J. & T. McGREGOR.

MACHINES FOR SHEARING BOILER PLATES.

No. 180,614. Patented Aug. 1, 1876.

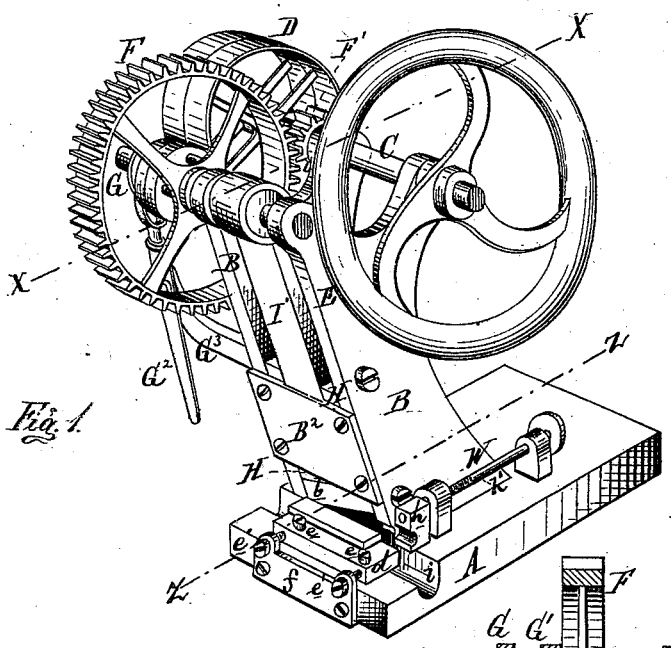

Fig. 1.

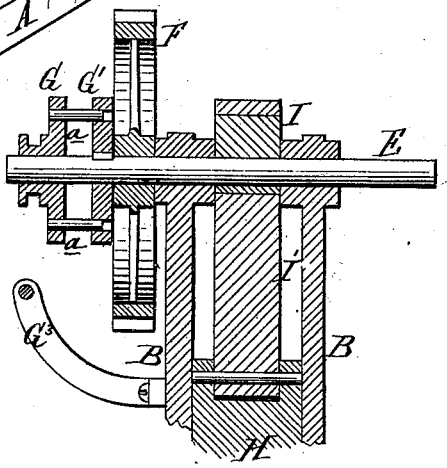

Fig. 3.

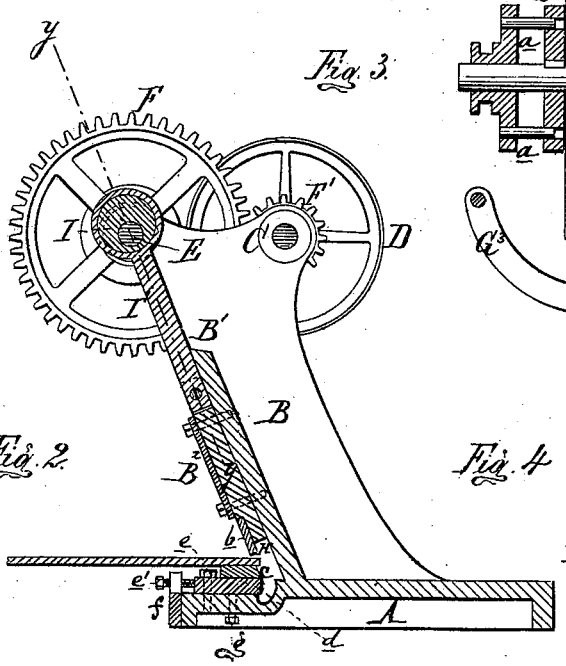

Fig. 2.

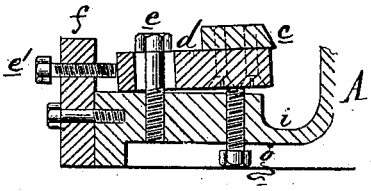

Fig. 4.

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UNITED STATES PATENT OFFICE.

JOHN McGREGOR AND THOMAS McGREGOR, OF DETROIT, MICHIGAN.

IMPROVEMENT IN MACHINES FOR SHEARING BOILER-PLATES.

Specification forming part of Letters Patent No. **180,614**, dated August 1, 1876; application filed May 3, 1876.

To all whom it may concern:

Be it known that we, JOHN McGREGOR and THOMAS McGREGOR, of Detroit, in the county of Wayne and State of Michigan, have invented an Improvement in Boiler-Plate Shears, of which the following is a specification:

The object we have in view is to so construct a shears designed for cutting boiler-plate with a bevel on the edge, leaving the same ready for calking, as to afford increased facilities for removing, replacing, sharpening, and adjusting the stationary shear-block with relation to the movable shear-blade, and also to so adjust the same as that the angle or bevel upon which the plate-edge is sheared may be changed to suit the character of the plate.

Figure 1 is a perspective view. Fig. 2 is a transverse vertical section at *x x*. Fig. 3 is a cross-section at *y y*. Fig. 4 is an enlarged cross-section at *z z*.

In the drawing, A represents a bed-plate, having cast therewith two parallel standards, B B, inclined to overhang the cutting point, as shown. C is a driving-shaft, journaled through bearings at the upper rear corners of the standards, provided with a heavy balance-wheel at one end, and fast and loose pulleys D at the other end, so that it may be driven by a belt. E is a counter-shaft, journaled through brackets at the front upper corners of the standards, and on it is sleeved a large spur-wheel, F, which is slowly driven by a pinion, F′, keyed on the shaft C.

The counter-shaft may be set in motion by a pin-clutch box, G, sleeved thereon, with two pins, *a a*, sliding through holes in a collar, G^1, keyed on said shaft, to engage with studs projecting from the side of the adjacent spur-gear F. The sliding box G may be actuated by a lever, G^2, pivoted on a bracket, G^3, at the side of the standard, as shown. Any other form of clutch-box may, however, be used, if preferred.

H is a plunger, reciprocated between the standards in inclined ways, formed by a transverse web-plate, B^1, between said standards, and a face-plate, B^2, bolted to their front edges. The reciprocation of the plunger is effected by an eccentric, I, on the counter-shaft, through an eccentric rod, I′, pivoted to the head of said plunger, the lower end of which has a shear-blade, *b*, bolted to its face, which moves with a drawing cut past the beveled cutting-edge of a stationary shear-blade, *c*, bolted onto the upper side of a shear-block, *d*, lying on the front edge of the bed-plate, and to which it is secured by two tap-bolts, *e*, passing down through slots in said block and tapped into the bed-plate. The slots allow the block to be adjusted with relation to the movable shear-blade, such adjustment being facilitated by two other bolts, *e′ e′*, tapped through a flange-plate, *f*, bolted onto the front end of the bed-plate, said bolts also serving to relieve the bolts *e* from the backward thrust of the block in shearing. *g* are bolts tapped up through the recessed body of the bed-plate, to impinge upon the under side of the block *d*, whereby the latter (and its blade) can be tilted up more or less, to give the required angle or bevel of cut, which must be greater or more acute in thin plate than in thick, in order to calk properly. Similar bolts *g* are placed under the front edge of said block to tilt it in the opposite direction, but, not being in the same line as the others, are not seen in the cross-sections, Figs. 2 and 4, and are not shown in elevation to avoid crowding the parts in said figures. *h* is a gage at the side of the standard, to regulate the thickness or width of the strip to be sheared from the edge of the plate, and is adjusted by means of a screw, *h′*, tapped through lugs on the bed-plate, as shown, whereby the "cut" can be regulated without removing the sheet of plate being sheared.

We do not wish to be confined to the use of the bolts *g* for changing the inclinations of the shear-block, as it is evident that a metal wedge may be used under it to accomplish the purpose.

When the shear-block is in its normal position, lying flat on the bed-plate, the bevel will be the proper one for the ordinary or usual thickness of boiler-plate, each sheet lying on it in a horizontal position; but for other thicknesses the plates are shifted slightly out of the horizontal plane. *i* is a depression or trough in the bed-plate for the clippings to drop into.

What we claim as our invention is—

1. In a plate-shears, substantially as described, the combination, with the horizontal bed-plate and its inclined standards, of the driving and counter shafts, the pinion, spur-wheel, and clutch-box, for reciprocating the cutting-blade through an eccentric on said counter-shaft and the connecting-rod, substantially as set forth.

2. The stationary shear-blade block, adjustably secured to the bed-plate, and provided with a means for inclining it in either direction with relation to the moving shear-blade, substantially as and for the purpose set forth.

3. In a plate-shearing machine, the combination of the inclined reciprocating knife, the adjustable stationary shear-block, the bolts for adjusting such block, and the gage, all constructed and arranged substantially as described and shown.

JOHN McGREGOR.
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Witnesses:
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H. S. SPRAGUE.