C. C. Crosby,

Metal Punch,

No. 30,374. Patented Oct. 9, 1860.

Fig. 1

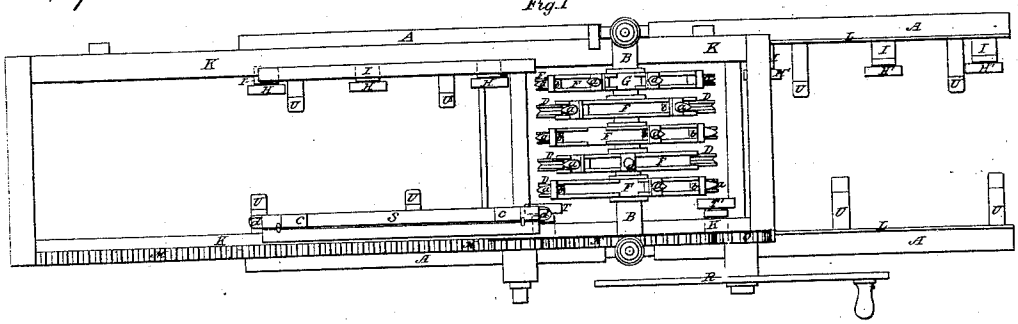


Fig. 2

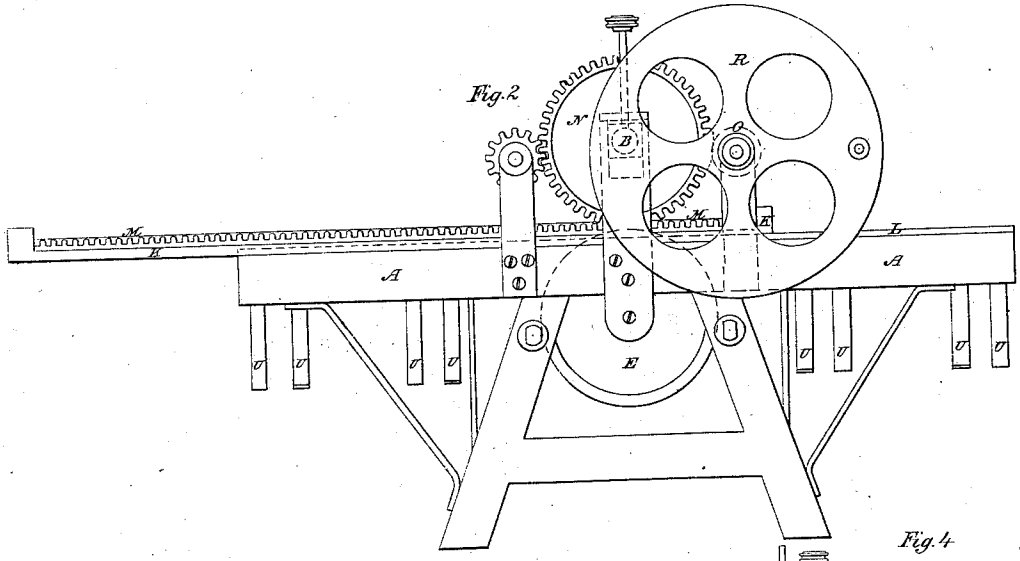


Fig. 3

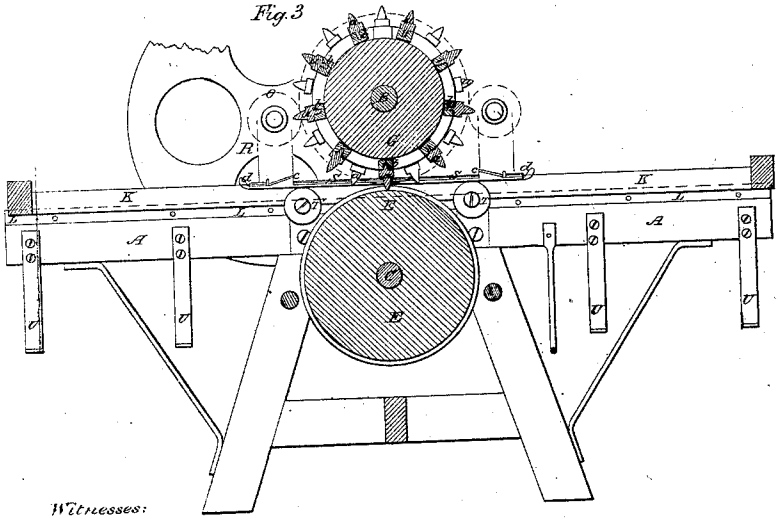
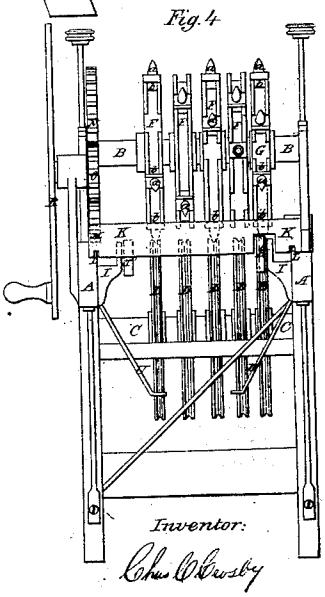


Fig. 4



Witnesses:
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UNITED STATES PATENT OFFICE.

CHARLES C. CROSBY, OF NANTUCKET, MASSACHUSETTS, ASSIGNOR TO HIMSELF AND WM. C. GARDNER, OF SAME PLACE.

MACHINE FOR PUNCHING NAIL-HOLES.

Specification of Letters Patent No. 30,374, dated October 9, 1860.

To all whom it may concern:

Be it known that I, CHARLES C. CROSBY, of Nantucket, in the county of Nantucket and State of Massachusetts, have invented an Improved Machine for Punching the Nail-Holes in Metallic Sheathing for the Bottoms of Navigable Vessels; and I do hereby declare the same to be fully described and represented in the following specification and the accompanying drawings, of which—

Figure 1, is a top view of such machine. Fig. 2, a side elevation; Fig. 3, a longitudinal section, and Fig. 4, an end elevation of it.

When an edge punching wheel and its bed wheel are employed in connection with a series of punching and bed wheels, as hereinafter described, or other equivalent mechanism is used for punching a sheet of copper sheathing with holes along one edge, as well as through various other parts of it, to enable it to be fixed to the bottom of a vessel by nails in the ordinary way, my invention becomes applicable; and it consists mainly in the combination and arrangement of a sheet carrier and discharger and a series of supporting rollers or equivalents with a movable carriage and its supporting frame, the whole being in such manner that while the carrier for upholding one edge of the sheet of copper preparatory to and while being punched may be supported by the carriage the rollers for sustaining the opposite edge of the sheet may be borne by the frame or means separate from the carriage or not movable with it.

Another important feature, or improvement contained in my said machine is that by which the punched sheet at the time of its discharge from the carriage and supporting rollers is caught and prevented from so falling therefrom as to bend or injure either of its edges.

In the drawings, A represents the frame for supporting the operative parts. This frame carries two transverse shafts, B, C, on the lower of which is fixed a series of grooved bed wheels D, D, D, D, E, they being arranged respectively under the punching wheels F, F, F, F, G, carried by the other shaft. Each bed wheel is grooved entirely around its periphery. The same is also the case with its punching wheel, whose groove, however, should be properly formed to receive and support a series of punches *a*, *a*, *a*, each being movable or adjustable throughout the groove and being held in place therein by being screwed into a clamp nut *b*, placed in the groove.

The punch wheel G and its bed wheel E are for punching holes close to the edge of a sheet of sheathing, while such sheet may be passing between them the remainder of the punch wheels and bed wheels at the same time performing the office of punching the rest of the holes of the body of the sheet. The holes along the edge of the sheet require to be made nearer together than the others. It has been found very difficult, if not impossible to support by a carriage or by two hinged flaps or shelves carried thereby that edge of the sheet which is to be punched, because not only on account of the width of bearing necessary for support of the edge of the sheet but also of the close proximity of the line of holes to its edge, any supports of such edge when upheld by or carried by a carriage would interfere with the correct operations of the edge punching and bed wheels. To avoid this difficulty, I support the edge to be punched by a series of rollers H, H, H, H′, H′, H′ or equivalents, entirely separate from or disconnected with the carriage K, each being applied to the frame A, by a bracket I, and arranged as shown in the drawings. The said carriage, K, rests on parallel guide rails L, L, and is provided with a rack, M, arranged on it, as seen in Figs. 1 and 2. A gear, N, on the shaft of the punching wheels engages with this rack and with a pinion, O, carried by a driving shaft on which is a cranked fly wheel R. For supporting the other edge of the sheet, I employ a movable shelf or discharger S, which is hinged to the carriage, K, and constructed with abutments or shoulders, *c*, *c*, between which the sheet is to be placed, while resting on the upper surface of the said part S.

Each end of the sheet carrier and discharger S, is curved upward or made cam shaped or is provided with a cam, *d*. Furthermore, at or near the middle of the frame A, are two rollers, T, T′, they being arranged as shown in the drawings—that is, so that each when the part, S, is moved endwise against its periphery shall tip such part from a vertical up into a horizontal position.

Four arms or struts U, U, U, U, formed and extended down from the frame A, near

each end of it, serve to receive the sheet of sheathing as it drops from the carriage and so guide it downward as to prevent either of its edges from being bent or injured.

In operating with the machine, the sheet of sheathing metal is to be laid on the rollers, H, H, H, and the carrier S, while the latter may be resting on the roller T. Next, the carriage K should be moved forward, so as to force the sheet between and beyond the punching and bed wheels and upon the rollers H′, H′, H′. As soon as the part, S, may pass beyond the roller T′, such part, S, will drop into a vertical position and discharge the sheet which will drop down and be received by the arms U, U, U, U. A return movement of the carriage will cause the part, S, to be elevated into a horizontal position, after which, another sheet of sheathing may be laid on it and the rollers, H′, H′, H′ and be run between the punching and bed rollers and be afterward discharged from the machine.

I am aware that in the machine described in the United States Patent No. 8660, the carriage is supplied with two hinged flaps, their office being not only to support the sheet of copper while being carried between the punching wheels, but to afterward discharge it from the carriage. Both of these flaps are affixed to the carriage, whereas in my machine I employ but one in such connection with the carriage, and with such I employ a series of supporting rollers not supported by the carriage but being entirely independent of it or upheld by brackets fastened to the frame on which the carriage rests, and, furthermore, I employ edge punching and bearing wheels, G, E, in connection with rollers and a flap so applied to the carriage and its frame, and by such I am enabled to produce what cannot be accomplished by the machine described in such patent No. 8660. I therefore do not claim as represented in the said patent, the combination of the two hinged flaps and their necessary operating devices with the carriage and punching wheels of a machine for punching holes in sheets of copper, but

I claim—

1. The above described application or arrangement of a sheet carrier and discharger, S, and a series of rollers H, H, H, H′, H′, H′, with respect to the movable carriage, K, its supporting frame A, and edge punching and bearing wheels G, E, applied to and operating with other punching and bearing wheels substantially as explained.

2. In combination with the carriage, K, and its discharging device S, the inclined struts arranged at both ends of the frame A, in manner and so as to receive and guide a discharged and punched sheet of sheathing as specified.

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Witnesses:

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