E. Wise,

Seaming Sheet-Metal.

No. 21,643. Patented Sep. 28, 1858.

Fig. 1.

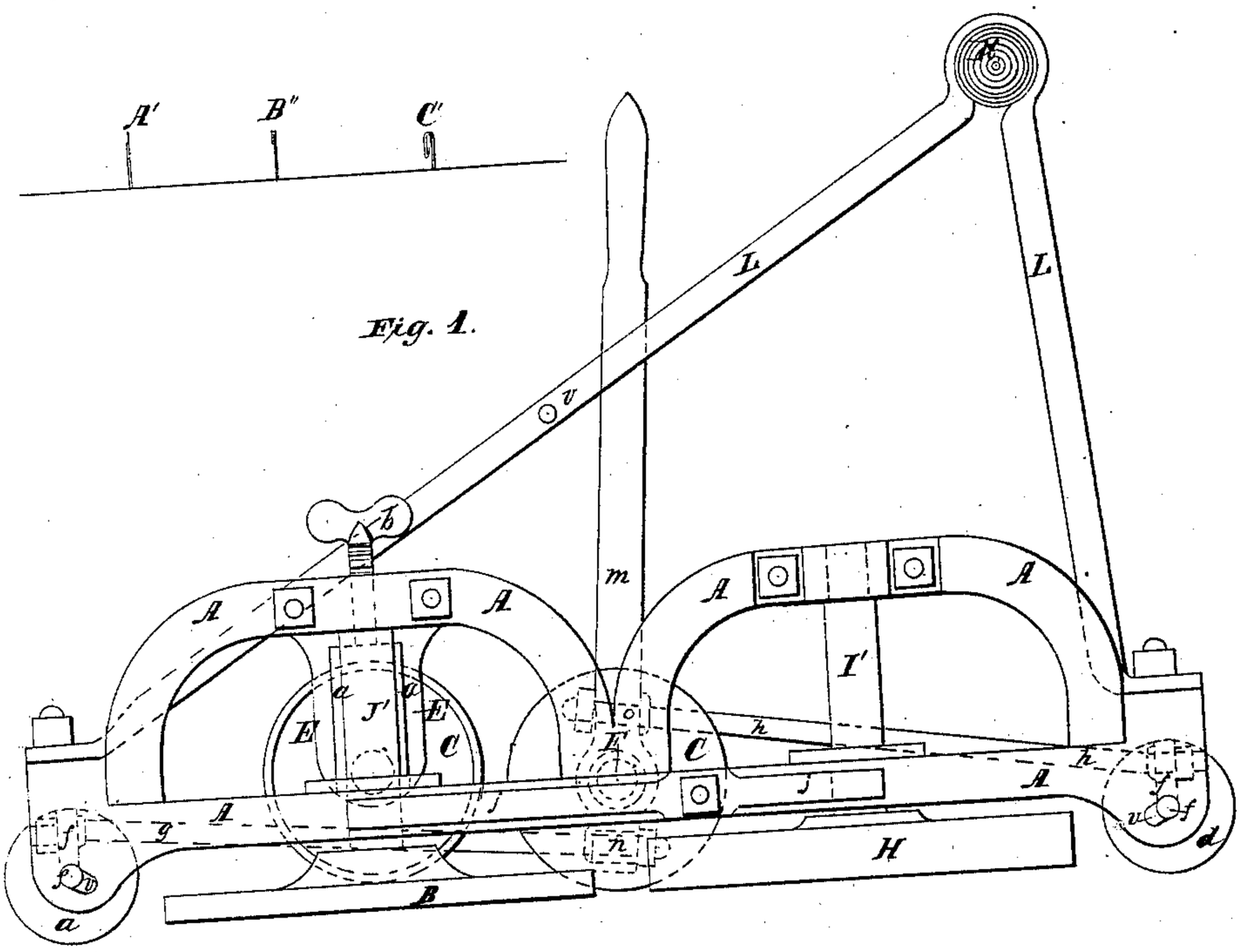
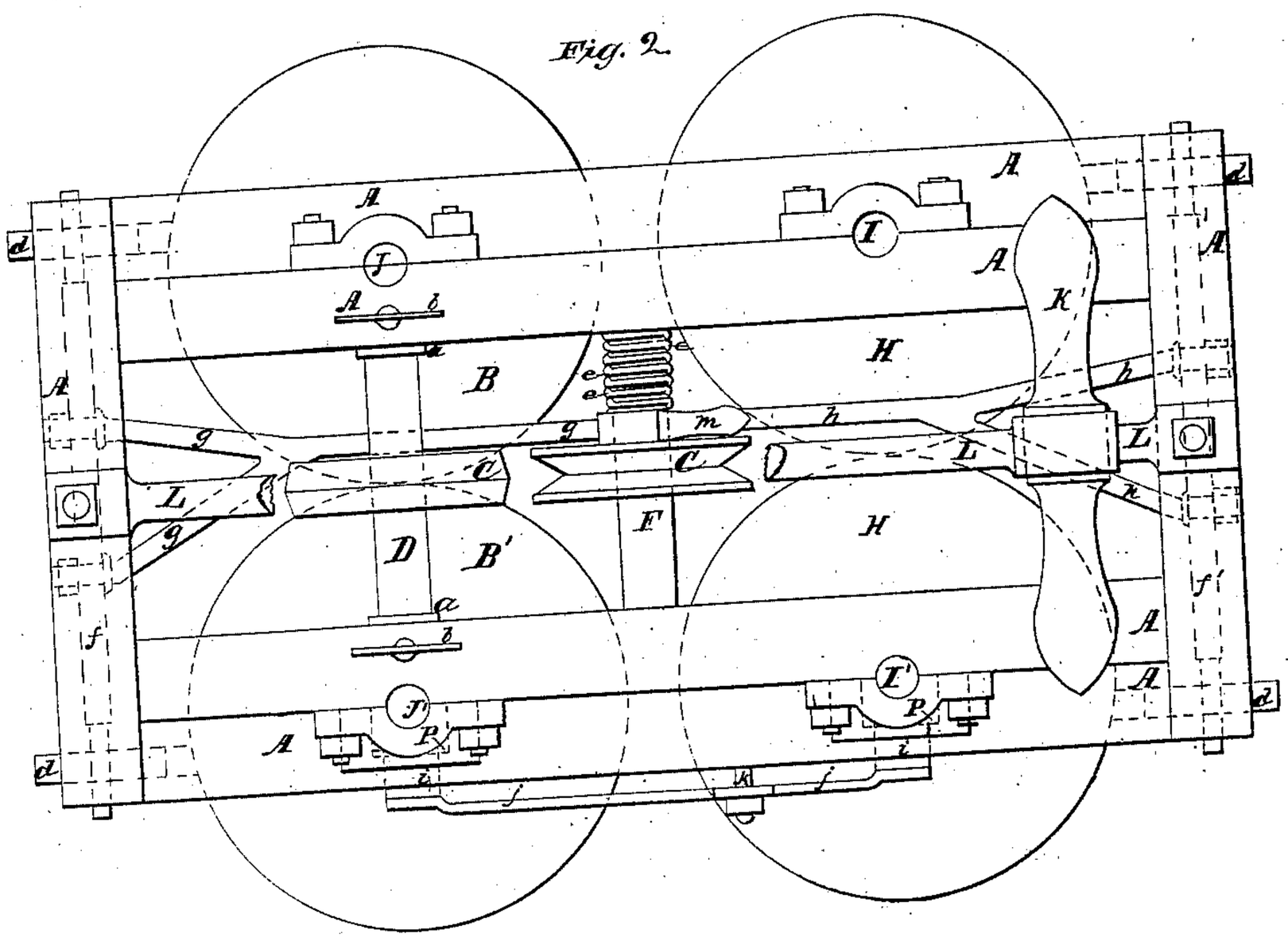


Fig. 2.



UNITED STATES PATENT OFFICE.

EMANUEL WISE, OF HANNIBAL, ASSIGNOR TO HIMSELF AND CHARLES L. WOOD, OF ST. LOUIS, MISSOURI.

IMPROVED ROOFING-MACHINE.

Specification forming part of Letters Patent No. **21,643**, dated September 28, 1858.

To all whom it may concern:

Be it known that I, EMANUEL WISE, of Hannibal, in Marion county and the State of Missouri, have invented a new and Improved Roofing-Machine; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is a side elevation, and Fig. 2 a plan.

There are two ways of putting on a metal roof. The one is with a flat and the other is with a raised or vertical joint. The successive stages of a vertical joint are shown at A′ B″ C′. A′ shows it in its first stage, and it will be seen that the flange on one of the sheets is higher than the other. The first operation is to lap this highest flange over the top of the lower one, as shown at B′, and the second operation is to put a second turn into the flange, as shown at C′. Now, to make this joint in the manner described with a machine, by passing the said machine over the joint from one end to the other and then back again to the starting-point on the same joint, by simply turning the machine, and to so arrange the said machine that the joining-rollers will yield and pass over any high places there may be on the joint without additional stress, and to provide a more convenient method of raising and lowering the said machine, so as to meet the different conditions made by the different heights of the flange in the successive stages of joining it, is the object of my invention, and the combination of mechanical devices whereby I effect the aforesaid objects, and which constitute my invention, will be understood from the following description, similar letters of reference representing corresponding parts of the different figures.

A A A A is the frame of the machine, which may be made in form as shown in the drawings.

B′ B are two clamp-wheels, fixed upon a horizontal plane, and it is the business of these wheels to draw the two flanges (out of which the joint is to be made) together, and also to support them in an upright position, while the wheel C (which has an angular periphery, and which works close down on the face of the two clamp-wheels) turns the edge of the highest flange over the edge of the lowest one, so as to cause it to start at an angle of about ninety degrees with a vertical plane, supposing the roof to be on a horizontal plane. The wheel C is fixed upon the shaft D, which has its bearings in a pair of boxes. (Shown at *a a*.) These boxes are fixed into a pair of brackets cast on opposite sides of the frame, one of which is shown at E, Fig. 1. The boxes *a a* are attached to the screws *b b*, and by them are adjusted up or down, as the case may require. It will be seen that the center of the wheel C works or is placed directly over the peripheries of the two wheels B B′. Now, the object in placing the shaft D into adjustable bearings is to enable the operator to raise one end of the shaft and lower the other, and thereby throw the center of the said wheel C on either side of the peripheries of the two wheels B′ B—that is, on either side of their junction—so as to cause the wheel C to turn the flange to the one side or the other, as circumstances may require. Thus, if the right-hand bearing be raised, the flange will be turned to the left, because the angle of the wheel C will strike it on the right and press it down on the face of left-hand wheel B′, and vice versa.

F is a shaft fixed in the frame, as shown, and upon it the wheel G is fixed, which also has an angular periphery, as shown. The object of this wheel is to continue the turning of the flange. Thus, after the wheel C has turned the flange to about ninety degrees, as stated, the wheel G strikes it and turns it to about forty-five degrees with the same plane as before, and this wheel also gages the height of the joint, pressing the flange down to an equal distance from the base along its entire length.

H H are a pair of pressing wheels or rollers, set with their sides or faces on a horizontal plane, their under sides being on the same plane with the wheels B′ B, as shown in Fig. 2. The object of these wheels H H is to complete the joint, which, after having passed under the wheel G, is caught between the rollers H H and drawn between them, whereby the flange is turned entirely over and pressed into a solid compact joint. The wheels H H are fixed on

the shafts I′ I, and the wheels B B are fixed on the shafts J′ J.

The machine is mounted upon wheels, as shown at *d d*, the axles of which are shown in dotted lines at *f′ f*. These axles have their bearings in oblong holes, (shown at *v v*, Fig. 1,) and they are connected to the lever *m* at *n o* by means of the two connecting-rods *g g* and *h h*, the rod *h* being connected at *o*, and the rod *g* at *n*, in the manner shown.

The object in placing the axles *f′ f* in oblong holes and connecting them to the lever *m*, as described, is to enable the operator to raise or lower the machine, as the case may require, which is necessary, from the fact that the joint is higher at B′ than at C′, so that after the machine has passed once over the joint and turned it, as shown at B′, it must be lowered, so as to make it applicable to the joint in its lowered condition. The lower ends of the shafts I′ J′ are fixed in yielding bearings, the journal-boxes *p p* being placed into opening made in the frame to receive them. This opening extends all the way through the frame, as shown by dotted lines, and the box has a projection on its back which reaches through the frame and takes its bearing against a spring shown at *j j*. The projections on the back of the boxes are shown at *i i*. The energy of the spring *j j* is regulated by means of the screw *k*. The object in thus fixing these bearings against a yielding medium is to allow any high places which there may be on the joint to pass between the wheels without injury to the machine. The spring *e e e* is coiled around the shaft F to keep the lever *m* in its position against the wheel G. The power is applied to the handle K, which is supported by the braces L L.

Having thus described the construction of my machine, it only remains for me to describe its operation and to point out what I conceive to be new. Let it be desired to make a joint. The flanges are first placed in the position shown at A′. The lever *m* is raised up, so as to hook behind the pin *q*. It is then entered over the flange, which passes between the rollers B′ B and under the roller C, which turns the flange to an angle of ninety degrees, as stated. It then passes under the roller G, which turns it to an angle of about forty-five degrees, as described, after which it passes between the rollers H H, which turns it over flat. The joint is now half finished and the machine is at the end opposite to which it started. Now, one of the objects of this invention is to enable the operator to finish the joint by turning the machine around and pass it over the joint from the opposite direction, and to do this the operator has only to let the lever *m* go from behind the hook or pin *q*, which lets the machine down to the position shown, and then by lowering or raising one end of the shaft D, as the case may require, the machine may be passed back over the same joint and yet turn the second lap in the same direction as the first one.

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

1. The combination of the adjustable wheel C with the two wheels B′ B, substantially as described, for the purpose specified.

2. The combination of the two connecting-rods *g* and *h* with the lever *m* and the axles *f′ f*.

3. The arranging of the wheels B′ and H′ against yielding bearings, substantially as described, for the purpose specified.

EMANUEL WISE.

Witnesses:

AMOS BROADNAX,

JAMES FINNEY.