

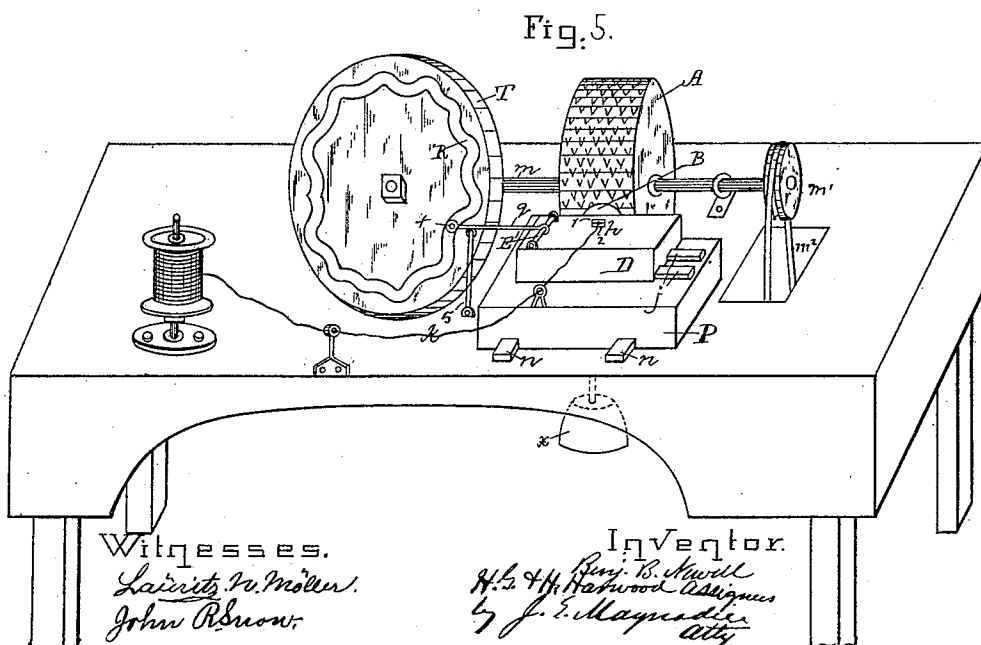
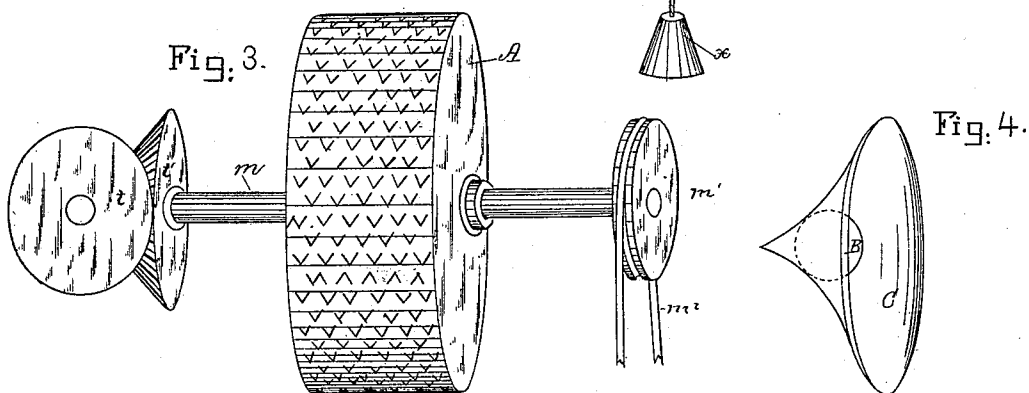
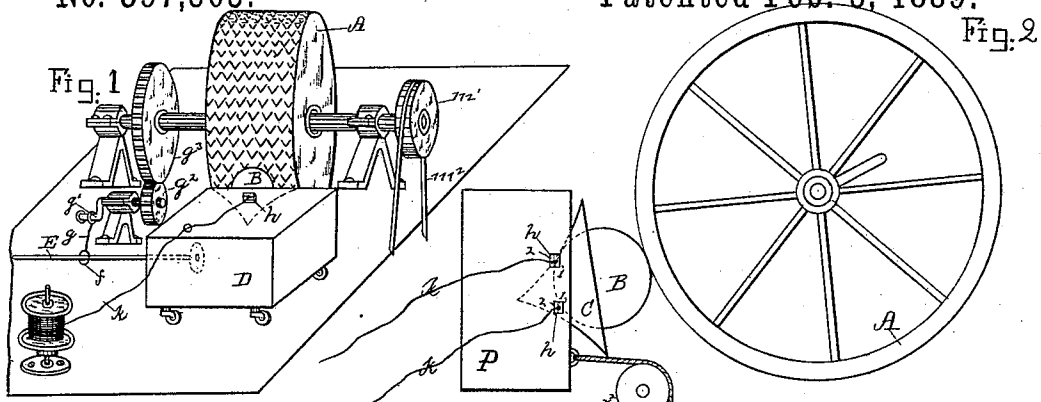
(No Model.)

B. B. NEWELL.

BASE BALL WINDING AND ROLLING MACHINE.

No. 397,303.

Patented Feb. 5, 1889.



UNITED STATES PATENT OFFICE.

BENJAMIN BURLEIGH NEWELL, OF BOSTON, ASSIGNOR TO HENRY G. HARWOOD AND HARRISON HARWOOD, OF NATICK, MASSACHUSETTS.

BASE-BALL WINDING AND ROLLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 397,303, dated February 5, 1889.

Application filed July 29, 1882. Serial No. 67,935. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN BURLEIGH NEWELL, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Base-Ball Winding and Rolling Machine, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of a machine embodying my invention. Fig. 2 is a diagrammatic view of a winding-wheel, cup, and carriage. Figs. 3 and 4 are details. Fig. 5 is a perspective view of another form of machine embodying my invention.

It is well known to be a slow and laborious task to wind a base-ball by hand. In order to make the ball sufficiently solid by such process much pounding is necessary. When the ball has been pounded, the surface of it is softened to such an extent that it becomes necessary to unwind several yards of the yarn and begin anew. Through pounding, unwinding, and winding again much time is consumed, and at best the winding when completed is of variable tension, rendering the ball in this respect defective and unscientific.

The objects of my invention are, first, to secure uniform tension in the winding; second, to obviate the necessity of pounding and unwinding, and, third, to save time in the process of winding.

The main features of my invention are, first, a bell-shaped cup which holds the ball and allows for its increasing in size, and, second, a wide-faced friction-wheel which comes in contact with the ball and turns it in the cup, thereby drawing in the yarn.

In the drawings, friction or winding wheel A is rotated in any suitable way—say by a pulley, m' , and belt m^2 —and has a rasp-like surface which engages, and thereby turns ball B in cup C, which is mounted in carriage D, the thread or yarn k being drawn on as the ball is turned in the cup. A requisite degree of tension is readily given the yarn by passing it through an eye, h , of suitable size in carriage D and thence to the ball in the cup. I have shown the eye h as formed of opposed semicircular grooves in opposed edges of two blocks, 1 and 2, which are mounted in a hole

in carriage D; but obviously various other tension devices may be used, if desired.

In order that the yarn shall not wind over and over in the same place, it is necessary to effect an irregular motion to the carriage D. This may be done by hand or by mechanism such, for example, as that shown—viz., a rod, E, is secured to carriage D, and is connected by a link, g , to a crank, g' , on the shaft of gear g^2 , which meshes with gear g^3 on shaft m of wheel A. Rotation of shaft m causes gears g^2 g^3 to rotate and to agitate carriage D through crank g' , link g , and the rod E, fast to the carriage. In this way ball B in cup C is caused to change its axis, the agitation of the carriage being sufficient for this purpose. This shaking motion does not entirely serve to make the necessary changes in the courses of the yarn around the ball, but it is only necessary in addition to leisurely move by hand the carriage from side to side in an irregular way (soon learned by practice) to cause the ball to so change its axis as to effect the desired changes in the winding. It will be noticed that the rod E works loosely in the ring f , thus permitting the operator to move at will the carriage from side to side, as already described. The operator keeps the ball pressed against the friction-wheel, which pressure aids materially to keep the ball solid and obviates the necessity of pounding it for such a purpose. Two strands can be drawn on simultaneously, if desired, the holes in the cup where the strands pass through upon the ball being directly forward of the eyes h , Fig. 2.

The cup is bell-shaped or conical, as shown in Figs. 2 and 4, and receives the small rubber ball, which serves as the nucleus or core of the regular base-ball.

The shape of the cup allows the ball to increase in size, and it will readily be seen that the contact between the ball and the cup is such as to aid in keeping the ball round.

Fig. 5 represents a more elaborate machine having the same essential features, the cup and wheel performing their same respective offices. While the machine represented in Fig. 5 has a single advantage over the one previously described in this, that it requires no hand manipulation of the carriage, it does

not permit such entire ease in the putting in of the nucleus and the taking out of the round ball. In this machine shaft m of wheel A is provided with a beveled gear, t' , which meshes
 5 with a gear, t , on which wheel T, having an irregular cam-groove, R, is mounted, the shaft of gear t being mounted in bearings, (not shown,) but the arrangement of which will be well understood to all skilled in the art. Carriage D is connected to wheel T by a link, g ,
 10 having a cam-roller, 4, at one end from rod E, fast to the carriage, cam-roller 4 being in groove R and retained therein by a support, 5. When the shaft m is rotated—say by pulley m' and belt m^2 , as shown in Figs. 1, 3, and
 15 5—motion is communicated to wheel T, and as this rotates link g , connecting it with the carriage, is moved, and the carriage is given a to-and-fro sidewise movement on its tracks j .
 20 As the ball increases in size, the lower carriage, P, which supports main carriage D, and is mounted on tracks n n , works away from wheel A on the tracks n n , the ball being kept, however, in proper contact with wheel
 25 A by means of a weight attached to the front of the lower carriage, P, the attaching-cord x' running over a pulley, x^2 , as illustrated in the diagrammatic Fig. 2.

The machine shown in Fig. 5 is, I think,

preferable to the machine shown in Fig. 1 for
 30 some grades of work, because it is wholly automatic, and yet I prefer the machine shown in Fig. 1 for making high-grade balls because it is partly operated by hand; but this is a
 35 matter of choice, as it also is whether there shall be one eye h (see Figs. 1 and 4) or more than one eye h (see Fig. 2) for the yarn.

While I have described mechanism for reciprocating the cup and its carriage, it will be clear that that may be done by hand, and
 40 therefore my invention is mainly a machine consisting of a cup or holder to receive the ball and a wheel to revolve it arranged and operating, substantially as above described, to rotate the ball on varying axes, and thus draw
 45 the yarn in and wind it on the ball. So far as I aware this has never been done heretofore by machinery.

What I claim is—

In a ball-winding machine, the ball-receiving cup C and ball-winding wheel A, combined and operating substantially as and for the purpose set forth.

BENJAMIN BURLEIGH NEWELL.

Witnesses:

C. A. BRIDGE,
 A. L. BROWN.