(No Model.)

J. C. JENSEN.

PAPER PUNCH.

No. 385,056. Patented June 26, 1888.

Fig. 1.

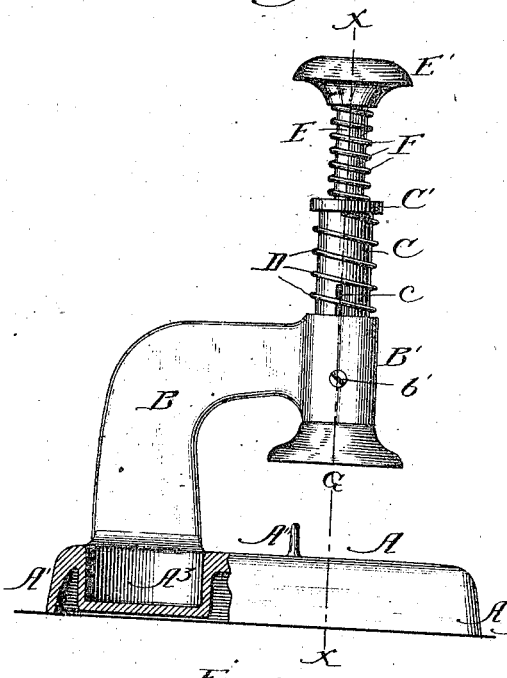


Fig. 2.

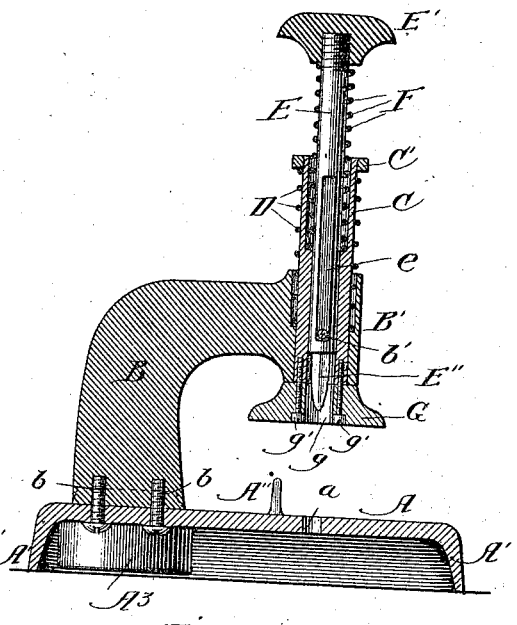


Fig. 3.

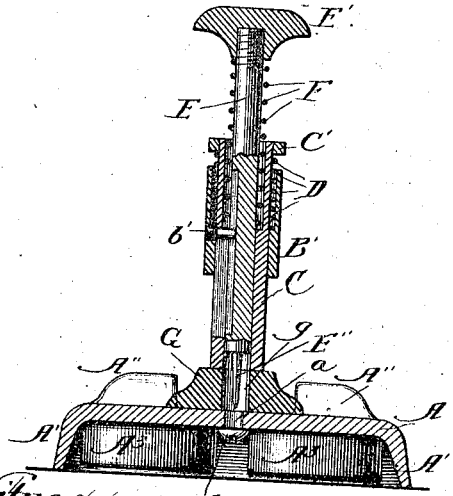
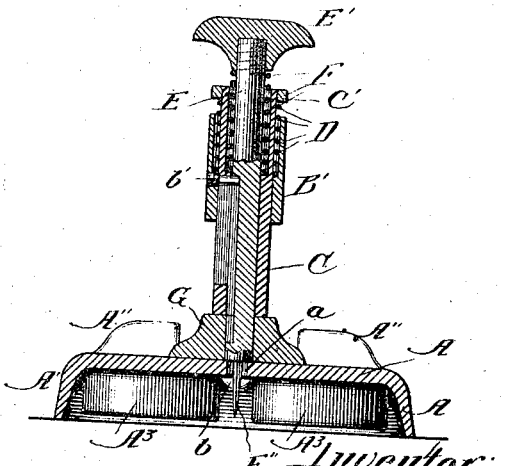


Fig. 4.



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PAPER-PUNCH.

SPECIFICATION forming part of Letters Patent No. 385,056, dated June 26, 1888.

Application filed January 7, 1888. Serial No. 260,101. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. JENSEN, residing at Chicago, in the county of Cook and State of Illinois, and a citizen of the United States, have invented a new and useful Improvement in Paper-Punches, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation, a small portion being in section. Fig. 2 is a sectional elevation. Fig. 3 is a section on line *x x* of Fig. 1, showing the parts in position for holding the papers to be bound preparatory to punching a hole through them; and Fig. 4 is a similar view showing the parts in position when punching a hole.

As heretofore constructed, machines for punching holes through sheets of paper preparatory to binding said sheets together with metallic paper-fasteners are open to the objection that after the hole has been punched the knife or blade cannot be readily withdrawn, but will remain in the hole formed until the paper has been pulled off from such blade or knife by hand, and in so doing the papers are liable to become slightly disarranged, rendering the insertion of a paper-fastener more or less difficult by reason of the non-registering of the holes formed in the different sheets.

The object of my invention is to o ercome this difficulty by making the withdrawal of the perforating knife or blade after the formation of the hole automatic and certain, which I accomplish by the employment of two coiled springs of unequal strength, the location and arrangement of which, together with their relations to the other parts of the machine, being hereinafter specifically described and pointed out in detail.

In the drawings, A represents a base or bed plate having its edges turned down to form a wall, A′, which rests upon the table or other support, and raises the base A sufficiently above the surface of the table to allow the blade or knife to pass through the hole *a* without its point coming in contact with the table or support. A guide wall or ledge, A″, is formed on each side of the base A and in line with each other, which guide-walls are for the purpose of placing the ends of the sheets of paper to be bound against, in order that the holes to be made may all be at the same distance from the end. At the end of the base or bed plate A, as shown, are two cups or receptacles, A^3, for holding paper-fasteners, which cups or receptacles lie within the space formed by the supporting-wall A′.

B is an arm or bracket secured at its lower end to the base or bed A, between the two cups or receptacles A^3, by screws *b*, as clearly shown in Fig. 2. The outer and projecting end of this arm or bracket has formed therewith, in the construction shown, a socket, B′.

C is a tube within the socket B′, and sliding up and down therein. A slot, *c*, is formed in the side of the tube, through which passes a screw, *b′*, secured in the socket B′, for limiting the movement of the tube.

D is a coiled spring around the tube C, one end of which bears against a collar or flange, C′, on the upper end of the tube C, and the other end against a shoulder in the socket B′, as shown.

E is a rod passing through the tube C and socket B′, and, as shown, is screw-threaded on its upper end to receive a head, E′, and at its lower end has secured thereto a perforating blade or knife, E″. In the side of the rod E is formed a groove, *e*, which lies under the slot *c*, and into this groove *e* the end of the pin or screw *b′* passes, and by coming in contact with the lower end of the groove prevents withdrawal of the rod.

F is a coiled spring around the rod E, one end of which rests against the head E′ and the other end against a shoulder formed in the tube C, as shown.

G is a head, wider at its lower end than at its upper, so as to present a broad surface to rest upon the sheets of paper to be perforated and hold them firmly while the hole is being made; and by this construction the head can be used to give the usual blow to the fastener after it has been inserted and the prongs spread apart without liability of punching another hole through the papers while so doing. A hole, *g*, is provided through the center of the head G for the passage of the blade or knife. The head is secured to the tube C by screws *g′*, as shown, the heads of such screws being flush with the under surface of the head, so as not to interfere with the proper use of such head.

In use the sheets of paper to be perforated are placed on the bed or base A, with their for-

ward ends against the guide-walls A″, pressure is applied to the head E′, and in consequence of the spring D being weaker than the spring F such spring D will be compressed, allowing the tube C to be forced down and carrying with it the head G, as shown in Fig. 3, to bear on the paper and hold it in place. By bearing down harder on the head E′ or striking it a sharp blow the knife or blade E″ will be forced down, as shown in Fig. 4, to pass through the sheets of paper. After a hole is punched and the pressure on the head E′ released the knife or blade is withdrawn from the hole just formed by the action of the coiled spring F around the rod E, and the head G is raised out of contact with the surface of the upper sheet of paper by the action of the spring D, which carries up the tube C, to which the head G is secured. Other holes or perforations can then be formed in the same manner the same distance from the top of the sheets as the one first formed by moving the sheets sidewise and having their top or forward edges against the guide-walls A″.

The spring D is of a larger diameter and has fewer coils than the spring F; and hence such spring D will always be compressed and allow the head G to be forced down against the paper before the spring F has begun to compress in forcing down the knife or blade.

If desired, the base A and arm or bracket B can be formed in one piece instead of being secured together as shown.

After a fastener has been inserted through the sheets of paper and the prongs bent back as usual they can be flattened close against the paper by placing the sheets of paper so that the fastener comes under the projecting head G and forward of the hole *a* and giving a sharp blow on the head E′. This action will not affect the blade or knife E″, as such blade or knife passes through the hole *a*, and its downward movement is stopped by the pin or screw *b*′ and groove *e*, as above described, to prevent contact with the table or other support on which the machine rests.

What I claim as new, and desire to secure by Letters Patent, is as follows:

1. The tube C, having secured thereto the head G, in combination with the rod E, carrying a perforating knife or blade, and springs D and F, of unequal strength, for automatically withdrawing the knife or blade after a perforation has been made, substantially as specified.

2. The bed or base A, having supporting-wall A′ and hole *a*, arm B, provided with a socket, B′, and limit-pin *b*′, tube C, having slot *c*, and holding-head G, in combination with the rod E, having groove *e* and blade or knife E″, and coiled springs D and F, of unequal strength, substantially as and for the purposes specified.

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