(No Model.) 2 Sheets—Sheet 1.

C. P. O'NEILL.

BEVEL SHEARING ATTACHMENT FOR PUNCHING MACHINES.

No. 593,778. Patented Nov. 16, 1897.

Fig: 1.

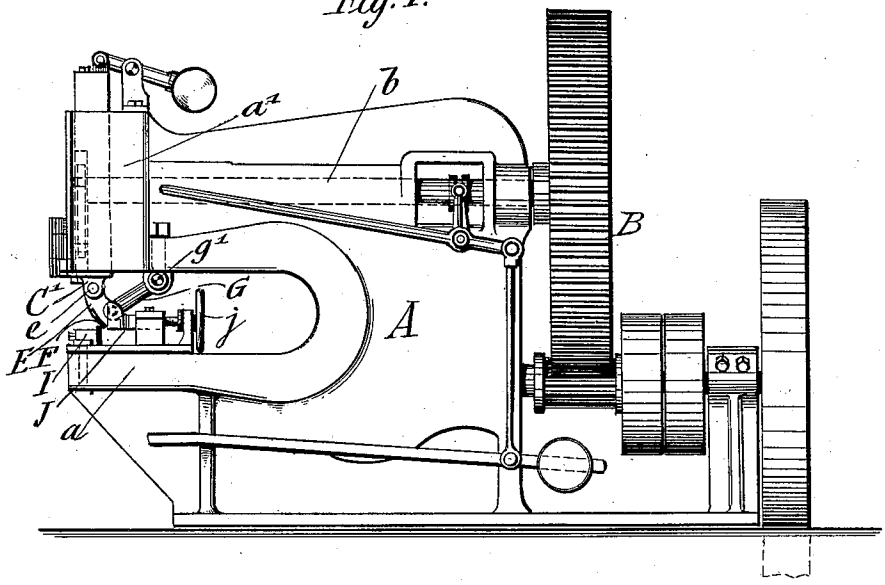
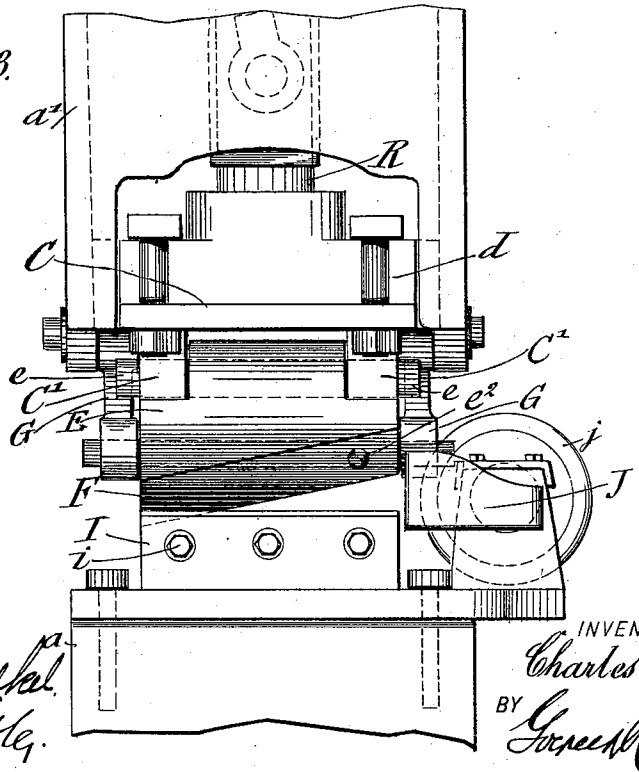


Fig: 3.



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INVENTOR

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(No Model.) 2 Sheets—Sheet 2.

C. P. O'NEILL.

BEVEL SHEARING ATTACHMENT FOR PUNCHING MACHINES.

No. 593,778. Patented Nov. 16, 1897.

Fig: 2.

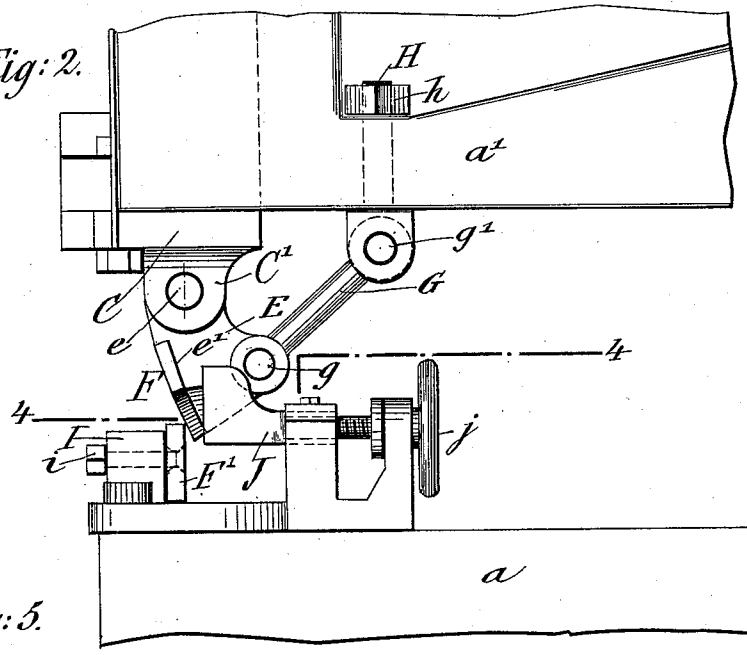


Fig: 5.

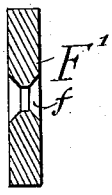


Fig: 4.

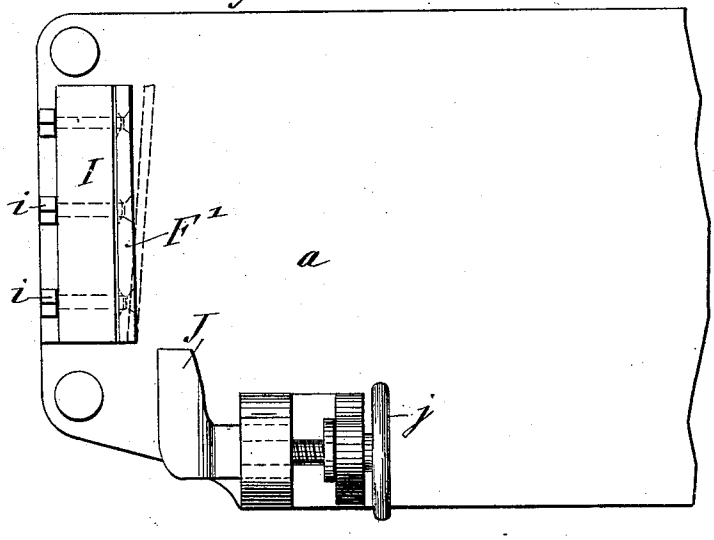
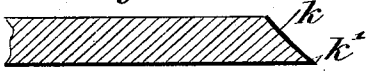


Fig: 6.



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UNITED STATES PATENT OFFICE.

CHARLES P. O'NEILL, OF BROOKLYN, NEW YORK, ASSIGNOR OF ONE-HALF TO GEORGE A. PHAIL, OF WINFIELD, AND FRANCIS E. KRUEGER, OF NEW YORK, N. Y.

BEVEL-SHEARING ATTACHMENT FOR PUNCHING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 593,778, dated November 16, 1897.

Application filed April 17, 1897. Serial No. 632,536. (No model.)

To all whom it may concern:

Be it known that I, CHARLES P. O'NEILL, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Bevel-Shearing Attachments to Punching-Machines, of which the following is a specification.

This invention relates to a bevel-shearing attachment for punching-machines of that character in which plate-iron or boiler-sheets are sheared, so as to impart a bevel cut for the known purpose of facilitating the tamping of the joints for making the same perfectly steam-tight; and the object of the invention is to improve upon the shearing attachments heretofore in use by constructing the same so that the most desirable bevel cut is imparted to the boiler-plates.

The invention consists in combination, with the lower arm or anvil of the punch, which is provided with a fixed blade and an adjustable stop adjacent to said blade, of a supporting-plate fixed to the reciprocating rod, to which the punch is ordinarily applied, a head pivoted at its upper portion to said supporting-plate and provided with a blade coacting to produce a shear cut in connecting with the fixed bottom blade, and a link pivoted to said head below its fulcrum and being connected to a suitable part of the punching-machine, said parts all being arranged within the throat of the machine.

In the accompanying drawings, Figure 1 is a side elevation of a punching-machine, showing my improved shearing attachment applied thereto. Fig. 2 is an enlarged side elevation of the shearing attachment, showing the parts of the punching-machine. Fig. 3 is a front elevation of the parts shown in Fig. 2. Fig. 4 is a plan view showing the parts of my improved attachment which are applied to the anvil-plate of the machine, the relative position of the movable shearing-blade being shown in dotted lines. Fig. 5 is a transverse section of the fixed shearing-blade, and Fig. 6 is a detail sectional view showing a bevel imparted to a boiler-plate by means of my improved shearing attachment.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents the frame of the ordinary punching-machine for punching flanges, heads, angle-irons, &c., which is provided, as usual, with the anvil portion a and the upper arm or drive-shaft portion a'.

The reciprocating rod R in the head of the punching-machine is operated in the usual manner, as by means of a suitable eccentric connection of the drive-shaft b therewith, which drive-shaft is operated by suitable power-transmitting mechanism B.

This improved shearing attachment is applied to the punching-machine without changing any of its parts, as by cutting away parts of or drilling new holes in the same.

The attachment consists, as more particularly shown in Figs. 2, 3, and 4, of a supporting-plate C, which is provided with depending lugs C′ and which is bolted, by means of bolts d, to the cross-head at the lower end of the reciprocating rod which usually carries the punch. The lugs C′ of this supporting-plate C are provided with bearings for the trunnions e at the upper part of an oscillating knife-head E, which carries the blade F, which is fitted in a suitable recess e' in said head and is firmly fastened or connected thereto by means of countersunk screws e^2. This head E, together with the blade F, which is fixed thereto, is caused to oscillate through the medium of links G, which are pivoted at g below the pivotal connection e of the head with the lugs C, while the rear ends of the links G are pivotally connected at g' with the lower ends of threaded bolts H, which by means of nuts h are clamped to the flange of the upper arm of the machine.

Below the oscillating head E and the knife carried thereby is fixed to a block I on the anvil portion of the machine, by means of bolts i, a blade F′. This blade F′ is arranged in such relation with respect to the upper blade F as that when the head E is oscillated said blade F will produce a shearing action upon a sheet of boiler-plate when said blade is moved across the cutting edge of the lower blade F′. In order to resemble more nearly a shearing action, the blade F is set at an angle with relation to the blade F′, as shown clearly in Fig. 3. As the reciprocating rod

of the machine is moved downwardly the head E is oscillated, and by reason of the drawing action of the links G the blade F is caused to describe a curve and its knife-edge is always in coöperative relation with respect to the knife-edge of the lower and fixed blade F'. The blade F' consists, preferably, of an oblong four-edged plate, each edge being adapted to act as a knife-edge. The blade F is to this end made adjustable to four positions by countersinking each end of the bolt-holes *f* through which the bolts *i* pass. (See Fig. 5.)

When a sheet of boiler-iron is to be cut to a bevel, as shown in Fig. 6, the outer edge of the same is placed in the throat of the punching-machine until it abuts against a stop J, which can be adjusted to great or less extent by means of the hand-wheel *j* in the well-known manner. The power mechanism B of the machine is now set in motion and the sheet sheared, so that the bevel *k* is produced, as shown in said Fig. 6. A thin tapering edge *k'* is thereby formed on the sheet of boiler-iron, so that said edge can be readily tamped for making the overlapping joints of the sheets steam-tight.

Having thus described my invention, what I claim is—

1. The combination with a punching-machine, of a shearing attachment arranged in the throat of the machine, and consisting of a supporting-plate fixed to the reciprocating rod in the upper arm of the machine, a knife-head pivoted to said supporting-plate and provided with a cutting-blade, links pivoted at one end to the said head below its pivotal connection with the supporting-plate, and at the other end being pivotally connected with a support on the upper arm of the machine, and a fixed blade arranged upon the anvil portion of the machine, substantially as set forth.

2. The herein-described shearing attachment for punching-machines, comprising a lower fixed blade, a supporting-plate, an oscillating head pivoted to the supporting-plate and provided with a cutting-blade, links pivoted to the said head at one end, fastening-bolts to which the other ends of the links are pivoted, and means for securing said parts to the punching-machine, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

CHARLES P. O'NEILL.

Witnesses:

GEO. L. WHEELOCK,

GEO. W. JAEKEL.