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TASYAGAN

(54) **REPLACEABLE BARREL BLOCK FOR MANUAL AND SEMI-AUTOMATIC AIR RIFLE AND AIR PISTOLS DRIVEN BY PNEUMATIC SYSTEM (PCP)**

(71) Applicant: **Bahtiyar TASYAGAN**, Izmir (TR)

(72) Inventor: **Bahtiyar TASYAGAN**, Izmir (TR)

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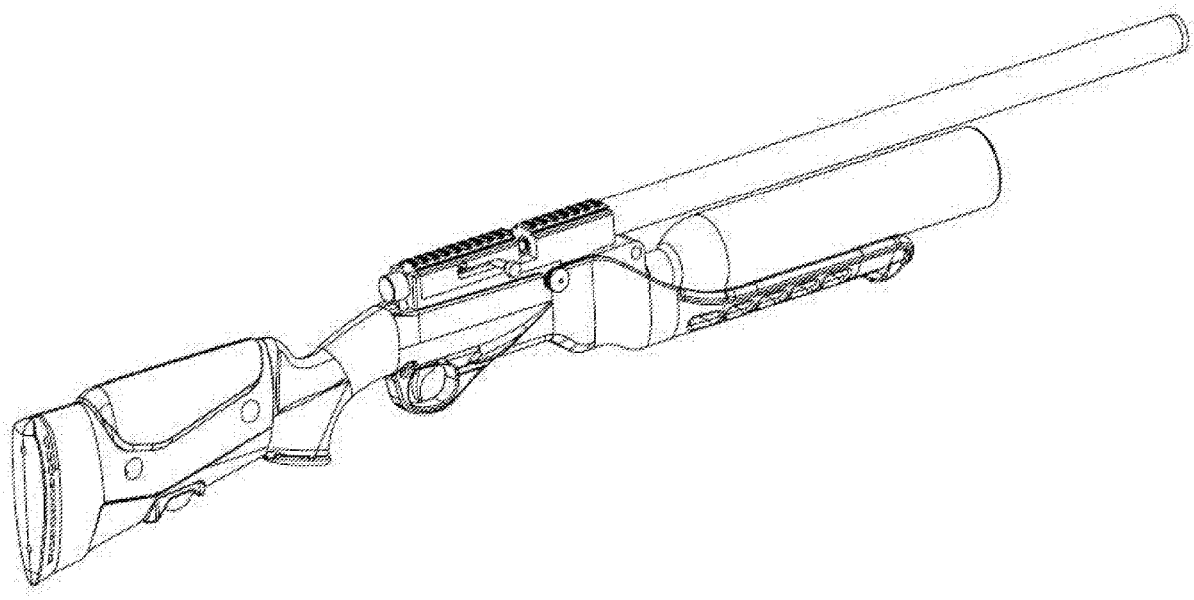
(57) **ABSTRACT**

Invention relates to a replaceable barrel block allowing use of barrels of different calibres on a rifle or pistol by means of providing two blocks consisting of barrel and other equipment on the barrel and mountable by the user manually without need for any additional mounting kits for manual and semi-automatic air rifles and air pistols operated pneumatically.



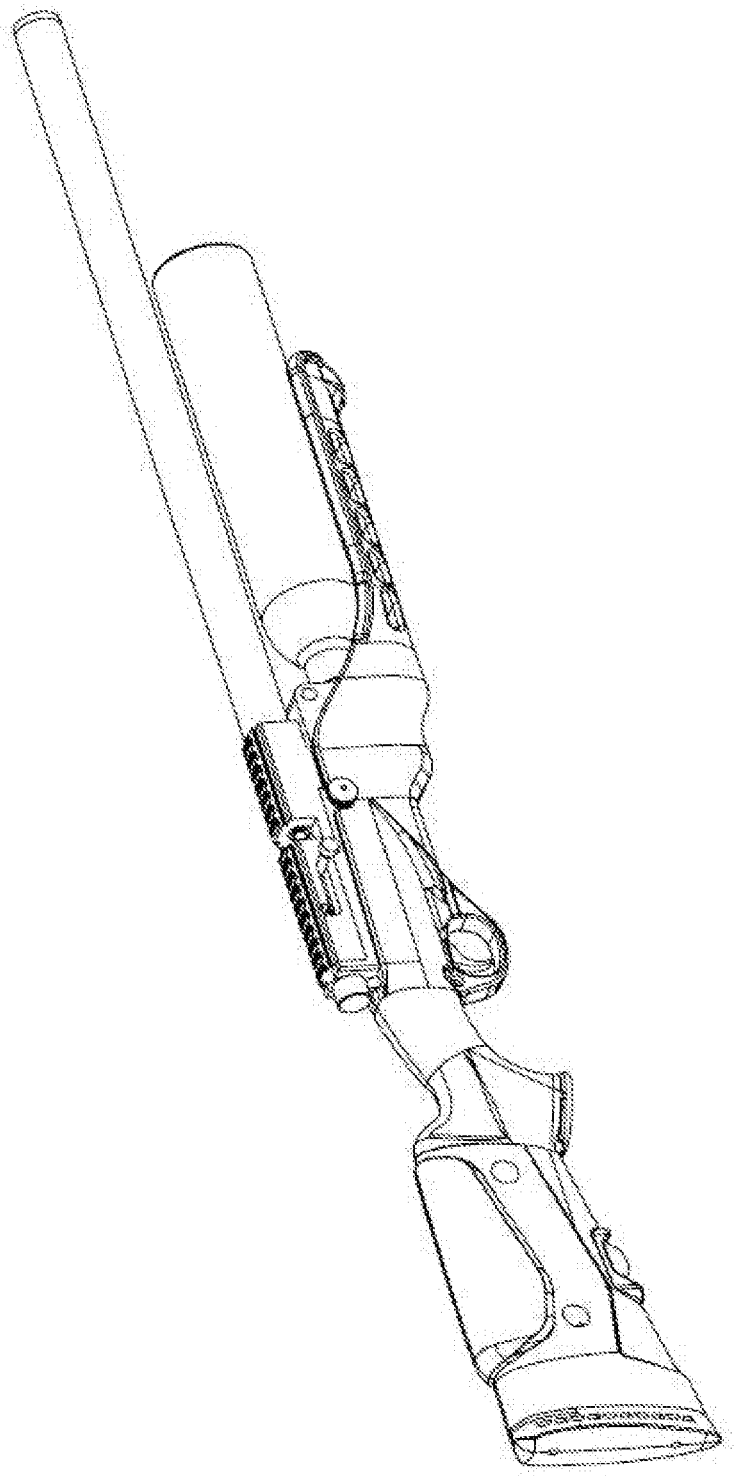


FIG. 1

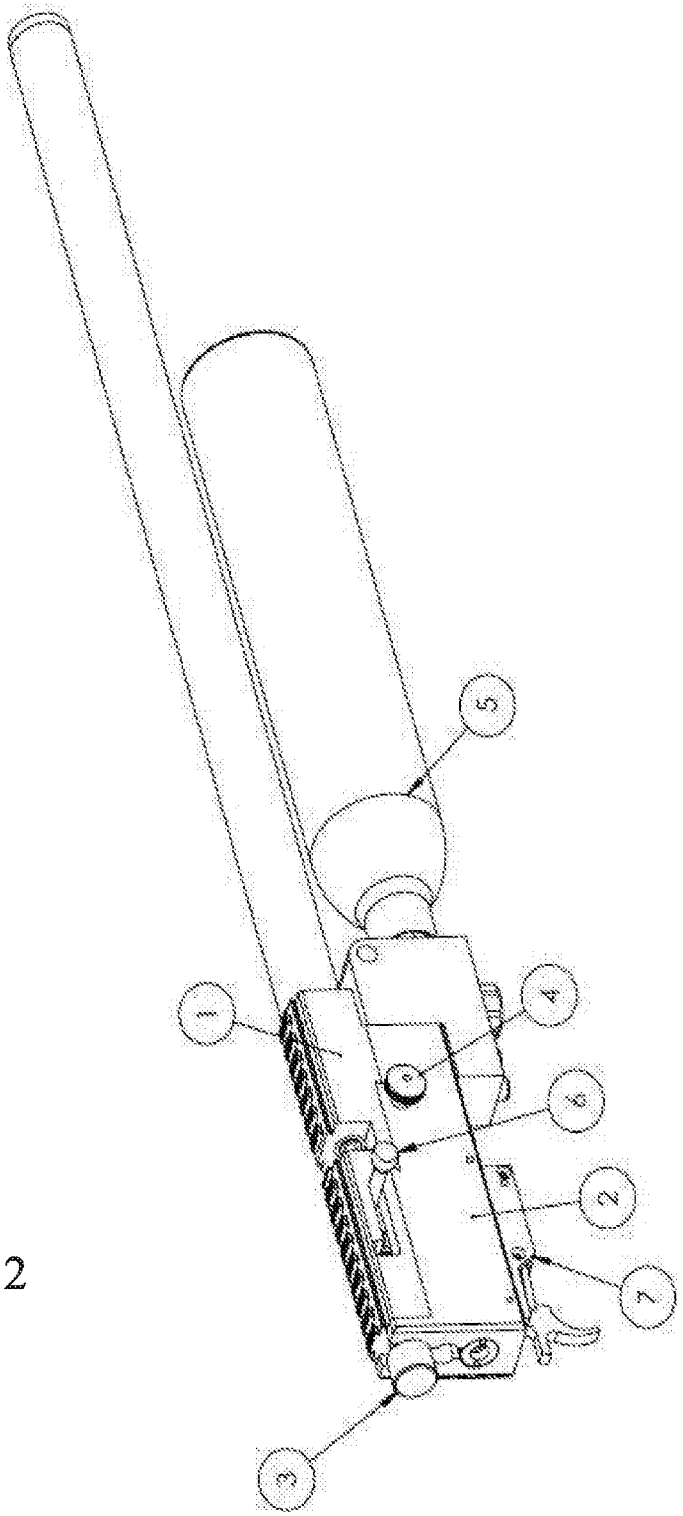


FIG. 2

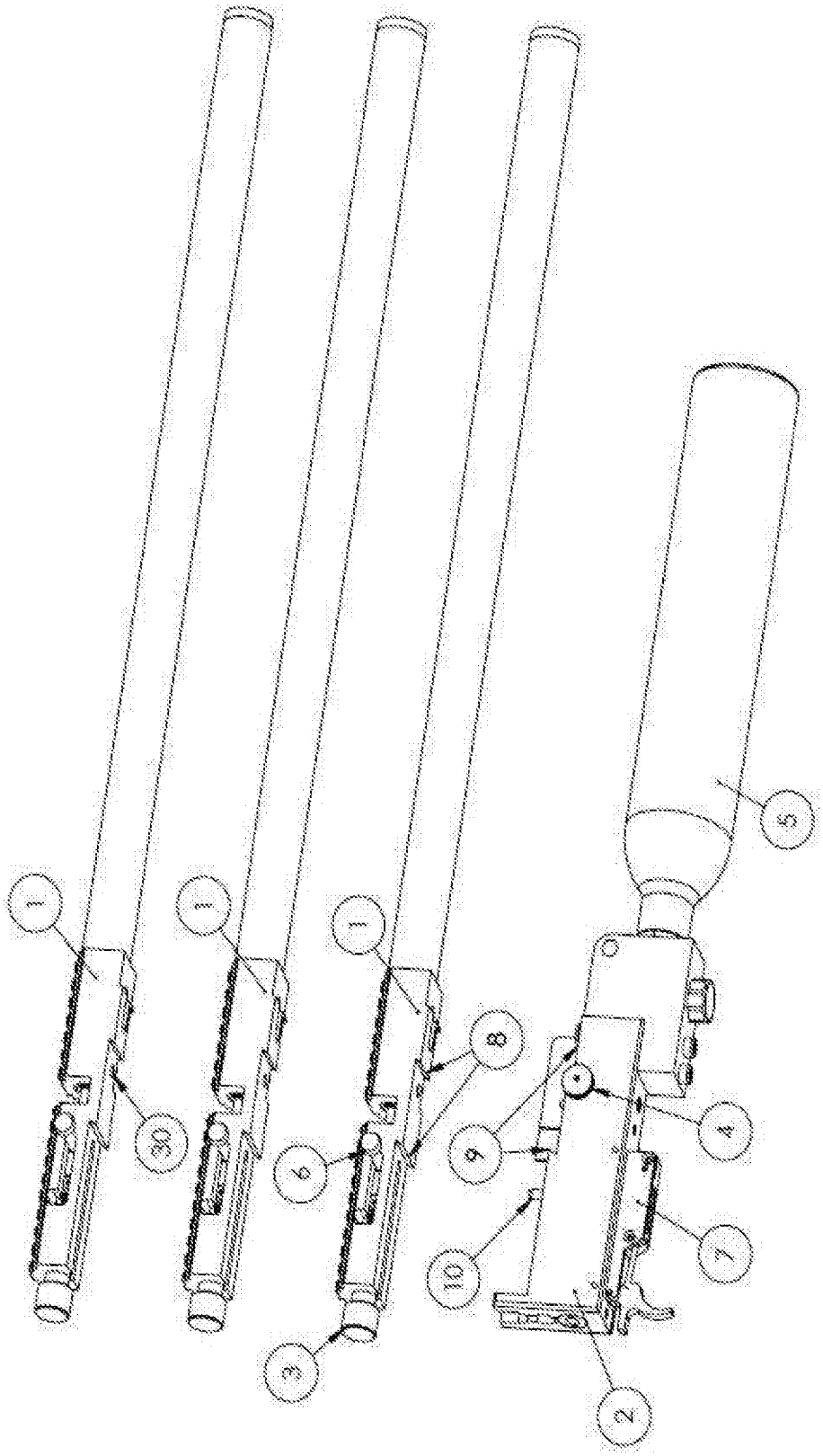


FIG. 3

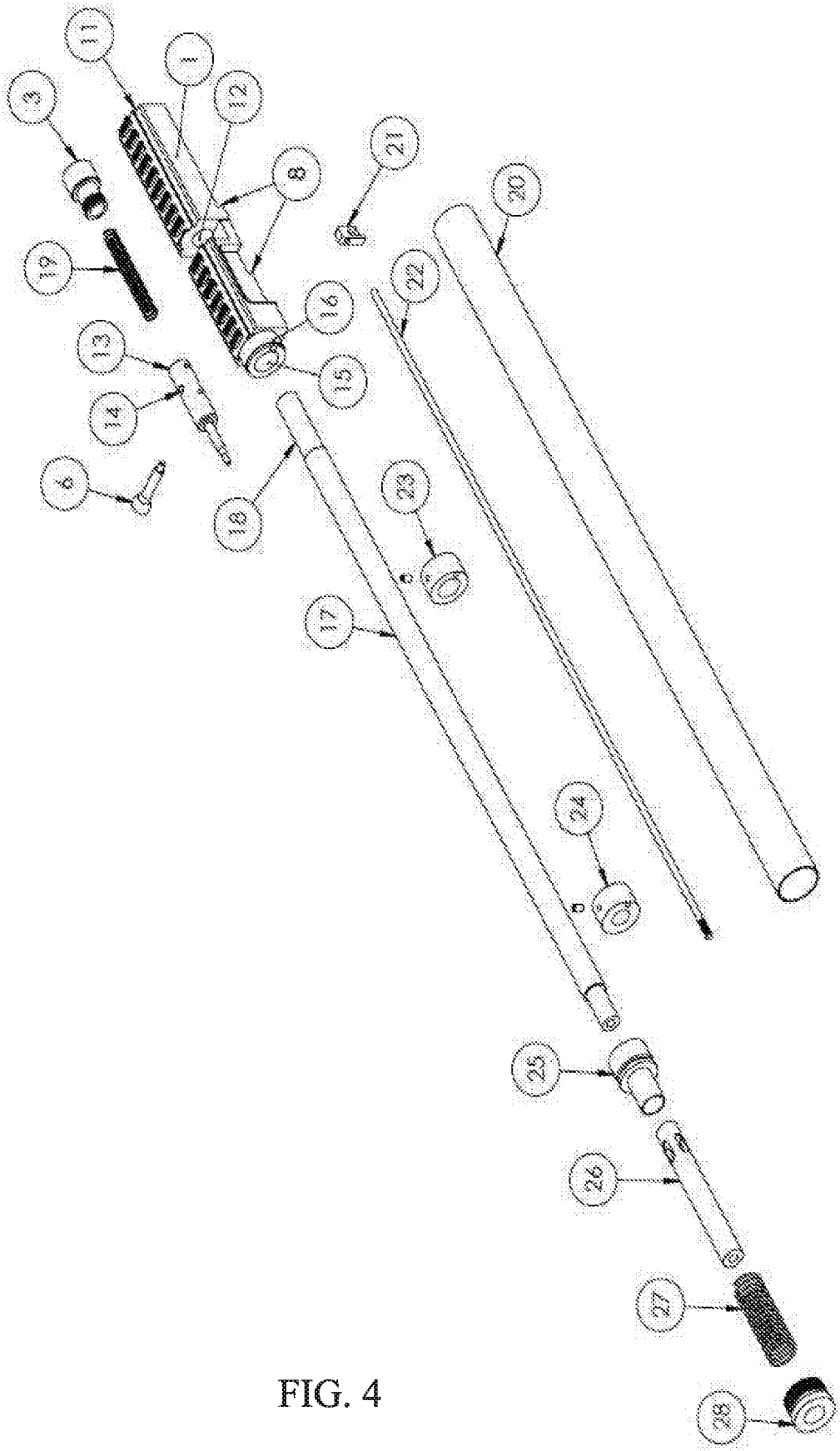


FIG. 4

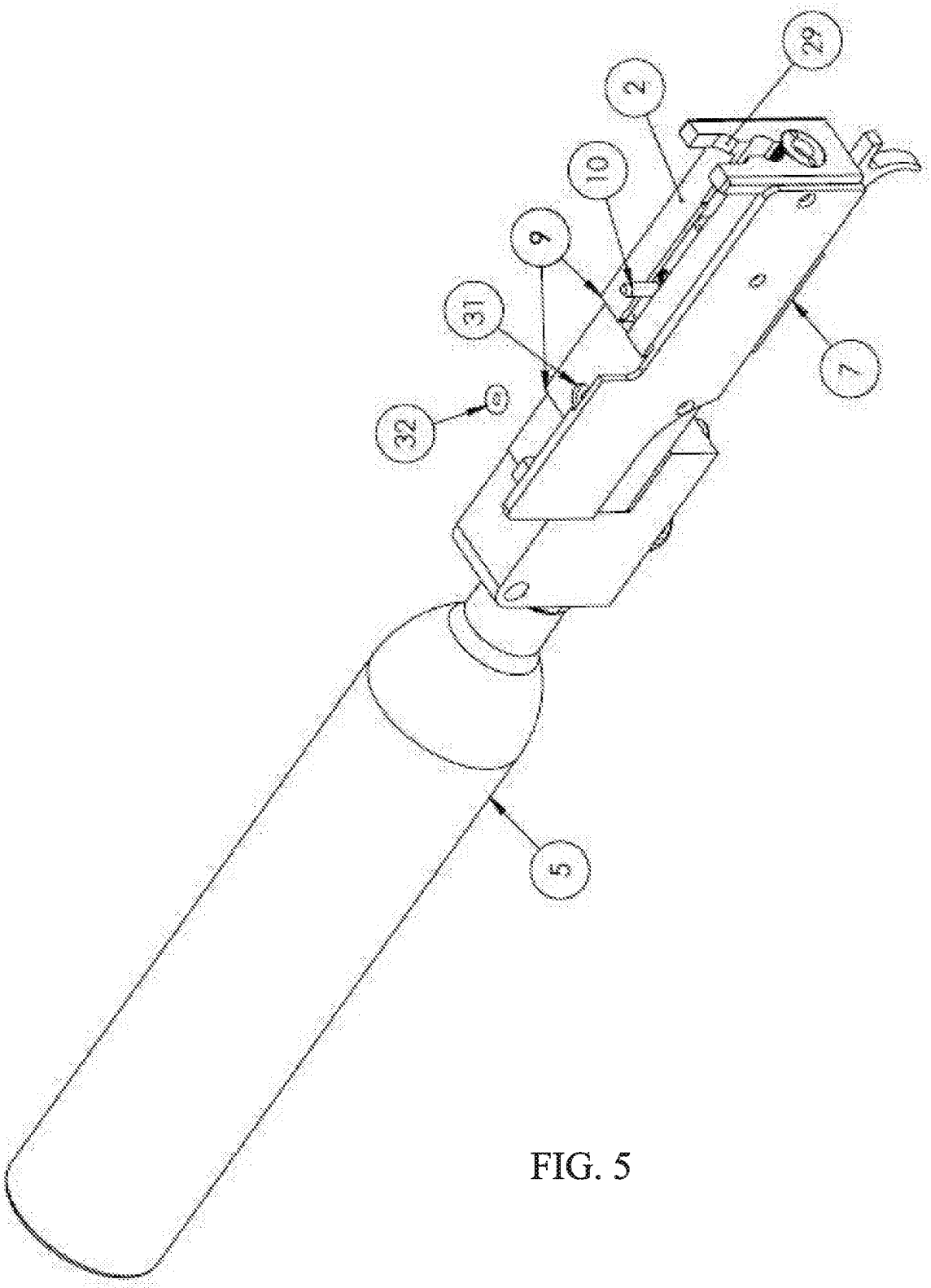


FIG. 5

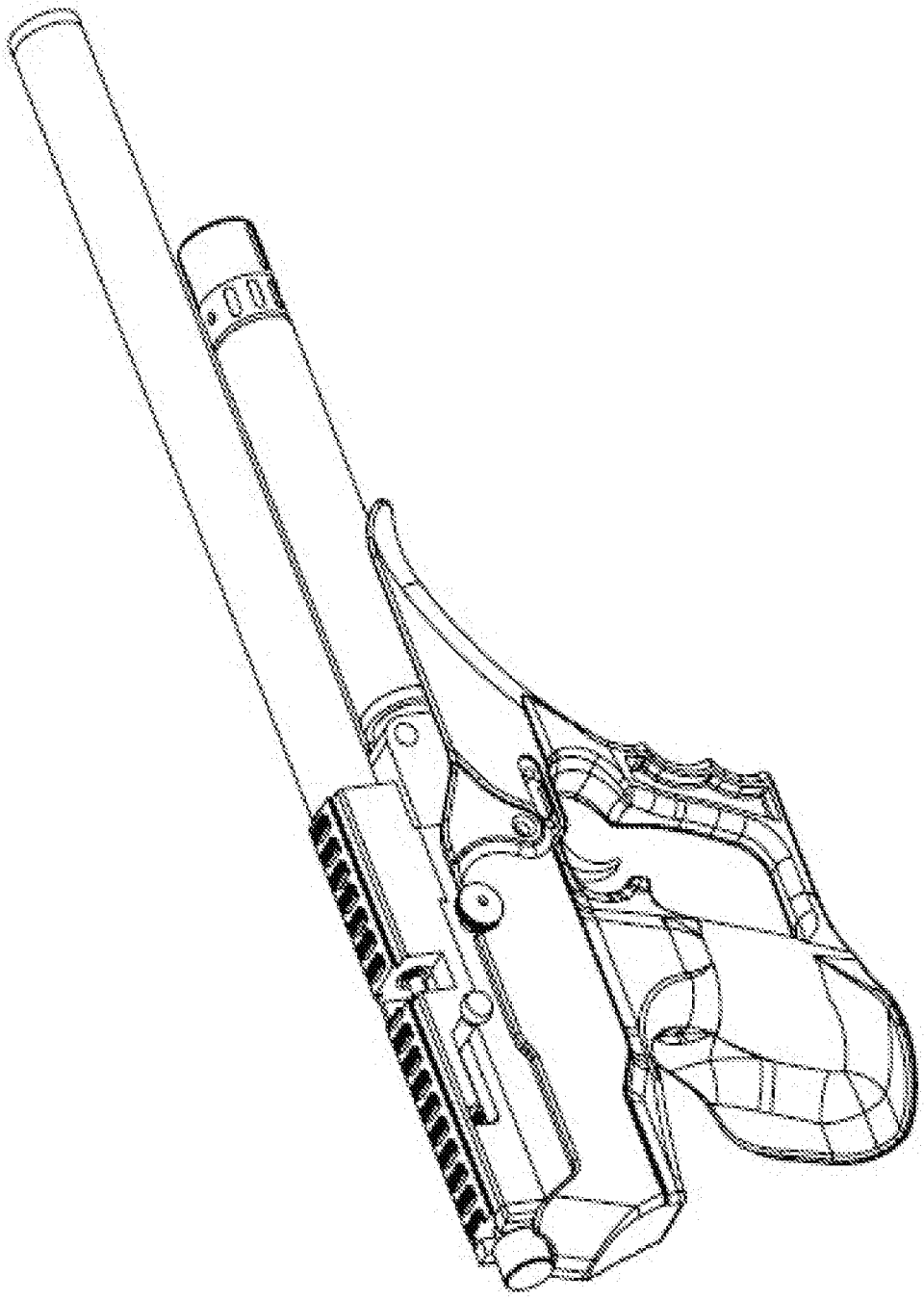


FIG. 6

REPLACEABLE BARREL BLOCK FOR MANUAL AND SEMI-AUTOMATIC AIR RIFLE AND AIR PISTOLS DRIVEN BY PNEUMATIC SYSTEM (PCP)

THE RELATED ART

[0001] Invention relates to use of more than one barrel with different calibres at same weapon by means of providing a replaceable barrel block for manual loading and semi-automatic air rifles and air pistols driven by pneumatic system. Rifle or pistol body consists of two parts, namely, fixed lower block and replaceable upper block to achieve this purpose. Barrels of different calibres are located in the upper blocks provided in advance and having same characteristic features.

[0002] The barrel blocks are replaceable on a single weapon quickly, easily and without need for any extra mounting kits or equipment whenever requested by the user. Thus ammunition of different calibres can be used with the same gun.

BACKGROUND OF THE RELATED ART

[0003] In the related art there is only one single barrel block for air rifles and air pistols with pneumatic system. Therefore, the calibre of the barrel on the gun determines the ammunition to be used.

[0004] Some studies were conducted to eliminate this problem and offer the user the alternative to use ammunition of different calibre with the same gun by means of replacing the barrel. In the embodiments known in related art it is considerably difficult to mount barrels of different calibres onto the gun and such actions are of nature that can not be made by the users.

[0005] When it is desired to replace barrel, firstly barrel block is dismantled, then parts varying subject to ammunition calibres such as ammunition needle, spring, loading lever etc. therein are removed from barrel block.

[0006] The parts such as new ammunition needle, spring, loading lever etc. are placed en the barrel bock again in a manner matching each other.

[0007] Probable non-matching parts or any mistakes to be made during mounting will not only prevent functioning of the rifle or pistol but also include serious accident risks.

[0008] Properly appropriate equipment must be kept available to conduct all of those changes.

[0009] Use of required equipment and dismantling and re-mounting barrel all require expertise and professionalism.

[0010] This makes barrel replacement operation impossible for user.

[0011] On the other hand, dismantling and mounting operations take long time.

[0012] In the system disclosed under this invention rifle and pistol consist of two parts, namely lower block and upper block. Barrel of desired calibre and other components are placed on the upper block to provide completeness and thus a simple embodiment has been obtained.

[0013] It is considerably easy to mount the upper block on the lower block of the rifle. The users are enabled to use ammunition of different calibres with the same rifle or pistol by means of replacing the previously prepared upper block.

[0014] The embodiments in related art do not contain placement of barrel and other auxiliary components in one block and thus do not disclose any replacement of barrel in a quick way.

PURPOSE OF THE INVENTION

[0015] The purpose of this invention is to provide barrel blocks of the same characteristic features and place barrels and auxiliary components of different calibres onto such blocks and thus to achieve a gun embodiment allowing use of different calibres with same rifle or pistol.

[0016] In order to achieve this purpose, rifle and pistol is comprised of two parts, namely, lower block and upper block. When it is desired to change the barrel of rifle or pistol, both barrel and other components completing functioning of the weapon are practically changed by help of upper block at one time and thus rifle/pistol is provided with different calibres and different calibre ammunition can be used with the same weapon.

[0017] Another purpose of the invention is to provide applicability in both manual and semi-automatic rifles and pistols driven by pneumatic system.

[0018] A further purpose of the invention is to allow replacement of the barrel by user.

[0019] Another purpose of the invention is to reduce the time needed for barrel replacement.

[0020] A further purpose of the invention is to prevent the risks of having accidents that might arise from mistakes likely to be made during barrel replacement.

[0021] Another purpose of the invention is to enable replacement of barrel without need for any additional equipment.

[0022] The structural and characteristic features and all advantages of the invention will be understood better with the figures given below and the detailed description by reference to the figures. Therefore, the assessment should be made based on the figures and the detailed descriptions.

BRIEF DESCRIPTION OF THE DRAWINGS

[0023] FIG. **1**—is general view of air rifle with pneumatic system containing a replaceable barrel block.

[0024] FIG. **2** is a view of air rifle containing replaceable barrel block with stock removed status.

[0025] FIG. **3**—illustrates status when upper block is separated from lower block.

[0026] FIG. **4**—is exploded view of upper block and all components on the upper block.

[0027] FIG. **5**—is general view of lower block when replaceable upper block is removed.

[0028] FIG. **6**—is general view of manual and semi-automatic air pistol with replaceable barrel block.

[0029] Part numbers are provided on the figures in order to ensure better understanding of the system.

REFERENCE PART NUMBERS

[0030] **1**—Upper block
[0031] **2**—Lower block
[0032] **3**—Fixing screw
[0033] **4**—Speed adjustment button
[0034] **5**—Air tube
[0035] **6**—Set lever
[0036] **7**—Trigger group
[0037] **8**—Upper block dovetail grooves

[0038] **9**—Lower block dovetail grooves
[0039] **10**—Motion pin
[0040] **11**—Fixing screw housing
[0041] **12**—Ammunition Sliding Pin Housing
[0042] **13**—Ammunition Sliding Pin
[0043] **14**—Motion pin housing
[0044] **15**—Barrel housing
[0045] **16**—Barrel jacket connection extension
[0046] **17**—Barrel
[0047] **18**—Barrel connection place
[0048] **19**—Sliding pin spring
[0049] **20**—Barrel jacket
[0050] **21**—Motion wedge
[0051] **22**—Motion rod
[0052] **23**—Barrel centring bushing **1**
[0053] **24**—Barrel centring bushing **2**
[0054] **25**—Motion piston
[0055] **26**—Piston guide
[0056] **27**—Piston spring
[0057] **28**—Barrel jacket cap
[0058] **29**—Fixing housing
[0059] **30**—Upper Block air passage hole
[0060] **31**—Lower block air passage hole
[0061] **32**—Sealing gasket
[0062] **33**—Magazine housing

DETAILED DESCRIPTION OF THE INVENTION

[0063] This invention relates to a replaceable barrel block allowing use of different calibre ammunition with same gun by means of simply changing barrel of manual or semi-automatic air rifles and pistols driven by pneumatic system.

[0064] In order to achieve above mentioned purpose, air rifle and pistol is comprised of two parts, namely, lower block (**2**) and upper block (**1**). When it is desired to change barrel of the rifle, upper block easily dismantled manually by means of a screw without need for any wrench and thus the barrel located on it and other completing components can be separated from lower block and body.

[0065] The first of said two blocks is lower block (**2**). The lower block contains trigger group (**7**), air tube (**5**) and other components required for performance of rifle functions just as it is in guns conventionally operated pneumatically. Another component thereon is the speed adjustment button (**4**). The speed adjustment button (**4**) is placed in such manner that it can open and close the air passage hole (**31**) on the lower block (**2**). The quantity of air coming through the air tube (**5**) is adjusted by means of air passage hole (**31**) which can be narrowed down by the speed adjustment button (**4**), and thus ammunition exit speed can be adjusted.

[0066] Also an air motion pin (**10**), an air passage hole (**31**) and a sealing gasket (**32**) are located on the same lower block (**2**). Fixing housing (**29**) is provided on rear section while two dovetail grooves (**9**) are provided on lower section. The lower block (**2**) is connected to the rifle or pistol stock by means of other components located thereon. This block remains fixed on the stock during replacement of the barrel.

[0067] Other part is the upper block (**1**) consisting of replaceable barrel which constitutes essence of the invention. One end has a housing (**15**) where placement surface (**18**) of the barrel (**17**) sits and a jacket connection extension (**16**) where barrel jacket (**20**) is placed. The middle part is drilled and a housing (**19**) through which ammunition sliding pin (**13**) passes is provided.

[0068] Also the middle part has a magazine housing (**33**). Other end has housing (**11**) where fixing screw (**3**) is located. Lower section contains two dovetails grooves (**8**) and air passage hole (**30**) just as lower block (**2**).

[0069] Barrels and ammunition sliding pins (**13**) of different calibres are installed onto replaceable upper blocks (**1**) of same characteristic features. For instance, barrel of 4.5 calibre and sliding pins matching it or barrel of 5.5 calibre and sliding pin matching it are installed onto upper blocks (**1**) of same characteristic features. Thus more than one upper block (**1**) of different calibres are prepared. When the user prefers to use barrel of different calibre on his/her rifle or pistol, s/he dismantles the current upper block (**1**) and replaces it with other upper block (**1**) to achieve it. This is an incident which is much simpler and easier than the one known in the related art.

[0070] Fixing screw (**3**) is slightly loosened and upper block (**1**) is pushed forward to mount the upper block (**1**) onto the lower block (**2**). Thus the dovetail grooves (**8**) on the barrel block (**1**) are separated from the dovetail grooves (**9**) on the lower block (**2**) and so the upper block (**1**) is separated from the lower block (**2**) (see FIG. **3**).

[0071] When it is desired to install the upper block (**1**) having barrel of different calibre, motion pin (**10**) located on the lower block (**2**) is aligned to insert into the motion pin (**12**) located on the ammunition sliding pin (**13**) located on the upper block, and seated onto the lower block (**2**) in a manner to insert into this housing. Thus components located on the replaceable upper block (**1**) are associated with the components located on the lower block (**2**). Meanwhile, the fixing screw (**3**) is deployed into the housing (**29**) on the lower block (**2**). When it is started to tighten the fixing screw (**3**), the upper block (**1**) moves backward. This motion provides insertion of dovetail grooves (**8**) located on the upper block (**1**) into the dovetail grooves (**9**) located on the lower block (**2**) and fixation of two blocks. Meanwhile, the sealing gasket (**32**) is pressed between the lower block (**2**) and the upper block (**1**). Thus the sealing of the air flowing from air tube (**5**) during shooting and passing through air passage hole (**31**) on the lower block (**2**) and transferred to the upper block (**1**) is provided. In this way the barrel of the rifle or pistol is replaced by use of the upper block (**1**) and different calibre is provided. The dovetail grooves (**8**/**9**) used here provide solid and rigid placement of the upper block (**1**) on the lower block (**2**) and integrity with the lower block (**2**) is provided.

[0072] As described above, barrel and its components are combined in the system disclosed under this invention. Thus a simple and uncomplicated embodiment is achieved.

[0073] When it is desired to replace the barrel of the rifle or the pistol, the replacement can be achieved by use of a screw, which can be removed manually without need for any support apparatus (wrench etc.).

[0074] Another characteristic of the replaceable barrel block disclosed under the invention is that it is also applicable to both manual and semi-automatic air rifles and pistols driven by pneumatic system which is not known in the related art embodiments.

[0075] The system developed under the invention provides the users with the advantage to use ammunition of different calibres with the same rifle.

1. The invention is a replaceable barrel mechanism and it is characterized in that it consists of dismountable and mountable at least 1 upper block (1) and at least 1 lower block (2) where the upper block (1) is located
- at least one groove (8) positioned under the upper block (1) in a manner located against each other to provide mounting and removal of the upper block (1) to the lower block (2),
- at least one groove (9) on the lower block (2),
- at least one fixing screw (3) providing back and forth motion of upper block (1) for loosening and tightening the grooves with each other;
- fixing screw housing (11) located on one end of the upper block (1) where fixing screw (3) can be mounted to the upper block (1),
- fixing housing (29) into which the fixing screw (3) inserts when the upper block (1) having mounted fixing screw (3) seats onto the lower block (2) on the end of the lower block (1)
- at least a motion pin (10) located on the lower block (2)
- ammunition sliding pin (13) consisting of motion pin housing (14) wherein the motion pin (10) inserts independent of the calibre of the ammunition to be used
- ammunition sliding pin housing (12) where ammunition sliding pin (13) moves back and forth in the upper block (1)
- at least a lower block air passage hole (31) on the lower block (2) where the air can move upon joining the upper block (1) and the lower block (2)
- at least an upper block air passage hole (30) under the upper block (1)
- at least a sealing gasket (32) located between two blocks for moving air sealing.

2. An upper block (1) according to claim 1 and it is characterized in that it consists of at least one housing (12) in cylindrical form provided alongside wherein ammunition sliding pin (13) can function.

3. An upper block (1) according to claim 1 and it is characterized in that it consists of at least a magazine housing (33)

4. An upper block (1) according to claim 1 and it is characterized in that it consists of housing (11) in groove form matching fixing screw (3) on one end.

5. An upper block (1) according to claim 1 and it is characterized in that it consists of at least a dovetail type groove (8) convenient for fixing on lower part.

6. A fixing screw (3) according to claim 1 and it is characterized in that it is tightened onto replaceable barrel block (1) by means of rotating.

7. A fixing screw (3) according to claim 1 and it is characterized in that it is of grooved structure.

8. An ammunition sliding pin (13) according to claim 1 and it is characterized in that it has cylindrical form of diameter convenient for calibre of ammunition to be used.

9. An ammunition sliding pin (13) according to claim 1 and it is characterized in that it contains a housing (14) of a size wherein the motion pin (10) located on the lower block (2) can insert the ammunition sliding pin (13) independent of ammunition diameter.

10. A lower block (2) according to claim 1 and it is characterized in that it consists of at least a dovetail type groove (8) on upper part.

11. A lower block (2) according to claim 1 and it is characterized in that it consists of motion pin (10) to transmit the motion of trigger mechanism and insert into the ammunition sliding pin (13) when it is seated onto the ammunition sliding pin (13).

12. Sealing gasket (2) according to claim 1 and it is characterized in that it is located between the upper block (1) and the lower block (2) fixed to each other in order to prevent leakage of air coming from air tube (5).

13. An upper block air passage hole (30) according to claim 1 and it is characterized in that it is of the same diameter as the lower block air passage hole (31) located on the lower block (2) where the upper block (1) and the lower block (2) are fixed, and is located opposite each.

14. A lower block air passage hole (31) according to claim 1 and it is characterized in that it is of the same diameter as the upper block air passage hole (30) located on the upper block (2) where the upper block (1) and the lower block (2) are fixed, and is located opposite each.

15. A fixing housing (29) according to claim 1 and it is characterized in that it has "U" form whereon the fixing screw (3) can seat at the end of the lower block (2).

* * * * *