R. B. REASONER.

SHEET UNITING IMPLEMENT.

APPLICATION FILED FEB. 14, 1910.

**966,598.** **Patented Aug. 9, 1910.**

2 SHEETS—SHEET 1.

Fig. 1.

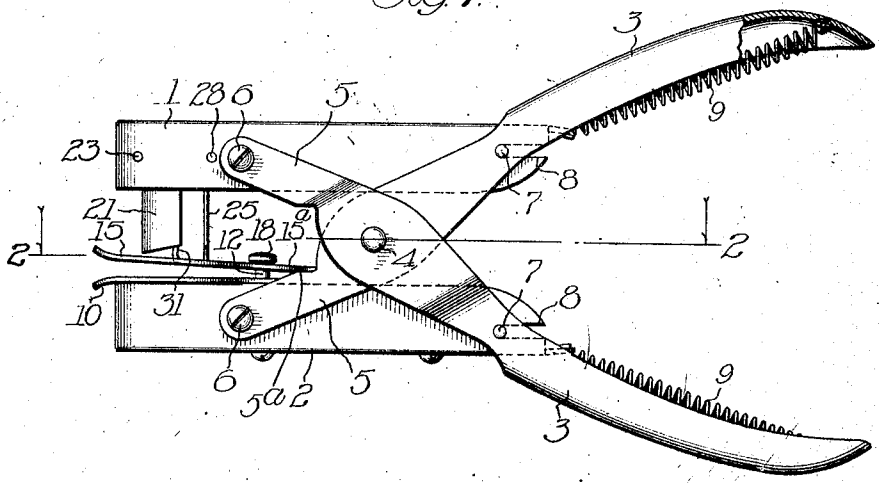



Fig. 2.

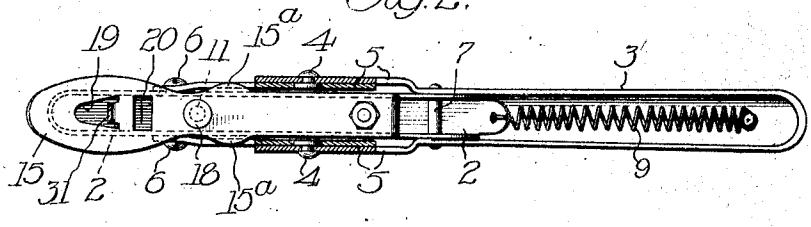
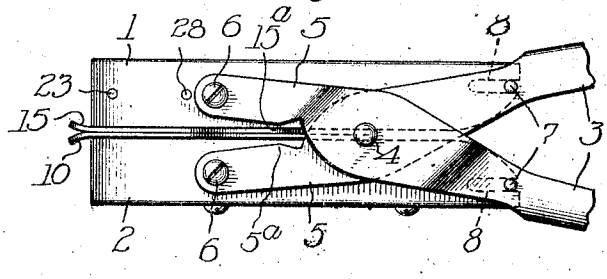



Fig. 3.

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2 SHEETS—SHEET 2.

Fig. 4.

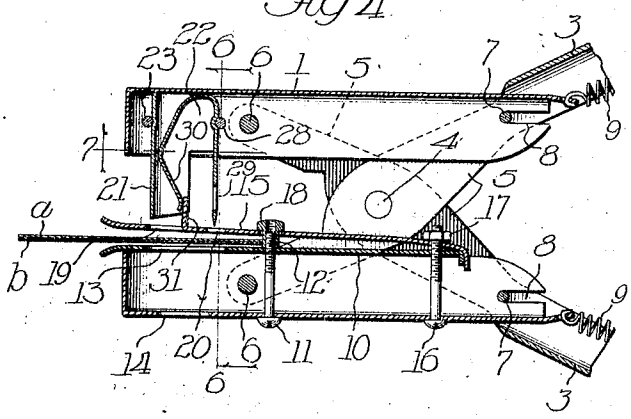



Fig. 6.

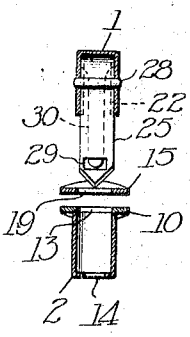



Fig. 5.

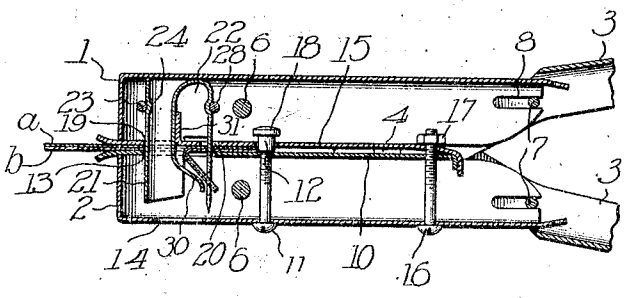



Fig. 7.

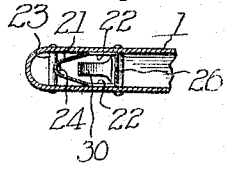



Fig. 8.

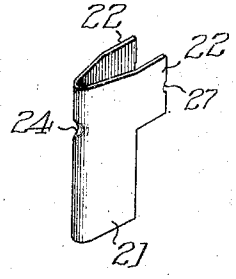



Fig. 10.

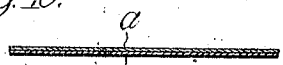



Fig. 11.

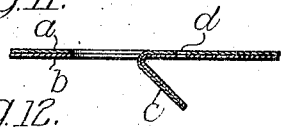



Fig. 12.

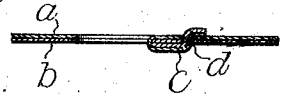
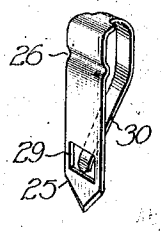



Fig. 9.

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# UNITED STATES PATENT OFFICE.

RALPH B. REASONER, OF MARSHALLTOWN, IOWA.

## SHEET-UNITING IMPLEMENT.

966,598. Specification of Letters Patent. Patented Aug. 9, 1910.

Application filed February 14, 1910. Serial No. 543,866.

*To all whom it may concern:*

Be it known that I, RALPH B. REASONER, a citizen of the United States, residing at Marshalltown, in the county of Marshall and State of Iowa, have invented certain new and useful Improvements in Sheet-Uniting Implements, of which the following is a specification.

This invention relates to an implement for securing together a plurality of sheets, as, for example, a letter and its inclosures, or several sheets of manuscript or printed matter.

The object of the invention is to improve the construction of a device of this class.

In the accompanying drawings, Figure 1 is a side elevation of an implement embodying the features of my invention. Fig. 2 is a sectional view taken in the plane of dotted line 2 2 of Fig. 1. Fig. 3 is a fragmental side elevation showing the jaws of the implement as closed together. Fig. 4 is a longitudinal sectional view through the jaws in the separated or open position. Fig. 5 is a similar view showing the jaws closed. Figs. 6 and 7 are sections on lines 6 6 and 7, respectively, of Fig. 4. Figs. 8 and 9 are perspective views of two punches comprised in the mechanism. Figs. 10, 11 and 12 illustrate the steps in the operation of fastening two sheets together.

The implement herein shown is adapted to fasten together a plurality of sheets lying in contact with one another, by cutting a tongue-shaped portion out of all the sheets, one end of the tongue remaining attached to the sheets, and bending back said tongue and passing it through a slit in the sheets.

The implement comprises two similar elongated jaws which will be termed the upper jaw 1 and the lower jaw 2. Each jaw consists preferably of a sheet-metal stamping. The upper jaw consists of two side walls and a top wall, while the lower jaw consists of two side walls and a lower or bottom wall. The implement is held in the hand and operated by means of two handles 3 which are pivotally connected by a rivet or pin 4. The inner end of each handle is extended beyond the pivot 4 in the two portions 5. In order that the jaws 1 and 2 may be maintained in parallelism when opened and closed by the handles, the forward portions of said jaws are pivoted between the handle portions 5 upon pivots 6, and the rear portions of said jaws are pivotally and slidably connected with the handles 3 by pins 7 fixed in the handles and passing through slots 8 in the jaws. The pivot 6 and the pin 7 for each jaw are equally distant from the pivot 4, whereby parallelism of the jaws is preserved during the movements of the latter. For opening the jaws I provide coiled tension springs 9 each attached at one end to the outer end of one of the handles, upon the inner side thereof, and connected at its other end to the inner end of one of the jaws. When the jaws are closed together, the springs 9 are flexed or extended, whereupon when the pressure upon the handles is relaxed, the springs contract and open the jaws.

A die plate 10 is fixed upon the upper side of the lower jaw 2 by means of a screw 11 extending upwardly through the jaw and the die plate, a nut 12 being turned on said screw and bearing upon said plate. In the plate 10 is formed a die opening 13. The lower wall of the jaw 2 is preferably cut away, as at 14, below the opening 13.

A stripper plate 15 is located above the die plate 10 and is secured in place by a screw 16 passing through the rear ends of the plates 10 and 15 and the jaw 2, a nut 17 being turned on the upper end of the screw. The stripper plate 15 has an opening therein through which the nut 12 extends, said nut having a flange 18 thereon to limit the upward movement of the stripper plate. Said plate tends to lie in contact with the die plate 10, but is moved away from the die plate 10, so as to provide a space to receive the sheets to be fastened together, by shoulders $5^a$ on the handle portions 5 underlying the side portions $15^a$ of the stripper plate. See Figs. 1 and 2. Openings 19 and 20 are formed in the stripper plate for the passage of the cutters to be next described.

Fig. 8 illustrates in perspective a cutter 21 formed from sheet metal, the operating portion, or cutter proper, being of the cross-sectional form shown in Fig. 7, *i. e.*, substantially V-shape. The lower end of the cutter is beveled as indicated in Fig. 4, so that the closed end of the V shall pierce the sheets first. The attaching portion of the cutter 21 bears against the top wall of the jaw 1 and has two side extensions or lugs 22 which lie in contact with the side walls of the jaw. A rivet 23 is fixed in the side walls of the jaw and passes in front of the attaching portion of the cutter 21, a groove 24 being

formed in said attaching portion to receive the rivet.

A straight vertically-extending cutter 25 having a V-shape cutting edge has an attaching portion which overlies the rear edges of the lugs 22 and is of the same width as the space between the side walls of the jaw 1. Said attaching portion is bent to provide a groove 26, and the edges of the lugs 22 are notched at 27 to receive the said bent portion. A rivet 28 is set in the side walls of the jaw 1 and lies in the groove 26. It will be seen that the cutters 21 and 25 are securely held against movement by the rivets 23 and 28 and by the walls of the jaw 1. In the lower part of the cutter 25 is an opening 29 for a purpose to appear hereinafter. A spring finger 30 is formed integral with the upper end of the cutter 25, and tends to spring rearwardly into the position shown in Fig. 5.

31 is a stop lug on the stripper plate 15.

When the jaws 1 and 2 are separated, as indicated in Fig. 4, the free end of the finger 30 lies in front of the stop lug 31. When the jaws are closed together, the free end of the finger 30 is moved away from the lug 31 and springs into the position shown in Fig. 5.

In use, when it is desired to secure together two or more sheets, the sheets (as *a b*) are inserted into the space between the die plate 10 and the stripper plate 15, the nut 12 serving as a stop in positioning the sheets. The operator then compresses the handles 3, thereby closing the jaws 1 and 2 upon the sheets, as shown in Fig. 5. As the jaws approach each other, the cutter 21 forms a tongue *c*, the cutter 25 cuts a slit *d* in the sheets, and the spring finger 30 tucks the tongue *c* into the opening 29 in the cutter 25. The operator now releases the handles 3, whereupon the springs 9 separate the jaws 1 and 2. As the jaws move apart, the cutter 25 pulls the end of the tongue *c* through the slit *d*, thereby fastening the sheets together. The sheets may now be withdrawn from between the die plate 10 and the stripper plate 15.

The flanged nut 12 serves to limit the upward movement of the stripper plate during the stripping operation.

I claim as my invention:

1. In an implement for securing together a plurality of sheets, in combination, two parallel jaws; crossed handles pivotally connected together and connected to each of said jaws at two points for moving them toward and away from each other; cutting means carried by said jaws; and a stripper attached to one of said jaws and arranged to be engaged by one of the handles forwardly of the pivotal connection between the handles.

2. In an implement for securing together a plurality of sheets, in combination, two jaws; crossed handles pivotally connected together and connected to each of said jaws at two points for moving them toward and away from each other; a cutter carried by one of the jaws; a coöperating die plate carried by the other jaw; and a stripper plate attached to the last mentioned jaw and tending to lie in contact with said die plate, the handle for the last mentioned jaw having a shoulder thereon intermediate the pivotal connection between the handles and one of the points of connection between the handle and the jaw, said shoulder underlying the stripper plate for moving the latter away from the die plate.

3. In an implement for securing together a plurality of sheets, in combination, two jaws; handles attached to said jaws for moving them; a cutter carried by one of the jaws; a coöperating die plate carried by the other jaw; and a stripper plate attached to the last mentioned jaw and tending to lie in contact with said die plate, the handle for the last mentioned jaw having a shoulder thereon which underlies the stripper plate for moving the latter away from the die plate; and a stop for limiting such movement of the stripper plate.

4. In an implement for securing together a plurality of sheets, in combination, two jaws, one of which is a sheet-metal stamping comprising two side walls and a bottom wall; a die plate and a stripper plate; a fastening member passing through the rear ends of said jaw and said plates for securing them together; a screw extending through said bottom wall and said die plate; a nut on said screw for securing said die plate to said jaw, said nut extending loosely through said stripper plate and serving as a stop to limit movement of said stripper plate away from the die plate; cutter means on the other jaw coöperating with said die plate; and handles for moving said jaws.

5. In an implement for securing together a plurality of sheets, in combination, two jaws, one of said jaws having a portion serving as a die; the other jaw comprising side walls and a top wall and carrying a tongue-cutter, a slit-cutter, and means for engaging the tongue formed by the tongue-cutter with the slit-cutter, said tongue-cutter being formed of sheet-metal and having an attaching portion abutting against said top wall, said attaching portion having side lugs that lie in contact with said side walls; fastening members confining said tongue-cutter between them; and handles for moving said jaws.

6. In an implement for securing together a plurality of sheets, in combination, two jaws, one of said jaws having a portion serving as a die, the other jaw comprising side walls and a top wall and carrying a tongue-

cutter, a slit-cutter, and a spring finger for engaging the tongue formed by the tongue-cutter with the slit-cutter, said slit-cutter and finger being integral, said tongue-cutter having an attaching portion abutting against said top wall and lying in contact with said side walls, said slit-cutter having a base portion overlying the attaching portion of the tongue-cutter, said attaching portions being grooved, rivets lying in said grooves and set in said side walls, one at each side of said pair of cutters; and handles for moving said jaws.

7. In an implement for securing together a plurality of sheets, a slit-cutter and tongue-inserter formed from an integral piece of metal and consisting of the cutter portion 25 having an attaching portion and a curved spring finger 30 integral with the upper end of said attaching portion, said cutter having an opening 29 therein.

8. In an implement for securing together a plurality of sheets, in combination, two jaws, one of said jaws having a portion serving as a die; the other jaw being a sheet-metal stamping comprising two side walls and a top wall, and carrying a tongue-cutter, a slit-cutter, and a spring finger for engaging the tongue formed by the cutter with the slit-cutter, said slit-cutter and finger being integral, said tongue-cutter being formed of sheet-metal and having an attaching portion abutting against said top wall, said attaching portion having side lugs that lie in contact with said side walls, said slit-cutter having a base portion lying in contact with the edges of the side lugs of the tongue-cutter; fastening members confining said tongue-cutter and slit-cutter between them; and handles for moving said jaws.

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