(No Model.)

F. VOOS.

DRILLING MACHINE.

No. 273,409. Patented Mar. 6, 1883.

Fig. II.

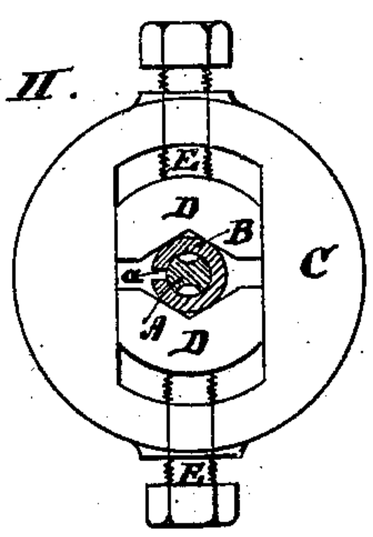


Fig. I

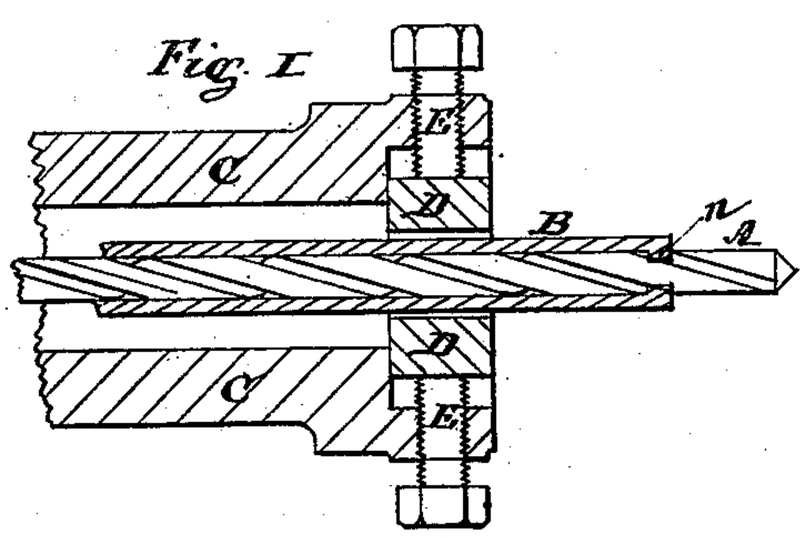


Fig. III.

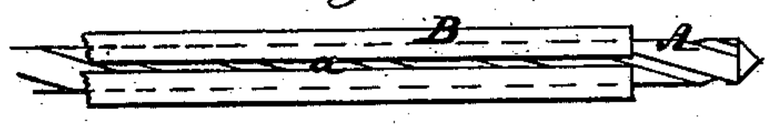


Fig. IV.

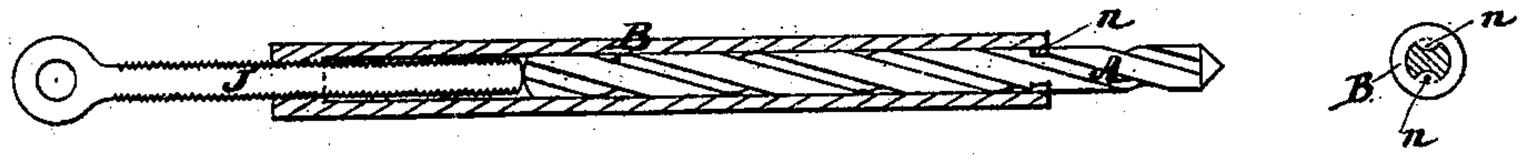


Fig. V.

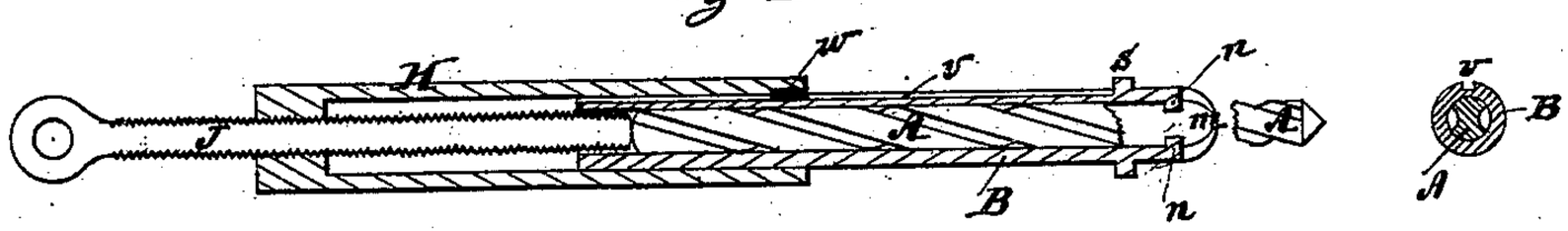
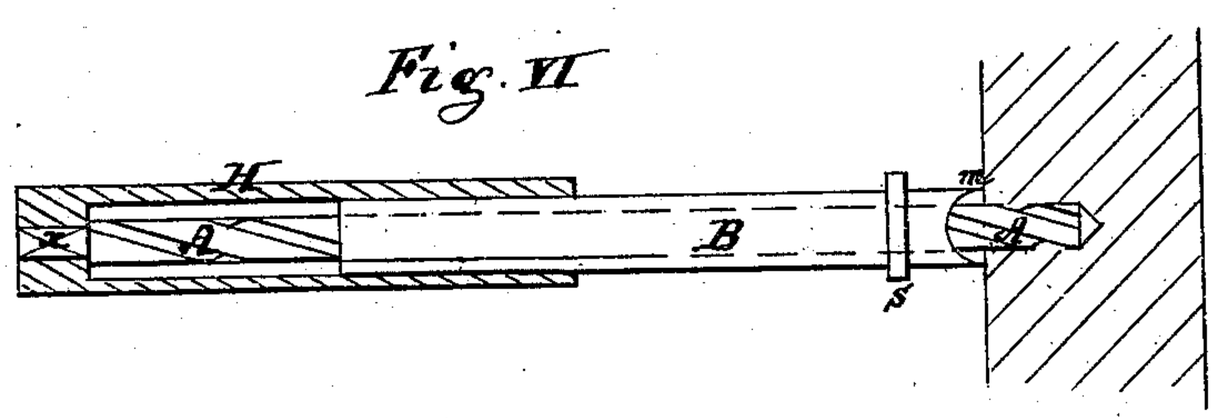


Fig. VI



Witnesses.
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Richard J. Nagle.

Inventor.
Franz Voos
per Henry E. Reeder
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UNITED STATES PATENT OFFICE.

FRANZ VOOS, OF SOLINGEN, PRUSSIA, GERMANY.

DRILLING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 273,409, dated March 6, 1883.

Application filed June 5, 1882. (No model.)

To all whom it may concern:

Be it known that I, FRANZ VOOS, of Solingen, in the Kingdom of Prussia, in the Empire of Germany, have invented a new and useful Protector for Drills, of which the following is a specification.

A great objection to the use of twist or spiral drills is the danger of their breaking, generally close to the drill-head. To prevent this is the nature of my invention, which consists in inclosing the twist-drill in a suitable casing, out of which only the end of the drill projects, and so arranged that the drill can easily move downward, according to the depth of the hole.

In the accompanying drawings, Figure I represents the drill, with casing attached to the drill-head in section. Fig. II is an end view of the same. Fig. III is a side view of the case and drill. Figs. IV, V, and VI show different views of drill and casing referred to in the following specification.

Similar letters represent similar parts in all the figures.

A represents a twist or spiral drill; B, the case surrounding the same; C, the end of the drill-head; D D, the jaws in the drill-head for securing the drill and case, acted upon by the screws E E.

The case B must be made to correspond exactly with the size of the drill, so that the latter can freely pass through the same. It is advisable, and I prefer, to cut the case B open on one side, as shown at *a*, Figs. II and III, so that when fastened between the jaws D in the drill-head C the case will grip the drill firmly. At the lower end of the case B projections *n n* are made at the inside, fitting into the grooves or spiral recesses of the drill, and whereby the motion received by the case B from the drill-head will be communicated to the drill. The end of the case B may be made with projections *m m* at its lower end, to bear upon the work to be drilled, (see Figs. V and VI,) open opposite the projections *n n*, to allow the free escape of the drill-chips.

The drill A is moved downward by means of a screw, J, Fig. IV, passing through the end of the case B and bearing against the end of the drill.

The case B may likewise be surrounded by another case, H, provided with a key or feather, *w*, working in a corresponding groove, *u*, in the case B, Fig. V, in which case the case H is fastened between the jaws D D in the drill-head, the feather *w*, working in the groove *v*, communicating the motion to the case B, and the feeding-screw J passing in that case through the end of this outer casing, H.

Instead of the feeding-screw J and the feather *w* working in the groove *v*, the drill A may be fitted into the end of the case H by means of a square head, *x*, Fig. VI, whereby the motion given to the case H is directly communicated to the drill A, the inner case, B, being in that case provided with a collar, *s*, through which, by means of any suitable tool, the case B can be moved downward or upward. It will be perceived that by the arrangement of this case B the spiral drill A will be protected and strengthened throughout its whole length, leaving only the end to penetrate the material free and liable to break.

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

In combination with a twist or spiral drill, A, the case B, provided with projections *n n*, fitting into the spiral grooves of the drill, arranged to operate in the manner and for the purpose substantially as described.

FRANZ VOOS.

Witnesses:

HANS FRIEDRICH,

G. A. LANGENINSSEN.