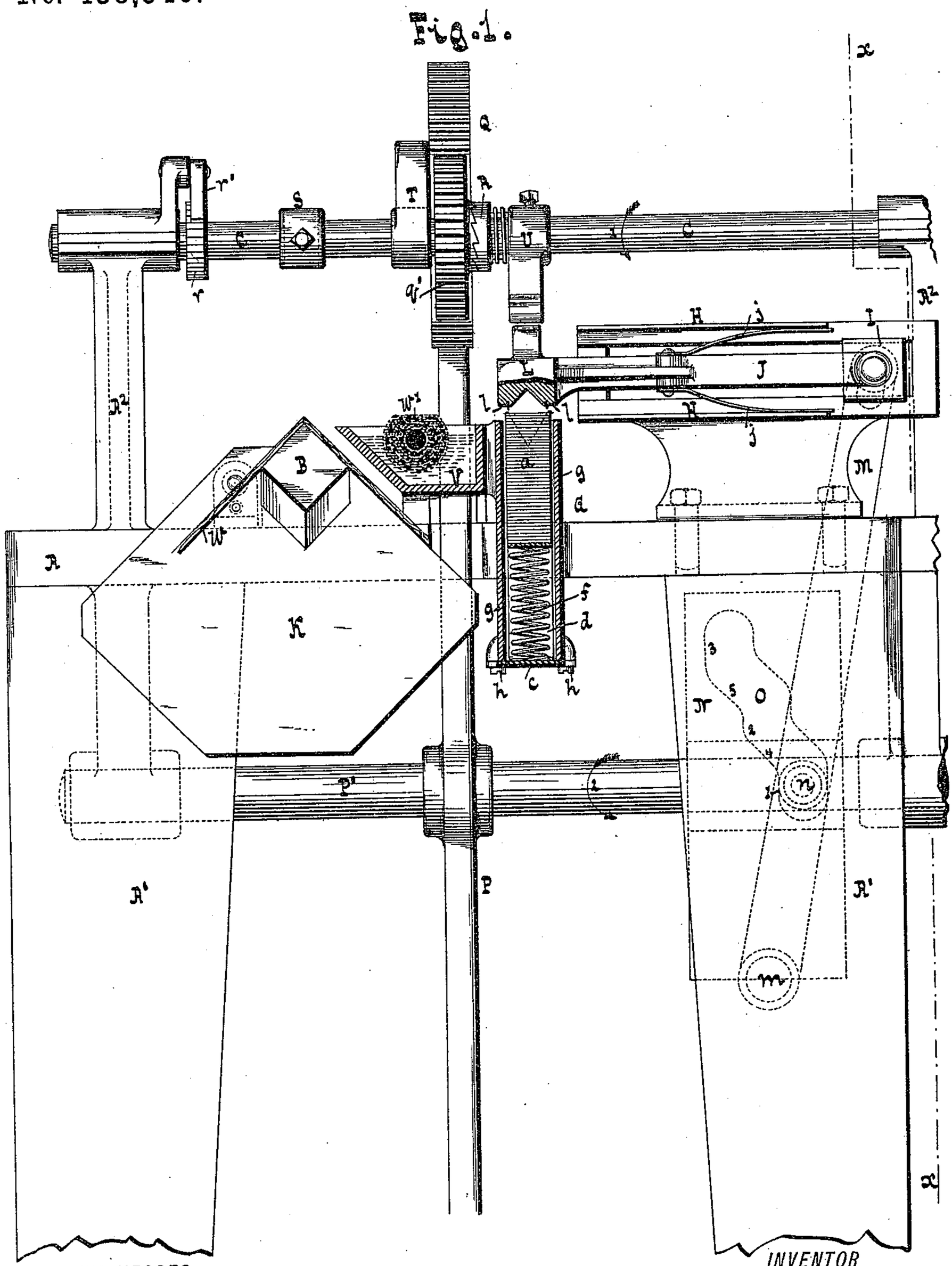
(No Model.) 5 Sheets—Sheet 1.

G. L. JAEGER.

MACHINE FOR APPLYING CORNER STAYS TO BOXES.

No. 438,546. Patented Oct. 14, 1890.

Fig. 1.



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(No Model.) 5 Sheets—Sheet 2.

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Fig. 2.

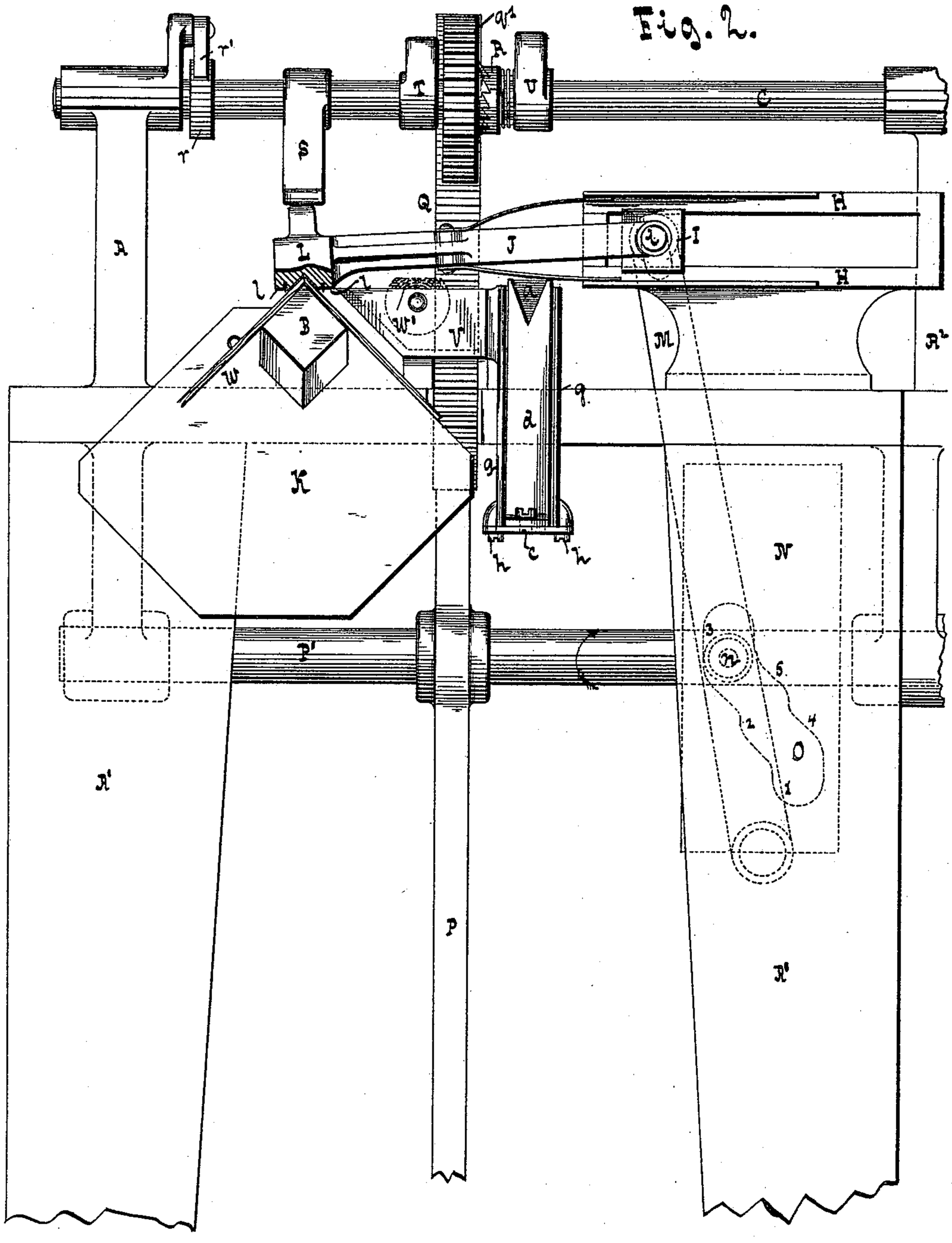

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Fig. 3.

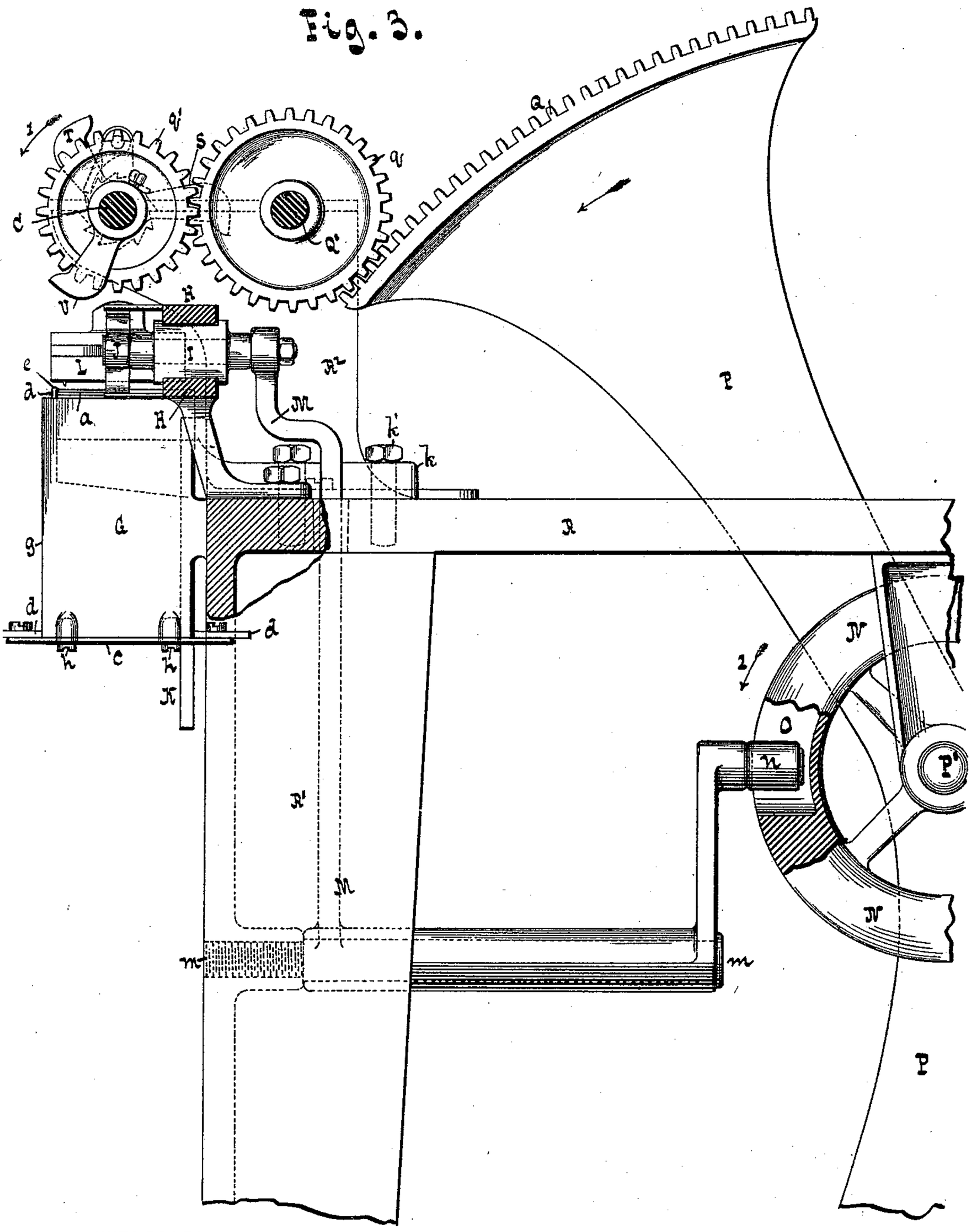

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Fig. 4.

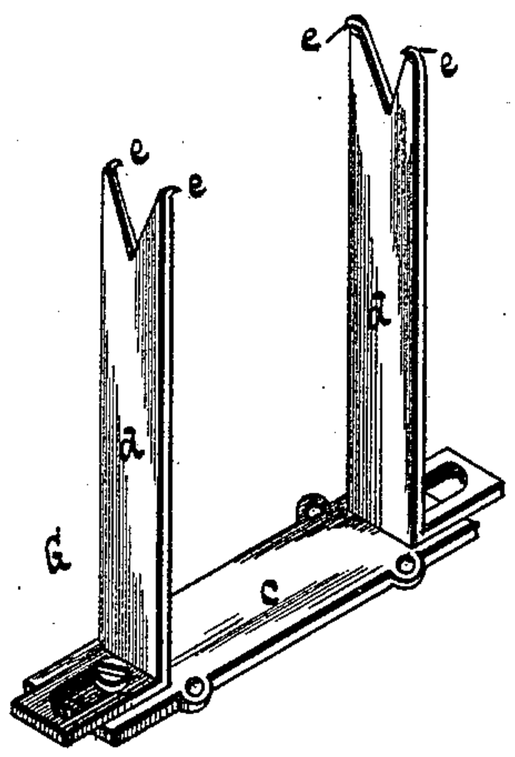


Fig. 5.

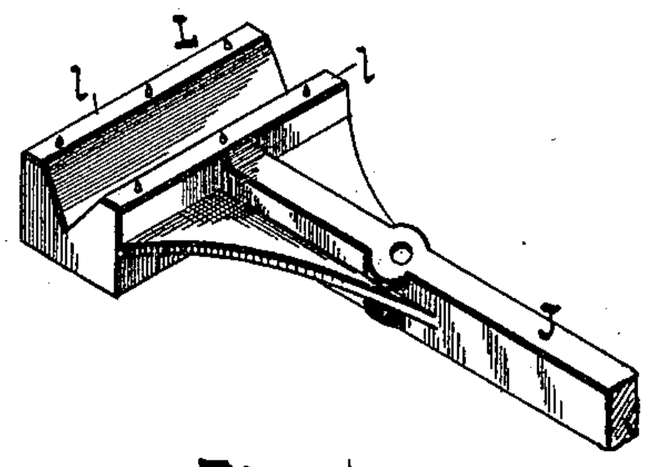
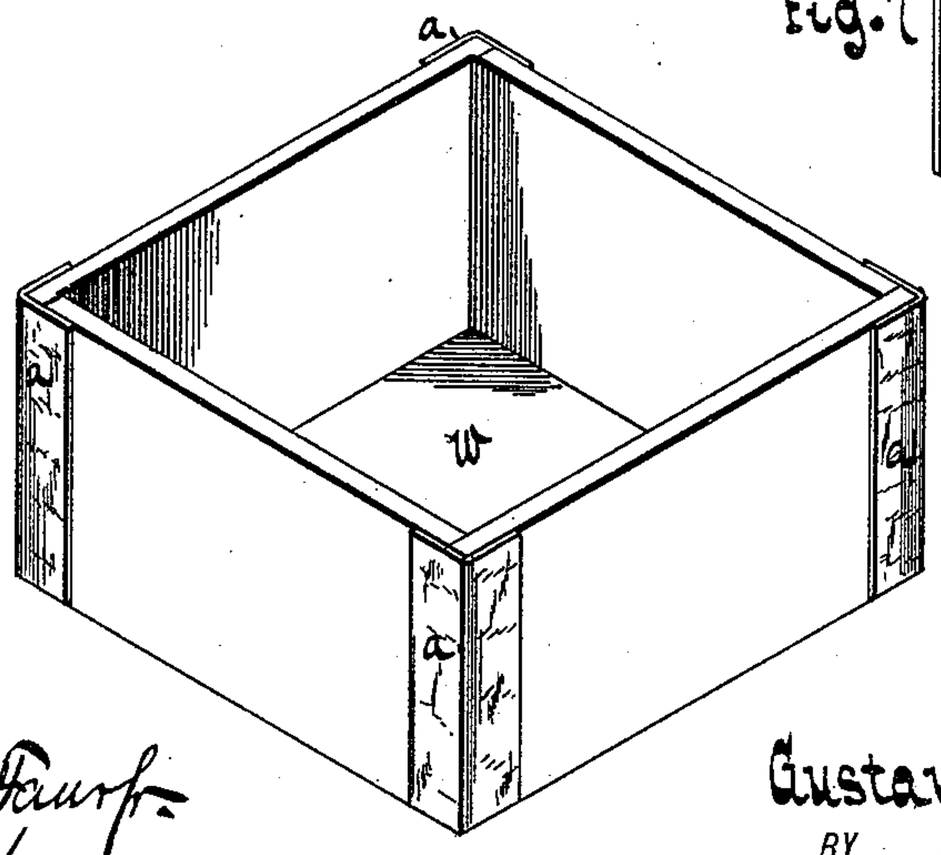


Fig. 6.

Fig. 7



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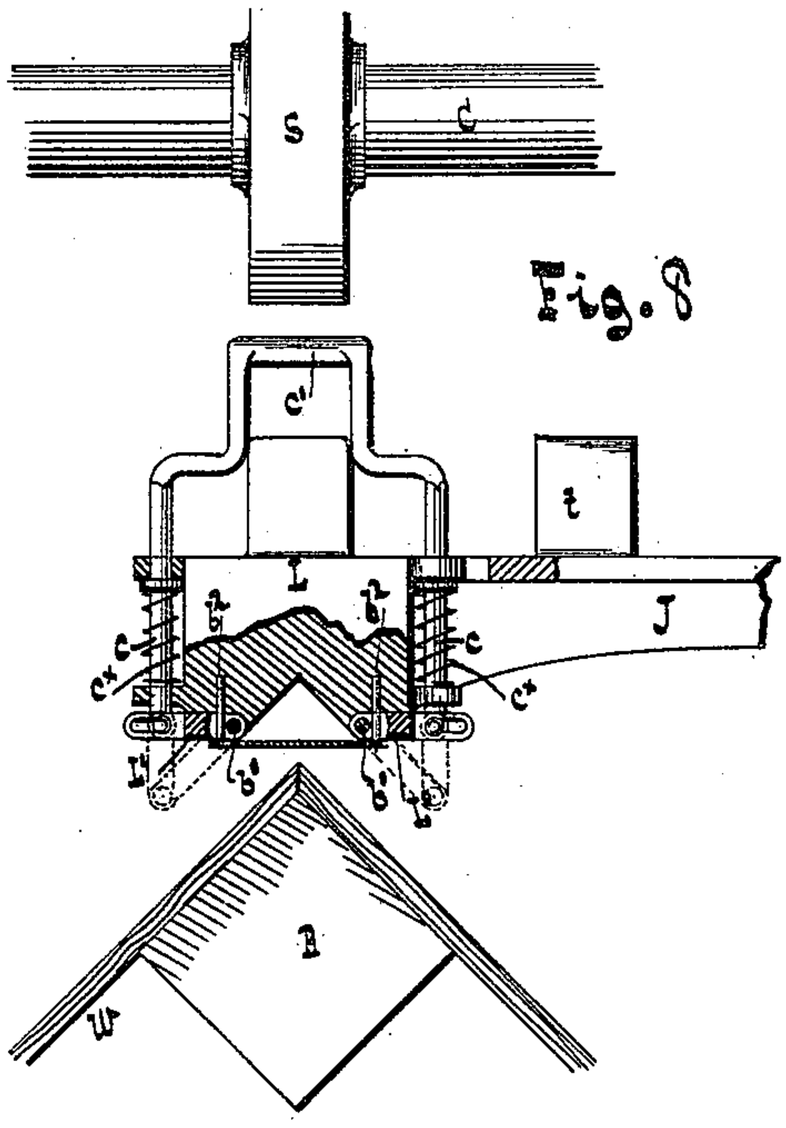

Fig. 8.

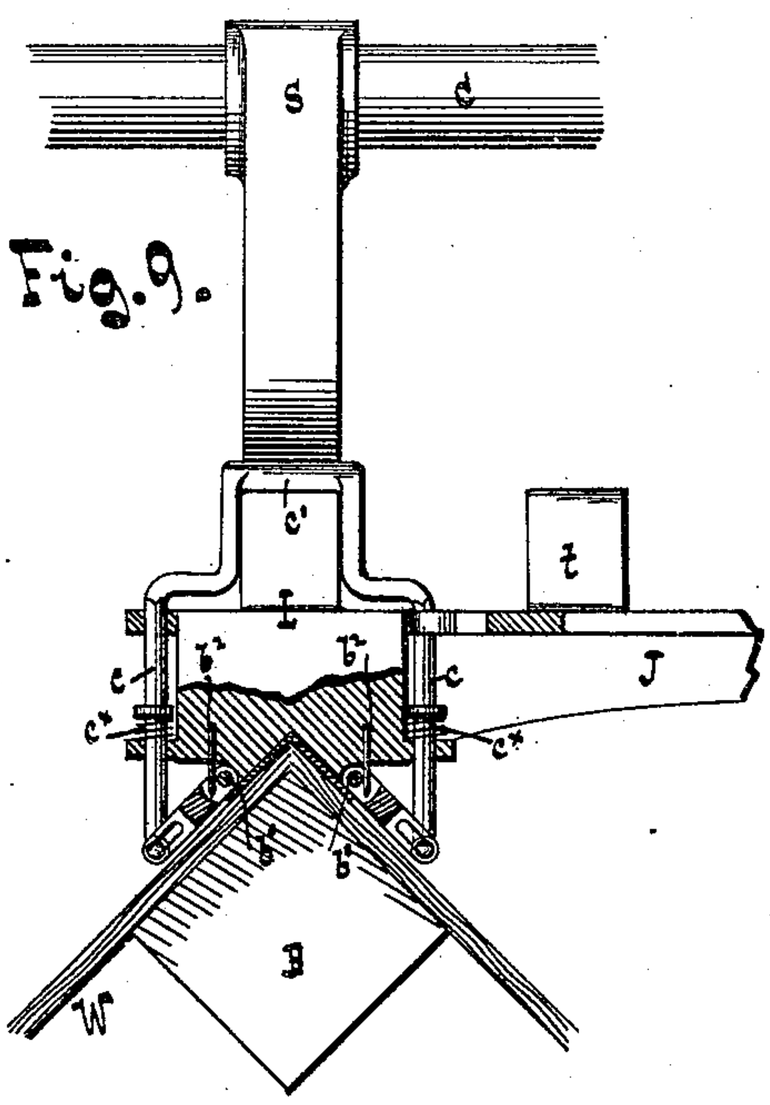

Fig. 9.

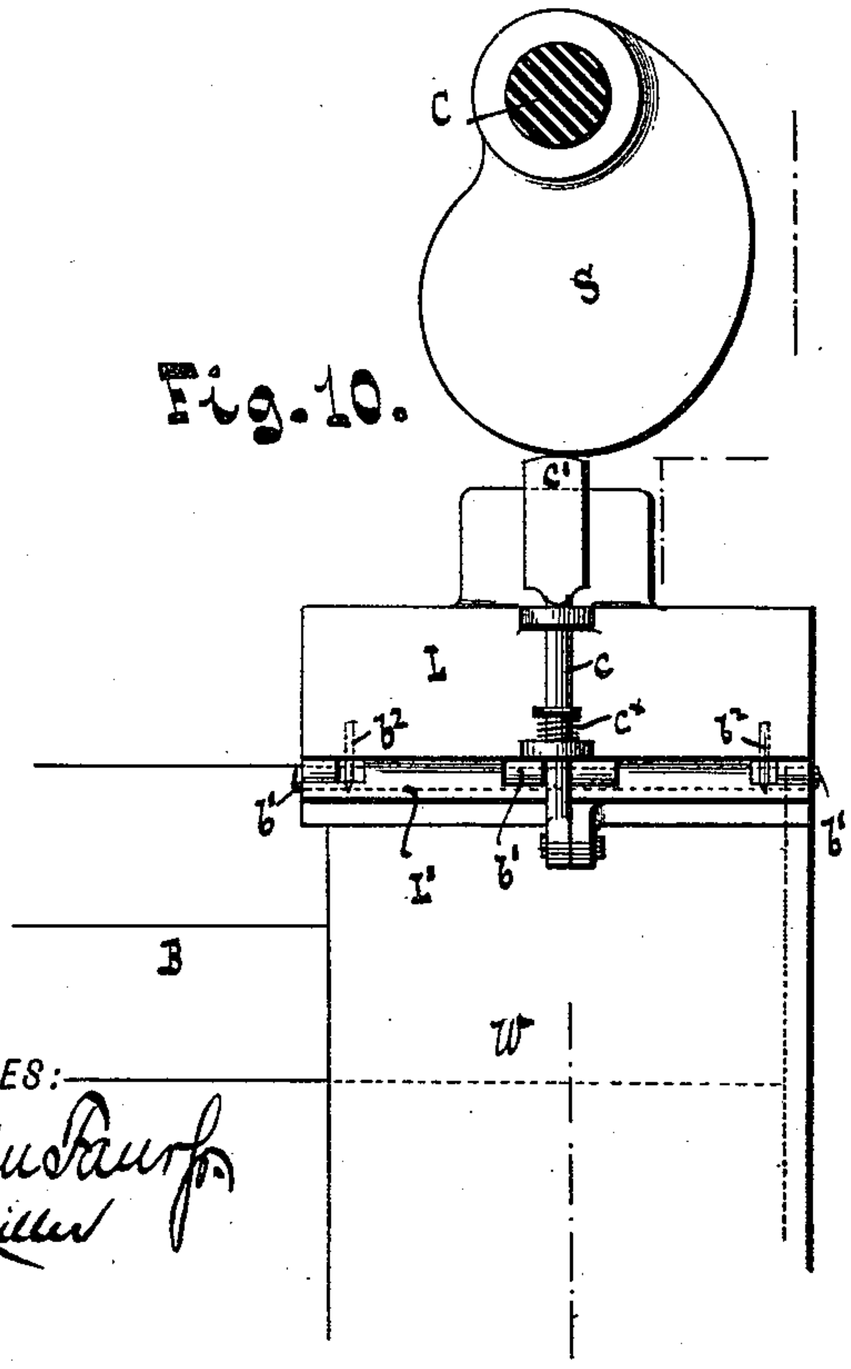

Fig. 10.

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UNITED STATES PATENT OFFICE.

GUSTAV L. JAEGER, OF NEW YORK, N. Y.

MACHINE FOR APPLYING CORNER-STAYS TO BOXES.

SPECIFICATION forming part of Letters Patent No. 438,546, dated October 14, 1890.

Application filed April 4, 1890. Serial No. 346,513. (No model.)

To all whom it may concern:

Be it known that I, GUSTAV L. JAEGER, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Machines for Applying Corner-Stays to Boxes, of which the following is a specification.

This invention relates to a machine for applying corner-stays to boxes, such corner-stays being cut into the required length and width and placed into a holder, then rendered adhesive one after the other, and finally secured to the box by pressure, as fully pointed out in the following specification and claims, and illustrated in the accompanying drawings, in which—

Figure 1 represents a sectional front elevation of the machine, showing the parts in their position of rest. Fig. 2 is a similar view showing the parts in a position different from that shown in Fig. 1. Fig. 3 is a vertical section in the plane *x x*, Fig. 1. Fig. 4 is a perspective view of the holder. Fig. 5 is a perspective view of the picker. Fig. 6 is a perspective view of a box provided with corner-stays. Fig. 7 is a perspective view of one of the corner-stays. Figs. 8 and 9 are a sectional elevation of a modified form of a picker, said figures being drawn on a larger scale than the preceding figures. Fig. 10 is a side view of Fig. 9, drawn to the same scale as said figure.

Similar letters and figures indicate corresponding parts.

In the drawings, the letter A designates a table supported upon legs A′, and from which rise two standards A^2, which contain bearings for a cam-shaft C.

B is the box-support, which is firmly secured to the table A, and the sides of which are inclined to fit the corner of the box W.

The corner-stays *a* are made of paper, muslin, or any other suitable flexible material, and they are cut out to correspond in length and width to the size of the box to which they are applied. These stays may be introduced into the machine in a "plain" state and afterward rendered adhesive by the application of the paste, or said stays may be previously prepared by coating one side of each stay with a suitable adhesive—such as mucilage—which is left to dry, and if such previously-prepared stays are used they are afterward rendered adhesive by the application of moisture.

The stays, whether plain or "previously prepared," are formed into a pile and introduced into a holder G. A perspective view of this holder G is shown in Fig. 4. It is composed of a bottom *c* and two end plates *d*, which are adjustable on the bottom, and the upper ends of which are bifurcated. The extremity of each member of the bifurcations is provided with a hook *e*, so that each end plate has two separated hooks to bear against the uppermost corner-stay and thereby retain the column or stack more accurately in position than where a single hook is provided on each end plate. On the bottom *c* is placed a spiral spring *f*, which forces the piles of stays up against the hooks *e*.

On the table A are cast or otherwise secured two plates *g*, to which the holder G is attached by screws *h*. In front of the table A are situated two guides H H, between which is fitted the cross-head I, and in this cross-head is firmly secured a stud *i*, which forms the fulcrum for an arm J. The inner end of the arm J carries the picker L, which has a recessed face corresponding in angle to the angle of the box-support. On the bottom of the picker are flat surfaces *l l*, which are provided with teeth that bite into the uppermost stay when the picker is depressed and withdraw the same from the holder. The linear movement of the picker L is produced by the combined action of a lever M and a drum N, containing a cam-groove O. This lever has its fulcrum on a stud *m*, secured in one of the legs A′, supporting the table, and its upper end engages with the stud *i* in the cross-head I. A roller-stud *n* on the lever M engages with the cam-groove O of the drum N, which is mounted on the shaft P′ of the weighted foot-lever P. On the top of the foot-lever is formed a toothed segment Q, which engages with a gear-wheel *q*, mounted on a spindle Q′. This gear *q* engages with gear *q′*, mounted loosely on the cam-shaft C. The gear-wheel *q′* is coupled to the shaft so

as to rotate the same in the direction of arrow 1, Fig. 1, only, by any well-known form of clutch R. A ratchet-wheel r and pawl r' prevent the accidental turning of the shaft in the wrong direction by friction between the same and the gear-wheel q'. On the shaft are rigidly mounted three cams S T U—one cam S above the box-support, one T above the fount V, and one U above the holder G. In the fount V is a device W′, which serves to transmit paste or moisture from the fount V to the stay, and which I shall hereinafter term the "transmitter." The transmitter is made of an absorbent material—such as sponge—and I prefer to make it in the form of a roller; but it may be in the form of a pad. If a plain stay is used, the fount is supplied with paste; but if a previously-prepared stay is used the fount is supplied with water, so that one side of each stay being pressed down upon the transmitter W′ is rendered adhesive.

The cam-groove O for actuating the lever M has three straight or parallel portions 1, 2, and 3, which cause the picker L to stop when it is over the holder G, the transmitter W′, and the box-support B, respectively, and it has oblique portions 4 and 5, which cause the picker to be moved from the holder to the transmitter and from the latter to the box-support. The foot-lever P being pressed back, the drum N is turned in the direction of arrow 2, Fig. 1, and the cam-shaft C is rotated in its bearings. The cam U engages with the picker and forces it downward, causing it to engage with the uppermost stay a in the holder G. When the cam U is out of engagement with the picker, the same is carried forward by the lever M and stops when it is opposite the transmitter W′. The cam T, now descending, forces the picker down upon the transmitter and the stay is rendered adhesive. The cam T having passed the picker, it is carried to a position above the box-support B. The descending cam S now engages with the picker and causes it to lay the stay upon the corner of the box W, Fig. 2. The foot-lever P being released, it is carried back to the position shown in Fig. 1 by the action of a weight, spring, or other well-known means. During this half-vibration the cam-shaft C remains stationary, it having made one complete rotation in the former half-stroke of the foot-lever.

Springs j on each side of the picker-arm J tend to hold it in an elevated or normal condition.

In Figs. 8, 9, and 10 I have shown a modified form of the picker L. This picker embodies in its construction two clearing-wings L′ L′, which are intended to remove the corner-stay a from the teeth of the picker when the picker is over the box-support B and is descending on the box. To this end the wings L′ L′ are hinged at b' to each side of the picker and the teeth b^2 b^2 are secured in the body of the picker, but project through suitable openings beyond the lower surface of said wings, so that they can penetrate the stay, as seen in Fig. 8. To the outer ends of the wings L′ L′ are connected the lower ends of rods c c, which are connected at their top ends by a bridge c'. Springs c^* normally hold the wings in the position shown in Fig. 8. When the bridge c' is engaged by the cam S, the rods c are depressed and the wings are turned downward to strip the stay from the teeth b^2 b^2. When a picker of this construction is used, it is so fed forward to the holder G and the transmitter W′ that the two cams T and U above the same engage with projections t on the picker instead of with the bridge c'.

By the use of the clearing-wings L′ L′ all danger of tearing the stay is avoided.

A suitable gage K, consisting of a flat plate, is secured to the table A, Figs. 1 and 3, by a bar k and screw k'. The gage may be adjustable in the direction of the depth of the box-support B and forms a rest for the top of the box.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the box-support, the holder G, the fount, and its transmitter W′, of a picker L, arranged to move across the box-support, the holder, and the transmitter, and cams arranged above the support, the holder, and the transmitter for depressing the picker, substantially as shown and described.

2. The combination, with a box-support, the holder, the fount, and its transmitter, of a picker L, cams arranged to engage with said picker, a turning drum containing a cam-groove O, provided with straight and oblique portions, and a lever-connection between the picker and the drum for actuating the former, substantially as shown and described.

3. The combination, with the box-support, the holder, the fount, and its transmitter, of a picker L, a cross-head having a pivotal connection with the picker, a drum containing a cam-groove O, a lever-connection between the cross-head and the cam-groove, a cam-shaft having thereon cams for engaging with the picker, and a lever geared to the cam-shaft for rotating the same, substantially as shown and described.

4. The combination, with the box-support, the holder G, the fount, and its transmitter W′, of the spring-supported hinged picker L, a rotary drum containing a cam-groove O, a lever-connection between the picker and the groove, a cam-shaft C, cams arranged on said shaft above the support-holder and the transmitter for successively engaging with the picker, and a lever P, rigidly secured to the drum-shaft and geared to the cam-shaft, substantially as shown and described.

5. The combination, with the box-support, the holder G, the fount, and its transmitter W′, of the picker L, a rotary drum containing a cam-groove O, a lever-connection between the picker and the cam-groove, a cam-shaft C, cams arranged on said shaft for successively engaging with the picker, a gear q'

on said shaft, a clutch R, and a lever P, for actuating the gear q', substantially as shown and described.

6. The picker L, having a recess the stationary walls of which converge toward the bottom of the recess to correspond with the box-corners and are provided with flat bottom surfaces l, each carrying a line of teeth, substantially as and for the purposes described.

7. The picker L, having the clearing-wings L′ L′, and the teeth b b, extending through said clearing-wings, substantially as shown and described.

8. The picker L, having the internal inclined faces, hinged clearing-wings L′ L′, teeth b b, extending through said clearing-wings, and springs acting on said wings, substantially as shown and described.

9. The combination, with the box-support, the holder, and the actuating-cams, of the picker L, having the two hinged clearing-wings L′ L′, teeth b^2 b^2, extending through the same, and the spring-rods e e, substantially as shown and described.

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

GUSTAV L. JAEGER. [L. S.]

Witnesses:
WM. C. HAUFF,
E. F. KASTENHUBER.