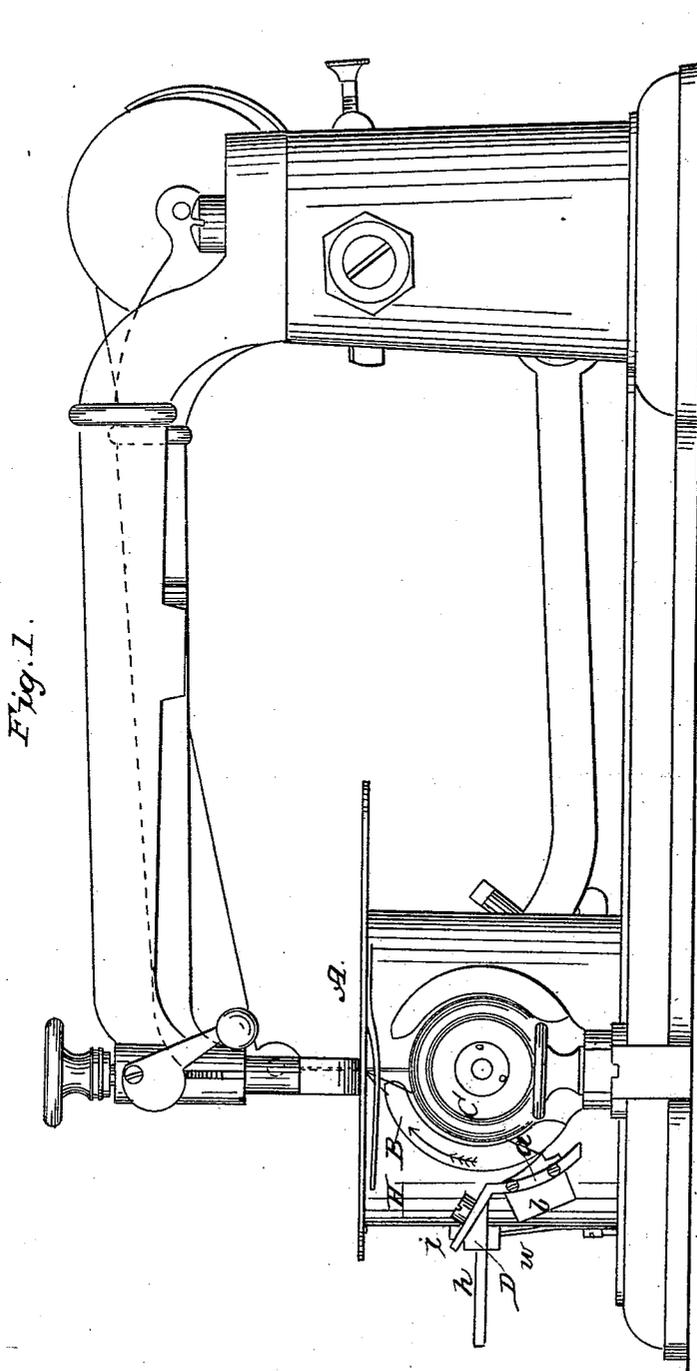


C. D. BELCHER.  
Sewing Machine.

No. 16,710.

Patented March 3, 1857.

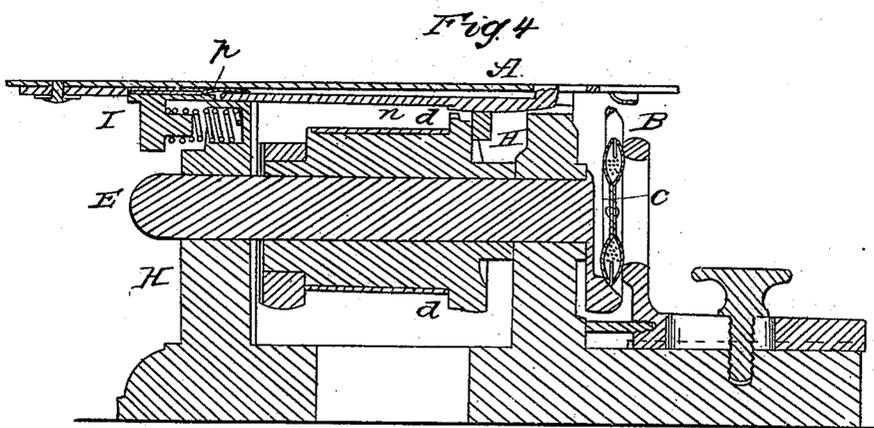
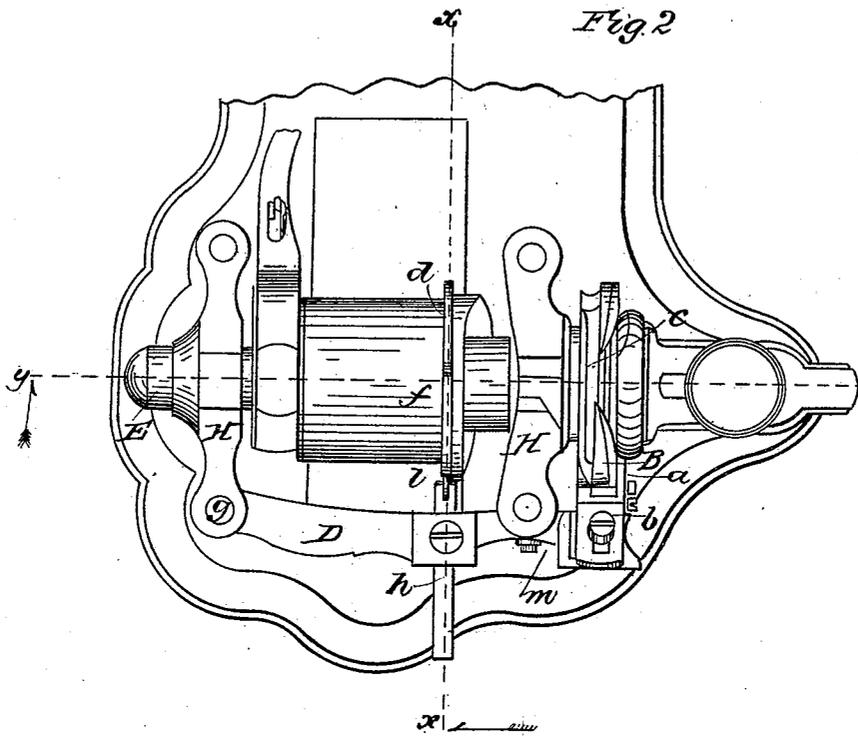


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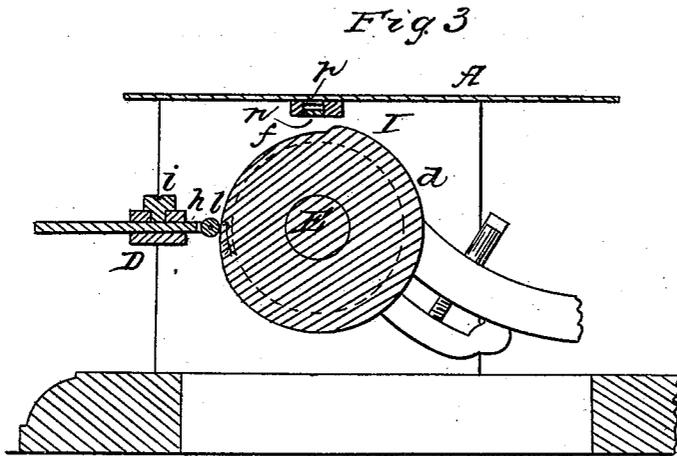
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# UNITED STATES PATENT OFFICE.

CHARLES D. BELCHER, OF CHARLESTON, SOUTH CAROLINA.

## IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 16,710, dated March 3, 1857.

*To all whom it may concern:*

Be it known that I, CHARLES D. BELCHER, of Charleston, in the district of Charleston and State of South Carolina, have invented a new and useful Improvement in Sewing-Machines; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, mak-part of this specification—

Figure 1 being a side elevation of a sewing-machine provided with my improvement; Fig. 2, a plan of one end of the machine, the cloth-plate being removed; Fig. 3, a vertical section in the plane indicated by the line *x x*, Fig. 2; Fig. 4, a vertical section in the plane indicated by the line *y y*, Fig. 2.

Like letters designate corresponding parts in all the figures.

The feature of my invention is intended as an improvement upon the sewing-machine described in the specification of Letters Patent granted to the assignees of A. B. Wilson, and bearing dates; respectively, the 15th day of June, 1852, and the 19th day of December, 1854. All the parts of the machine, except that to which my improvement directly relates, are the same as specified in said Letters Patent, and need not be again described here. The principal fault in the use of Wilson's sewing-machine lies in the imperfect means by which the loop of the needle-thread is held from slipping from the revolving hook and kept extended till the proper moment. Hitherto that has been accomplished by means of a yielding or elastic brake pressing continually against the periphery of the revolving hook, and the release of the loop has been effected by the receding of the surface of said hook at the proper place. This brake is generally made of leather, and has no movement. The objections to it arise, first, from the imperfect manner in which it holds the thread, requiring a different thickness with every variation in the size of the thread, and often causing the thread to break by wedging under the brake, or allowing the thread to pass by when it is not just right; second, from its want of durability, requiring to be taken out and replaced frequently several times a day; third, from the trouble and nicety required in replacing.

My improvement entirely obviates all the above objections; and it consists in the appli-

cation of an unyielding brake to that portion of the periphery of the revolving hook where the loop requires to be held, and at the proper time moving it away from the periphery of the hook sufficiently to allow threads of any size to pass freely by.

In the accompanying drawings, B represents the revolving hook, and C the bobbin which contains the shuttle-thread. I employ a vibratory arm, D, which is pivoted at *g*, Fig. 2, to the standard H on the opposite side of the machine to that where the revolving hook is situated. Upon the vibratory end of this arm is fastened a clamp or holder, *a*, in which is secured a small brake-piece, *b*, of any hard and durable material—such as ivory, bone, steel, or even hard wood. I prefer ivory, but other materials may be found, perhaps, quite as good. This is firmly secured in its holder, so that it will not yield, but should be made adjustable to different positions, so that it may be brought closer to the hook as its edge wears away. The surface which bears on the periphery of the hook should be reduced to little more than a line of contact, or simply a rounded edge. This is pressed with sufficient force against the periphery of the hook to prevent the threads from passing under it by means of a spring, *m*, or its equivalent, secured to the adjacent standard H, and pressing against the arm D. In Fig. 1 the loop is represented as held by the brake in the manner required. The brake is separated at the proper moment from the periphery of the hook by means of a cam, *d*, formed upon the shaft E of the revolving hook, pressing against the vibratory arm D, or, in order that the extent of its action may be varied, against an adjustable stud, *h*, which is secured to said arm by a screw, *i*, substantially as shown in the drawings. At the extremity of the stud is a friction-roller, *l*, to enable the cam to work smoothly. The cam *d* has a sufficient portion cut away, as shown at *f*, Fig. 3, to allow the spring *m* to act on the arm at the proper time to hold the brake against the periphery of the hook where desired.

I also modify the feeding arrangement described by Wilson in the Letters Patent dated December 19, 1854. Instead of causing the feeding-tongue *n* to sink by its own elasticity, as there described, or by its own weight, as has been adopted in practice, I hinge it to the

feeding-bar I, and depress it by means of a very slight separate spring, *p*, applied as shown in Fig. 4. This obviates both the objection to the first-mentioned mode, which is that the force of the elastic shank of the tongue is much greater than desirable, thus increasing the force required to drive the machine, and also to the last-mentioned mode, in which the feeding-tongue often fails to disengage itself from the cloth by its simple weight.

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

The improvement on the patents of A. B. Wilson herein described, consisting in the ap-

plication of an unyielding brake to hold the loop upon the revolving hook, and imparting a positive movement thereto in such a manner as to separate it from and bring it to the periphery of the hook at the proper moments, substantially as herein specified.

The above specification of my new and improved sewing-machine signed this 28th day of November, 1856.

CHAS. D. BELCHER.

Witnesses:

J. S. BROWN,  
RUFUS F. OSGOOD.