

D. SMITH.
Cartridge Machine.

No. 60,074.

Patented Nov. 27, 1866.

Fig. 1.

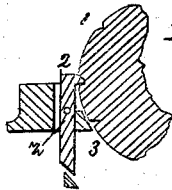
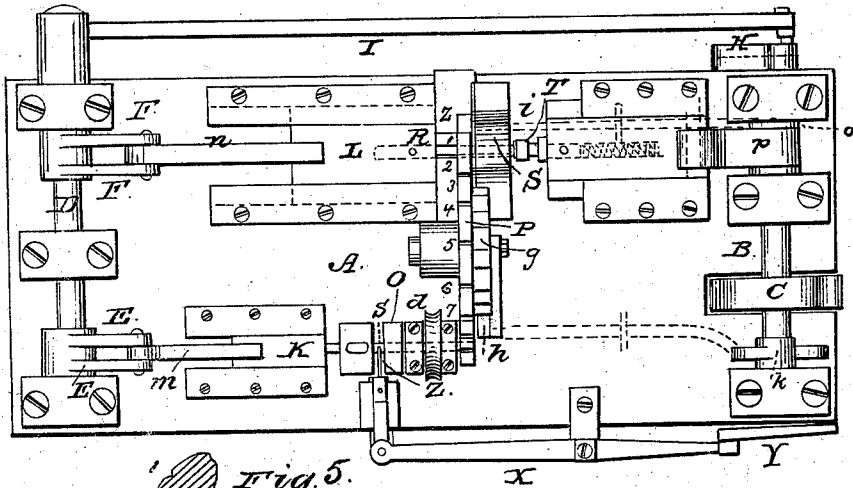


Fig. 5.

Fig. 7. Fig. 6.

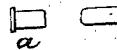


Fig. 2.

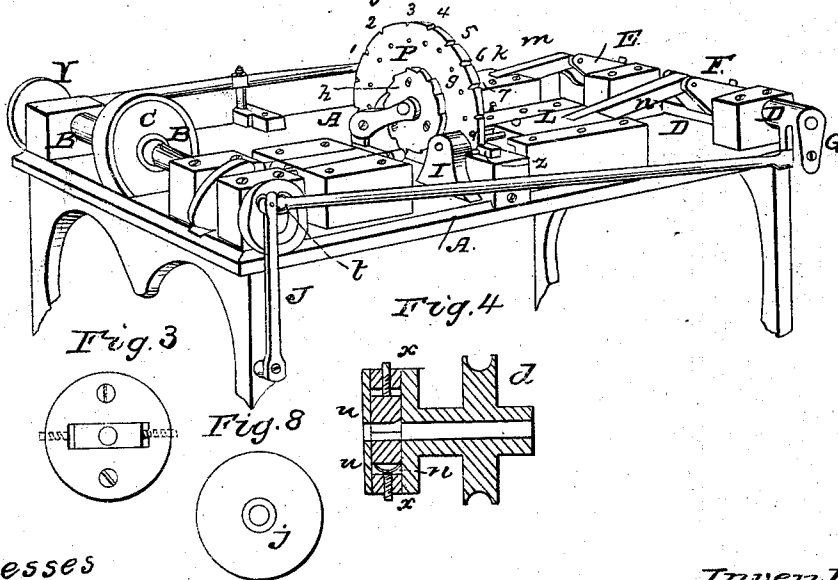


Fig. 3.

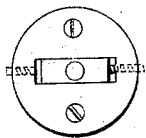


Fig. 8.

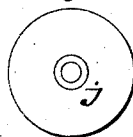
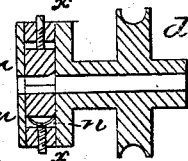


Fig. 4.



Witnesses
Louis C. Parker
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Inventor
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by his attorney
W. F. Parker

United States Patent Office.

IMPROVED CARTRIDGE MACHINE.

DEXTER SMITH, OF SPRINGFIELD, MASSACHUSETTS.

Letters Patent No. 60,074, dated November 27, 1866.

SPECIFICATION.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, DEXTER SMITH, of Springfield, Hampden county, Commonwealth of Massachusetts, have invented certain new and useful improvements in Machines for Heading and Cutting off Metallic Cartridge Cases; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings and to the letters of reference marked thereon.

My improvements consist in combining the operation of trimming the shell to the required length, and the operation of heading the same in one machine and transferring the shell from the mechanism for trimming to the mechanism for heading automatically by means of devices which I will hereafter describe; also, in a peculiar arrangement of mechanism for operating the cutting-off tool, and in an improved chuck for holding and revolving the shell while it is being cut off. These improvements are shown in the drawings which accompany these specifications, in which—

Figure 1 is a plan view of my improved machine.

Figure 2 is a perspective view of the same.

Figures 3, 4, and 8 are detailed views of the chuck.

Figure 5, a side view of the device for stopping the disk.

Figures 7 and 6, views of the shell after and before heading.

A is the bed of the machine, to which the other parts are attached. B is the shaft to which power is applied at C, and from which the moving parts derive motion by means of suitable connections. At the opposite end of the bed from the shaft, B, and supported by suitable bearings, I place the shaft, D, to which are attached the arms, E F G. Motion is given to this shaft from the cam, H, on the shaft, B, by means of the connection, I, supported by the lever, J, and the sliders, K L, are operated by means of connections, M N, pivoted to them and to the arms, E F. The slide, K, carries at one end a punch or mandrel, S, and works through the piece, b, which has a slot, c, formed in it, into which the cartridge case is dropped, and the punch, S, coming forward carries the case along into the chuck, O, which is of a peculiar construction, and will be more fully described hereafter. After it is inserted in this chuck, it is revolved by power applied at the pulley, d, and the tool, Z, being forced up by the lever, X, operated from the shaft, B, by the cam, Y, cuts or trims off the shell, thus forming it of the desired length. After this is done, the mandrel, S, is withdrawn and forces another shell in by a series of movements similar to that just described, and the previously inserted shell is pushed out through the centre of the pulley, d, and into a hole in the disk, P. This disk is now partially revolved by means of the ratchet, g, and pawl, h, operated by the cam, K, by means of suitable connections, and is stopped by means of the catch-piece, z, springing into notches 1, 2, 3, &c., in the edge of the disk, P. Just before motion is given to the disk this catch-piece is thrown out of the notch by means of the lever, y, under the bed of the machine, operated by the cam, O. After the disk P has been revolved far enough to carry the shell first trimmed around opposite the punch, R, it and each successive shell are forced into the die, S, by this punch, R, operated from the shaft, D, by means of the arm, F, and connection, n, and the heading-punch, T, is forced up against the closed end of the shell from the opposite side, operated from the shaft, B, by means of the cam, p, and the head or rim, a, is formed, leaving the shell in the shape shown in fig. 7, ready for filling. The mandrel, S, is constructed in a peculiar manner, having at its end a collar, v, which enters the shell, and which part alone revolves, and not the whole of the mandrel, as is commonly the case. The construction of the chuck, O, now remains to be described. This is shown in the drawings, at figs. 3 and 4; fig. 3 being a face view of the chuck with the cover removed, and fig. 4 being a cross-section through the same. It consists of two pieces, U U', inserted in a slot in the body of the chuck, and having a hole in the centre for the insertion of the cartridge; these pieces, U U', are kept together by means of springs, W, on one or both sides, the tension of which is governed by the set-screws, x x', so that when a shell is pressed into the opening in the chuck it is held there by the pressure of the springs, thus allowing for slight variations in the shells. I insert the die, j, in the face, as shown in fig. 8, for the purpose of guiding and centring the shell in its entrance into the chuck.

I am aware that machines have been made in which these operations I have described have been performed, but never, to my knowledge, have they been combined so as to work automatically together, taking the shell in the form shown in fig. 6, and leaving it in the form shown in fig. 7. This I have accomplished by the arrangement of the machine, and by placing the disk, P, as shown, and operating it to transfer the shells from one side to the other, as I have described; and in this, and the peculiarities of construction I have described, my improve-

ments consist. Also, in the peculiar arrangement of the mandrel, S, with the devices for operating it in connection with the tool, Z, and devices for operating that, I have a great improvement, for the cam, H, is an eccentric; and when the part, *i*, of the connection which works in the groove in the side is nearest the centre, and while the cam is moving, the mandrel is stationary, and the tool, Z, is so arranged that at just this time it is forced up by the cam, Y, and cuts the shell while the longitudinal motion of the mandrel is stopped. This being done, the cutting-tool is immediately withdrawn and the motion of the mandrel recommences. I do not wish to confine myself to any particular device for transferring the shell from one side of the machine to the other, as instead of the disk, P, I can use a slide or oscillating arm.

Now, having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. I claim the disk P, operated from the shaft B by means of the cams K and O, connected with the ratchet and pawls *g h*, and stop-piece *m*, or equivalent mechanism for the purpose of transferring the shells, substantially as herein set forth.
2. The combination of the cam H, shaft D, and mandrel S with the cam Y and tool Z, when arranged and operating substantially and for the purpose as described.
3. The chuck O, constructed as described and used for the purpose of holding the shells, as set forth.

Witnesses:

J. B. GARDINER,
E. H. HYDE.

DEXTER SMITH.