(No Model.)

C. H. LANGILL.

DIE.

No. 454,830. Patented June 23, 1891.

Fig. 1.

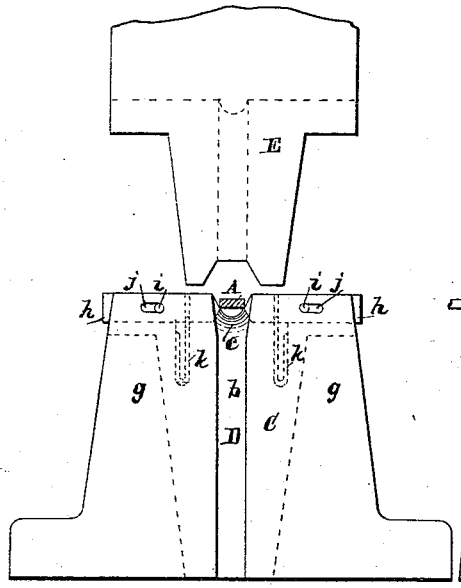


Fig. 2.

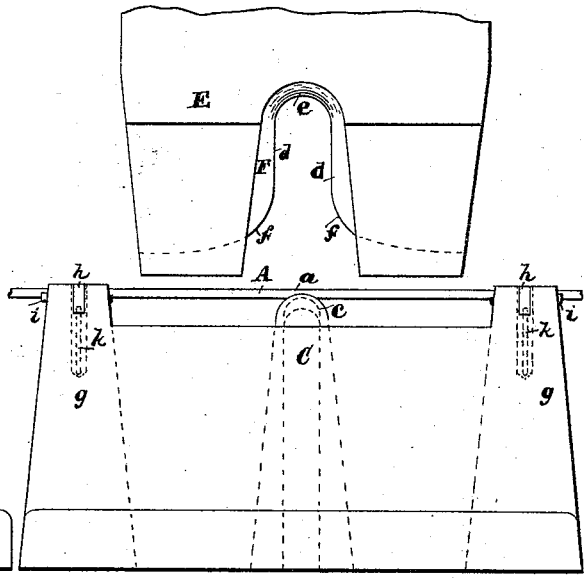
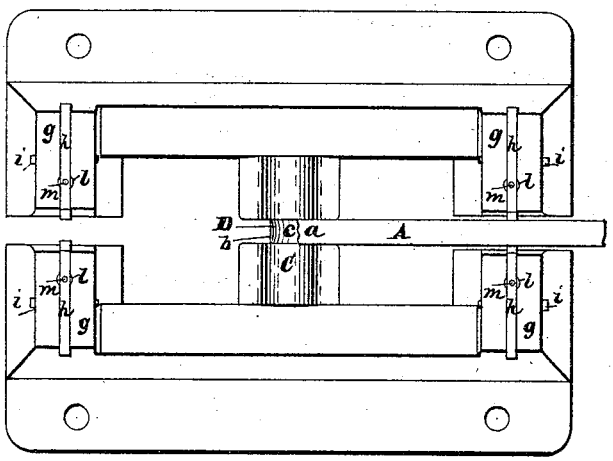


Fig. 3.



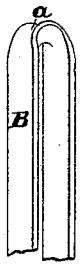


Fig. 4.

WITNESSES.

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UNITED STATES PATENT OFFICE.

CHARLES H. LANGILL, OF EVERETT, ASSIGNOR TO GEORGE D. LOUD, OF BOSTON, MASSACHUSETTS.

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SPECIFICATION forming part of Letters Patent No. 454,830, dated June 23, 1891.

Application filed December 8, 1890. Serial No. 373,959. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. LANGILL, a subject of the Queen of Great Britain, residing at Everett, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Dies, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to dies for bending or striking up metallic strips or pieces to form various articles, notably straps for tackle-blocks, the invention consisting in movable supports or slides, combined with the dies, as hereinafter set forth, and specifically pointed out in the claims.

In the drawings, Figure 1 shows an end view of part of an upper die and a lower die embodying my invention. Fig. 2 is a side view of the same. Fig. 3 is a plan view of the lower die. In the above-specified figures the whole or part of a strip to be bent or operated on is shown. Fig. 4 is a perspective view of part of the strip bent or formed to make the strap required.

The dies shown are of suitable construction and shape to bend or operate on a straight strip of iron A to make the strap B for a tackle-block. The strip is to be bent near the middle *a* and upset or curled at *a* to give the shape suitable for the requirements for a tackle-block. The lower die C has a vertical part D, provided with the parallel sides *b* and the required curves at the upper end *c* to fit the interior of the completed strap B. The upper die E has a part F, provided with vertical interior walls *d* and the interior curves at *e* to fit the exterior and upper part of the strap B. The upper die is also furnished with the curved faces *f*, which serve the purpose hereinafter specified. In a recess in each of four uprights *g*, fixed to the lower die, I place a slide or movable support *h*. Each slide or support is beveled at the end which projects inward to meet the strip to be bent or operated on, as shown, and the slide or support is movable horizontally outward the required distance. Each slide or support is held in its place by means of a pin *i* therethrough, which passes through slots *j* in the corresponding upright *g*. Each slide or support is pressed inward by means of a U-shaped spring having one leg longer than the other, (shown by dotted lines at *k*,) which is in a socket *l* therefor in the upright *g*, the long leg of the spring entering a hole *m* in the slide or support.

In operation the strip A is placed in proper position with reference to the part D of the lower die and upon the beveled ends of the slides or supports *h*, as illustrated. On the movement downward of the upper die the parts *f* of the latter force the outer ends of the strip A downward, the pressure causing each of the slides *h* to move outward against the action of the springs *k*. The continued motion of the upper die causes the strip to be fully bent and formed, as required and illustrated. Thus it appears that the slides or supports *h* maintain the strip in suitable position, so that the upper die will meet the strip, as required, and that these slides or supports will be automatically moved to allow the strip or parts thereof to have the necessary motions while being bent or formed.

Heretofore it has been deemed necessary to have the dies for this class of work so made that the upper die will act as a plunger to force the middle portion of the strip downward into a recess, the walls of which conform to the exterior of the strap. By this method the movement of the upper die is generally through a distance nearly or quite equal to the length of the strap B, and scales are apt to collect in the bottom of the recess in the lower die, causing imperfect work or injury to the dies. By means of my invention the dies may be formed and have the relation to each other as shown, so that the motion of the upper die is not great and the scales will fall freely away from the working-faces of the dies.

Certain devices may be employed in place of the slides *h* and springs *k*, which would be their equivalents in action and effect by providing automatically-movable supports, and would, together with the dies, embody the main features of my invention.

I claim as my invention—

1. The combination of an upper die adapted to bend the strip around the lower die, said lower die and supports adapted to support the strip transversely on the lower die and to

yield when said strip is pressed upon by the upper die, substantially as described.

2. In combination with a die C, slides *h*, having beveled ends and caused to project inward in the path of and to temporarily support the piece to be bent or formed, substantially as specified.

3. The combination of a die C, slides *h*, movable transversely, and springs *k*, substantially as and for the purpose set forth.

CHARLES H. LANGILL.

Witnesses:
Z. F. BRYANT,
EDW. DUMMER.