No. 717,199. Patented Dec. 30, 1902.

G. H. HOLLM.

TAPPING FIXTURE.

(Application filed Feb. 14, 1902.)

(No Model.)

Fig. 1.

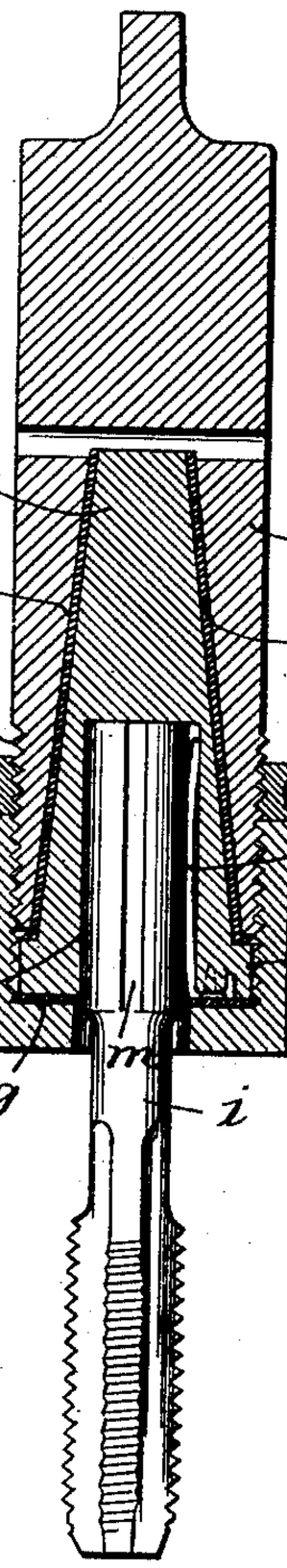


Fig. 4.

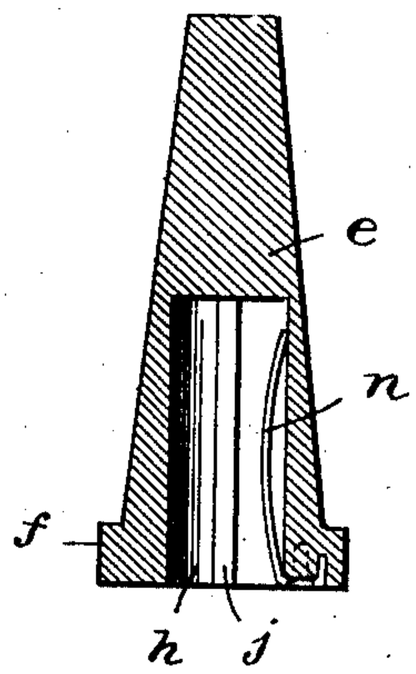


Fig. 3.

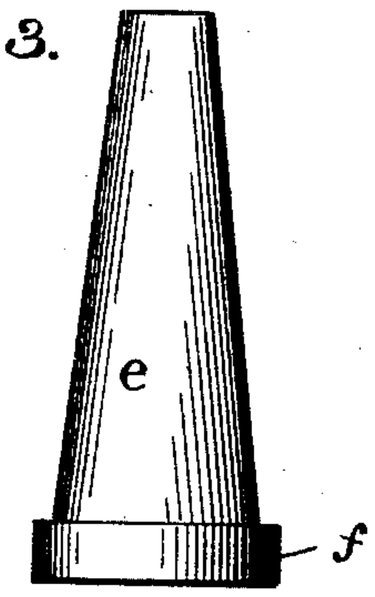


Fig. 5.

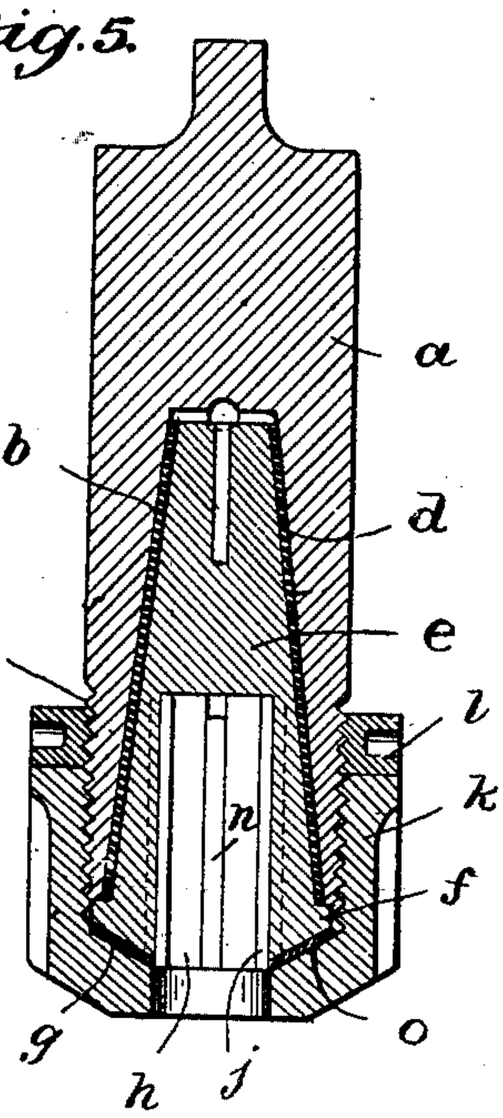
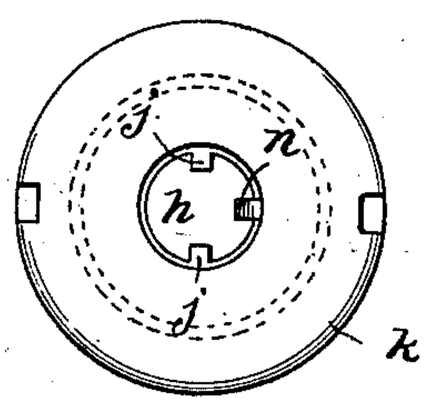


Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

GUSTAV H. HOLLM, OF BRIDGEPORT, CONNECTICUT.

TAPPING-FIXTURE.

SPECIFICATION forming part of Letters Patent No. 717,199, dated December 30, 1902.

Application filed February 14, 1902. Serial No. 94,087. (No model.)

To all whom it may concern:

Be it known that I, GUSTAV H. HOLLM, a citizen of the United States, and a resident of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Tapping-Fixtures, of which the following is a specification.

This invention relates to new and useful improvements in tapping-fixtures or tool-chucks such as are used in drills, lathes, or similar machines to hold minor tools—as, for instance, drills, taps, and screw-drivers—in place.

It is the object of the invention to generally improve upon fixtures of this class, and especially to simplify and cheapen their construction, improve their efficiency, both in the matter of yieldably securing the parts together and in holding the tools within the fixture, to simplify their construction, reduce their size, weight, and especially their diameter, providing an elongated fixture which can be used in close quarters—as, for instance, in drilling close to the shoulders of hubs and like parts having right-angle shoulders, offsets, or surfaces. Further, to provide a chuck which will receive the common stock-pattern tools having vertical keyways and one which does not require that their shanks be specially shaped or peripherally grooved, as with some now upon the market, which latter construction is objectionable for the reason that it weakens the tools so that they frequently break off at the point where the groove is located.

My invention is so arranged that the tools can be quickly and easily inserted or removed without the necessity of stopping the machine which carries the same. The construction is also such that the tap or other tool will automatically stop when its work is completed without injury to the tool, machine, or work. The fixture is further arranged in such a way that the tap is operatively held thereby in a manner to be run in or out of the work with the movement of the drill-spindle or faster than the movement of said spindle if the pitch of the thread of the tap be greater than the movement of the spindle, thus avoiding the necessity of close and careful attention by the operator, which would be required in the performance of certain classes of work.

With the above objects in view my invention resides and consists in the novel construction and combination of parts shown upon the accompanying sheet of drawings, forming a part of this specification, and upon which similar letters of reference denote like or corresponding parts throughout the several figures, and of which—

Figure 1 shows a central vertical sectional view of my improved tapping-fixture having a tap held therein. Fig. 2 is a bottom view of my tapping-fixture, the tap being omitted. Fig. 3 is a detail side elevation of the tool-socket shown in Fig. 1. Fig. 4 is a detail vertical sectional view of the same. Fig. 5 is a central vertical sectional view corresponding somewhat to Fig. 1, but showing a slight modification of the invention.

Referring in detail to the characters of reference marked upon the drawings, *a* represents a shank which in practice is inserted into the drill-spindle and carried thereby. This shank is provided with a conical-shaped central socket *b*, extending upward from its lower end, and a peripheral thread *c*, which encircles the lower end of the shank, as is clearly shown in Figs. 1 and 5. Within this socket *b* is placed a conical tubular bushing *d*, which in practice is preferably made of papier-mâché, leather, or like material, and which serves to afford an engagement between the shank and a holder *e*, which is of a corresponding shape to and fits into the aforesaid bushing. This holder is further provided with a shoulder *f* around its larger end and is provided with an end bushing *g*, which is in the form of a washer, as shown. This holder is also provided with a central bore *h* to receive the shank of the tap *i* or other tool, as will be apparent. Keys *j j*, on either side of this bore, serve to engage corresponding ways in the sides of the tap-shank, and thus afford an engagement of the chuck with the tool and insure the latter turning with the former until such time when the tap completes its work and fetches up against the bed or stock, whereupon the holder yields as

to the additional resistance of the tool and permits the shank to continue to rotate with the movement of the drill-spindle.

k represents a nut which is threaded to engage the peripheral threads of the shank and contains a shoulder to engage the shoulder of the holder in a manner to retain the same snugly in place against the bushings within the shank.

l represents a lock-nut which is located above the nut *k* and in practice is designed to be set up against said nut and hold the same in the position to which it has been adjusted. By the employment of a conical-shaped holder, bushing, and socket in connection with a nut of the class indicated I am enabled to secure a firmer engagement between the shank and the holder, this conveying a more positive movement to the tool, which of course is an essential feature.

As before stated, the tap is provided with vertical keyways *m* to receive the keys carried by the holder and serve to insure the transmission of a rotary motion from the holder to the tool in the usual manner. In addition to this connection between the parts I provide a friction device to yieldably retain the tool within the holder, but in such a manner as to allow said tool to feed down in advance of the movement of the clutch, as would be necessary in certain classes of work where the lead of the thread would not correspond with the feed movement. This friction device comprises a vertically-disposed bowed sheet-metal spring *n*, which is carried by the holder and is fitted into a vertical slot thereof, as is clearly illustrated in several figures of the drawings. This spring does not engage a recess in the tap, but simply presses against the sides of the shank thereof, which may be of the ordinary form.

In Fig. 5 I have shown a nut having a beveled surface *o* to engage the holder, which in practice affords a better connection than that secured by the plain flat engaging end indicated in the other figures. Consequently I do not wish to be limited to the exact shape of the holder illustrated in Figs. 3 and 4, as will be apparent from my claims.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a chuck of the class described, the combination with an elongated shank having an elongated conical bore, said bore extending from the lower edge of said shank into the body portion thereof and terminating therein at a point remote from said lower edge, of a conical holder arranged in said bore and having its surface corresponding to the formation of the bore, a conical bushing interposed between said holder and the shank and surrounding the holder, and a nut mounted upon the shank and engaging the holder to force the latter into the shank.

2. In a chuck of the class described, the combination with an elongated shank having an elongated conical bore, said bore extending from the lower edge of said shank into the body portion thereof and terminating therein at a point remote from said edge, of a conical holder arranged in said bore and having its surface corresponding to the formation of the bore, said holder being provided at its lower end with an outwardly-directed shoulder, a conical bushing interposed between said holder and the shank and surrounding the holder, and a nut mounted upon the shank and engaging the shoulder of the holder to force the latter into the shank.

Signed at Bridgeport, in the county of Fairfield and State of Connecticut, this 12th day of February, A. D. 1902.

GUSTAV H. HOLLM.

Witnesses:
C. M. NEWMAN,
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