C. S. WELLS.

Machines for Reinforcing Cartridge Shells.

No. 125,508. Patented April 9, 1872.

Fig 1.

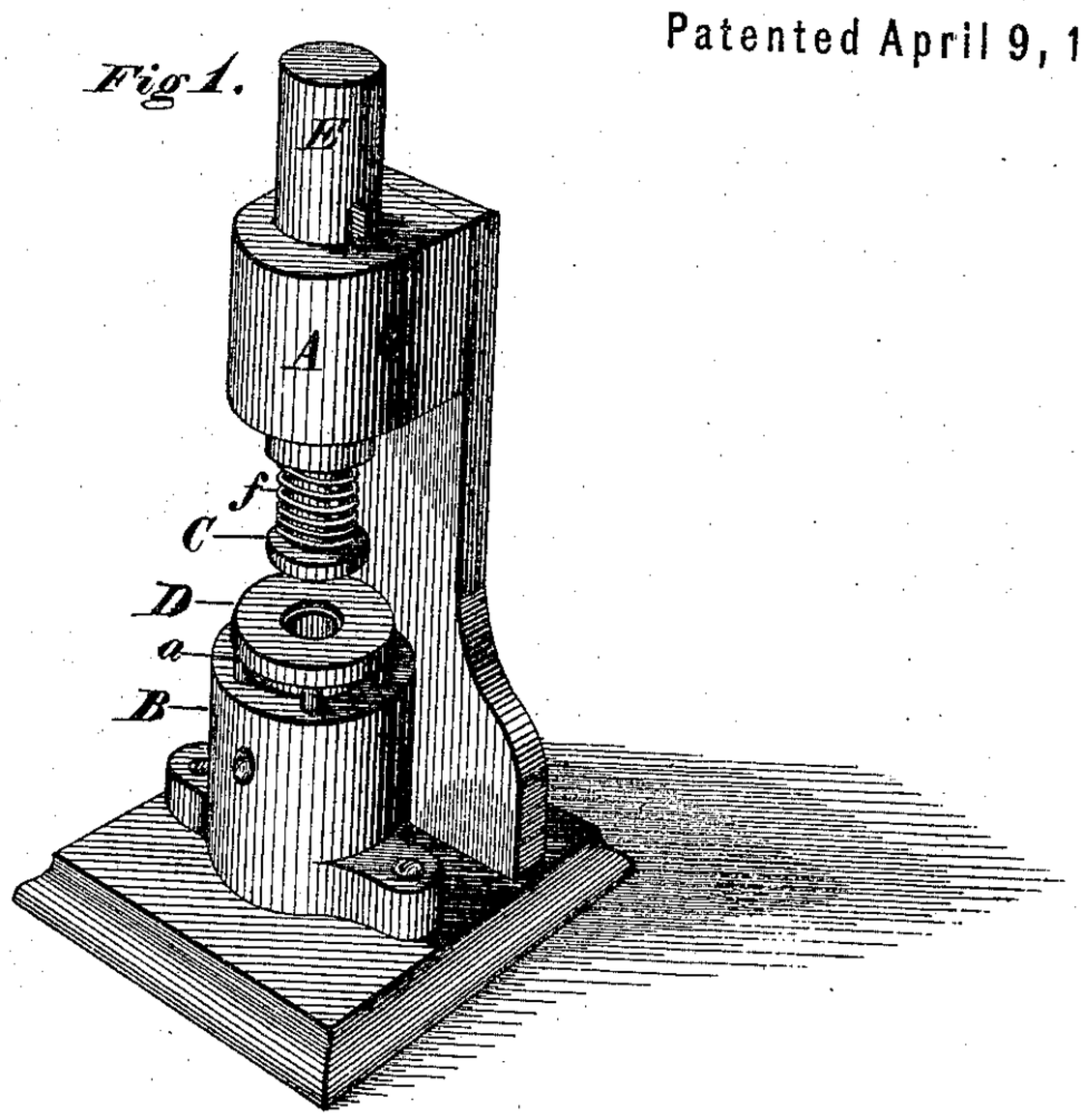
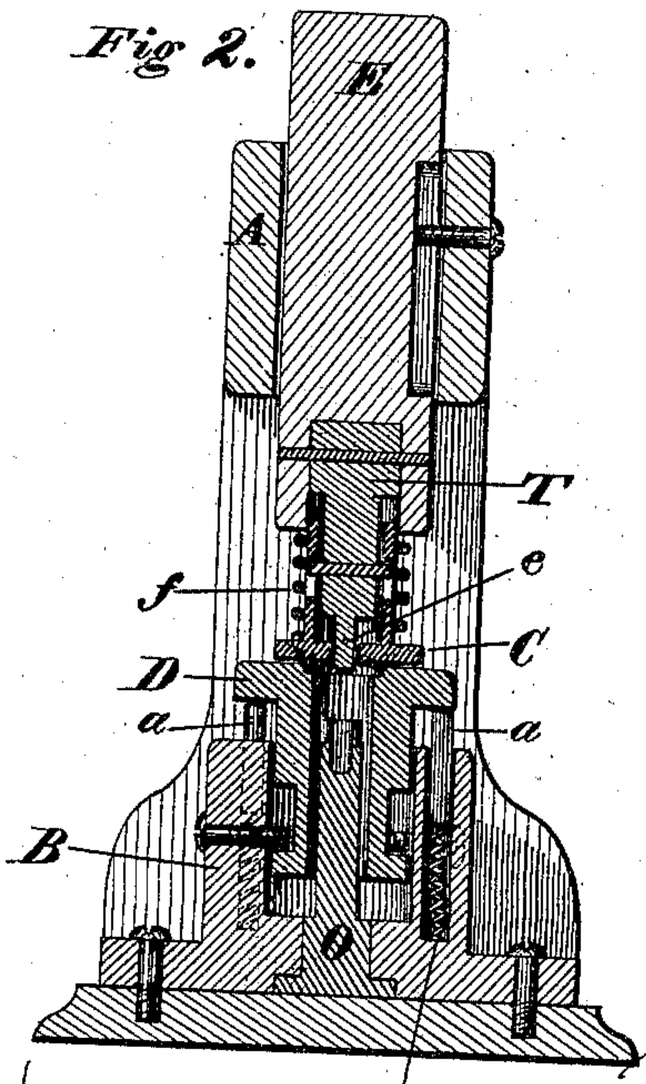


Fig 2.



Witnesses.

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125,508

UNITED STATES PATENT OFFICE.

CHARLES S. WELLS, OF BRIDGEPORT, CONNECTICUT.

IMPROVEMENT IN MACHINES FOR RE-ENFORCING CARTRIDGE-SHELLS.

Specification forming part of Letters Patent No. 125,508, dated April 9, 1872.

SPECIFICATION.

To all whom it may concern:

Be it known that I, CHARLES S. WELLS, of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain Improvements in Cartridge-Machines, of which the following is a specification, reference being had to the accompanying drawing.

My invention relates to machines for the manufacture of cartridges, more especially that class known as paper-shells having metal heads; and the invention consists in an arrangement of springs, in connection with the die and header, by virtue of which the shell shall be forced entirely into the die before the full pressure is applied to it, as hereinafter more fully explained.

Figure 1 is a perspective view, and Fig. 2 a vertical section of my improved machine.

In the manufacture of the paper or pasteboard shells used in breech-loading sporting-guns, a pasteboard head or base is usually inserted; and as it is found to be almost impossible to regulate with accuracy the amount of material used for this purpose, it follows that it frequently happens that there is an excess of this material, and when this is the case the pressure of the plunger or follower is brought to bear upon it before the shell has fully entered the die, and when this occurs that portion of the shell which is not pressed into the die is crushed down and bulged out laterally around the sides, thus spoiling the shell. To prevent this is the object of my invention.

In constructing my improved machine for this purpose, I take an ordinary cartridge-punch or press, of which, in the drawing, A represents the frame, E the reciprocating punch or plunger, and B the die-holder. The die D is made of the usual form, but, instead of being secured rigidly in the die-holder B, it is supported on a series of pins or pistons, *a*, fitting loosely in holes in the part B, and resting on spiral springs, *n*, as represented in Fig. 2. By this arrangement it will be seen that the die D can be pressed down a certain distance, until its flange rests upon the upper end or face of the die-holder B, after which it remains stationary until the pressure is removed from it. The plunger E has secured in its lower end a central punch, T, which, in this case, is provided with protruding point *e*. Over this part T is placed the header C, which is arranged to slide loosely thereon for a short distance, with a spiral spring, *f*, arranged between it and the end of the plunger E in such a manner as to keep the header C pressed down, but which allows it to yield slightly when it is forced down upon the die below. The body of the cartridge-shell is prepared by cutting from a pasteboard tube of suitable diameter a piece of the proper length; and then within this body or piece is inserted the paper disk or re-enforce, with the internal metal cup, if such be used, these parts being shoved up to one end, and a metallic disk or head then placed on the outside, at the end, where it is held by the small end or neck of the internal metal cup, which protrudes through a hole at the center of the disk, where it is subsequently riveted down by the operation of the machine. In forming this particular style of cartridge, the external metallic disk is made of a diameter greater than that of the body of the shell, whereby it protrudes laterally, and thus forms a radial flange. In some cases, however, I make the head externally of a cup of thin metal, pressed on over the end of the shell, and then form the flange by pressing this cup out laterally in the usual manner. The shell being thus prepared is now ready to be subjected to the operation of the machine.

In operation, the shell is inserted within the die D, when the plunger descends and the part C forces it into the die the entire length of its body, after which the continued descent of the plunger forces the header with the die down until the latter rests solidly upon the die-holder, when the shell is sufficiently pressed to complete it, the anvil or mandrel O upon which the shell rests in the die supporting the interior of the cartridge-head during this operation. In this case I have represented the punch T as having a protruding central point, *e*, and the mandrel O as provided with a corresponding recess for the point *e* to enter as it descends. This, however, is simply intended for making a special style of shell, which has a hole or cavity at the center of its head for the insertion of a cap or primer, and has nothing to do with the main feature of my improved machine, which is the yielding die and header.

I have represented two forms of applying

springs to the yielding parts—one form to the die, and another form to the header; but it is obvious that any other suitable method or plan may be applied with like results, the only requisite being that these parts shall yield, as described. In some cases it will be sufficient to apply the spring to one part only—that is, either to the die or to the header—especially when making cartridges which do not have the central cavity in the head, and in which case the point *e* will not be required. It will be understood that the plunger E will be operated by a crank or cam, and motion be imparted to it in any of the usual ways.

In the drawing I have represented but a single die; but in making the machine it is frequently customary to arrange a series of them on a revolving head, which is operated automatically by machinery so as to bring the circle or series of dies, one after another, under the header. The shells are removed or thrown out of the die when finished by an upward movement of the mandrel O, or of a rod moving centrally within it, in the usual manner; but these being well-known devices in common use in this class of machines, I have not thought it necessary to show them in the drawing.

Having thus described my invention, what I claim is—

The combination, in a cartridge-machine, of the stationary anvil O and yielding die D, with the reciprocating plunger E having the central punch *e* and yielding header C attached thereto, the said parts being constructed and arranged to operate substantially as described.

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