UNITED STATES PATENT OFFICE.

J C HAWKINS, OF NEWTON, IOWA.

PAPER-FASTENING DEVICE.

1,173,425.


To all whom it may concern:

Be it known that I, J C HAWKINS, a citizen of the United States, residing at Newton, county of Jasper, and State of Iowa, have invented a new and useful Paper-Fastening Device, of which the following is a specification.

My invention relates to paper fastening devices, and has for its object the provision of paper fastening mechanism mounted on a stand and adapted to unite sheets of paper by means of a tongue formed integral with the paper, the fastening being accomplished by means of a single operation of the device.

In the accompanying drawings, Figure 1 is a longitudinal cross-sectional view of my improved paper fastening device, the parts being shown in normal or inoperative position; Fig. 2 is a view similar to Fig. 1, showing the parts in their operative position; Fig. 3 is a view similar to Fig. 2 showing the parts restored partially to their initial position; Fig. 4 is a bottom plan view of the member which supports the cutting mechanism; Fig. 5 is a bottom plan view of the lower section through which the cutting mechanism extends when the device is operated; Fig. 6 is a plan view of a portion of the base of the stand showing the plate which is in alignment with the cutting knives; Fig. 7 is a fragmentary view showing how the papers are fastened together by means of an integral tongue; and Fig. 8 is a reverse view of Fig. 7.

Referring to the drawings in detail, the stand which supports the entire mechanism comprises a base plate 1 and a standard 2, the latter being secured to the base by means of screws 3 which pass through openings 4 in the base into lugs 5 on the standard or upright 2. In order to permit adjustment of the standard on the base the openings 4 may be in the form of elongated slots, as indicated in Fig. 1. The upright 2 is provided with a hollow vertical portion 6 in which is slidably mounted the tubular section 7. The extent of movement of the section is limited by the slot 8 into which extends the set-screw 9, carried by the vertical portion 6. The section 7 carries at its lower end the short cylindrical member 10 which fits tightly into the section and is secured thereto by solder or any other suitable means and constitutes a supporting block for the cutting mechanism. This mechanism comprises a wedge-shaped cutting knife 11 and a slitting knife 12. The form of the cutting knife 11 is best shown in the plan view in Fig. 4, from which it will be seen that the knife is secured to the block 10 by means of lateral flanges 13, through which pass screws 14. The knife surrounds the wedge-shaped opening 15 in the bottom of the supporting block 10, as best shown in Fig. 4. The slitting knife 12 consists of a straight blade provided with an eye 16 near its cutting edge. The knife is secured in the cut-away portion 17 of the block 10 by means of screws 18. In this way the screws 18 do not extend beyond the periphery of the block 10 and thus permit the block to be inserted in the tubular section 7. Secured to the supporting block 10 is the resilient member 19 which I will call the folder, because, as will presently appear, its function is to fold or bend the cut-out tongue through the eye of the slitting knife 12. The folder is secured to the block by the screws 18. In the normal position of the parts as shown in Fig. 1, the free end of the folder rests against the lug 21 struck-up from the bottom of the lower section 22, which partly overlaps the upper section 7. A compression spring 23, housed in the lower section 22, normally holds the sections apart, as shown in Fig. 1. This movement is limited by the pins 24 carried on opposite sides of the upper section 7 and the slots 25 provided on the lower section. As shown in Fig. 1, the pins 24 engage the top of the slots 25 and the lower section 22 rests against the vertical portion 6 of the standard 2. The bottom of the lower section 22 is provided with an opening 26 in alignment with the cutting knife 12 and with a wedge-shaped opening 27 in alignment with the cutting knife 11. The bottom plan view of Fig. 5 shows the openings 26 and 27 and also shows the base of the struck-up lug 21. The base 1 has sunk into it a plate 28 provided with an opening 29 which cooperates with the cutting mechanism to form a tongue from the paper and to slit the paper near the base of the tongue.

In other words the plate 28 acts as a female member of the die of which the knives 11 and 12 may be considered the male members. The plate 28 is secured to the base by rivets 30. A compression spring 31, which is stronger than the spring 23, is coiled about the upper portion of the section.

10
7 with one end resting under the head 33 and the other end resting against the upright portion 6. The tendency of the spring is to hold the sections in their elevated position, as shown in Fig. 1.

From the above detailed description of the construction of my improved paper fastening device, the operation will now be apparent, and is as follows: The sheets of paper having been placed over the plate 28, as indicated at 31 in Fig. 1, the section 7 is brought down by pressure on the head 33 and the initial movement of the parts will carry the sections in unison downwardly until the lower section 22 rests firmly over the papers 31, as indicated in dotted lines at 34. The papers are thus clamped down over the plate 28. Further downward pressure on the section 7 overcomes the action of the spring 23 in the lower section 22 and the cutting mechanism is brought down against the paper until the parts are in the position indicated in Fig. 2. During the cutting operation the knife 11 will cut a wedge-shaped tongue from the paper while the slitting knife will simultaneously cut a slit near the base of the tongue. In Figs. 7 and 8, the integral tongue is indicated at 35 and the slot at 36. As the section 7 is being lowered relatively to the section 22, the free end of the folder 19 will pass out of engagement with the lug 21, and when the cutting operation has been accomplished the folder will be in substantially the position indicated in Fig. 2. In other words, when the free end of the folder is released by the restraining lug 21, the cut-out tongue is folded or bent back through the eye of the knife, as clearly shown in Fig. 2. Upon release of the section 7, the spring 32 will pull the parts upwardly. The effect of the withdrawal of the knife 12 is to thread the end of the tongue through the slit, as indicated in Fig. 3. The spring 32 will restore the parts to the position indicated in Fig. 1.

From the above description of the operation of the device, it will be clear that by simply depressing the section 7 to its lowermost position and then releasing the head 33 the papers are automatically fastened together by means of a tongue cut from the paper itself and threaded through a slit in the paper.

Having thus described my invention what I claim as new and desire to secure by Letters Patent of the United States is:

1. In a paper fastening device, the combination of a stationary support, a spring actuated tubular section slidably mounted within said support, a tubular lower section mounted upon the lower end of the first mentioned tubular section, a coil spring housed within said lower section, the upper end of the lower section adapted to rest normally against the said support, a die-plate, and means carried by the tubular upper section and cooperating with said die-plate for the purpose specified.

2. In a paper fastening device, the combination with a base, of a support carried thereby, a plunger slidably mounted upon said support, a coiled spring encircling said plunger and interposed between the standard and the upper end of the plunger, a cylindrical member carried by the lower end of the plunger, a folder, a slitting knife adapted to rest within a vertical peripheral recess formed within the cylindrical member, means for detachably connecting the slitting knife and folder to the cylindrical member, a cutting knife detachably secured to said cylindrical member, and a die-plate formed within the base, substantially as and for the purpose specified.

In witness whereof, I hereunto subscribe my name this 90th day of September A. D. 1911.

J C HAWKINS.

Witnesses:

H. R. CONN,

CHAS. M. BROWN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."

1,173,425