

Jan. 9, 1940.

E. W. BACON

2,186,569

APPARATUS FOR ATTACHING FASTENERS

Filed Oct. 29, 1937

4 Sheets-Sheet 1

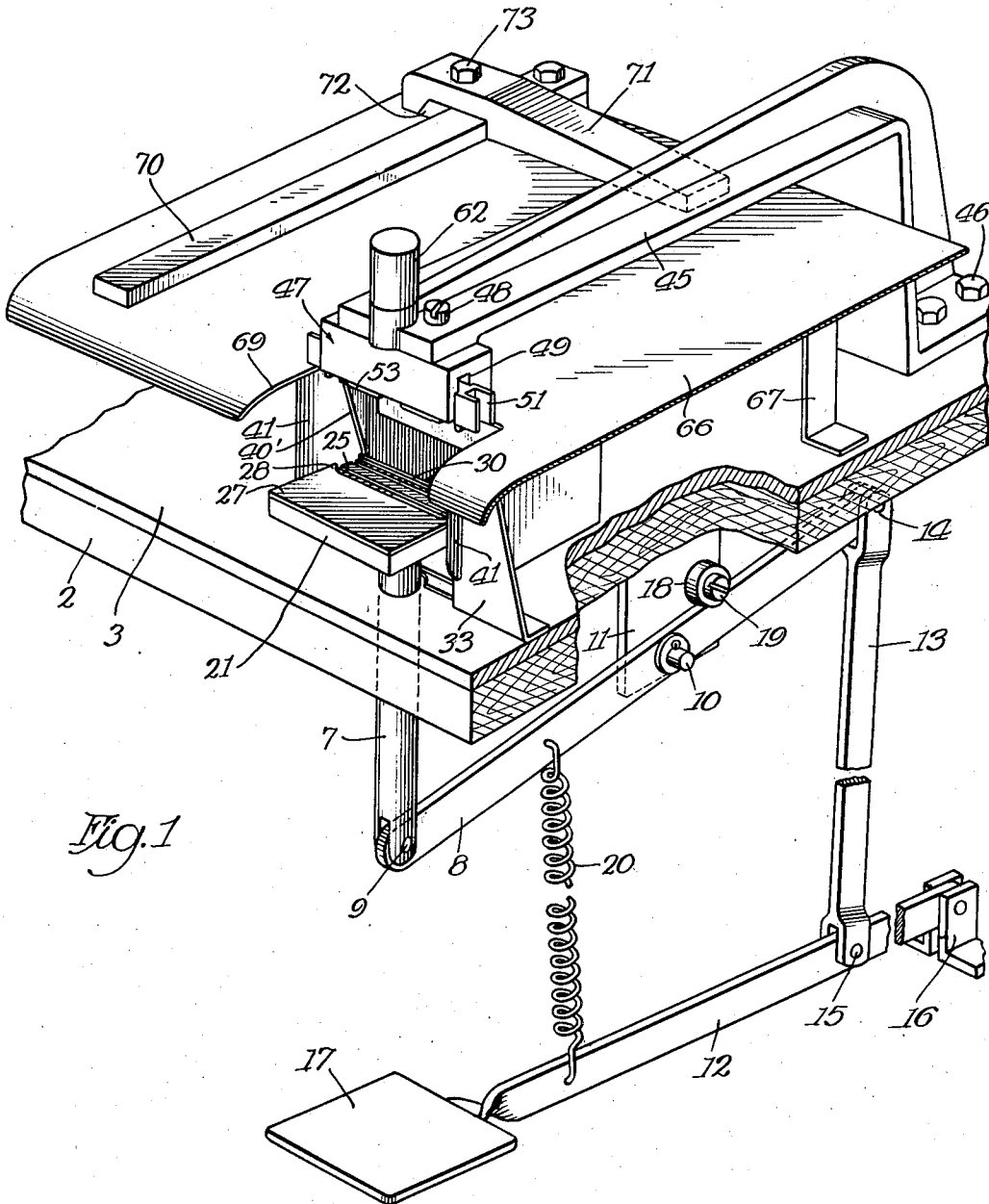


Fig. 1

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Jan. 9, 1940.

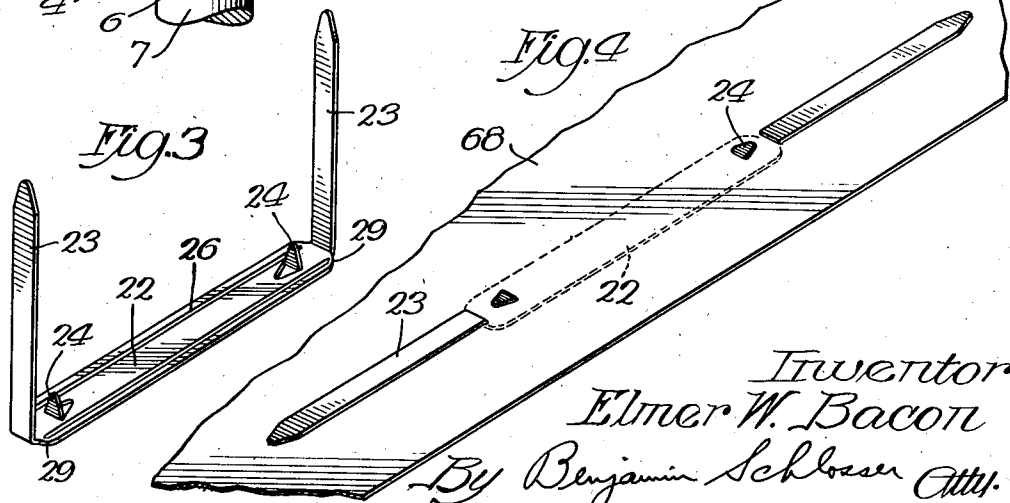
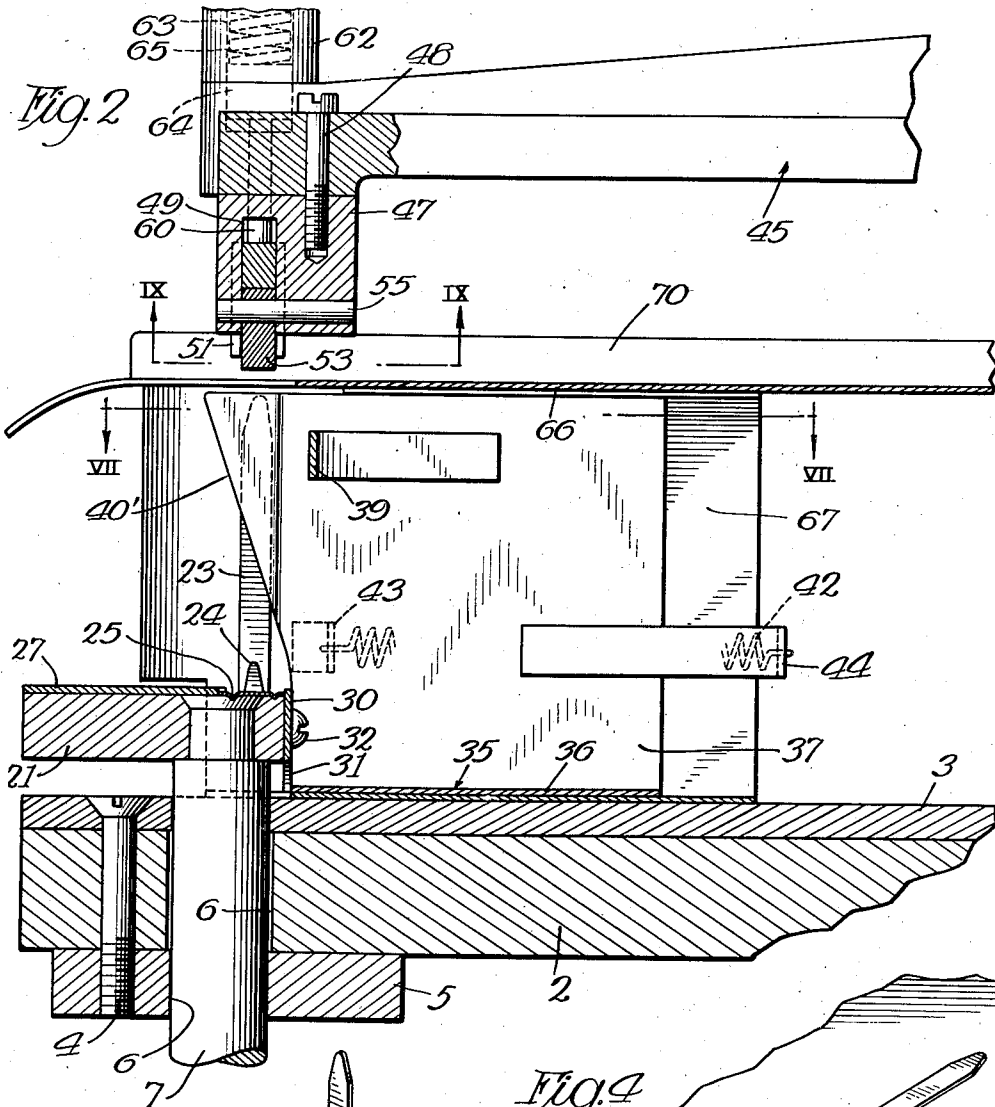
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4 Sheets-Sheet 2



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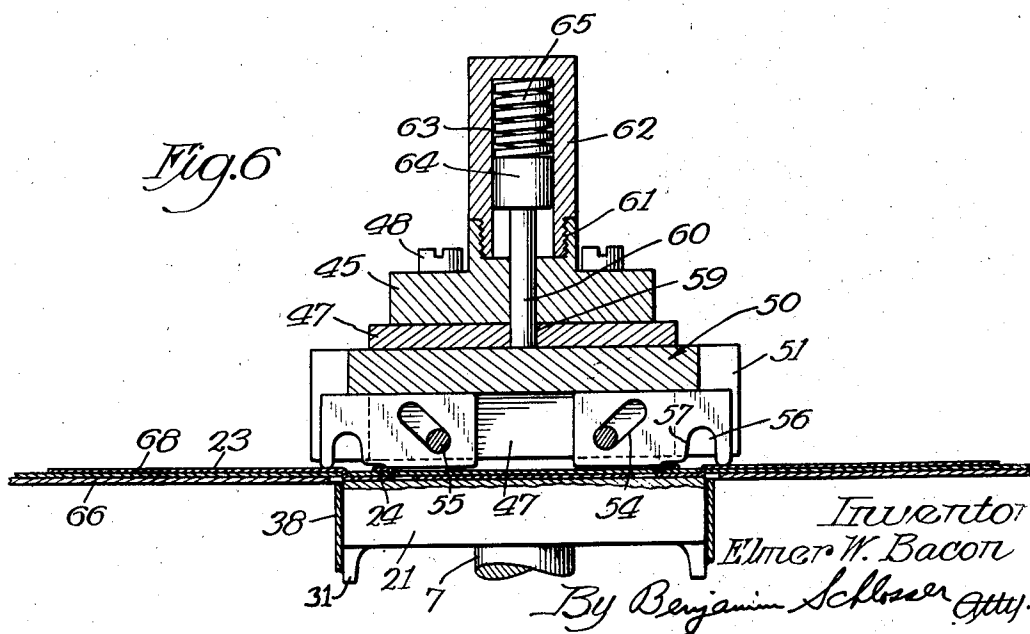
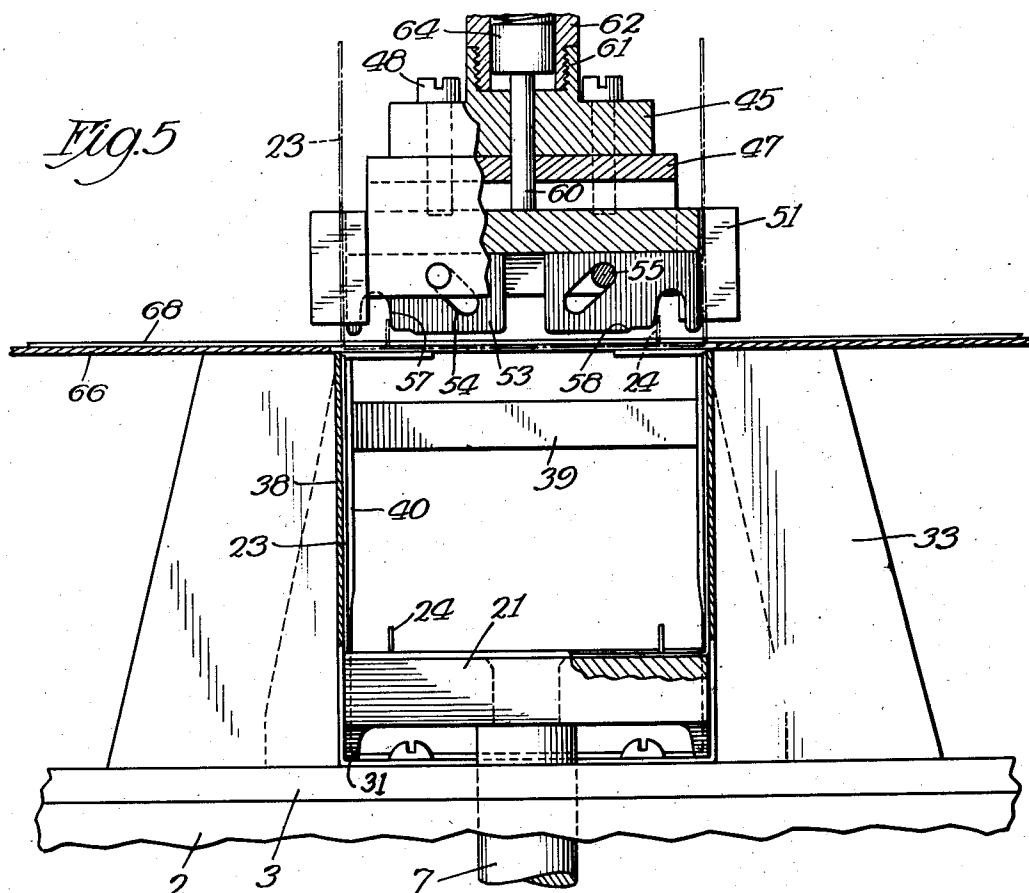
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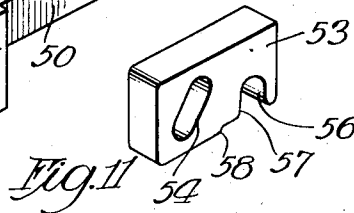
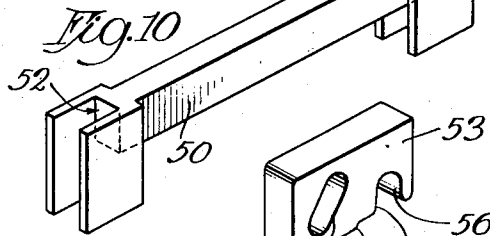
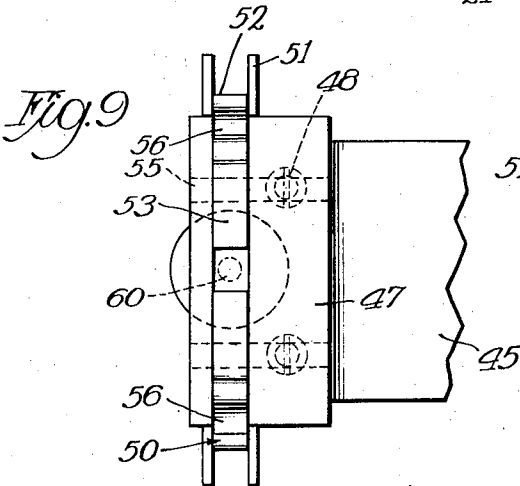
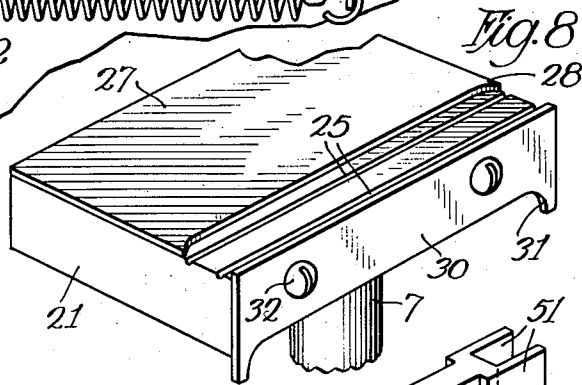
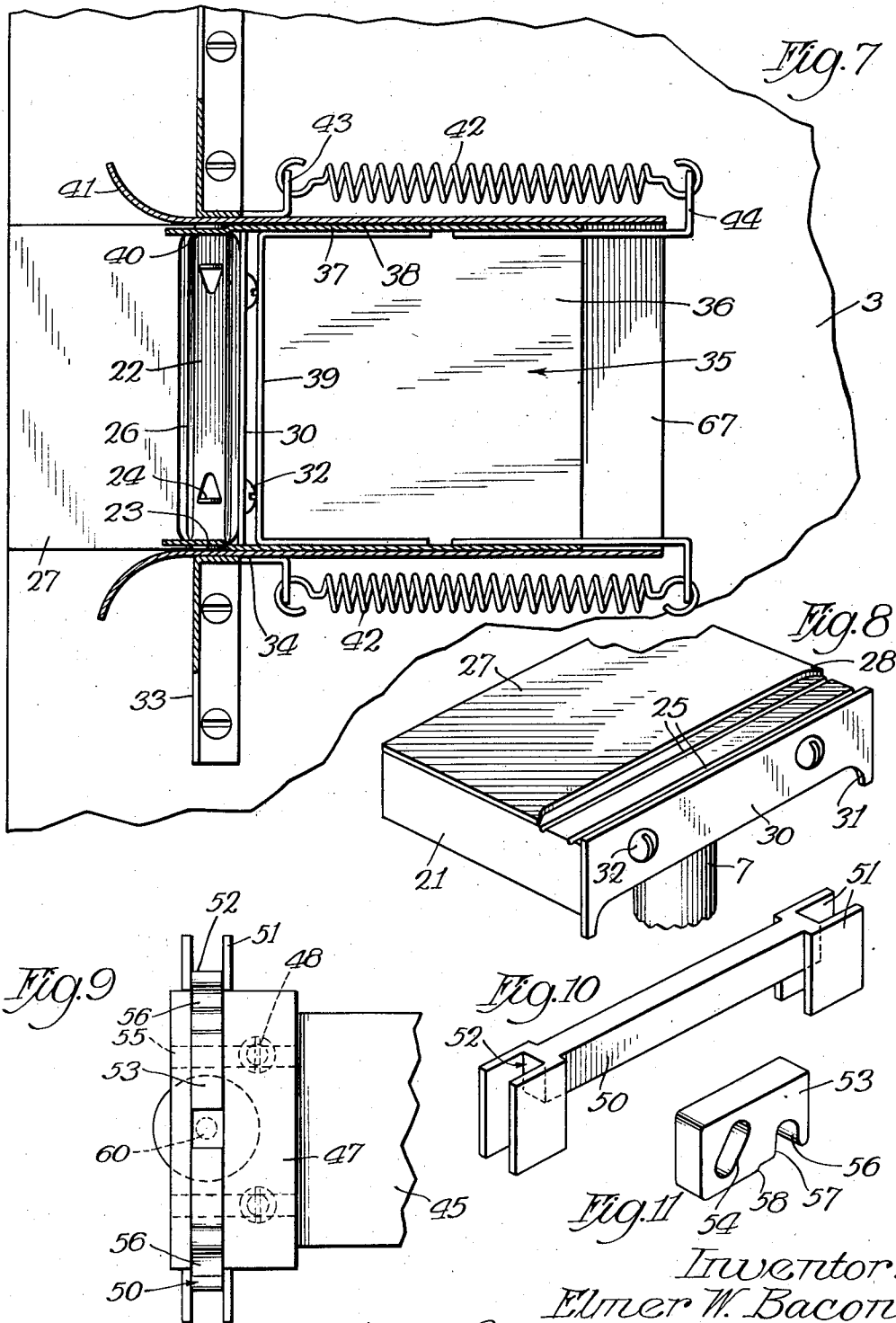
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APPARATUS FOR ATTACHING FASTENERS

Filed Oct. 29, 1937

4 Sheets-Sheet 4



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UNITED STATES PATENT OFFICE

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APPARATUS FOR ATTACHING FASTENERS

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Application October 29, 1937, Serial No. 171,605

15 Claims. (Cl. 1-4)

The invention relates to an apparatus for attaching fasteners having sheet retaining prongs to file holders, cards, sheets of paper or similar backing supports.

It is an object of this invention to provide a simple and efficient apparatus adapted to secure a conventional fastener to any suitable backing support. It is a further object of this invention to provide means for bending the sheet retaining prongs of the fastener downwardly against the backing support. Other objects of the invention will become apparent upon reading the following description, taken in conjunction with the accompanying drawings, in which

Figure 1 is a perspective view of an apparatus embodying the invention;

Figure 2 is a fragmentary side view of the apparatus, partly in section and partly in elevation;

Figure 3 is a perspective view of a fastener ready for attachment to a backing support;

Figure 4 is a perspective view of a fastener attached to a backing support;

Figure 5 is a fragmentary front elevation of the apparatus;

Figure 6 is a cross section view showing the arrangement of parts just after the fastener has been attached to the backing support;

Figure 7 is a fragmentary top plan view taken along the line VII-VII of Figure 2;

Figure 8 is a detail perspective view of the platen;

Figure 9 is a fragmentary plan view taken along the line IX-IX of Figure 2;

Figure 10 is a detail perspective view of a guide member; and

Figure 11 is a detail perspective view of one of the anvils.

In the drawings, the reference numeral 2 indicates a bench or table top adapted to serve as a support for the apparatus hereinafter described. The apparatus includes a base plate 3 secured to the bench 2 by means of screws or bolts 4. A reinforcing plate 5 is secured to the underside of the bench by means of the screws or bolts 4. The bench 2, base plate 3 and reinforcing plate 5 are apertured, as indicated at 6, to allow passage of a plunger rod 7.

The lower end of the plunger rod 7 is pivotally secured to a lever 8, as indicated at 9. The lever 8 is fulcrumed intermediate its ends, as indicated at 10, to a bracket 11 secured to the underside of the bench 2. The other end of the lever 8 is connected to a foot lever 12 by means of a link 13 having one end secured to one end

of the lever 8, as indicated at 14, and its other end secured to the lever 12 intermediate its ends, as indicated at 15. The lever 12 is pivoted at one end to a fixed support 16 and has a foot pedal 17 at its front end. The levers 8 and 12 are so proportioned that a slight pressure on the foot pedal 17 moves the plunger rod 7 upwardly. A collar 18 removably secured adjacent the bracket 11 by means of the screw 19 engages the lever 8 to limit the movement of the plunger rod 7. When a longer stroke for the plunger rod 7 is desired because of longer sheet retaining prongs on the fastener to be attached to a file folder or other backing support, the collar 18 is removed. A coil spring 20 secured to the levers 8 and 12 is adapted to move the plunger rod 7 back to its initial position as soon as the pressure on the foot pedal 17 is released.

A platen 21 is rigidly secured to the upper end of the plunger rod 7. The platen 21 is adapted to support a fastener 22 with its sheet retaining prongs 23 and its attaching tine or tines 24 projecting at right angles to the base of the fastener. A pair of parallel grooves 25 is provided in the upper surface of the platen 21 to receive a pair of reinforcing ribs 26 formed on the base of the fastener. A flat metal plate 27 provided with a pair of integral extensions 28 is secured to the top surface of the platen adjacent the area upon which the fastener 22 is positioned. The extensions 28 are shaped to conform to the contour of the edges 29 of the fastener and engage said edges 29 to prevent longitudinal movement of the fastener during the fastener attaching operation. A hardened steel plate 30 provided with depending integral extensions 31 is secured to the rear edge of the platen 21 by means of screws 32 for a purpose to be hereinafter described.

A pair of L-shaped upright members 33 is secured to the base plate 3 with the rearwardly extending wall 34 of one member 33 parallel to the corresponding wall of the other member and spaced therefrom a distance slightly greater than the length of the platen 21. A guide member 35 is positioned between the members 33. The guide member 35 is provided with a horizontal base portion 36 adapted to rest on the base plate 3 and a pair of upstanding walls 37. Each wall 37 is provided with a reinforcing wall 38. A spacing bar 39 extending between the walls 37 serves to strengthen the structure. The front edge 40 of each of the walls 37 is offset to allow room for the prongs 23 between each wall 37 and its reinforcing wall 38. The front edge of each

wall 38 is flared outwardly, as indicated at 41, to facilitate the proper positioning of the fastener 22 on the platen 21.

The edge 40 of each wall 37 is inclined or cam shaped, as indicated at 40'. The hardened steel plate 30 engages the edges 40 of the walls 37 of the guide member 35 so that the guide member is progressively moved backwardly in a line extending at right angles to the path of travel of the platen 21 as the platen is moved upwardly by pressure on the foot pedal 17. A pair of coiled springs 42 each having one end secured to an ear 43 projecting from the wall 34 and its other end secured to a bracket 44 carried by the wall 37 moves the guide member 35 forwardly progressively as the platen is moved downwardly by the spring 20.

An arm 45 having one end secured to the rear edge of the base plate 3 by means of bolts 46 extends across the plate 3 and has its other end spaced above the platen 21. A stationary head 47 is secured to the underside of the forward end of the arm 45 by means of a pair of bolts 48. The stationary head 47 comprises a rectangular block of steel provided with a deep recess 49 into which a guide member 50 snugly fits.

The guide member 50 extends the length of the stationary head 47 and has a pair of integral extensions 51 projecting beyond the edges of the head. The extensions 51 at each edge of the stationary head 47 provide a channel 52 adapted to receive the sheet retaining prongs 23 and guide them upwardly after the fastener 22 has been moved far enough to penetrate the backing support to which it is to be secured.

A pair of movable anvils 53 is positioned in the recess 49 below the member 50. Each movable anvil 53 is provided with a diagonally extending slot 54 and is secured in the recess 49 by means of a pin 55 passing through the diagonal slot 54 and rigidly secured to the stationary head 47. A portion of each anvil projects into one of the channels 52. The anvils are positioned so that the sheet retaining prongs 23 fit into the channels 52 adjacent the outer edges of the anvils 53.

Each anvil is notched on its undersurface, as indicated at 56, to provide a shoulder 57. Each notch 56 is positioned in registration with one of the attaching tines 24. The undersurface of each anvil 53 adjacent the shoulder 57 is recessed to provide a second shoulder 58.

The stationary head 47 is provided with an aperture 59 leading into the recess 49. A pin 60 projects through the aperture 59 into engagement with the top surface of the member 50. The arm 45 is provided with an internally threaded recess 61 into which a cap member 62 is threaded. The cap member 62 is provided with a recess 63 and the pin 60 is provided with an enlarged head 64 of substantially the same diameter as the diameter of the recess 63. A coiled spring 65 positioned in the recess 63 above the head 64 exerts a constant force urging the pin 60 downwardly.

A plate 66 is supported by the upright members 33 and one or more brackets 67 in position to support a file folder or other backing support 68 adjacent the underside of the movable anvils 53. The front edge of the file folder support is cut away, as indicated at 69, to facilitate the attachment of the fasteners 22 to the file folders 68. A bar 70 is slidably secured to the plate 66 in any suitable manner to act as a side gauge for the file folders. A bar 71 extending at right angles to the bar 70 and slidably secured there-

to by means of a wedge 72 and a screw 73 serves as the back gauge.

The operation of the apparatus is quite simple and fast. A fastener 22 is positioned on the platen 21 with the sheet retaining prongs 23 positioned between the wall 38 and the offset portion 40 of the wall 37. The base portion of the fastener is held in position by the flat plate 27 and the upper edge of the hardened steel plate 30. The fastener is prevented from moving longitudinally by the extensions 28 engaging the ends 29 of the base of the fastener.

A file folder 68, or similar backing support, is placed on the plate 66 and positioned against the gauge bars 70 and 71. The foot pedal 17 is depressed, causing the platen 21 to move upwardly and the hardened steel plate 30 moves the guide member 35 rearwardly out of the path of travel of the platen. The depending extensions 31 prevent the platen 21 from getting caught on the edge of the plate 66 when the platen is in its uppermost position.

When the prongs 23 are forced through the file folder 68 they project into the channels 52 to guide them upwardly in proper alignment. The attaching tines 24 are projected through the file folder into the notches 56. The continued upward movement of the platen moves the anvils 53 and the member 50 upwardly into contact with the stationary head 47. The diagonal slots 54 impart a cam action to the anvils 53 and force them outwardly in opposite horizontal directions against the sheet retaining prongs 23 and attaching tines 24 to bend said prongs and tines downwardly against the file folder.

The outer edges of the anvils engage the sheet retaining prongs and the shoulders 57 engage the attaching tines simultaneously. The engagement of the shoulders 57 with the attaching tines is near the free end of the tines to facilitate the initial bending of the tines. A second shoulder 58 on the under surface of each anvil engages the tines subsequently to the initial bending near the base of the tines to complete the clinching of the tines to the file folder.

As soon as the pressure on the foot pedal 17 is released the spring 20 moves the platen 21 downwardly to its initial position, the springs 42 move the guide member 35 forwardly to its initial position, and the spring 65 moves the anvils 53 and member 50 back to their initial positions. The file folder 68 with the fastener attached and the sheet retaining prongs lying flat is removed from the plate 66 manually, and the apparatus is ready to repeat the operation.

Although I have described a preferred embodiment of my invention in considerable detail, it will be understood that the description thereof is illustrative, rather than restrictive, as many details may be modified or changed without departing from the spirit or scope of my invention. Accordingly, I do not desire to be restricted to the exact construction described, except as limited by the appended claims.

I claim:

1. In an apparatus for attaching fasteners provided with sheet retaining prongs and attaching tines to file folders, means for projecting said prongs and tines through a file folder, and means for bending said prongs and tines against the folder, said last mentioned means comprising a stationary head and a pair of anvils movably mounted in said stationary head.

2. In an apparatus for attaching fasteners provided with a pair of sheet retaining prongs

and a pair of attaching tines to file folders, said prongs and said tines being spaced longitudinally of each other, means for moving a fastener into engagement with a file folder with said prongs and tines projecting through said file folder, and a pair of anvils, each of said anvils engaging one of said prongs and one of said tines, said means being operable to move said anvils to bend said prongs and tines downwardly against said file folder simultaneously.

3. In an apparatus of the character described, means for supporting a file folder, a movable platen operable to move a fastener provided with sheet retaining prongs and attaching tines into contact with said file folder and to project said prongs and tines through said file folder, and a pair of anvils movable by said platen against said prongs and said tines to bend said prongs and said tines downwardly against said file folder.

4. In an apparatus of the character described, means for supporting a file folder, a movable platen operable to move a fastener provided with a plurality of sheet retaining prongs and a plurality of attaching tines into contact with said file folder and to project said prongs and tines through said file folder, a stationary head positioned above said folder, and a pair of movable anvils secured to said stationary head, said platen being operable to move said anvils in opposite horizontal directions to bend said prongs and tines against said file folder simultaneously.

5. In an apparatus for attaching fasteners provided with sheet retaining prongs and attaching tines to file folders, means for projecting said prongs and tines through a file folder, a pair of movable anvils engageable with said prongs to bend them against said folder, said anvils being notched to receive said tines and engageable with said tines to clinch them against said folder, and means for moving said anvils.

6. In an apparatus for attaching fasteners provided with a pair of sheet retaining prongs and a pair of attaching tines to file folders, means for projecting said prongs and tines through a file folder, a pair of movable anvils, and means for moving said anvils, the outer edge of each anvil engageable with one of said prongs to bend said prongs downwardly, each of said anvils having a shoulder engaging one of said tines to clinch said tines against said folder.

7. In an apparatus of the character described, the combination of a head, a platen supporting a fastener having a plurality of attaching tines and sheet retaining prongs, means supporting a file folder between said head and said platen, means for moving said platen to project said attaching tines and said sheet retaining prongs through said file folder, a pair of anvils mounted in said head and engageable with said attaching tines and sheet retaining prongs to bend them against said file folder, and means for moving said anvils.

8. In an apparatus for attaching fasteners provided with sheet retaining prongs and attaching tines to file folders, means for projecting said prongs and tines through a file folder, a pair of movable anvils for clinching said tines against said folder, and means for moving said anvils, each of said anvils having one portion engageable with one of said tines near the free end thereof to start the clinching operation and another portion subsequently engageable with said tine near the base thereof to complete the clinching operation.

9. In an apparatus for attaching fasteners

provided with sheet retaining prongs and attaching tines to file folders, means for projecting said prongs and said tines through a file folder, a pair of movable anvils, the outer edge of each anvil engageable with one of said prongs to bend said prongs downwardly, each of said anvils having a pair of shoulders, one of said shoulders engaging one of said tines near the free end thereof to bend said tines simultaneously with said prongs and the other of said shoulders engaging said tine near the base thereof to clinch said tine securely to said file folder and means for moving said anvils to perform said functions as aforesaid.

10. In an apparatus for attaching fasteners provided with sheet retaining prongs and attaching tines to file folders, means for projecting said prongs and tines through a file folder, a pair of anvils each provided with two surfaces adapted to engage one prong and one tine to bend said prong and tine downwardly simultaneously and another surface adapted to engage said tine subsequently to clinch said tine against said file folder and means for moving said anvils to perform said functions as aforesaid.

11. In an apparatus of the character described, means for supporting a file folder, a platen for supporting a fastener, said fastener having a plurality of sheet retaining prongs and attaching tines projecting towards said file folder, means for moving said platen to project said prongs and tines through said file folder, and means permitting the regulation of the distance of travel of said platen in accordance with the length of said prongs.

12. In an apparatus of the character described, means for supporting a file folder, a platen for supporting a fastener, said fastener having a plurality of sheet retaining prongs and attaching tines projecting towards said file folder, a stationary head positioned adjacent said file folder, means for moving said platen toward said head to project said prongs and tines through said file folder, means permitting the regulation of the distance of travel of said platen in accordance with the length of said prongs, and movable means connected to said head and operable by said platen to bend said prongs and tines against said file folder.

13. In an apparatus of the class described, the combination of a head, a platen supporting a fastener provided with sheet retaining prongs and attaching tines, means supporting a file folder between said head and said platen, means for moving said platen to project said prongs and tines through said file folder, means permitting the regulation of the distance said platen may move in accordance with the length of said prongs, and a pair of anvils mounted in said head, the outer edge of each of said anvils engaging one of said prongs to bend said prongs downwardly, each of said anvils having a pair of shoulders engaging said tines successively to clinch said tines against said file folder.

14. In an apparatus of the character described, means for supporting a file folder, a movable platen operable to move a fastener provided with sheet retaining prongs and attaching tines into contact with said file folder and to project said prongs and tines through said file folder, means engaging the ends of said fastener to prevent longitudinal movement thereof, and a pair of anvils movable over said prongs and tines to bend said prongs and tines downwardly against said file folder.

15. In an apparatus of the character described

the combination of a head, a platen supporting a fastener having a plurality of attaching tines, means supporting a file folder between said head and said platen, means for moving said platen to project said attaching tines through said file folder, a pair of anvils mounted in said head, and means to move said anvils to engage said

tines to bend them against said file folder, each of said anvils being recessed so that the point of engagement of each anvil with its respective attaching tine moves from the free end of said tine towards the base thereof during the movement of said anvils.

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