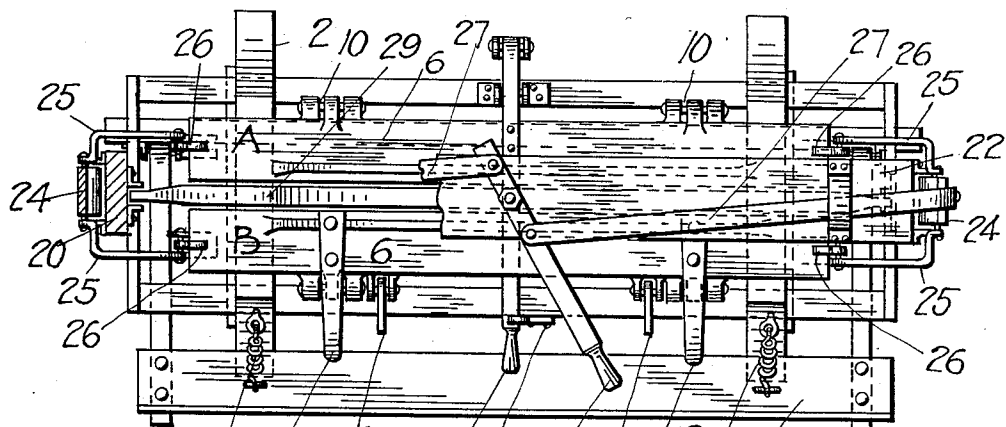
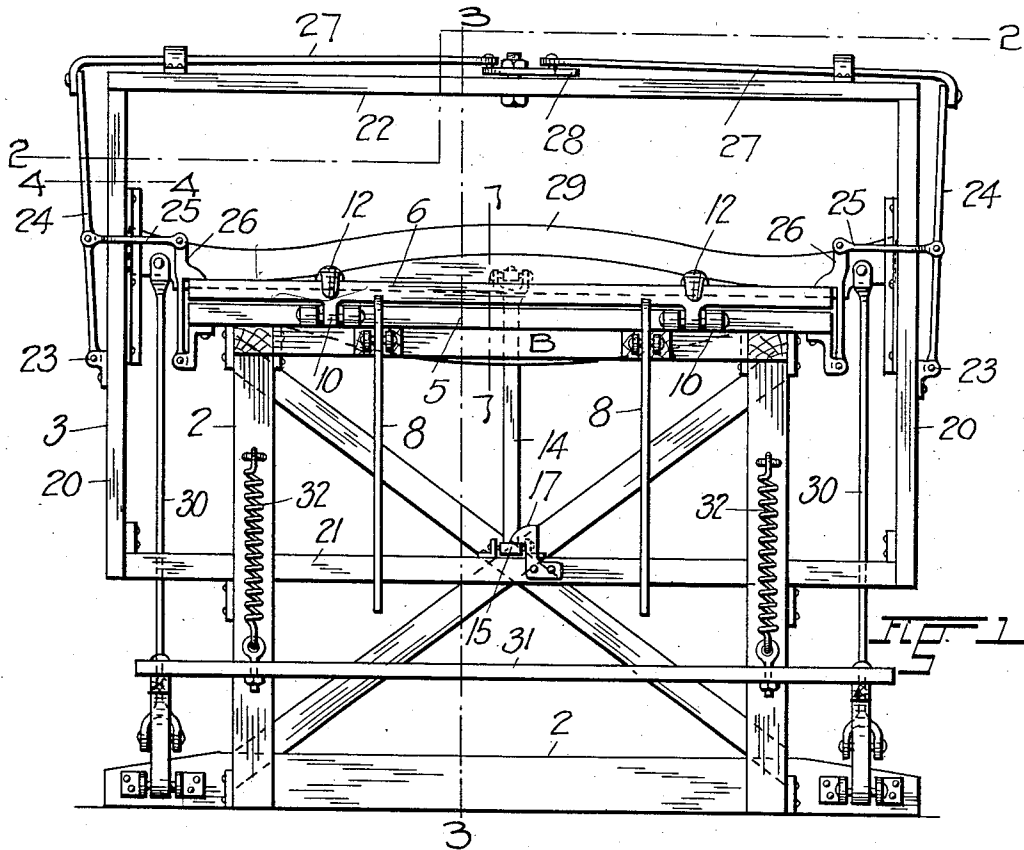


C. ENGDAHL & T. MATSON.
 WEATHER STRIP FORMING MACHINE.
 APPLICATION FILED JULY 31, 1912.

1,060,897.

Patented May 6, 1913.

3 SHEETS—SHEET 1.



WITNESSES:
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 R. P. Rhodes

INVENTORS:
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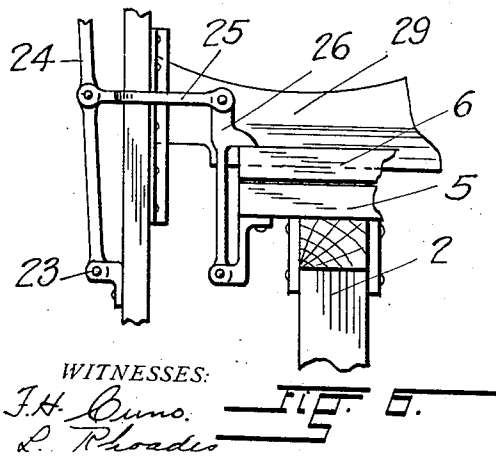
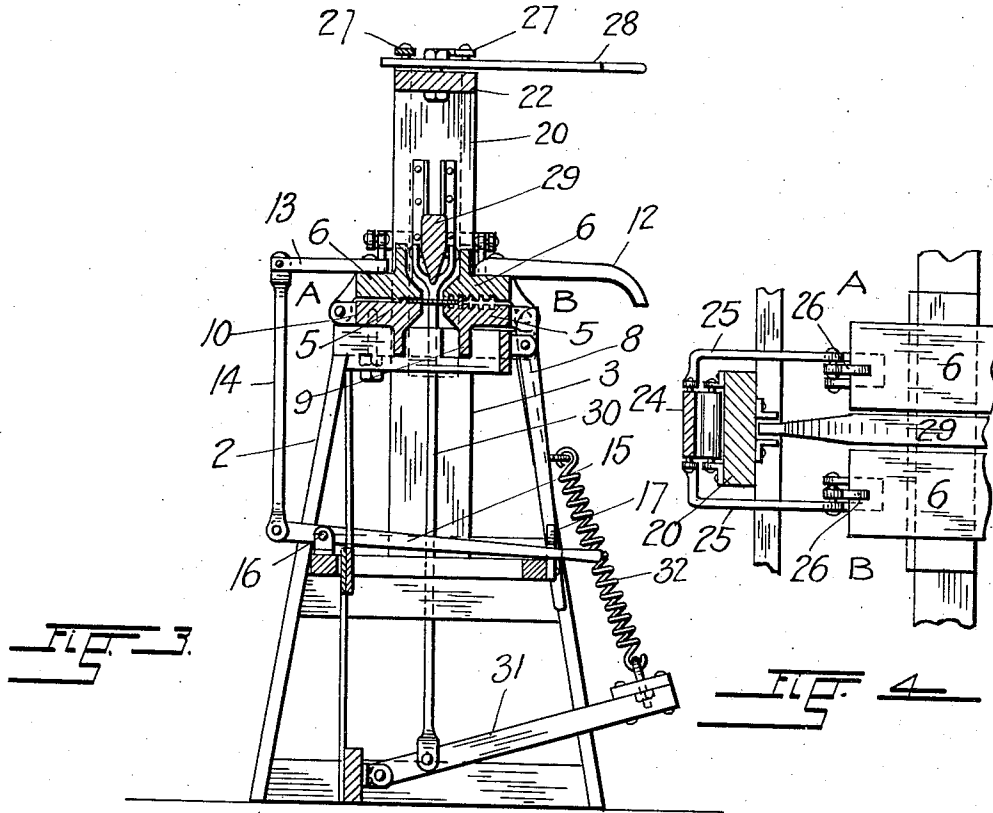
BY
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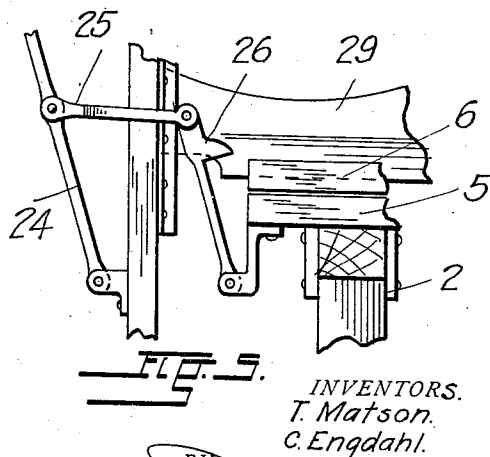
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3 SHEETS-SHEET 2.



WITNESSES:
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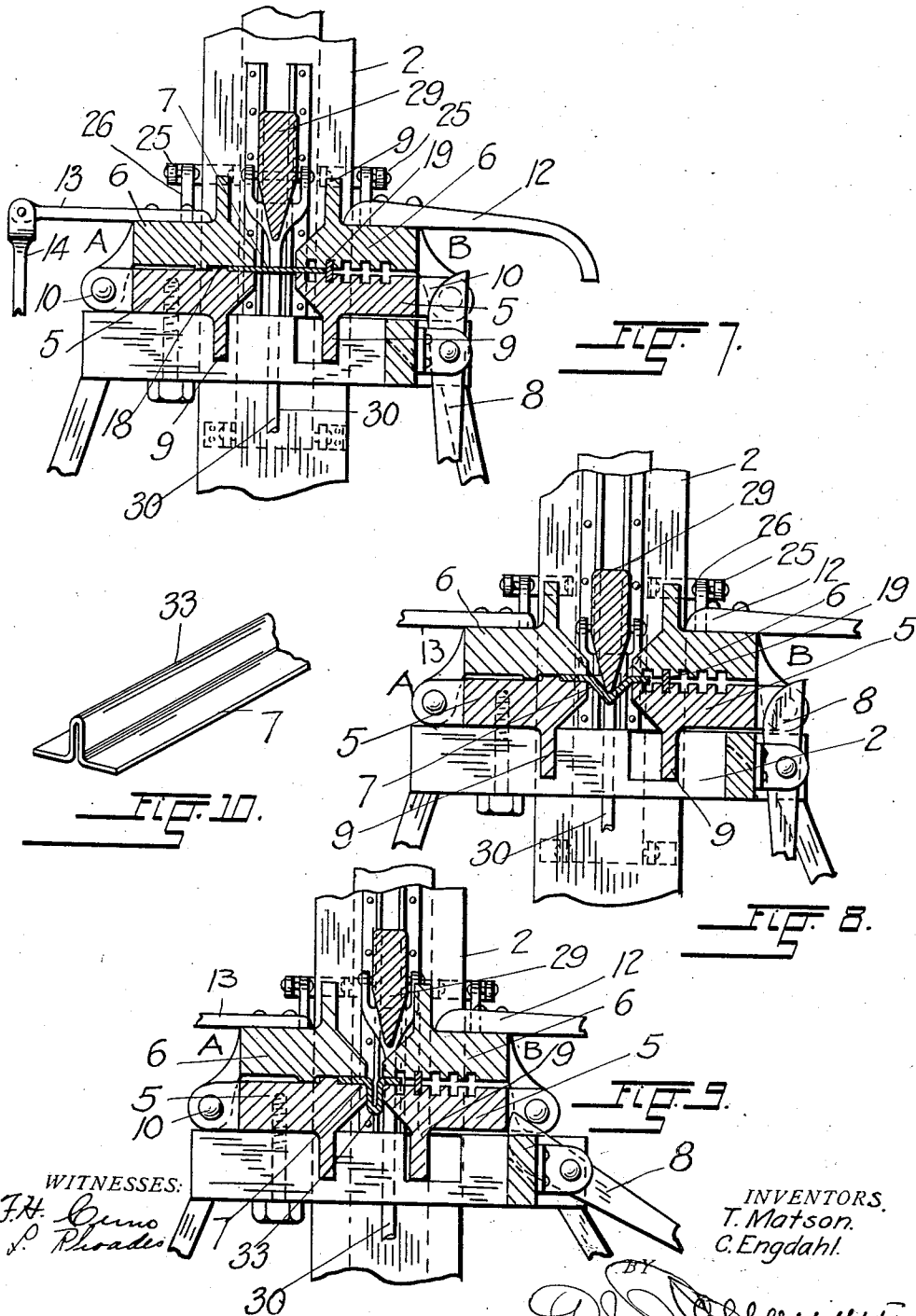
BY
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

CARL ENGDAHL, OF GUNNISON, AND THEODORE MATSON, OF DENVER, COLORADO;
SAID ENGDAHL ASSIGNOR TO SAID MATSON.

WEATHER-STRIP-FORMING MACHINE.

1,060,897.

Specification of Letters Patent.

Patented May 6, 1913.

Application filed July 31, 1912. Serial No. 712,585.

To all whom it may concern:

Be it known that we, CARL ENGDAHL, a subject of Gustaf V, King of Sweden, residing in Gunnison, in the county of Gunnison and State of Colorado, and THEODORE MATSON, a citizen of the United States, residing at Denver, in the county of Denver and State of Colorado, have invented certain new and useful Improvements in Weather-Strip-Forming Machines, of which the following is a specification.

Our invention relates to machines for forming metallic weather strips and its object resides in the provision of a mechanism of simple construction by the operation of which a flat strip of metal is bent and pressed to provide it with a longitudinally extending ridge. We attain this object by the mechanism illustrated in the accompanying drawings in the various views of which like parts are similarly designated, and in which—

Figure 1 represents a front elevation of the machine, Fig. 2, a horizontal section taken along the line 2—2, Fig. 1, Fig. 3, a vertical section taken along the line 3—3, Fig. 1, Fig. 4, a fragmentary section taken along the line 4—4, Fig. 1 drawn to an enlarged scale, Figs. 5 and 6, enlarged fragmentary elevations of the means for fastening the jaws of the clamps comprised in the construction, respectively in the clamped and loosened positions, Figs. 7, 8 and 9, enlarged sections taken along the line 7—7, Fig. 1 showing the clamping elements in the positions they successively assume in the operation of the machine, and Fig. 10, a perspective view of a portion of a strip formed by the machine.

The machine which is operated by hand by a person standing in front thereof, consists of a supporting frame 2 and a therewith rigidly connected superstructure 3. Mounted upon the frame 2, are two clamping elements A and B each consisting of two jaws 5 and 6 placed one upon the other to clamp the edges of a strip of metal between them, as shown in Fig. 7. The clamping element A is fixed at the rear of the frame while the other clamp at the front of the same is slidably mounted for the purpose of closing the two elements which are normally spaced from each other, together to bend the middle portion of a strip held between their jaws, as shown in Fig. 8. This

sliding movement is imparted to the movable clamping element B by means of two hand levers 8 which are fulcrumed upon the frame of the machine. These levers hang normally in front of the machine and their upper, short arms are formed and disposed to engage the front surface of the lower jaw 5 of the movable clamping element which, by means of a longitudinal rib 9 which is loosely fitted in transverse recesses in cross beams on the supporting frame, is guided during its movement toward and from the stationary clamping element A. The upper jaws 6 of both the clamps are articulately connected with the respective lower jaws 5 by means of hinges 10 so that they may be separated from the said lower jaws for the insertion and removal of the weather strip.

The movable jaw 6 of the clamp at the front of the machine has two forwardly extending handles 12, by means of which the operator can move it about its hinges, and the movable jaw of the stationary clamp at the rear end of the machine has a rearwardly projecting arm 13 which, by means of a rod 14 is connected with the short arm of a hand lever 15 which is fulcrumed at 16 upon the frame and whose opposite arm is normally held in position beneath a catch 17, within easy reach of the operator standing in front of the machine.

Both the clamps A and B have between their jaws, stops which by engagement with the longitudinal edges of the weather strip, determine the proper position thereof with relation to the operating parts of the machine. The stop 18 on the stationary clamp is provided by a ridge formed integral with the lower jaw and that on the other clamp is formed by a strip 19 which is adjustable from one of a plurality of parallel longitudinally extending grooves in the inner surfaces of the two jaws into another to adapt the machine for use in forming strips of different widths.

The movable jaw of the clamp A and both the jaws of the rear clamp B are like the stationary jaw of the first-mentioned clamp, provided for strength and rigidity with longitudinally extending, integral ribs 9.

The superstructure hereinbefore referred to consists of two uprights 20 erected at opposite ends of the machine upon a horizontal frame 21 which forms part of the supporting structure, and connected at their upper

ends by means of a horizontally disposed board 22. Fulcrumed at 23 to the uprights 20 are two levers 24 which by means of pairs of connecting rods 25 are connected with the upper extremities of latch bars 26 which at their lower ends are pivotally mounted on lugs fastened at the ends of the lower jaws of the two clamps A and B. The bars 26 are formed with laterally projecting noses which by engagement with the upper surfaces of the movable jaws of the two clamps, secure them in their clamping position with relation to the respective lower jaws of the same. The levers 24 are by means of bent arms 27 connected at opposite sides of the fulcrum of a lever 28 which is mounted upon the horizontal board 22 and which projects beyond the forward edge thereof within easy reach of the operator, who by turning the lever in one direction can move the four latch arms from their normal position shown in Fig. 5, to the position in which they lock the movable jaws 6 of the two clamps upon the respective stationary jaws 5 of the same, as has been illustrated in Fig. 6.

A plunger 29 which is movable in guide ways on the uprights 20 of the superstructure in a vertical plane extending intermediate of the two parallel clamping elements, is normally supported in superposed relation to the same by means of rods 30, upon a treadle 31 which is pivoted at its rear edge to a beam at the lower portion of the frame 2, and which is held in a forwardly slanting position by means of a pair of coiled springs 32.

Having thus described the mechanical construction of the machine, its operation is as follows: After the movable jaw 6 of the clamp at the front of the machine has been placed in the open position by downward movement of the handles 12, and the movable jaw of the stationary clamp B is separated from its correlative by upward movement of the lever 15, a strip 7 of pliable metal of uniform width is placed upon the respective lower jaws of the two clamps with its longitudinal edges in engagement with the stops 18 and 19. Both the upper jaws are now returned to their original position upon the lower jaws by upward movement of the handles 12 and by placing the lever 15 beneath the catch 17 and they are subsequently locked by adjustment of the latch-bars 26 to the position shown in Fig. 5. The parts are now in the position illustrated in Fig. 7 with the strip 7 firmly held along its edges by the two clamps and extending between the same to be engaged by the beveled lower edge of the plunger 29 which as the next step in the operation of the machine, is moved downward by depression of the treadle 31 by the foot of the operator. The plunger by engagement of the strip bends the central portion thereof downwardly so

that when subsequently the movable clamping element is, by means of the levers 8 moved toward the stationary clamp, the inner edges of the two lower jaws will by engagement with the convergent portions of the strip, press them together, as shown in Fig. 9 until the middle portion of the strip is doubled to form the ridge 33 shown in Fig. 10. The operation thus being completed, the strip is removed from the machine by opening the two clamps and another flat strip is disposed in the place thereof. It will be understood that prior to the movement of the sliding clamp toward the other, the pressure upon the treadle is released to allow the springs 32 to return the plunger to its original position and that after the operation is completed, the movable clamp is moved to its normal position by means of the handles 12 at the same time that the upper jaw of said clamp is moved about its hinges to again separate it from the stationary jaw of the same.

Having thus described our invention, what we claim and desire to secure by Letters-Patent is:—

1. A machine of the class described comprising two normally spaced clamping elements mounted to be closed together, and a plunger movable between them, each of the said elements comprising a pair of hinged jaws, means for moving one jaw of each pair with relation to the other, and means for locking the jaws of the two pairs in their clamping position.

2. A machine of the class described comprising two normally spaced clamping-elements mounted to be closed together, and a plunger movable between them, each of the said elements comprising a pair of hinged jaws, means for moving a jaw of each pair with relation to the other, and stops connected with the two clamping elements to determine the position of a strip of metal placed between the jaws thereof.

3. A machine of the class described comprising two normally spaced clamping elements mounted to be closed together, and a plunger movable between them, each of the said elements comprising a pair of hinged jaws, means for moving a jaw of each pair with relation to the other, and stops connected with the two clamping elements to determine the position of a strip of metal placed between the jaws thereof, one of said stops being adjustable with relation to an edge of the element with which it is connected.

4. A machine of the class described comprising two normally spaced clamping elements mounted to be closed together, and a plunger movable between them, each of the said elements comprising a pair of hinged jaws, means for moving a jaw of each pair with relation to the other, the

jaws of one of said elements having in their inner surfaces a plurality of parallel grooves, and a stop adapted to be inserted in any one of said grooves to determine the position of a strip of metal placed between said jaws.

5. A machine of the class described comprising a supporting structure, a pair of normally spaced clamping elements mounted thereon to be closed together, each clamping element comprising two hinged jaws placed one upon the other, a plunger movable between said elements, handles on the upper jaw of one of said elements to move the same about its hinges, and a lever connected with a jaw of the other element for moving it about its hinges.

6. A machine of the class described comprising a supporting structure, a pair of normally spaced clamping elements mounted thereon to be closed together, and adapted to clampingly hold the opposite edges of a strip of metal placed between them, a plunger having a reciprocating movement between said elements, a treadle, springs to yieldingly maintain said treadle in a raised position, and rods connecting said treadle with the said plunger.

7. A machine of the class described comprising a supporting structure, a pair of normally spaced clamping elements mounted thereon to be closed together and each comprising a pair of hinged jaws, latch-arms pivoted on the said structure and adapted to lock the jaws of each element together,

and means for simultaneously adjusting said latch-arms to release the said jaws.

8. A machine of the class described comprising a supporting structure, a pair of normally spaced clamping elements mounted thereon to be closed together and each comprising a pair of hinged jaws, latch-arms pivoted on the said structure and adapted to lock the jaws of each element together, levers for moving said arms, and a lever connected with said levers to simultaneously adjust the position of said arms.

9. A machine of the class described comprising two normally spaced clamping elements mounted to be closed together and adapted to clampingly hold the opposite edges of a metal strip placed between them, stops on said elements to determine the position of said strip by engagement with said edges, and a plunger movable between the said elements to engage the middle portion of the said strip, one of said stops being adjustable with relation to an edge of the element with which it is connected.

In testimony whereof we have affixed our signatures in presence of two witnesses.

CARL ENGDAHL.
THEODORE MATSON.

Witnesses for Engdahl:

E. W. COLLINS,
H. S. CRARY.

Witnesses for Matson:

G. J. ROLLANDET,
L. RHOADES.