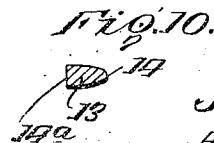
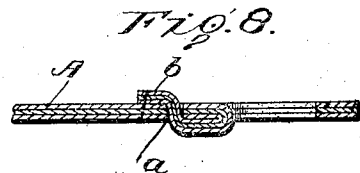
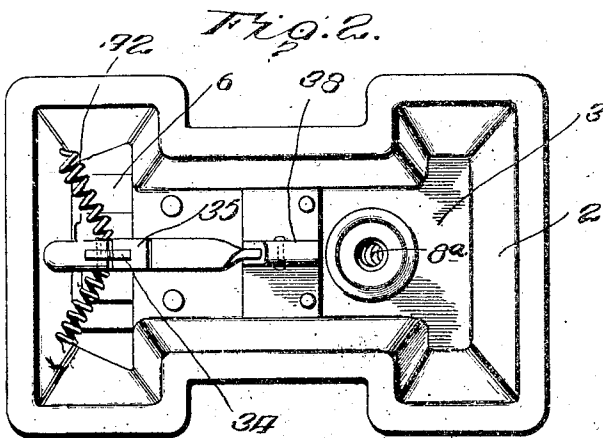
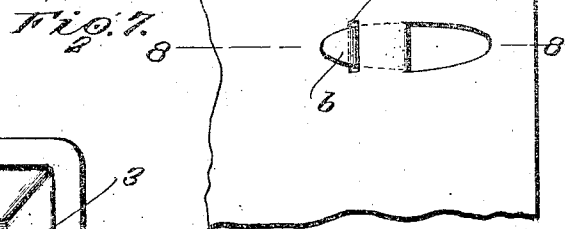


PAPER FASTENING DEVICE. ·
APPLICATION FILED MAR. 20, 1912.

Patented Mar. 11, 1913.

Fig. 1.



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Witnesses
W. T. Woodson.
The same day.

By

Hammer Attorneys

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PAPER FASTENING DEVICE.
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1,055,680.

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2 SHEETS-SHEET 2.

Fig. 3.

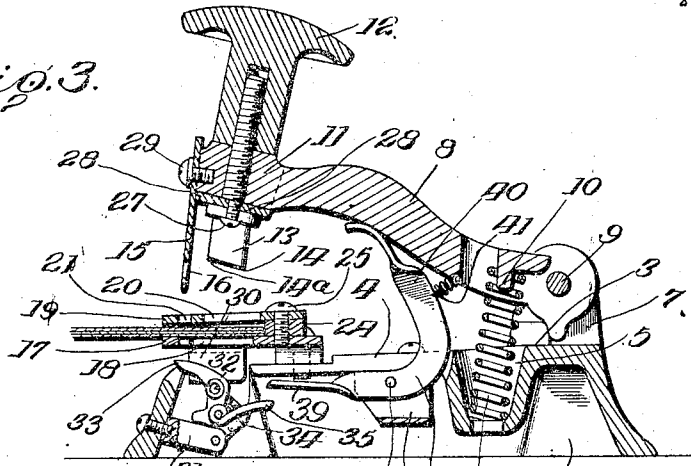
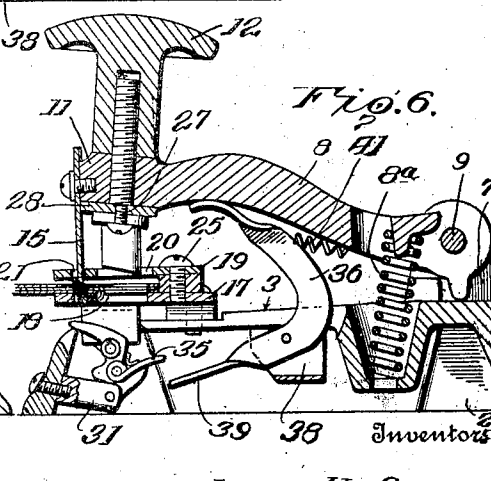
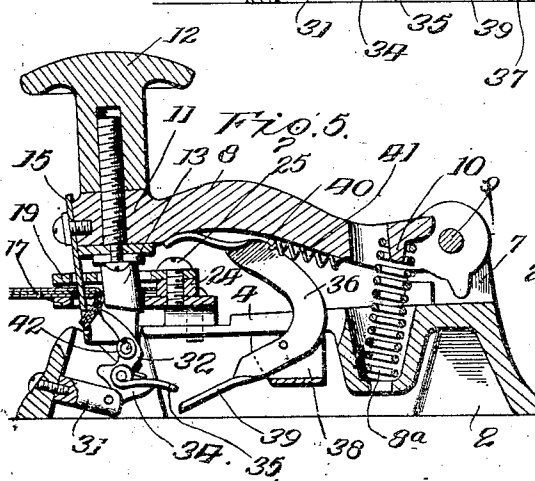
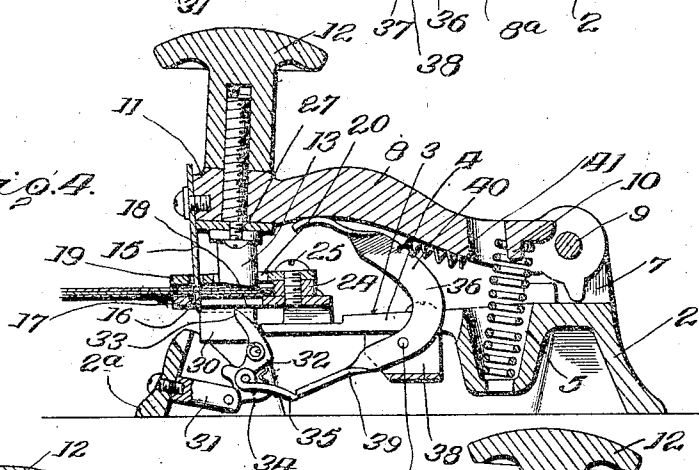


Fig. 4.



Witnesses
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UNITED STATES PATENT OFFICE.

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PAPER-FASTENING DEVICE.

1,055,680.

Specification of Letters Patent.

Patented Mar. 11, 1913.

Application filed March 20, 1912. Serial No. 685,093.

To all whom it may concern:

Be it known that we, JAMES N. STACY and ARTHUR W. HOAG, citizens of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Paper-Fastening Devices, of which the following is a specification.

Our invention relates to paper fastening devices, and particularly to hand operated paper clamping mechanisms whereby a number of sheets of paper may be held together.

The primary object of our invention is the provision of means whereby a plurality of sheets of paper may be clamped together by means of a tongue struck from the paper itself, and without the use of clips, rivets, eyelets or like devices.

A further object of the invention is to provide means whereby a plurality of tongues struck from a plurality of sheets of paper may be forced through a slit cut in said sheets and thus the sheets tied together.

A further object of the invention is to provide a mechanism in the form of a hand stamp between which sheets of paper may be placed, and which upon a depression of the stamp will cause the tongues referred to be struck out from the paper and inserted through a slit made in the paper.

A further object of the invention is to provide a very simple, effective and easily operated mechanism to this end adapted at one operation to form the attaching tongues, slit the paper and insert the tongues in said slit.

Further objects of the invention will appear in the course of the following description.

Our invention is illustrated in the accompanying drawings wherein:

Figure 1 is a perspective view of our improved paper securing mechanism. Fig. 2 is an under side plan view thereof. Fig. 3 is a longitudinal section, the parts being shown in the position taken before the plunger is depressed. Fig. 4 is a like view to Fig. 3 but showing the parts in the position taken just before the die cuts the tongue from the paper. Fig. 5 is a like view to Fig. 4 but showing the parts in the position taken when the tongues are forced forward into the eye of the blade. Fig. 6 is a like view to Fig. 5 but showing the parts in the position

taken as the blade rises and draws the tongues through the slit made in the paper. Fig. 7 is a face view of a sheet of paper showing the manner in which the attaching tongue passes through the paper. Fig. 8 is a sectional view on the line 8-8 of Fig. 7. Fig. 9 is a perspective view of the tongue-cutting punch. Fig. 10 is a sectional view of the punch.

Corresponding and like parts are referred to in the following description and indicated in all the views of the accompanying drawings by the same reference characters.

Referring to these drawings it will be seen that 2 designates a hollow base which houses a portion of the mechanism and which is provided with a flat upper portion designated 3. This upper portion is longitudinally slotted as at 4, one end of the wall being formed with a relatively enlarged socket 5 and the other end of the slot intersecting a transversely extending slot 6. The rear end of the base 2 is provided with the laterally spaced upstanding ears 7 between which is pivoted the arm 8 by means of the transversely extending pivot pin 9. The arm 8 normally extends upward at its free end and is held in this position by means of a spring 8^a, one end of which is supported in the socket 5 while the other end is supported in a socket 10 formed in the arm near the base thereof. The forward end of the arm 8 carries upon it the transversely extending head 11 from which projects the upwardly extending knob 12 formed with a flattened upper end adapted to be struck by the hand of the operator.

Carried upon the under side of the head 11 is the downwardly extending punch 13 which as shown in Fig. 10 is approximately rectangular in cross section but tapers toward its rear end. It will likewise be seen from Fig. 4 that the face of the punch 13 is inclined from its forward edge to its rear edge so that upon a depression of the punch, the rear edge 14 will commence to cut sooner than the front edge will. This punch 13 is for the purpose of cutting out the tapering tongue as will be hereafter described.

Mounted upon the forward face of the head 11 is the downwardly extending slit-cutting blade 15, which extends below the punch 13. This blade as shown in Fig. 1 tapers from its upper end to its lower end

and is provided adjacent its lower extremity with the eye 16. This eye is as wide as the broadest portion of the punch 13, and it will be seen from Fig. 3 that the upper wall of the eye 16 is approximately level with the forward edge 14^a of the punch 13. Supported upon the face 3 of the base 2 immediately above the transversely extending slot 6 is a plate 17 formed with a rearwardly extending slot 18, this slot tapering rearwardly, and the rear end of the slot is in register with the rear edge of the punch 13 when said punch is depressed so that the slot 18 forms part of a cutting die, of which the punch 13 is the other member. Disposed above the plate 17 in spaced relation thereto is a plate 19 formed with a longitudinal slot 20 and with a transversely extending slit 21. The slot 20 is sufficiently large to permit the passage through it of the punch 13, while the slit 21 is sufficiently large to permit the blade 15 to pass therethrough. Preferably the plate 17 is supported upon the base by means of screws 23, while the plate 19 is spaced from the plate 17 by means of a spacing block 24 and is held thereto by means of a screw 25.

While we do not wish to limit ourselves to any special means for supporting the punch 13 upon the head 11, we have shown for this purpose the punch 13 as being formed with a base flange notched at opposite points in its diameter as at 26, and through which pass the screws 27 which enter a plate 28 supported in any suitable manner upon the under side of the head 11. By this means the punch may be removed whenever desired for regrinding or for repair. It will be seen also that the blade 15 is supported upon the head by means of a screw 29, and that by removing this screw the blade may be removed, reground, replaced or readjusted.

Mounted upon the under face of the plate 17 are the downwardly extending spaced ears 30. These have approximately the same length as the width of the transverse slot 6 and extend rearward so as to form tongue guides as will be later explained.

Projecting from the interior face of the front wall 2^a of the base 2 is the bifurcated supporting stud 31, and pivoted within this stud is the finger 32, the upper end of which is outwardly and upwardly curved as at 33 and normally disposed immediately beneath the under face of the plate 17. It will be seen that the finger 33 has a relatively long and relatively narrow extremity which is adapted in the operation of the device to pass through the eye 16 on the blade 15. The finger 32 is provided with a rearwardly and upwardly projecting tail 34, and pivoted upon the finger for free upward movement but normally resting upon this tail is a bifurcated extension 35 which is normally

held down in place against the tail by means of a spring but which is adapted to move up independently of the movement of the tail.

For the purpose of actuating the finger 32, we provide a bell crank lever 36 which is pivoted at 37 in ears 38 depending from the under face of the base on each side of the rear end of the slot 4. This bell crank 36 has a forwardly projecting arm 39 which extends forward and is normally supported somewhat above the extension 35. The other arm 40 of the bell crank extends upward through the slot 4 and then is inclined forward and upward so as to have engagement with the under face of the arm 8. Preferably the upper end of the arm 40 is twisted so as to lie flat against the under face of the arm 8 and have a rubbing contact therewith. A spring 41 acts to hold the arm 40 into engagement with the arm 8. The spring 8^a of course acts to hold the arm 8 in its uppermost position and therefore permits the spring 41 to hold the arm 40 in its uppermost position with the arm 39 resting above the extension 35.

For the purpose of holding the finger 32 in its raised position, we provide a spring 42 which as illustrated is a coil spring, the middle portion of which passes through the finger and the lateral ends of which are attached in any suitable manner to the lateral walls of the forward part of the base portion. We do not, however, wish to be limited to this particular form of spring as it is obvious that a number of other forms might be used which would accomplish the same purpose.

In the operation of our invention, the several sheets of paper which are to be attached to each other are placed between the plates 17 and 19, the marginal edges of the sheets striking against the spacing member 24. The head 11 is then forced downward against the force of the spring 8^a. As the head 11 moves downward, the blade 15 punctures a slit designated *a* in the paper *A* through the several sheets, and as the punch moves downward it cuts out a tongue designated *b*. It will be seen that the rear edge 14 of the punch 13 will first strike the paper and that as the punch descends, the tongue will be cut out. Inasmuch as the sides of the tongue *b* are cut out before the front edge 14^a of the punch reaches the paper, it will be obvious that the further descent of the punch will not cut the tongue *b* entirely from the paper but will simply act to force these tongues into the slot 18. As the head moves downward, the arm 8 will push downward upon the arm 40 of the bell crank 36. The forward end 39 of the bell crank will be depressed, and striking against the extension 35 will draw downward upon the tail of the finger 32, drawing the pointed

extremity 33 of the finger rearward and downward to the position shown in Fig. 4 and behind the tongues. When the punch is nearly fully depressed or in the position shown in Fig. 5, the tongue *b* will have been cut out and forced downward between the guide flanges 30 and the eye of the blade 15 will be below the plate 17. On a slight further depression of the head 11, the end of the arm 39 of the bell crank 36 will slip by the extension 35 and release the finger, whereupon the spring 42 will cause the finger to move forward, projecting the end of the tongue or tongues *b* through the eye 16. Upon the upward movement of the head 11, the blade 15 will move upward and carry the extremities of the tongues *b* upward through the slit *a* so that these tongues will then be in the position shown in Fig. 6. As the paper is drawn out from between the plates 17 and 19, the plate 19 will cause the extremities of the tongues to be folded flat against the paper, and the several plies of paper will be securely held together by the refolded interengaging tongues without the use of eyelets, clamps, clips or any like devices.

It will be seen that it is necessary that the finger 32 be formed with the pivoted extension 35 as otherwise the arm 39 of the bell crank 36 could not pass this finger upon an upward movement of the arm 39 and therefore could not return to a position above the extension 35.

Inasmuch as the tongues *b* are struck out from several folds of paper and pass through several folds of paper, it will be plain that the engagement between the several sheets of paper will be relatively strong, permitting a few of the sheets being detached from each other, without damage to the sheets, when desired.

While we have described the operation as taking place in successive steps, it will be understood that as a matter of fact, the clamping together of the papers is practically accomplished at one actuation of the machine. The paper is placed in position between the plates 17 and 19 and the head depressed by a blow. The formation of the tongue and the threading of the tongue into the blade or needle 15 and the drawing of the tongues through the slit *a* are all accomplished at one stroke.

What we claim is:

1. Mechanism for attaching sheets of fabric to each other including a tongue punch, a slit cutting blade formed with an eye, a plate having a slot through which the punch and blade are movable, a finger pivotally mounted beneath said plate and oscillatable longitudinally of the slot, means actuated upon a depression of the punch and blade for retracting said finger and then releasing it, and means moving said finger

outward in the opposite direction to insert the tongue cut by the punch through the eye of the blade.

2. Mechanism for attaching sheets of fabric to each other including a base, a plate mounted on the base and having a slot, a reciprocable arm mounted on the base, a head on the arm, a tongue punch depending from the head and movable through the slot in the plate, a slit cutting blade carried by the head in advance of the punch and in alinement therewith, said blade extending below the punch and having an eye formed in the extended portion, a finger mounted beneath the slot in the plate and movable longitudinally thereof, means actuated upon a depression of the arms for withdrawing said finger to a point rearward of the slot, and means acting upon a full depression of the arm for shifting said finger forward to fold the tongues cut by the punch and insert said tongues through the eye.

3. Mechanism for attaching sheets of fabric to each other including a tongue punch, a slit cutting blade formed with an eye, a plate having a slot through which the punch and blade are movable, a finger pivotally mounted beneath said plate for movement longitudinally of the slot, means normally urging said finger to its forward position, means moving downward with the tongue punch and operatively engaging said finger to retract the same, but escaping from engagement with the finger when the means has nearly reached the lowest limit of its downward movement, and means permitting the first named means to move upward by the finger without actuating the same.

4. Mechanism for attaching sheets of fabric to each other including a tongue punch, a slit cutting blade formed with an eye, a plate having a slot through which the punch and blade are movable, a finger pivotally mounted beneath said plate and oscillatable longitudinally of the slot, a spring normally urging said finger to its forward position, a tail piece pivotally connected to the finger for upward movement but moving the finger upon a downward movement, and means actuated upon a depression of the tongue punch and blade for engaging said tail piece to retract the finger and then release the same to permit it to move outward and insert the tongues cut by the punch through the eye of the blade, said tail piece moving independently of the finger to permit said means to move into position above the finger.

5. Mechanism for attaching sheets of fabric to each other including a base plate, an arm pivotally mounted on the base and having a head at its free end, a tongue punch mounted on said head, a slit cutting blade formed with an eye and disposed in advance

of the tongue punch, a plate mounted on the base having a slot through which the punch and blade are movable, a finger pivotally mounted beneath the plate and oscillatable longitudinally, a spring normally urging said finger to its forward position, a tail piece pivoted to the finger and projecting rearwardly, said tail piece moving downward with the finger but having free upward movement, and a bell crank lever pivoted upon the base, the upper end of the lever engaging said arm, the lower end of the lever being normally above said tail piece whereby upon a depression of the arm and head the lower end of the bell crank will engage said tail piece to retract the finger and then release the same to permit the said finger to move outward and insert the tongues cut out by the punch through the eye of the blade.

6. Mechanism for attaching sheets of fabric to each other including a base, a plate mounted on the base and having a slot, a reciprocatable arm mounted on the base, a spring normally urging said arm to a raised position, a head on the arm, a rearwardly tapered tongue punch depending from the head and having a rearwardly and downwardly inclined face, said punch being movable through the slot in the plate, a slit-cutting blade carried by the head in advance of the punch and in alignment therewith, said blade extending below the punch and having an eye formed in the extended portion, a finger mounted beneath the slot in the plate and movable longitudinally thereof, means actuated by a depression of the arm for withdrawing said finger to a point rearward of the slot, and means permitted to act upon a full depression of the arm for shifting said finger forward to fold the tongues cut by the punch and insert said tongues through said eye.

7. Mechanism for attaching sheets of fabric to each other including a tongue punch, a slit-cutting blade formed with an eye, a plate having a slot through which the punch and blade are movable, a finger mounted beneath said plate and reciprocatable longitudinally of the slot, a spring normally urging said finger to its forward position, and means actuated upon a depression of the tongue punch and blade for retracting said finger and then releasing said finger to permit said spring to move it outward and insert the tongues cut by the punch through the eye of the blade.

8. Mechanism for attaching sheets of fabric to each other including a base, a plate mounted on the base and having a slot, an arm pivotally mounted on the base and having a head disposed above the slot, a spring normally urging the arm to a raised position,

a tongue punch depending from the head, said punch being tapered rearwardly and having a downwardly and rearwardly inclined cutting face, said punch being movable through the slot upon a depression of the head, a slit-cutting blade carried by the head and in advance of the punch, said blade projecting below the punch and having an eye formed therein, a spring actuated angular finger mounted in said base below the plate and operating immediately below the slot in the plate, and means actuated by a depression of the arm for retracting the finger against the force of the spring and then releasing said finger to permit it to carry the tongues cut by the punch through the eye of the said blade.

9. Mechanism for attaching sheets of fabric to each other including a base, a plate mounted on the base and having a longitudinally extending slot therein, a second plate mounted above and spaced from the first named plate having a punch slot and a blade slot therein, an arm pivotally mounted on the base and extending over the said plates, a spring for holding the arm in an upraised position, a punch depending from the arm in alignment with the punch slot in the second plate, said punch tapering from front to rear and having a downwardly and rearwardly inclined lower cutting face, a slit-cutting blade carried on the arm in advance of the punch and extending below the punch, said extension being formed with an eye, an angular finger pivoted in the base below the slot in the lower plate, said finger having an angularly projecting tail, an extension pivoted upon the pivot of the finger and engaging said tail for a downward movement but independently movable with relation to the tail upon an upward movement, a spring normally urging the finger to an upward and forward position, a bell crank mounted in the base, one arm of which engages said finger for a limited distance during the travel of the bell crank, the other arm of the bell crank extending upward through the base and into engagement with the punch supporting arm whereby to cause a retraction of the finger upon a depression of the punch carrying arm, and a tripping of the finger to permit said spring to carry it forward as the bell crank releases the extension of the finger.

In testimony whereof we affix our signatures in presence of two witnesses.

JAMES N. STACY. [L.S.]

ARTHUR W. HOAG. [L.S.]

Witnesses:

MABEL M. GLASSEY,

HUGH M. HAMMER.