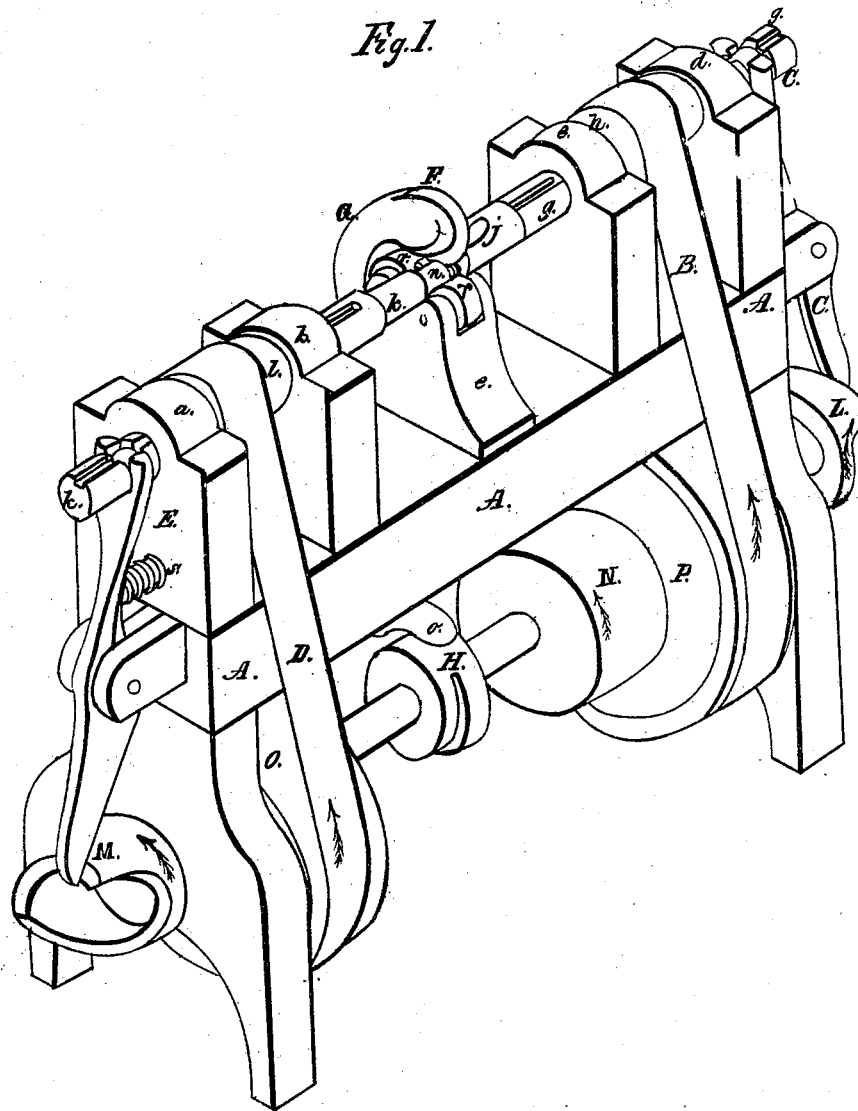


ELLIS & STETSON.  
Loading Cartridges.

No. 48,056.

Patented June 6, 1865



Witnesses:  
R. Fitzgerald  
H. A. Deering

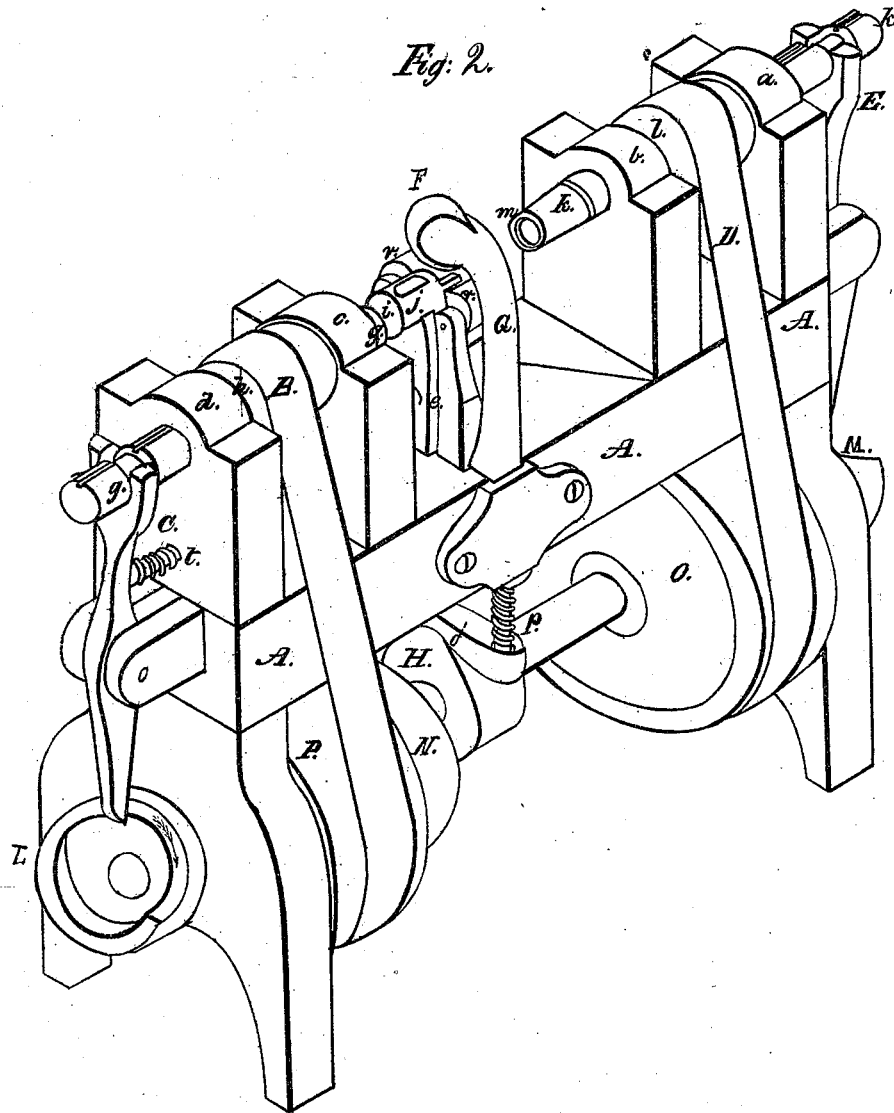
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D. Ellis  
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*R. Fitzgerald,*  
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# UNITED STATES PATENT OFFICE.

DARWIN ELLIS AND GEORGE R. STETSON, OF NEW HAVEN, CONNECTICUT.

## IMPROVED MACHINE FOR ATTACHING BALLS TO CARTRIDGES.

Specification forming part of Letters Patent No. 48,056, dated June 6, 1865.

*To all whom it may concern:*

Be it known that we, DARWIN ELLIS and GEORGE R. STETSON, both of the city and county of New Haven, in the State of Connecticut, have invented a new and useful Improvement in Machinery for Attaching Balls to Metallic Cartridge-Cases for Breech-Loading Fire-Arms; and we do hereby declare that the following is a full, clear, and exact description of the construction, character, and operation of the same, reference being had to the accompanying drawings, which make part of this specification, in which—

Figure 1 is a perspective view of the machine, taken from the left-hand front corner, showing the position of the several working parts while in the act of crimping down the end of the case. Fig. 2 is a perspective view of the same, taken from the rear, showing the position of the working parts when ready to receive the case and ball preparatory to attaching them together to finish the cartridge.

Our improvement consists in making the machine with two arbors or shafts, to be revolved simultaneously by bands, and also to receive simultaneously a longitudinal motion to press the base or rear end of the ball into the front or open end of the metallic case, (and to hold them in that position while being crimped together,) by means of two forked clutch-levers worked by cams, and in using a vertically-revolving disk (elevated by a cam, and depressed by a spiral or other suitable spring) in such a manner that its periphery by rolling will crimp down the edge of the metallic case into the periphery of the ball, near the base or rear end, so as to firmly attach them together, and then release the completed cartridge and be ready to receive another case and ball.

We make the frame of cast-iron or any other suitable material, substantially in the form shown at A A A, Figs. 1 and 2, with suitable puppet-heads, as *a*, *b*, *c* and *d*, to form bearing for the journals of the two shafts to revolve in, and with a block or standard, *e*, in the center to support the receptacle into which the ball is to be dropped, and the anti-friction rollers, between which the metallic case is to be deposited. We make the shaft or arbor *g* (in the right-hand portion of the machine, Fig. 1,) with a pulley, *h*, over which the band B passes to revolve the shaft, and at the right

outer end we turn a suitable transverse or annular groove to receive the upper or forked end of the clutch-lever C, which is to give the longitudinal motion to the shaft *g*, by means of the cam L, and at the inner end we turn this shaft down to the proper size to work freely (both rotary and longitudinally) in the tube, which serves as the receptacle *j* for the ball, and we make a suitable countersink in the end to fit the conical point of the ball. We make the left-hand shaft *k* with a pulley, *l*, so as to be revolved by the belt D, and at the outer end we turn an annular or transverse groove to receive the upper or forked end of the clutch-lever E, which gives the longitudinal movements to the shaft *k* by means of the cam M, and at the inner end we drill or counterbore a space, *m*, Fig. 2, to receive the closed or rear end of the cartridge-case, as indicated at *n*, Fig. 1. We make and locate the block or standard *e*, which supports the receptacle *j* for the ball and the anti-friction rollers *r* and *r*, between which the case is to be placed, (as shown at *n*, Fig. 1,) substantially as shown in Figs. 1 and 2. We make a pair of anti-friction rollers, *r* and *r*, and attach them to the standard *e* in the usual way. We make the receptacle *j* for the ball horizontally tubular, with an orifice in its upper side suitable to receive a conical or sugar-loaf-shaped ball. We make the crimping-disk or revolving crimper F of cast-steel or any other suitable material, and mount it in the upper part of a vertically-sliding stud or support, G. This stud and the crimping-disk will be elevated above and out of the reach of the work by the action of the cam H on the toe *o*, and will be depressed by the spiral spring *p*, Fig. 2, to crimp down the edge of the case into the lead ball.

Having constructed the several parts, as before described, and arranged them into a complete machine, with all the working parts in the position shown in Fig. 2, we drop the conical ball horizontally into the conically-shaped orifice in the receptacle *j* and the metallic case above and between the anti-friction rollers, (as at *n*, Fig. 1,) and put the machine in motion by means of a driving-belt on the driving-pulley N, so as to revolve the drums O and P in the direction indicated by the darts on the belts B and D, when the cams L and M, by acting on the clutch-levers C and E,

will force the shafts *g* and *k* longitudinally toward each other, and the small part at *i*, Fig. 2, will pass along in the tubular receptacle *j*, and against the point of the ball, and force it out to the position shown in Fig. 1, and at the same time the shaft *k*, in moving up, will receive the closed end of the case *n*, Fig. 1, in the space *m*, Fig. 2, and by their mutual longitudinal pressure the large or rear end of the ball will be forced into the case till it comes in contact with the powder, and at this time the cam *H* will allow the spring *p* to depress the stud or supporter *G* until the periphery of the crimper *F* will be pressed upon the edge of the metallic case, all as shown in Fig. 1; and as the shafts *g* and *k* continue to revolve the periphery of the crimper *F* will roll on the edge of the metallic case and force it into the lead, so that the ball and case will be secured firmly to each other. The cam *H* will then elevate the stud *G*, and the cams *L* and *M* will allow the springs *s* and *t* to throw back the upper ends of the clutch-levers *C* and *E*, and a suitable spring will knock off the finished cartridge, and the machine will appear as in Fig. 2, ready for another operation. We may feed the balls and cases into the machine by hand, or we may use channel-ways, or any other means.

The advantages of our improvement consist in that our machine will finish the cartridges

much more rapidly than any means heretofore used, and in that by means of the conical countersink in the inner end of the shaft *g* the conical point of the ball will be centered exactly with the axis of the ball, and in that as the crimping will be done while the ball and case are revolving, they will be kept perfectly true with the axis, and cannot be afterward crooked.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The combination of the two shafts *g* and *k* with the revolving crimper *F*, when the whole is constructed, arranged, and fitted to produce the result substantially as herein described.
2. The combination of the two shafts *g* and *k* with the receptacle *j* and the anti-friction rollers *r r*, when they are constructed, located, and fitted for use substantially as herein described.
3. The combination of the revolving crimper *F* with the receptacle *j* and the anti-friction rollers *r r*, when the whole is constructed and fitted for use substantially as herein described.

D. ELLIS.

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Witnesses:

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