

(No Model.)

2 Sheets—Sheet 1.

U. HASKIN.

MACHINE FOR SHEARING METALS.

No. 260,022.

Patented June 27, 1882.

Fig. 1.

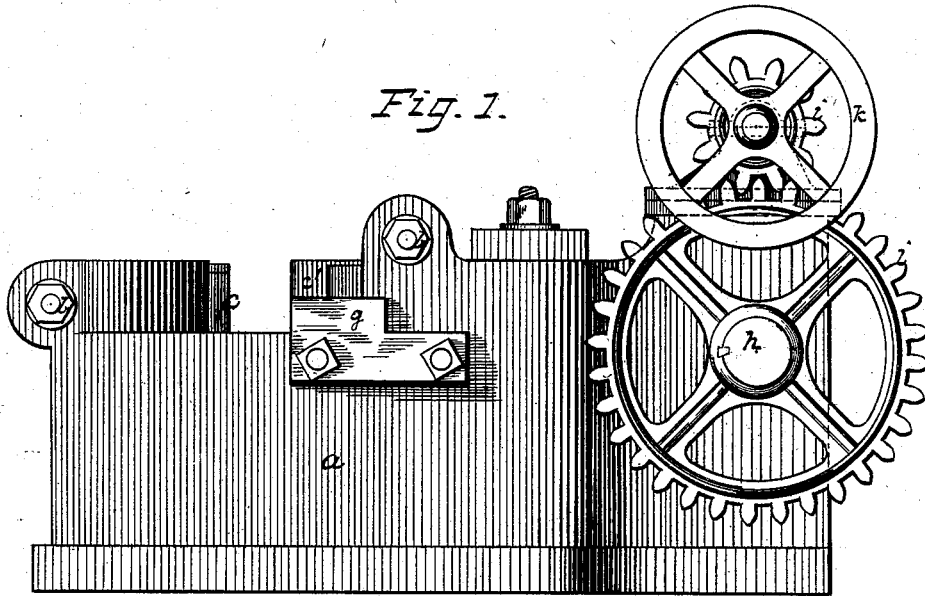
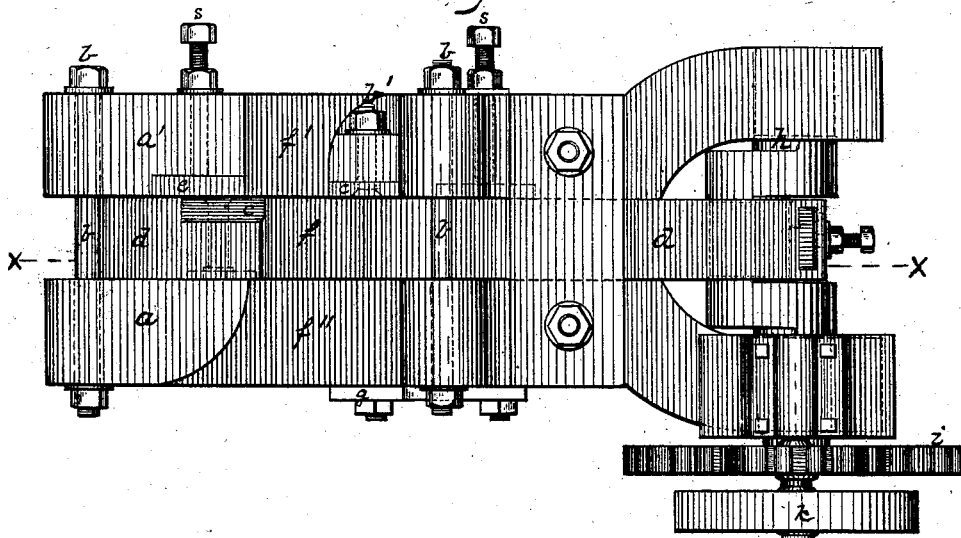


Fig. 2.



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Fig. 3.

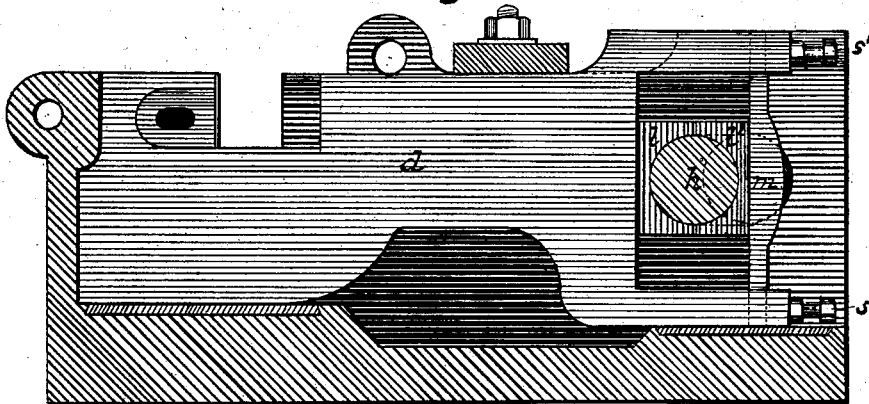


Fig. 4.

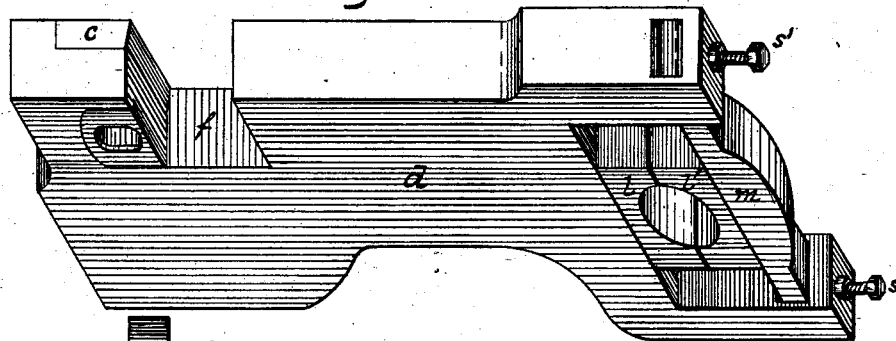
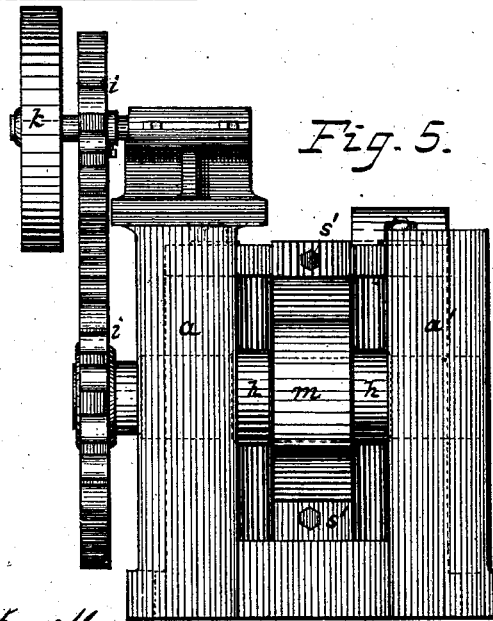


Fig. 5.



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UNITED STATES PATENT OFFICE.

URI HASKIN, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO
WHARTON MCKNIGHT, OF SAME PLACE.

MACHINE FOR SHEARING METALS.

SPECIFICATION forming part of Letters Patent No. 260,022, dated June 27, 1882.

Application filed September 23, 1881. (No model.)

To all whom it may concern:

Be it known that I, URI HASKIN, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Machines for Shearing Metals; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming part of this specification, representing my improved shears—

Figure 1 being a side elevation; Fig. 2, a top view; Fig. 3, a longitudinal sectional elevation through *xx* of Fig. 2. Fig. 4 is a perspective representation of the sliding frame. Fig. 5 is an end view.

The like parts in each of the figures are designated by like letters.

My invention relates to the construction and arrangement of that class of shears in which there is a sliding cutter and a stationary cutter, the former moving toward and from the latter, with their cutting-faces in the same vertical plane. In such shears, as ordinarily constructed, the moving cutter is so arranged as to operate in cutting the iron or other metal to be cut on its outer stroke, or when moving away from the point where the shaft is situated which communicates the motion, the result of which is that the strain on the machine tends to pull the shaft end or front end of the machine away from the rear end, and consequently the frame of the machine is frequently fractured. This tendency to the fracture of the frame of the machine I obviate by so arranging the cutters that they operate on the inward stroke of the moving cutter, and by placing the stationary cutter between the moving cutter and the shaft which gives motion to the machine. By means of this arrangement, also, I am enabled to place a cast-iron bar or "breaker" in such position in the sliding frame that it bears the entire breaking strain, so that if an undue strain is put on the machine the breaker will snap and save the frame from injury. I also so construct my machine as that the sliding cutter moves horizontally and that the bar of metal to be severed is held in position by the frame, thus preventing the danger of injury to the workman arising from a sudden upward jerk of the bar when the cutters operate vertically.

To enable others skilled in the art to use my invention, I will proceed to describe it more fully and in detail.

In the drawings, *a a'* are two side pieces, constituting the frame of the machine, which are united at the bottom and held together by bolts *b b*.

d is the sliding frame, which carries the movable cutter *c*, the sliding frame moving in the space between the parallel sides of the side pieces, *a a'*, of the frame, as shown in Fig. 2. The moving cutter *c* is set in a recess in the side of the sliding frame *d*, as shown in Figs. 2 and 4, and is attached thereto by a bolt with countersunk head and nut, (shown by dotted lines in Fig. 2,) and the stationary cutter *c'* is set in a similar recess in the inner face of one of the side pieces, *a'*, of the frame, and is secured thereto by a bolt, *b'*, the head of which is countersunk.

In the inner face of that one of the side pieces, *a'*, of the frame in which the stationary cutter is placed are set two steel bearing-plates, *e*, one in front and one in the rear of the stationary cutter *c'*. The one in front of the cutter is shown by dotted lines in Fig. 2. Set-screws *s s*, acting against the back surface of these bearing-plates, enable them to be set forward in case of any wear in the sliding frame. There is a recess, *f*, in the top of the sliding frame, just in front of the cutting-edge of the moving cutter *c*, through which the bar of iron or other metal to be cut is placed, and by which it is carried forward (as the moving frame advances) until, being brought into contact with the stationary cutter, it is severed by the shearing action of the two cutters. A similar recess, *f' f''*, is made in each of the side pieces of the frame, only that the recesses *f' f''* are longer than the recess *f* in the sliding frame, so as to allow the bar of iron to be carried within them until it comes in contact with the stationary cutter *c'*.

A guide-plate, *g*, attached by set-screws to the outer face of one of the side pieces, *f''*, of the frame, (that one which does not contain the stationary cutter,) is set with its rear edge in the same transverse horizontal line as the cutting-edge of the stationary cutter *c'*. The effect of these recesses and of the guide-plate *g* is that when the bar of iron is being severed

by the cutters its tendency to a sudden motion sidewise is restrained. Without such restraint the operator, holding or standing near to the bar of iron, is exposed to great danger of receiving a violent blow from it at the moment when it is engaged between the edges of the cutters. By this arrangement, however, the tendency referred to is prevented, as the bar of iron being laid across the machine in the recesses $f' f''$ is carried forward by the sliding frame until it comes in contact with the edge of the stationary cutter c' on one side of the machine and with the end of the guide-plate g on the other side, and is so held firmly until it is cut in two by the further forward motion of the moving cutter.

At the front end of the machine is placed the horizontal crank-shaft h , by which motion is communicated from any power motor through the gear-wheels $i i$ and pulley k to the sliding frame d . The wrist of the crank works in the sliding journal-boxes $l l'$, which are placed in a recess at the forward end of the sliding frame, as shown in Figs. 3 and 4. The sliding motion of the journal-boxes $l l'$ vertically in the recess of the sliding frame is necessary to permit of the rotation of the wrist of the crank-shaft, and thus produce the forward and backward motion of the sliding frame d , which carries the moving cutter c .

A bar of cast-iron, m , called a "breaker," is placed in front of the journal-boxes $l l'$, as shown in Figs. 3 and 4, with its ends entered into mortises in the ends of the sliding frame, which form the recess before referred to. These mortises are wider than the thickness of the breaker m , so as to allow the breaker to be screwed down against the journal-box l' by the temper-screws $s' s'$, so as to adjust the journal-boxes in case of wear. The thickness of the cast-iron bar or breaker will depend upon the strength of the frame of the machine and the degree of strain to which it is to be subjected, the design being that the breaker shall be strong enough to resist any ordinary strain, but weak enough to break in the event of any strain which the frame of the machine would be unable to bear. In case the breaker should give way another breaker can be substituted in a few minutes.

It is obvious that if the machine were so constructed that the moving cutter were placed between the crank-shaft and the stationary cutter any excessive strain on the machine would

have to be borne by the side pieces of the frame, as on the forward motion of the sliding frame, if the shears failed to sever the bar of metal placed between them, the pressure would be made by the journals of the crank-shaft on the extremities of the two side pieces of the frame, and if the crank-shaft were carried round the frame of the machine would necessarily be fractured. By my arrangement, however, the strain in such a case would come upon the breaker—an inexpensive piece of the machine and easily replaced in case of fracture.

Having thus described my improvement, what I claim as my invention, and desire to secure by Letters Patent, is—

1. In a metal-shearing machine, the combination of recessed side frames, one of which is provided with a stationary cutter, with a recessed sliding central frame provided with a cutter and arranged between the side frames, the recess of the sliding frame being shorter than those of the side frames, substantially as and for the purpose specified.

2. In a metal-shearing machine, the combination of recessed side frames, one of which is provided with a cutter, with a recessed sliding central frame provided with a cutter and with two adjustable bearing-plates, one in front and one in rear of the stationary cutter, substantially as and for the purpose specified.

3. In a metal-shearing machine, the combination, with a sliding cutter-frame having a recess to receive the article to be severed, of a fixed cutter on one side frame and a recess and guide-plate on the opposite side frame to retain the article in position while being operated on by the cutters, substantially as specified.

4. In a metal-shearing machine, the combination of side frames, one of which is provided with a cutter, a central sliding frame provided with a cutter, the cutters being relatively arranged to operate upon the inward stroke of the movable cutter, a shaft for actuating the sliding frame, and a breaker arranged on the sliding frame, substantially as and for the purpose specified.

In testimony whereof I have hereunto set my hand.

URI HASKIN.

Witnesses:

J. K. SMITH,
R. H. WHITTLESEY.