(No Model.) 2 Sheets—Sheet 1.

S. S. STOTT & R. BIRTWISTLE.

MACHINE FOR MAKING ELEVATOR BUCKETS.

No. 318,582. Patented May 26, 1885.

FIG. 1.

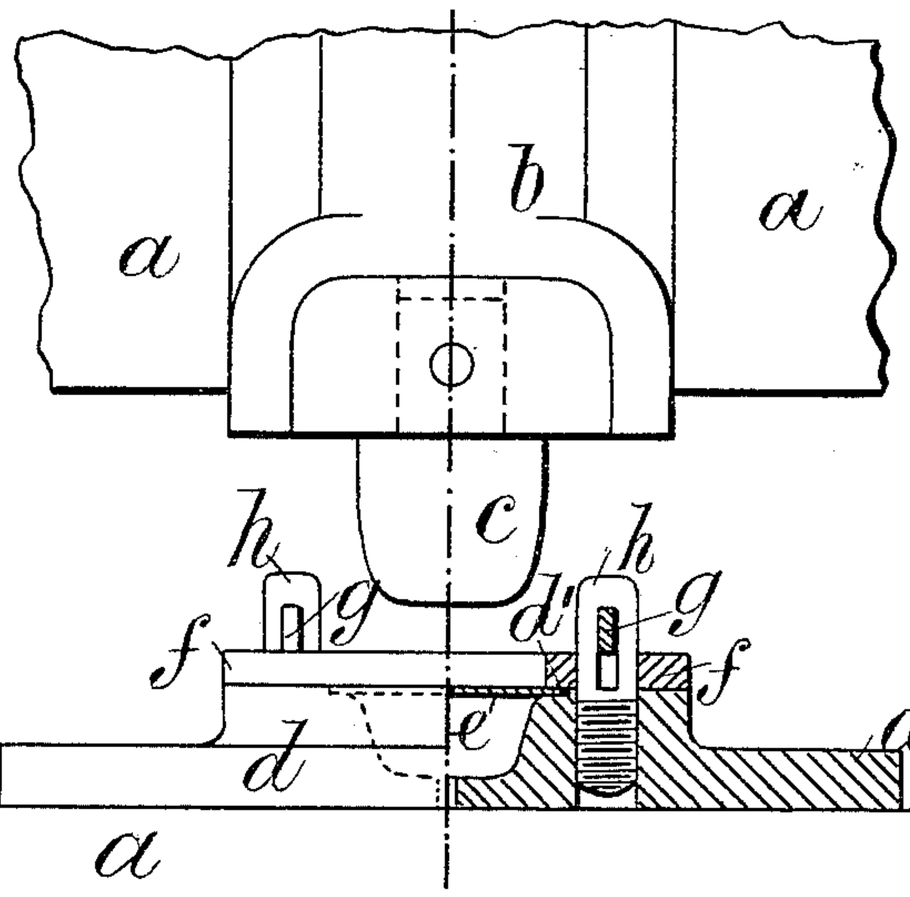


FIG. 3.

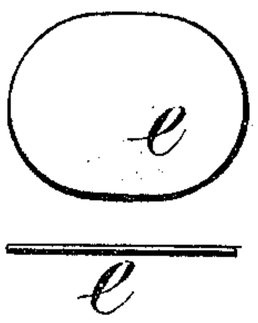
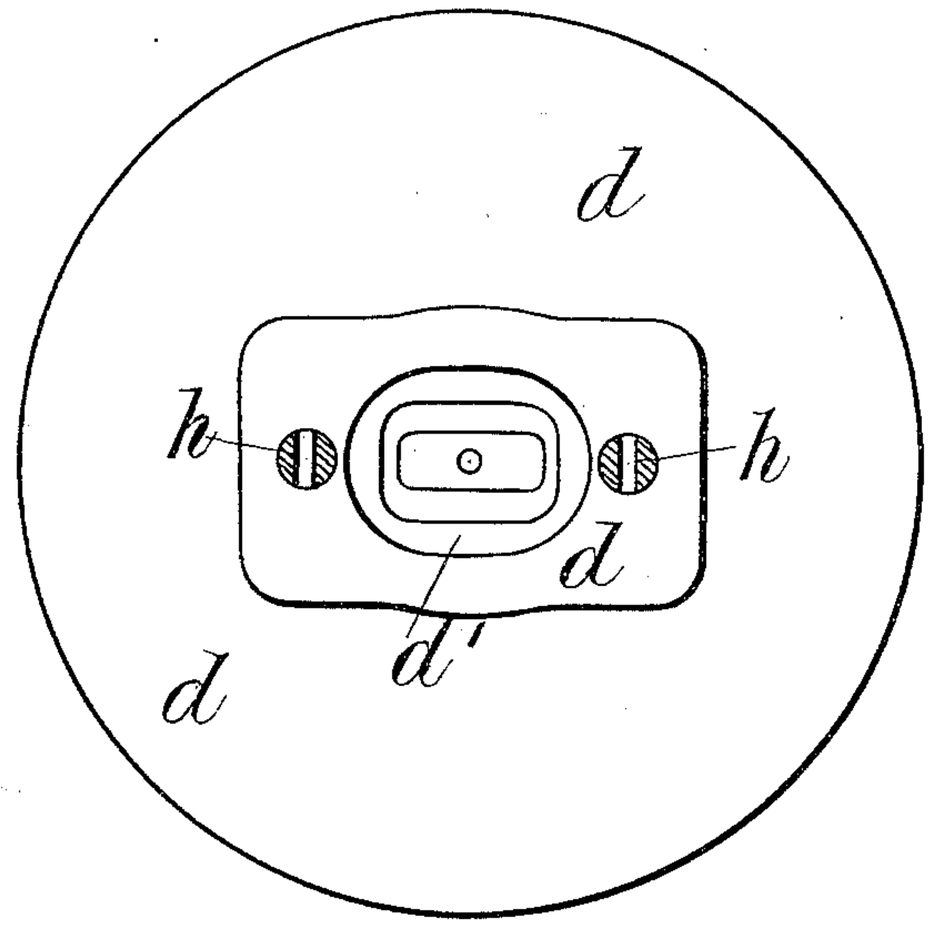


FIG. 4.

FIG. 5.

FIG. 6.

FIG. 2.



Witnesses.
Willard R Haight
J. H. Raymond

Inventors
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Richard Birtwistle
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(No Model.) 2 Sheets—Sheet 2.

S. S. STOTT & R. BIRTWISTLE.

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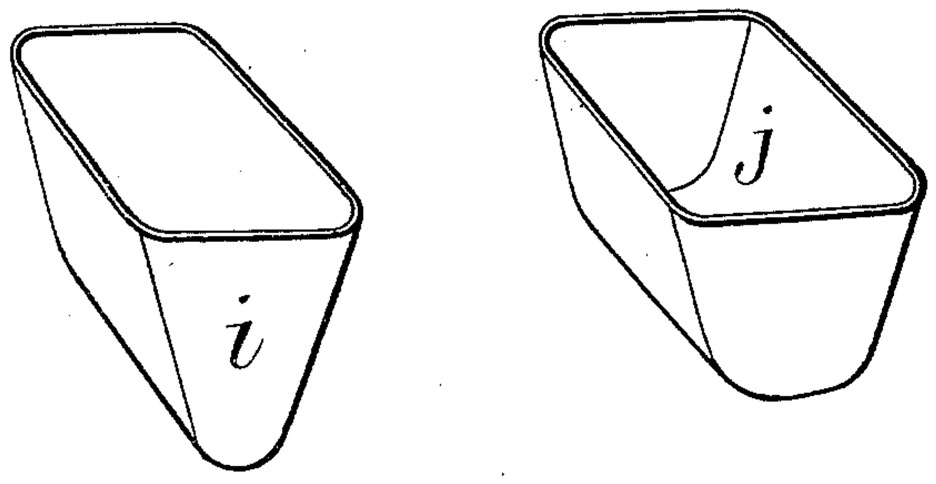
FIG. 7.



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by W. H. Babcock
Attorney

UNITED STATES PATENT OFFICE.

SAMUEL STORER STOTT AND RICHARD BIRTWISTLE, OF HASLINGDEN, COUNTY OF LANCASTER, ENGLAND.

MACHINE FOR MAKING ELEVATOR-BUCKETS.

SPECIFICATION forming part of Letters Patent No. 318,582, dated May 26, 1885.

Application filed March 10, 1885. (No model.) Patented in England January 14, 1885, No. 506.

To all whom it may concern:

Be it known that we, SAMUEL STORER STOTT and RICHARD BIRTWISTLE, subjects of the Queen of Great Britain, both of the firm of S. S. STOTT & Co., of Haslingden, in the county of Lancaster, England, engineers, have invented a certain new and useful Improvement in Machines for Making Elevator-Buckets, (for which we have obtained a patent in Great Britain, No. 506, bearing date January 14, 1885,) of which the following is a specification.

Our invention relates to an improvement in mechanism for striking up buckets from sheet metal; and it consists of a recessed die, in combination with a draw-plate having two openings, arranged one on each side of the central recess of the said die, two vertically-slotted detachable studs, which extend through the said openings of the draw-plate and screw into the body of the die, transverse tapering cotter-pins which pass through the slots of said studs and clamp said draw-plate to said die, and the solid reciprocating die which operates against the sheet of metal that is held by said draw-plate over the recess of the said recessed die, substantially as hereinafter set forth and claimed.

Figure 1 is a front elevation, partly in section, of part of a machine with a pair of dies (a male and a female) which we employ for blocking or forming the elevator-buckets. Fig. 2 is a plan of the lower part of the machine, the draw-plate and the sheet of metal being removed. Fig. 3 shows in plan and side view the sheet of metal from which an elevator-bucket is to be formed. Fig. 4 is an end view, Fig. 5 a side view, and Fig. 6 a plan, of an elevator-bucket blocked in the machine illustrated by Figs. 1 and 2 from the sheet of metal shown in Fig. 3; and Fig. 7 shows five of the different shapes of elevator-buckets which we make according to our invention.

Similar letters refer to similar parts throughout the several views.

Figs. 1 and 2 illustrate all the essential parts of a machine for performing the blocking process.

a is part of the frame of the machine, and *b* the ram or piston, which is free to slide vertically in the frame *a*.

c is the male or solid die secured to the ram *b*, and *d* is the female die or hollow block. The pair of dies *c* and *d* may be of any suitable size and shape, according to the kind of elevator-bucket required to be formed.

Round the edges of the hollow recess in the block *d* is a recess, *d'*, formed to receive the sheet of metal *e*. (Shown also in Fig. 3.) This sheet or plate of metal *e* is cut or punched out of a sheet of metal in any convenient manner, and is of any suitable shape or size, according to the shape and size required for the elevator-bucket into which it is to be formed. When the plate *e* has been laid in the recess *d'*, it is partially covered by the adjustable draw-plate *f*, which is placed over it and clamped or secured in its position as firmly as required by driving the taper cotter-pins *g* into the slots in the studs *h*, which are screwed into the block *d*. The ram *b*, which is actuated by hydraulic, steam, or other convenient motive power, is then caused to descend, and the die *c* forces the plate *e* into the hollow in the block *d*, the edges of the plate being prevented from buckling by the draw-plate *f*, thereby causing the plate *e* to assume the shape illustrated by Figs. 6, 7, and 8, and producing an elevator-bucket from the solid metal plate *e* without any cutting or riveting, and without any overlapping edges to impede the free delivery of any substance raised.

In Fig. 7, *i*, *j*, *k*, *l*, and *m* illustrate some out of the many kinds and shapes of elevator-buckets which we are enabled to make according to our invention by varying the shape and size of the dies and of the metal plates employed. The bucket marked *m* is shown with its mouth crimped or puckered, which is sometimes advantageous—as, for instance, where a deep narrow bucket is required—as additional strength is gained. This result is obtained either by dispensing with the draw-plate *f* and making the sheet of metal *e* rather larger than when it is simply required to fill the hollow in the block *d*, so that the edge of the plate *e* may be left free to pucker, or by using dies of suitable form constructed specially for this purpose.

In certain cases it may be necessary or desirable to use more than one pair of dies, and also to heat the plates of metal in carrying out the blocking process.

Sheets or plates of various kinds of metal may be employed—such as steel, iron, tin, copper, brass, and Muntz metal.

What we claim as our invention, and desire to secure by Letters Patent of the United States, is—

In mechanism for striking up buckets from sheet metal, the recessed die *d*, in combination with the draw-plate *f*, having two openings, arranged one on each side of the central recess of the said die, two vertically-slotted detachable studs, *h*, which extend through the said openings of the draw-plate and screw into the body of the die, transverse tapering cotter-pins *g*, which pass through the slots of said studs and clamp said draw-plate to said die, and the solid reciprocating die *c*, which operates against the sheet of metal that is held by said draw-plate over the recess of die *d*, substantially as set forth.

The foregoing specification of our improvement in the manufacture of elevator-buckets signed by us this 26th day of February, 1885.

SAMUEL STORER STOTT.
RICHARD BIRTWISTLE.

Witnesses:
H. B. BARLOW,
S. W. GILLETT.