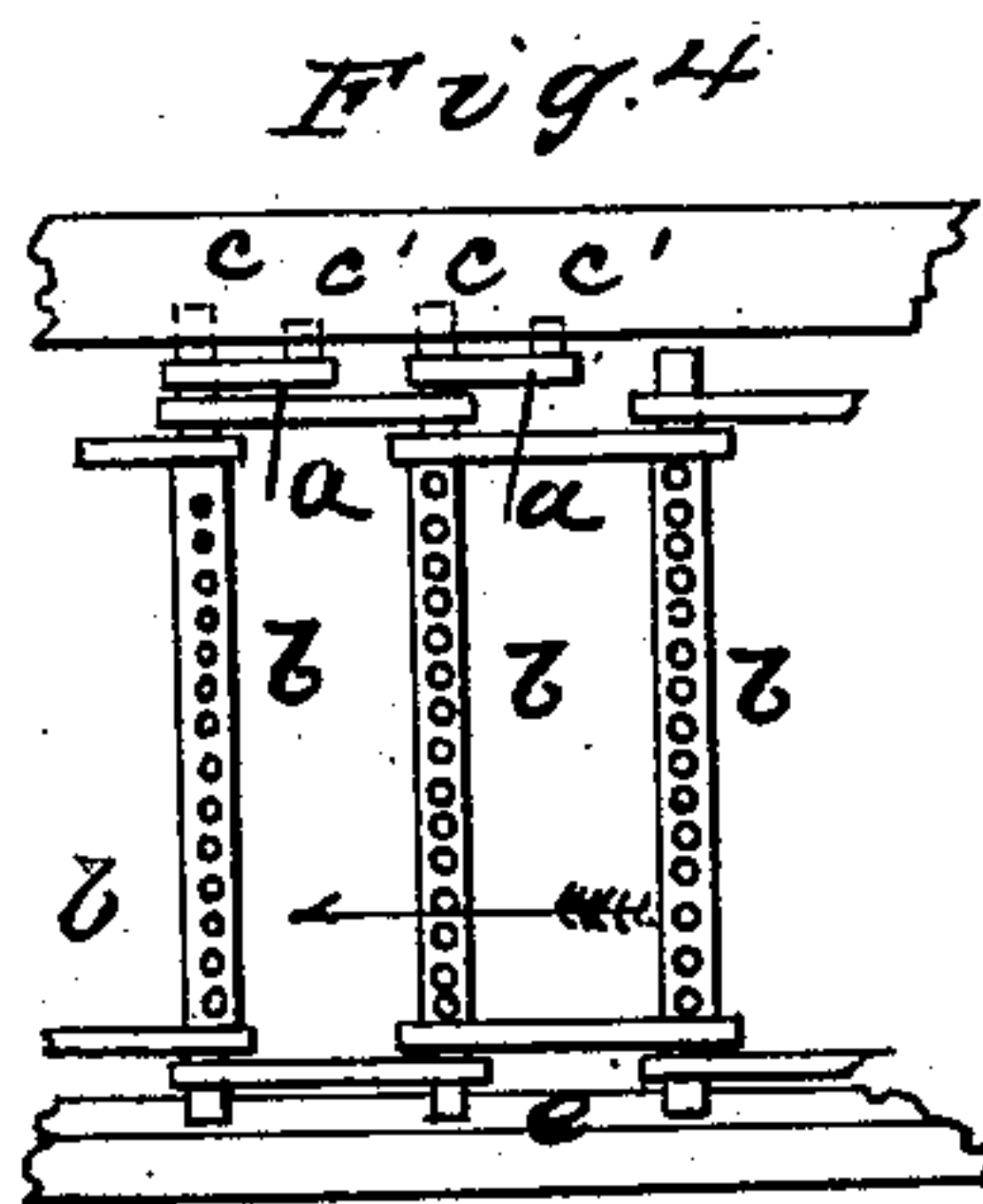
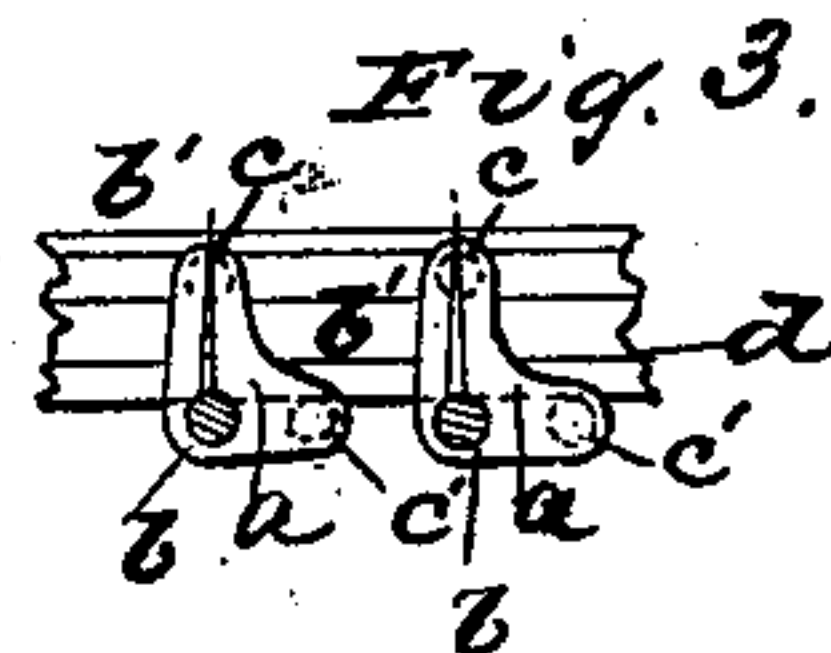
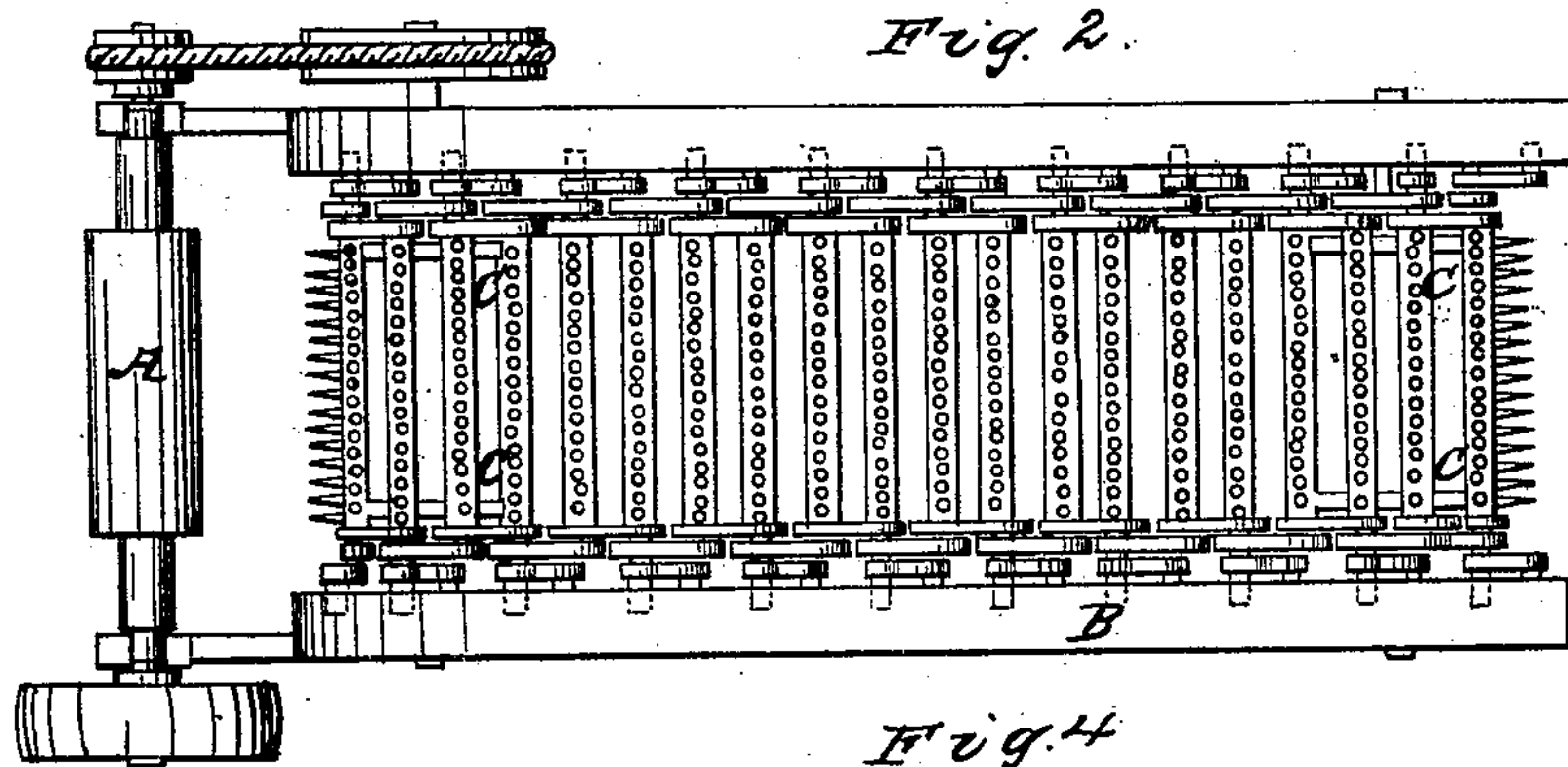
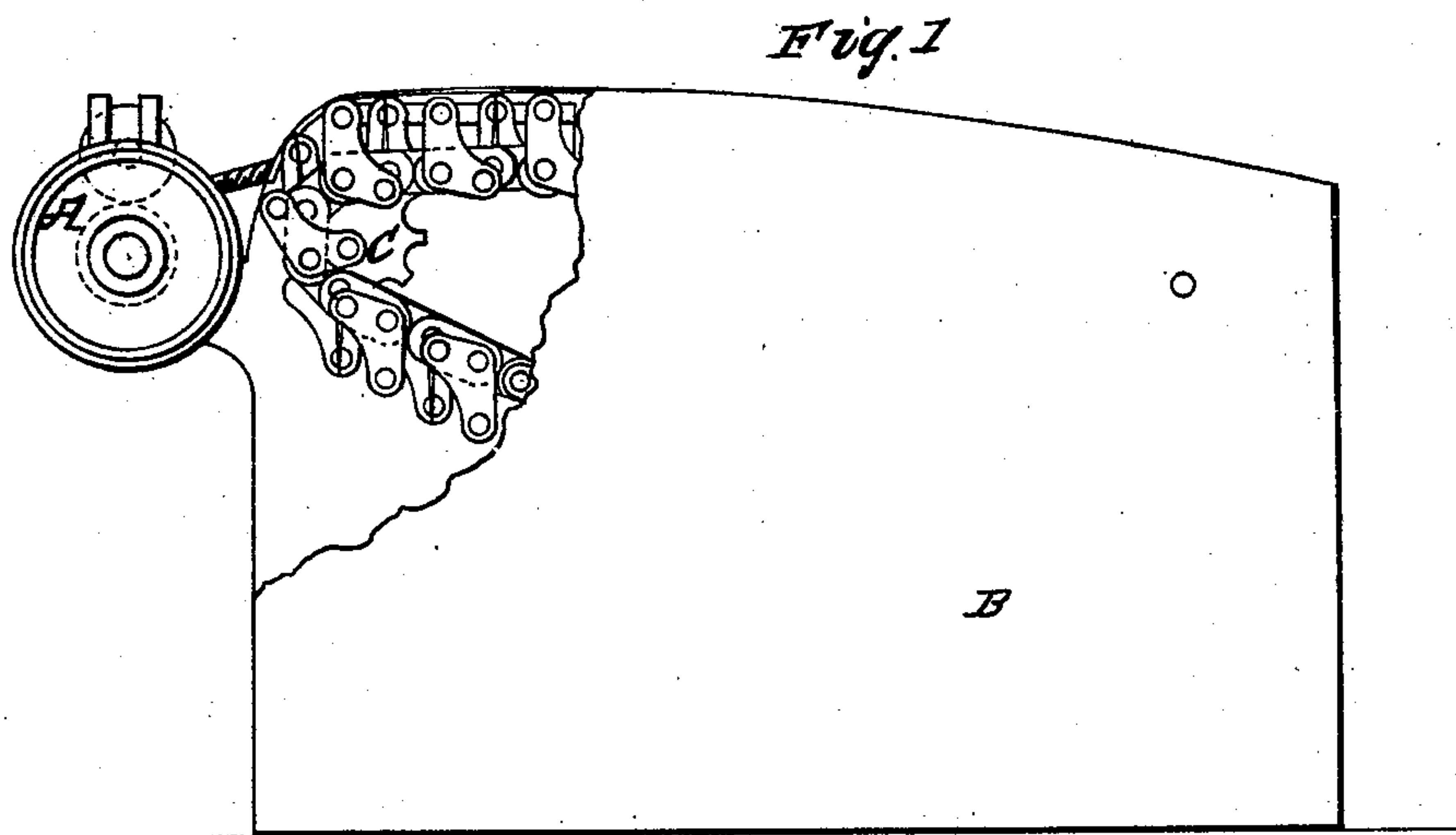


S. LOWNDS.
Hackling Machine.

No. 17,795.

Patented July 14, 1857.



UNITED STATES PATENT OFFICE.

SAMUEL LOWNDS, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN HEMP-DRAWING MACHINES.

Specification forming part of Letters Patent No. 17,795, dated July 14, 1857.

To all whom it may concern:

Be it known that I, SAMUEL LOWNDS, of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Hemp-Drawing Machinery; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being made to the annexed drawings, making a part of this specification, in which—

Figure I is a side elevation, partly in section. Fig. II is a top view or plan. Figs. III and IV are descriptive of operation; and similar letters indicate similar parts throughout.

My improvement in hemp-drawing machinery consists of a means for introducing a greater number of combs, called "gills," into the frame than has heretofore been thought possible. It is well known that the closer these gills can be placed together upon the traveling chains the better is the result obtained, since thereby a more complete subdivision of the fiber is effected, causing the "sliver" to be drawn out in a more complete manner. When the distance from one row of gills to another is considerable, the work will be very coarsely and imperfectly performed, and even in the best of the old machines the distance is much too great. By my improvement I am enabled to introduce as many rows of gills as will be required to do the work perfectly. The teeth of the gills must travel in a peculiar manner—that is to say, as they successively approach that end of the frame at which the drawing-rollers are situated they must, in passing round the drum, still maintain an erect or nearly erect position until the tops of the teeth have retired below the level of the place of meeting of the said rollers, and so as to gradually incline over as they pass to beneath the carrying-drums at that end with their points still directed toward the drawing-rollers, in order to insure the proper withdrawing of the comb from the hemp without entangling it or tearing it out of the sliver. To accomplish this it is necessary that each row of gills shall have some means to give the proper inclination to their teeth, and this is effected in the old machines (as well as in my improved one) by a series of guides affixed to the end of each cross-rod into which the teeth forming the comb are inserted, and outside of the carrying-chain. These guides have motion imparted to them, when required, and are also

kept in position as they travel along with the carrying-chain, by means of guide-grooves in the side frame and parallel to the path of the chain in the usual manner. The difficulty in that construction lay in the want of room, since the guide-dogs require a certain space to allow of their acting. This will be understood when the manner of maintaining the teeth erect against the pull of the hemp is described, which is as follows:

At A is the drawing-rollers, situated at one end of the frame, as usual. The endless chain of gills all travel on the top side toward those, the hemp being taken on at the opposite end. It will be seen that the travel of the rollers is faster than the travel of the chain; consequently the hemp is pulled through the teeth, although those teeth are going in the same direction, and thus the sliver is formed. It will also be seen that the guide-bearers or guide-dogs keep the teeth up against this pull by means of their two bearing-points acting against the two guide-rails of the frame.

Figs. III and IV represent, respectively, a section and top view of the old kind of frame, *a* being the guide-dogs, which are cranked pieces of metal, having the gill-rod *b* keyed in the hole at the angle, and having also at each end a bearing-pin, *c* and *c'*. The pins *c* travel in the top guide-groove, and by these the chain hangs on the one side, while the other side is kept up by the prolongation of the ends of the gill-rod *b* beyond the links on the opposite side, so that they may slide along a rail upon that side of the frame, as at *e*. The other pins in the dogs at *c'* project under a guide-rail, which is parallel to the upper one, as at *d*. From this it will be seen that, as the hemp is pulled along in the direction of the arrow, Fig. III, it tends to pull the teeth *b'* over. Consequently as the pin *c'* is kept down by the guide-rails, the gills are thereby maintained in the erect position while traveling along the top of the frame. Thus, as in Figs. III and IV, the gills were of necessity placed sufficiently far apart to allow of the introduction of the guide-cranks *a*, and of their turning at the end of the frame, that distance being limited to the length of the lower arm having the pin *c'* in connection with its passing over the drum at the drawing-rollers, the carrying-chain being composed of long links, as shown.

I construct a double-link chain and arrange the gills therein in such manner as to allow of the introduction of twice as many rows of teeth by operating them from guide dogs and rails placed upon both sides, thus economizing the space just one-half. The effect of this improvement is obvious, because by it a much finer sliver is obtained than is possible in the old mode, and at a greatly reduced expenditure of time, as it is well known that the closer the set of the teeth, within certain limits, the more perfectly will the fibers be drawn out.

My machine operates in other respects as in the usual way, the chain being carried along by two drums or chain-pulleys—one at each end of the frame—the hemp being fed on at one end from cans, as usual, and the sliver deposited in cans at the drawing-rollers, also as usual, and thus is passed from frame to frame until the required character is obtained.

I am aware that gills for flax-work and other short-fibered materials than hemp have been made so as to bring the teeth sufficiently close together. These, however, have all been arranged as cylinders, and as such could not at all be used for hemp, which from its great length of fiber requires the lengthened drawing-frames always used, and which have heretofore labored under the defects I claim to have overcome by my improvements.

At B is shown a drawing-frame, of usual construction as to size, &c; at C the endless chain-pulleys, the chain lying over them and composed of double links—that is to say, two links between each guide-dog or crank, but a link to each gill. Thus on one side there will be to every second gill a guide-crank, *a*, and upon the opposite side a like guide-crank to the intermediate ones, by this means securing the necessary room for their introduction and operation.

I am aware that the gills have been brought closely together by placing them upon curved bars which were moved along upon rails; but in that arrangement the gills do not at all times have the position proper for producing the best work, and which proper position has only been secured in machines wherein the gill-bars are controlled at all points, while acting upon the hemp, by the guide-dogs, as set forth.

What I claim, therefore, is—

The arrangement of a hemp-drawing frame having its gills operated by guide-dogs upon both sides of the frame and attached to each alternate row of gills, substantially as described herein.

SAMUEL LOWNDS.

Witnesses:

J. P. PIRSSON,

S. H. MAYNARD.