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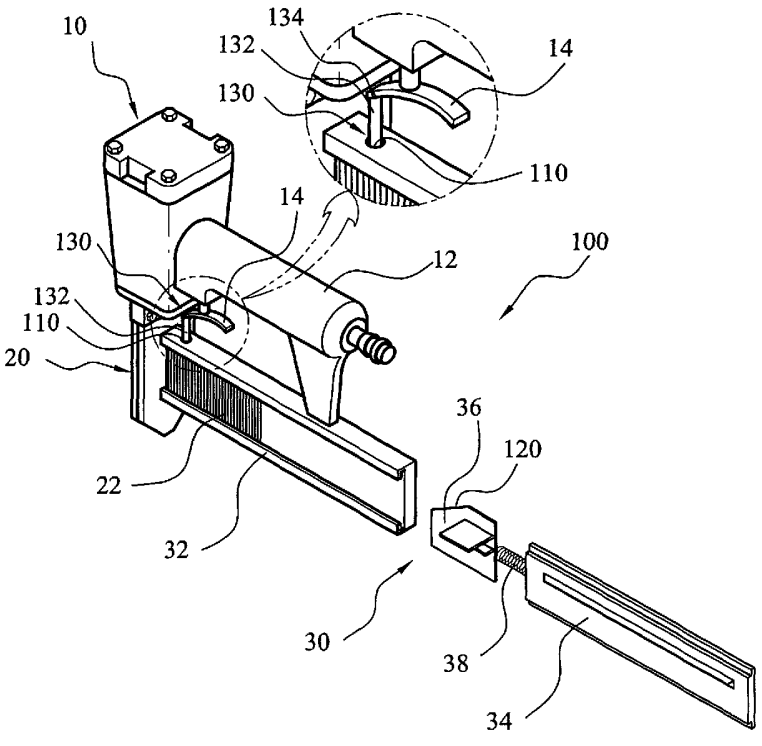
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(54) **Title:** NAILING MACHINE



(57) **Abstract:** A nailing machine is disclosed. In a nailing machine including a driving cylinder, a body having a grip adapted to limit a driving piston upwardly and downwardly moving in the driving cylinder and to guide a compressed air in the direction of the driving cylinder, and a trigger, a nose portion adapted to drive a connection nail in the lower portion of the body, and a cartridge unit which has one side opened and closed by the cover for guiding the connection nail to the nose portion, and a cartridge having a pressurizing plate and a pressurizing spring for pushing the connection nail in the direction of the nose portion, there is provided an improved nailing machine which includes a guide hole which passes through the cartridge and is formed in an upper portion of the cartridge in a lower side of the other end of the trigger; the pressurizing plate which has a certain height higher than a known connection nail; a first slanted surface which is formed in one end which pressurizes the connection nail in the side of the upper portion of the pressurizing plate; and a stop unit which has a stop bar for stopping the operation of the trigger in such a manner that the stop bar has an upper portion engaged to a lower portion of the other end of the trigger by a hinge between the body and the cartridge unit, and a lower portion provided in an inner side of the guide hole, so that the lower portion of the same is closely contacted with the upper portion of the pressurizing plate.

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NAILING MACHINE

Technical Field

The present invention relates to a nailing machine capable of driving a nail using an air pressure, and in particular to a nailing machine in which it is possible to recognize whether there is a connection nail in the interior of a cartridge and to enhance a work efficiency by stopping an operation of a trigger when a connection nail does not remain in the interior of a cartridge thus preventing a defective construction.

Background Art

Generally, a nailing machine is directed to one of an air hydraulic tool widely used in a furniture fabrication process and architecture interior decoration construction. The above nailing machine includes a driving cylinder, and a body which limits a driving piston reciprocating upwardly and downwardly in the driving cylinder. In a lower portion of the body, there are provided a nose portion adapted to drive a connection nail, and a cartridge adapted to guide a connection nail in the nose portion. Here, a grip adapted to guide a compressed air to the driving cylinder is integrally provided in the body in one side of the same. A cover adapted to accommodate the connection nails provided in series is provided in a lower surface or one side surface thus opening and closing the cartridge. A pressurizing plate and a pressurizing spring are provided in the interior of the cover thus pushing the connection nail in the direction of the nose portion.

However, in the conventional cartridge of the nailing machine, it is impossible to the residual quantities of the connection nails in the interior of the cartridge. In the case that the connection nails do not remain, it is impossible to check whether the connection nail remain or do not remain, for thereby causing a defective constriction. In addition, in the conventional art, it is needed to frequently

open and close the cover of the cartridge during the work in order to check whether the connection nails remain or not in the interior of the cartridge.

Disclosure of the Invention

Accordingly, it is an object of the present invention to provide a nailing machine which overcomes the problems encountered in the conventional nailing machine.

It is another object of the present invention to provide an improved nailing machine in which it is possible to check whether the connection nails remain in the interior of a cartridge.

It is further another object of the present invention to provide an improved nailing machine in which it is possible to reload connection nails by stopping the operation of the trigger in the case that the connection nails do not remain in the interior of the cartridge for thereby enhancing an efficiency of a work and preventing a defective construction.

To achieve the above objects, in a nailing machine including a driving cylinder, a body having a grip adapted to limit a driving piston upwardly and downwardly moving in the driving cylinder and to guide a compressed air in the direction of the driving cylinder, and a trigger, a nose portion adapted to drive a connection nail in the lower portion of the body, and a cartridge unit which has one side opened and closed by the cover for guiding the connection nail to the nose portion, and a cartridge having a pressurizing plate and a pressurizing spring for pushing the connection nail in the direction of the nose portion, there is provide an improved nailing machine comprising a guide hole which passes through the cartridge and is formed in an upper portion of the cartridge in a lower side of the other end of the trigger; the pressurizing plate which has a certain height higher than a known connection nail; a first slanted surface which is formed in one end which pressurizes the connection nail in the side of the upper portion of the pressurizing plate; and a stop unit which has a stop bar for stopping the operation

of the trigger in such a manner that the stop bar has an upper portion engaged to a lower portion of the other end of the trigger by a hinge between the body and the cartridge unit, and a lower portion provided in an inner side of the guide hole, so that the lower portion of the same is closely contacted with the upper portion of the pressurizing plate.

Brief Description of the Drawings

The present invention will become better understood with reference to the accompanying drawings which are given only by way of illustration and thus are not limitative of the present invention, wherein;

Figure 1 is a disassembled perspective view illustrating a nailing machine according to a first embodiment of the present invention;

Figure 2A is a partial cross sectional view illustrating a part of a nailing machine during a nail shooting operation of the nailing machine of Figure 1;

Figure 2B is a partial cross sectional view illustrating a state that an operation of a trigger is stopped by the pressurizing plate of Figure 1;

Figure 3 is a disassembled perspective view illustrating a nailing machine according to a second embodiment of the present invention;

Figure 4A is a partial cross sectional view illustrating a part of a nailing machine during a nail shooting operation of the nailing machine of Figure 3;

Figure 4B is a partial cross sectional view illustrating a state that an operation of a trigger is stopped by the pressurizing plate of Figure 3;

Figure 5 is a disassembled perspective view illustrating a nailing machine according to a third embodiment of the present invention;

Figure 6A is a partial cross sectional view illustrating a part of a nailing machine during a nail shooting operation of the nailing machine of Figure 5;

Figure 6B is a partial cross sectional view illustrating a state that an operation of a trigger is stopped by the pressurizing plate of Figure 5;

Figure 7 is a disassembled perspective view illustrating a nailing machine according to a fourth embodiment of the present invention;

Figure 8A is a partial cross sectional view illustrating a part of a nailing machine during a nail shooting operation of the nailing machine of Figure 7;

Figure 8B is a partial cross sectional view illustrating a state that an operation of a trigger is stopped by the pressurizing plate of Figure 7;

Best Mode for Carrying Out the Invention

The preferred embodiments of the nailing machine according to the present invention will be described with reference to the accompanying drawings.

Figure 1 is a disassembled perspective view illustrating a nailing machine according to a first embodiment of the present invention, Figure 2A is a partial cross sectional view illustrating a part of a nailing machine during a nail shooting operation of the nailing machine of Figure 1, and Figure 2B is a partial cross sectional view illustrating a state that an operation of a trigger is stopped by the pressurizing plate of Figure 1.

As shown in Figure 1, a nailing machine 100 according to a first embodiment of the present invention includes a driving cylinder(not shown), a body 10 having a grip 12 adapted to limit the driving piston(not shown) upwardly and downwardly moving in the driving cylinder and to guide a compressed air in the direction of the driving cylinder, and a trigger 14, a nose portion 20 adapted to drive a connection nail 22 in the lower portion of the body 10, and a cartridge unit 30 which has one side opened and closed by the cover 34 for guiding the connection nail 22 to the nose portion 20, and a cartridge 32 having a pressurizing plate 36 and a pressurizing spring 38 for pushing the connection nail 22 in the direction of the nose portion 20.

At this time, a guide hole 110 vertically passing through the cartridge 32 is vertically formed in the upper portion of the lower side cartridge 32 of the trigger

14. The pressurizing plate 36 is designed to have a certain height higher than a conventional connection nail 22. One end of the pressurizing plate 36 adapted to pressurize the connection nail 22 forms a first slanted surface 120 at a certain angle in the direction of the upper side of the pressurizing plate 36. A stop portion 130 is further provided in the body 10 and the cartridge unit 30 of the nailing machine 100. The stop portion 130 includes a stop bar 132 and a hinge 134. The stop bar 132 is formed in a vertical circular column shape and is disposed between the trigger 14 and the guide hole 110. The upper portion of the stop bar 132 is coupled to the lower end of the trigger 14 by a hinge 134. The lower portion of the stop bar 132 is extended to an inner side of the guide hole 110, and the end portion of the same is provided close to the upper portion of the connection nail 22. A second slanted surface 136 corresponding to the first slanted surface 120 is formed in the lower portion of the stop bar 132. Namely, the stop bar 132 is provided in the other end corresponding to one end of the trigger 14 which is pulled for driving the connection nail 22 by a worker. Preferably, the diameter of the guide hole 110 is larger than the diameter of the stop bar 132.

The operation of the nailing machine 100 according to a first embodiment of the present invention will be briefly described. As shown in Figures 2A and 2B, in order to use the nailing machine 100 according to a first embodiment of the present invention, in a state that the stop portion 130 is engaged in the nailing machine 100, a worker opens the cover 34 of the cartridge 32 and pulls the pressurizing plate 36 in one side and then loads the connection nail 22 and closes the cover 34. When the connection nail 22 is engaged in the cartridge unit 30 in the above manner, a compressor(not shown) is connected with the grip 12 for thereby performing a desired work. When the work is performed in the above manner, the pressurizing plate 36 continuously pushes the connection nails 22 in the direction of the nose portion 20 by the pressurizing spring 38.

At this time, the stop bar 132 moves down to the lower portion of the guide hole 110 based on the operation of the trigger 14. The end of the downwardly moved stop bar 132 is moved down to the position close to the upper portion of the

connection nail 22. When the connection nails 22 do not remain in a state that the remaining quantities of the connection nails is not checked, the first slanted surface 120 selectively close-contacts with the second slanted surface 136, and the upper portion of the pressurizing plate 36 is positioned in the lower portion of the guide hole 110, and the lower portion of the stop bar 132 is closely contacted with the pressurizing plate 36, so that the operation of the trigger 14 is stopped.

Figure 3 is a disassembled perspective view illustrating a nailing machine according to a second embodiment of the present invention, Figure 4A is a partial cross sectional view illustrating a part of a nailing machine during a nail shooting operation of the nailing machine of Figure 3, and Figure 4B is a partial cross sectional view illustrating a state that an operation of a trigger is stopped by the pressurizing plate of Figure 3.

As shown in Figure 3, a nailing machine 200 according to a second embodiment of the present invention includes a driving cylinder(not shown), a body 10 having a grip 12 adapted to limit the driving piston(not shown) upwardly and downwardly moving in the driving cylinder and to guide a compressed air in the direction of the driving cylinder, and a trigger 14, a nose portion 20 adapted to drive a connection nail 22 in the lower portion of the body 10, and a cartridge unit 30 which has one side opened and closed by the cover 34 for guiding the connection nail 22 to the nose portion 20, and a cartridge 32 having a pressurizing plate 36 and a pressurizing spring 38 for pushing the connection nail 22 in the direction of the nose portion 20.

At this time, a guide hole 210 vertically passing through the cartridge 32 is vertically formed in the upper portion of the lower side cartridge 32 of the trigger 14. The pressurizing plate 36 is designed to have a certain height higher than a conventional connection nail 22. One end of the pressurizing plate 36 adapted to pressurize the connection nail 22 forms a first slanted surface 220 at a certain angle in the direction of the upper side of the pressurizing plate 36. A stop portion 230 is further provided in the body 10 and the cartridge unit 30 of the nailing machine 200.

The stop portion 230 includes a stop bar 232, a support member 238, and an operation spring 242. The stop bar 232 is formed in a vertical circular column shape and is disposed between the other end of the trigger 14 and the guide hole 210. Namely, the stop bar 232 is provided in the other lower end corresponding to one end of the trigger 14 adapted to pull for driving the connection nail 22 by a worker. The upper portion of the stop bar 232 is provided at a certain position so that the trigger 14 is rotated, and the other end of the trigger 14 hits the upper portion of the stop bar 232, and the lower portion of the stop bar 232 passes through the guide hole 210. When the upper portion is hit by the trigger 14, it is positioned close to the upper portion of the connection nail 22. Here, a circular engaging portion 234 which is extended in a radial direction of the stop bar 232 is formed in a portion close to the upper portion of the stop bar 232, and a second slanted surface 236 corresponding to the first slanted surface 220 is formed in the lower portion. Preferably, the diameter of the guide hole 210 is larger than the diameter of the stop bar 232.

The support member 238 is vertically extended from the body 10 close to the trigger 14 with respect to the stop bar 232, and a slide hole 240 is formed in the end portion of the same in such a manner that the stop bar 232 in which the engaging portion 234 is upwardly extended is inserted thereinto. The thusly formed slide hole 240 is designed to have a certain diameter larger than the diameter of the stop bar 232. The operation spring 242 is disposed between the upper portion of the cartridge 32 having a guide hole 210 and the engaging portion 234. Namely, the stop bar 232 downwardly extended in the direction of the lower portion of the engaging portion 234 is inserted into an inner surrounding portion of the operation spring 242. The operation spring 242 is compressed when the stop bar 232 is moved down by the operation of the trigger 14, and is recovered, pushing the engaging portion 234 of the stop bar 232 when the trigger 14 is recovered. At this time, the stop bar 232 is recovered together with the trigger 14.

The operation state of the nailing machine 200 according to the second embodiment of the present invention will be described.

As shown in Figures 4A and 4B, in order to use the nailing machine 200 according to a second embodiment of the present invention, in a state that the stop portion 230 is engaged in the nailing machine 200, a worker opens the cover 34 of the cartridge 32 and pulls the pressurizing plate 36 in one side and then loads the connection nail 22 and closes the cover 34. When the connection nail 22 is engaged in the cartridge unit 30 in the above manner, a compressor(not shown) is connected with the grip 12 for thereby performing a desired work.

When the work is performed in the above manner, the pressurizing plate 36 continuously pushes the connection nails 22 in the direction of the nose portion 20 by the pressurizing spring 38. At this time, the upper portion of the stop bar 232 is hit by the operation of the trigger 14. As a result, the engaging portion 234 pressurizes the operation spring 242, and the lower portion of the stop bar 232 is moved down to the portion near the upper portion of the connection nail 22. When the trigger 14 is recovered, the operation spring 242 pushes the engaging portion 234. As a result, the stop bar 232 is recovered together with the trigger 14. When the connection nails 22 do not remain in a state that the remaining quantities of the connection nails is not checked, the second slanted surface 236 selectively close-contacts with the first slanted surface 220, and the upper portion of the pressurizing plate 36 is positioned in the lower portion of the guide hole 210, and the lower portion of the stop bar 232 is closely contacted with the pressurizing plate 36, so that the operation of the trigger 14 is stopped.

Figure 5 is a disassembled perspective view illustrating a nailing machine according to a third embodiment of the present invention, Figure 6A is a partial cross sectional view illustrating a part of a nailing machine during a nail shooting operation of the nailing machine of Figure 5, and Figure 6B is a partial cross sectional view illustrating a state that an operation of a trigger is stopped by the pressurizing plate of Figure 5.

As shown in Figure 5, a nailing machine 300 according to a third embodiment of the present invention includes a driving cylinder(not shown), a body 10 having a grip 12 adapted to limit the driving piston(not shown) upwardly

and downwardly moving in the driving cylinder and to guide a compressed air in the direction of the driving cylinder, and a trigger 14, a nose portion 20 adapted to drive a connection nail 22 in the lower portion of the body 10, and a cartridge unit 30 which has one side opened and closed by the cover 34 for guiding the connection nail 22 to the nose portion 20, and a cartridge 32 having a pressurizing plate 36 and a pressurizing spring 38 for pushing the connection nail 22 in the direction of the nose portion 20.

At this time, a guide hole 310 vertically passing through the cartridge 32 is vertically formed in the upper portion of the lower side cartridge 32 of the trigger 14. The pressurizing plate 36 is designed to have a certain height higher than a conventional connection nail 22. One end of the pressurizing plate 36 adapted to pressurize the connection nail 22 forms a first slanted surface 320 at a certain angle in the direction of the upper side of the pressurizing plate 36. A stop portion 330 is further provided in the body 10 and the cartridge unit 30 of the nailing machine 300.

The stop portion 330 includes a stop bar 332, a support member 338, and an operation spring 342. The stop bar 332 is formed in a vertical circular column shape and is disposed between the other end of the trigger 14 and the guide hole 310. Namely, the stop bar 332 is provided in the other lower end corresponding to one end of the trigger 14 adapted to pull for driving the connection nail 22 by a worker. The upper portion of the stop bar 332 is provided at a certain portion and is not interfered by other elements even when the other end of the trigger 14 is rotated, and the lower portion passes through the guide hole 310 and is provided near the upper portion of the connection nail 22. Here, a circular engaging portion 334 which is extended in a radial direction of the stop bar 332 is formed in a portion close to the lower portion of the stop bar 332, and a second slanted surface 336 corresponding to the first slanted surface 320 is formed in the lower portion. Preferably, the engaging portion 334 is mounted on the upper portion of the cartridge 32 having the guide hole 310, and the diameter of the guide hole 310 is larger than the diameter of the stop bar 332.

The support member 338 is vertically extended from the body 10 close to the trigger 14 with respect to the stop bar 332, and a slide hole 340 is formed in the end portion of the same in such a manner that the stop bar 332 is inserted thereinto. The thusly formed slide hole 340 is designed to have a certain diameter larger than the diameter of the stop bar 332. The operation spring 342 is disposed between the upper portion of the engaging portion 334 and the lower portion of the support 338. Namely, the stop bar 332 extended in the direction of the upper portion of the engaging portion 334 is inserted into the inner circumferential portion of the operation spring 342. The operation spring 342 is adapted to move down the stop bar 332 by the pressurizing plate 36.

The operation of the nailing machine 300 according to the third embodiment of the present invention will be described.

As shown in Figures 6A and 6B, in order to use the nailing machine 300 according to a third embodiment of the present invention, in a state that the stop portion 330 is engaged in the nailing machine 300, a worker opens the cover 34 of the cartridge 32 and pulls the pressurizing plate 36 in one side and then loads the connection nail 22 and closes the cover 34. When the connection nail 22 is engaged in the cartridge unit 30 in the above manner, a compressor(not shown) is connected with the grip 12 for thereby performing a desired work.

When the work is performed in the above manner, the pressurizing plate 36 continuously pushes the connection nails 22 in the direction of the nose portion 20 by the pressurizing spring 38. When the connection nails 22 do not remain in a state that the remaining quantities of the connection nails is not checked, the second slanted surface 336 of the stop bar 332 selectively close-contacts with the first slanted surface 320, and the upper portion of the pressurizing plate 36 is positioned in the lower portion of the guide hole 310, and the lower portion of the stop bar 332 is closely contacted with the upper portion of the pressurizing plate 36. At this time, the upper portion of the stop bar 332 is moved up, closely contacting with the other lower end of the trigger 14, so that the operation of the trigger 14 is stopped. When the pressurizing plate 36 is moved back for loading the

connection nails 22, the operation spring 342 pushes the engaging portion 334, and the trigger 14 is operated.

Figure 7 is a disassembled perspective view illustrating a nailing machine according to a fourth embodiment of the present invention, Figure 8A is a partial cross sectional view illustrating a part of a nailing machine during a nail shooting operation of the nailing machine of Figure 7, and Figure 8B is a partial cross sectional view illustrating a state that an operation of a trigger is stopped by the pressurizing plate of Figure 7.

As shown in Figure 7, a nailing machine 400 according to a fourth embodiment of the present invention includes a driving cylinder(not shown), a body 10 having a grip 12 adapted to limit the driving piston(not shown) upwardly and downwardly moving in the driving cylinder and to guide a compressed air in the direction of the driving cylinder, and a trigger 14, a nose portion 20 adapted to drive a connection nail 22 in the lower portion of the body 10, and a cartridge unit 30 which has one side opened and closed by the cover 34 for guiding the connection nail 22 to the nose portion 20, and a cartridge 32 having a pressurizing plate 36 and a pressurizing spring 38 for pushing the connection nail 22 in the direction of the nose portion 20.

At this time, a guide hole 410 vertically passing through the cartridge 32 is vertically formed in the upper portion of the upper side of the cartridge 32 in the lower side of the trigger 14. The pressurizing plate 36 is designed to have a certain height higher than a conventional connection nail 22. One end of the pressurizing plate 36 adapted to pressurize the connection nail 22 forms a first slanted surface 420 at a certain angle in the direction of the upper side of the pressurizing plate 36. A stop portion 430 is further provided in the body 10 and the cartridge unit 30 of the nailing machine 400.

The stop portion 430 includes a stop bar 432, a support member 438, and an operation spring 442. The stop bar 432 is formed in a vertical circular column shape and is disposed between the other end of the trigger 14 and the guide hole 410. Namely, the stop bar 432 is provided in the other lower end corresponding to

one end of the trigger 14 adapted to pull for driving the connection nail 22 by a worker. The upper portion of the stop bar 432 is provided at a certain portion and is not interfered by other elements even when the other end of the trigger 14 is rotated, and the lower portion passes through the guide hole 410 and is provided near the upper portion of the connection nail 22. Here, a second slanted surface 436 corresponding to the first slanted surface 420 is formed in the lower portion of the stop bar 432. Preferably, the diameter of the guide hole 410 is larger than the diameter of the stop bar 432.

The support member 438 is vertically extended from the body 10 close to the trigger 14 with respect to the stop bar 432, and a slide hole 440 is formed in the end portion of the same in such a manner that the stop bar 432 is inserted thereinto. The thusly formed slide hole 440 is designed to have a certain diameter larger than the diameter of the stop bar 432. The operation spring 442 is formed a wedge protruded in an upward direction. One end of the operation spring 442 is threaded to the upper portion of the one side cartridge 32 of the guide hole 410, and the other end of the operation spring 442 is fixed to the stop bar 432. The operation spring 442 moves the stop bar 432 down which is moved up by the pressurizing plate 36.

The operation of the nailing machine 400 according to the fourth embodiment of the present invention will be described.

As shown in Figures 8A and 8B, in order to use the nailing machine 400 according to a fourth embodiment of the present invention, in a state that the stop portion 430 is engaged in the nailing machine 400, a worker opens the cover 34 of the cartridge 32 and pulls the pressurizing plate 36 in one side and then loads the connection nail 22 and closes the cover 34. When the connection nail 22 is engaged in the cartridge unit 30 in the above manner, a compressor(not shown) is connected with the grip 12 for thereby performing a desired work.

When the work is performed in the above manner, the pressurizing plate 36 continuously pushes the connection nails 22 in the direction of the nose portion 20 by the pressurizing spring 38. When the connection nails 22 do not remain in a state that the remaining quantities of the connection nails is not checked, the

second slanted surface 436 of the stop bar 432 selectively close-contacts with the first slanted surface 420. When the upper portion of the pressurizing plate 36 is positioned in the lower portion of the guide hole 410, the lower portion of the stop bar 432 is closely contacted with the upper portion of the pressurizing plate 36. At this time, the upper portion of the stop bar 432 closely contacts with the other lower end of the trigger 14 and moves upwardly, so that the operation of the trigger 14 is stopped. When the pressurizing plate 36 is moved back for loading the connection nails 22, the operation spring 442 pushes the engaging portion 434, and the trigger 14 is operated.

Industrial Applicabiliy

As described above, in the nailing machine according to the first through fourth embodiments of the present invention, a guide hole is formed on an upper portion of the cartridge having a pressurizing plate which pressurizes the connection nail, and a stop bar disposed between one end of the trigger and the guide hole and guided along the guide hole by the operation of the trigger is closely contacted with the upper portion of the pressurizing plate, thus stopping the operation of the trigger. Therefore, it is possible to check whether the connection nails remain or do not remain in the interior of the cartridge, thus enhancing an efficiency of the work and preventing a defective construction.

As the present invention may be embodied in several forms without departing from the spirit or essential characteristics thereof, it should also be understood that the above-described examples are not limited by any of the details of the foregoing description, unless otherwise specified, but rather should be construed broadly within its spirit and scope as defined in the appended claims, and therefore all changes and modifications that fall within the meets and bounds of the claims, or equivalences of such meets and bounds are therefore intended to be embraced by the appended claims.

Claims

1. In a nailing machine including a driving cylinder, a body having a grip adapted to limit a driving piston upwardly and downwardly moving in the driving cylinder and to guide a compressed air in the direction of the driving cylinder, and a trigger, a nose portion adapted to drive a connection nail in the lower portion of the body, and a cartridge unit which has one side opened and closed by the cover for guiding the connection nail to the nose portion, and a cartridge having a pressurizing plate and a pressurizing spring for pushing the connection nail in the direction of the nose portion, an improved nailing machine, comprising:

a guide hole which passes through the cartridge and is formed in an upper portion of the cartridge in a lower side of the other end of the trigger;

said pressurizing plate which has a certain height higher than a known connection nail;

a first slanted surface which is formed in one end which pressurizes the connection nail in the side of the upper portion of the pressurizing plate; and

a stop unit which has a stop bar for stopping the operation of the trigger in such a manner that the stop bar has an upper portion engaged to a lower portion of the other end of the trigger by a hinge between the body and the cartridge unit, and a lower portion provided in an inner side of the guide hole, so that the lower portion of the same is closely contacted with the upper portion of the pressurizing plate.

2. The machine of claim 1, wherein a second slanted surface corresponding to the first slanted surface is formed in a lower portion of the stop bar.

3. In a nailing machine including a driving cylinder, a body having a grip adapted to limit a driving piston upwardly and downwardly moving in the driving cylinder and to guide a compressed air in the direction of the driving cylinder, and

a trigger, a nose portion adapted to drive a connection nail in the lower portion of the body, and a cartridge unit which has one side opened and closed by the cover for guiding the connection nail to the nose portion, and a cartridge having a pressurizing plate and a pressurizing spring for pushing the connection nail in the direction of the nose portion, an improved nailing machine, comprising:

a guide hole which passes through the cartridge and is formed in an upper portion of the cartridge in a lower side of the other end of the trigger;

said pressurizing plate which has a certain height higher than a known connection nail;

a first slanted surface which is formed in one end which pressurizes the connection nail in the side of the upper portion of the pressurizing plate;

a stop bar which is adapted to stop an operation of the trigger in such a manner that an outwardly extended circular engaging portion is formed in a portion close to the upper portion between the body and the cartridge unit, and the upper portion of the stop bar is positioned in a portion so that the other end of the trigger is rotated and hits, and the lower portion of the same is positioned in an inner side of the guide hole, so that the stop bar selectively contacts with the upper portion of the pressurizing plate;

a support member which is vertically extended from the body close to the trigger with respect to the stop bar and has a slide hole formed in the end portion of the same so that the upwardly extended stop bar is inserted thereinto; and

a stop unit which includes an operation spring between the upper portion of the cartridge having the guide hole and the engaging portion and is compressed when the stop bar moves down by the operation of the trigger and recovers the stop bar by pushing the engaging portion when the trigger is recovered.

4. The machine of claim 3, wherein a second slanted surface corresponding to the first slanted surface is formed in the lower portion of the stop bar.

5. In a nailing machine including a driving cylinder, a body having a grip adapted to limit a driving piston upwardly and downwardly moving in the driving cylinder and to guide a compressed air in the direction of the driving cylinder, and a trigger, a nose portion adapted to drive a connection nail in the lower portion of the body, and a cartridge unit which has one side opened and closed by the cover for guiding the connection nail to the nose portion, and a cartridge having a pressurizing plate and a pressurizing spring for pushing the connection nail in the direction of the nose portion, an improved nailing machine, comprising:

a guide hole which passes through the cartridge and is formed in an upper portion of the cartridge in a lower side of the other end of the trigger;

said pressurizing plate which has a certain height higher than a known connection nail;

a first slanted surface which is formed in one end which pressurizes the connection nail in the side of the upper portion of the pressurizing plate;

a stop bar which is adapted to stop an operation of the trigger in such a manner that an outwardly extended circular engaging portion is formed in a portion close to the lower portion between the body and the cartridge unit, and the upper portion of the stop bar is positioned not to be interfered by other elements when the other end of the trigger is rotated, and the lower portion of the same is extended in the inner direction of the guide hole and is positioned in a portion close to the upper portion of the connection nail, so that the stop bar selectively contacts with the upper portion of the pressurizing plate;

a support member which is vertically extended from the body close to the trigger with respect to the stop bar and has a slide hole formed in the end portion of the same so that the upwardly extended stop bar is inserted thereinto; and

a stop unit which has an operation spring which is disposed between the upper portion of the engaging portion and the lower portion of the support member thus descending the stop bar which is moved up by the pressurizing plate.

6. The machine of claim 5, wherein a second slanted surface corresponding to the first slanted surface is formed in the lower portion of the stop bar.

7. In a nailing machine including a driving cylinder, a body having a grip adapted to limit a driving piston upwardly and downwardly moving in the driving cylinder and to guide a compressed air in the direction of the driving cylinder, and a trigger, a nose portion adapted to drive a connection nail in the lower portion of the body, and a cartridge unit which has one side opened and closed by the cover for guiding the connection nail to the nose portion, and a cartridge having a pressurizing plate and a pressurizing spring for pushing the connection nail in the direction of the nose portion, an improved nailing machine, comprising:

a guide hole which passes through the cartridge and is formed in an upper portion of the cartridge in a lower side of the other end of the trigger;

said pressurizing plate which has a certain height higher than a known connection nail;

a first slanted surface which is formed in one end which pressurizes the connection nail in the side of the upper portion of the pressurizing plate;

a stop bar which is adapted to stop an operation of the trigger in such a manner that an upper portion of the stop bar is positioned not to be interfered by other elements even when the other end of the trigger is rotated between the body and the cartridge nit, and a lower portion of the same is extended in the direction of the inner side of the guide hole and is provided in a portion close to the upper portion of the connection nail, so that the stop bar selectively contacts with the upper portion of the pressurizing plate;

a support member which is vertically extended from the body close to the trigger with respect to the stop bar and has a slide hole formed in the end portion of the same so that the upwardly extended stop bar is inserted thereinto; and

a stop unit which has an operation spring for descending the stop bar which is moved up by the pressurizing plate in such a manner that the stop unit has

an upwardly protruded wedge, one side threaded with the upper portion of the one side cartridge of the guide hole, and the other side fixed to the stop bar.

8. The machine of claim 7, wherein a second slated surface corresponding to the first slanted surface is formed in the lower portion of the stop bar.

9. The machine of claim 7, wherein said operation spring is formed in a flat plate shape.

Fig. 1

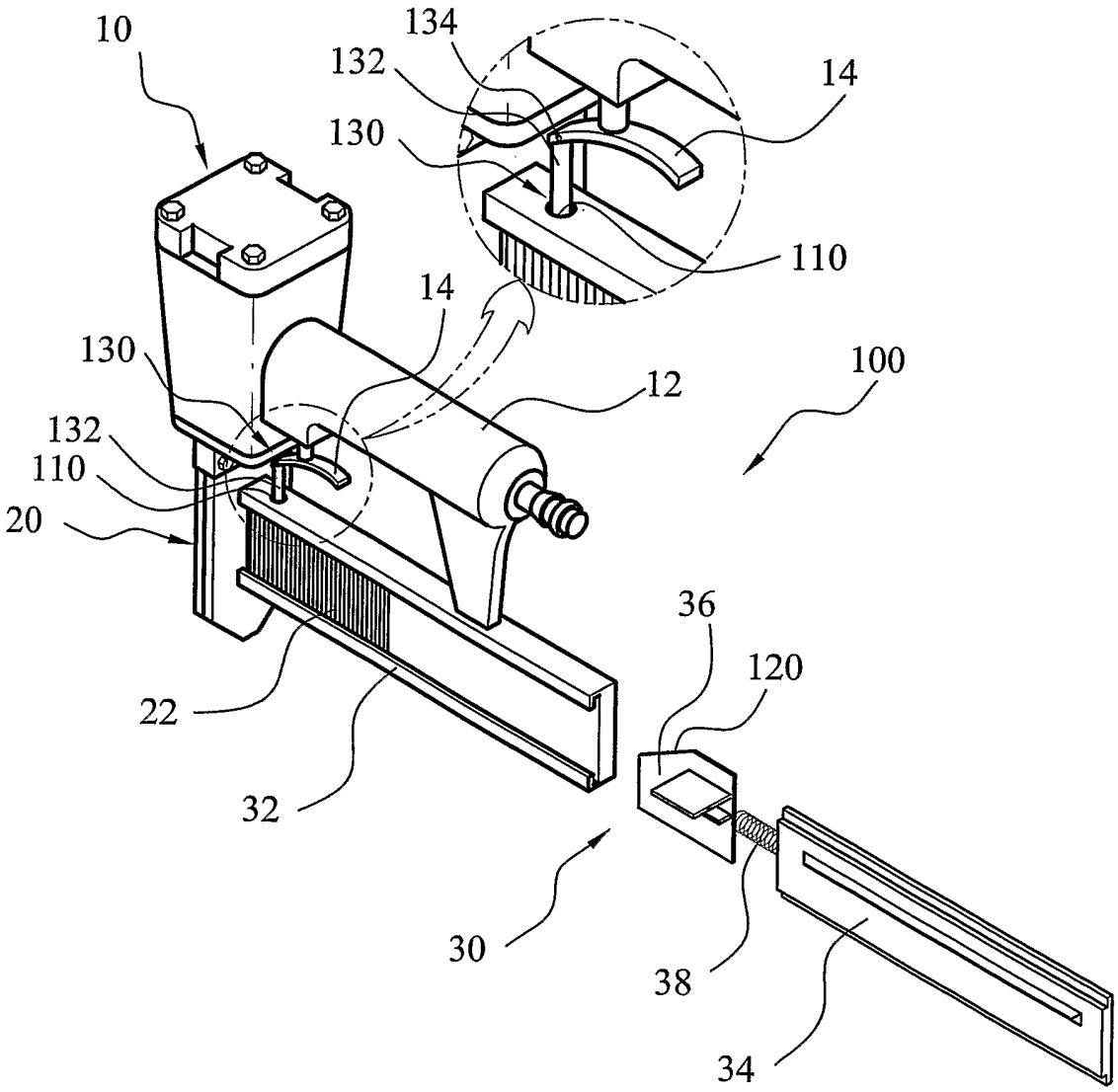


Fig. 2A

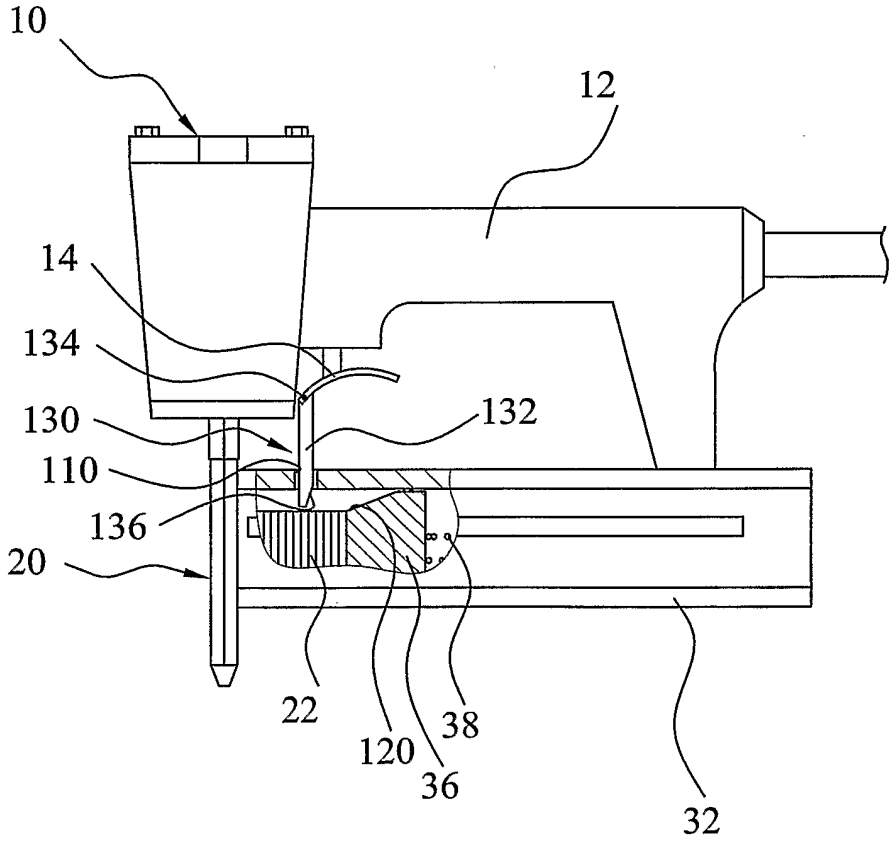


Fig. 2B

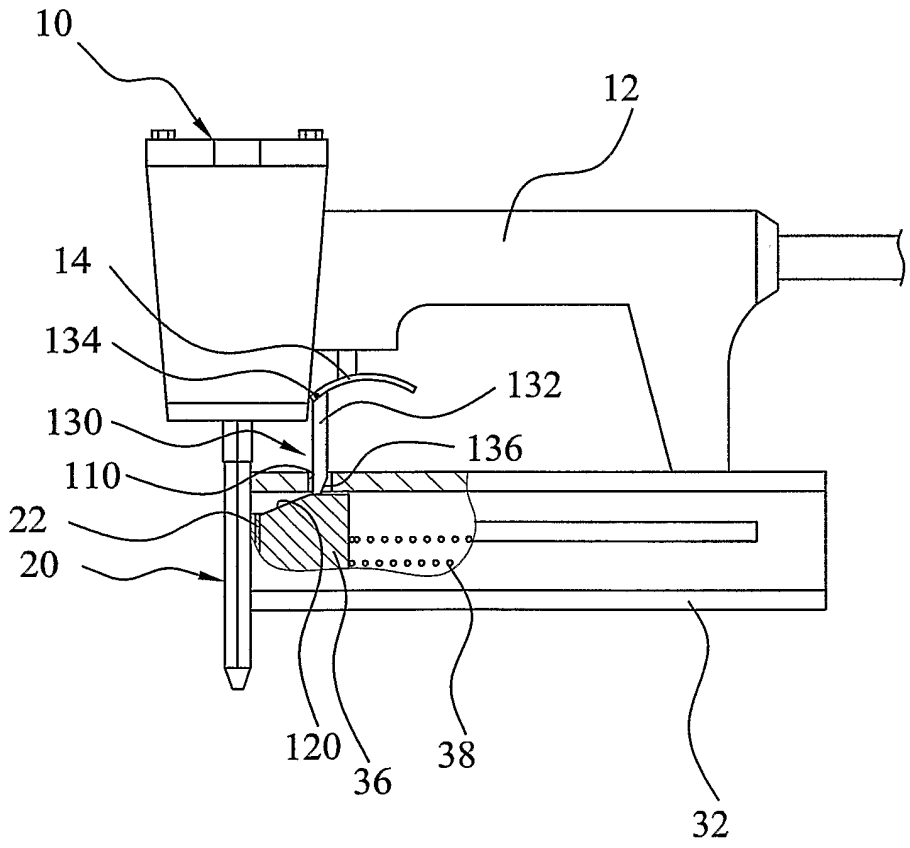


Fig. 3

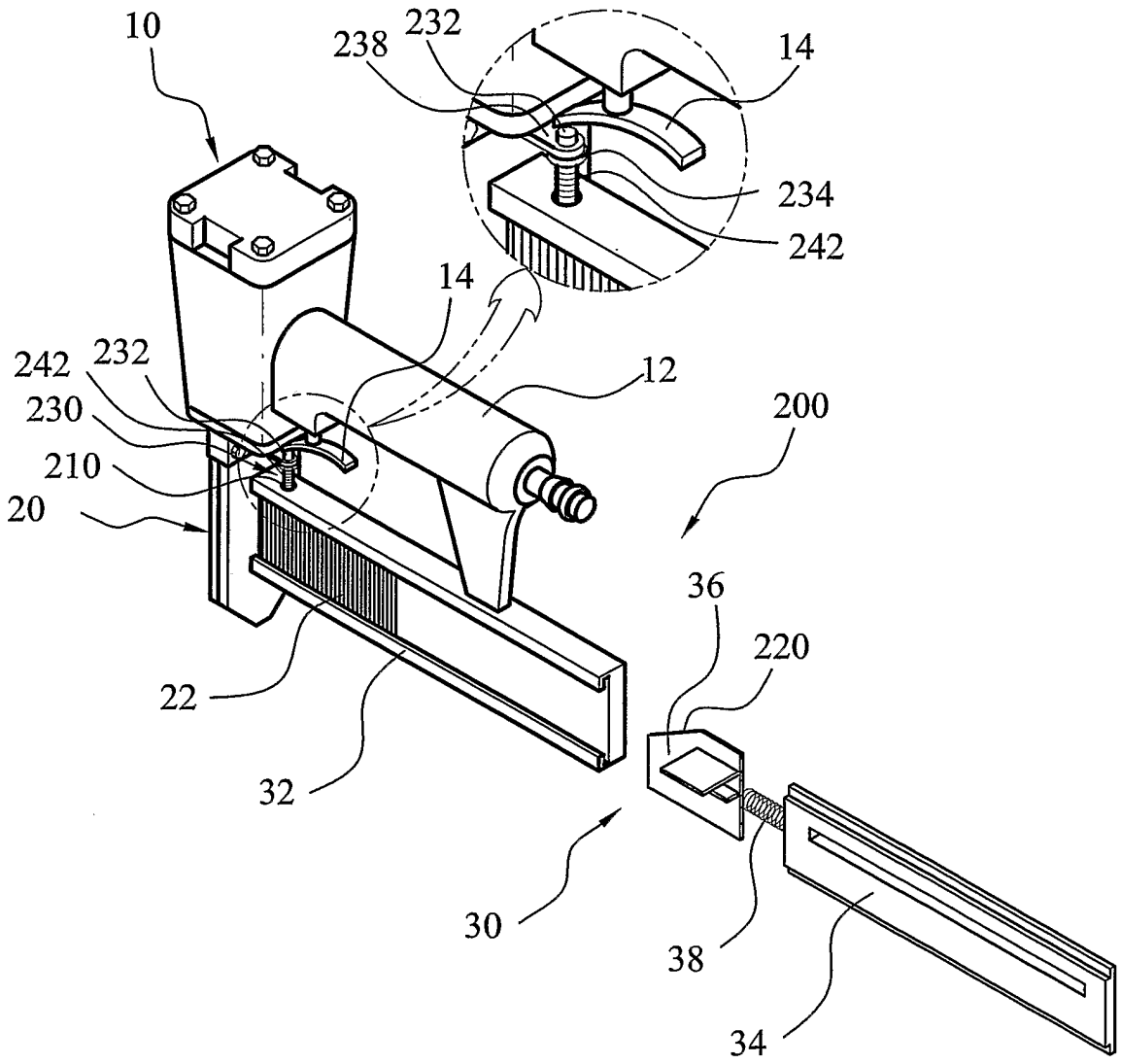

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Fig. 4A

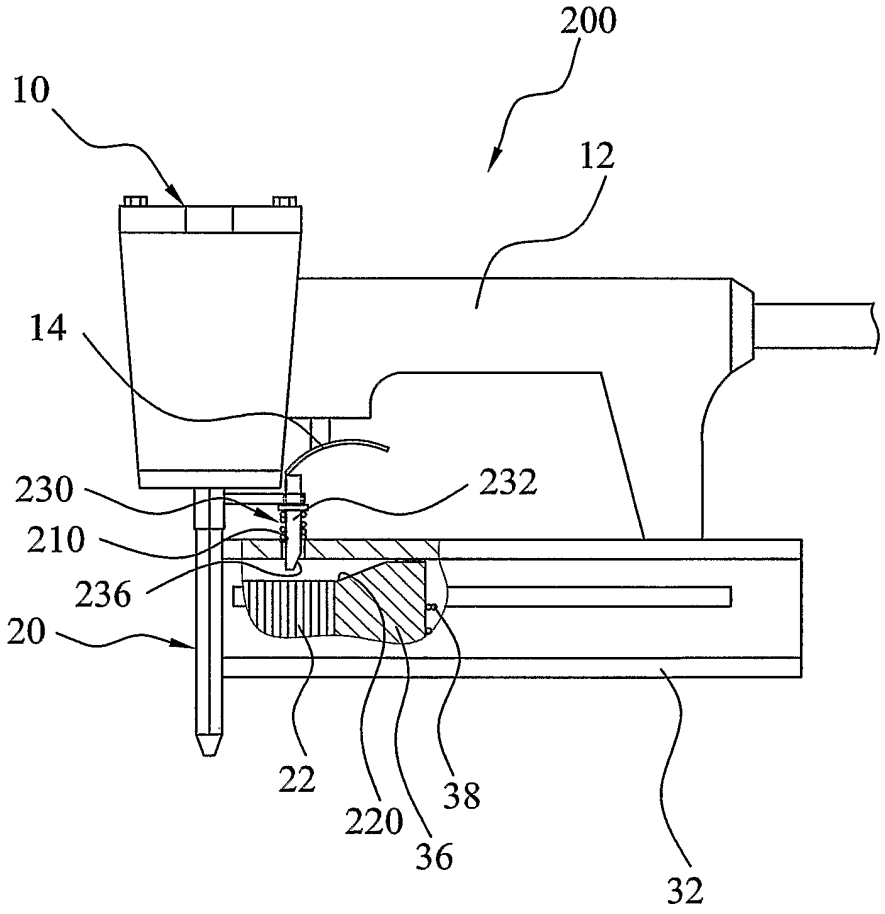


Fig. 4B

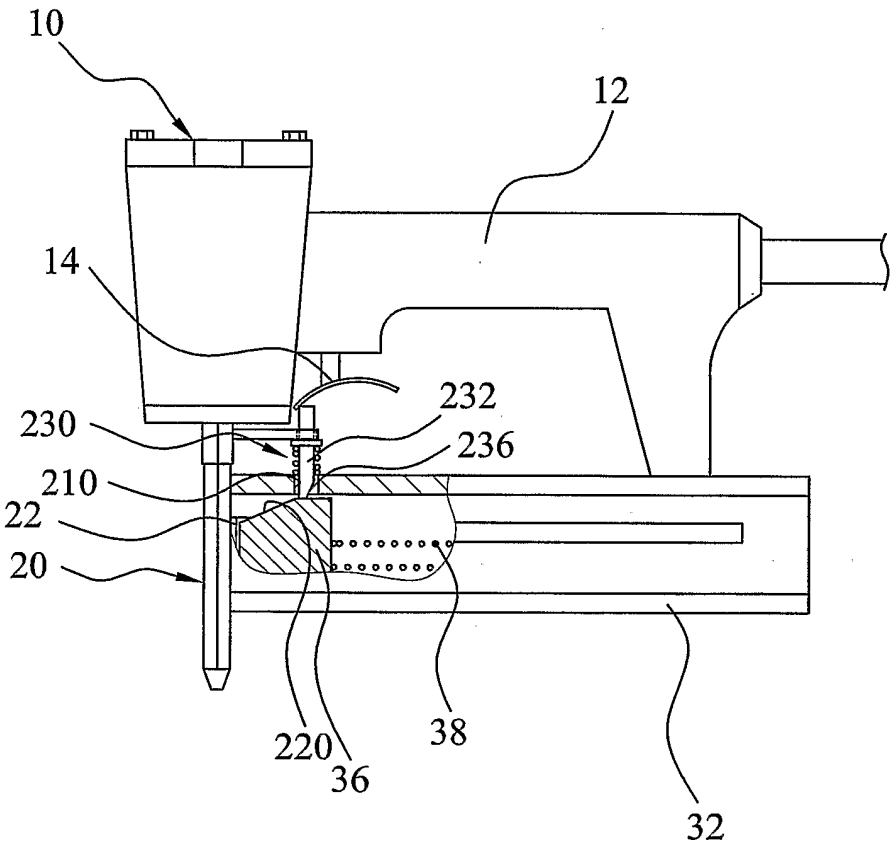


Fig. 5

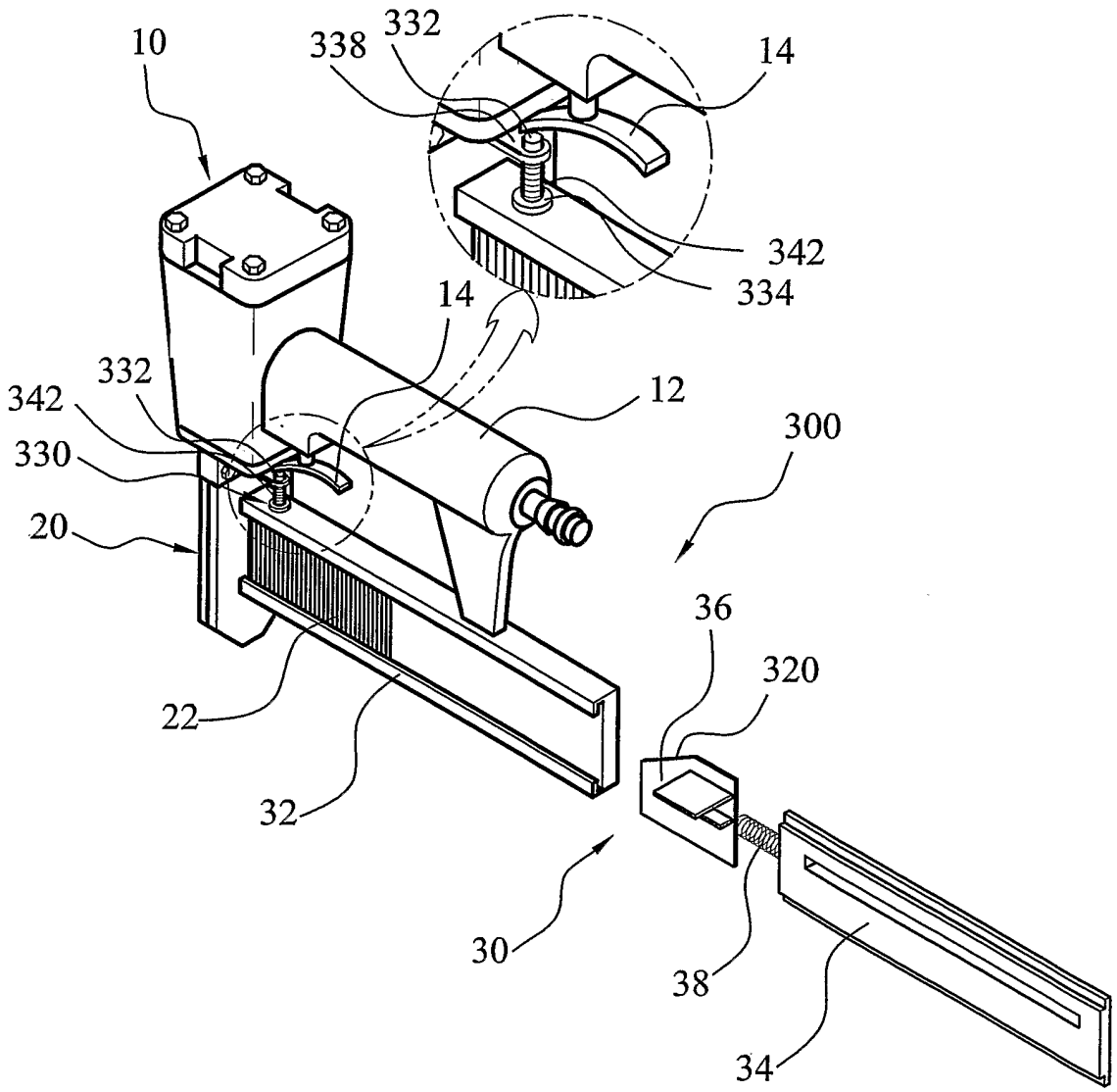


Fig. 6A

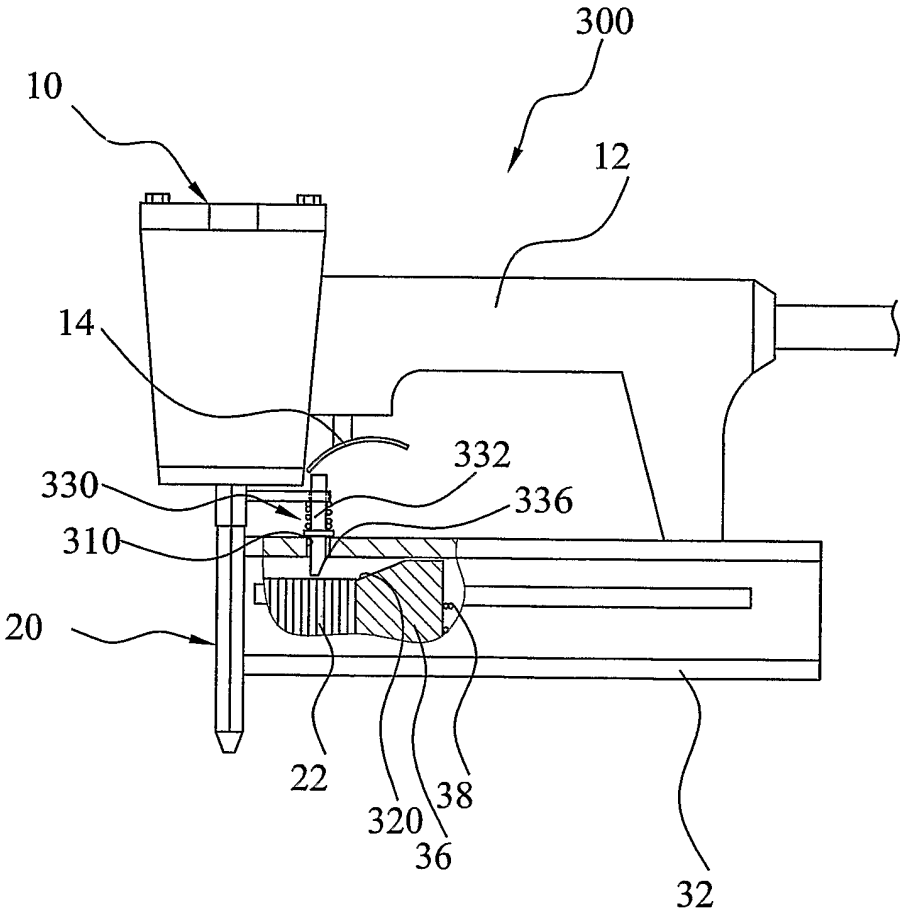


Fig. 6B

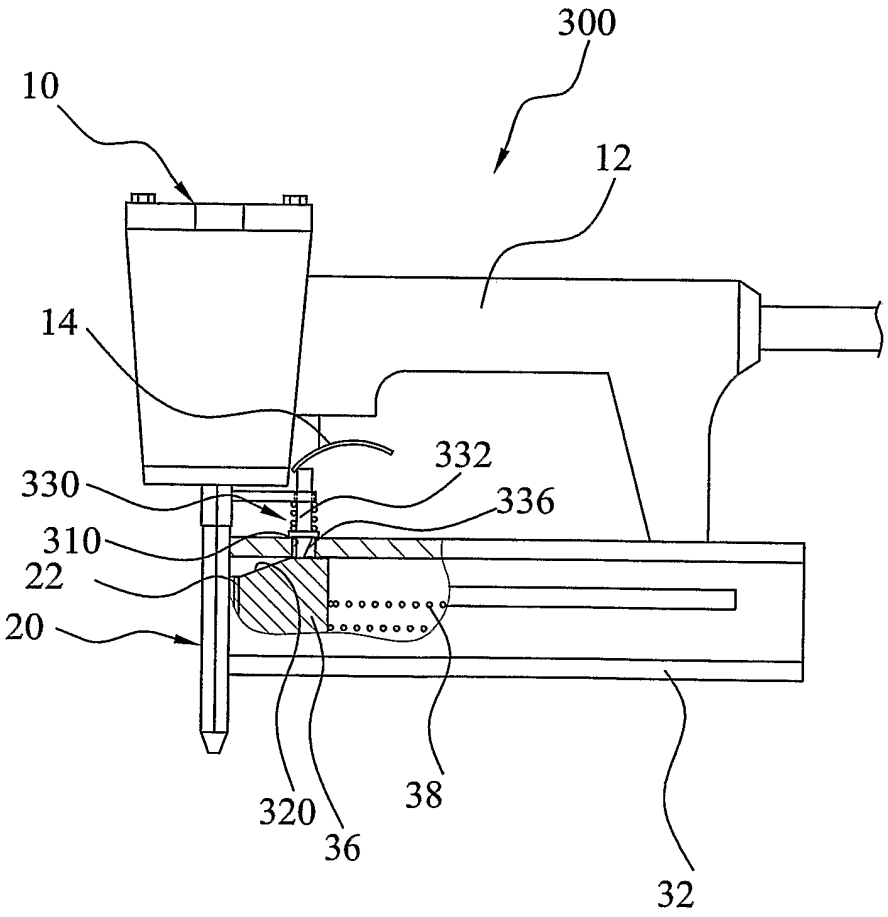


Fig. 7

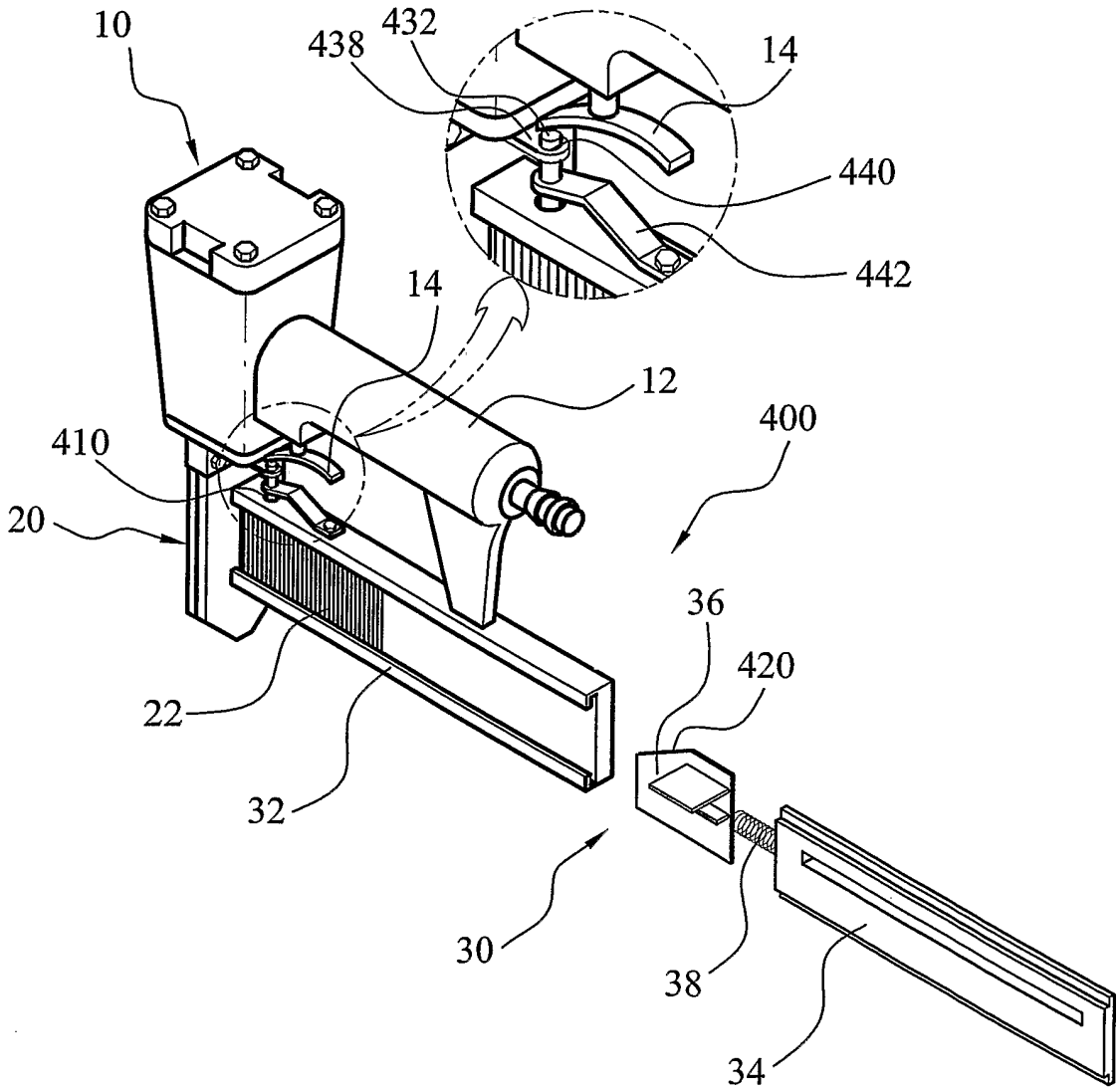


Fig. 8A

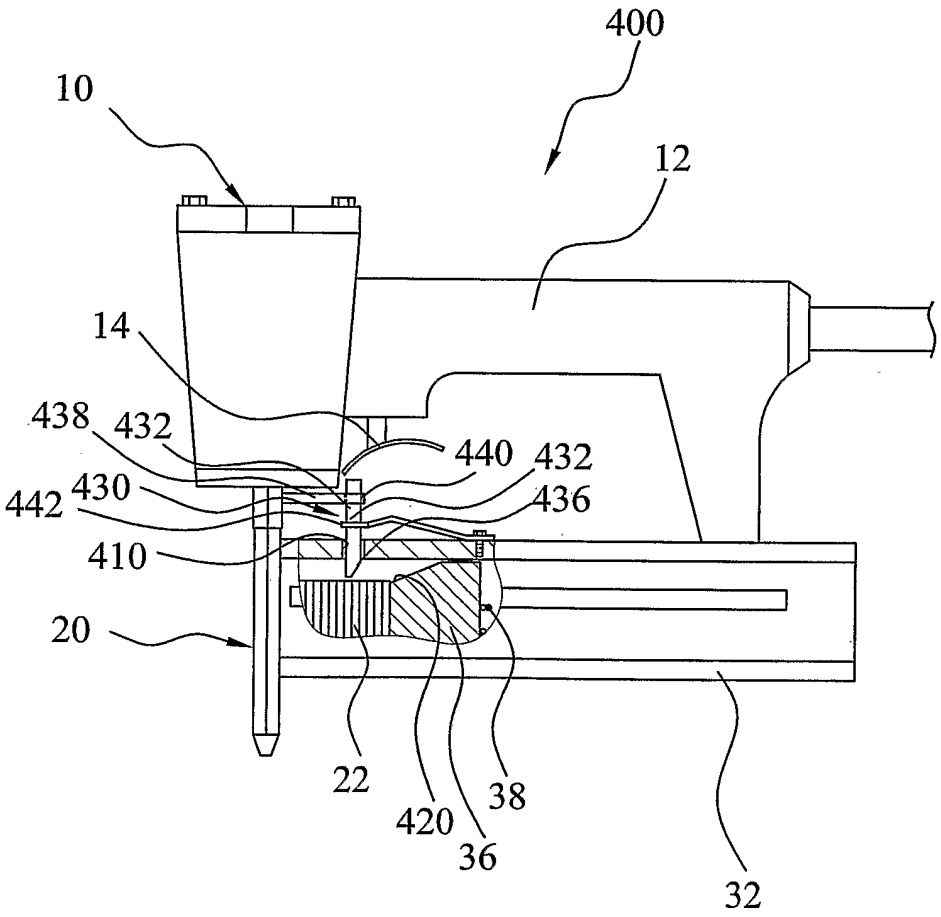
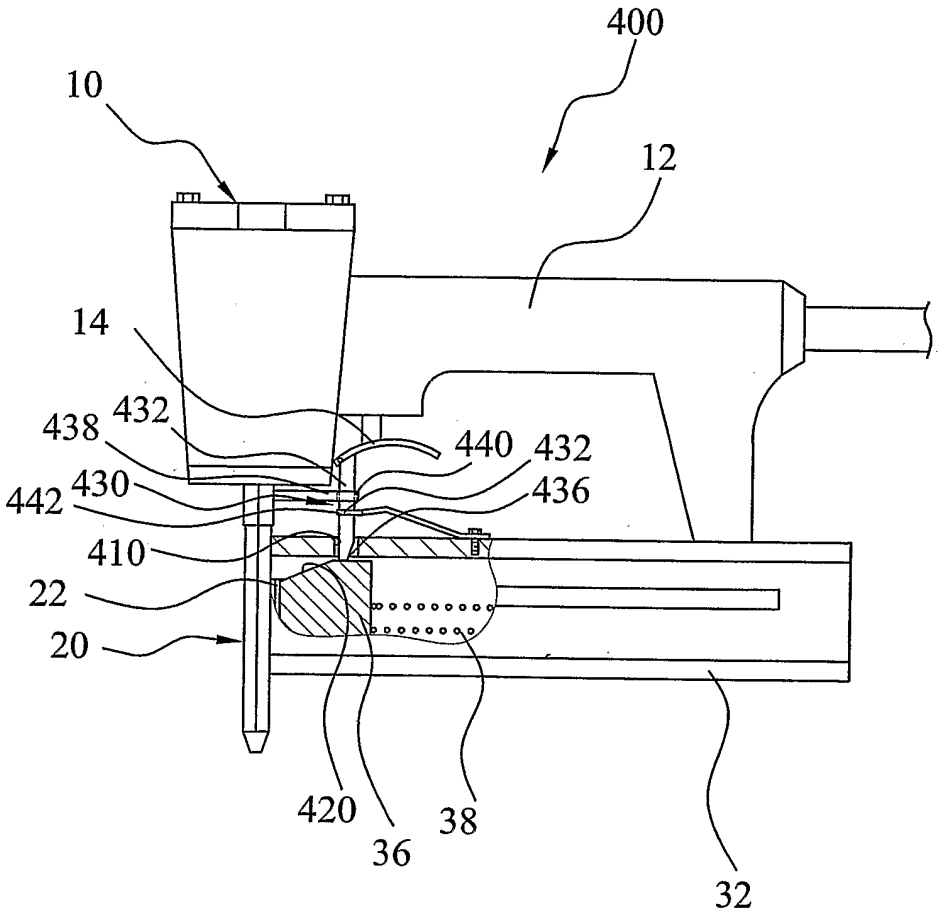


Fig. 8B



INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR02/02077

A. CLASSIFICATION OF SUBJECT MATTER

IPC7 B25C 1/04

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7 B25C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

KR, JP: IPC as above

Electronic data base consulted during the intertnational search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 11-262873 A (JOH FRIEDRICH BEHRENS AG) 28 September 1999 See the whole document	1-9
A	JP 08-047871 A (Makita Corporation) 20 February 1996 See the whole document	1-9
A	US 5,715,982 A (Max Co., Ltd.) 10 February 1998 See the whole document	1-9
A	US 5,180,091 A (Makita Corporation) 19 January 1993 See the whole document	1-9
A	KR 2001-99348 A (SANG SUN LEE) 9 November 2001 See the whole document	1-9

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:

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"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents,such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
15 JULY 2003 (15.07.2003)	15 JULY 2003 (15.07.2003)

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