

No. 897,344.

PATENTED SEPT. 1, 1908.

T. J. BRAY & G. C. SHACKLEFORD.
SHEAR MECHANISM.

APPLICATION FILED APR. 6, 1908.

2 SHEETS—SHEET 2.

FIG. 5.

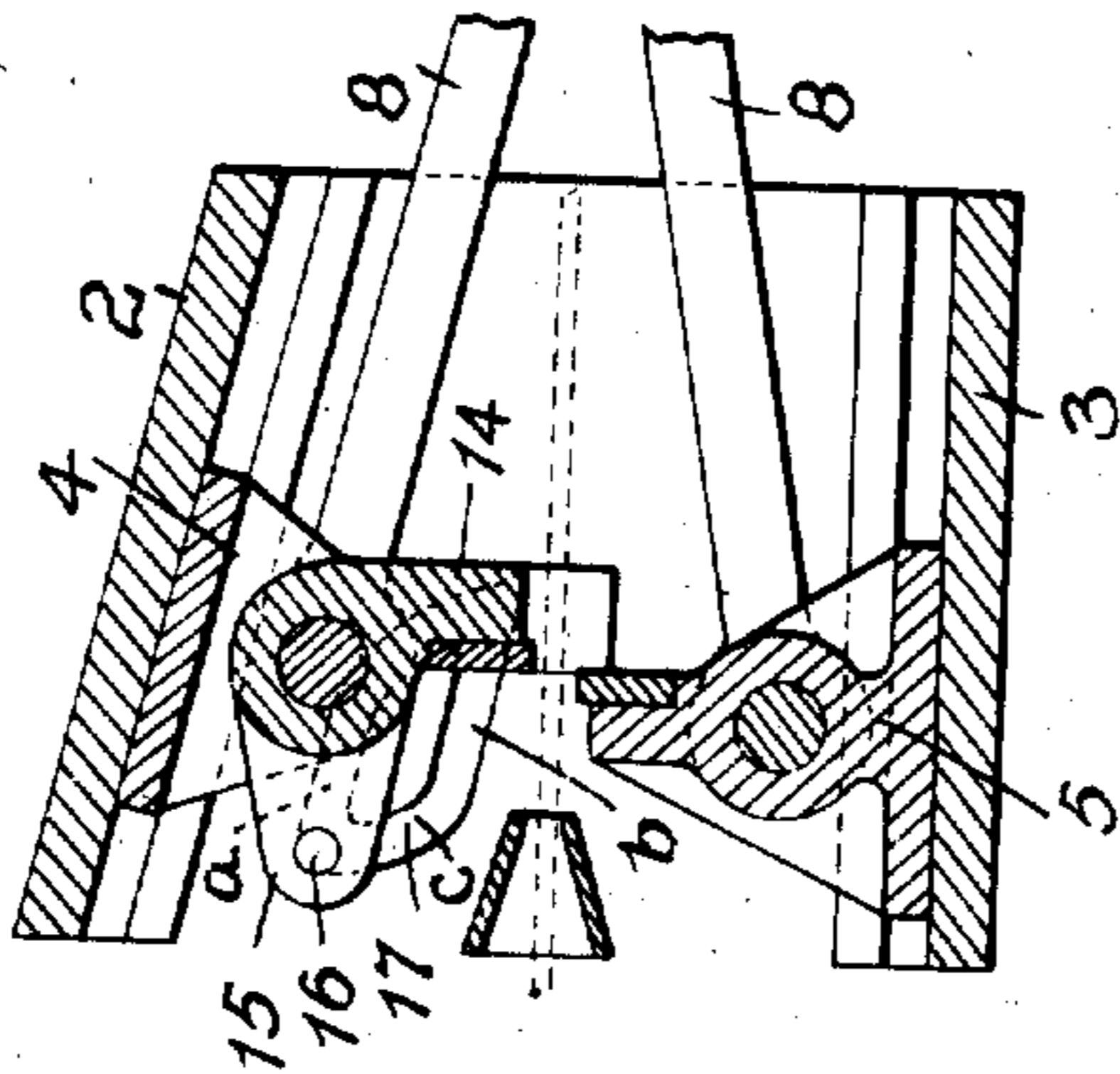


FIG. 4.

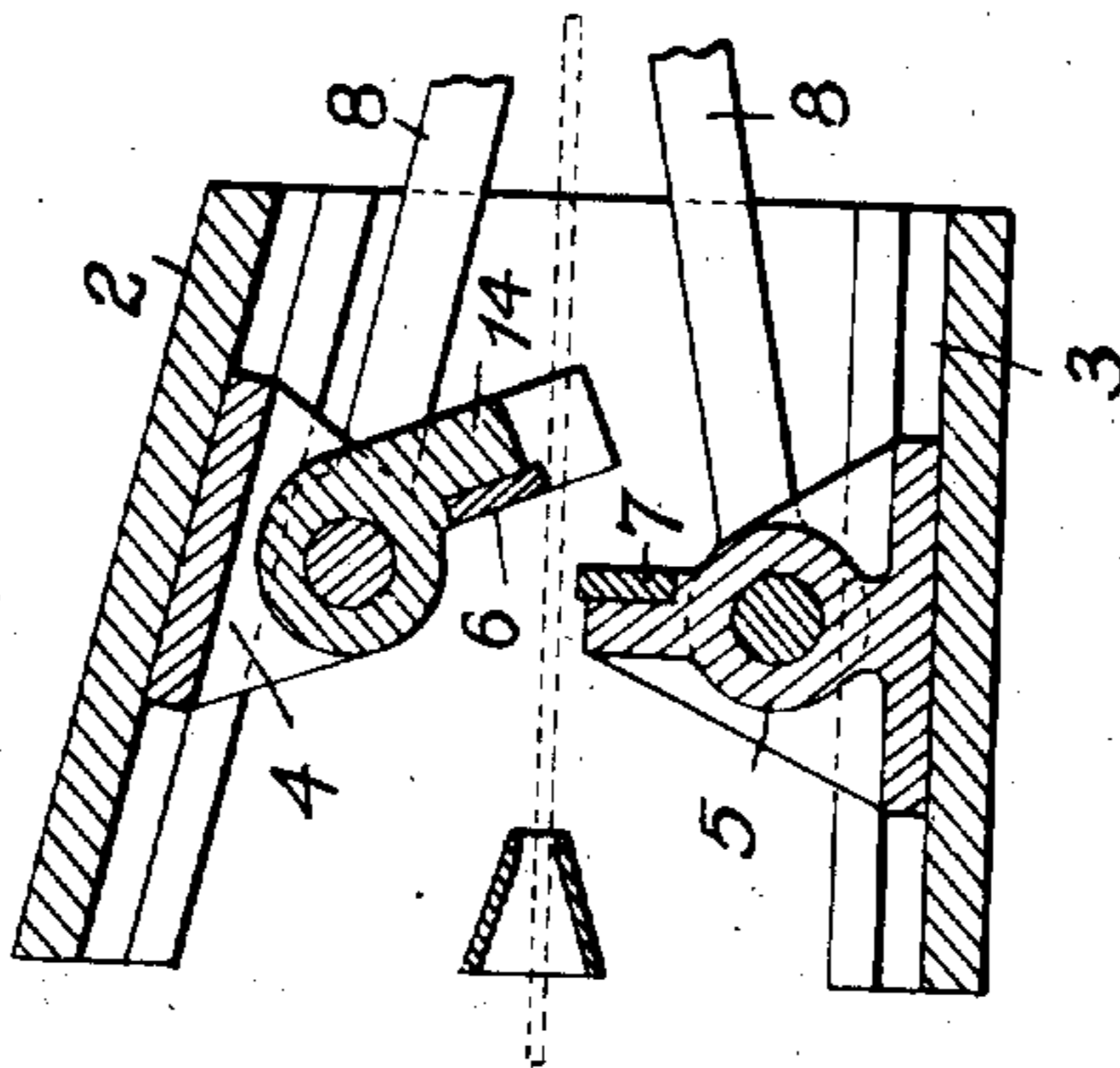
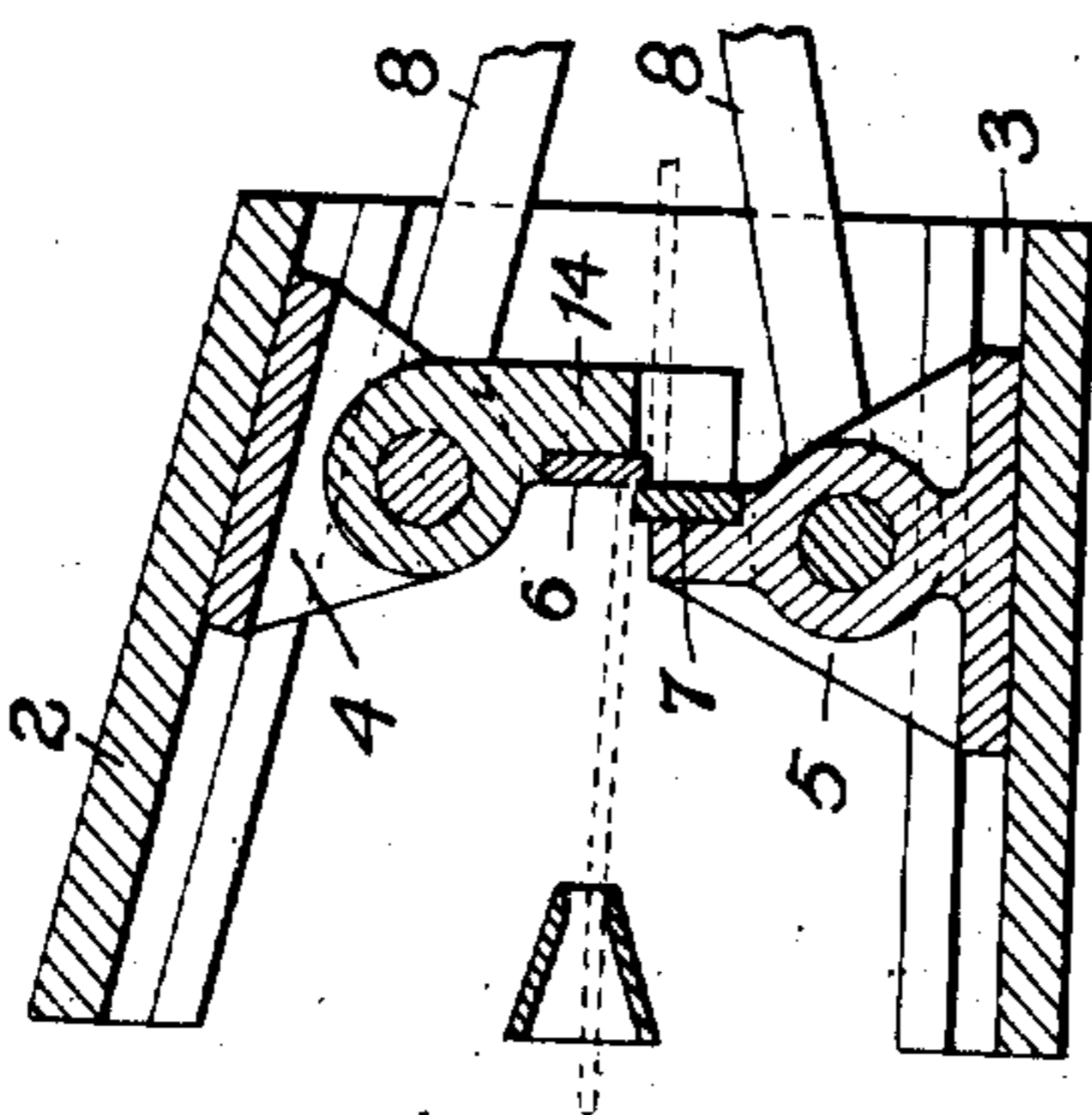


FIG. 3.



WITNESSES

J. Herbert Bradley
Francis J. Tompason

INVENTORS

Thomas J. Bray
Gibson C. Shackelford
by Christie & Christie
Attys.

UNITED STATES PATENT OFFICE.

THOMAS J. BRAY, OF PITTSBURG, PENNSYLVANIA, AND GIBBON C. SHACKLEFORD,
OF YOUNGSTOWN, OHIO.

SHEAR MECHANISM.

No. 897,344.

Specification of Letters Patent.

Patented Sept. 1, 1908.

Application filed April 6, 1908. Serial No. 425,519.

To all whom it may concern:

Be it known that we, THOMAS J. BRAY, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, and GIBBON C. SHACKLEFORD, residing at Youngstown, in the county of Mahoning and State of Ohio, citizens of the United States, have invented or discovered certain new and useful Improvements in Shear Mechanism, of which improvements the following is a specification.

The invention described herein relates to certain improvements in that class or kind of mechanism known as "flying shear" which are moved along with the article to be sheared during the shearing operation.

The invention is hereinafter more fully described and claimed.

In the accompanying drawings forming a part of this specification Figure 1 is an end elevation of a shear mechanism embodying our improvements; Fig. 2 is a sectional elevation of the same on a plane indicated by the line II—II Fig. 1; Figs. 3 and 4 are sectional detail views showing the positions of the blades during and subsequent to the shearing operation; and Fig. 5 is a sectional detail view showing a means for locking the swinging blade during shearing and for shifting and restoring it to operative position.

In the practice of our invention the shearing elements and their operating mechanisms are mounted in a suitable frame or housing 1, which is placed in the line of feed of the article to be cut. This frame or housing is provided with guides 2 and 3 arranged on opposite sides of the line of movement of the billet rod, etc. Heads or blocks 4 and 5 are movably mounted in these guides, which are so arranged relative to the line of movement of the billet or other article that the lines of movement of the blades 6 and 7 carried by the heads will bisect each other and the line of movement of the article at approximately the same point. As will be readily understood by those skilled in the art, either or both of the guides may be arranged in a plane intersecting the line of movement of the billet or other article. In the construction shown one of the guide-ways as 3 is parallel or approximately parallel with the line of movement of the billet while the other guide 2 is arranged at an acute angle thereto, so that as the head 4 is shifted in the direction of movement of the billet, it will approach the latter.

The shear heads may be reciprocated by any suitable means adapted to cause the heads to move synchronously. In the construction shown the heads are connected by links 8 to arms 9, secured to a shaft 10. The upper ends of the arms are connected to a cross-head 11 mounted in guides 12, said cross-head being reciprocated by any suitable means as the fluid pressure cylinder 13.

In order that there may not be any interference with the onward movement of the billet or other article after a shearing has been effected and during the return movement of the heads 2 and 3, the cutting blade which intersects the line of movement of the billet, is so mounted on its head as to be capable of movement out of the path of the billet. In the construction shown the shear-blade 6 is secured to a block 14 pivotally mounted in the head 4, so as to be capable of swinging upwards and in the direction of the movement of the billet while the block and shear blade are so constructed and supported in the head as to normally hang in operative relation to the shear blade 7, and can be shifted by the billet after a cut has been completed. It is preferred to employ means for holding the block and shear in operative position and to shift them out of the path of movement of the billet. A convenient construction for that purpose is shown in Fig. 5, and consists in providing the pivoted block with an angular arm 15 having a pin 16 projecting into a groove 17 in the side of the frame or housing. As the head moves in a direction to cut a billet the pin moves along the part *a* of the groove holding the block and shear blade in operative position. As the head 4 approaches the end of its forward movement, the pin will move along the portion *b* of the groove and thereby turn the block and shear blade out of the path of movement of the billet. During the return or back movement of the head, the pin moves along the portion *c* of the groove and gradually restores the block and shear blade to normal or operative position.

We claim herein as our invention:

1. A shear mechanism having in combination guide ways having their guiding surfaces in converging planes, cutter carrying heads mounted on said ways and means for reciprocating said heads.

2. A shear mechanism having in combination

15 nation cutter-carrying heads, means for reciprocating the heads, means for causing one of the heads to reciprocate in a plane intersecting the line of movement of the article to be sheared, one of the heads having its cutter movably connected thereto, a lock for holding the cutter in operative position and means operative on the movement of the head for shifting the cutter.

10 3. A shear mechanism having in combination cutter-carrying heads, one of said heads having its cutter movably connected thereto, means for reciprocating the heads, means for causing one of the heads to reciprocate in a plane intersecting the line of

movement of the article to be sheared, and means operative by the movement of the head having the movable cutter for locking the cutter during the forward movement of the head and for shifting the cutter from and back to operative position during the movement of the head after the shearing operation.

In testimony whereof, we have hereunto set our hands.

THOMAS J. BRAY.

GIBBON C. SHACKLEFORD

Witnesses:

FRANCIS J. TOMASSON,

CHARLES BARNETT.