

(No Model.)

A. O. KITTREDGE.
CIRCLE AND GASKET CUTTER.

No. 362,218.

Patented May 3, 1887.

Fig. 1.

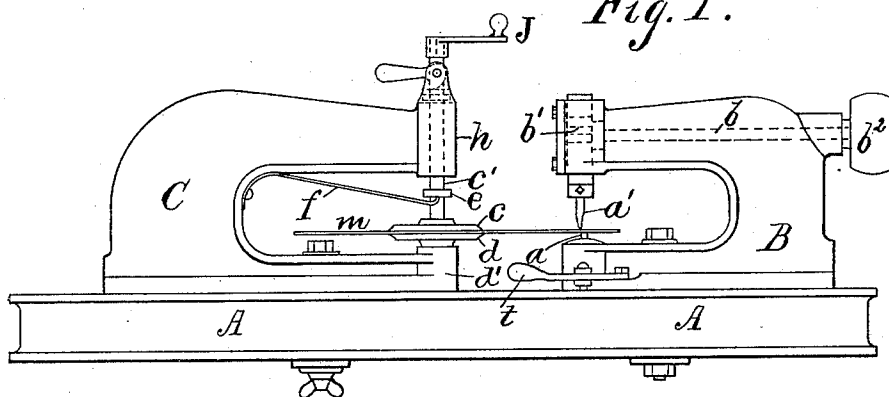


Fig. 2.

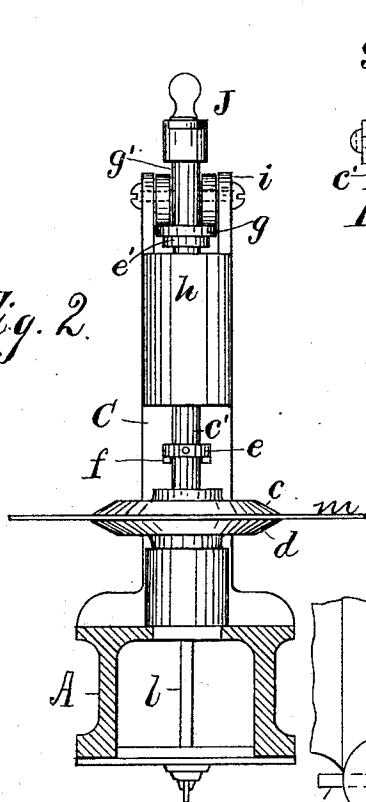
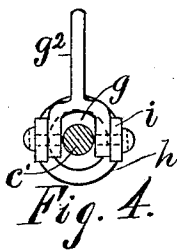


Fig. 4.

Fig. 3.

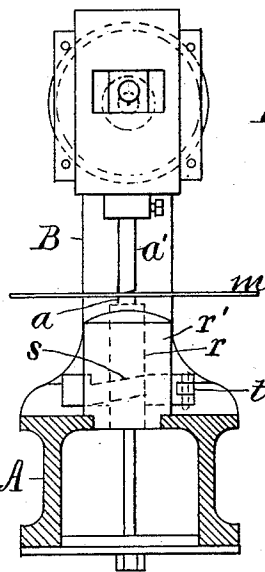
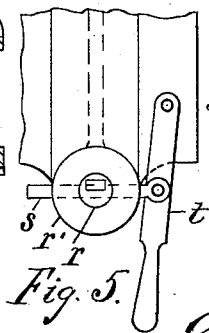


Fig. 5.

Attest:

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Crane & Miller, attys.

UNITED STATES PATENT OFFICE.

ANSON O. KITTREDGE, OF SLATE HILL, NEW YORK, ASSIGNOR TO THE
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CIRCLE AND GASKET CUTTER.

SPECIFICATION forming part of Letters Patent No. 362,218, dated May 3, 1887.

Application filed September 16, 1886. Serial No. 213,706. (No model.)

To all whom it may concern:

Be it known that I, ANSON O. KITTREDGE, a citizen of the United States, residing at Slate Hill, Orange county, New York, have invented certain new and useful Improvements in Circle and Gasket Cutters, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

The object of this invention is to combine a pair of clamping-disks removably with a frame carrying a reciprocating cutter, so that the apparatus may be used with the disks for cutting circles and without the disks for various kinds of scroll-work.

The combination of a rotary clamp with a pair of narrow shearing-cutters and with means for separating the cutters and again bringing them into action adapts the machine to cut annular rings or gaskets of sheet metal in the most rapid and perfect manner.

The invention consists, substantially, in the combinations hereinafter described and claimed.

My invention differs from the ordinary circle-cutters having rotating shearing-blades and a pair of clamping-disks in having a bed with a reciprocating cutter mounted thereon, and having an adjustable goose-neck frame fastened adjustably upon the bed and sustaining a pair of rotary clamps on a level with the cutting-edges, such clamps being provided with means for separating and pressing them together, and with means for rotating them positively when clamped upon the sheet-metal plate.

It also consists in various details of construction, hereinafter set forth.

The construction will be understood by reference to the annexed drawings, in which—

Figure 1 is a side elevation of the entire machine. Fig. 2 is an end elevation of the clamping devices with the bed in section. Fig. 3 is an end elevation of the cutting devices with the bed in section, and Fig. 4 is a plan of the clamping-spindle and its cam with the spindle-crank removed. Fig. 5 is a plan of the cutter-shifting devices. Figs. 2, 3, 4, and 5 are upon a larger scale than Fig. 1.

A is the bed of the machine, upon which two goose-neck frames are secured.

B is the frame carrying the cutting mechanism, which consists in a lower adjustable fixed cutter, *a*, and an upper reciprocating cutter, *a'*, actuated by a shaft, *b*, having a crank-pin, *b'*, at its forward end, and a driving-pulley, *b''*, at its rear end.

By the application of a belt to the pulley the cutter *a'* is reciprocated continuously in contact with the lower cutter, and the movement of the sheet metal against the cutters suffices to cut it in the desired manner. The cutting-edges are arranged transversely to the bed to operate tangentially to the clamping-disks *c* and *d*, which are mounted upon a goose-neck frame, *C*, at the opposite end of the bed from the frame *B*.

The disk *d* is pivoted upon a stem, *d'*, in the lower arm of the goose-neck, and the upper disk, *c*, is carried upon a spindle, *c'*, journaled in a bearing, *h*, upon the upper arm of the goose-neck. A spring, *f*, operates upon a collar, *e*, on said spindle, to keep it normally raised to separate the clamping-disks. A collar, *e'*, is formed upon the spindle above the bearing *h*, and a loose washer, *g*, is placed thereon to receive the pressure of a forked cam, *g'*. The cam is pivoted between ears *i* upon the top of the bearing *h*, and is provided with a handle, *g''*, to actuate it as required. The cam is provided with eccentric faces in contact with the washers *g*, the spring *f* tending to press the washer against such faces, and the movement of the handle downward, as shown in Fig. 1, operates to depress the spindle and to clamp the disks rigidly together, the cam-faces being constructed to jam upon the washer when thus clamped and to lock them in such position. The upper end of the spindle is provided with a crank, *J*, and when the disks are thus locked the turning of the crank operates to rotate them with any sheet metal, as *m*, that may be clamped between them, and to carry the margin of the latter around between the cutters *a a'*. Sheets of square form may therefore be readily clamped between the disks and rotated in contact with the cutters to trim them to a circular form, the magnitude of the circle depending upon the adjustment of the clamping-spindle in relation to the cutters. Such adjustment may be varied at pleasure by shifting the goose-neck frame

C upon the bed, the frame being held when thus adjusted by a clamping-screw, *l*. The cutter *a* is provided with means for drawing it downward, to admit the sheet metal between the cutters and for raising it in contact with the upper cutter to bring it into action. The means for thus shifting the cutter is shown as a slotted spindle, *r*, movable vertically in a bearing, *r'*, in the front end of the frame B, and having a key, *s*, with opposite inclined faces, fitted in such bearing and slot, and movable by means of a handle, *t*. Any other means, as a lever or screw applied directly to the spindle *r*, may be used. The cut may thus be commenced within the margin of the sheet metal, and the same may be readily trimmed of smaller diameter than the original sheet; or, after it has been trimmed, the shears may, by the shifting of the goose-neck *c*, be applied within the margin of the metal at any desired distance, and the cutter brought into action to separate the part first trimmed from the central portion. Such an annular ring or gasket is in frequent demand in workingsheet metal, and may be thus readily formed in the most perfect manner and without the use of hand-tools, such as are often employed for the purpose.

I am aware that an adjustable frame carrying clamping-plates is commonly used in connection with rotary shears to constitute a circle-cutter, and I do not therefore claim the combination of clamping-plates with a cutting device as my invention; but in the circle-cutters constructed with a rotary shears the latter usually operates as a feeding device to rotate the sheet metal upon the pivots formed by the opposed clamps, and no means is required (like the crank J, shown herein) for rotating the clamps independently of the sheet metal.

By my construction the goose-neck frame carrying the clamping-disks can be detached from the bed and replaced by a table, and the reciprocating cutter may be then used for scroll-work of different kinds very much as a scroll-saw is used in cutting wood. The cutter thus becomes useful in cornice and bracket work of various kinds, and is not restricted exclusively to the cutting of circles or straight lines, as is the case with the circle-cutters heretofore constructed with rotary shears.

In my construction the clamping-spindle is required to project above its bearing in the end of the goose-neck, that the turning-handle may be applied, and a construction for the clamping agent is therefore required different from those used heretofore in which the clamping-pressure could be applied without interference to the top end of the spindle.

It is obvious that the spring might be affixed to the top of the goose-neck frame and be applied to the collar *e'*, instead of using a separate collar, *e*.

Having thus set forth the nature and advantages of my improvement, what I claim is—

1. The combination, with the frame B, carrying a reciprocating cutter, of a bed adapted to receive a removable and adjustable rotary clamping device for applying sheet metal to the cutters, substantially as set forth.

2. The combination, with a bed, of a reciprocating cutter mounted upon one end thereof, and a goose-neck frame carrying a rotary clamping device and secured adjustably upon the bed, substantially as herein set forth.

3. The combination, with a bed having a reciprocating cutter mounted upon one end thereof, of a goose-neck frame carrying a rotary clamping device provided with a cam to actuate the clamping-disks, and a handle or crank for turning the same, substantially as set forth.

4. The circle-cutter herein described, consisting in a bed, A, a reciprocating cutter mounted upon one end thereof, an adjustable goose-neck frame, C, a clamping-disk, *d*, a spindle, *e'*, carrying a clamping-disk, *e*, and provided at its upper end with a crank, J, a spring to raise the spindle, and a cam operating beneath the crank J to depress the spindle and to lock the same upon the sheet metal, substantially as herein set forth.

5. The circle-cutter herein shown and described, and adapted to cut gaskets of sheet metal, consisting in the bed having a reciprocating cutter mounted upon one end thereof, and provided with means for moving the cutters to and from one another, to bring the cutters into action within the margin of the metal, and a rotary clamping device secured adjustably upon the bed and adapted to hold the sheet metal upon a level with the cutting-edges and to rotate the sheet metal during the cutting operation.

6. In a machine for cutting gaskets of sheet metal, a pair of shearing-cutters, means for separating them to introduce the sheet metal, and means for rotating the sheet metal, as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ANSON O. KITTREDGE.

Witnesses:

JENNIE VAN WYCK,
THOS. S. CRANE.