(No Model.) 2 Sheets—Sheet 1.

D. S. PAUL.

NIPPLE HOLDING CHUCK.

No. 466,255. Patented Dec. 29, 1891.

Fig. 1.

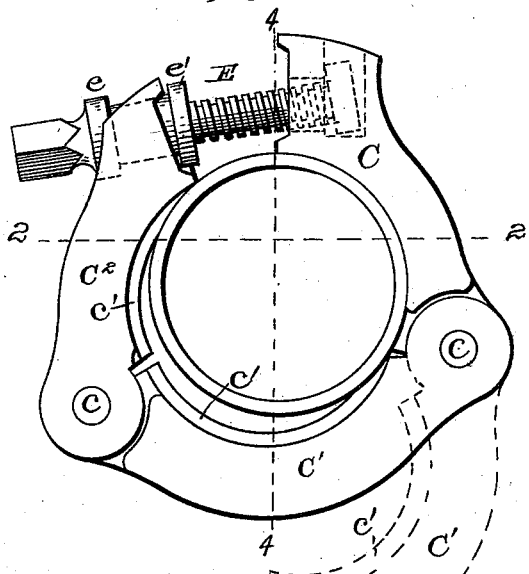


Fig. 2.

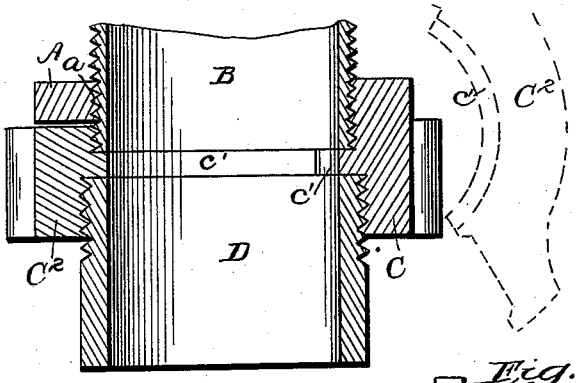


Fig. 6.

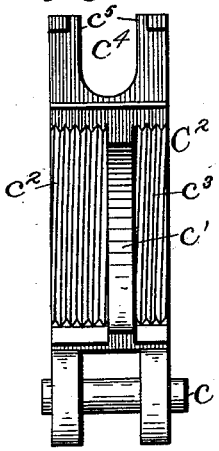
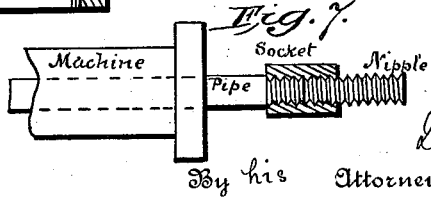


Fig. 7.



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(No Model.) 2 Sheets—Sheet 2.

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NIPPLE HOLDING CHUCK.

No. 466,255. Patented Dec. 29, 1891.

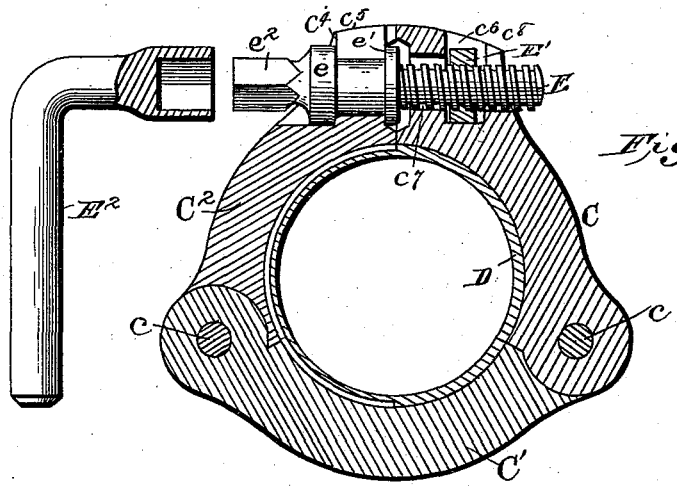

Fig. 3.

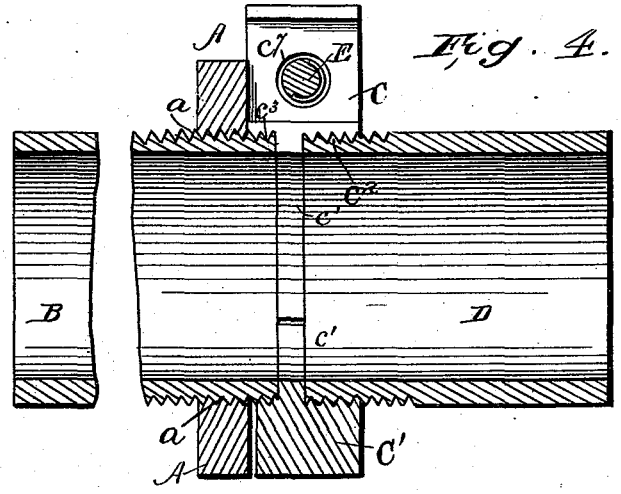

Fig. 4.

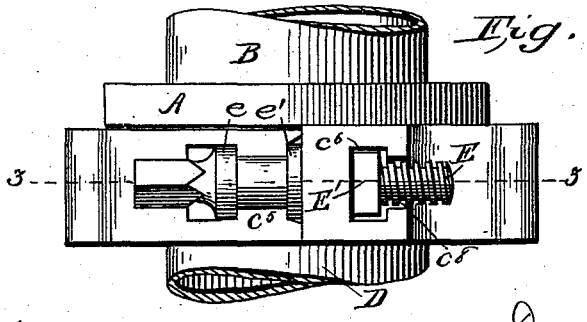

Fig. 5.

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UNITED STATES PATENT OFFICE.

DAVID SELLERS PAUL, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF TWO-THIRDS TO WILLIAM C. MATCHETT AND JOHN POTTS, OF SAME PLACE.

NIPPLE-HOLDING CHUCK.

SPECIFICATION forming part of Letters Patent No. 466,255, dated December 29, 1891.

Application filed May 26, 1891. Serial No. 394,227. (No model.)

To all whom it may concern:

Be it known that I, DAVID SELLERS PAUL, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Nipple-Holding Chucks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to work-holders for dogs for screw-threading machines or lathes and machines of a similar character, and more particularly to what I term a "nipple-holding chuck"—that is to say, a device for holding a nipple or short piece of pipe in place to cut a screw-thread on one end thereof, preferably after the other end has already been provided with a screw-thread.

What is technically termed a "nipple" is a short piece of pipe provided with a screw-thread at each end whose purpose is to connect or couple two pieces of pipe by screwing the same onto or into both ends of the nipple. Under the usual method the first end of this nipple is screw-threaded while the same still forms a part of a long pipe or tubing. A length of the said pipe to form such nipple—say three to four inches in length—is then cut off, and the screw-thread is then cut on the other end of the nipple. Great difficulty is experienced in holding this nipple while cutting or threading the other end and completing the same, and the present way of holding it is coupled with great difficulty and labor and often attended with damage to the nipple. This method of holding the nipple consists in fixing in the screw-threading machine or lathe a piece of pipe termed the "sleeve." An internally-screw-threaded socket-piece is then screwed onto the end of the sleeve, and the nipple, having been threaded at one end, is screwed into this socket-piece, as indicated in Figure 7 of the drawings, and threaded at the other end. At the end of this operation the great difficulty of removing the nipple from the socket-piece arises. This removal can be accomplished only by grasping the socket with a pair of pipe-tongs and unscrewing it from the sleeve, after which the nipple is unscrewed from the socket; but inasmuch as the nipple is now provided with screw-threads all over its surface, or nearly so, the use of tongs to grip it is not permissible, as it would result in damage to the thread. It is hence necessary to resort to the laborious and time-consuming process of hammering the socket-piece to expand it in order to loosen it. This process, in addition to being attended by great waste of labor and time, is also objectionable, in that it very often results in destroying the usefulness of the nipple by "throwing it out of round." It is for the purpose of removing this waste of labor, time, and material that I have devised my nipple-holding chuck or work-holder; and the object of my invention is therefore to provide such a work-holder or such a chuck which will readily grasp and hold the nipple, provided with a thread at its one end while being threaded at its other end, and which will release the nipple with a simple manipulation and with the expenditure of a minimum of labor and time after the second thread has been completed.

It is also my object to provide a work-holder which may be adapted to grasp other articles besides nipples in a screw-threading machine, lathe, or similar apparatus, and which is adapted by a simple manipulation to release the article so held when finished, so that it may be lifted out of the machine expeditiously and easily. For this purpose my invention consists in a work-holder or chuck comprising a number of segments pivotally linked together and preferably forming an internal screw-thread when locked, and means for locking the ends of the end segments together; and my invention further consists in a clamping-segment permanently secured to the head-stock of a screw-threading or similar machine or part fixed thereto, in combination with movable clamping-segments pivotally linked to the first segment, and means for locking the movable end of the end segment to the fixed segment, the said clamping segments when locked together to clamp the work preferably forming an internal screw-thread with or without an internal annular

shoulder, against which the work abuts when screwed into the work-holder; and my invention consists in such further features and combinations of parts as will be set forth below and covered in the claims.

In the accompanying drawings, Fig. 1 represents a front elevation of what I consider the preferable form of a work-holder embodying my invention, showing the locking device released to enable the work to be removed, and also in dotted lines showing the linked segments in their extreme position. Fig. 2 represents a horizontal section of the same on line 2 2, Fig. 1. Fig. 3 represents a vertical section on line 3 3, Fig. 5. Fig. 4 represents a sectional plan view on line 4 4, Fig. 1; Fig. 5, a top plan view of the same; Fig. 6, a detail view of one of the clamping-segments, and Fig. 7 a diagram indicating the former method of holding a nipple in a screw-threading machine.

In all of the figures the same letters represent the same parts.

The nipple-holder represented in the drawings consists of a part, preferably in the form of a socket-ring A, interiorly screw-threaded at *a* and adapted to be secured or screwed onto a sleeve B or other part fixed to the head-stock or other suitable part of the screw-threading machine or lathe, as shown. To this socket-ring is permanently secured, by forming the same integral with the socket-ring or otherwise uniting it thereto, the clamping-segment C. To this segment C are linked by means of pivot-bolts *c* the movable clamping-segments C′ C². These three clamping-segments are provided with the internal intermediate shoulders *c′* and the segments of screw-threads c^2 c^3 on opposite sides of the internal shoulders *c′*. When the clamping-segments are in locked position, as shown in Fig. 3, the shoulders *c′* together form an annular shoulder and the screw-threaded segments c^2 c^3 form complete screw-threads, the screw-threads c^2 being adapted to engage the thread on the nipple to be operated on, while the thread c^3 engages the thread on the sleeve B, the annular flange *c′* serving as an abutment for the end of the said nipple D.

The object of making the holder in three segments is to prevent any binding or adhering of the work to the segments of the clamp when the same is opened for the removal of the work, such as the nipple aforesaid, which might occur if there were only two segments, each having semicircular interior clamping-surfaces; but it is obvious that in many instances two or more than three clamping-segments might be used with advantage.

The outer ends of the outer clamping-segments C C² are so fashioned as to receive the locking device now to be described. This locking device preferably consists of a clamping-screw E, movably held in the end of the one clamping-segment C. The clamping-screw E is provided with the two shoulders *e e′*. The end of the clamping-segment C² is provided with a slot c^4, having guides c^5 on opposite sides thereof, which guides are embraced by the shoulders *e e′* of the clamping-screw E. By this arrangement the clamping-screw is held against longitudinal movement, while the slot c^4 is of such a length as to permit the same to slide up and down within the same. The end of the clamping-segment C is provided with a slot or mortise c^6, within which is held the nut E′, which engages the clamping-screw E. The outer wall of this mortise is provided with a perforation c^7 large enough to permit the screw E to pass loosely therethrough and give the same sufficient play. The nut E′ also is loosely fitted in the mortise c^6, so as to have a large amount of play, and the slot is of such an extent as to allow the said nut to slide up and down therein. The rear wall of the slot is also cut away, as at c^8, to permit a large amount of play to the end of the screw E. The screw E has a squared head e^2, adapted to be engaged by the key E², or any other means for turning the same may be provided.

The operation of the device so explained will be readily understood. Assuming the parts to be in the position indicated by the dotted lines in Fig. 1, the parts are placed in position for locking by carrying the segment C² upward until its outer end is in proximity to the upper end of the segment C. The screw E is then placed in position in the slot c^4, so that the shoulders *e e′* embrace the guides c^5. The squared nut *e′* is then placed into the mortise c^6, and the end of the screw E inserted therein and turned by means of the wrench or key E², all binding being prevented by the play afforded both to the screw and to the nut in their respective slots or mortises. A little before the parts have been completely clamped the nipple D is screwed into the nipple chuck or holder until it abuts against the shoulder *c′*. The screw is then completely tightened and the parts firmly locked around the nipple, and the same is ready to be threaded at the other end. After this threading operation has been completed the screw E is loosened by the wrench E² until the parts of the work-holder or chuck assume the relative positions indicated in full lines in Fig. 1. The nipple may then be easily lifted out and a new one inserted in its place. The parts of my work-holder or chuck can be made of any metal capable of standing the necessary strain, such as steel and the like. It will thus be seen that by the use of my nipple-holder I dispense almost entirely with the great expenditure of time and labor heretofore necessary in screw-threading nipples, as explained at the beginning of this specification. At the same time, as will be readily seen, there is no danger of injuring the nipple or destroying its roundness or getting the same out of true.

It is obvious that my chuck or work-holder may be modified in various particulars, and that the same may be applied with equal ad-

vantage to other classes of work besides nipples, and in many instances the interior shoulder c' may be omitted, as also the screw-threads c^2 and c^3, one or both. In some cases, also, it may not be necessary to provide the inner circular clamping-surface of the segments, and in some cases two or more than three such clamping-segments may be employed. It is also obvious that I may substitute other means for locking the clamping-segments than those herein described and shown. I therefore do not desire to be limited to the exact details shown and described herein.

What I claim, and desire to secure by Letters Patent, is—

1. In a work-holder, the combination, with a socket-ring, of clamping-segments connected together by a pivot bolt or bolts and each provided with a shoulder against which the work abuts.

2. In a work-holder, the combination, with a socket-ring, of three or more clamping-segments linked together and a locking device, one of the end segments being permanently secured to the socket-ring.

3. In a work-holder, the combination, with a socket-ring, of two, three, or more clamping-segments linked together, as described, and a locking device, one of said segments being permanently secured to the socket-ring.

4. In a work-holder for screw-threading and other lathes, the combination, with a part firmly attached to the head-stock of the lathe, of a clamping-segment permanently secured to said part, a clamping segment or segments pivotally attached to the first segment, and a locking device, substantially as described.

5. In a nipple-holder for screw-threading machines, the combination, with a socket-ring, of two, three, or more clamping-segments linked together, as described, one of said clamping-segments being permanently fixed to the socket-ring and the interior clamping-surfaces forming a complete screw-thread when in locked operative position, substantially as set forth.

6. In a nipple-holder for screw-threading machines, the combination of two outer clamping-segments, one of which is permanently fixed to the head-stock of the machine, and an intermediate clamping-segment pivotally connected with the outer clamping-segments, as described, and means for locking the clamping-segments, substantially as described.

7. In a nipple-holder for screw-threading machines, the combination of two outer clamping-segments and an intermediate segment or segments pivotally connected with the outer segment, and means for locking said segments, the inner clamping-surfaces of the said segments forming a screw-thread when locked, substantially as described.

8. In a nipple-holder for screw-threading machines, the combination of two outer clamping-segments, one of which is permanently fixed to a part of the stock, with an intermediate segment pivotally connected to both outer segments and a locking device, the inner surfaces of said jaws being provided with shoulders and forming a screw-thread when locked, substantially as described.

9. In a nipple-holder for screw-threading machines, the combination of the following parts: an internally-screw-threaded socket-ring, a clamping-segment permanently fixed thereto and provided with an internal shoulder on the arc of a circle and a portion of a screw-thread on both sides of the shoulder, two additional clamping-segments similarly provided with shoulders and portions of screw threads and pivotally linked to the first clamping-jaw and unattached to the socket-ring, and means for locking the segments together, the inner faces of the segments when locked forming an annular shoulder having screw-threads on both sides of the same, substantially as described.

10. In a work-holder, the combination, with pivoted segments provided with open slots at their ends, of a shouldered screw removably held in one slot and a nut removably and loosely held in the other slot and engaged by the screw, substantially as described.

11. In a work-holder, the combination of two pivoted segments, one of which is provided with a locking-screw and the other with a slot and a nut, loosely and removably fitted in said slot and adapted to engage the said screw, substantially as described.

12. In a work-holder, the combination, with a pivoted segment provided with an end slot having guides, as c^5, and locking-screw having shoulders fitted thereto and adapted to slide transversely on the guides c^5, of a second segment having a mortise, as c^6, and a nut loosely held and adapted to slide up and down therein and engaging the locking-screw, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

DAVID SELLERS PAUL.

Witnesses:

B. FELDMANN,

A. REICHNER.