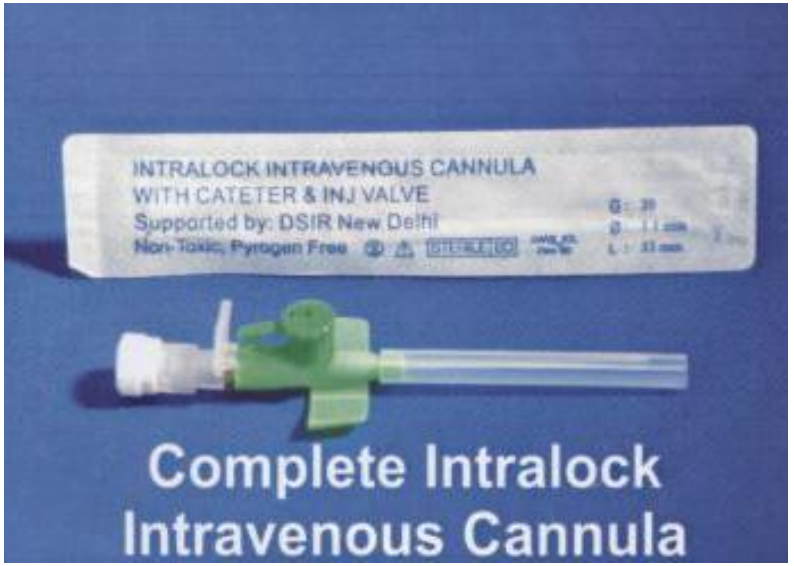
INTRALOCK INTRAVENOUS CANNULA



Granted Indian Patent: 220308

IDENTIFYING LICENSING PARTNERS

IIPRD

INSTITUTE OF INTELLECTUAL PROPERTY
RESEARCH & DEVELOPMENT

About Intravenous Cannula

- Intravenous Cannula is primarily for the administration of intravenous fluids, for obtaining blood samples and for administering medicines. Complications may arise in the vein as a result of cannulation procedure using the existing intravenous cannula. The main complication with existing cannula's are

  1. **Hematoma,** a collection of blood, which can result from failure to puncture the vein when the cannula is inserted or removed. This is generally solved by selection of an appropriate vein and applying pressure slightly above the insertion point during removal of cannula.

  2. **Embolism,** this is caused by air, a thrombus, or fragment of a catheter breaking off and entering the venous system. Air emboli can be avoided by making sure that there is no air in the system.

  Although the above complication can be prevented by human intervention as mentioned but it needs utmost care and negligence of staff/patient can lead to severe complication .

Existing Intravenous Cannula and their Disadvantages:

- Existing Intravenous Cannula products are open on both sides and can only be closed with a luer lock, which is outside. The Cannula's luer lock might be opened due to negligence, by jerk or other means and thus causes haemorrhage.

- Other problems with existing cannula's are micropore or tapes are used to fix causing skin irritation problems, coagulation and clotting of blood in the luer lock was so painful and some times leads to dangerous problems. Though the use of anti coagulants can solve this problem of coagulation , the usage of anti coagulants such as heparin can also cause severe problems and should be used with great attention and under supervision.

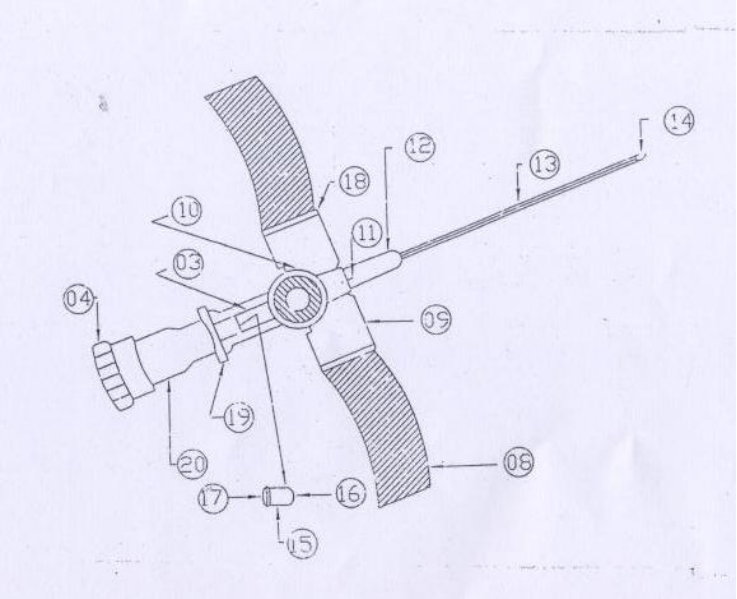
INTRALOCK INTERAVENOUS CANNULA: Present Technology

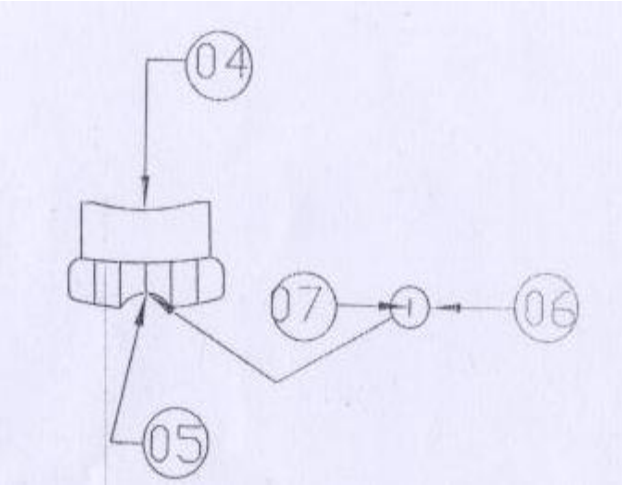
Technology relates to a Intralock Intravenous Cannula solving the problems with the existing intravenous cannula products using a concept of **non-return valve,** instead of using a hard plastic as the cannula valve.

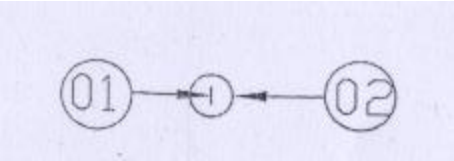
The non-return valve is made up of soft latex rubber or silicon valve with a slit in the centre, which has been placed at the end of cannula chamber, where the syringes, fluid and blood administration sets are inserted into the cannula.

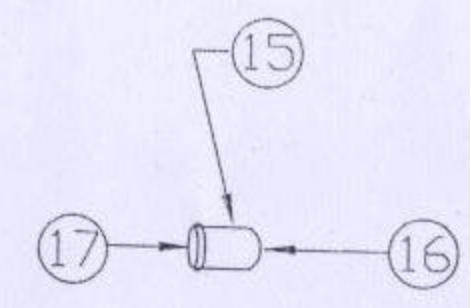
The valve is structured in such a way with a slit, so that the syringes/intravenous sets can be inserted in it and once the syringe/intravenous sets are withdrawn the valve get backs in to its original shape, closes and doesn't allow any air passage. Thus preventing oozing out of blood or medicines and clotting of blood in the luer lock.

Diagrams and photographs of technology/product :









01 - Centre cut part of soft latex rubber 02 - Latex rubber 03 - Cannula chamber 04 – Luer Lock

05 - Luer lock's hole 06 - Round shaped soft latex of silicon sheet 07 - Cut part of soft latex

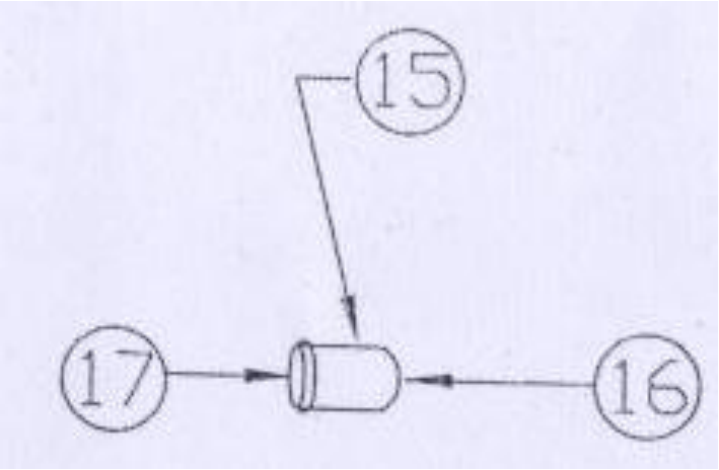
08 - Elastic valcros 09 - Cannula wings 10 - Injection port 11 - Another silicon valve

12 - Joined part of Cannula wings 13 - Plastic material tube 14 - Penetrate steel needle

15 - U shaped silicon rubber cap or valve 16 - Centre cut U shaped valve vertical or horizontal.

17 - Opening of silicon valve or cap 18 - Cut slot of cannula wings 19 - Needle connector.

20 - Flash back chamber (sub luer lock)



Non-return valve, made up of soft latex rubber or silicon valve with a slit in the centre

Labeled Parts:

01 This is a centre cut part of soft latex rubber of silicon sheet

02 This is a latex rubber of silicon sheet.

03 This is a Intralock IntraVenous Cannula chamber made up of a plastic material.

04 This is a luer to close the Intralock IntraVenous Cannula. Which is also can make double role like luer lock to close Intralock IntraVenous Cannula and Intralock system. (part no. 04 & 05)

05 This is a luer lock's hole.

06 This is a round shaped soft latex of silicon sheet.

07 This is a cut part of soft latex or silicon sheet (06).

08 This are valcros or elastic valcros to tie Intralock IntraVenous Cannula.

09 These are Intralock IntraVenous Cannula' wings.

10 This is a injection port.

11 This is another silicon valve which has already been fitted into the cannula.

12 This is a joined part of Intralock IntraVenous Cannula wings in which long and thin plastic tube is attached.

13 This is a long and thin plastic material tube having steel needle.

14 This is a penetrate steel needle for interesting the Cannula.

15 This is a round manner, circular or cylindrical shaped of soft latex of silicon rubber cap or valve which prevent oozing out of blood or fluids from Cannula. It can be made according to the inner size of IntraVenous Cannula. It is also called U shaped, of a soft latex or silicon sheet valve.

16 This is a centre cut U shaped valve vertical or horizontal.

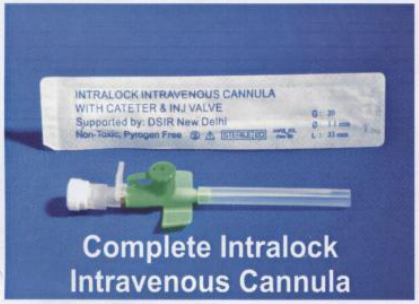
17 This is a opened way of silicon valve or cap from where syringes and fluids administration sets are inserted into the Cannula.

18 This is a cut slot of cannula's wings where valcros are attached.

19 This is a needle connector.

20 This is a flash back chamber (sub luer lock)

Various Components of Intra Lock Intravenous Cannula

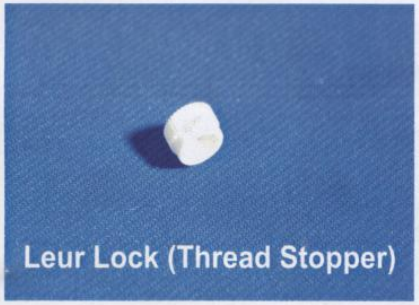


Complete Intralock Intravenous Cannula


Silicon (Latex) Valve

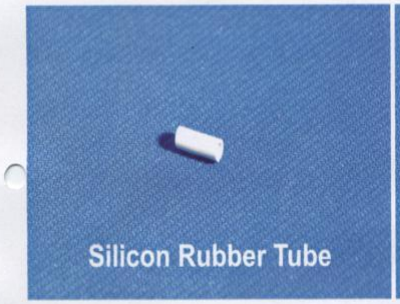

Needle Cover


Needle Hub with attached Needle


Leur Lock (Thread Stopper)


Sub Leur Lock (Hub Cover)

Various Components of Intra Lock Intravenous Cannula


Silicon Rubber Tube


Port Cap


Teflon Holder


Wings Cannula Body attached with Teflon Catheter

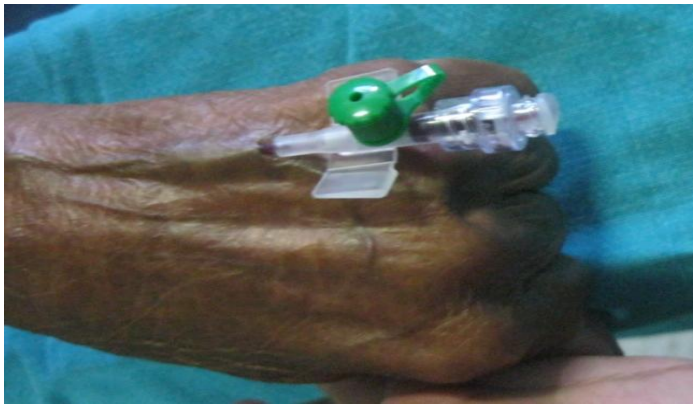
ADVANTAGES :

1. No clotting or coagulating of blood in Intralock IntraVenous Cannuladue to intralock technology.
2. No need to use anti coagulant like Heparin.
3. No chance of blood clotting or coagulation. It has no touch ability with external air or system.
4. In case the luer lock is unlocked due to negligence or other reason and oozing of blood is prevented by the non-return valve
5. Minimised/no pain to patient if injectable medicines and blood is reinjected by Intralock IntraVenous Cannula.
6. No necessity of pressing of vein constantly during inserting Intralock IntraVenous Cannula on the body of the patient.
7. Time to time removal of cannula is not needed as the blood circulation will not get to clotting stage.

Tests conducted at AIIMS, as a Proof of Concept:

- For testing the efficacy of "intra-lock intravenous cannula" 100 patients were enrolled (45 males and 55 females) having an average age of 58 years for study.
- AIMS has taken a benchmark of minimum 80 patients i.e. 80 patients out of 100 should get results in favour of this design of "intra-lock intravenous cannula" as the proof of the efficacy to prevent the backflow during insertion and occlusion during the use.
- As per the reports, the present designed cannula is able to prevent the problem of backflow and occlusion in a large section of patients, though not the desired number (only 61% as compared to 80% required) as per the requirement of the study to prove the efficacy.
- The report suggested that this diminution in efficacy is because of the non-uniformity in manufacturing of the cannula and its components.
- Efficacy can be improve with precise manufacturing technique which is available in the market.

Test Report of AIMS



Picture 1. No backflow of blood in insertion of cannula

Picture 2. Showing slight backflow of blood after the withdrawal of needle

Picture 3. Continuous dribbling of blood

Picture 4. Leakage of fluid when an iv drip set is connected.

PATENT/IP STATUS

- Granted Indian Patent number 220308

EXPECTATIONS:

- Applicant seeks to Out-Licence the Patent Rights on Exclusive or Non-Exclusive Terms.

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