Sept. 29, 1964 J. O. C. BENETEAU 3,150,790

MACHINE FOR ATTACHING PAPER FASTENERS

Filed Sept. 4, 1963 5 Sheets-Sheet 1

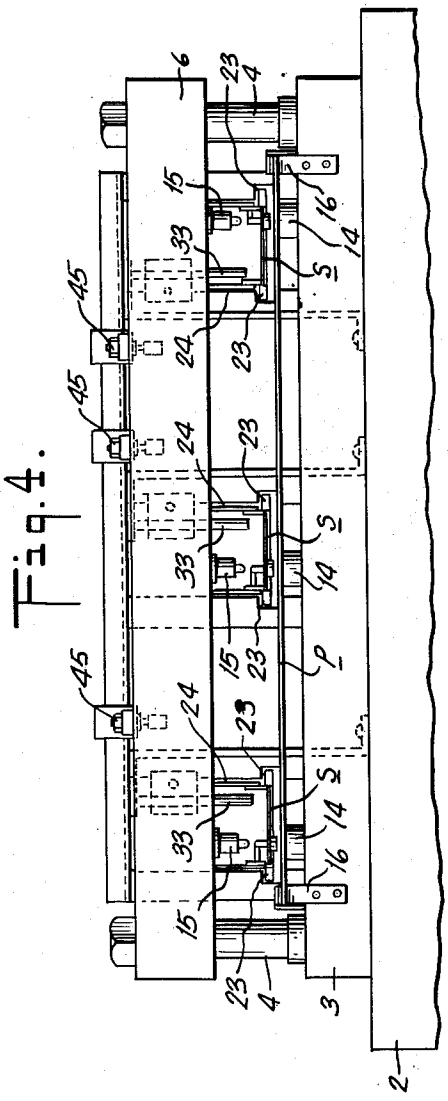


Fig. 4.

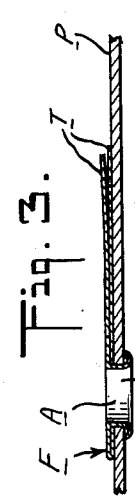


Fig. 3.

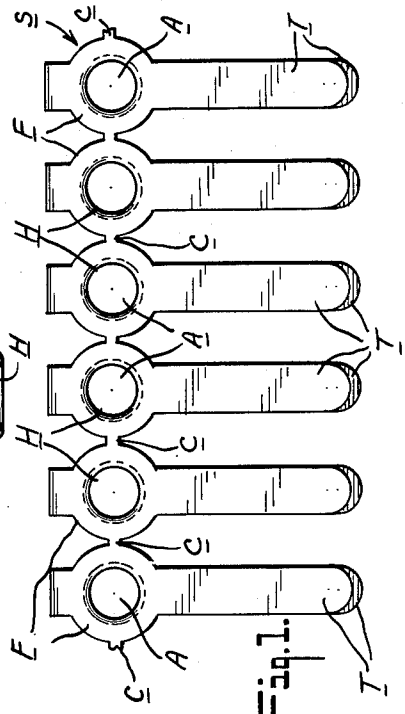


Fig. 1.

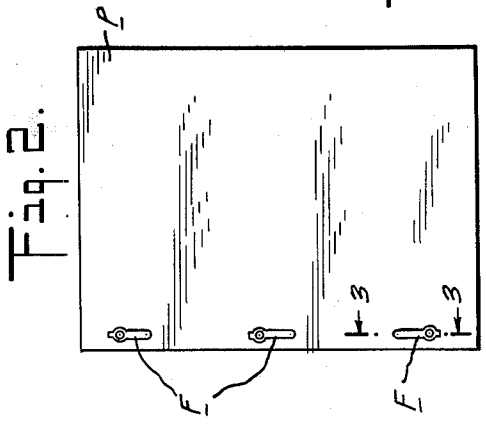


Fig. 2.

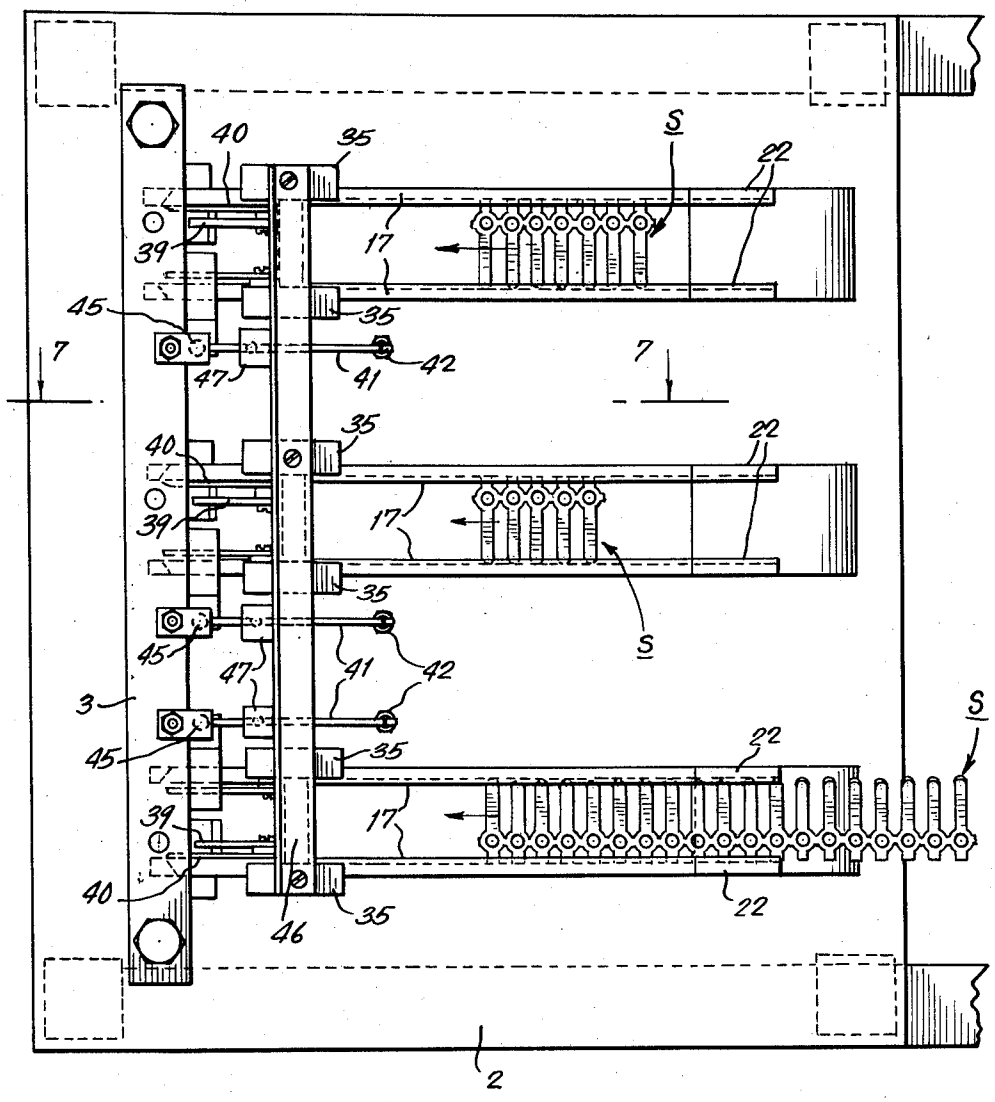
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MACHINE FOR ATTACHING PAPER FASTENERS

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Fig. 5.



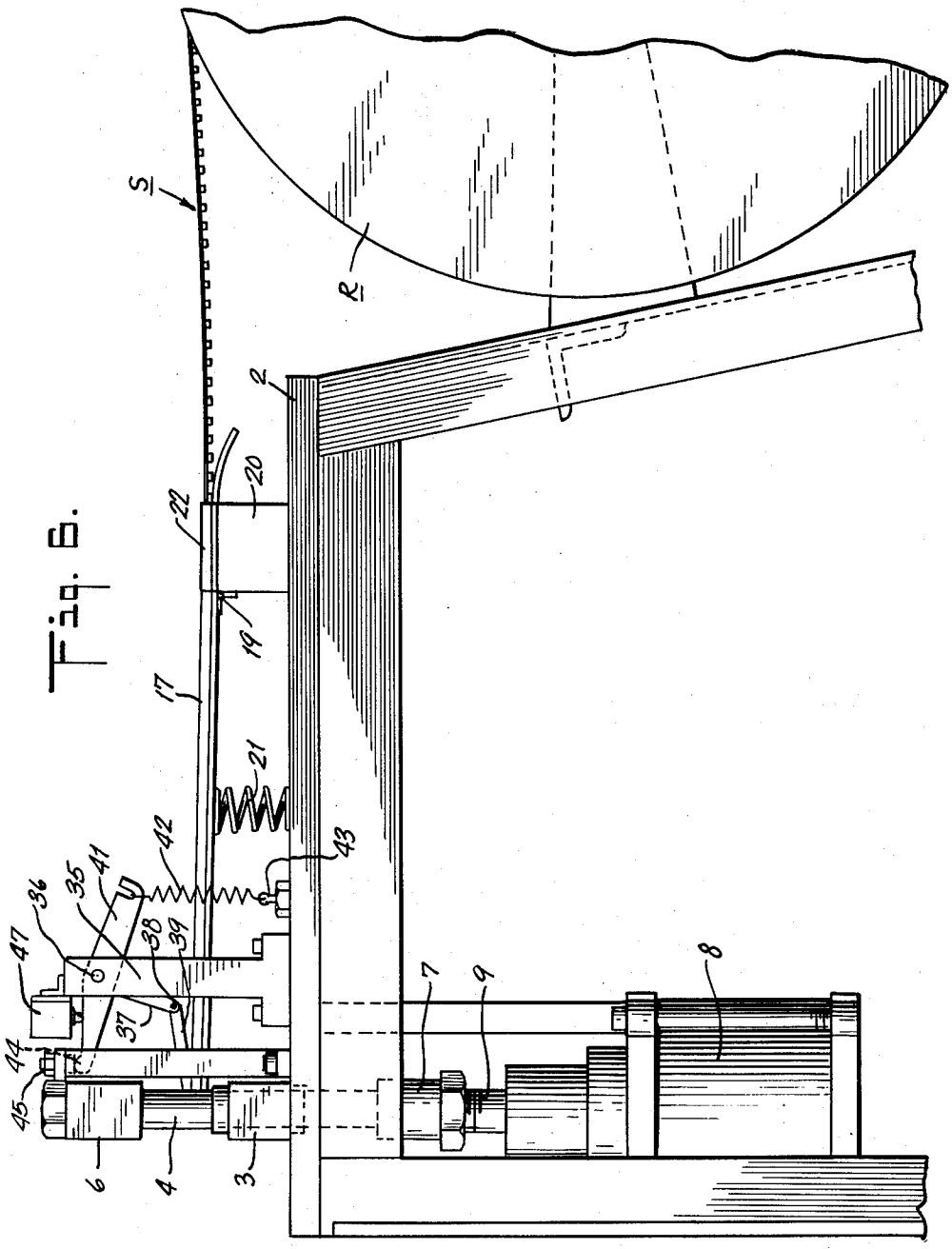
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MACHINE FOR ATTACHING PAPER FASTENERS

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Fig. 6.



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MACHINE FOR ATTACHING PAPER FASTENERS

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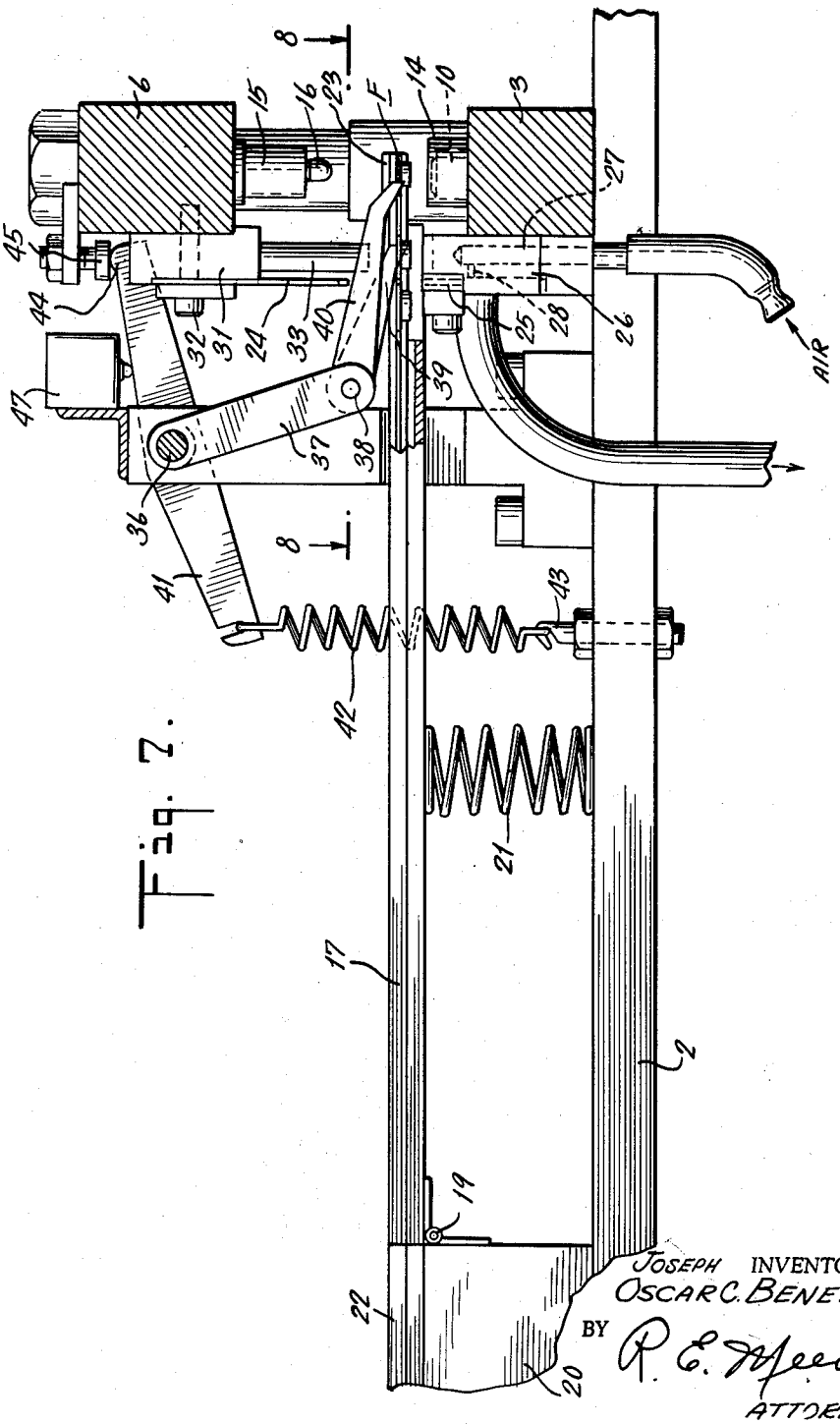


Fig. 7.

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MACHINE FOR ATTACHING PAPER FASTENERS

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Fig. 8.

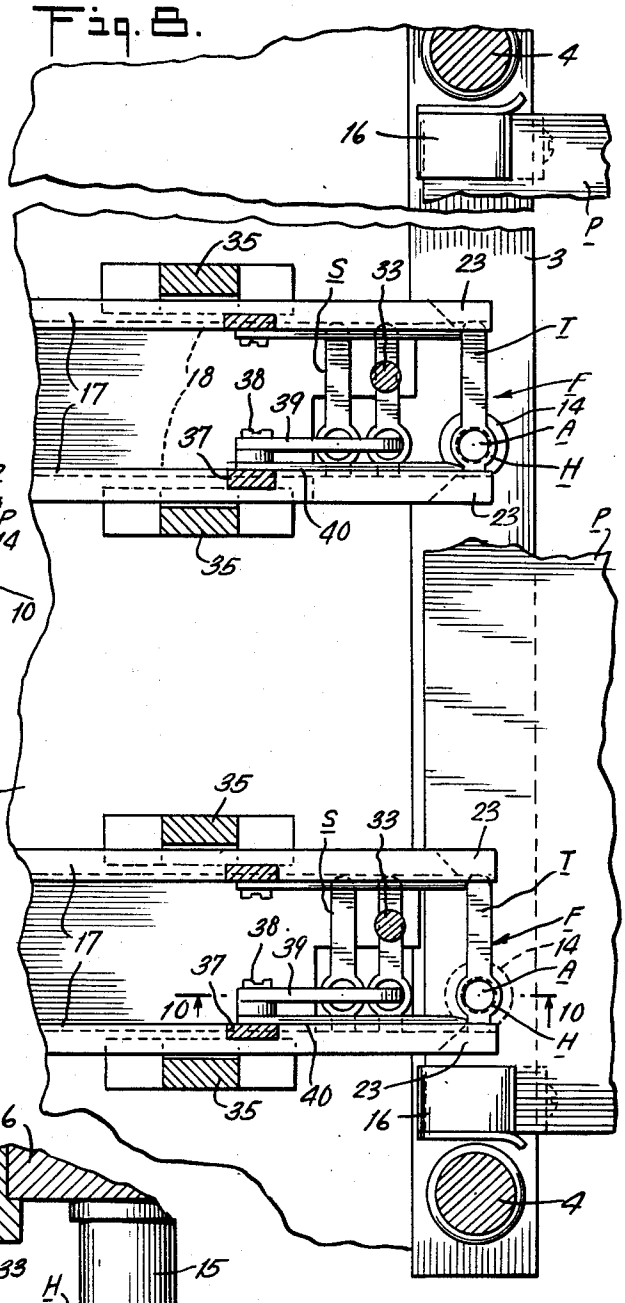


Fig. 9.

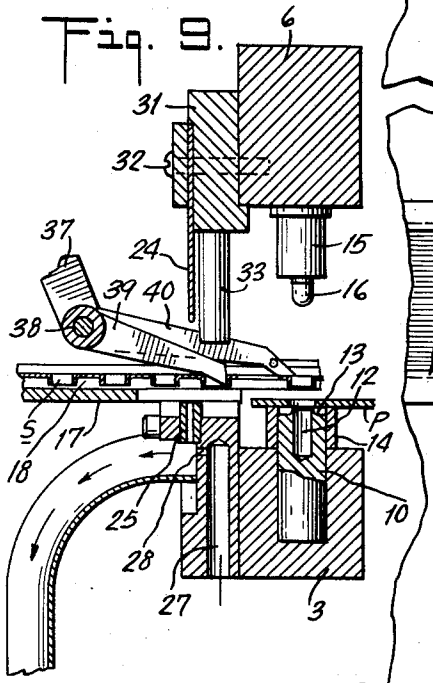
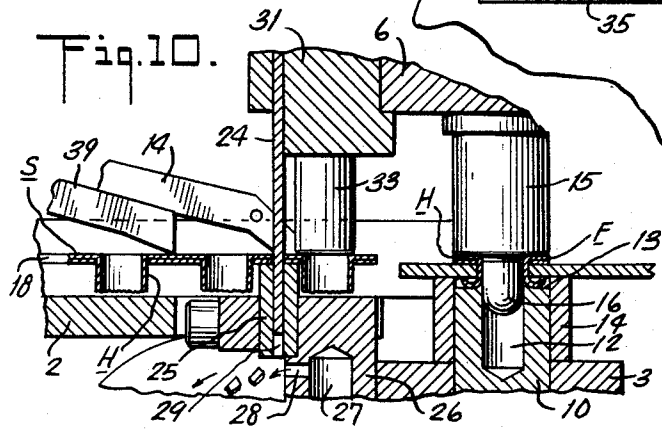


Fig. 10.



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United States Patent Office 3,150,790 Patented Sept. 29, 1964

3,150,790
MACHINE FOR ATTACHING PAPER FASTENERS

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Filed Sept. 4, 1963, Ser. No. 306,432
24 Claims. (Cl. 218—2)

This invention relates to a machine for attaching paper fasteners or clips to the marginal edge of a sheet of paper stock for use as loose leaf folders and the like.

The type of paper fasteners or clips with which the machine of the present invention is concerned are usually made from relatively thin sheet metallic stock. The fasteners are stamped from metallic stock folded upon itself so as to provide a cylindrical rivet-like head or eyelet main body portion having a pair of superimposed tangs or prongs extending outwardly to one side thereof with one preferably slightly shorter than the other. The cylindrical rivet-like head or eyelet portion of the fastener is adapted to be riveted to the paper stock in a well known manner and the tangs or prongs are capable of being bent at any angle to the axis of the eyelet for insertion in a hole in a sheet of paper whereby the sheet of paper is attached to the fastener by bending the tangs or prongs thereof usually in opposite directions.

Various types of mechanism and apparatus have been heretofore suggested and used for applying such fasteners but they have not been entirely satisfactory. In some apparatus the fasteners were fed thereinto manually but such means of attaching was not only tedious but expensive and laborious. In other machines individual fasteners were fed thereto by means of hoppers and chutes or some similar means but in such machines the fasteners would oftentimes become tangled and interengaged. Also, when such fasteners were delivered individually into the machine by means of a chute or raceway they would frequently get stuck in the chute or raceway which, of course, was also objectionable and inconvenient. It is to a machine for attaching such paper fasteners wherein the above mentioned disadvantages are eliminated that the present invention relates.

The machine of the present invention operates on a strip of fasteners which instead of being formed individually are integrally united in a continuous strip. This machine not only operates on a single strip of fasteners but is designed to handle a multiplicity of strips, simultaneously, three in present instance, wherein a multiplicity of fasteners are attached simultaneously. In this machine strips of fasteners are fed automatically into position, fasteners severed successively from the end thereof at a cut-off station and automatically fed therefrom to an attaching station where they are attached to the article.

Accordingly, it is the general object of the present invention to provide a new and novel machine for attaching paper fasteners of the type described which is fully automatic and which effectively and efficiently applies such fasteners at a minimum cost.

It is another object of the invention to provide an improved machine for attaching such fasteners wherein the fasteners are accurately handled and aligned with the applying mechanism so that they are accurately positioned therein and correctly attached thereby.

It is another object of this invention to provide a new and novel machine for attaching such fasteners which handles a multiplicity of strips of fasteners and attaches a multiplicity of fasteners simultaneously so as to avoid excessive handling and reduce the time and cost of applying such fasteners.

Various other objects and advantages of this invention will be more apparent in the course of the following

specification, and will be particularly pointed out in the appended claims.

In the accompanying drawings, there is shown for the purpose of illustration, an embodiment which the invention may assume in practice.

In these drawings:

FIG. 1 is a fragmentary plan view of a strip of paper fasteners which the machine in accordance with the present invention is adapted to operate,

FIG. 2 is a plan view of a sheet of paper stock showing three paper fasteners attached to the marginal edge thereof by means of said machine,

FIG. 3 is a sectional view taken on line 3—3 of FIG. 2,

FIG. 4 is a front elevational view of the improved machine of the present invention,

FIG. 5 is a plan view thereof,

FIG. 6 is a side elevational view of the same, partly broken away,

FIG. 7 is a sectional view taken on line 7—7 of FIG. 5,

FIG. 8 is a sectional view taken on line 8—8 of FIG. 7,

FIG. 9 is a cross-sectional view similar to FIG. 8,

FIG. 10 is a sectional view taken on line 10—10 of FIG. 8, showing a fastener being impaled and attached to an article.

Referring more particularly to the drawings, the machine of the present invention is concerned with the attachment of paper fasteners to the marginal edge of a sheet of paper stock P, as shown in FIG. 2. In FIG. 1 there is shown a strip S of paper fastener F integrally united in a continuous strip. Such a strip of fasteners consists of a series of cylindrical shaped rivet-like or eyelet head portions H having an aperture A therein. These head portions H are interconnected by means of a series of ties C. In fabricating the strip the sheet metal is folded upon itself so as to provide a pair of tangs or prongs T extending outwardly to one side of each of the head portions H. It is to a machine for handling such a strip of fasteners and successively attaching them to the marginal edge of a sheet of paper stock that the present invention relates.

In accordance with the present invention, such a machine consists of a table-top or bed 2 which is supported upon suitable legs or a base. At the front side of the machine there is mounted on the bed 2, an elongated stationary anvil supporting member 3. Adjacent each end of this member 3, there is arranged a tie rod 4 which is reciprocally mounted in a bushing 5 carried by the member 3. The upper end of each of these tie rods 4 is connected to an elongated movable punch-holding bar 6 positioned directly above the member 3 substantially parallel thereto. These tie rods 4 extend down through the bed 2 and the lower ends thereof are connected to a transverse bar 7 positioned therebelow, as more clearly shown in FIG. 6 of the drawings.

There is also positioned below the table-top or bed 2, a pneumatic cylinder 8 having a piston 9 which is attached to the transverse bar 7 centrally thereof for actuating the same together with the transverse punch holding bar 6 to which it is connected.

On the supporting member 3, there is arranged a plurality of spaced-apart stationary anvils or crimping dies 10 (three in the present instance) with each having a bore 12 arranged centrally thereof and a crimping surface 13 arranged concentrically therearound. There is positioned around each of these anvils 10, preferably a resilient bushing or sleeve 14, preferably made of rubber or a pliable vinyl material for the purpose of supporting the article to which the fasteners are adapted to be attached.

In the transverse punch holding bar 6, there is mounted a plurality of spaced-apart punches or dies 15 (three in the present instance) which cooperate with the respec-

tive opposed anvils 10 positioned directly therebelow in a manner and for a purpose hereinafter to be described. Each of these punches 15 have a reduced central position 16 which cooperates with the aperture A in the respective fasteners F and the bore 12 in the respective anvils 10. Adjacent each end of the supporting member 3 there is mounted thereon, a member 16 for positioning the marginal edge of the paper stock to which the fasteners F are adapted to be attached between the anvils 10 positioned thereon and the punches 15 on the transverse punch holding bar 6.

There is also mounted on the bed 2 rearwardly of each of the anvils 10 and respective punches 15, a pair of spaced-apart elongated, parallel movable guide rails 17 having longitudinally extending channels 18 arranged in the opposed edges thereof. The extreme rear end of each of these movable rails 17 is hingedly attached, as at 19, to a support or bracket 20 mounted on top of the bed 2. Intermediate the length of each of these rails, there is provided a coil spring member 21 which is supported by the bed 2 and upon which the rails 17 rest and by which they are maintained in their normal substantially horizontal positions.

At the inner or rearward end of each of the rails 17, there is arranged on the support 20, a pair of spaced-apart stationary channeled rails 22 which are in alignment with their respective movable rails 17 so as to guide the severed strips of fasteners S thereinto from a source of supply such as spools or reels R on which the strips of fasteners are disposed.

The outer or forward ends of the rails 17 terminate at a point between the supporting member 3 and the transverse punch holding bar 6 and there is arranged on the extreme outer end of each pair of these rails a pair of opposed movable jaw-like members 23.

On the inner side of the transverse punch holding bar 6, there is arranged directly opposite the respective punches 15 carried thereby, a cut-off punch 24 which cooperates with cut-off die 25 arranged therebelow in a die holder 26 supported by the bed 2 to remove the interconnecting portions C from between the fasteners F of the strip S so as to sever successively the endmost fastener therefrom.

As more clearly shown in FIGS. 9 and 10 of the drawings, there is arranged in this die holder 26, a vertical passageway 27 which communicates with another smaller horizontal passageway 28 at the upper end thereof which latter passageway opens through the side of the die holder at a point immediately below the lower end opening 29 in the die 25. The lower end of this vertical passageway 27 is connected to a suitable source of air supply (not shown) and is designed to blow and remove the severed clips or portions C from the machine in a well known and conventional manner.

The cut-off punch 24 is positioned in a bracket or holding member 31 which is secured to the inner side of the transverse punch holding member 6 preferably by means of machine screws 32. There is also carried by each of these bracket members 31, a downwardly extending cylindrical rail depressing member 33. There is provided a stop member 27 mounted on the bed 2 of the machine for limiting the retractable movement of the member 33 so as to tend to permit the rails 17 to maintain their normal horizontal positions after each attaching operation.

While the machine of the present invention, as shown in the drawings, provides mechanism for handling three strips of fasteners S and for attaching the severed fasteners F simultaneously to an article, the mechanisms for such handling and attaching are identical so only one will be specifically described. Accordingly, it will be understood that the mechanism now to be described is arranged with each of the pair of the guide rails 17.

Rearwardly of the supporting member 3, there is arranged preferably to either side of the pair of rails 17 on the bed 2 to which it is secured, a pair of vertical bracket members 35. At the upper end of each pair of these bracket members 35 there is suitably journaled therein, a transversely extending shaft 36 to which the upper end of a rocker arm 37 is securely attached.

On the lower end of this rocker arm 37, there is arranged a transverse pin or stud-shaft 38 to which one end of a pair of finger-like members 39 and 40 are pivotally attached. These finger-like members are arranged in side-by-side relation with one being longer than the other. The shorter 39 of these finger-like members is provided for feeding and positioning the strip of fasteners in the machine and the longer 40 is provided for moving and positioning the endmost severed fastener between the jaw-like members 23 and between the anvils 10 and the punches 15 in readiness for attaching.

There is also securely affixed to the shaft 36 intermediate its length, a lever 41 to which one end of a tension spring 42 is secured. The other end of this spring 42 is attached to the bed 2 of the machine, as at 43. The opposite end of this lever 41 terminates in an arcuated portion 44 which is arranged in under an adjustable screw 45 carried by the transverse punch holding bar 6 with which it cooperates, as more clearly shown in FIGS. 5 and 7 of the drawings.

On top of the bracket members 35, there is mounted a transversely extending angle-iron member 46 on which three micro-switches 47 are positioned. These switches are actuated by the levers 41 which normally maintain them in a closed position. It is the purpose of these micro-switches to control the operation of an air valve (not shown) for actuating the air cylinder 8 so as to prevent movement of the transverse bar 6 until all of the fasteners F have been correctively positioned for the attaching operation.

Having described the construction of the improved machine in accordance with the present invention, it functions in the following manner. As previously described, it will be understood that the machine as shown is designed for attaching three paper fasteners F simultaneously to the marginal edge of a sheet of paper stock P. Accordingly, three strips of fasteners S are positioned in the channels of the respective pairs of guide rails 17, as more clearly shown in FIG. 5 of the drawings. It will be understood that these strips are delivered from a suitable source of supply, preferably reels R, to the respective pairs of rails. It will also be seen that the tangs or prongs T of two of the strips extend in one direction, as shown in FIGS. 4 and 5, and that the tangs or prongs T of the other strip extend in the opposite direction. It will be assumed that the strips of fasteners S are positioned in the machine in readiness for the attaching operation. It will also be assumed that a fastener F has already been severed from the end of each of the respective strips S and is positioned between the respective jaw-like members 23 in position to be attached to the marginal edge of the paper stock P which it will be assumed also has been positioned between the clip-like members 16 and on the bushings 14 between the anvils 10 and punches 15 so as to be in position to receive the fasteners. It will be assumed further that the next succeeding endmost fastener of each of the respective strips has been severed and in position to be moved to the attaching station.

In operation, air is introduced into the air cylinder 8 whereby the piston 9 thereof is actuated and moved downwardly so as to move the transverse punch holding bar 6 downwardly, as shown in FIG. 6 of the drawing. As the transverse bar moves downwardly it moves the respective levers 41 and rotates the shaft to which it is attached which in turn moves the respective rocker arms 37 in a clockwise direction, as shown in FIG. 7. In such movement, it will be seen that the finger-like members 39 and 40 are moved to the left, as shown in FIG. 7, along the inner sides of the respective rails 17 over the top of the endmost fasteners of the respective strips S.

In the continued movement of the transverse bar **6** in its downward direction, the depressing member **33** will come in contact with the endmost fastener of the respective strips and still on further movement the cut-off punch enters into the space between the endmost fastener and the next succeeding fastener and in cooperation with the guide **25** arranged therebelow, severs and removes the respective interconnections or segments C between the fasteners at this point.

Upon further downward movement of the transverse bar **6**, the central reduced portion **16** of the respective punches **15** will enter the respective apertures A in the respective fasteners and upon further movement thereof, the depressing member will move the respective pair of rails **17** downwardly about their pivotal connections **19** against the action of the springs **21** so as to position the severed fastener F in and between the jaw-like members **23** directly over the respective anvils **10** and over the marginal edge of the paper stock P so as to be securely held thereby. On further downward movement of the transverse bar **6**, the punches **15** cooperate with the respective anvils **10** and in cooperation with the crimping surfaces **13** thereof will crimp the head or eyelet portion H of the respective fasteners and impale them in the marginal edge of the paper stock P, as shown in FIGS. 2, 3 and 10 of the drawings whereby the fasteners are securely attached thereto.

The air is then permitted to escape from the pneumatic cylinder **8** and the various parts of the mechanism are then permitted to return to their normal or retracted positions. In such movement it will be seen that the transverse bar **6**, the punches **15** carried thereby, the depressing member **33**, and the cut-off member **24** will move upwardly. Such movement will permit the respective pairs of rails **17** to move upwardly to their normal or horizontal position, as shown in FIG. 7, due to the action of the coil springs **21**. Also in such movement of this transverse bar **6**, the lever **41** together with the shaft **36** to which it is attached will be moved in a counterclockwise direction, as shown in FIG. 7, due to the action of the tension spring **42**. In such movement, it will be seen that the finger-like members **39** and **40** will also be moved to the right by the rocker arm **37** to which they are attached. In such movement of these finger-like members it will be understood that the free end of the shorter members **39** will be positioned in the respective apertures A of the respective endmost fasteners of the respective strips and will move the strips forwardly or to the right, as shown in FIGS. 7 through 10, into the machine so as to position this endmost fastener of each strip opposite the respective depressing member **33** and in position for the next cut-off or severing operation. Also, it will be understood that as the longer finger **40** moves to the right, as shown in FIG. 7, it will likewise move the endmost previously severed fastener to the right and along the respective rails **17** to position between the movable jaw-like members **23** in readiness for the next attaching operation. The piece of paper stock P with the three fasteners attached to the marginal edge thereof, as shown in FIG. 2, is then removed from the machine and this completes one cycle of operation of my improved machine.

As a result of my invention, it will be seen that there is provided a new and novel machine for attaching paper fasteners or clips of the character described which is simple and inexpensive in its construction and operation and which is adapted to effectively and automatically feed and apply simultaneously a multiplicity of fasteners to an article at a minimum cost both as to operation and maintenance.

While I have shown and described an embodiment which my invention may assume in practice, it will be understood that this embodiment is merely for the purpose of illustration and description, and that other forms

may be devised within the scope of my invention as defined in the appended claims.

What I claim as my invention is:

1. In a machine for attaching paper fasteners of the class described to an article,
   - a stationary anvil, means arranged adjacent said anvil for supporting an article to which a fastener is adapted to be attached,
   - a reciprocable punch arranged opposite said anvil with which it cooperates to impale a fastener having an aperture therein,
   - means for delivering and guiding a strip of fasteners into the machine in alignment with said anvil and punch,
   - cutting means arranged forwardly of said anvil and punch opposite the path of the strip of fasteners,
   - means for intermittently moving the strip and positioning the endmost fastener thereof adjacent said cutting means,
   - means for actuating said cutting means so as to sever the endmost fastener from the strip,
   - means for moving the severed endmost fastener to position between said anvil and punch, and
   - means for actuating said punch so as to cause the same to impale said endmost severed fastener and apply the same to the article in cooperation with said anvil.

2. The combination as defined in claim 1, including means arranged adjacent the end of the guiding means for supporting the severed fastener between the anvil and the punch.

3. In a machine for attaching paper fasteners of the class described to an article,
   - a stationary anvil, means arranged adjacent said anvil for supporting an article to which a fastener is adapted to be attached,
   - a reciprocable punch arranged opposite said anvil with which it cooperates to impale a fastener having an aperture therein,
   - means for delivering and guiding a strip of fasteners into the machine in alignment with said anvil and punch,
   - cutting means arranged forwardly of said anvil and punch opposite the path of the strip of fasteners,
   - means for intermittently moving the strip and positioning the endmost fastener thereof adjacent said cutting means,
   - means for actuating said cutting means so as to sever the endmost fastener from the strip,
   - a finger-like member for moving the severed endmost fastener to position between said anvil and punch,
   - means for actuating said finger-like member, and
   - means for actuating said punch so as to cause the same to impale said endmost severed fastener and apply the same to the article in cooperation with said anvil.

4. The combination as defined in claim 3, including means arranged adjacent the end of the guiding means for supporting the severed fastener between the anvil and the punch.

5. In a machine for attaching paper fasteners of the class described to an article,
   - a stationary anvil, means arranged adjacent said anvil for supporting an article to which a fastener is adapted to be attached,
   - a reciprocable punch arranged opposite said anvil with which it cooperates to impale a fastener having an aperture therein,
   - means for delivering and guiding a strip of fasteners into the machine in alignment with said anvil and punch,
   - cutting means arranged forwardly of said anvil and punch opposite the path of the strip of fasteners,

a movable finger-like member for intermittently moving the strip into the machine and positioning the endmost fastener thereof adjacent said cutting means,

means for actuating said cutting means so as to sever the endmost fastener from the strip,

a second finger-like member for moving the severed endmost fastener to position between said anvil and punch,

means for actuating both of said finger-like members, and

means for actuating said punch so as to cause the same to impale said endmost severed fastener and apply the same to the article in cooperation with said anvil.

6. The combination as defined in claim 5, including means arranged adjacent the end of the guiding means for supporting the severed fastener between the anvil and the punch.

7. In a machine for attaching paper fasteners of the class described to an article,

a stationary anvil, means arranged adjacent said anvil for supporting an article to which a fastener is adapted to be attached,

a reciprocable punch arranged opposite said anvil with which it is adapted to cooperate to impale a fastener having an aperture therein,

means for delivering and guiding a strip of fasteners into the machine in alignment with said anvil and punch,

said last mentioned means including a pair of spaced-apart elongated parallel movable rails having means arranged at the outer end thereof for supporting a fastener between said anvil and punch and which is movable relative thereto,

cutting means arranged forwardly of said anvil and punch opposite the path of the strip of fasteners intermediate the length of said rails,

means for intermittently moving the strip into the machine and positioning the endmost fastener thereof adjacent said cutting means,

means for actuating said cutting means so as to sever the endmost fastener from the strip,

means for moving the severed endmost fastener to position between said anvil and punch, and

means for actuating said punch so as to cause the same to impale said endmost severed fastener and apply the same to the article in cooperation with said anvil.

8. The combination as defined in claim 7, wherein the means arranged at the outer end of the rails for supporting the severed fastener consists of a pair of jaw-like members carried by the rails so as to be movable therewith.

9. In a machine for attaching paper fasteners of the class described to an article,

a stationary anvil, means arranged adjacent said anvil for which a fastener is adapted to be attached,

a reciprocable punch arranged opposite said anvil with which it cooperates to impale a fastener having an aperture therein,

means for delivering and guiding a strip of fasteners into the machine in alignment with said anvil and punch,

said last mentioned means including a pair of spaced-apart elongated parallel movable rails having means arranged at the outer end thereof for supporting a fastener between said anvil and punch and which is movable relative thereto,

cutting means arranged forwardly of said anvil and punch opposite the path of the strip of fasteners intermediate the length of said rails,

means for intermittently moving the strip and positioning the endmost fastener thereof adjacent said cutting means,

means for actuating said cutting means so as to sever the endmost fastener from the strip,

a finger-like member for moving the severed endmost fastener to position between said anvil and punch,

means for actuating said finger-like member, and

means for actuating said punch so as to cause the same to impale said endmost severed fastener and apply the same to the article in cooperation with said anvil.

10. The combination as defined in claim 9, wherein the means arranged at the outer end of the rails for supporting the severed fastener consists of a pair of jaw-like members carried by the rails so as to be movable therewith.

11. In a machine for attaching paper fasteners of the class described to an article,

a stationary anvil, means arranged adjacent said anvil for which a fastener is adapted to be attached,

a reciprocable punch arranged opposite said anvil with which it cooperates to impale a fastener having an aperture therein,

means for delivering and guiding a strip of fasteners into the machine in alignment with said anvil and punch,

said last mentioned means including a pair of spaced-apart elongated parallel movable rails having means arranged at the outer end thereof for supporting a fastener between said anvil and punch and which is movable relative thereto,

cutting means arranged forwardly of said anvil and punch opposite the path of the strip of fasteners intermediate the length of said rails,

a movable finger-like member for intermittently moving the strip into the machine and positioning the endmost fastener thereof adjacent said cutting means,

means for actuating said cutting means so as to sever the endmost fastener from the strip,

a second finger-like member for moving the severed endmost fastener to position between said anvil and punch,

means for actuating both of said finger-like members, and

means for actuating said punch so as to cause the same to impale said endmost severed fastener and apply the same to the article in cooperation with said anvil.

12. The combination as defined in claim 11, wherein the means arranged at the outer end of the rails for supporting the severed fastener consists of a pair of jaw-like members carried by the rails so as to be movable therewith.

13. In a machine for attaching paper fasteners of the class described to an article,

a stationary anvil,

means arranged adjacent said anvil for supporting an article to which a fastener is adapted to be attached,

a reciprocable punch arranged opposite said anvil with which it cooperates to impale a fastener having an aperture therein,

a pair of spaced-apart, elongated, parallel movable rails for guiding a strip of fasteners into the machine,

cutting means arranged forwardly of said anvil and punch opposite the path of the strip of fasteners intermediate the length of said rails,

means for moving intermittently the strip along said rails and so as to position the endmost fastener thereof adjacent said cutting means,

means arranged adjacent said last mentioned means for moving the previously severed fastener to position between said anvil and punch, and

common means for actuating both of said last mentioned means and said punch so as to cause the punch to impale the severed fastener and apply the same to the article in cooperation with said anvil and to simultaneously actuate said cutting means so as to sever the endmost fastener from the strip.

14. The combination as defined in claim 13, including means arranged at the outer end of the rails for supporting the severed fastener which consists of a pair

of jaw-like members carried by the rails so as to be movable therewith.

15. In a machine for attaching paper fasteners of the class described to an article,

a stationary anvil,

means arranged adjacent said anvil for supporting an article to which a fastener is adapted to be attached,

a reciprocable punch arranged opposite said anvil with which it cooperates to impale a fastener having an aperture therein,

a pair of spaced-apart elongated parallel movable rails for guiding a strip of fasteners into the machine,

cutting means arranged forwardly of said anvil and punch opposite the path of the strip of fasteners intermediate the length of said rails,

a movable finger-like member for moving intermittently the strip along said rails and so as to position the endmost fastener thereof adjacent said cutting means,

a second movable finger-like member arranged adjacent said first finger-like member for moving the previously severed fastener to position between said anvil and punch, and

common means for actuating both of said finger-like members and said punch so as to cause the punch to impale the severed fastener and apply the same to the article in cooperation with said anvil and to simultaneously actuate said cutting means so as to sever the endmost fastener from the strip.

16. The combination as defined in claim 15, including means arranged at the outer end of the rails for supporting the severed fastener which consists of a pair of jaw-like members carried by the rails so as to be movable therewith.

17. In a machine for attaching paper fasteners of the class described to an article,

a stationary anvil,

means arranged adjacent said anvil for supporting an article to which a fastener is adapted to be attached,

a reciprocable punch arranged opposite said anvil with which it cooperates to impale a fastener having an aperture therein,

a pair of spaced-apart, elongated, parallel movable rails for guiding a strip of fasteners into the machine,

cutting means arranged forwardly of said anvil and punch opposite the path of the strip of fasteners intermediate the length of said rails,

a movable finger-like member for moving intermittently the strip along said rails and so as to position the endmost fastener thereof adjacent said cutting means,

a second movable finger-like member arranged adjacent said first finger-like member for moving the previously severed fastener to position between said anvil and punch,

a pivotally mounted rocker arm to which one end of both of said finger-like members are pivotally attached, and

common means for actuating said rocker arm together with the finger-like members arranged therewith and said punch so as to cause the punch to impale the severed fastener and apply the same to the article in cooperation with said anvil and to simultaneously actuate said cutting means so as to sever the endmost fastener from the strip.

18. The combination as defined in claim 17, including means arranged at the outer end of the rails for supporting the severed fastener which consists of a pair of jaw-like members carried by the rails so as to be movable therewith.

19. In a machine for attaching paper fasteners of the class described to an article,

a supporting means,

a plurality of spaced-apart stationary anvils mounted on said supporting means,

means arranged on said supporting means for supporting an article to which a plurality of fasteners are adapted to be attached,

a movable member arranged opposite said supporting means,

a plurality of spaced-apart punches carried by said movable member with one disposed opposite each of said anvils with which they respectively cooperate to impale a fastener having an aperture therein,

a plurality of pairs of spaced-apart, elongated, parallel, movable guide rails, each pair of which is adapted to deliver and guide a strip of fasteners into the machine,

cutting means arranged forwardly of each of said anvils and punches opposite the path of the respective strip of fasteners intermediate the length of said rails,

means arranged opposite each pair of rails for moving intermittently the respective strips therealong and so as to position the endmost fastener of the respective strips adjacent the respective cutting means,

means arranged adjacent each of said last mentioned means for moving the previously severed fasteners to position between the respective anvils and punches, and

means for actuating said movable member and both of said means in timed relation so as to cause the respective punches to impale the respective severed fasteners and apply them to the article in cooperation with the respective anvils, and to simultaneously actuate the respective cutting means so as to sever the endmost fastener from the respective strips.

20. The combination as defined in claim 19, including a pair of movable jaw-like members arranged at the end of each pair of rails for supporting the respective severed fasteners between the respective anvils and punches.

21. In a machine for attaching paper fasteners of the class described to an article,

a supporting means,

a plurality of spaced-apart stationary anvils mounted on said supporting means,

means arranged on said supporting means for supporting an article to which a plurality of fasteners are adapted to be attached,

a movable member arranged opposite said supporting means,

a plurality of spaced-apart punches carried by said movable member with one disposed opposite each of said anvils with which they respectively cooperate to impale a fastener having an aperture therein,

a plurality of pairs of spaced-apart, elongated, parallel, movable guide rails, each pair of which is adapted to deliver and guide a strip of fasteners into the machine,

cutting means arranged forwardly of each of said anvils and punches opposite the path of the respective strip of fasteners intermediate the length of said rails,

a movable finger-like member arranged opposite each pair of rails for moving intermittently the respective strips therealong and so as to position the endmost fastener of the respective strips adjacent the respective cutting means,

a second movable finger-like member arranged adjacent each of said first finger-like members for moving the previously severed fasteners to position between the respective anvils and punches, and

means for actuating said movable member and all of said finger-like members in timed relation so as to cause the respective punches to impale the respective severed fasteners and apply them to the article in cooperation with the respective anvils, and to simultaneously actuate the respective cutting

means so as to sever the endmost fastener from the respective strips.

22. The combination as defined in claim 21, including a pair of movable jaw-like members arranged at the end of each pair of rails for supporting the respective severed fasteners between the respective anvils and punches.

23. In a machine for attaching paper fasteners of the class described to an article,

a supporting means,

a plurality of spaced-apart stationary anvils mounted on said supporting means,

means arranged on said supporting means for supporting an article to which a plurality of fasteners are adapted to be attached,

a movable member arranged opposite said supporting means,

a plurality of spaced-apart punches carried by said movable member with one disposed opposite each of said anvils with which they respectively cooperate to impale a fastener having an aperture therein,

a plurality of pairs of spaced-apart, elongated, parallel, movable guide rails, each pair of which is adapted to deliver and guide a strip of fasteners into the machine,

cutting means arranged forwardly of each of said anvils and punches opposite the path of the respective

strip of fasteners intermediate the length of said rails,

a movable finger-like member arranged opposite each pair of rails for moving intermittently the respective strips therealong and so as to position the endmost fastener of the respective strips adjacent the respective cutting means,

a second movable finger-like member arranged adjacent each of said first finger-like members for moving the previously severed fasteners to position between the respective anvils and punches,

a pivotally mounted rocker arm arranged opposite each pair of said rails to which one end of each of both of the respective finger-like members are pivotally attached, and

means for actuating said movable member and all of said finger-like members in timed relation so as to cause the respective punches to impale the respective severed fasteners and apply them to the article in cooperation with the respective anvils, and to simultaneously actuate the respective cutting means so as to sever the endmost fastener from the respective strips.

24. The combination as defined in claim 23, including a pair of movable jaw-like members arranged at the end of each pair of rails for supporting the respective severed fasteners between the respective anvils and punches.

No references cited.