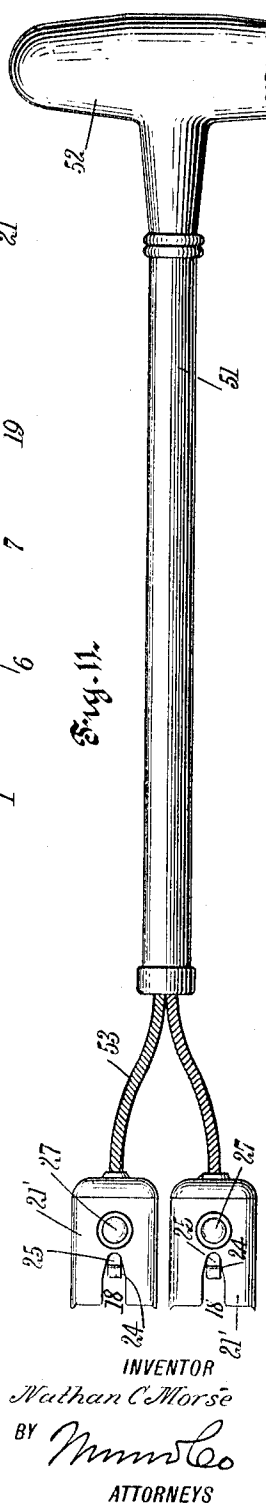
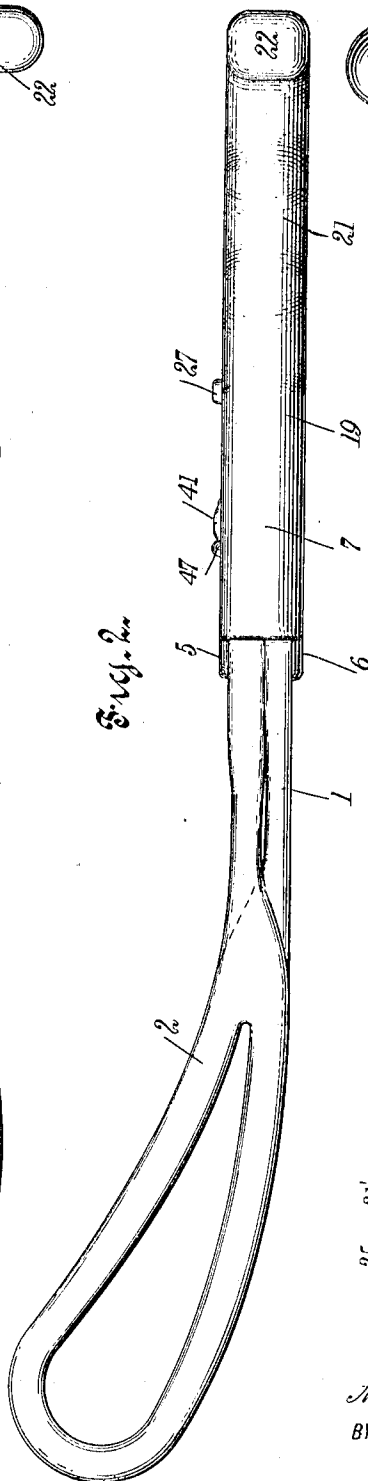
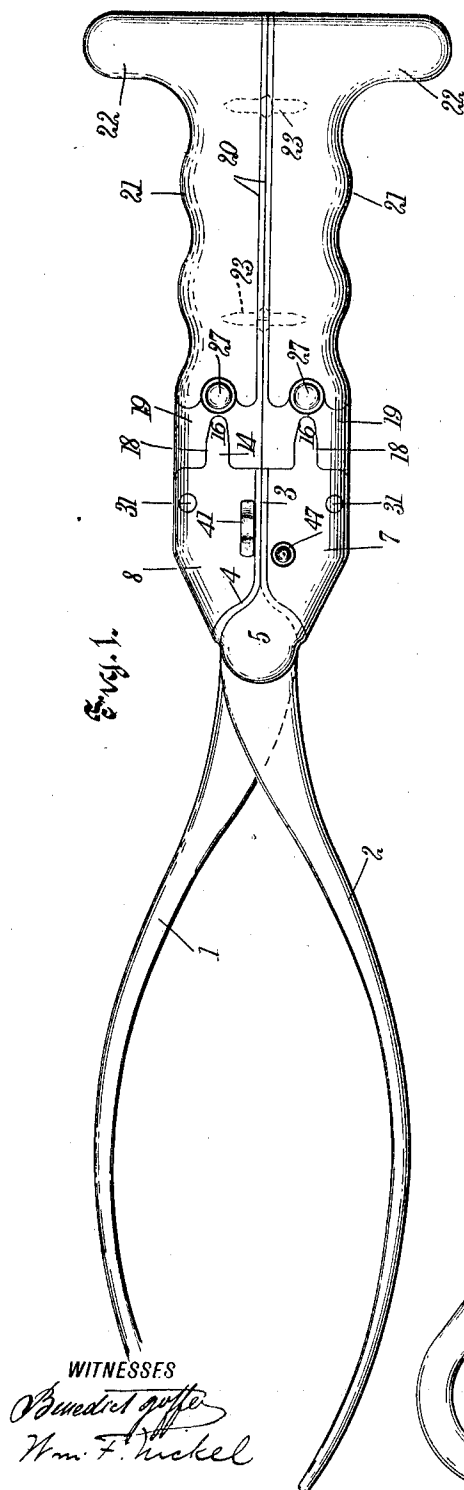


N. C. MORSE.
SURGICAL INSTRUMENT.
APPLICATION FILED FEB. 15, 1912.

1,116,099.

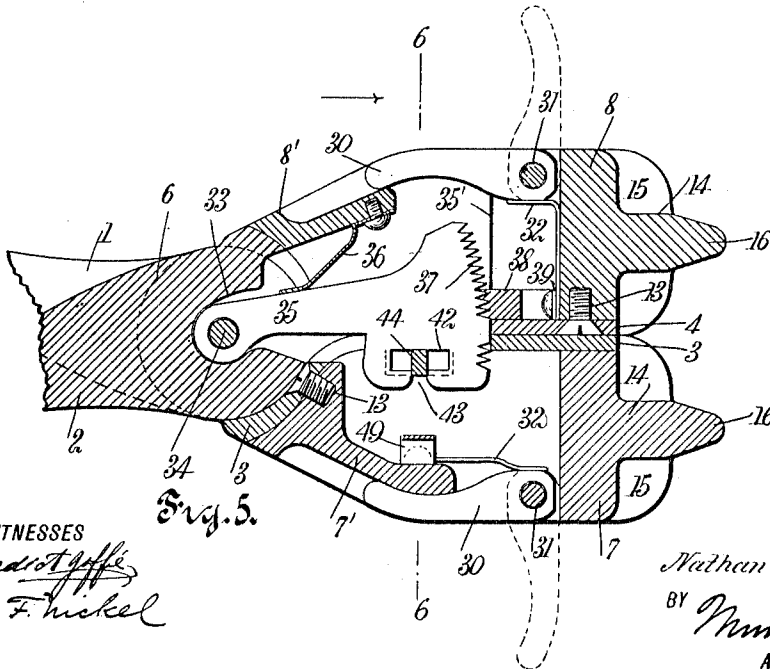
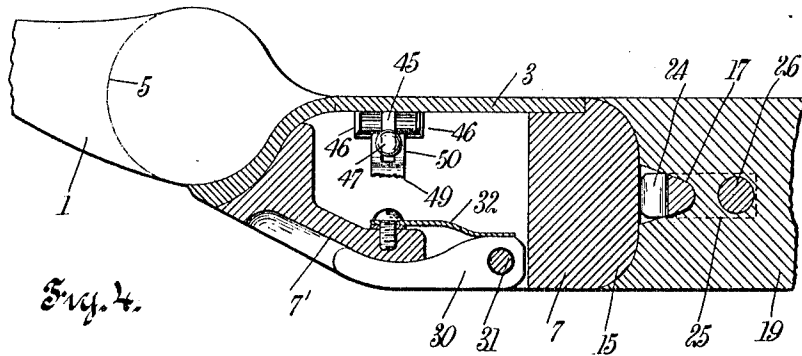
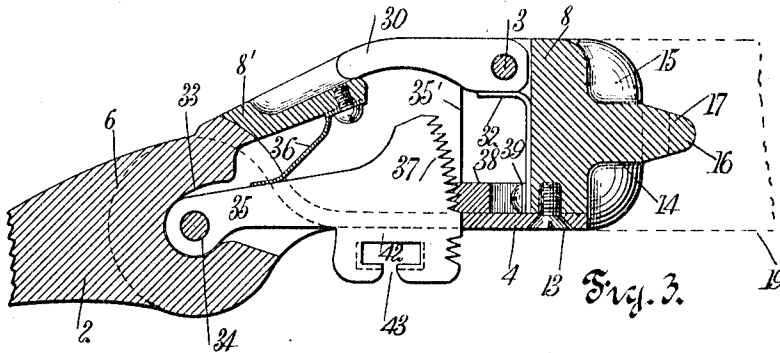
Patented Nov. 3, 1914.
3 SHEETS—SHEET 1.



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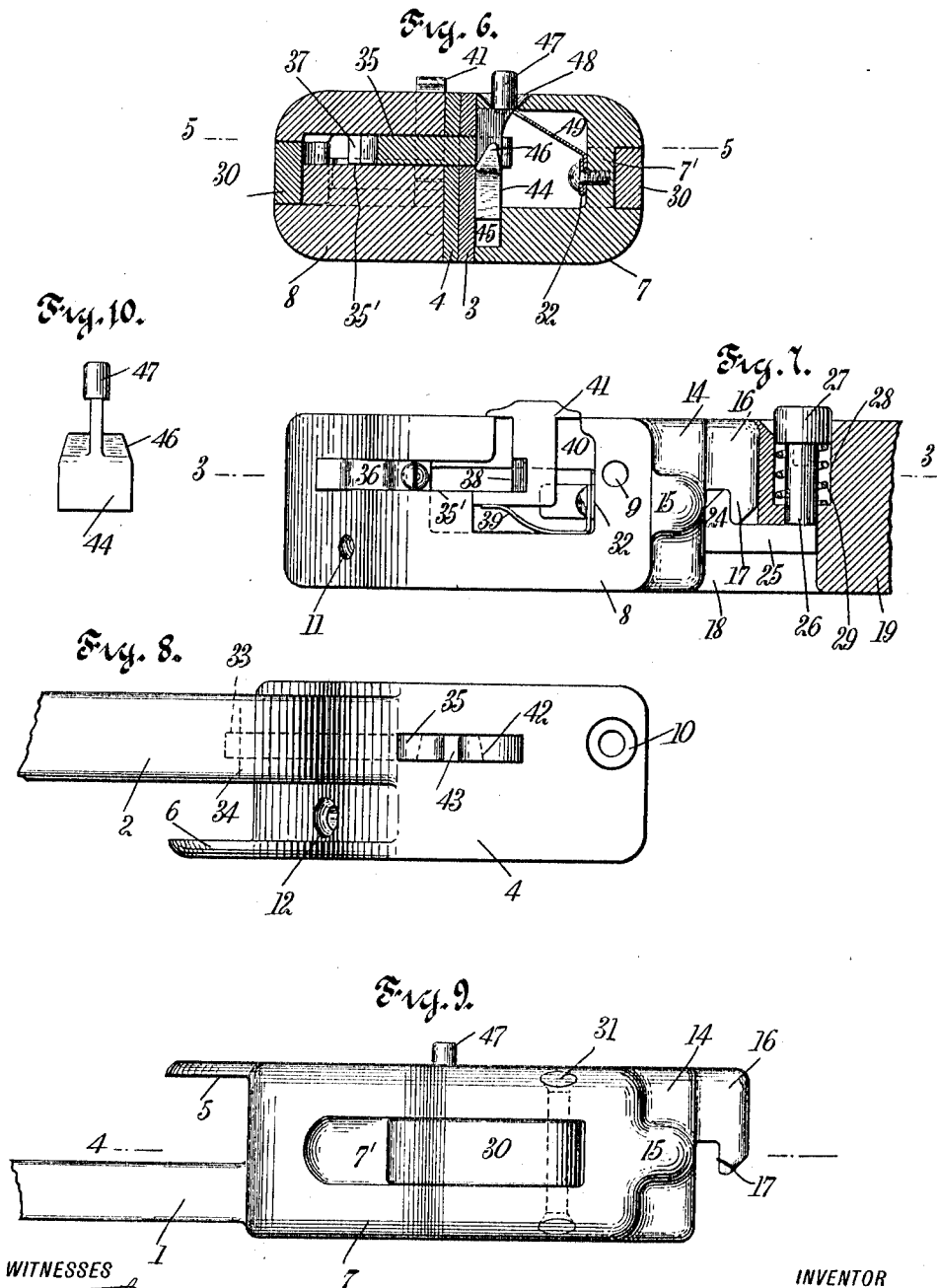
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UNITED STATES PATENT OFFICE.

NATHAN C. MORSE, OF ELDORA, IOWA.

SURGICAL INSTRUMENT.

1,116,099.

Specification of Letters Patent.

Patented Nov. 3, 1914.

Application filed February 15, 1912. Serial No. 677,686.

To all whom it may concern:

Be it known that I, NATHAN C. MORSE, a citizen of the United States, and a resident of Eldora, in the county of Hardin and State of Iowa, have invented a new and Improved Surgical Instrument, of which the following is a full, clear, and exact description.

My invention relates to surgical instruments, and particularly to such instruments as are designed for obstetrical purposes; and it is so constructed that the component parts thereof can be readily put together and readily separated from one another according to the necessities of actual practice; and when assembled they can be locked in any desired position of adjustment by the operator using the same.

The primary object of my invention is to produce an instrument of the kind mentioned having a pair of blades which can be inserted into engaging position one at a time, and when in such position caused to engage each other in any relative position desired, and securely held in such position, to prevent the blades from slipping or losing their hold; and a further object of my invention is to provide my improved instrument with detachable handles which can be fitted to the body thereof to enable the blades to be more readily operated, or taken off the instrument at will by the operator simply pressing a button with his finger so as to release the means which causes the handles to be secured in place when used.

My improved instrument also has a pair of movable finger lugs for the convenience of the operator in manipulating the forceps when, for any reason, the handles are to be dispensed with, and these finger lugs are pivotally connected to the body of the instrument so that they can be swung into operative position; and the body of the instrument is provided with recesses in which the lugs are received when the operator has no need for the same.

These and other objects and features of my invention will more fully appear from the following description taken in connection with the accompanying drawings, and be fully pointed out in the claims appended thereto.

Reference is to be had to the accompanying drawings forming a part of this specification, in which the same characters of reference indicate the same parts in all the views.

Figure 1 is a top plan of my improved forceps; Fig. 2 is a side elevation thereof; Fig. 3 is a sectional view taken through one of the parts of my improved forceps, the line of section being substantially on the line 3—3 of Fig. 7; Fig. 4 is a similar view of a corresponding part; Fig. 5 is a horizontal section on the line 5—5 of Fig. 6; Fig. 6 is a transverse vertical section on the line 6—6 of Fig. 5; Fig. 7 is a side elevation of some of the elements shown in Fig. 3; Fig. 8 shows a portion of one of the blades and the base to which the same is attached; Fig. 9 shows a similar view of the other blade and the base which is joined to the same; Fig. 10 is a view of a sliding catch by means of which the two blades are locked together in adjustable relation with each other; and Fig. 11 is a plan view of another form of handle for my improved forceps.

On the drawings, the blades for my improved forceps are shown at 1 and 2, and these blades may have any shape required by the purpose for which they are used. The inner end of the blade 2 lies adjacent the inner end of the blade 1, and these two blades are connected so that they can be moved about a pivot which passes through their inner ends, whenever occasion requires to adjust the instrument.

The blade 1 is made integral with a plate 3, which projects from its rear end; and the blade 2 is made integral with a similar plate 4, which likewise projects inward from the rear end of the blade which carries it. These plates have lugs 5 and 6, respectively, projecting forward therefrom, the lug 5 being above the blade 1, and the lug 6 below the blade 2, so that, when the blades are secured together, the inner end of the blade 1 fits between the lug 6 and the blade 2, and the inner end of the blade 2 will fit between the lug 5 and the blade 1. This manner of engagement of the portions of the two blades adjacent their inner ends provides for guiding these blades to some extent when they are moved in horizontal planes for purposes

of adjustment. The axis about which they will move will pass through the lugs 5 and 6, as will appear later.

The blade 1 is secured by means of the plate 3 to a head 7, and the blade 2 is secured by means of the plate 4 to a head 8, these two heads 7 and 8 being designed to be fitted together side by side, as shown particularly in Figs. 1 and 5. The plates 3 and 4 are secured to the heads 7 and 8 by means of screws or rivets. For example, the head 8 has screw-holes 9 and 11 on its inner face, these screw-holes being screw-threaded; and the plate 4 has corresponding openings 10 and 12, so that, when the screws, such as shown at 13, are passed through the openings 10 and 12 into the openings 9 and 11, the plate 4 and the blade 2 and the head 8 will be held firmly together, forming in effect a single piece. The blade 1 and the plate 3 are similarly connected to the head 7.

Each of the heads 7 and 8 has projecting rearward therefrom a rib 14, and another rib 15 intersecting the rib 14, these ribs being for the purpose of fitting into corresponding grooves formed in the ends of the handles, to enable these handles to have interfitting engagement with the heads and the blades of the instrument. Normally, the ribs 14 will be vertical when the instrument is held in the hand in ordinary position; and each of the ribs 14 has a lug 16 projecting from its rear end, and the lower end of this lug has a finger 17, which is for engagement by the catch of the handle fitted to the head carrying this lug. 18 are grooves corresponding in shape to the rib 14 with the lug 16 thereon, and these grooves are formed in metallic blocks 19 which have plates 20 extending rearward therefrom, these plates forming continuations of the inner sides thereof and coming into contact when the blocks 19 are secured to the heads 7 and 8. Grooves will also be formed in the ends of the blocks 19 to receive the ribs 15. 21 represent the main portions of the handles, the rear ends of which are extended outward, as shown at 22, to form a sort of knob to prevent the hand of the operator from slipping off the end of the instrument; and these handle portions, which may be of wood or any other suitable material, are secured to the plates 20 by means of screws or other fastening devices 23.

Each of the handles 21 is secured to one of the heads 7 and 8 by means of a finger 24 projecting upward from an arm 25, this arm being carried upon the end of a locking pin 26 having a head or button 27, by means of which the same is operated. This pin or bolt 26 is received in a cavity adjacent the rear edge of the head 19, this cavity being shown at 28, there being one cavity and one button for each block or casting 19,

as will be readily understood; and 29 represents a spring in the cavity 28, which engages the under side of the button 27 to hold the arm 25 with the finger 24 in engaging position with respect to the finger 17. By means of the buttons 27 the fingers 24 and 17 can be disengaged at any time and the handle separated from the heads 7 and 8. When the fingers 24 and 17, however, are in locking position, the handles are fastened securely to the heads and are prevented from moving sidewise by the ribs 14, and up or down by the ribs 15, thus making a tight connection.

Both of the heads 7 and 8 are hollow, having openings which extend through the same from one side to the other. The shape of these openings will be clear from an inspection of Figs. 3 to 6 inclusive, and these openings are only partly closed along the inner sides of the heads by means of the plates 3 and 4. Inside of each of the heads 7 and 8 is pivotally secured a finger lug 30, by means of a pin or bolt 31, and the pivoted ends of these finger lugs have flat surfaces which are engaged by springs 32 in such a way that the friction between the surfaces in question and the surfaces of the springs will normally be sufficient to hold the lugs in open or closed position. When these lugs are swung outward they will occupy the position shown in dotted lines on Fig. 5, and when swung inward their outer ends will be received in longitudinal grooves formed in webs 7' and 8' which connect the tops and bottoms of the heads 7 and 8, respectively, and are located to the front and on the outside of these two heads. When the finger lugs 30 are not needed they will be held by the springs 32 in such position that their ends will not project beyond the surface of the heads 7 and 8; that is to say, their forward ends will fit snugly in the grooves formed by the webs 7' and 8', so that these lugs will be entirely out of the way.

The inner end of the blade 2 has a cavity or recess 33 formed therein, and in this cavity is mounted a pivot pin or spindle 34. Upon this spindle is journaled a catch 35, which is substantially sector-shaped, and is engaged at one edge by means of a leaf spring 36, secured to the interior wall of the web 8' of the head 8. The rear end of the sector 35 is serrated, as shown particularly in Figs. 3 and 5, and the body of the sector plate extends through an aperture in the plate 4, this aperture reaching from the edge of the recess adjacent the web 8', to the outer end of the plate 35. The serrations in the end of the plate 35 are engaged by means of a sliding catch 38, this sliding catch being engaged with a leaf spring 39, which is secured on the inside of the head 8 by means of the same screw or other fastening device which attaches the spring 32 in po-

sition. The catch 38 extends upward through an opening 40 in the top of the head 8, and terminates outside of the head in a button 41. This button permits the catch to be manipulated toward and from the teeth 37, and as the adjacent edge of the catch 38 has teeth which engage the recesses between the teeth 37, hence, whenever the catch and the sector 35 are in engaging position, the sector will be locked. Normally, the spring 39 will engage the bottom of the catch 40 in such a way as to force the catch 38 toward the sector 35, and when the sector is to be released, sufficient force must be applied to the button 41 to slide the catch in the opposite direction.

The sector 35 has a lateral extension which projects through the opening in the plate 4, and in which is formed a perforation 42, one side of the projection having an opening 43 which leads to the bore of the perforation 42. The plate 3 on the head 7 has a recess through it, which permits this projection having the perforation 42 to pass to the interior of the head 7, where it is engaged by means of a depressible locking device 44 carried by the head 7, and having its lower end fitting into a socket 45 in the bottom of the same. The shank of the locking device 44 is of slightly less thickness in one direction than the width of the opening 43 leading to the perforation 42, and it will be noted by referring to the broken lines on Figs. 3, 5 and 8, that the opening 42 flares in a downward direction. The locking pin 44 has projections 46 extending forward and rearward from its sides, and these projections are so shaped as to fit the inclined sides of the perforation 42 snugly, when the locking device 44 is in raised position. 47 represents a button carried by the locking device 44, projecting through an opening 48 in the head 7; and 49 is a spring secured to the web 7' by means of the same screw that fastens the spring 32 in place, to engage shoulders at the bottom of the button and keep the pin in projecting position. This spring has a forked end, as shown at 50, to engage the button on both sides of the shank of the locking device 44.

From the foregoing description it will be seen that the heads 7 and 8, after the blades 1 and 2 have been secured to the same by means of the plates 3 and 4, can be fastened together by inserting the portion of the blade 1 adjacent the inner end of the same into the space between the lug 6 and the corresponding portion of the blade 2, the portion adjacent the inner end of the blade 2 fitting into the space between the blade 1 and the lug 5. To do this the button 47 must be depressed and the button 41 moved to the rear. The spring 36 will then hold the arm 35 with the projection in which the perforation 42 is formed extending

through the opening in the plate 4, and the corresponding opening in the plate 3, into the inside of the head 7. As the heads 7 and 8 are brought together, the shank 44 slides through the opening 43 into the perforation 42, and, then, when the button 47 is released, the spring 49 will raise the shank 44 to bring the projections 46 into the bore of the perforation 42 and lock the sector 35, and head 7 with the arm 1 attached to the same, together. The two heads can now be rotated around the pin 34 as a pivot, to bring the blades 1 and 2 together or move them apart. When they are moved apart they can be locked in any adjusted position with relation to each other simply by releasing the button 41, and the spring 39 will then move the catch into engagement with the teeth 37. This will result in holding the sector 35 in fixed relation to the head 8 and blade 2; and since the lugs 46 on the locking device 44 secure the head 7 to the sector 35, it is obvious that the heads and blades cannot now rotate around the spindle 34 as a pivot. The blades can thus be locked in their most extended position, or the two heads can be moved toward each other until they contact, and the blades thus held at the limit of their movement toward each other.

It is not absolutely essential in connecting the head 7 to the sector-shaped arm 35 to depress the button 47. This is because the sides of the projection 46 which are toward the head 8 are beveled, as shown in Fig. 6. Consequently, if the head 7 is held so as to bring the blades 1 and 2 into proper relation and then swung toward the sector 35, that part of this sector-shaped arm 35 which projects into the hollow head 7 will engage the beveled faces of the projection 46 in such a way as to depress the shank 44, as this shank moves in through the opening 43. As soon as the shank comes into contact with the opposite wall of the perforation 42, the projection will be forced into this perforation to hold the head 7 and the sector 35 together, by the action of the spring 49.

To attach the handles 21 to the instrument, all that is necessary is to depress the buttons 27 and then slip the blocks 19 constituting parts of the handles, singly or together, into engagement with the ribs 14 and 15 projecting from the rear ends of the heads 7 and 8. The handles will thus be secured to the heads and can be used to give the operator greater leverage when he moves the blades 1 and 2 of the forceps toward or from each other.

It will also be seen by referring to the drawings that the ends of the fingers 17 are beveled, and the ends of the fingers 24 on the arms 25 are also beveled. The beveled surface on the end of the finger 17 and the beveled surface on the finger 24 will thus have

a cam action upon each other and the handles can be attached without pressing upon the buttons, if desired. All that is necessary is to force the grooves in the end of the handles into engagement with the ribs 14 and 15. The finger 17 will then force the finger 24 downward, carrying the button 27 with it against the action of the springs 29. As soon as the projections have passed the fingers 17, the springs 29 will raise the buttons, forcing the fingers 24 behind the fingers 17 to hold the handles and heads together.

The handles can be taken off simply by pressing upon the buttons 27, and when they are not needed the lugs 30 can be used instead. To call these lugs into commission it is only necessary for the operator to insert the end of his finger into the grooves in the outer walls of the webs 7' and 8' and thus move the lugs into projecting position.

It will be seen that the sector 35 moves in but a single plane, and the same is true of the locking catches for the handles of the forceps.

Fig. 11 shows a modified form of draft means comprising a handle consisting of a shank 51 having a knob 52 at its end. This shank is connected by means of cords or the like which are flexible torsionally as well as otherwise to a pair of blocks 21', similar to the blocks 19. These blocks 21' have recesses 18 in their ends to receive the ribs 14, and similar recesses, not shown, to receive the ribs 15; and they also have spring-pressed buttons 27, which manipulate the arms 25 having fingers 24 to engage the fingers 17 on the heads 7 and 8, when the blocks 21' are to be secured to the heads, so as to connect the blades of the forceps to the handle.

The shape of the hollow interior of the heads 7 and 8 will be clear from an inspection of Figs. 3 to 6 inclusive. It will be seen that in these views the opening in the head 7 is substantially regular, but that the interior of the head 8 has a shelf 35', upon which the sector-shaped member 35 rests, and that the lower end of the catch 38 which engages the teeth 37 in the end of the sector-shaped member 35, abuts against the shoulder formed by the edge of this shelf when held forward in locking position.

My improved forceps are, of course, to be used in maternity cases, and the utility and practical advantages of constructing the instrument of separate and readily attachable parts will be understood. Each blade can be inserted by itself into the pelvis, and the handle can be joined to the blade at such a time to facilitate putting the blade into proper position. When both blades have been inserted they can be joined and locked together by the operator in the manner above described.

The ends of the blades when inside the

pelvis, of course, engage the child's head, and they are locked in such engagement by means of the buttons 41 and catch 38. Once locked they cannot be moved relatively to each other, and hence there is absolutely no danger of the operator causing too much pressure on the infant's head, no matter how hard the instrument is pulled.

When circumstances so require the handles can be detached and traction applied to the forceps by the operator grasping the heads 7 and 8 and the finger lugs carried by these heads, first moving the lugs in projecting position. When these lugs are turned in they are out of the way while the blades are being inserted. The finger lugs enable the instrument to be used with more ease to the patient, and lessen the danger of tearing and lacerating the vagina and perineum. Removal of the handles 21 also allows greater freedom of normal rotation of the child's head as it passes through the pelvis, but for high or long traction I prefer to use the form of handles shown on Fig. 11. In this device the blocks 21' can rotate, owing to the flexible connections 53 between them and the body of the handle 51.

The form of handle shown in Fig. 11 is intended to supplement the other form of handle shown for example in Fig. 1. As stated above, either of the blades 1 and 2 can be inserted separately, with the handles shown in Fig. 1 attached to the heads 7 and 8 by the attaching means shown and described. With these handles the blades 1 and 2 can then be manipulated to the proper position and locked by means of the catches shown at 41 and 47. Then the handles shown in Fig. 1 can be removed and the blocks 21' attached to the plates 7 and 8 instead. On applying traction to the handle 51 by means of the knob 52 the normal degree of rotation is permitted and allowed for.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. In a device of the kind described, the combination of a pair of blades, pivoted means carried by one of said blades and engaged by the other blade to enable the blades to be moved with respect to each other to adjust the same, and means carried by the first blade to engage the said pivoted means and hold the same against movement, whereby said blades can be locked in any adjusted position.

2. In a device of the kind described, the combination of a pair of blades shaped to have interfitting engagement with each other at one end, a pivoted member carried by one of said blades, means carried by the other blade for engaging said member to secure said blades adjustably together, and means carried by the first blade to engage

said pivoted member and lock said blades in any adjusted position.

3. In a device of the kind described, the combination of a pair of blades shaped to have interfitting engagement with each other at one end of each of said blades, a head secured to each of said blades at said end, said heads being hollow, a member pivotally secured to said end of one of the blades and projecting into said hollow head, a catch projecting into the hollow head of the other member to engage said pivoted member to secure said blades adjustably together, and means carried by the head connected to the first blade to engage and hold the pivoted member when it is desired to retain said blades in any adjusted position.

4. In a device of the kind described, the combination of a pair of blades shaped to have interfitting engagement with each other at one end of each of said blades, a hollow head connected to the engaging end of each of said blades, a pivoted member carried by the engaging end of one of said blades and projecting into the hollow head secured thereto, resilient means mounted in said hollow head for holding said pivoted member in position to project into the interior of the head on the other blade, means carried by the said other blade for engaging said pivoted member to secure said blades adjustably together, and a catch carried by the head secured to the first blade for engaging said pivoted member and locking the blades in any adjusted position.

5. In a device of the kind described, the combination of a pair of blades shaped to have interengagement with each other at one end of each of said blades, a hollow head secured to each of said blades upon the interengaging end thereof, a recess in the end of one of said blades, a sector-shaped plate having its narrow end pivotally mounted in said recess and projecting into the hollow interior of the head secured to said blade, the opposite end of said sector having recesses therein, resilient means carried by said head to hold the said sector-shaped plate in position to project into the hollow interior of the head on the other blade, a locking catch carried by the other head and projecting from the top of the same, said sector-shaped plate having a perforation therethrough, and the said locking catch being shaped to enter said perforation and having projections thereon to make a snug fit with the walls of said perforation, whereby the two blades will be adjustably secured together, and a catch carried by the first head and projecting through the top thereof in position to enable the same to be moved by the operator's finger, for engaging the recesses in the sector plate and locking the blades in any adjusted position.

6. In a device of the kind described, the

combination of a pair of blades, means for connecting said blades together, and a pair of finger lugs pivotally mounted adjacent the connected ends of said blades, said finger lugs being movable into and out of operative position.

7. In a device of the kind described, the combination of a pair of blades, said blades being shaped to have interengagement with each other adjacent one end of each of said blades, a hollow head secured to the engaging end of each of said blades, a finger lug pivotally mounted inside each of said hollow heads and movable into and out of projecting position, said finger lugs having flat surfaces adjacent their ends, and resilient means carried inside of said heads and engaging said surfaces to hold said lugs in projected position and to secure said lugs against movement when not in projecting position.

8. In a device of the kind described, the combination of a pair of blades, said blades being shaped to have interengagement with each other adjacent one end of each of said blades, a head secured to the interengaging end of each of said blades, said head having intersecting ribs formed on its rear face, a pair of blocks having corresponding grooves formed in its forward face to engage said ribs, one of the ribs in each of the heads having a down-turned finger, and each of said blocks having an up-turned finger to engage the down-turned finger on the head, a spring-operated push-button carried by each of said blocks and connected to said up-turned finger, whereby the same can be moved into and out of engaging relation, and a handle secured to said blocks.

9. In a device of the kind described, the combination of a pair of blades having interfitting engagement with each other at one end, a head connected to the engaging end of each of said blades, each of said heads having intersecting ribs projecting from its rear face, a pair of blocks having corresponding grooves to engage said ribs, draft means secured to each of said blocks, a lug or finger carried by each of said heads, and resilient means carried by each of said blocks to engage said lug or finger and hold said draft means and the blocks secured thereto in engagement with said heads.

10. In a device of the kind described, the combination of a pair of blades, said blades being shaped to have interfitting engagement with each other at one end, a head connected to each of said blades at said engaging end, each of said heads having intersecting ribs projecting from its rear face, a pair of blocks having corresponding grooves receiving said ribs, interlocking means carried by said heads and said blocks to secure said blocks detachably to said heads, a handle for said device, and flexible

means for connecting said blocks to said handle.

11. In a device of the kind described, the combination of a pair of blades, a member pivotally mounted upon one of said blades, means carried by the other of said blades for engaging said member to connect said blades movably together, and means carried by the first blade and movable into and out of engagement with the said pivoted member to hold the same against movement, whereby the said blades can be locked in any adjusted position.

12. In a device of the kind described, the combination of a pair of blades, a member pivotally mounted upon one of said blades, means carried by the other of said blades for automatically engaging said pivoted member to cause the two blades to be movably connected together, and means carried by the first blade for holding said pivoted member against movement, whereby said blades can be locked in adjusted position.

13. In a device of the kind described, the combination of a pair of blades, each of said blades having an end adapted to be engaged with an end of the other blade, whereby said blades are movable around a common axis, a member mounted upon one of said blades and movable around said axis, means carried by the other blade for engaging said member to cause said blades to be movably connected together, and means carried by the first blade to engage said member and hold the same against movement, whereby said blades can be locked in any adjusted position.

14. In a device of the kind described, the combination of a pair of blades, each of said blades having an end adapted to be engaged with an end of the other blade to enable said blades to be movable around a common axis, a member pivotally connected to one of said blades, said member being movable around the same axis, means carried by the other of said blades for automatically engaging said member when said ends are moved together to cause said blades to be movably connected to each other, and means carried by the first blade and engaging said member for holding the same against movement, whereby the blades can be locked in any adjusted position.

15. In a device of the kind described, the combination of a pair of blades, a member pivotally connected to one of said blades, said member having an aperture there-through, and a recess extending from one edge into said aperture, the other blade having a catch, said catch comprising a shank having lateral projections, said shank being movable through said recess, and said projections being shaped to have interlocking engagement with said aperture.

16. In a device of the kind described, the

combination of a pair of blades, detachable handle means including a block for each of said blades, means connected to said blades for engaging said blocks, and means for automatically locking said blocks to said engaging means when said blocks are moved into engagement therewith.

17. In a device of the kind described, the combination of a head, a pair of ribs carried by the said head, a handle block having recesses in one end to engage said ribs, one of said ribs having a projection with a beveled end, and a resilient catch carried by said block likewise having a beveled end, whereby when the said block is moved into interfitting engagement with the head it will be automatically locked in position.

18. In a device of the kind described, the combination of a pair of blades, a member movably mounted upon one of said blades, means carried by the other of said blades for automatically engaging said member to cause the two blades to be movably connected together, and means carried by the first blade for holding said member against movement, whereby said blades can be locked in adjusted position.

19. In a device of the kind described, the combination of a pair of gripping blades pivotally connected together, a locking member movably mounted adjacent the pivotal point of said blades, and means carried by the other of said blades for automatically engaging said member, to cause the two blades to be movably connected together.

20. In a device of the kind described, the combination of a pair of gripping blades pivotally connected together, a locking member movably mounted adjacent the pivotal point of said blades, said member being movable in a single plane, and means carried by the other blade for engaging said member to cause the two blades to be movably connected together.

21. In a device of the kind described, the combination of a pair of gripping blades pivotally connected together, a member movably mounted adjacent the pivotal point of said blades, means for connecting said member to the other of said blades, and means carried by the first blade and movable in a single plane for holding said member against movement to permit said blades to be locked in adjusted position.

22. In a device of the kind described, the combination of a handle having a knob at one end, flexible cords carried by the handle, a pair of blades, means independent of the handle for securing said blades in adjusted position, and a pair of blocks for securing said flexible cords to said blades.

23. In a device of the kind described, the combination of a pair of blades, a pair of blocks, said blades and said blocks having

automatically-acting means for engaging each other, and means connected to said blocks for operating said blades.

24. In a device of the kind described, the combination of a pair of blades, a locking member movably carried by one of said blades, said locking member having recesses, handle means, and means carried by the blades independently of all handle means to engage the locking member recesses to secure the blades together and hold them in any adjusted position.

25. In a device of the kind described, the combination of a pair of gripping blades, means for securing one of said blades pivotally to the other blade, and an automatic catch carried by one of said blades adjacent the pivot point for securing said blades in any adjusted position.

26. In a device of the kind described, the combination of a pair of gripping blades having pivotal engagement with each other, and means carried by one of said blades adjacent the pivot point and movable in a single plane to be engaged by the other blade and secure the blades together.

27. In a device of the kind described, the combination of a pair of blades, means for connecting said blades together to have pivotal movement with relation to each other, a handle detachably connected to the inner end of each of said blades, and means for holding said blades in any adjusted position.

28. In a device of the kind described, the combination of a pair of pivoted blades, means for adjustably connecting said blades together located adjacent the pivot point, a handle block for each of said blades, and a self-adjusting catch carried by each of said blocks to secure the blocks and the blades together.

29. In a device of the kind described, the combination of a pair of blades, a detachable block for each of said blades, flexible means connected to said blocks, and means connected to said flexible means to operate said blades.

30. In a device of the kind described, the combination of a pair of blades, means for holding the same in any position of adjustment, flexible means for operating said blades, and means for detachably connecting the flexible means to the blades.

31. In a device of the kind described, the combination of a pair of blades pivotally mounted with respect to each other, and automatically-actuated means for securing said blades in any adjusted position, whereby the movement of the blades with respect to each other will be entirely prevented.

32. In a device of the kind described, the combination of a pair of blades movable with respect to each other, a finger lug associated with each of said blades and movable into and out of operative position in

a plane parallel to the plane of movement of the blades, and means for engaging said lugs to hold the same in either position.

33. In a device of the kind described, the combination of a pair of blades movable with respect to each other, a finger lug associated with each of said blades and movable into and out of operative position in a plane parallel to the plane of movement of the blades, means for engaging said lugs to hold the same in either position, and means for housing said lugs when the same are not required for use.

34. The combination of a pair of blades, means for holding the same in any position of adjustment with respect to each other, and a handle including torsionally flexible means for permitting the blades to rotate bodily about the line of movement of the handle when tension is applied to the same.

35. The combination of a pair of blades pivotally connected together, locking means carried by one of said blades adjacent the pivot thereof, means carried by the other blade for holding said blades together, and means carried by the first blade for adjusting the locking means, whereby the blades can be held in any adjusted position.

36. The combination of a pair of blades, locking means for said blades adjustably carried by one of said blades and extending into operative relation with the other blade, means carried by the other blade for engaging said locking means, whereby the blades can be held in any position of adjustment, a handle, and means for connecting the handle to the ends of the blades to permit the blades to rotate bodily about the line of movement of the handle when the latter is moved.

37. The combination of a pair of relatively adjustable blades, locking means for said blades carried by one of said blades and extending into operative relation with the other blade, means carried by the other blade to engage the locking means, means carried by the first blade for making secure the locking means, whereby the blades can be locked in any adjusted position, a handle, and means for connecting the handle to the ends of the blades to permit the blades to rotate bodily about the line of movement of the handle when the latter is moved.

38. The combination of a pair of blades pivotally and adjustably connected together, locking means for said blades adjustably carried by one of said blades adjacent the pivot thereof, means carried by the other blade for connecting the same to the locking means, whereby the blades can be held in any adjusted position, a handle, and means for connecting the handle to the ends of the blades to permit the blades to rotate bodily about the line of movement of the handle when the latter is moved.

39. In a device of the kind described, the

combination of a pair of blades, a locking member movably carried by one of said blades, an adjusting device for said locking member carried by said blade, and means
5 carried by the other blade to engage the locking member to hold the blades in any adjusted position.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

NATHAN C. MORSE, M. D.

Witnesses:

THOS. P. KENNEDY,
TOM. C. MEADER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."