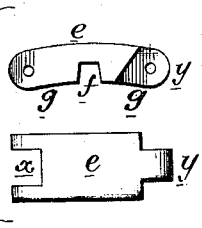


Fig. 3



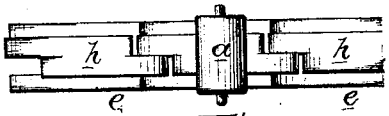
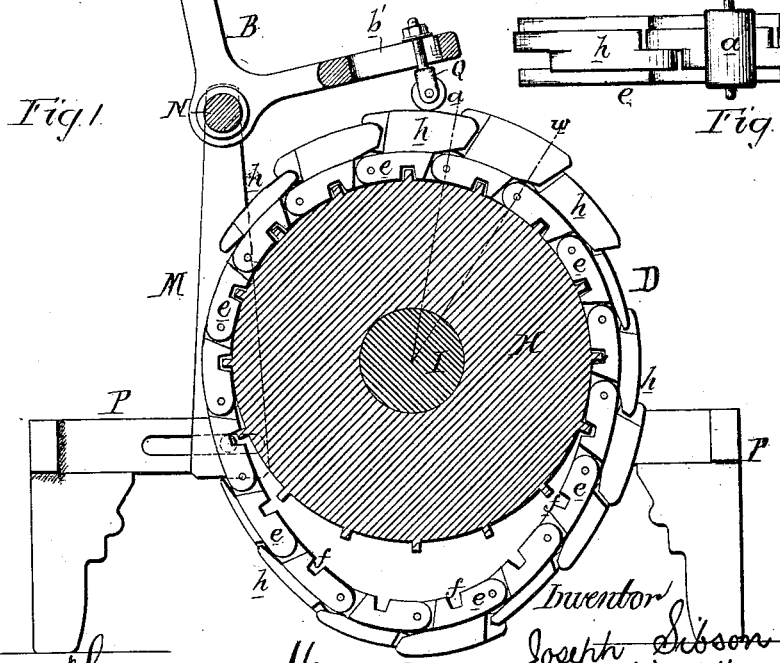


Fig. 4

Fig. 1



Witnesses
Hermann Moessner
Harry Smith

Inventor
Joseph Sibson
by his Attorneys
Howson and Son

UNITED STATES PATENT OFFICE.

JOSEPH SIBSON, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN KNITTING-MACHINES.

Specification forming part of Letters Patent No. **191,186**, dated May 22, 1877; application filed September 18, 1876.

To all whom it may concern:

Be it known that I, JOSEPH SIBSON, of Philadelphia, Pennsylvania, have invented certain Improvements in Knitting-Machines, of which the following is a specification:

The object of my invention is to accurately adjust the movement of the guide-bar in a knitting-frame by means of a pattern-chain and other mechanism of the peculiar construction fully described hereafter, the devices being such as to produce a greater variety of patterns on the knitted fabric than can be attained by the aid of the ordinary pattern-wheel.

In the accompanying drawing, Figure 1 is a side view, partly in section, of my improved pattern-chain and mechanism connected therewith; Fig. 2, a plan view of Fig. 1, and Figs. 3 and 4 detached views of the chain.

The ordinary guide-bar of a knitting-frame is connected to the yoke A, so secured to the arm *b* of a lever, B, as to be adjustable thereon, the movement of the bar in one direction being determined by projecting ribs on the links of the pattern-chain D, and in the opposite direction by any suitable spring which will cause the roller *a* on the short arm *b'* of the lever B to bear on the said projecting ribs of the chain.

It is important, in knitting fancy work on straight frames, that the movement of the guide-bar should admit of nice adjustment, and that movement should be free from all irregularities, such as would result from the employment of the ordinary pattern-chains used in connection with weaving-looms; hence I prefer to employ a chain of the character shown in the drawing.

All the links proper of the chain are precisely alike, and are made as shown in Fig. 3—that is, each link has a slot, *x*, at one end for receiving the projection *y* on the adjoining link, thereby forming with the coupling-pin a rule-joint.

Each link is adapted to the periphery of a drum, H, and has a recess, *f*, adapted to teeth on the said drum, which may be operated from a working part of the knitting-frame, through the medium of mechanism similar to that used in connection with ordinary pattern-wheels.

On either side of the recess *f* is a surface, *g*, which bears on the surface of the drum between the teeth, and serves to insure the firm foundation for the link necessary to adapt the chain to the purpose of imparting the delicate movements required by the guide-bars of a knitting-machine.

Some of the links of the chain are plain, and others have projecting ribs *h*, and the ribs of some of the links are more prominent than those of others; but whatever may be the character of these ribs as regards prominence, they are invariably arranged as shown in Fig. 4—that is to say, each projecting rib is halved at and near each end, so as to be adapted to the halved ends of adjoining links, and the halved portions of the ribs bear the relation to the joints of the links shown by the radial dotted lines *w* in Fig. 1. By this mode of constructing the pattern-chain all such gaps in the chain as would impart an irregular or tremulous movement to the lever B are obviated.

The roller *a* being as wide as, or wider than, the ribs, the action of the ribs on the links is as precise and determinate as the steps of a solid pattern-wheel.

As before remarked, the movement of the guide-bar of a knitting-frame, and especially of a frame for knitting fancy goods, must admit of being accurately adjusted.

For instance, the frame may be required to move at one time to the extent of five needles at each step of the pattern-chain, while another fabric may demand a lesser or greater movement. This adjustment, or, as I term it, the "general adjustment," is readily accomplished by a change in the position of the yoke A on the long arm *b* of the lever B; but when the general adjustment has been made, there is a danger of the feed bar overreaching or underreaching the proper termini of its movements, the result of which would be a defective fabric; hence there should be means of a nicer adjustment than that attained by altering the position of the yoke. This secondary and firm adjustment is effected in the following manner: The standards M, to which the shaft N, carrying the lever B, is hung, are adjustable on the fixed frame P, and the roller *a* is arranged to revolve in a carrier, Q, which is adapted to a slot in the short arm *b'* of the lever B.

It will be evident that any adjustment of the roller *a* and standards M must result in an alteration in the movement of the guide-bar of the knitting-frame.

The adjustment of the standards M and roller *a* should bear such a relation to each other that the roller *a* will be directly over the center of the drum H, in order to insure its solid bearing upon the same.

The drum is constructed, in the present instance, for the reception of three pattern-chains, a similar number of levers, B, being also employed in practice, although only one is shown in the drawing, and any one or more of the three chains can be made to control the guide-bars.

It will be evident, however, that more or less than three chains may be employed, and that the more chains there are, the greater will be the capacity of the frame for producing a variety of patterns.

I claim as my invention—

1. The combination of the pattern-chain with a lever, B, and adjustable yoke A, attached to the guide-bar of a knitting-frame.

2. The combination of the drum H, the pattern-chain, and adjustable standards M, carrying the lever B.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOSEPH SIBSON.

Witnesses:
HENRY HOWSON, Jr.,
HARRY SMITH.