

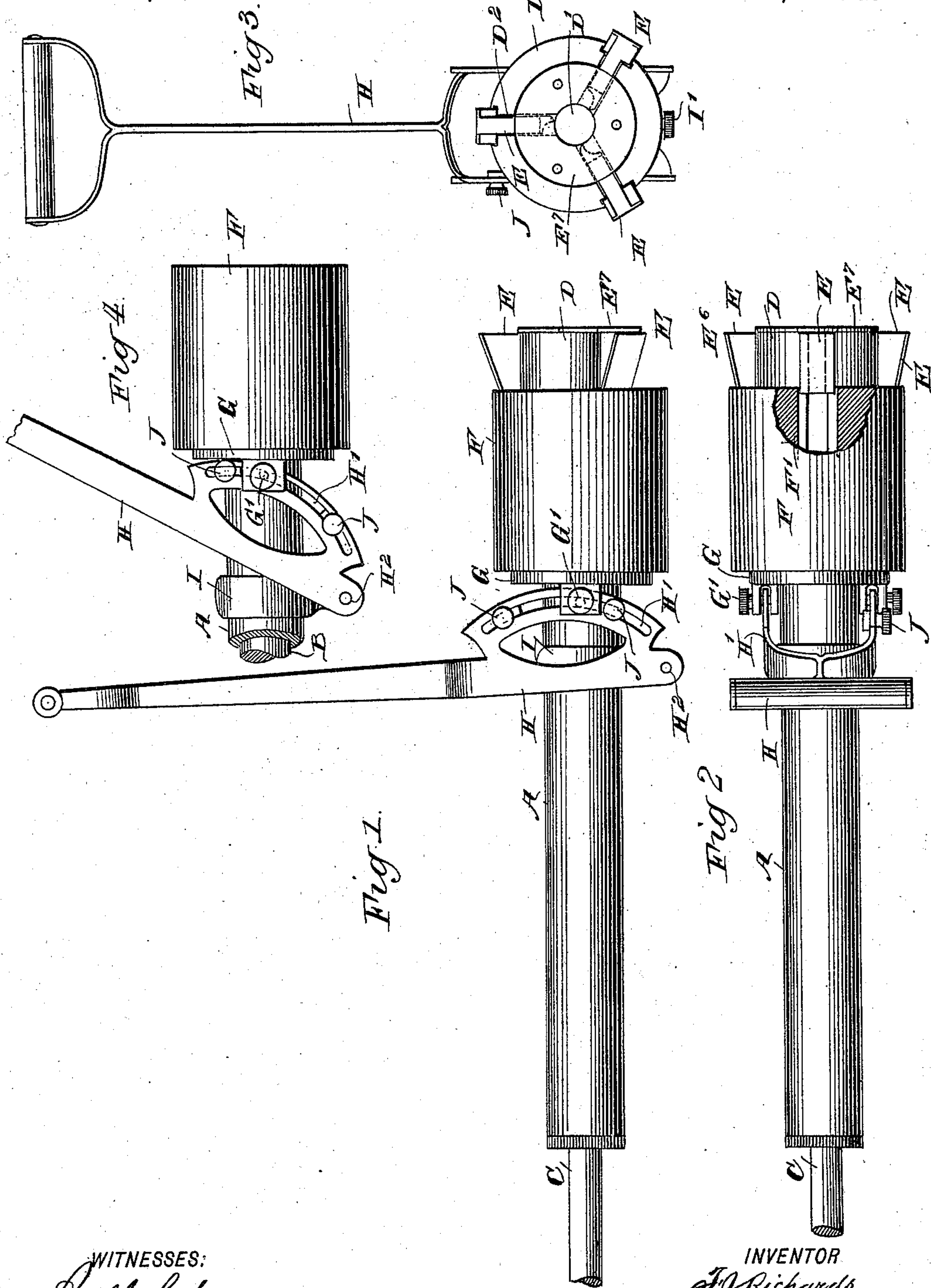
(No Model.)

2 Sheets—Sheet 1.

F. J. RICHARDS.
CUTTING MACHINE.

No. 535,771.

Patented Mar. 12, 1895.



WITNESSES:
Paul J. Baker
Rev. G. H. H. H.

INVENTOR
F. J. Richards
BY *Munn & Co.*
ATTORNEYS.

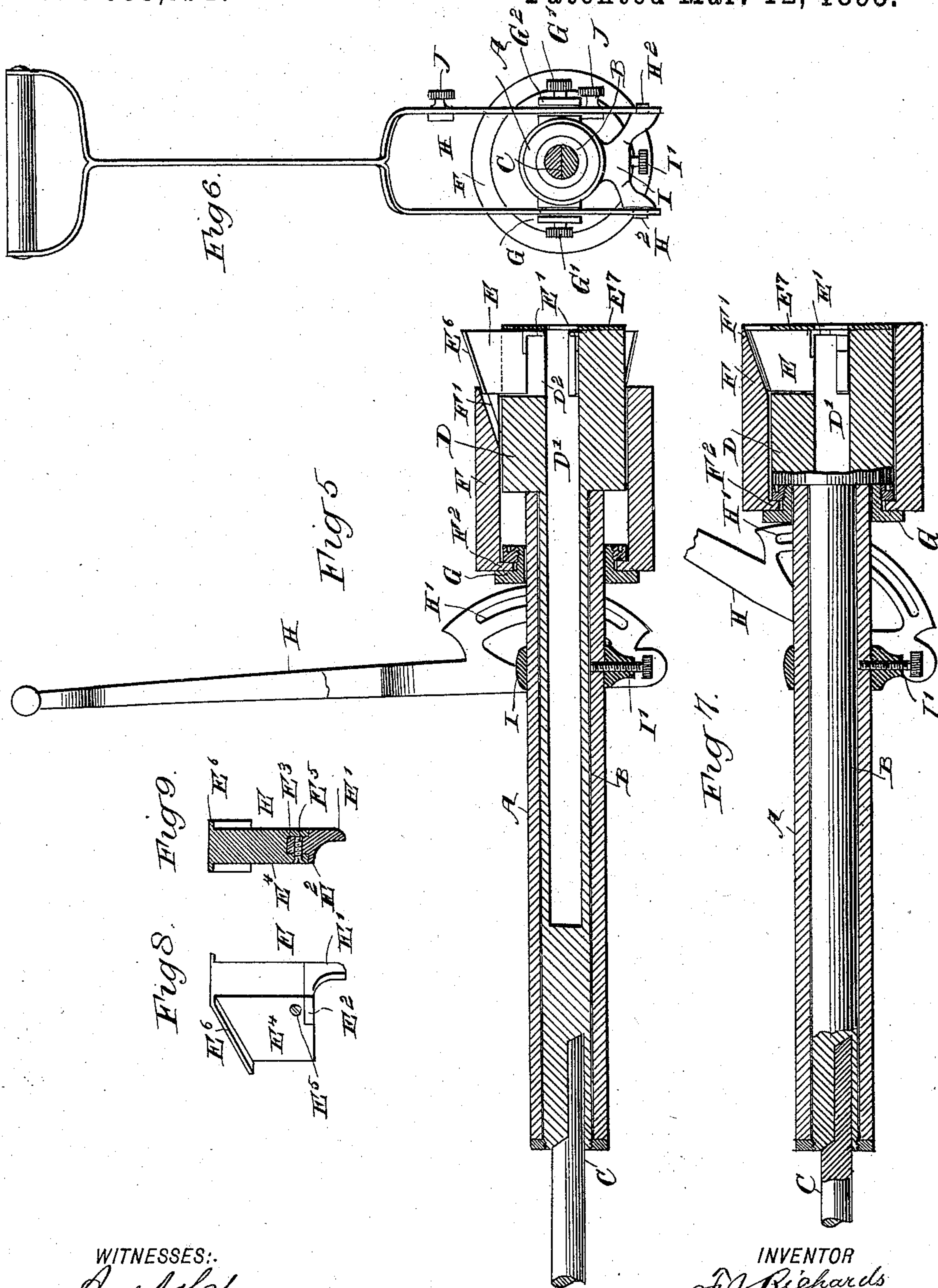
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No. 535,771.

Patented Mar. 12, 1895.



WITNESSES:
Paul John
Henry H. H. H.

INVENTOR
F. J. Richards
BY *Munn & Co.*
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UNITED STATES PATENT OFFICE.

FRANK J. RICHARDS, OF NEEDLES, CALIFORNIA, ASSIGNOR OF ONE-TENTH
TO CHARLES TYKESON, OF SAME PLACE.

CUTTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 535,771, dated March 12, 1895.

Application filed June 11, 1894. Serial No. 514,216. (No model.)

To all whom it may concern:

Be it known that I, FRANK J. RICHARDS, of Needles, in the county of San Bernardino and State of California, have invented a new and Improved Cutting-Machine, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved cutting machine, which is simple and durable in construction, and more especially designed for use on boilers, to conveniently and quickly cut off stay bolts at any desired distance from the plate.

The invention consists of a revoluble spindle having a cutter head, cutters held to slide radially in the said cutter head, and a sleeve mounted to slide longitudinally and engaging the inclined backs of the cutters, to fit the latter to the work.

The invention also consists in certain parts and details, and combinations of the same, as will be hereinafter fully described and then pointed out in the claims.

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

Figure 1 is a side elevation of the improvement, with the cutters withdrawn. Fig. 2 is a plan view of the same, with parts broken out. Fig. 3 is an end view of the same. Fig. 4 is a side elevation of the improvement, with the cutters in a working position. Fig. 5 is a sectional side elevation of the improvement with the cutters in an outermost position. Fig. 6 is a rear sectional end view of the same. Fig. 7 is a sectional side elevation of the improvement, with the cutters in a working position. Fig. 8 is a perspective view of one of the cutters; and Fig. 9 is a transverse section of the same.

The improved cutting machine is provided with a hollow handle A, adapted to be taken hold of by the operator to conveniently move the machine from place to place, the said handle forming a bearing for the spindle B, adapted to be connected at its rear end with a coupling C of a flexible shaft driven from a suitable motor located near the boiler or other article on which the cutting machine is to be used.

On the front end of the spindle B is secured

or formed a head D, formed with a central bore D' extending about two-thirds in the spindle B and into which bore the bolt or other article to be cut passes. The head is also provided with radial slots D², in which are fitted to slide a series of cutters E, adapted to be fed toward or from the work, by a sleeve F mounted to slide loosely over the cutter head D. Each cutter E is provided with a cutting tool E', projecting from a base E² having a pin E³ engaging a corresponding recess in the shank E⁴, made in the shape of a block having a cut-out recess for the tool E', as will be readily understood by reference to Figs. 8 and 9. A screw E⁵ screws in the shank E⁴, and engages the pin E³ so as to securely hold the cutting tool E' in place on its shank, and to permit of removing the cutting tool when desired, in case the tool is worn out, needs changing, grinding, or is to be replaced by a new one.

The back E⁶ of the shank E⁴ is wedge-shaped and formed with flanges fitting into corresponding grooves F' arranged in the sleeve F, so that when the latter is shifted forward, it acts on the inclined or wedge-shaped back E⁶, to feed the cutters E simultaneously inward, to move the cutting tool E' in contact with the work extending into the bore D'. By moving the sleeve F rearwardly, the said cutters E are caused to slide outward in their grooves D², so as to move the cutting tools into and out of contact with the work.

A circular plate, E⁷, is secured, by screws, to the outer end of the head, D, of the spindle, B, for the purpose of preventing the cutters, E, being pushed endwise when the sleeve F, is forced to the right. Said plate is necessarily provided with a central opening, corresponding with the longitudinal bore in the head, D.

As the cutting tools E' are arranged to slide radially in the cutting head, the work is engaged in the same transverse plane so as to more quickly cut off a bolt or other article under treatment.

The inner end of the sleeve F is formed with an inwardly-extending flange F² engaged by a carrier G fitted to slide loosely on the handle A, the said carrier being provided with bolts or pins G' extending into the slotted seg-

ments H' formed on a lever H pivoted at H² on a collar I, secured by a stud I' to the handle A. Thus when the lever H stands in the position illustrated in Figs. 1, 2 and 5, then the sleeve F is in a rearmost position, so that the cutters E are pushed outward to permit of conveniently entering the bolt into the bore D', and then the operator swings the lever H forward so that the slotted segments H' act on the pins G', to shift the carrier G and consequently the sleeve F forward to feed the cutters E inward and bring the cutting tools E' in peripheral contact with the bolt or other article under treatment. The spindle B is continuously rotated so that the cutters E' readily cut the bolt. After a bolt has been cut off at any desired distance from the plate of a boiler, then the operator swings the lever H back to its normal position, to move the cutters E outward and to permit the cut-off end of the bolt to drop out of the bore D'.

The swinging motion of the lever H is limited by stops J, held adjustable on the slotted segments H', and adapted to abut against the lugs G² carrying the pins G' of the carrier G. By this arrangement the sliding motion of the sleeve F, and the feeding of the cutters E are regulated according to the work under treatment.

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

1. A cutting machine, comprising a revoluble spindle carrying a cutter head having a central bore for the entrance of the work, cutters held to slide radially in the said cutter head, and a sleeve mounted to slide and engaging the inclined backs of the said cutters, to feed the latter to the work in the cutter head, substantially as shown and described.

2. A cutting machine, comprising a revoluble spindle carrying a cutter head having a

central bore for the entrance of the work, cutters held to slide radially in the said cutter head, a sleeve mounted to slide and engaging the inclined backs of the said cutters, to feed the latter to the work in the cutter head, and means for regulating the sliding motion of the said sleeve to control the feeding of the said cutters, substantially as shown and described.

3. A cutting machine, comprising a revoluble spindle carrying a cutter head having a central bore for the entrance of the work, cutters held to slide radially in the said cutter head, a sleeve mounted to slide and engaging the inclined backs of the said cutters, to feed the latter to the work in the cutter head, and means, substantially as described, for imparting a sliding motion to the said sleeve, as set forth.

4. A cutting machine, comprising a handle, a revoluble spindle journaled in the said handle and carrying a cutter head having a central bore, cutters held to slide radially in the said cutter head, a sleeve mounted to slide and engaging the inclined backs of the said cutters, to feed the latter toward and from the work in the cutter head, a carrier engaging the said sleeve, and a lever fulcrumed on the said handle and having slotted segments engaging the said carrier, to move the latter and the sleeve longitudinally on the cutter head, substantially as shown and described.

5. A cutting machine, provided with cutters, each having a shank in the shape of a wedge-shaped block, and cutting tools having a blade and pin fitted upon the said block and secured thereon by a set screw, substantially as shown and described.

FRANK J. RICHARDS.

Witnesses:

THOS. O'BRIEN,
JACK WOOLLEY.