

No. 704,735.

Patented July 15, 1902.

W. CARLJUDE.

MACHINE FOR FASTENING THE BOTTOMS IN ANGULAR VESSELS OF SHEET METAL.

(Application filed Apr. 2, 1901.)

(No Model.)

4 Sheets—Sheet 1.

Fig. 1.

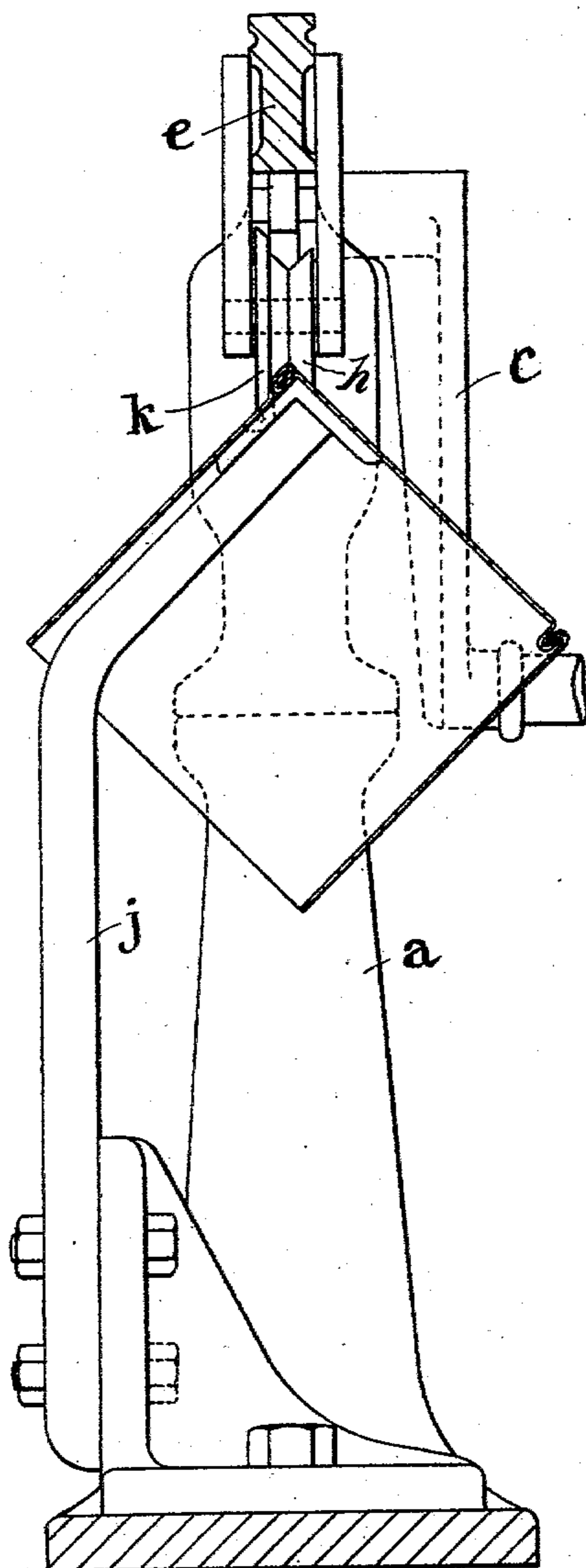
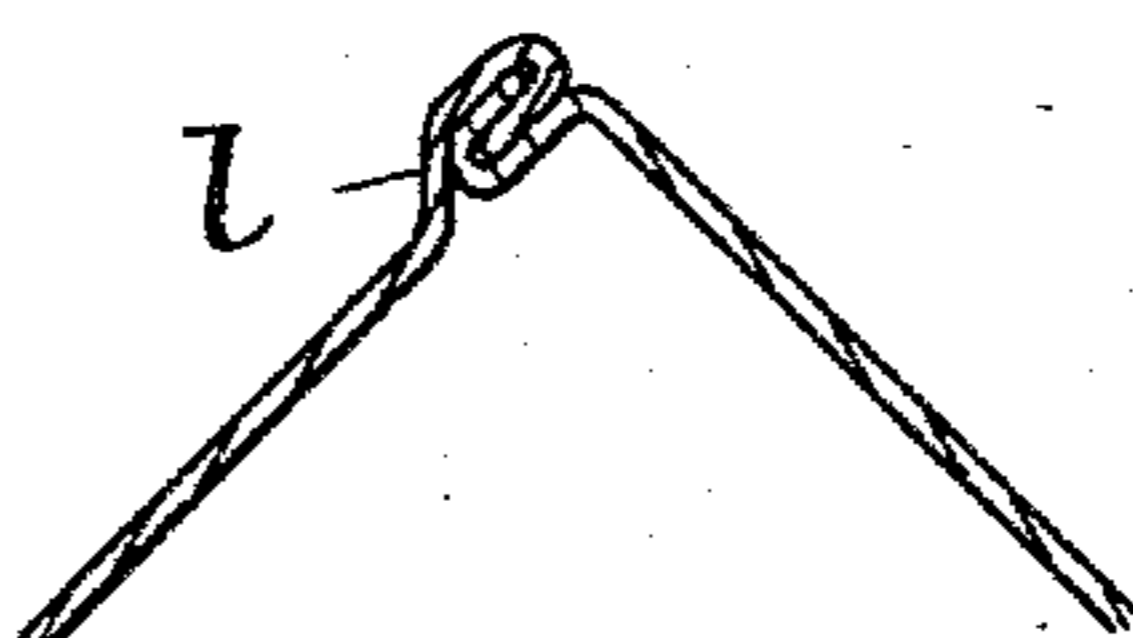


Fig. 3.



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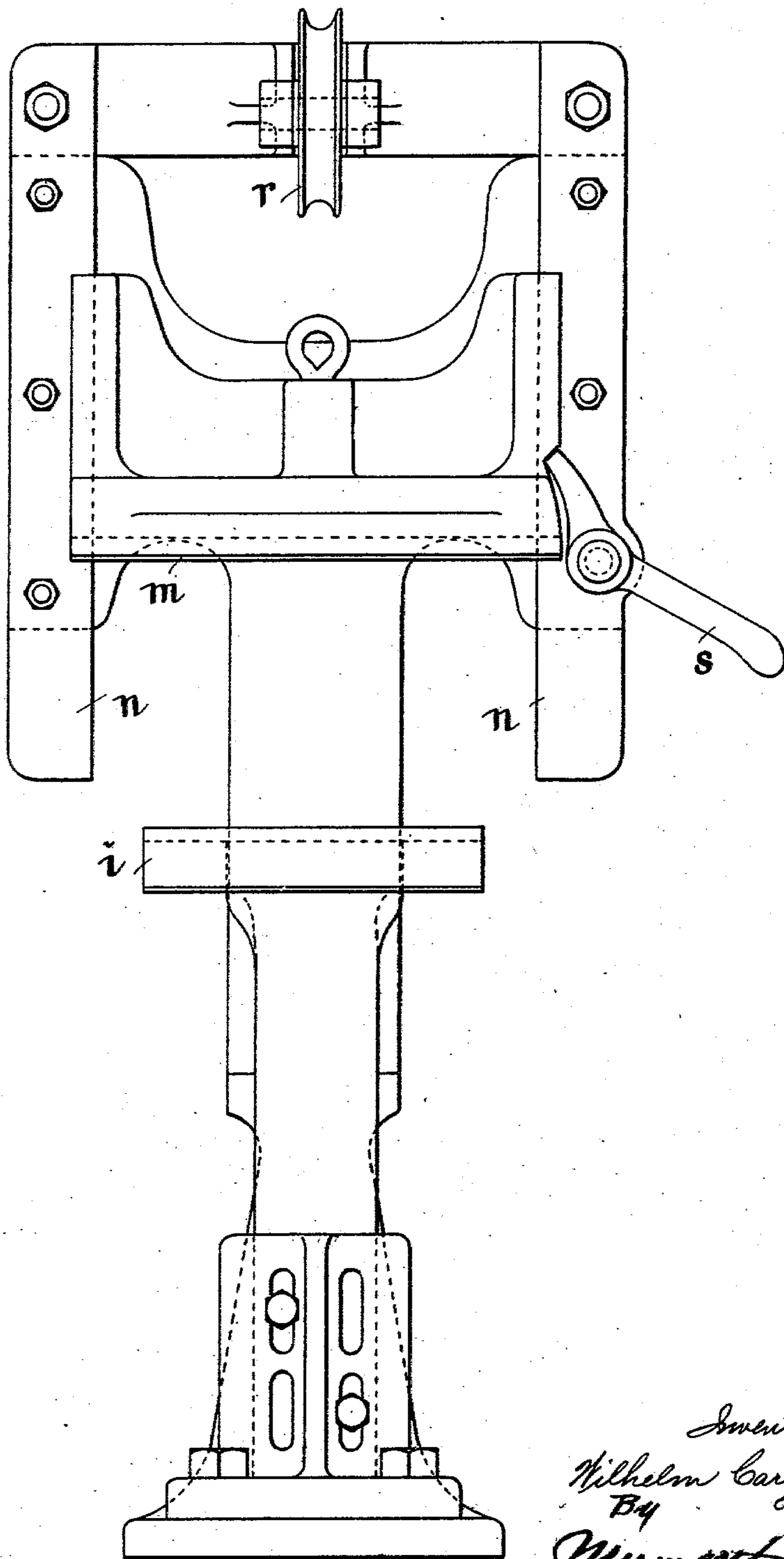
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Fig. 4.



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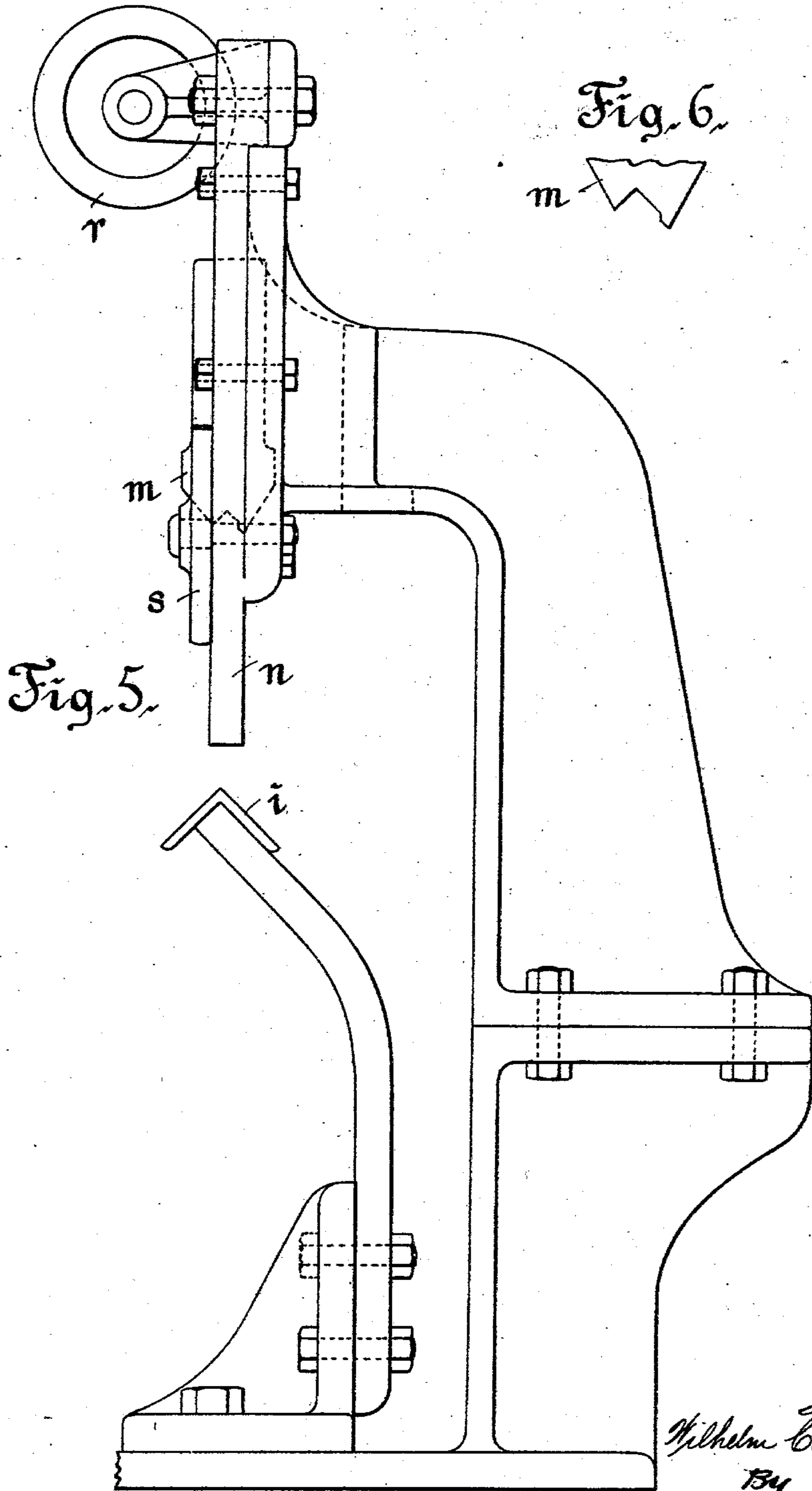
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MACHINE FOR FASTENING THE BOTTOMS IN ANGULAR VESSELS OF SHEET METAL.

SPECIFICATION forming part of Letters Patent No. 704,735, dated July 15, 1902.

Application filed April 2, 1901. Serial No. 54,048. (No model.)

To all whom it may concern:

Be it known that I, WILHELM CARLJUDE, a subject of the German Emperor, and a resident of Lund, Sweden, have invented certain
5 new and useful Improvements in Machines for Fastening the Bottoms in Angular Vessels of Sheet Metal; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to
10 make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

15 The object of the invention is a useful and practical and, moreover, simple and cheap machine for fastening the bottom in angular vessels of sheet metal by means of inside double seams. It has been heretofore proposed to use
20 such means for this purpose (see British Patent No. 2,332 of 1893) and to tighten all seams around the whole bottom simultaneously by causing a hollow die to drop on the vessel when the latter is placed bottom upward on
25 a block. By using such a method it will be necessary to make a new pair of dies for every different-sized can for even the smallest change of form or size of the vessel, and as such dies are very expensive the method cannot be used economically but for very great
30 orders. Besides this old method has another difficulty. The block or anvil supporting the inside of the bottom of the vessel must be of sufficient length and width so as to make nice
35 contact with all sides of the vessel simultaneously, and, moreover, it must make contact with the inside of the bottom; but the seams before tightening project inwardly to a certain extent, and thus prevent the block or
40 anvil from reaching the bottom unless the block is very tapered. For this reason the drop-stamp must also be tapered internally, and the bottom edges of the vessel will thus be forced inward to form an angle with the
45 sides of the vessel. The result will be that the material is broken in the corners or the tightening will be insufficient. For obviating such inconveniences the seams are tightened successively upon a rail or similar support
50 capable of being used for angular vessels of different shape and size and so that the seams

may lie in a straight line with the side walls of the vessel. The new support is moreover so cheap that it can be changed with very little expense when necessary.

55 The inserting of the bottom in the body before closing the seams is preferably effected by means of a free-standing table, the plate of which is about the size of the bottom, so that the body of the vessel can be passed over
60 said table and the latter serve as support for the bottom when the edges thereof, previously turned into the suitable shape, are caused to engage with the edges of the body correspondingly formed. Such table is very
65 useful and may be made with very little cost, as the plate of the table need not have exactly the shape and size of the vessel and may consist, for example, of a block of wood or other suitable material.

70 The invention may be more readily understood by referring to the drawings, in which like parts are similarly designated.

Figure 1 is a vertical section on line A A, Fig. 2; and Fig. 2 is a side view of a roller-
75 press machine for closing the joints. Fig. 3 is a cross-section of a bottom seam or joint after closing. Figs. 4 and 5 are front and side views of a drop-press for closing the joints, the roller being substituted by a drop-ham-
80 mer of suitable shape. Fig. 6 is a fragmentary view showing the preferred form of the working surface of said hammer seen from the end, as in Fig. 5.

85 The machine shown in Figs. 1 and 2 has about the appearance of a machine generally used for closing the vertical joints of the body, and consists of a frame or upright *a*, in which a horizontal rack-bar *b* can be reciprocated by means of crank *c* and pinion *d*,
90 the front end of said rack-bar being guided by a horizontal arm *e*, which projects from the top of the upright, and the free end of which is by means of a stay *f* connected to the base *g*, so that the roller *h*, having bear-
95 ings in the front forked end of the rack-bar *b*, is moved parallel with said arm *e* when rotating the crank *c*.

The support *i*, serving as an anvil for the vessel when compressing the joints, consists
100 of a rod or rail free at both ends and having such a shape and such a position along

the path of the roller *h* that the inner edges of the bottom of the vessel may be caused to rest upon said anvil *i* one after the other. In the instance illustrated the anvil is made of
 5 a piece of a rail substantially V or L shaped in cross-section and fastened to the top of a free-standing bent pillar *j*; but it is obvious that said anvil may be supported in any other manner, as by an upwardly-bent arm project-
 10 ing from the upright *a*. The anvil *i* should preferably have the roof-like position shown in Fig. 1, with the working surfaces sloping downward on both sides, so that the vessel passed over it will by its own weight adjust
 15 itself in proper position.

The lower edges of the body are turned so as to form an upward inside channel, and the edges of the bottom are bent to form a downward channel, and the bottom is placed into
 20 the body and adjusted to its proper place, preferably by means of a suitable table, as stated, so as to cause the edges of the bottom to engage with the channels of the body. Then the vessel is passed over the anvil *i*, so
 25 that the latter comes in contact with the inside of one of the bottom joints, as shown in Fig. 1. If the joint is longer than the anvil, the vessel is moved to the left, as shown in Fig. 2, and the roller is advanced and caused
 30 to work upon the outside of the joint by rotating the crank, thus compressing the joint so far as the same is supported by the anvil. When the roller has passed the anvil, the vessel is moved to the right and the roller is re-
 35 turned the same way by rotating the crank in the opposite direction. Then the remaining part of the joint is also compressed in a similar manner. Now the vessel is turned so as to bring another bottom joint in working po-
 40 sition on the anvil, and this joint is compressed in the same manner. The other bottom joints are also closed one after another, as already stated. When the roller is provided with an offset or shoulder *k*, as shown
 45 in Fig. 1, the joint is pressed into the channel thus formed on the roller, so that a corresponding shoulder *l* is formed on the outside of the vessel, as shown, to give a perfectly smooth interior. By this shoulder the
 50 bottom is prevented from being pushed upwardly after closing.

In the drop-press shown in Figs. 4 and 5 the roller, rack-bar, pinion, and crank are dispensed with and substituted by a drop-
 55 hammer *m*, sliding on vertical guides *n* and lifted, for example, by a rope passing over a pulley *r* or the like. The anvil or rail *i* is the same as in Figs. 1 and 2 and is placed beneath the hammer. The latter is locked and
 60 released by means of a ratchet-lever *s* or equivalents. The joints are compressed one after another by adjusting them on the anvil and releasing the hammer. It should be noticed, however, that the roller-press closes

the joints more nicely and perfectly than the 65 drop-press.

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

1. In a machine for fastening the bottoms 70 in angular cans, a support for the can having inclined faces corresponding to the plane of the bottom and side to be jointed and comprising a substantially angular bar to hold the bottom and side to be jointed in inclined 75 position, and means having a groove therein complementary to the support, adapted to cooperate therewith to close the seam, the bisector of the angle formed by the inclined faces and that of the groove substantially in 80 alinement, whereby the sides of said groove will exert a vertical pressure on the seam and bottom, substantially as described.

2. In a machine for fastening the bottoms 85 in angular cans, a bar to support the can having two inclined faces having the same angular section as the bottom and side to be jointed to hold the bottom and side inclined, and a reciprocable roller having an angular groove therein complementary to the support 90 and adapted to cooperate with the support to close the seam, the bisector of the angle formed by the inclined faces and that of the groove substantially in alinement, whereby a verti- 95 cal pressure will be exerted on both the seam and the bottom of the can, substantially as described.

3. In a machine for fastening the bottoms in angular cans, a substantially V-shaped rail, the sides of which have the same angu- 100 lar relation as the side and bottom to be jointed, to hold the side and bottom of the can inclined, a reciprocable roller having a V-shaped groove therein to ride over the rail and an offset on one side of the roller substantially 105 equal to the thickness of the metal turned over, whereby the interior of the can at the joint will have plane meeting surfaces, substantially as described.

4. In a machine for fastening the bottoms 110 in angular cans, a substantially V-shaped rail shorter than the width of a side of the can, the medial line of the angle of said rail vertical and a roller having a complementary groove to roll on said rail and provided with 115 an offset on one side substantially equal to the thickness of the metal turned over, whereby the interior meeting surfaces of the can are plane and the edges securely fastened, 120 substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILHELM CARLJUDE.

Witnesses:

E. A. ERICSON,
 A. EDW. ELVERSEN.