from a hand-lever, and upon the sliding cutter is secured a
hook or crochet needle which, as it moves forward with the
cutter bar, is arranged to enter the eye of the hook.
In operation, when the thread has been wound the
cutter is rotated by the hand lever to cut the thread, and by
the movement of the cam piece thereby effected the bent
needle is pressed through the outer convolutions of the ball thread.
The crochet hook then passes through the needle eye, where-
upon the flyer of the balling machine is moved round to lay the

thread across the hook, which, on being drawn back on the return
movement of the cutter mechanism, engages the thread as it is
cut, and draws the cut end through the eye of the needle. The
movements of the needle and hook being timed, the needle is
then retracted and draws the cut end of the thread with it through
the outer thread convolutions, and leaves it in the ball just
before the latter is deflected from the winding spindle. One of
the ball ending appliances is provided for each winding spindle, and
they are all operated simultaneously by the hand lever which
operates the cutters. (Accepted August 29, 1900.)

12846. R. F. and J. Alexander and Co., Limited,
and J. Mackie, Glasgow. Tension Devices. [3 Figs.]
July 15, 1900.—Tension devices for machinery in which thread is
wound, are, for the purpose of preventing accumulation of girt

refuse upon them from the thread, arranged so that the discs
through which tension is applied are rotatable within a frame, the
upper disc carrying a pin upon which perforated disc weights
may be placed to increase the tension of the thread. (Accepted
August 22, 1900.)