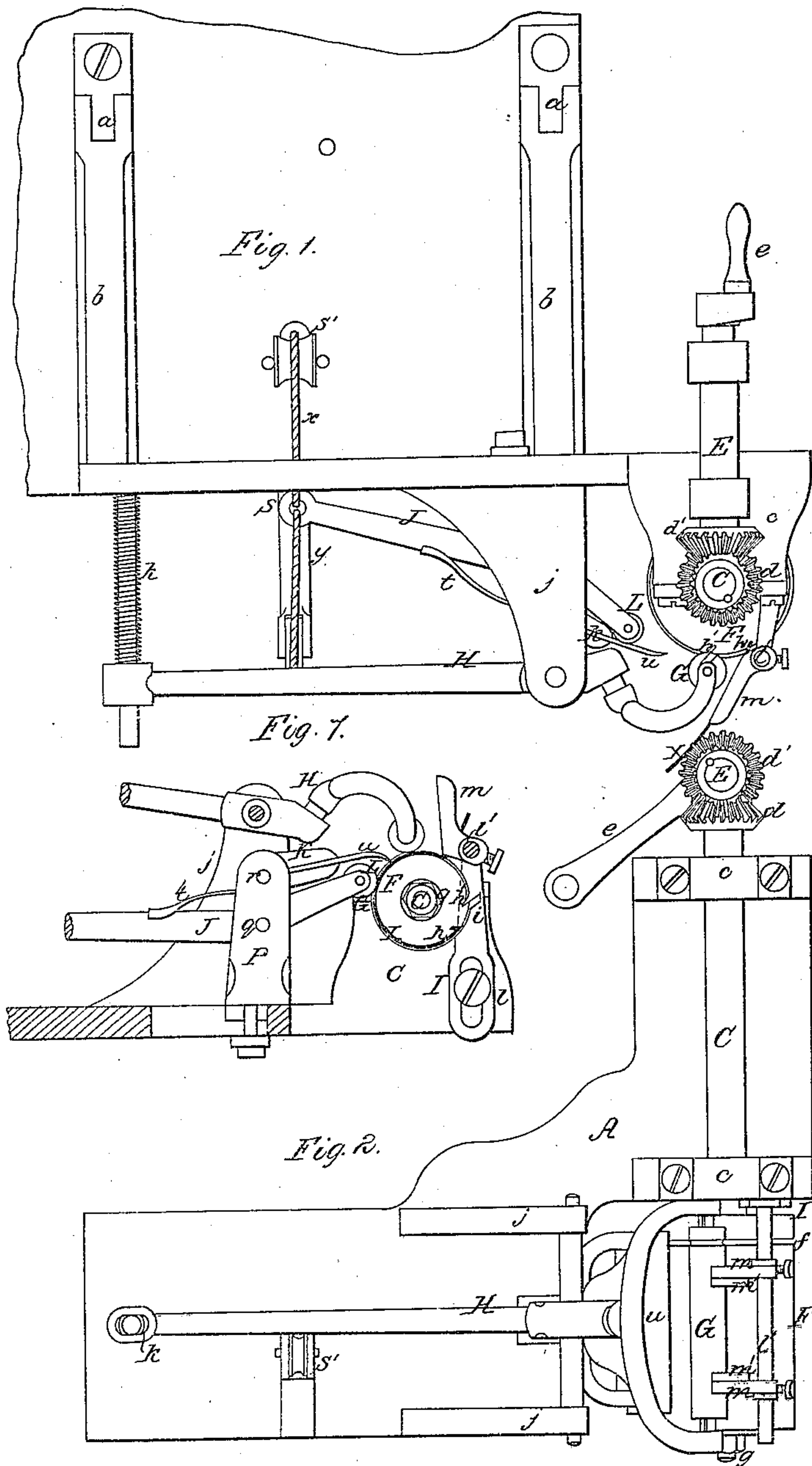


C. L. Rehn,

Making Metal Boxes,

No. 83,209,

Patented Oct. 20, 1868.



Witnesses
 Wm. Steel
 Jno. B. Harding

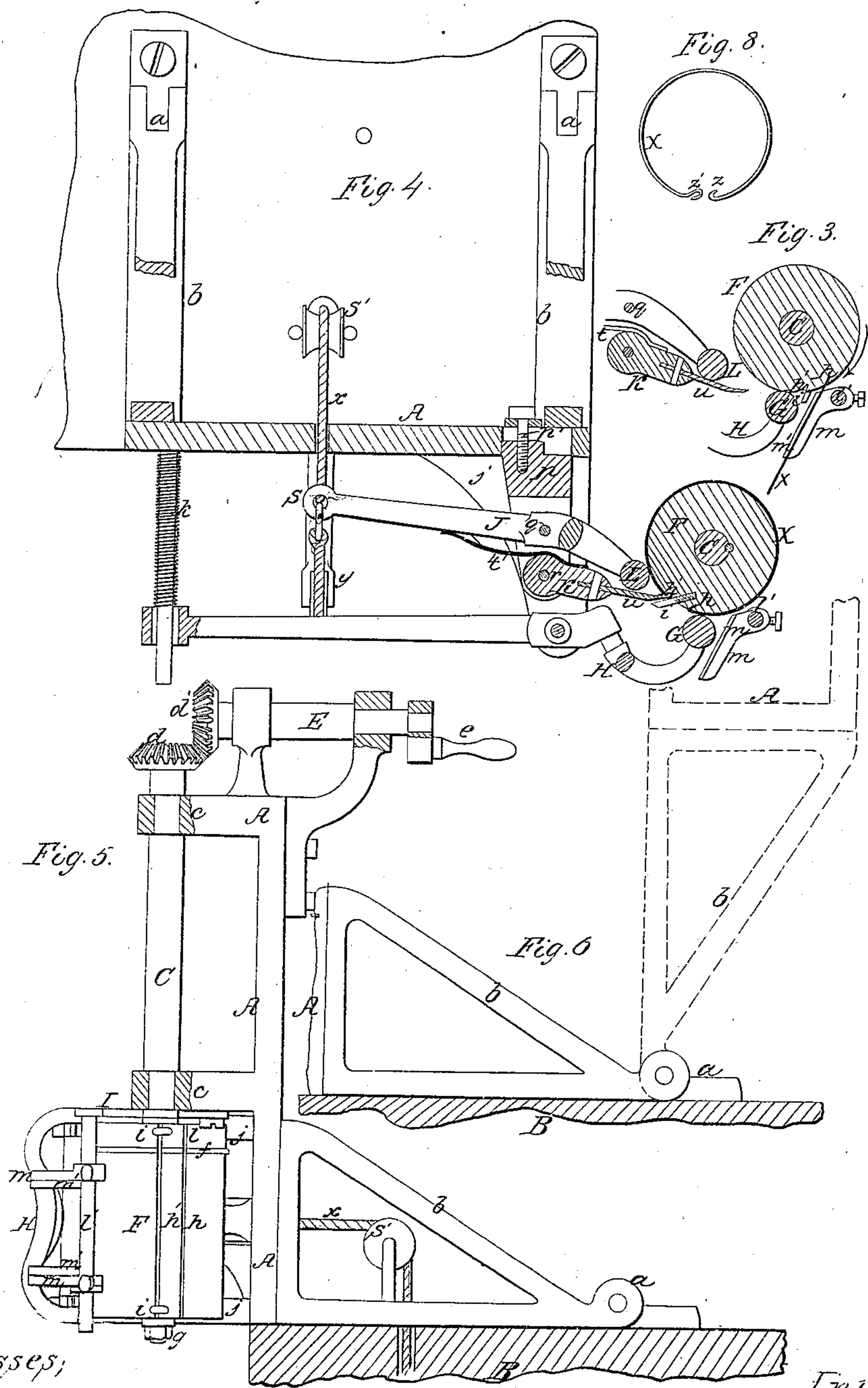
Inventor
 C. L. Rehn
 by his Attorney
 Henry Houson

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United States Patent Office.

C. L. REHN, OF PHILADELPHIA, PENNSYLVANIA.

Letters Patent No. 83,209, dated October 20, 1868

IMPROVEMENT IN MACHINE FOR MAKING METAL BOXES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, C. L. REHN, of Philadelphia, Pennsylvania, have invented an Improved Machine for Making Metal Boxes; and I do hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to certain improvements in the machine for making metal boxes, for which Letters Patent were granted, by the English Government, to William Edward Gedge, on the 28th day of June, 1866, and the improvements consist—

First, in so hinging the frame of the machine that it can be turned to either a vertical or horizontal position; and,

Secondly, in rendering the various parts of the machine adjustable, so that it may be adapted to the manufacture of boxes of different sizes, all of which is fully described hereafter.

In order to enable others skilled in the art to make and use my invention, I will now proceed to describe its construction and operation, reference being had to the accompanying drawing, which forms a part of this specification, and in which—

Figure 1, sheet 1, is a plan view of my improved machine for making metal boxes, as it appears when ready for use;

Figure 2, sheet 1, a side view of the same;

Figure 3, sheet 2, a sectional view of a portion of the machine;

Figure 4, sheet 2, a sectional plan view;

Figure 5, sheet 2, a side view;

Figure 6, sheet 2, a diagram illustrating a portion of the frame of the machine;

Figure 7, sheet 1, a view of the machine when arranged for making boxes of small diameter; and

Figure 8, a diagram illustrating my invention.

Similar letters refer to similar parts throughout the several views.

The frame of the machine consists of a metal plate or platform, A, secured to braces *b b*, which are so hinged at *a* to a table, B, that the said plate can be caused to assume either a horizontal or a vertical position, as shown in figs. 5 and 6, for a purpose described hereafter.

A shaft, C, is arranged to turn in suitable bearings, formed in projections *c c* of the plate A, and at one end of this shaft is a bevel-wheel, *d*, gearing into a similar wheel, *d'*, of a shaft, E, which also turns in projections of the plate A, and is operated by a handle, *e*.

A cylinder, F, is secured to the opposite end of the shaft C by a nut and washer, *g*, in such a manner as to be readily detached therefrom, and near to one end of the said cylinder is a rounded projection or rib, *f*, for a purpose described hereafter. The cylinder has also extending across its surface two grooves, *h* and *h'*, which are adjacent to each other, and parallel with the

shaft C; and close to each end of the groove *h'* is a short rod or pin, *i*.

A roller, G, somewhat shorter than the cylinder F, and having near one end a groove for the reception of the rib *f* of the latter, is arranged to turn between the forked arms of a lever, H, which is hung to projections, *j j* of the plate A; and against the long arm of the lever bears a spiral spring, *k*, which has a tendency to maintain the roller G in close contact with the surface of the cylinder F.

A slotted bar, I, (fig. 1,) is so secured to one of the projections *c* of the plate A by a set-screw, *l*, that it may be adjusted to any required position, and from the outer end of this bar, at right angles to the same, and parallel with the cylinder F, projects a rod, *l'*.

The latter is provided with two guide-blocks, *m m*, also adjustable, and having on their inner sides flanges *m'*, for a purpose described hereafter.

A standard or bracket, *p*, (fig. 4,) is so secured to the plate A by a set-screw, *p'*, that it may be readily adjusted from or towards the shaft C, and to this bracket are pivoted, by two pins, *q* and *r*, two levers, J and K.

To an eye, *s*, at the end of the long arm of the lever J, is attached a cord or chain, *x*, which passes over a pulley, *s'*, and has secured to it a counter-weight, (not shown in the drawing,) which serves to so operate the lever, that a roller, L, which turns between the forked arms of the same, shall be drawn back free from contact with the surface of the cylinder F, as shown in fig. 3.

A cord, *y*, is also attached to the eye *s* of the lever J, and is connected with a treadle, by operating which the lever may be turned in a contrary direction, and its roller L caused to bear against the surface of the cylinder F, as shown in fig. 4.

When the lever J is turned to the latter position, its long arm bears against a spring, *t*, which is secured to or forms part of the lever K, and causes the latter to be also turned upon its fulcrum *r*, until a blade, *u*, of the same is brought in contact with the surface of the cylinder F.

The blade *u*, as seen in fig. 2, is almost as wide as the cylinder, and its edge is sharpened and adapted to the groove *h'* of the same; and it will be seen, on reference to fig. 3, that, when the roller L is drawn back from the cylinder, it bears upon the blade *u*, and pushes it back also.

Operation.

The machine, as above described, is intended to bend a strip of tinned iron, or other thin metal, to a cylindrical shape, and, at the same time, to bend or lap over two of its opposite edges, as plainly shown in fig. 8.

The machine having been turned upon its hinges, *a*, to the position shown in figs. 3, 4, and 5, or until

the shaft C and its cylinder have assumed a vertical position, one edge of the metal strip x , to be bent, is introduced into the groove h of the cylinder F, the body of the strip being guided and properly held by the blocks m and their flanges m' , as shown in fig. 3.

The shaft C and its cylinder are then, by operating the handle e , turned in the direction of the arrow. The edge of the strip, contained in the groove h of the cylinder, turns with the latter; but the body of the strip is sufficiently retarded by the guides m to be bent by the same over the edge of the cylinder at the rear of its groove, by which means the hook or ap, represented at z in fig. 8, is formed.

As the cylinder turns, the strip is pressed against its surface, and caused to assume a circular form by the roller G, which is actuated by the spring k ; and as soon as the groove h' and its pins i have passed to a point beyond the blade u and roller L, the latter are also, by operating the cord y , caused to bear upon the strip x on the cylinder, and assist in bending it to the form of the same.

The strip, after being bent around the cylinder, is of sufficient length to extend slightly over and beyond the groove h' , and this projecting portion of the strip is forced into the said groove by the sharp edge of the blade u , which is itself directed into the groove by the pins i . By this means, the second lap z' of the strip, shown in fig. 8, is formed.

The parts are now in the position shown in fig. 4, and preparatory to dropping the bent strip from the cylinder, the motion of the latter is reversed, until the roller G bears upon it, between its grooves h and h' , and is consequently free from contact with the strip. The cord y is at the same time released, and the weight at the end of the cord x allowed to draw the roller L and blade u back from the cylinder, when all pressure upon the strip being released, it will, in consequence of the vertical position of the cylinder, fall from the latter and into a suitable receptacle, placed beneath the table B, to receive it.

Another strip is then inserted between the guides m into the groove h , and bent in a similar manner, and when strips of a different width than that described require to be bent, all that is necessary is to adjust the guide-blocks m m , from or towards each other, on their rod l .

In some cases, it may be desirable to form a bead or rib upon the metal strip. This is done by bending the strip over the rib f of the cylinder, the guides m having been previously adjusted to such a position to bring the strip directly over the said rib.

When it is necessary, in order to bend the metal for

boxes of a different diameter, to change the cylinder F for another of a different size, the machine is first, for convenience in shifting the cylinders, turned upon its hinges a a to the position shown by dotted lines in fig. 6, and by full lines in fig. 7. The nut and washer g , which secure the cylinder to its shaft, are removed, the cylinder is withdrawn, and another of the required diameter is secured in its place, the various parts of the machine being afterwards properly adjusted, as shown in fig. 7, where a cylinder, smaller than that first described, is illustrated.

The hinging of the frame of the machine at a a is a most important feature of my invention, as it enables me, in the first place, to turn the machine to a position most convenient for changing the cylinders, and, secondly, to cause the cylinder to assume a vertical position when in use; and the mere position of the cylinder upon which the strip is bent is of much importance; for, if vertical, the bent strip, when relieved from pressure, falls from the cylinder by its own gravity, while, if the cylinder were in any other position, more or less manipulation, and consequent loss of time, would be required to remove the strip.

I do not desire to claim the above machine broadly, as its elements have already been described in the aforesaid English patent, of June 28, 1866; but

I claim as my invention, and desire to secure by Letters Patent—

1. Hinging the machine at a a , so that it may be turned to either a vertical or horizontal position, for the purpose described.
2. The standard p , rendered adjustable upon the frame of the machine, as described, so that its levers J and K may be adjusted to suit the size of the cylinder upon which they are caused to bear.
3. The lever K, with its spring t and blade u , when operated by the lever J, as described.
4. The bar I, secured to the frame of the machine, and rendered adjustable upon the same, in the manner and for the purpose set forth.
5. The adjustable flanged guide-blocks m m , for the purpose specified.
6. The lever H, when actuated by a spring, k , as described.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

C. L. REHN.

Witnesses:

JOHN WHITE,
W. J. R. DELANY.