No. 743,620. PATENTED NOV. 10, 1903.

W. CROSSLEY.

MULTIPLE PUNCHING PRESS.

APPLICATION FILED OCT. 3, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1

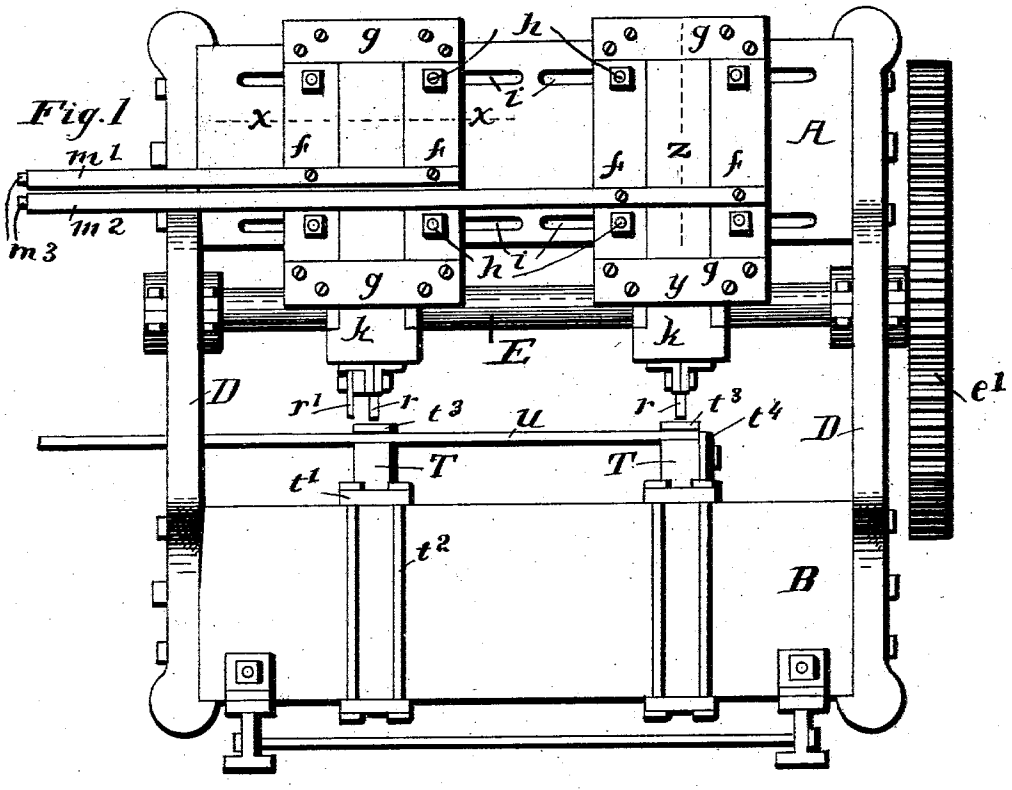
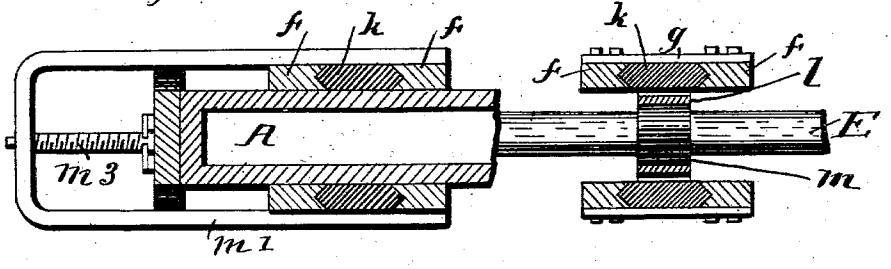


Fig. 2



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Willis Barnes

Inventor:

William Crossley

By George L. Barnes Atty.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 4

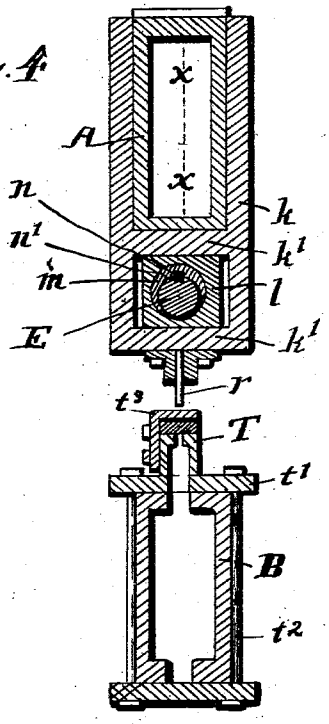


Fig. 3

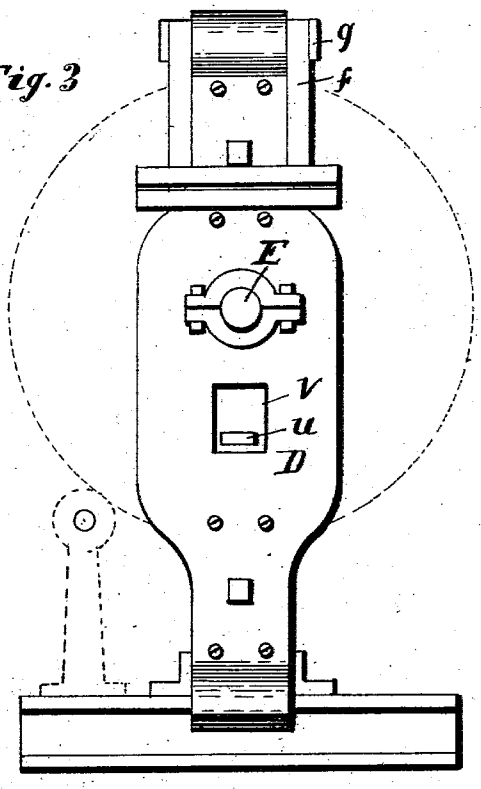


Fig. 5

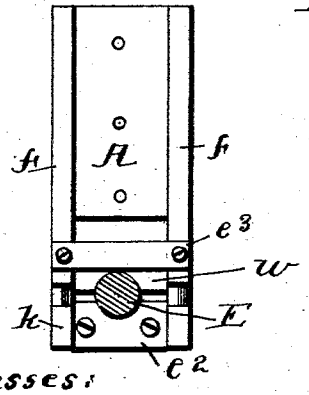
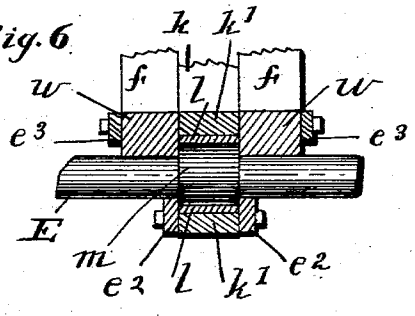


Fig. 6



Witnesses:

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No. 743,620. Patented November 10, 1903.

UNITED STATES PATENT OFFICE.

WILLIAM CROSSLEY, OF WESTHAVEN, CONNECTICUT.

MULTIPLE PUNCHING-PRESS.

SPECIFICATION forming part of Letters Patent No. 743,620, dated November 10, 1903.

Application filed October 3, 1902. Serial No. 125,756. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM CROSSLEY, a citizen of the United States, and a resident of Westhaven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Multiple Punching-Presses, of which the following is a full, clear, and exact specification.

The object of my invention is to provide press mechanism adapted for multiple punching or shearing operations, such as simultaneously perforating, cutting, or trimming both ends of a metal bar or analogous work.

The invention consists in the novel construction, arrangement, and combination of the parts of the mechanism, as hereinafter more fully described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a front elevation of my improved multiple punching-press. Fig. 2 is a horizontal section on the lines x and y of Fig. 1. Fig. 3 is an end elevation. Fig. 4 is a vertical cross-section on the line z of Fig. 1. Fig. 5 is an end view of the girder and punching-head as seen with the end part of the frame removed. Fig. 6 is a vertical lengthwise section through the punching-head and shaft on the line X X, Fig. 4.

Referring to the drawings, the frame of the machine is shown to consist of deep heavy upper and lower horizontal girders A B, connected at the ends by the vertical tie-plates D, which are securely bolted to the girders, as shown, the whole being mounted upon a suitable foundation of I-beams or other required construction. Journaled in said end tie-plates is a horizontal shaft E in the plane of the girders and near the upper girder A, the shaft being provided with a gear e' and driven by any suitable motive mechanism.

On each vertical side of the upper girder A are two pairs of ways comprising the vertical pieces f, grooved on their inner edges and connected at each end by the cross-bars g, bolted thereto, the corresponding ways on each side of the girder being in the same cross-plane and adjustably secured by bolts h, passing through suitable slots i in the girder. In the aforesaid ways are fitted the slides k, comprising two vertical parts spanning the girder and joined below the same by the cross-webs k'. In the rectangular space between said cross-webs in each slide a block l is fitted and adapted to slide transversely, bored to receive an eccentric m, which is carried on the shaft E. Each eccentric is fitted loosely upon the shaft and provided with a key n, which fits a spline n' in the shaft, whereby the eccentric may readily be moved along the shaft to any required position and always turn therewith.

To the lower end of the slides are attached the punches, shears, or other required cutting-tools, in the present instance consisting of a punch r on one of the slides and a similar punch and a shearing cutter r' on the other. Suitable anvil-blocks T are supported on the lower girder, adjustably held thereon by straps t' and holding-bolts t^2. Stripping-plates t^3 are attached to the anvil-blocks to prevent the lifting of the work by the withdrawal of the punches, and a stop t^4 is secured to one of the anvil-blocks, as shown, against which the work or bar of metal u is abutted and its position under the punches located when fed beneath them through the aperture V in the end tie-plate, as shown in Fig. 1.

At each side of the eccentric m the half boxes or bearings w are mounted, bearing between the shaft and the upper girder. By this construction the working thrust of the punches is transmitted directly to and received by the girder and there is no tendency to spring the shaft. All the parts may be adjusted at any position on the girders, and to facilitate moving the punching-heads comprised by the slides and their ways horizontal yokes m' m^3 are secured to the ways and provided with adjusting-screws m^3, journaled in the end tie-plates, as shown in Fig. 2. Plates e^2 are secured to the lower cross-web k' on each side of the eccentrics to hold the eccentrics in place in the slides. Suitable means are also provided to retain the boxes w in position, straps e^3 being secured to the slide for that purpose, as shown in Fig. 5. Both boxes and eccentrics are thus compelled to move along with the punching-head as it is adjusted on the girder and shaft.

In operation both punches make their stroke in unison, cutting off the bar u to the desired length and punching a hole in each

end of the detached piece. The straps thus formed are in use as an article of manufacture, being employed largely for braces for the cross-arms of telegraph-poles and analogous requirements.

I claim and desire to secure by Letters Patent—

1. A multiple punching-press comprising in combination a girder, a series of guides movably secured thereon, punch-carrying slides spanning the girder and adapted to reciprocate in said guides, a shaft in the moving plane of the slides parallel with the girder, eccentrics mounted on the shaft and movable lengthwise thereto, boxes fitted on the eccentrics and adapted to transverse sliding movement in the slides, journal-bearings adjacent the eccentrics interposed between the shaft and girder to impose the thrust of the eccentrics upon the girder, an anvil-girder for receiving the impact of the punching mechanism, anvil-blocks adjustably secured thereon, and means for adjusting and securing the punching mechanism in various positions on the girders, substantially in the manner and for the purpose specified.

2. A multiple punching-press comprising in combination a supporting-girder, a series of guides *f* movably fitted on the girder and secured by bolts passing through slots therein, the punch-carrying slides *k* fitted in the guides and spanning the girder, the anvil-girder and the vertical tie-plates connecting the girders, a shaft journaled in said tie-plates between the girders, the eccentrics keyed to the shaft movable lengthwise thereon, the boxes *l* fitting the eccentrics and adapted to transverse sliding movement in the slides, journal-bearings adjacent the eccentrics interposed between the shaft and girder to impose the thrust of the eccentrics upon the girders, means for confining the boxes and eccentrics in place in the slides, the anvil-blocks adjustably secured upon the anvil-girder, and means for adjusting the slides and their ways upon the supporting-guides, substantially as and for the purpose specified.

Signed by me at Westhaven, Connecticut, this 24th day of September, 1902.

WILLIAM CROSSLEY.

Witnesses:

THOMAS C. BRETT,

GEORGE L. BARNES.