R. Montgomery,

Corrugating Machine

No. 26,607. Patented Dec. 27, 1859.

Fig. 2.

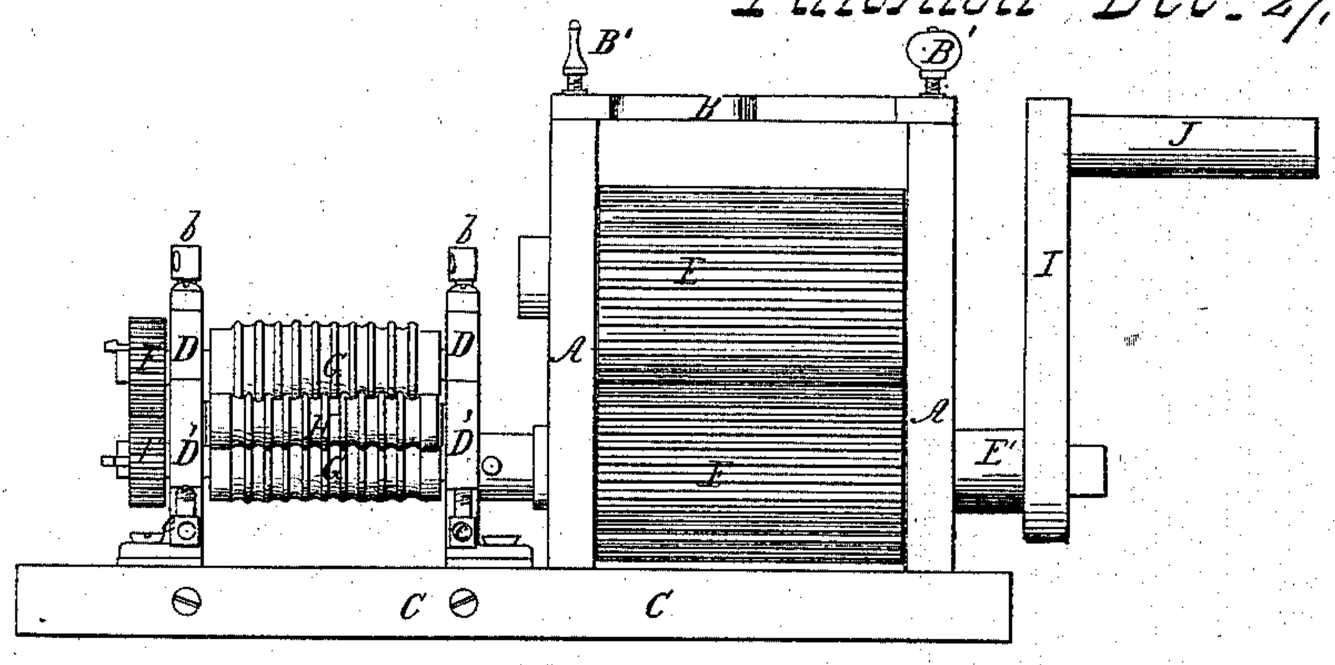


Fig. 1.

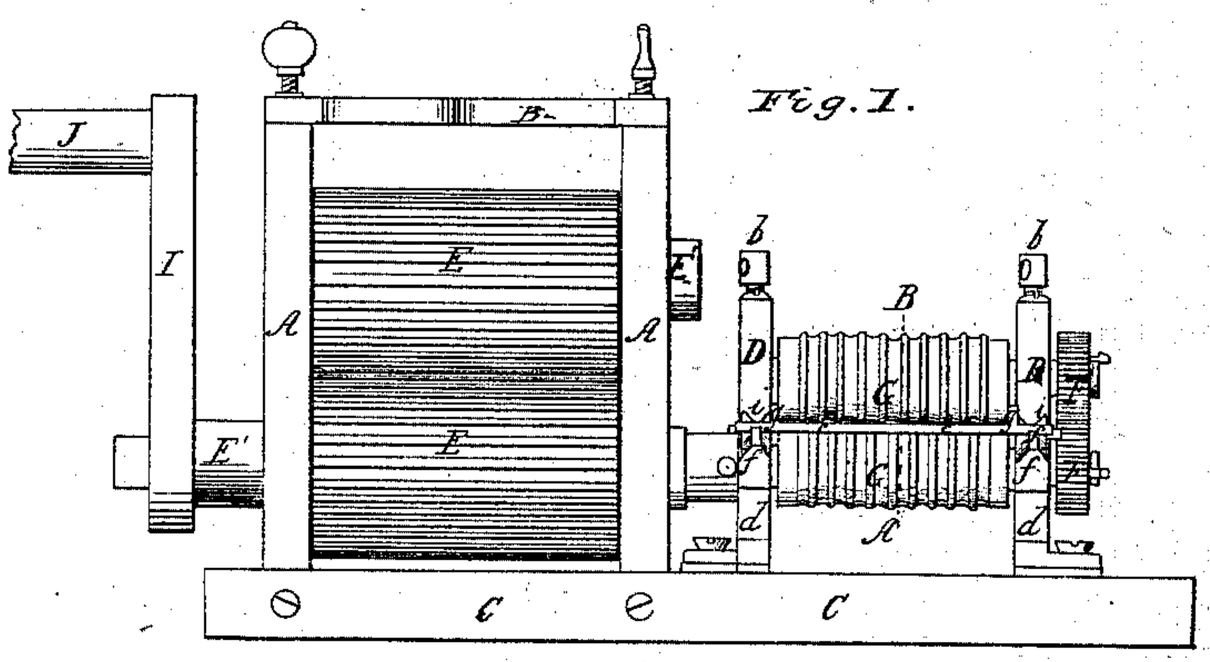


Fig. 3.

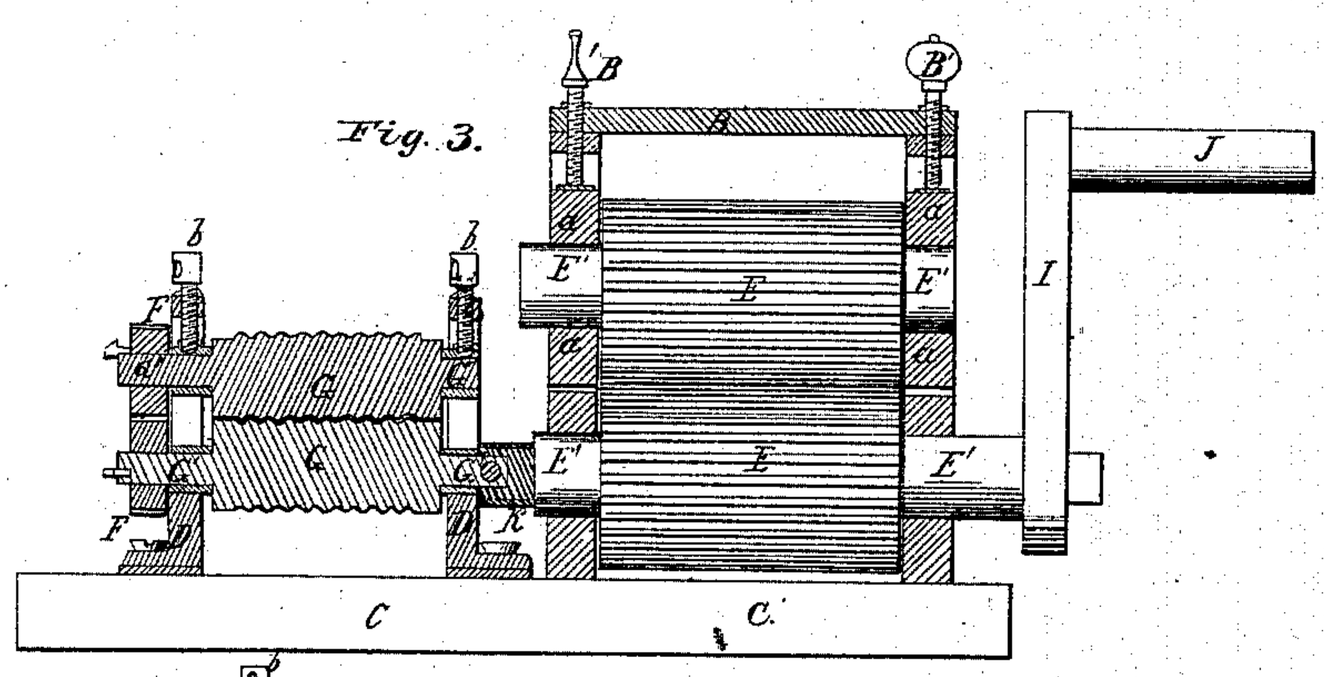
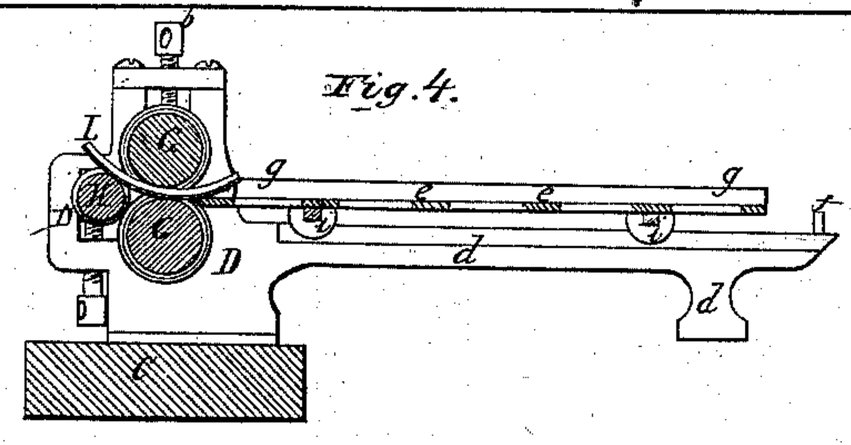


Fig. 4.



Witnesses;
Hoy. H. Dodge
Jno. L. Adams

Inventor;
Richard Montgomery

UNITED STATES PATENT OFFICE.

RICHARD MONTGOMERY, OF NEW YORK, N. Y.

ROLLING CORRUGATED METAL.

Specification of Letters Patent No. 26,607, dated December 27, 1859.

To all whom it may concern:

Be it known that I, RICHARD MONTGOMERY, of the city, county, and State of New York, have invented a certain new and useful improvement in machines for corrugating, smoothing, and forming metallic arched surfaces from plane sheets or plates of metal at one heat; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, forming a part of this specification, in which—

Figure 1, represents a front view of the machine. Fig. 2, represents a rear view of the machine, showing the sweeping roll H. Fig. 3, represents a longitudinal section through the holding and smoothing rolls, and a similar section through the frame which supports the corrugating rolls, and Fig. 4, represents a section on line A, B, Fig. 1, showing the relative position of the carriage *e*, holding and smoothing rolls G, G, and sweeping or arch forming roll H.

A, A, represent the frame which supports the corrugating rolls E, E, and D, D, the frame which supports the holding and smoothing rolls G, G, together with the arched forming roll H. Both frames are securely fastened to a base C.

The rolls E, E, are corrugated lengthwise, and turn on journals E′, E′. Through the cap piece B, pass adjusting screws B′, B′, for the purpose of forcing the upper roll E, down against or toward the lower roll E,—the journals of the upper roll E, being mounted in boxes or bearings *a*, *a*, which slide up and down in frame A.

The holding and smoothing rolls, G, G, are corrugated with parallel corrugations running around the rolls as fully shown in Fig. 1—and are mounted on journals G′, G′ which turn in proper bearings in frame D, D, the upper roll being adjusted by means of screws *b*, *b*. The rolls G, G, are geared together by gears F, F.

To the end of the journal of the lower corrugating roll E, is attached a socket piece K, while the journal E′, is bored out so as to admit of the end of the journal of the lower roll G, being inserted therein so that a pin or bolt can be passed through the cap or socket piece K, and both journals, whereby the power which is applied to drive the corrugating rolls E, E, will also, and at the same time give motion to the holding or smoothing rolls G, G. A clutch could be used to connect the lower rolls G, and E, so that by means of a lever, the rolls G, G, could be thrown out of action at any time.

Supporting rails *d*, *d*, are attached to the front of the frame D, D, upon which runs the wheels *i*, *i*, of a carriage *e*. The carriage *e*, has side guides *g*, *g*, while the top of the carriage is so arranged as respects the rolls G, G, that its top is a little below the top of the corrugations on the bottom roll G. The ends of the supporting rails *d*, *d*, are provided with stops *f*, *f*.

The operation is as follows, viz: The sheet to be corrugated having been properly heated, is fed in side-wise between the corrugating rolls E, E, and in passing through, it is corrugated, when it is turned and passed back over the top holding roll G, onto the carriage *e*, and between the sides *g*, *g*—then forward so as to be caught between the holding rolls G, G, so that the corrugations in the sheet or plate will fit into the corrugations in the rolls G, G, whereby the sheet or plate is held firm and is also forced through between the rolls G, G, and up over the corrugated forming roll H, (as seen at L, Fig. 4,) which has its bearings in that part of the frame D, marked D′.

The rolls G, are not intended to work so close together as to increase the corrugations, but only to smooth the corrugations, and to hold the sheet or plate firm and even while it is being curved or bent into the desired form by the roll H. The roll H, can be set to give any desired curve to the plate by means of the screws *c*, *c*.

By the above combination and arrangement of mechanism, I am able first to corrugate the plate sidewise, then smooth the corrugations and also give the sheet or plate an arched form in the direction of the corrugations by one heat of the iron.

In corrugating iron, it is found that the outer surface is somewhat cracked or scaled up by the operation, hence it becomes necessary to pass the corrugated plate or sheet between a set of smoothing or pressing rolls for the purpose of forcing or pressing back the slight scales or cracks on the surface of the metal so that when in use the surface will be smooth and even. This is effected by my machine, at the same time the sheet is being curved and immediately after it has been corrugated.

The carriage *e*, can be run back and forth

on the rails *d*, *d*, the stops *f*, *f*, preventing the carriage from being pulled off the rails, while shoulders on the front of the carriage prevent its being pushed up to close against the rolls G, G.

Instead of the crank I, and handle J, a pulley or gear is generally attached to the journal of the lower roll E, by which power is applied to work the machine.

Having thus described my improved machine for forming corrugated and arched surfaces from smooth plane sheets of metal, what I claim and desire to secure by Letters Patent, is:—

The combination and relative arrangement of the corrugating rolls E, E, with the holding and smoothing rolls G, G, forming roll H, and carriage *e*, operating in relation to each as and for the purposes set forth.

RICHARD MONTGOMERY.

Witnesses:
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