(No Model.) 2 Sheets—Sheet 1.

A. M. BAIRD.

BOLT CUTTING MACHINE.

No. 492,931. Patented Mar. 7, 1893.

Fig. 1.

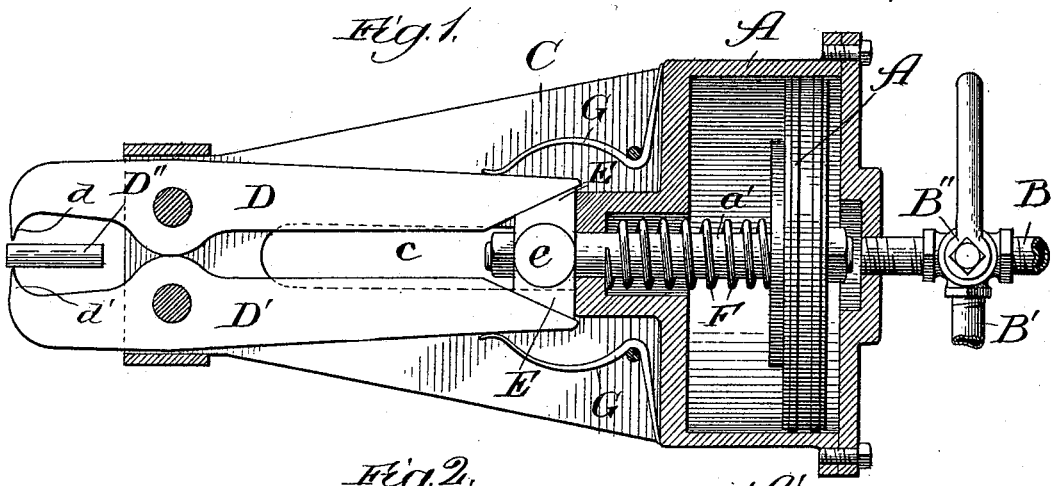


Fig. 2.

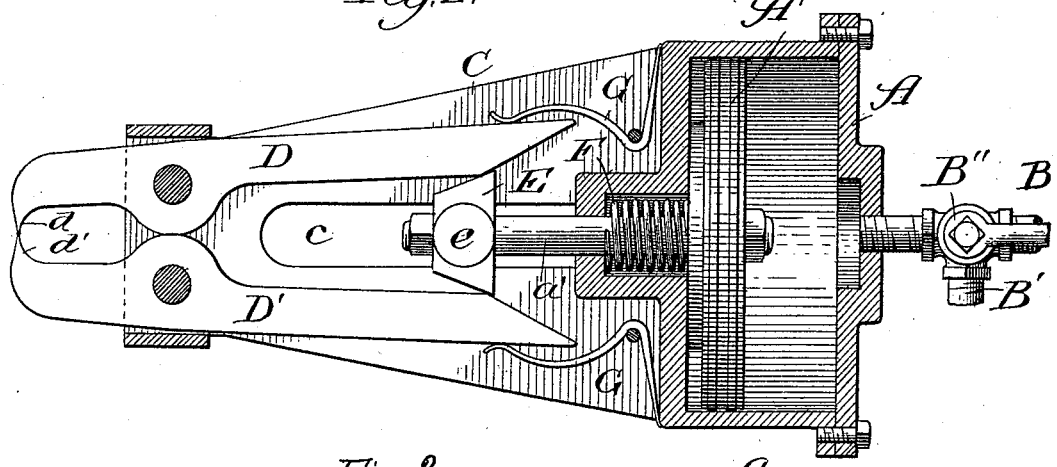
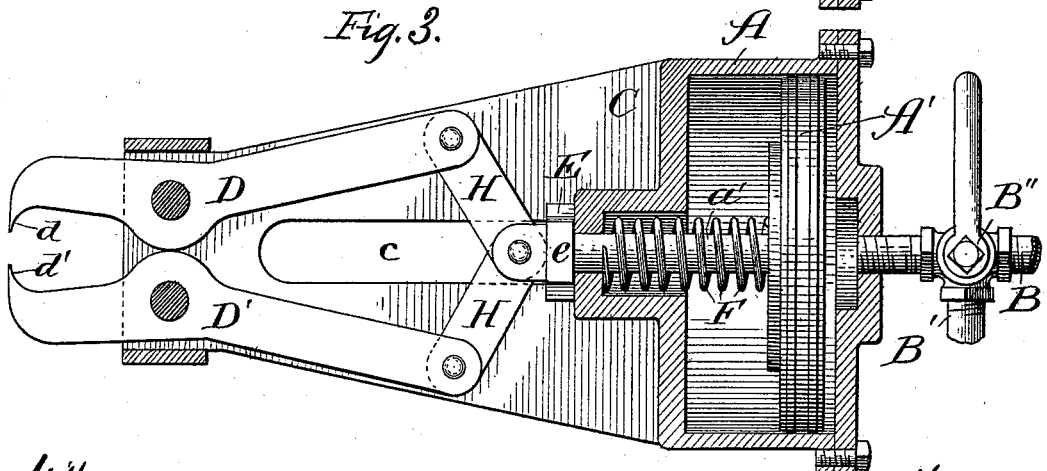


Fig. 3.



Witnesses:
Chas. E. Gayford
Clifford N. White.

Inventor:
Archie M. Baird.
By Banning & Banning & Payson.
Att'ys.

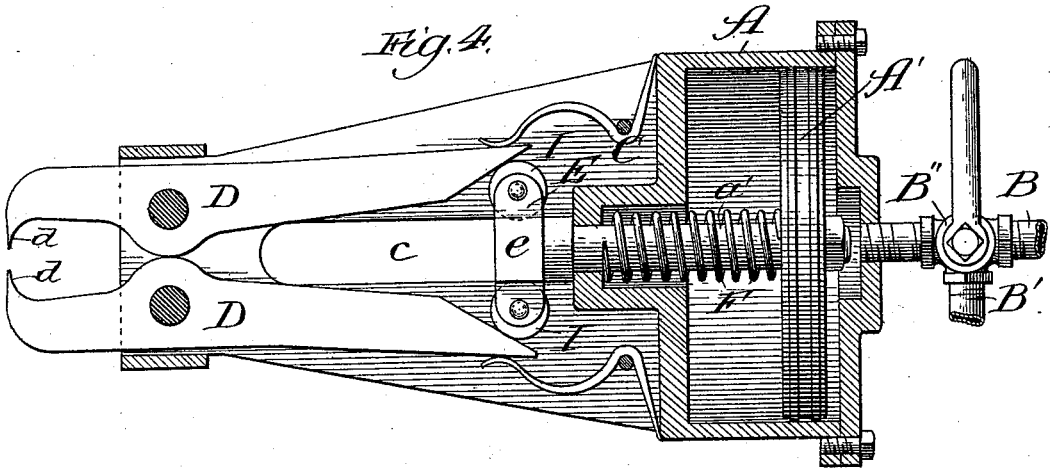
(No Model.) 2 Sheets—Sheet 2.

A. M. BAIRD.

BOLT CUTTING MACHINE.

No. 492,931. Patented Mar. 7, 1893.

Fig. 4.



Witnesses:
Chas. E. Gaylord,
Clifford N. White.

Inventor:
Archie M. Baird.
By Banning & Banning & Clayton,
Attys.

UNITED STATES PATENT OFFICE.

ARCHIE M. BAIRD, OF TOPEKA, KANSAS.

BOLT-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 492,931, dated March 7, 1893.

Application filed April 29, 1892. Serial No. 431,137. (No model.)

To all whom it may concern:

Be it known that I, ARCHIE M. BAIRD, a citizen of the United States, residing at Topeka, in the county of Shawnee and State of Kansas, have invented a certain new and useful Bolt-Cutting Machine, of which the following is a specification.

The object of my invention is to provide a simple and efficient machine operated by fluid pressure, by means whereof bolts can be cut preparatory to riveting them, or at any other time, which machine is capable of being applied to cut the bolt in any position, and by means whereof bolts can be cut with the greatest rapidity. Speaking generally, this machine comprises a cylinder wherein travels a piston, levers pivoted adjacent to such cylinder and having cutting edges, and connections between the piston rod of the piston and the levers, whereby as the piston is operated the jaws may be forced together to cut the bolt; and my invention consists in the features and combinations hereinafter described and claimed.

In the drawings, Figure 1 represents a longitudinal, central section of a bolt cutter made in accordance with my invention, with the jaws open; Fig. 2 a similar view showing the jaws forced together; and Figs. 3 and 4 present similar views to Fig. 1, illustrating modifications of the invention.

When making the device as shown in the first two figures of the drawings, I first construct a cylinder A, preferably of the form shown, and of any desired material and dimensions. In this cylinder moves a piston A′, provided with a rod a', which passes out through the end of the cylinder as shown. The cylinder is provided with a pipe B for the admission of the fluid intended to act upon the piston, and a waste pipe B′, a cock B^2 being used to put either one or the other of these pipes into connection with the interior of the cylinder. Integral with the cylinder, or separate therefrom and attached thereto, as may be desired, is a frame C, made of any desired form and dimensions that will accommodate and permit the operation of the working parts of the device. This framework is preferably provided with a slot c at either side, for the purpose hereinafter described, only one of these slots being shown in the sectional drawings. Within this frame and extending out therefrom, as shown, are levers D, D′, provided at their outer ends with jaws $d\,d'$, which are adapted and intended for cutting off the bolt as shown at D^2 in Fig. 1.

Attached to the outer end of the rod a' is a cross head E, which is preferably double beveled as shown, and adapted to contact with beveled faces on the inner ends of the pivoted levers D, D′. This cross head is provided with lugs e, which travel in the slot c in the frame or casing.

A spring F is provided to return the piston to its normal position, when the fluid pressure is released and the waste pipe opened, and springs G G for the purpose of separating the jaws and restoring the levers to their normal position.

When using this device it may be suspended from a suitable crane, in such a manner as to be freely moved in all directions, or otherwise suitably supported, and it operates in the following manner: The jaws d, d' being placed over the bolt, as shown in Fig. 1, the cock B^2 is turned to admit the air, steam, or other fluid used into the cylinder. The pressure of of this fluid then forces the piston toward the left (Figs. 1 and 2) carrying with it the rod a' and forcing the head between the levers, separating their inner ends and forcing the jaws together in the position shown in Fig. 2 to sever the bolt. The cock is then turned to open the connection between the waste pipe and the cylinder, whereupon the spring F will restore the piston to its normal position, withdrawing the cross head and allowing the springs G to return the levers to their normal position. The cutter can then be moved to the next bolt, and the operation repeated, and so on as often as necessary, the form of the jaws permitting the cutter to be inserted anywhere between the projecting bolts.

In Fig. 3 I have shown a modified form, wherein the cylinder with its connections, the frame and levers, are made in substantially the same form, but the cross head E, which is not beveled, has pivoted to it the links H, which are also pivotally connected to the inner ends of the levers D, D′ forming a toggle joint connection. From this construction it will be evident that as the piston is moved toward the left by fluid pressure, the jaws

will be forced together to cut off the bolt, and as it is moved toward the right, by the spring F, the jaws will be restored to their normal position.

In Fig. 4 the cross head, instead of being beveled, carries rollers I, which engage with the beveled ends of the levers, acting in precisely the same manner as the beveled faces of the cross head shown in the first two figures. By this means I am enabled to provide a simple and efficient device for cutting bolts, which is easily moved from point to point and operated. The cutter is very powerful, a pressure being obtained in a cylinder of twelve inches in diameter, with lever arms of some fifteen inches in length, with fluid pressure of one hundred pounds to the inch, of about fifteen tons on the jaws, which is more than sufficient for any ordinary use. It is also very rapid in operation, since by its use two men can in one hour sever twelve hundred bolts, substantially an inch in diameter.

I have shown the above forms as illustrating the principles of my invention, but do not intend to limit myself unduly to the peculiarities of form or construction, but contemplate all suitable changes in form, proportions, and the substitution of equivalent members as may be desirable and necessary. And although I have described my machine and claimed it in terms as a "bolt cutter" I do not intend to limit myself to such use, since by changes in the form of the jaws which would be obvious to any one skilled in the art, I can adapt the device to the cutting of other things than bolts, such as rods, bars, metal sheets and the like, and inasmuch as I contemplate so applying it, I do not desire by the use of the words "bolt cutter" in the specification and claims, to limit myself to any one particular use.

I claim—

1. In a bolt cutting machine, the combination of a frame, a cylinder adjacent thereto, levers pivoted in the framework and provided with cutting jaws at their outer ends, a piston in the cylinder, and means whereby the movement of this piston in one direction forces together the cutting jaws, substantially as described.

2. In a bolt cutting machine, the combination of a frame, a cylinder adjacent thereto, levers pivoted in the frame and provided with cutting jaws at their outer ends, a piston traveling in the cylinder, a rod connected to the piston and extending out of the cylinder, a cross head secured to such rod engaging with the levers and means for admitting fluid to the cylinder, whereby the piston is moved to rock the jaws together and sever the bolt, substantially as described.

3. In a bolt cutting machine, the combination of a frame, a cylinder secured thereto, levers pivoted in such frame and provided with cutting jaws at their outer ends, a piston moving in the cylinder and carrying a piston rod which extends out of the cylinder, a beveled cross head attached to such rod, means for admitting fluid to one side of the piston to force forward the cross head to rock the jaws and cut off the bolt, and springs for restoring the parts to their normal position when the pressure on the piston is released, substantially as described.

4. In a bolt cutting machine, the combination of a slotted frame, levers pivoted therein and provided with cutting jaws on their outer ends, a cross head engaging with the levers and provided with lugs engaging with the slots in the frame, and means for moving the cross head in both directions, substantially as described.

5. In a bolt cutting machine the combination of a frame, a cylinder secured thereto, levers pivoted in the frame and provided with acting jaws, a piston in the cylinder and a piston rod extending out of the cylinder and connected to the levers whereby as the piston moves back and forth the cutting jaws will be rocked together and separated, substantially as described.

ARCHIE M. BAIRD.

Witnesses:
JOHN PLAYER,
GEO. W. SMITH.