J. Siddons,

Seaming Sheet-Metal.

No. 37,410. Patented Jan. 13, 1863.

Fig. 1.

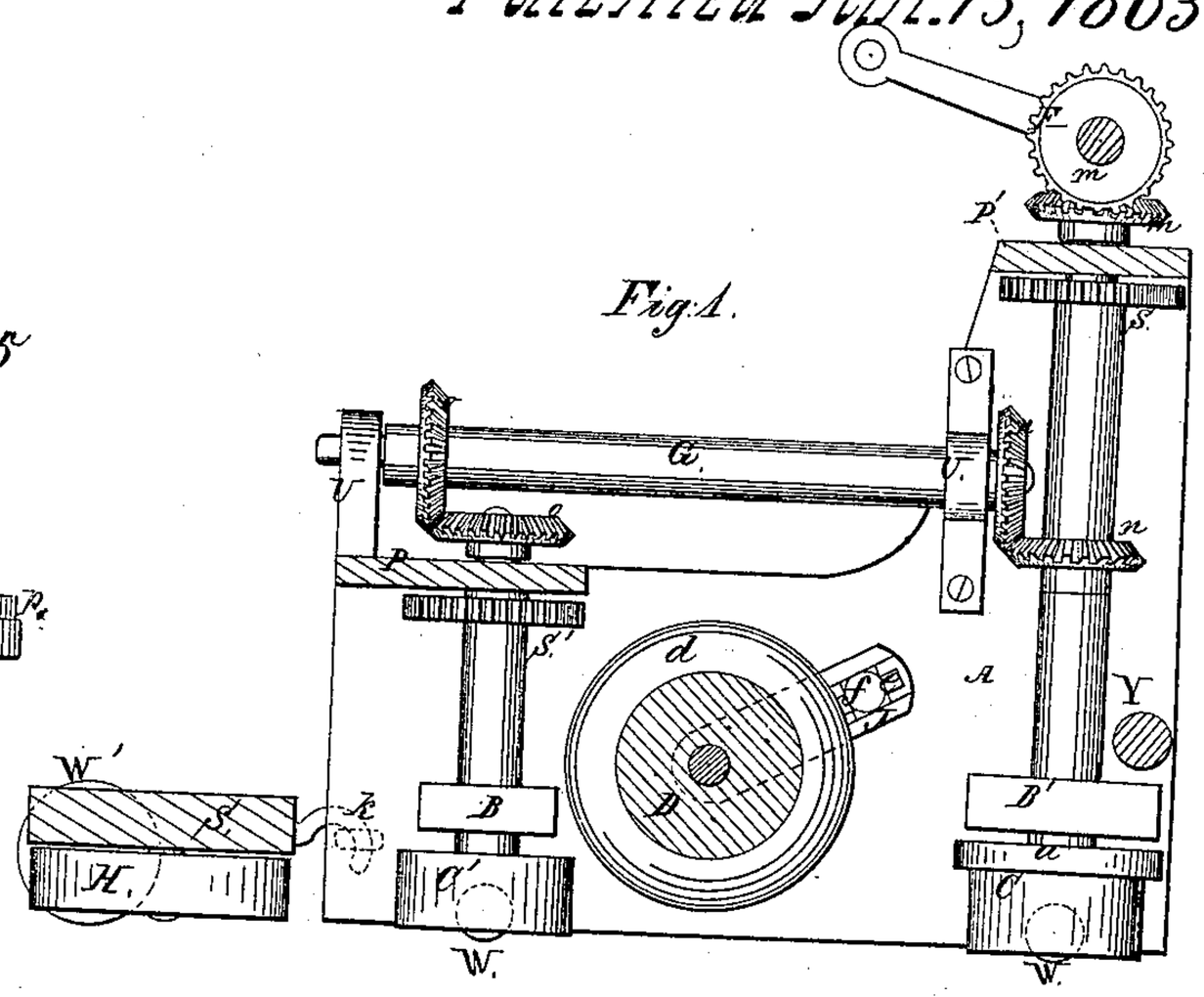


Fig. 5

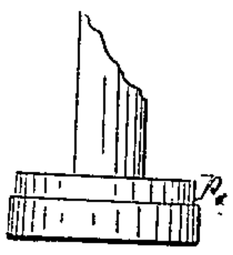


Fig. 2.

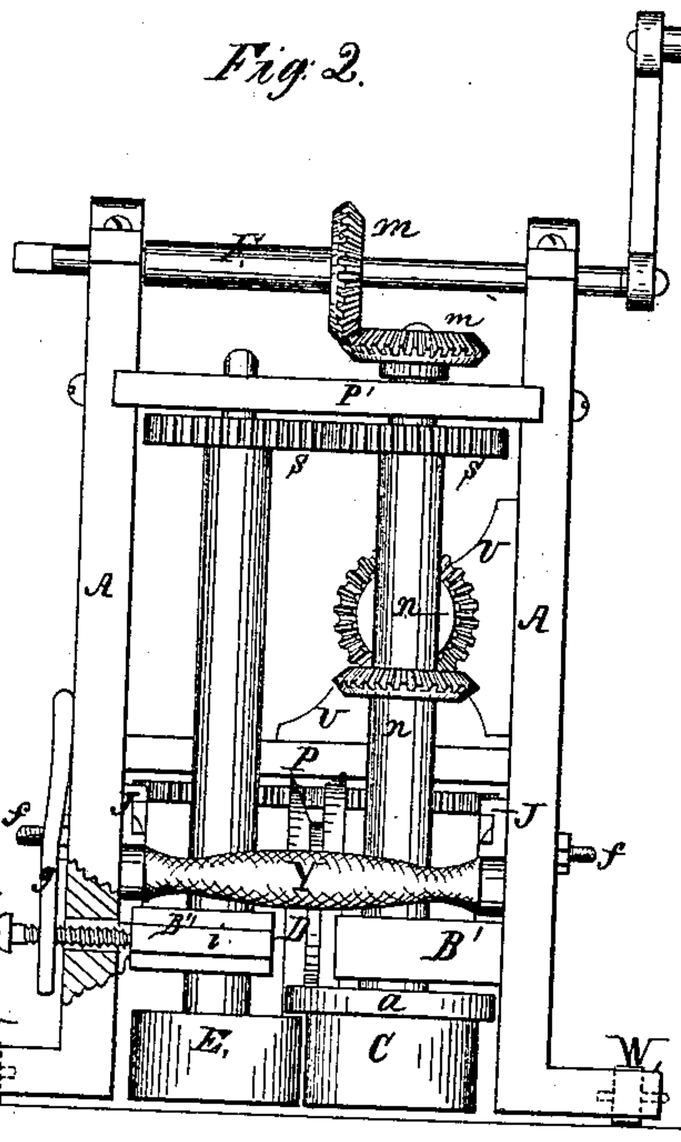


Fig. 3

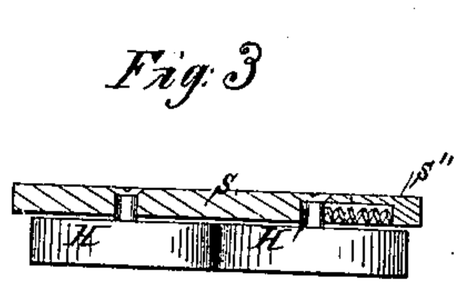
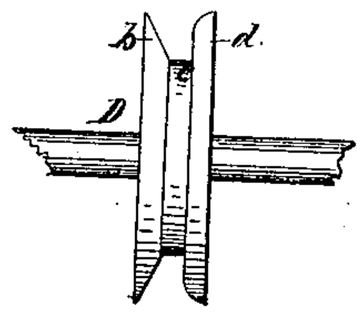


Fig. 4.



Witnesses:

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UNITED STATES PATENT OFFICE.

JOHN SIDDONS, OF ROCHESTER, NEW YORK.

IMPROVEMENT IN MACHINES FOR SEAMING METAL ROOFING.

Specification forming part of Letters Patent No. **37,410**, dated January 13, 1863.

To all whom it may concern:

Be it known that I, JOHN SIDDONS, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Machines for Folding the Seams of Ribbed Metallic Roofing; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a vertical section showing the general arrangement of the parts. Fig. 2 is a front elevation of the machine. Fig. 3 is a transverse section of the seat S and its pressure-wheels H and H′. Fig. 4 is a detached view of the closing-roller D. Fig. 5 shows the shape of the right-hand compressing-roller of the repeaters or second set.

Similar letters of reference indicate corresponding parts in the several figures.

The nature of the invention will be understood by reference to the specification and drawings.

The sides A are made of iron, and are firmly tied together by the plates P and P′ and the rod Y. The front set of rollers, C and E, have their upper bearings in the plate P′, and the lower bearing of C is in the bracket B′, and that of E is in the box B″, which is fitted to move laterally between two jaws, *j*, Fig. 2, projecting from the side A, the front one being broken away in order to show the set-screw *h*. The jaws *j* fit in the grooves *i*. The set-screw *h* is tapped through the stiff spring *g*, which is fixed to the side A, through which the screw passes loosely and presses against the box B″. The spring admits of the passage of cross-seams between the rollers, and by means of the screw the rollers are set to the different thicknesses of metal used. The roller C has a projecting flange, *a*, which turns the edge of one strip of the roofing down at right angles over the other. These rollers C and E are geared together by the spur-wheels *s*, the roller C being driven from the crank-shaft F by the miter-wheels *m*. The shaft G (seen in Fig. 1) hangs in the brackets U, and is geared to the roller C by pinions *n*, and drives the compressing-rollers C′ by the spur-wheels *s*′. The fellow of roller C′ has a lateral adjustment similar to the folding-roller E by means of a spring and set-screw.

Between the folding-rollers C and E and the compressing-rollers C′ is arranged the closing-roller D, which turns in the adjustable hangers J. These hangers are secured to the sides A by clamping-bolts *f*. The slots *e* through the hangers allow the position of the rollers to be changed both horizontally and vertically, so as to adapt the machine to different thicknesses of roofing used, and also to the various curves of domes, &c. The form of the groove in the periphery of this roller D is clearly shown in Fig. 4, the flange *b* being a straight bevel, and the flange *d* being curved to within about one-fourth or three-eighths of an inch of the bottom of the groove, the remaining distance being straight. The bottom *c* of the groove of the roller of the first set should be wide enough to admit three thicknesses of the metal or roofing used between the base of the flanges *b* and *d*, and that in the repeaters, which is the roller D of the rear set, should be wide enough to admit five thicknesses, which is about the proportion shown in Fig. 4.

The machine rests upon caster-wheels W. The seat S is hinged loosely to the rear of the machine, as seen in Fig. 1, and rests upon two caster-wheels, W′. It is provided with two compressing-wheels, H and H′, the journal of the latter being made to yield when passing cross-seams by means of the spring *s*″ operating against it, as shown in Fig. 3.

In a complete machine the system of rollers contained in the frame shown in Fig. 1 is repeated, the sides A and shaft G being made of sufficient length to receive the two sets and the seat attached to the rear of the whole.

In order to adapt the machine to the curves of domes, &c., the frames of the front and rear sets should be made separate and hinged together, and the shaft G of the two sets should be coupled together by an ordinary sliding joint. The faces of the folding-rollers C and E of the repeaters or rear set should be one-fourth inch (more or less) narrower than those of the first set. The closing-roller D of the rear set should be hung so as to ride with the bottom of the groove upon the edge of the seam, the same as that following the first fold. The bottom of the groove in this roller must be as much wider than it is in the first as is equal to the two extra thicknesses of metal made by the second fold. The roller C′ on the right-hand side of the machine in the rear set has

a gain, *p*, turned in the periphery, as seen in Fig. 5, and the folded seam catches in this gain and holds the rear of the machine down snugly to the roof, and, as may be seen in Fig. 1, the axes of the front rollers, C and E, are slightly inclined forward at the top, which causes them while turning to force themselves down to the roof.

Summary of the operation: The machine is started at the ridge, the operator placing himself upon the seat S. Then by turning the cranks motion is communicated to the front rollers, C and E, which act as traction-wheels upon the sides of the seam and move the whole apparatus forward, and by their axes being inclined forward they are made to run down toward the bottom of the rib or seam, and hug the roof all the way. These rollers turn one edge of the seam down at right angles over the other, the closing-roller D closing it in toward the rib, and the compressing-rollers C′ pressing the thicknesses together snugly. The repeaters or second series of rollers repeat the operation, making the second fold, and the rollers H and H′, under the seat S, do a portion of the work which would otherwise devolve entirely upon the rear compressing-rollers, C′. The apparatus is run to the eaves, then carried back to the ridge and started on another seam, folding it as before, and so on.

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

1. Inclining the axes of the folding-rollers C and E, as described, so that their rotation by means of the friction between them and the sides of the seam shall cause them to hug the roof effectually.

2. The employment of the closing-roller D, constructed and arranged in the manner specified, in combination with the folding-rollers C and E and the compressing-rollers C′.

3. The combination of the spring *g* and set-screw *h* with the adjustable box B″, whereby the roller E is allowed to yield and adapt itself to any inequalities of thickness in the seam, such as cross-seams and the different thicknesses of metals used.

4. Preventing the rear end of the machine from rising from the roof while in operation by means of the shoulder of the gain *p* in the right-hand compressing-roller C′ of the rear set catching under the fold of the seam, as specified.

5. The self-adjusting seat S, constructed and arranged substantially as described, in combination with the other parts of the machine.

JOHN SIDDONS.

Witnesses:

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