

(No Model.)

2 Sheets—Sheet 1.

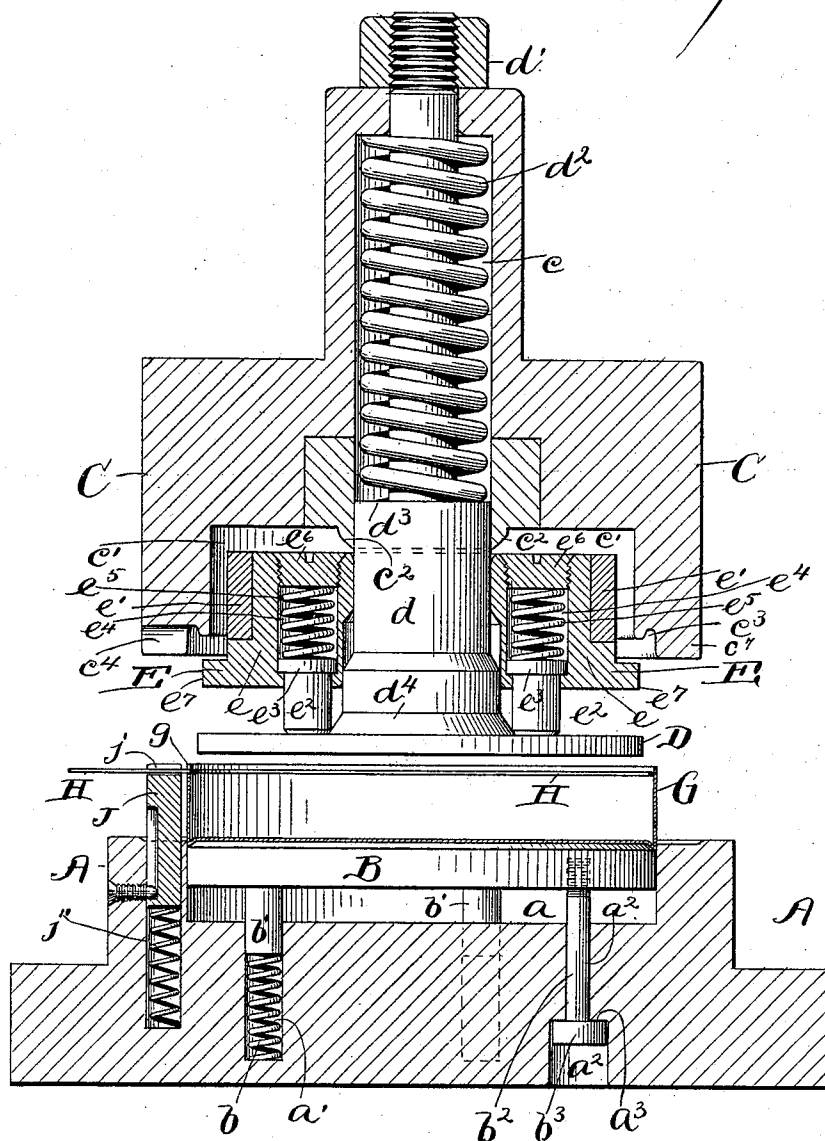
H. H. HULL.

MECHANISM FOR WIRING EDGES OF COVERS OR ANALOGOUS ARTICLES.

No. 588,749.

Patented Aug. 24, 1897.

Fig. 1.



Witnesses.

E. B. Gilchrist
A. M. Rawkin

Inventor.

Herbert H. Hull

By E. L. Thurston

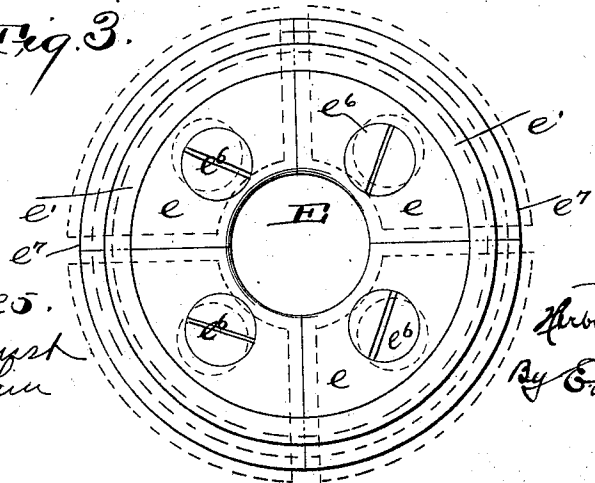
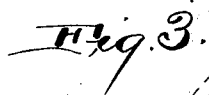
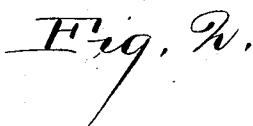
his atty

H. H. HULL.

MECHANISM FOR WIRING EDGES OF COVERS OR ANALOGOUS ARTICLES.

No. 588,749.

Patented Aug. 24, 1897.



Witnesses.

E. B. Gilchrist
A. M. Rankin

Inventor,

Robert H. Hull

By E. L. Thurston
his atty.

UNITED STATES PATENT OFFICE.

HERBERT H. HULL, OF CLEVELAND, OHIO.

MECHANISM FOR WIRING EDGES OF COVERS OR ANALOGOUS ARTICLES.

SPECIFICATION forming part of Letters Patent No. 588,749, dated August 24, 1897.

Application filed August 3, 1896. Serial No. 601,433. (No model.)

To all whom it may concern:

Be it known that I, HERBERT H. HULL, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Mechanism for Wiring the Edges of Covers or Analogous Articles; 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 make and use the same.

My invention relates to mechanism for wiring the edge of a sheet-metal can, box, cover, or other analogous article.

The object of the invention is to provide novel and practical mechanism whereby a wire may be secured on the inside of one end of a cover, can, or other analogous article when the opposite end of said article is closed. So far as I now know the mechanism hereinafter described is the first mechanism by which this result can be attained.

The object of the specific embodiment of my invention which the drawings show is to complete a cover wherein the ripping-wire is embraced by the inwardly-turned edge of the cover and has one end projecting outwardly from the cover.

The invention consists in the construction and combination of parts which are hereinafter described, and definitely pointed out in the claims.

In the drawings, Figure 1 is a central sectional elevation of my wiring mechanism before it begins to act. Fig. 2 is a central sectional elevation of said mechanism, showing the parts in the relative position which they occupy just as the wiring operation is completed. Fig. 3 is a bottom view of the upper or movable part of the apparatus.

Referring to the parts by letters, A represents the bed-plate, having a circular recess a in its top.

B represents a circular platen which fits said recess and is vertically movable therein. It is subject to a constant pressure upward, which may be produced by a series of springs b , which are contained in sockets a' in the bed-plate, which springs thrust upward against pins b' on the under side of the platen B. The upward movement of the platen is limited by any suitable mechanism—as, for ex-

ample, pins b^2 , which pass upward through holes a^2 in the bed-plate and screw into the bottom of the platen. The heads b^3 of said pins are freely movable in the enlarged lower part of said holes a^2 , but they engage with shoulders a^3 when the platen has moved up as far as it should.

C represents a plunger which is moved up and down by suitable mechanism—as, for example, the plunger of a die-press—which is not shown. In the center of this plunger, extending from the bottom to near the top, is a recess c . Near the bottom of this plunger this recess is enlarged, so as to be adapted to receive the expanding ring E, the said enlargement being indicated by the reference-letter c' . The formation of this recess necessarily produces the depending annular flange c' , which surrounds it.

D represents a circular pressure-plate which is formed upon or secured to the lower end of the stem d , which stem passes up through the recesses c and through a hole in the top of the plunger and is guided in its movements relative to said plunger by engaging therewith. Upon the projecting end of the stem d a nut d' is screwed. A coil-spring d^2 lies in the recess c , surrounding the stem d , and it thrusts endwise against a shoulder d^3 upon the stem and against the top wall of the recess c in the plunger. The force of this spring is constantly exerted to move the plate D and stem d downward relative to the plunger C, which downward movement is limited by the nut d' .

In the enlarged recess c' and embracing the stem d is an expanding ring E. This ring is composed of four (more or less) sections e , which are held in the proper relation to each other by an elastic-rubber ring e' , which embraces them. e^2 represent pins which project through the bottom of the ring-sections. The heads e^3 of said pins are movable in recesses e^4 in said sections, which recesses contain coil-springs e^5 , which thrust endwise against the heads of the pins and against screw-plugs e^6 in the upper ends of said recesses. The lower ends of these pins bear upon the top of the plate D, and the springs e^5 exert a constant force tending to move the expanding ring upward relative to said plate D. On the lower end of the stem d , adjacent to the plate

D, an annular outwardly-beveled surface d^4 is formed.

An annular depending wedge-shaped flange c^2 is formed upon the plunger in the recess c' around the stem d . In the lower edge of the plunger C is formed the annular curling-groove c^3 , which is shaped so that when the groove engages with the top of the cover it bends said top inward and downward. The outer periphery of this groove extends downward below the inner edge of the groove and embraces the top of the cover during the curling operation.

When performing the functions for which the described mechanism is organized, the parts thereof move in the following manner: The cover G, in which the wire H has been placed, substantially as shown in Fig. 1, is placed upon the platen B. One end of the wire H extends out through a notch or slot g in the edge of the cover, and this projecting end of the wire lies in a notch j in the top of a vertically-movable pin J, which is mounted in the bed-plate A and is moved upwardly by a coil-spring j' . The plunger C is now moved down. This movement is transmitted through the springs d^2 and stem d to the plate D, which plate enters the cover and strikes the bottom thereof. The further downward movement of said plate D presses upon platen B and moves it down to the bottom of the recess in which it lies. As the plunger continues to move down the wedge-shaped flange c^2 enters between the ring-sections and the stem and presses said ring-sections in two directions—viz: downward and outward—with the result of expanding the upper end of the ring slightly. At this stage of the operation of the parts only a part of the wedge-shaped flange enters between the stem and ring sections.

As the expanding ring moves down by reason of the downward pressure above referred to the ring-sections are brought into engagement with the beveled surface d^4 on the stem, whereby the lower parts of said ring-sections are moved outward. The flange e^7 enters the cover and passes below the wire H, the ring expanding during this downward movement. Just after said flange e^7 passes below the wire the ring will have expanded sufficiently to carry said flange under the wire, whereby the wire will thereafter be supported. The ring has not, however, at this time moved as far down as it will move, nor has it expanded as much as it will expand; but about the time the flange e^7 passes beneath the wire the groove c^3 in the plunger embraces the edge of the cover and begins to curl said edge inward. Both the plunger and the expanding ring continue to move down, but the plunger moves the faster, because the downward movement of the expanding ring is resisted by an increase in force—viz., the force of the springs e^5 , which as they near their compression limit more and more resist the force tending to compress them. As the ring moves down its

edge supports the wire, which is also moved down as the edge of the cover is curled over, and it also continues to expand until it reaches the end of its downward movement, at which time the plunger has overtaken it, the wedge-shaped flange c^2 has been completely inserted between the ring-sections and the stem, the parts of the device are in the position as shown in Fig. 2, and the wiring of the edge of the cover is now completed.

The plunger in its downward movement strikes the pin J and moves it down against its spring, and the projecting end of the wire enters a corresponding notch c^4 in the lower edge of the plunger. The plunger C is immediately retracted, and all of the parts substantially reverse the described movements until they resume the position shown in Fig. 1, at which time the completed cover may be removed and a new one substituted and the described operation repeated indefinitely.

It may be here stated that the flange e^7 need not, although it preferably should, be a complete ring. The essential characteristic of the "expanding ring," so called, is that it shall include outwardly and inwardly movable supports for the wire during the wiring operation, and these supports must be arranged in a circle, so as to support all parts of the wire, and they must be vertically movable relative to the cover, so that they may move into and out of said cover.

Having described my invention, I claim—

1. In a device for wiring the edge of covers and analogous articles, the combination of a platen for supporting the cover to be wired, and a vertically-movable plunger having a recess in its lower end, a depending annular flange which surrounds said recess, and an annular curling-groove in the lower edge of said flange, with an expanding ring centrally supported within said recess, means for normally contracting it to its smallest diameter, and mechanism whereby the downward movement of the plunger moves the said expanding ring downward into the cover supported upon the platen, and mechanism for expanding said ring within said cover, whereby its edge passes beneath and supports the wire as the edge of the cover is turned inward by the further downward movement of the plunger, substantially as and for the purpose specified.

2. In a device for wiring the edge of covers and analogous articles, the combination of a plunger having a recess in its lower end, a depending annular flange surrounding said recess, and an annular curling-groove in the lower edge of said flange, with a stem, vertically movable through said plunger; having a horizontal plate upon its lower end, a spring acting to force said stem downward relative to the plunger, an expanding ring embracing said stem within the recess in the plunger, a spring for contracting said ring around said stem, and means for expanding said ring when it is moved down upon said stem by the

action of the plunger, substantially as and for the purpose specified.

3. In a device for wiring the edge of covers and analogous articles, the combination of a
5 vertically-movable plunger having a recess in its lower end, an annular flange surrounding said recess, and an annular curling-groove in the lower edge of said flange, with a stem vertically movable through said plunger, hav-
10 ing the beveled surface d^4 , a plate on the lower end thereof, a spring for moving said stem downward relative to the plunger, an expanding ring embracing said stem, a spring for contracting said ring, and a wedge-shaped
15 flange rigid with the plunger, depending from the top of said recess and embracing said stem, and springs exerting their force to separate said plate D and expanding ring, substantially as and for the purpose specified.
- 20 4. In a device for wiring the edge of covers, cans, and analogous articles, the combination

of a bed-plate A, the vertically-movable platen B, and the vertically-movable spring-pin J having a notch in its upper end, with a
25 plunger C having in its lower edge the annular curling-groove c^3 and a notch c^4 , with a plate D, its stem which is movable in suitable bearings in the plunger, a spring d^2 encircling
30 said stem, an expanding ring E embracing said stem, spring-actuated pins carried by said ring engaging with said plate D, the wedge-shaped flange c^2 on the plunger, and
35 a beveled surface d^4 on the stem for expanding said ring, substantially as and for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

HERBERT H. HULL.

Witnesses:

E. L. THURSTON,
E. B. GILCHRIST.