April 26, 1966 J. D. SCHNEIDER 3,247,852

UMBILICAL CORD CLAMP

Filed Oct. 10, 1963

Fig. 4.

Fig. 1.

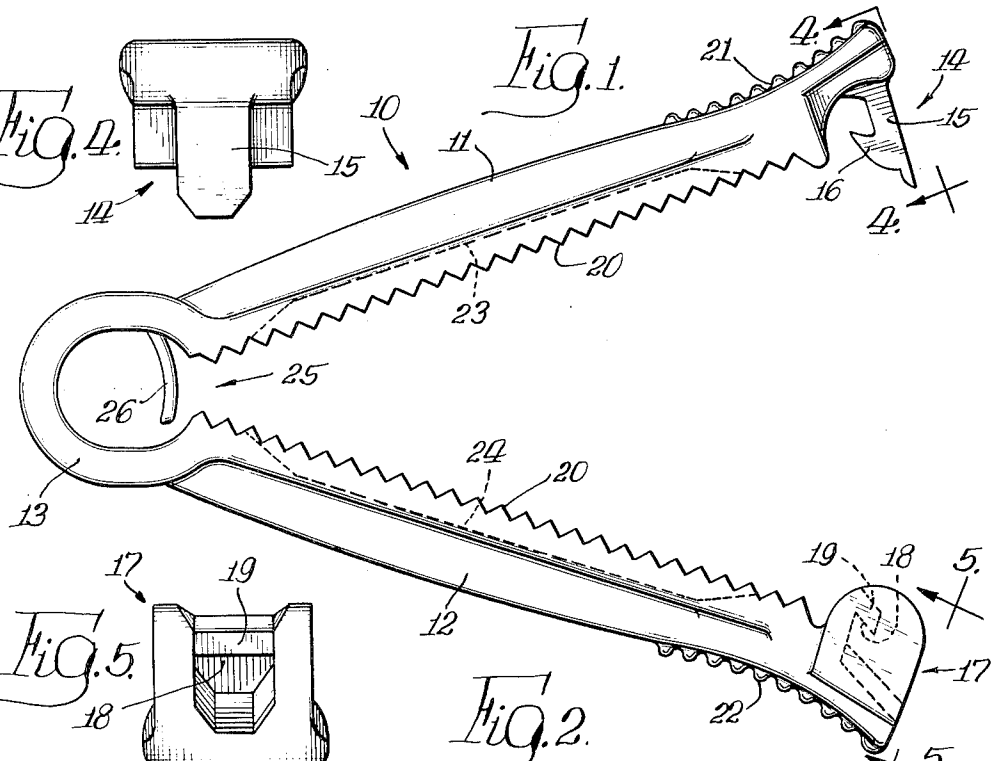


Fig. 5.

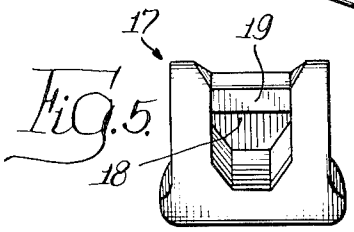


Fig. 2.

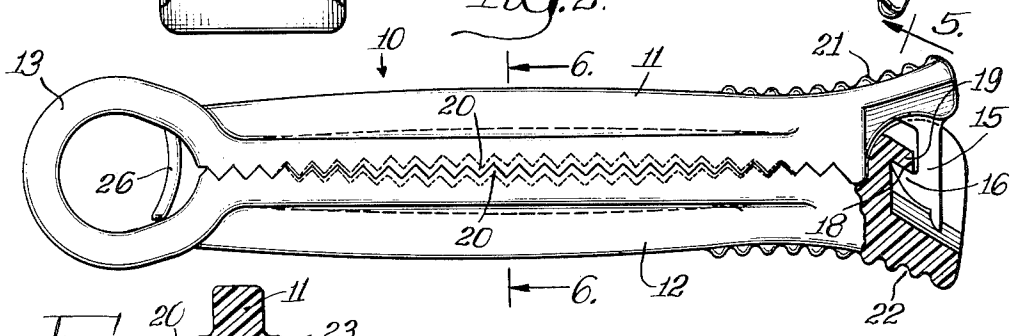


Fig. 6.

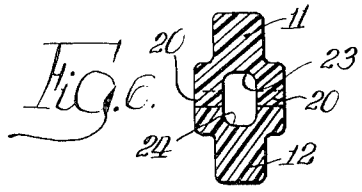
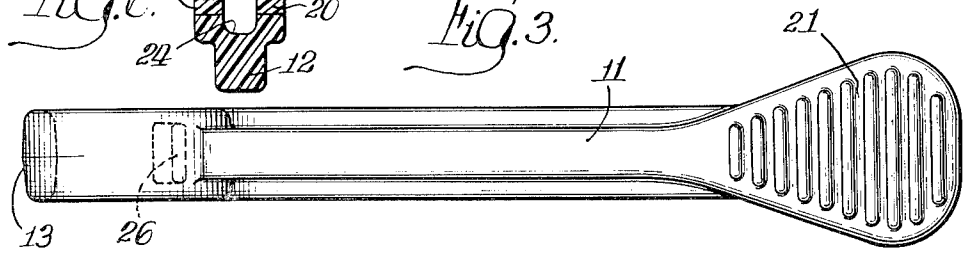


Fig. 3.



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3,247,852

UMBILICAL CORD CLAMP

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This invention relates to a clamp, and more particularly to a clamp particularly adapted for use in clamping the umbilical of a newborn infant.

It is the general object of the present invention to produce a new and improved umbilical cord clamp of the character described.

While for generations it was the practice to close the umbilical cord of a newborn infant by means of a tie-string, more recently the use of specifically designed cord clamps has become more and more common. Many of such cord clamps are made of surgical steel, something like a hemostat, and serve quite efficiently to close off the cord. Such metal clamps, however, are heavy and therefore must normally be taped to the body of the infant in order to avoid traction on the cord. Additionally, it has been the practice to use what is called bellyband to aid in holding the instrument in place. Such metallic cord clamps, while somewhat expensive and cumbersome, are normally reusable, and thus must be accounted for before the infant leaves the hospital.

More recently, lightweight cord clamps of plastic material have been used in lieu of the tie-string or surgical steel clamp. Such lightweight clamps are comparatively inexpensive and are not reused, hence no need exists for maintaining accountability for the clamps. Additionally, the lightweight clamp exerts little or no traction on the umbilical cord and the use of tape or bellybands is not necessary. A representative example of umbilical cord clamps is disclosed and claimed in the application of Kariher and Smith filed August 30, 1961, as Serial No. 137,936. A somewhat improved form of cord clamp is shown in the Schneider Design Patent 190,787.

A difficulty that sometimes exists with lightweight clamps, including the type shown in the patent and application mentioned, is the tendency of the cord to slip when the clamp is closed. This may result in the cord slipping to an area of the clamp where insufficient pressure is exerted and may, where the cord is cut off closely adjacent the clamp, result in the clamp slipping off the cord, even though the cord was correctly positioned therewithin.

Accordingly, one of the principal objects of the present invention is to produce an umbilical cord clamp which is provided with means for positively engaging the cord in a manner to prevent its slipping after the clamp is closed, and also to produce a cord clamp provided with means for preventing the cord from slipping into areas of the clamp where insufficient closing pressure is exerted.

Other and further objects and advantages of the invention will be readily apparent from the following description and drawings, in which:

FIG. 1 is a side elevational view of an umbilical cord clamp embodying the present invention;

FIG. 2 is a view like FIG. 1 showing the clamp in closed position;

FIG. 3 is a top plan view of the clamp of FIG. 2;

FIG. 4 is an end view taken along line 4—4 of FIG. 1;

FIG. 5 is an end view taken along line 5—5 of FIG. 1; and

FIG. 6 is a sectional view taken along line 6—6 of FIG. 2.

While this invention is susceptible of embodiment in many different forms, there is shown in the drawings and will herein bedescribed in detail a specific embodiment, with the understanding that the present disclosure is to be considered as an exemplification of the principles of the

invention and is not intended to limit the invention to the embodiment illustrated. The scope of the invention will be pointed out in the appended claims.

Referring now to the drawings, the clamp is in the form of a V-shaped member 10 made of resilient, flexible material and preferably one which can be autoclaved before use. Nylon has been found to be an acceptable plastic for this purpose. The member 10 is provided with a pair of diverging arms 11 and 12 secured together at the apex of the V by an integral loop hinge 13. Locking means 14 is provided at the free end of the arm 11, the locking means taking the form of a catch having a stem portion 15 and a hook portion 16, engageable in a complementary locking portion 17 having a recess 18 and an overlying lip 19 engageable with the hook 16 as illustrated. To aid in closing the clamp, the arms 11 and 12 are provided with enlarged finger pressure portions 21 and 22, which may be grasped between the thumb and forefinger to effect a closure.

It has been customary in the past to provide the cord clamp with teeth, such as the teeth 20, more firmly to grip the cord therebetween. However, as previously noted, occasionally slippage of the cord occurs, particularly where the cord is cut too close to the clamp. If the clamp slips off the cord, severe and dangerous bleeding may result, and if the cord has been cut short, difficulty may be encountered in reclosing the cord.

To prevent such occurrences, each of the arms 11 and 12 is provided with longitudinally extending grooves 23 and 24 forming a cord-receiving channel illustrated most clearly in FIG. 6. When the clamp is closed about an umbilical cord, portions of the cord are squeezed into the cord-receiving channel and this, particularly in cooperation with the teeth 20, provides a very secure grip on the cord and the same is retained in position, even though the cord may be cut very closely adjacent the clamp.

In utilizing cord clamps having an enlarged loop portion such as the loop 13, the cord occasionally will slip into the interior of the loop through the entrance 25 as the clamp is being closed. Thus, the cord is located in an area where little or no pressure is exerted on it, or at least the pressure may be insufficient to provide an effective closure of the cord. To prevent this occurrence, the clamp of the present invention is provided with a blocking member 26 which is formed integrally with the loop portion 13. The blocking member is arcuate in shape and adapted to close off the entrance 25 when the clamp is in the open position of FIG. 1, so that as the clamp is moved to the closed position, entrance of the cord into the interior of the loop is prevented.

I claim:

1. An umbilical cord clamp comprising a generally V-shaped member fabricated of flexible material and formed by a pair of arms joined together at the apex of the V by an integral hinge-forming loop of substantial diameter, the free ends of the arms being normally spaced apart, said arms being movable toward each other by a compressive force to clamp the cord therebetween, the free ends of said arms carrying means for locking the arms together in clamping position, and an arcuate blocking member positioned within the loop to prevent entry of the cord into said loop upon clamping movement of the arms.

2. An umbilical cord clamp comprising a generally V-shaped member fabricated of flexible material and formed by a pair of arms joined together at the apex of the V by an integral hinge-forming loop of substantial diameter, the free ends of the arms being normally spaced apart, said arms being movable toward each other by a compressive force to clamp the cord therebetween, the free ends of said arms carrying means for locking the arms together in clamping position, a longitudinally extending groove

formed on the cord engaging surface of each arm, said grooves cooperating to form a cord receiving channel when the arms are in clamping position, and an arcuate blocking member extending across the entrance to the interior of the loop at the juncture of the arms therewith to prevent entry of the cord into said loop upon clamping movement of the arms.

3. An umbilical cord clamp comprising a generally V-shaped member fabricated of flexible material and formed by a pair of arms joined together at the apex of the V by an integral hinge-forming loop of substantial diameter, the free ends of the arms being normally spaced apart, said arms being movable toward each other by a compressive force to clamp the cord therebetween, the free ends of said arms carrying means for locking the arms together in clamping position, a first longitudinal groove formed on one arm, a second longitudinal groove formed on the other arm, each of said grooves having a width of approximately one-third the width of the arm, said grooves being oppositely positioned so as to bring the corresponding edges of each groove in directly opposed relationship when the clamp is closed with the grooves thereby forming a unitary cord receiving channel of substantial extent when the arms are in clamping position, and a blocking member within the confines of the loop to prevent entry of the cord into said loop upon clamping movement of the arms.

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