

B. W. HURD.
PAPER FASTENING PUNCH.
APPLICATION FILED APR. 6, 1910.

980,787.

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Fig. 1

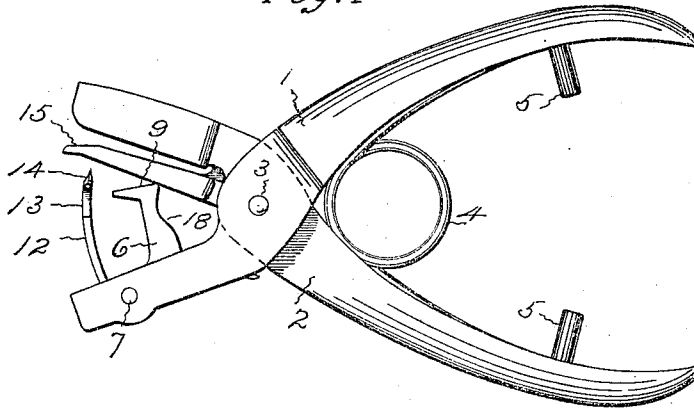


Fig. 2

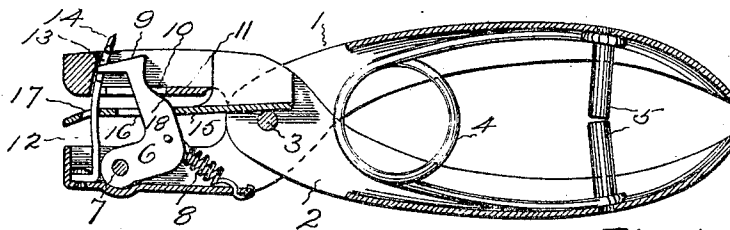


Fig. 3

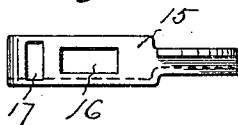


Fig. 4

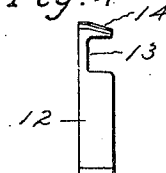
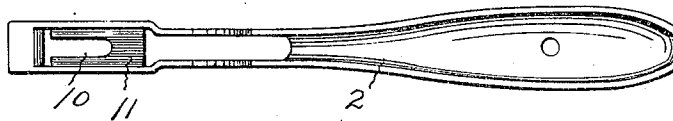


Fig. 5



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UNITED STATES PATENT OFFICE.

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PAPER-FASTENING PUNCH.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, BENJAMIN W. HURD, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented a new and useful Improvement in Paper-Fastening Punches, of which the following is a specification.

This invention relates to a punch which is designed to fasten together sheets of paper by means of portions cut from themselves.

The object of this invention is to provide a punch of this nature, which has few parts, is simple and cheap to manufacture, and which cuts tongues and slots and tucks the tongues into the slots, in the sheets of paper to be fastened.

The punch which is illustrated as an embodiment of the invention, has a pair of handle levers that are normally forced apart by a spring. One lever has a die and carries a perforated stripper. The other lever carries a swinging punch which coöperates with the die for cutting the tongues, and with the stripper for bending the tongues into the opening in a hooked spear which is carried by the punch lever, and that first cuts the slots and then draws the tongues therethrough.

Figure 1 of the accompanying drawings shows a side view of the punch, with the handles open. Fig. 2 shows a longitudinal section of the punch with the handles closed. Fig. 3 shows a plan of the stripper. Fig. 4 shows a front view of the hooked spear. Fig. 5 is an edge view of the lever which is provided with the die.

The levers 1 and 2, which are desirably stamped or drop forged to shape from sheet metal, are pivoted together by the pin 3. The handle ends of these levers are normally forced apart by the spring 4, and are prevented from coming too close together by the studs 5, around which the ends of the spring are bent.

The punch 6 is pivotally held by the pin 7, in a recess in the end of the lever 1. A spring 8 normally retracts the pivoted punch. The free end 9 of the punch fits the die opening 10 in the die plate 11 that forms the bottom of the recess in the end of the lever 2. When the punch is forced through the die opening, the coöperation of these parts will cut tongues in whatever sheets of paper have been inserted between them.

The spear 12 is formed of an arc-shaped piece of metal that has one end fastened in the recess in the lever 1 in front of the punch. One edge of this spear is cut away, as at 13, forming a hook 14, which is sharpened on the end so that when the handles are forced together, and the punch passes through the die opening to form the tongues, the spear will also pass through a portion of the die opening, and cut slots adjacent to the bases of the tongues. A stripper plate 15 is fastened to the lever 2 so as to extend between the working ends of the levers. This stripper plate has an opening 16 to permit the passage of the punch, and an opening 17 to permit the passage of the spear.

When the handles are forced together, as the punch continues to move after it has cut the tongues, its back edge 18 engages with the rear edge of the opening 16 in the stripper plate. This forces the punch forwardly in such manner that the tongues which have been cut, are bent by the point of the punch into the opening 13 below the hook of the spear. When the handles are released and are thrust apart by the spring which is between them, the punch is drawn down through the die opening and opening in the stripper, being retracted during this movement by the spring 8, and at the same time the spear is drawn down through the die opening and opening in the stripper, so that its hook pulls the tongues down through the perforation which it made through the sheets that are to be fastened together.

The invention claimed is:

1. The combination in a paper fastener, of a lever provided with a die, a lever provided with a spear, a swinging punch carried by said latter lever and adapted to coöperate with the die for cutting tongues, and means for causing the punch to swing after it has coöperated with the die for bending the tongues into engagement with the spear.

2. The combination in a paper fastener, of a lever provided with a die, a stripper attached to said lever, a lever provided with a spear, a swinging punch carried by said latter lever and adapted to coöperate with the die for cutting tongues, and to be engaged with the stripper after coöperating with the die and be swung so as to bend the tongues into engagement with the spear.

3. The combination in a paper fastener, of a lever provided with a die, a stripper at-

tached to said lever, a lever provided with a hooked spear, a swinging punch carried by said latter lever and adapted to coöperate with the die for cutting tongues, and by engagement with the stripper to be swung, after coöperating with the die so as to bend the tongues into the hook of the spear.

4. The combination in a paper fastener, of a lever provided with a die, a stripper attached to said lever, a lever pivoted to said former lever, a spear attached to said latter lever, a punch pivotally connected with said latter lever and adapted to pass through the stripper and the die, and be swung forward on its pivot as the levers are closed, and a spring adapted to retract the punch as the levers are opened.

5. The combination of a die, a swinging tongue-forming punch adapted to be moved toward and through the die and to coöperate therewith for cutting a tongue, and means for swinging the punch forward after it has passed through and coöperated with the

die for bending forward the tongue which has been cut.

6. The combination of a die, a swinging tongue-forming punch movable toward and from the die and adapted to coöperate therewith for forming a tongue, and a stripper shaped to engage the punch and by such engagement swing it forward after the punch has coöperated with the die for bending forward the tongue which has been cut.

7. The combination of a die, a swinging punch adapted to coöperate with the die for cutting a tongue, a hook shaped spear arranged to move with the punch and coöperate with the die for cutting a slot, and means for swinging the punch forward after the tongue has been cut for bending the tongue under the hook of the spear.

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Witnesses

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