A. PECARD-CHAUVEAU.

APPARATUS FOR CUTTING STEEL BARS.

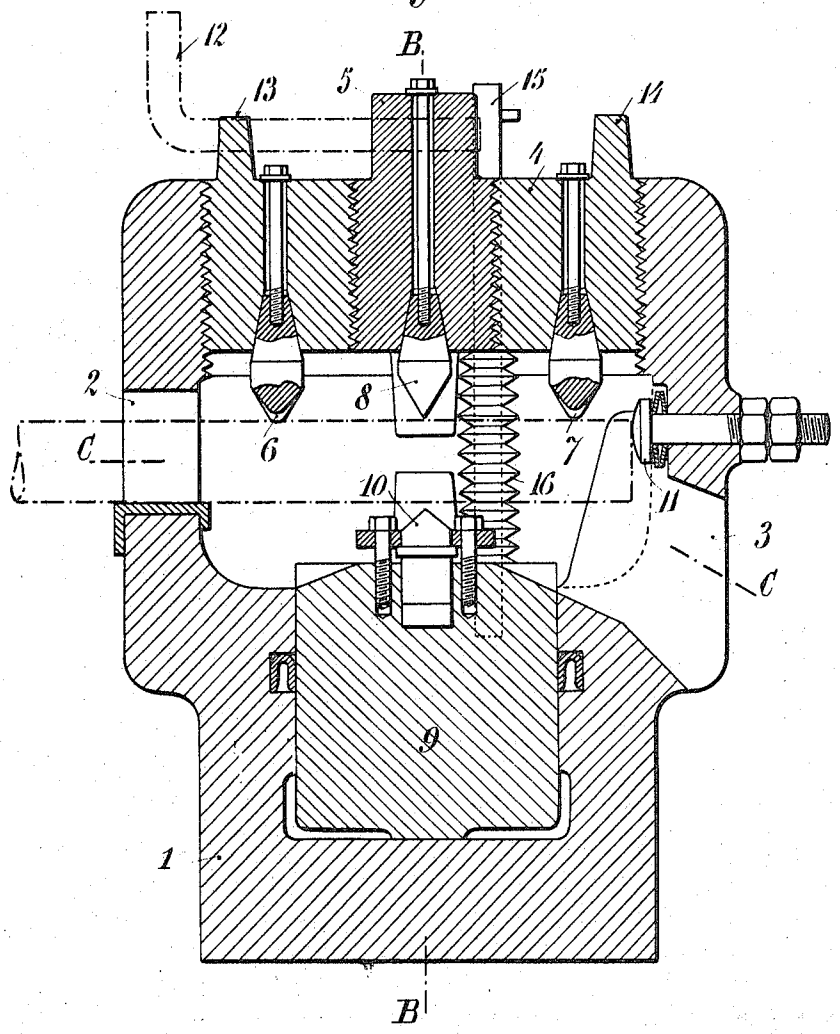
APPLICATION FILED JAN. 18, 1916.

1,187,384.

Patented June 13, 1916.

3 SHEETS—SHEET 1.

Fig. 1.



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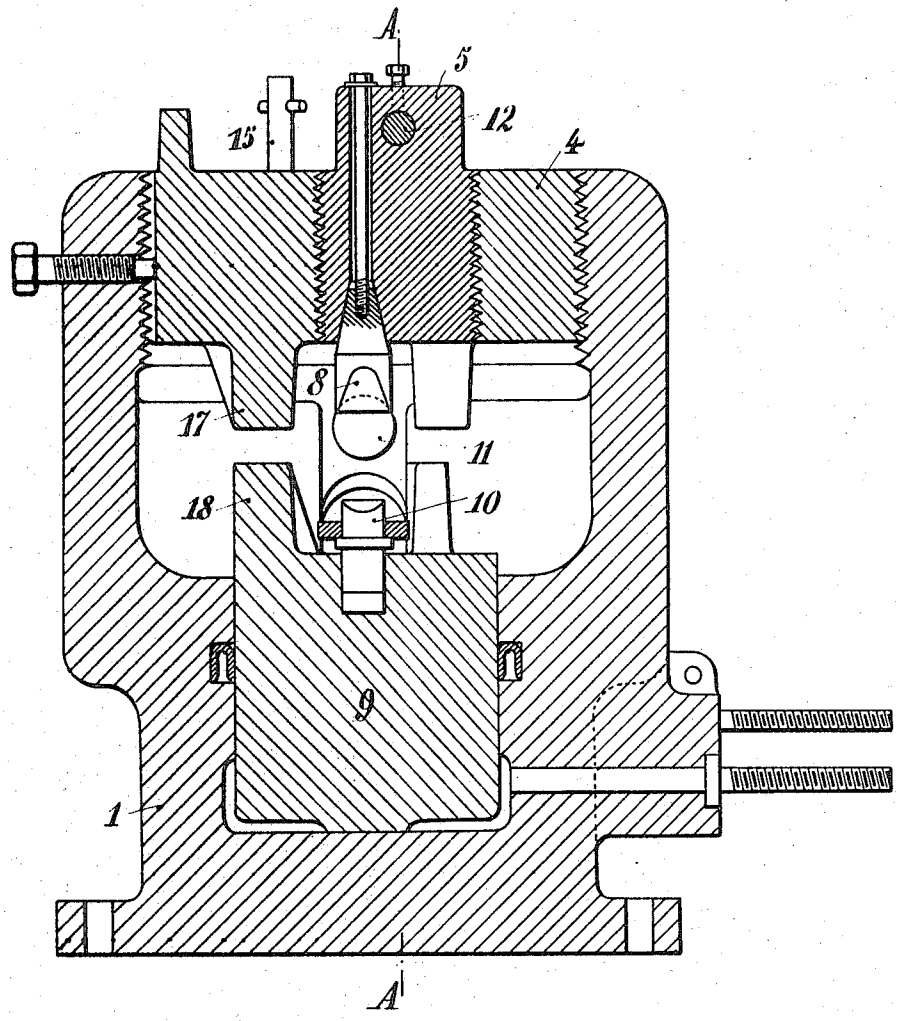
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3 SHEETS—SHEET 2.

Fig. 2.



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3 SHEETS—SHEET 3.

Fig. 3.

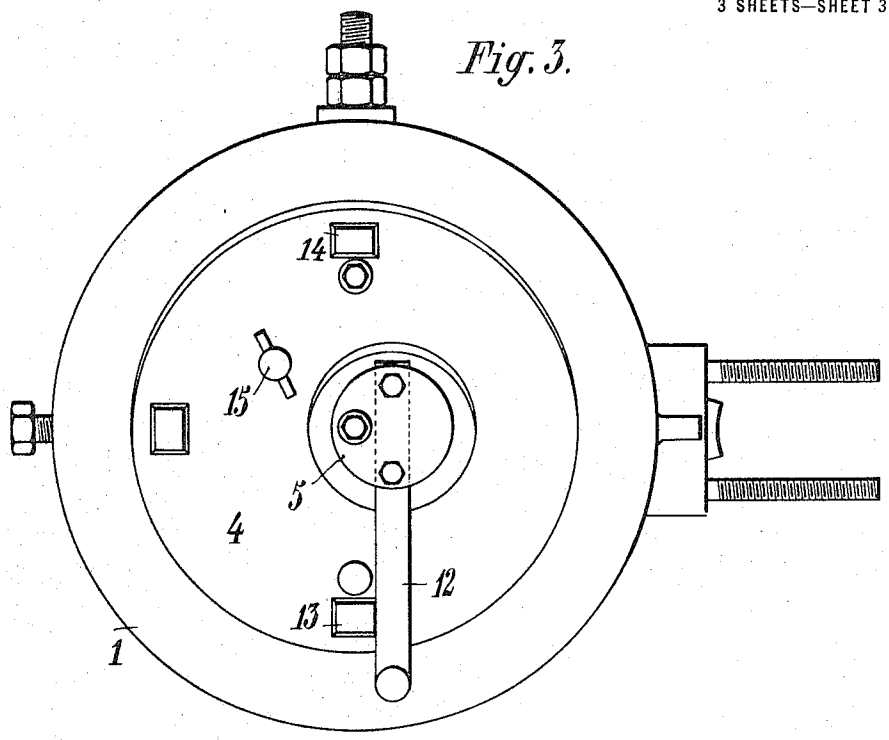
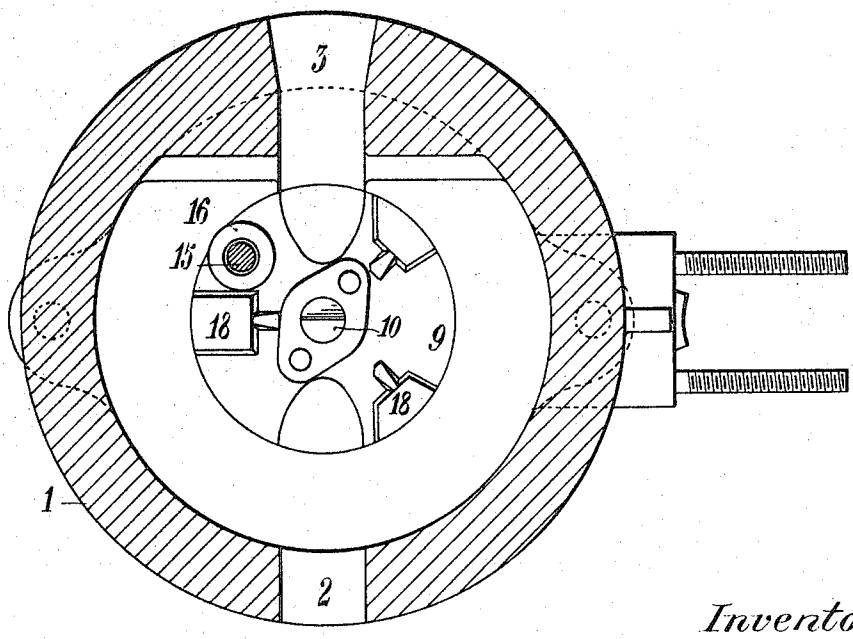


Fig. 4.



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UNITED STATES PATENT OFFICE.

ACHILLE PECARD-CHAUVEAU, OF AMBOISE, FRANCE.

APPARATUS FOR CUTTING STEEL BARS.

1,187,384. Specification of Letters Patent. Patented June 13, 1916.

Application filed January 18, 1916. Serial No. 72,765.

To all whom it may concern:

Be it known that I, ACHILLE PECARD-CHAUVEAU, a citizen of the French Republic, and residing in Amboise, Indre et Loire, in France, have invented certain new and useful Improvements in Apparatus for Cutting Steel Bars, of which the following is a specification.

This invention relates to a device for cutting steel bars, with large output, chiefly comprising a hydraulic press, the piston of which is provided with a blade coöperating with another blade arranged in the cap or breech of the cylinder, so that in the first stroke of the press, two comparatively deep cuts are made in a plane transversely of the axis of the bar introduced into the press, while in the second stroke of the press, the upper blade having been withdrawn, the lower one forces the bar strongly against two lateral stops, which results in its breaking in the plane of the cuts made by the blades, to a length determined by an elastic buffer against which the end of the bar strikes. A construction of a press comprising these characteristic features, is illustrated, merely by way of example, in the accompanying drawing in which:

Figure 1 is a vertical section on line A—A of Fig. 2 which is another vertical section on line B—B of Fig. 1; Fig. 3 is a plan, and Fig. 4 a horizontal section on line C—C of Fig. 1, turned to an angle of 90°, that is to say, brought into the plane of Fig. 3.

The press comprises a high pressure cylinder 1 extended at the top by a cylindrical portion completely closed at the sides and open at the top. This cylinder 1 has two diametrically opposite openings; one opening 2 intended for the passage of the bars to be cut, and the other 3 intended for the discharge of the cut sections. The upper part is closed by a screw-threaded cap 4 provided with a tapped eccentric hole. In the said eccentric hole can rotate a steel sleeve 5, also screw-threaded.

The cap 4 has at the bottom two interchangeable V-shaped stops 6, 7 of tempered steel, fitting into taper seatings. On the under side of the sleeve 5, which can be eccentrically rotated in the cap 4 by means of a handle 12, is provided an interchangeable steel blade 8 also fitting into a tapered seating. This blade 8 is eccentric relatively to the sleeve, so that when the said sleeve is rotated the said blade can be brought into the center of the cylindrical frame, or moved away from the said center to a fairly considerable distance. Stops 13, 14, provided on the cap 4, limit the stroke of the handle 12 to half a revolution in each direction.

A piston 9 mounted in the interior of the cylinder 1, carries in its top a blade 10 arranged at an angle of 90° relatively to the blade 8. Finally, a stop bolt 11 adjustable from the outside and resiliently mounted, is arranged so that the end of the bar to be cut strikes against it so that the length of the sections to be cut can be regulated. A rod 15 provided with washers 16, or any other elastic device inserted between the cap 4 and the piston 9, has the tendency to bring the latter back to its position of rest.

The working is as follows:—

1. The bar to be cut is introduced into the hole provided for the purpose and pushed home until it strikes the stop bolt 11.

2. The attendant admits pressure into the cylinder, so that the piston 9 is raised and presses the bar to be cut between the upper blade 8 and the cutting blade 10. In this way two cuts are made, one above and the other below the bar. The depth of this cut is regulated by a mark made on the rod screwed into the piston and passing freely through the upper cap. This operation having been effected, the attendant returns his distributer lever to the dead center, and the piston descends.

3. By means of the crank handle 12 secured to the sleeve 5 carrying the upper blade 8, he turns the said sleeve to the extent of half a revolution, and the said upper blade 8 is withdrawn to the side; almost simultaneously he admits pressure into the lower cylinder, the lower blade 10 which has not released the notch which it had produced under the bar, raises the latter and presses it with the whole force of the press in the center of the bearing surface separating the two V-shaped stops 6, 7. The bar, weakened by the two cuts, breaks cleanly and absolutely normally to the axis.

During the pressure, a diaphragm arranged in the inlet for the water supplied to the piston, reduces the said inlet to a few millimeters only, which limits the speed of rising of the piston and avoids shocks at the end of the stroke. Stops 17, 18 provided respectively on the cap 4 and on the piston 9, limit the stroke of the latter. The distributer comprises an exhaust opening of a

large diameter, which, in coöperation with the expansion of the Belleville washers 16, enables the piston 9 to be lowered very rapidly. The mounting of the sleeve 5 in the cap 4 by means of a screwthread, facilitates vertical adjustment of the upper blade 8 relatively to the lower blade 10, when the said two tools are reground. The same applies to the two lateral stops 6, 7 which can also be adjusted by screwing the cap more or less, care being taken always to bring the said stops into the plane of the two openings 2, 3.

This tool is called upon to render great services in shell-making works and it would release a fairly large number of men employed in this work which is generally done either with a chisel and hammer, or on cutting machines with small output.

The arrangements described are given merely by way of example; the shapes, dimensions, constructional details and applications can vary without departing from the scope of the invention.

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

1. An apparatus for cutting steel bars comprising a hydraulic press having a piston provided with a blade, a second normally fixed blade adapted to be brought into and out of register with the first-mentioned blade, and two spaced stops adapted to coöperate with the blade on the piston to break a partially cut bar when the second blade has been moved out of register.

2. An apparatus for cutting steel bars comprising a hydraulic press having a piston provided with a blade, a second normally fixed blade adapted to be brought into and out of register with the first-mentioned blade, two spaced stops adapted to coöperate with the blade on the piston to break a partially cut bar when the second blade has been moved out of register, and a resilient stop adapted to be engaged by the end of the bar to regulate the length of the piece cut off.

3. An apparatus for cutting steel bars comprising a hydraulic press having a fixed frame and, a piston provided with a blade, a cap screwed concentrically in said frame, a sleeve eccentrically screwed into the cap and carrying a second blade adapted to be brought into and out of register with the first blade, two spaced stops on said cap adapted to coöperate with the blade on the piston to break a partly cut bar, and a resilient stop adapted to be engaged by the end of the bar to regulate the length of the piece to be cut off.

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

ACHILLE PECARD-CHAUVEAU.

Witness:

CHAS. P. PRESSLY.