B. QUAST.

BLOCK AND BAR SHEARS.

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1,349,915.

Patented Aug. 17, 1920.

Fig. 1

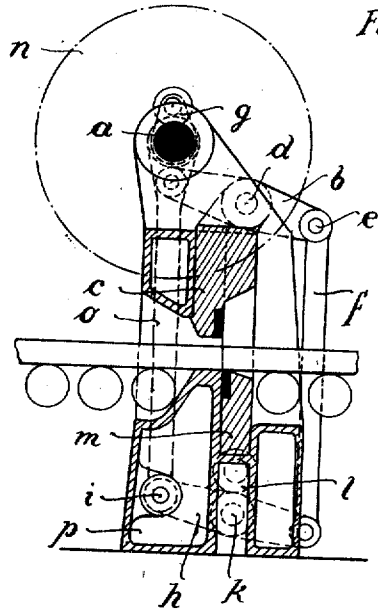
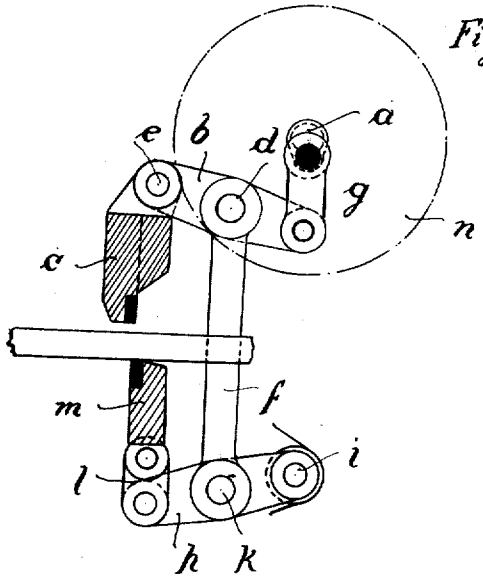


Fig. 2



Witnesses:
Olga Weniguruth,
Hub. Schmorrenberg

Inventor
B. Quast
by F. Dittmar
Attorney

UNITED STATES PATENT OFFICE.

BRUNO QUAST, OF CÖLN-DEUTZ, PRUSSIA, GERMANY.

BLOCK AND BAR SHEARS.

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To all whom it may concern:

Be it known that I, BRUNO QUAST, a subject to the King of Prussia, German Emperor, residing at No. 9 Reischplatz, Cöln-Deutz, Prussia, Germany, have invented certain new and useful Improvements in Block and Bar Shears, of which the following is a specification.

This invention relates to certain new and useful improvements in block-and-bar shears and it has for its objects among others to provide a simplified and improved device of this character which shall reduce materially the weight, lessen the cost and render less difficult the operation.

Other objects and advantages of the invention will hereinafter appear and the novel features thereof will be particularly pointed out in the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the numerals of reference marked thereon, form a part of this specification, and in which—

Figure 1 is a vertical section of the device complete, and

Fig. 2 is a vertical section of a modified form.

Like numerals of reference indicate like parts in the two views.

Referring first to Fig. 1, *a* designates a crank shaft mounted in suitable bearings and adapted by means of cranks and links *g* to impart motion to a double-armed lever *b*, which latter is mounted for movement on the pivot *d*, the upper cutter head *c* being carried by said pivot. The double-armed lever *b* is fulcrumed on the fulcrum *e* to which is pivotally connected the draft bar *f*, to the lower end of which is pivotally connected one end of the single-armed lever *h*, which latter is pivotally mounted, as at *i*, in a bearing on the frame of the machine. To this lever *h* is connected the lower cutter head *m* by means of links *l* mounted upon the pivots *k*.

o are draft bars disposed between the crank shaft *a* and the pivot *i*, as illustrated.

In operation, motion is imparted to the double-armed lever *b* by means of the cranks and links *g* actuated from the crank shaft *a* and during the downward movement of the upper cutter head the double-armed lever *b* will only act on said cutter head as a single-armed lever. As soon as the upper cutter head has reached the lowest point of its stroke, the said lever *b* will turn upon the supporting pivot *d*, the latter now offering greater resistance than the fulcrum *e*. Consequently, the lever *b* will then act as a double-armed lever, raising the draft bar *f* and, consequently, the lever *h*. The latter turns upon the fulcrum *i*. During the upward movement of the lower cutter, the block shown in position in Fig. 1 between the two cutters, is severed, after which the return movement of the two cutter heads is brought about, the lower cutter head being lowered first and the upper cutter head beginning to rise as soon as the lower cutter head has reached its lowermost position.

In the form shown in Fig. 2, the operation is substantially the same except that the double-armed lever *b* acts as such during the descent of the upper cutter head and as a single-armed lever during the upward motion of the lower cutter head. The only difference between the two constructions is practically that in the form shown in Fig. 1 the draft bar *f* and the crank shaft *a* are located at opposite sides of the two cutter heads, thus inclosing the same between them, while in the form shown in Fig. 2 the two cutter heads *c* and *m* are located at the same side of the crank shaft with the draft bar *f*.

The links *o* serve to take up and resist the counterforces arising in the crank shaft *a* and supporting point *i*, said links *o* serving to take up all forces with the exception of the shearing power proper employed to sever the block and absorbed by the shearing of said block.

It is to be understood that there is a draft bar *f* and a draft bar *o* at each side of the machine, but only one of each is seen in the sectional views.

The standard *p* serves to guide the cutter heads and to carry the bearings of the driving gear and this will not undergo any other pressures than sundry lateral forces occurring during the severing operation of the block and some slight pressures of the teeth of the driving gear.

What is claimed as new is:—

1. In a block-and-bar shearing machine, the combination with a crank shaft, of upper and lower cutter heads, a lever carrying one of the cutter heads and operatively connected with the crank shaft, a lever connected with the other cutter head, a draft bar connection between said levers, one of

said levers serving as a single-armed lever for a portion of its movement and as a double-armed lever for the remainder of its movement.

2. In a block-and-bar shearing machine, the combination with a crank shaft, of upper and lower cutter heads, a lever carrying one of the cutter heads and operatively connected with the crank shaft, a lever connected with the other cutter head, a draft bar connection between said levers, one of said levers serving as a single-armed lever for a portion of its movement and as a double-armed lever for the remainder of its movement, said crank shaft and draft bar being located at opposite sides of the cutter heads.

In testimony whereof I have affixed my signature.

BRUNO QUAST.