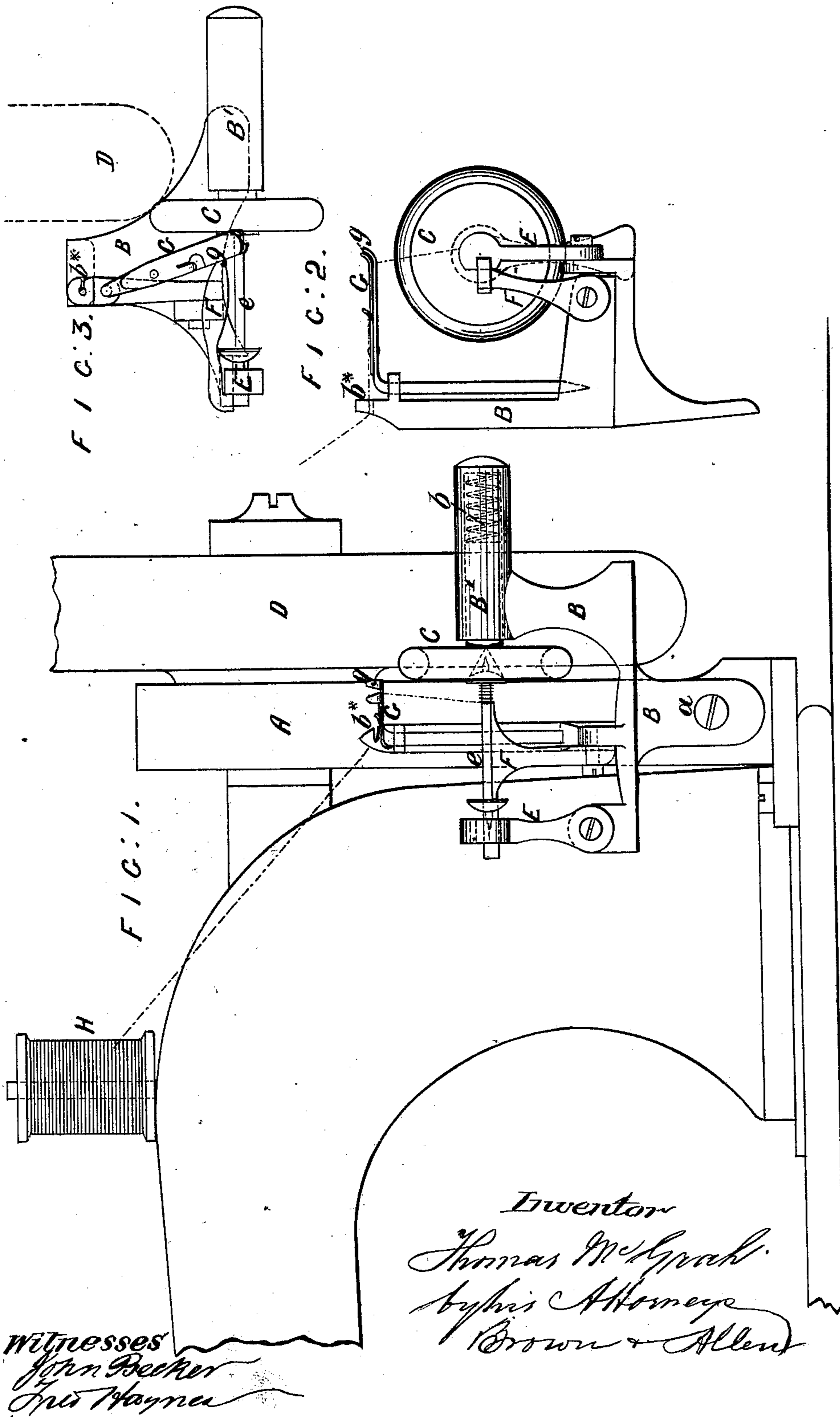


T. McGRAH.

BOBBIN-WINDERS FOR SEWING-MACHINES.

No. 191,456.

Patented May 29, 1877.



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UNITED STATES PATENT OFFICE.

THOMAS MCGRAH, OF SHEFFIELD, ENGLAND.

IMPROVEMENT IN BOBBIN-WINDERS FOR SEWING-MACHINES.

Specification forming part of Letters Patent No. **191,456**, dated May 29, 1877; application filed August 31, 1876.

To all whom it may concern:

Be it known that I, THOMAS MCGRAH, of Sheffield, in the county of York, England, have invented certain Improved Apparatus for Reeling Thread on Sewing-Machine Bobbins, of which the following is a specification:

This invention consists of an improved apparatus for winding the thread or cotton upon sewing-machine shuttle-bobbins, according to which the winding operation ceases as soon as the required quantity of thread is wound upon the bobbin, the object being to enable a person to wind the thread upon the shuttle-bobbins while the ordinary operation of sewing is progressing.

I attach the winder to the sewing-machine in the most convenient manner for driving it by frictional contact with the balance or driving wheel of the machine, or by a driving-band.

At the back part of the winder is arranged a pillar with bearings, into which the shaft of a small swinging arm is fitted.

Through a hole or notch in the top of the said pillar the end of the thread which is intended to be wound upon the reel is passed, and it is led along the arm to a notch or groove at its outward extremity to guide the thread onto the bobbin. The end of the thread is secured between the friction-pulley of the winder and the bobbin.

One end of the bobbin is supported by the friction-pulley, and the other by a hinged bearing.

A hinged catch-piece is arranged to hold the bearing in position. This catch-piece serves also as a gage to determine what amount of thread shall be wound onto the reel, and for this purpose it is provided with a curved projection, that stands opposite the bobbin. As the thread accumulates upon the bobbin it will come in contact with this projection, force back the catch-piece and release the bearing, and so stop the operation of winding.

As the thread is wound upon the bobbin in successive layers, the swinging arm will be drawn gradually by each successive lap of the thread from end to end of the bobbin.

I will now proceed more particularly to describe the manner of performing or carrying

my invention into effect, with reference to the accompanying drawing.

Figure 1 is a side view of the bobbin-winder applied to the band-guard of a sewing-machine. Fig. 2 is an end view of the bobbin-winder detached from the machine, and Fig. 3 is a plan view of the same.

A is the band-guard, to which the frame B of the bobbin-winder is attached by means of a screw, *a*.

C is a friction-pulley, the axle of which fits in a socket, B*, of the framing B. Within this socket is a coiled spring, *b*, which is confined between the end of the socket and the axle of the pulley C. A tendency is therefore given to the pulley C to move away from the socket.

This pulley is fitted on its periphery with a ring of india-rubber, and when held in contact with the balance-wheel D it receives rotary motion therefrom.

E is a hinged bearing for carrying the outer end of the bobbin *e*, the inner end being supported in a central bearing formed in the pulley C.

F is a hinged piece, which is intended to lie against the bobbin as the thread accumulates thereon, and form a gage for determining the amount of thread to be wound on the bobbin. One end of this hinged piece F forms a catch, which serves to support the hinged bearing E in its upright position. This bearing is held against the catch by the end pressure of the bobbin, which pressure is obtained from the compressed spring in the socket B*. G is the swinging arm for guiding the thread onto and laying it over the bobbin. This arm is fitted with a tension-spring, *g*.

To commence to wind, I draw the thread from the spool H, Fig. 1, through the notch *b** in the pillar of the frame B, passing it under the tension spring *g*; thence through the notch at the end of the swinging arm G. I then place the end of the thread across the central hole of the pulley C, and insert the end of the bobbin *e* into that hole, thus causing it to nip the thread. I then secure the other end of the bobbin in the bracket E, and secure the bracket in position by the catch-piece F. This will press the pulley C up

against the edge of the balance or driving wheel D of the machine.

When the wheel C is thus brought into contact with the driving-wheel D the winder will be set in action, the bobbin *e* rotating and winding on the thread.

Each successive lap of the thread gradually moves the swinging arm G from end to end of the bobbin. At each successive lap of the thread the hinged piece F is pressed backward until, by the increasing diameter of the bobbin, the hinged catch-piece is forced back clear of the hinged bearing E. When this occurs the spring *b* will thrust the pulley C from the driving-wheel D, and the operation of winding will cease.

Having now explained the nature of my invention, and the means of carrying it into effect, I wish it to be understood that I claim—

The combination, with the pulley C, hinged bearing E, spring *b* in the socket of the frame B, and bobbin *e*, of the catch-piece F for gaging the amount of thread wound upon the reel, and releasing the reel from the winding apparatus, substantially as and for the purpose above described.

Dated the 19th day of July, 1876.

THOMAS McGRAH.

Witnesses:

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