(No Model.)

W. WILSON, Jr.

Corrugating Machine.

No. 238,468. Patented March 1, 1881.

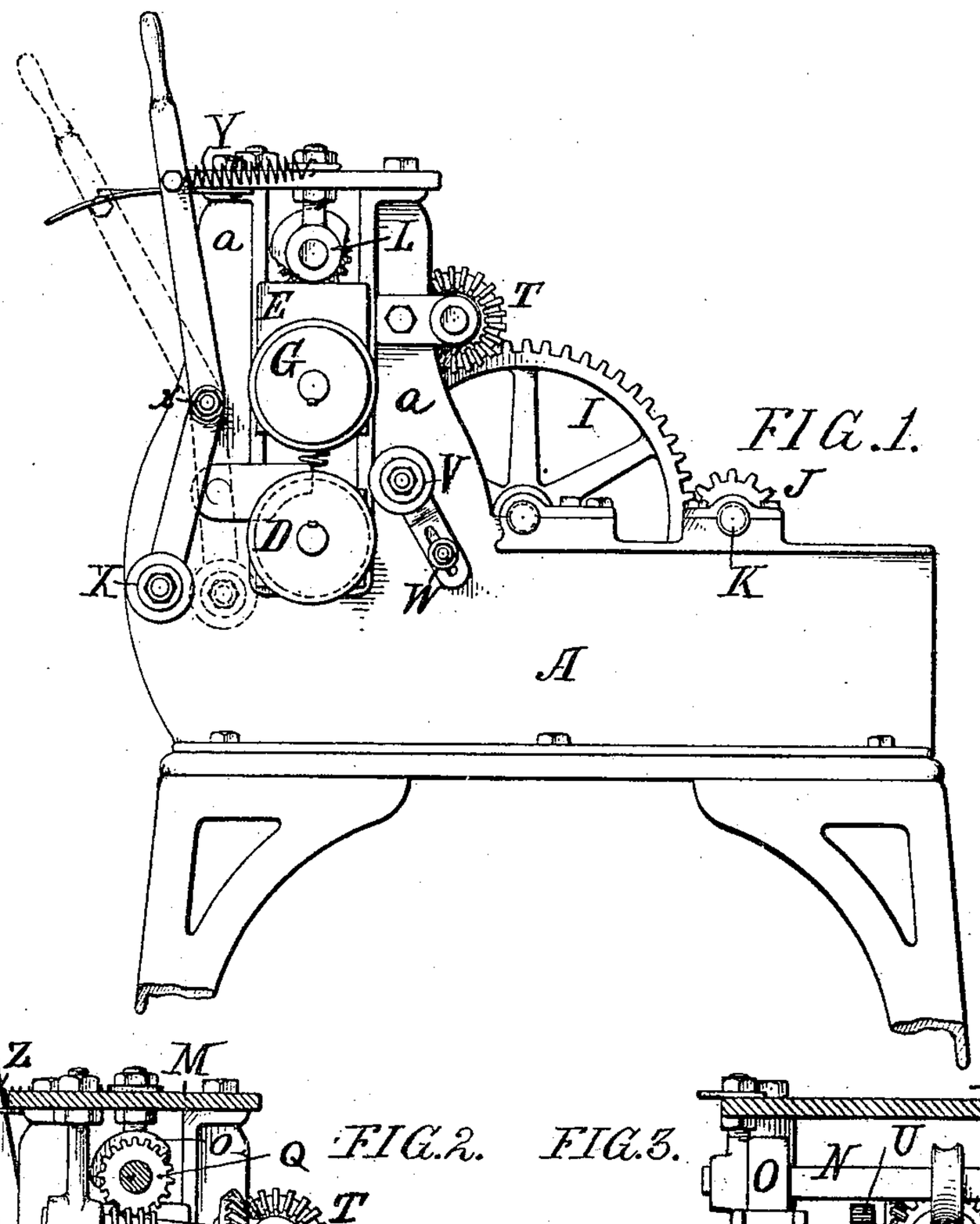

FIG. 1.

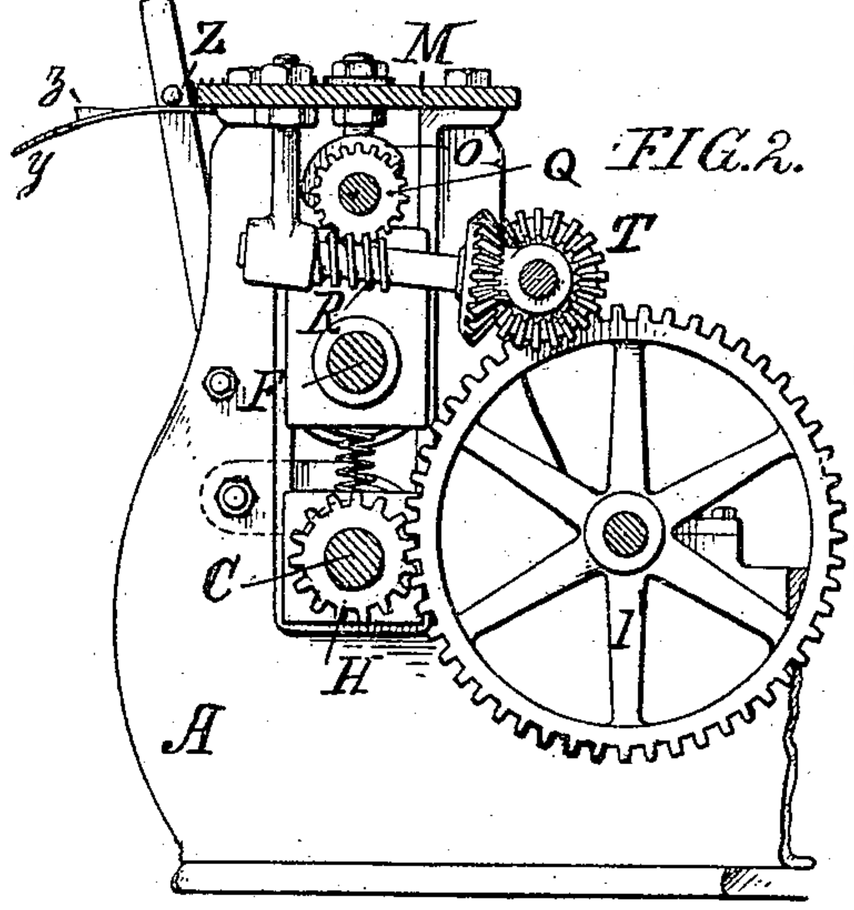

FIG. 2.

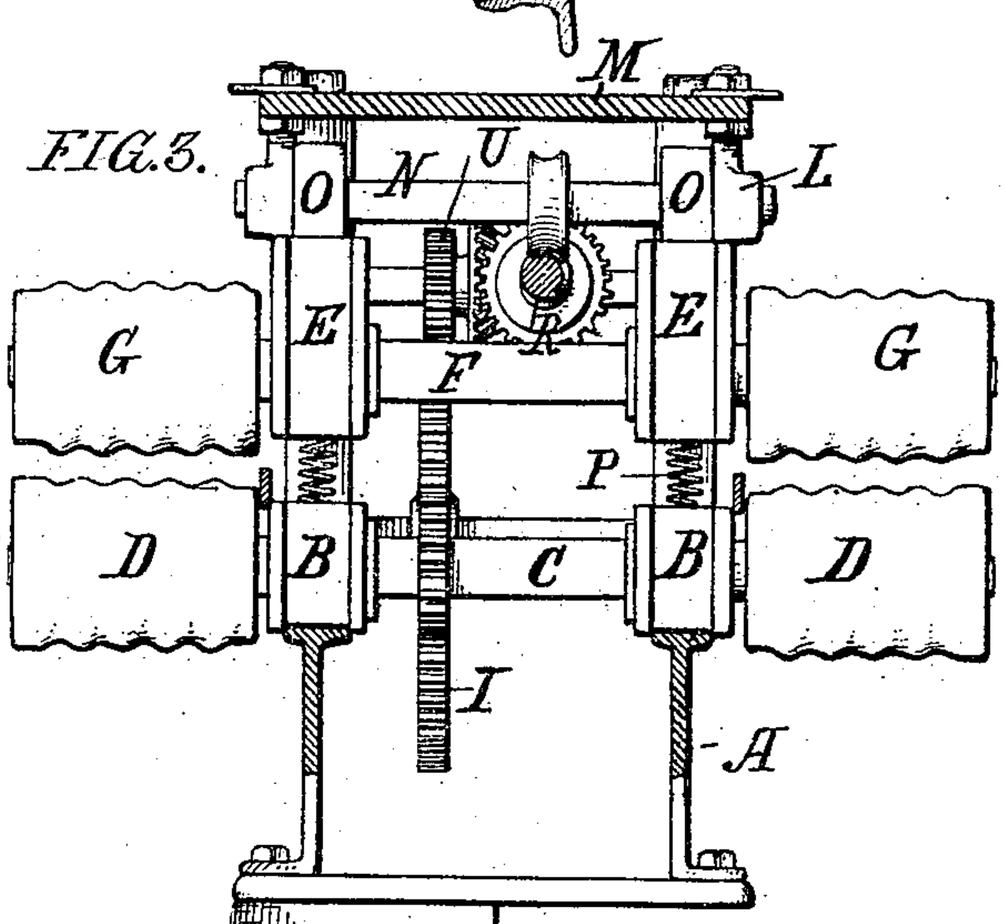

FIG. 3.

Attest,

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UNITED STATES PATENT OFFICE.

WILLIAM WILSON, JR., OF WILMINGTON, ASSIGNOR OF ONE-HALF TO CHARLES GREEN, OF GREENVILLE, DELAWARE.

CORRUGATING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 238,468, dated March 1, 1881.

Application filed July 1, 1880. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM WILSON, Jr., of Wilmington, Delaware, have invented an Improvement in Corrugating-Machines, of which the following is a specification.

This invention is an improvement upon the corrugating-machine patented April 19, 1859, as No. 23,736, to Wilson, Green, and Wilson; and its object is to dispense with the treadle and connected appliances there shown for causing the corrugating heads or rolls to approach, and to substitute in lieu thereof automatic mechanism whereby the heads are, in the operation of the machine, automatically approached; and, further, to combine with the heads a front forming roll so arranged and operating as to co-operate with the heads in sustaining and corrugating the cylinder.

In the drawings, Figure 1 is a longitudinal side elevation of a machine conveniently embodying my improvements; Fig. 2, a central longitudinal sectional elevation of the same; and Fig. 3, a transverse sectional elevation, showing the journals of the heads.

Similar letters of reference indicate corresponding parts.

A is the frame-work of my machine, rising in front, at either side, into two standards, *a a*, which support the stationary journals B B of the axle C of the lower heads, D D, and also the movable or reciprocating journals E E of the axle F of the upper or movable heads, G G. Within the journals named above the axles revolve. The lower axle, C, is provided with a pinion, H, geared with a large spur-wheel, I, suitably journaled in the frame, which, in turn, gears with a second pinion, J, upon the driving-shaft K of the machine, to which driving-shaft suitable motive power is applied.

Hung in bearings L, depending from the head cross-bar M of the machine, is a cam-shaft, N, parallel with the axles, and disposed vertically above them, provided with two cams, O, in line over the movable journals E E of the upper axle.

P are coiled springs between the upper and lower axle-journals, serving to keep the upper journals, axle, and heads elevated, except when the cams of the cam-shaft revolve against the upper journals and drive the latter down, so as, for the time being, to compress the spirals. The cam-shaft is continuously revolved by means of a worm-wheel, Q, gearing with a worm-shaft, R, suitably hung in the frame and actuated by a bevel-gearing, T, suitably supported, and, in turn, actuated by a spur-wheel, U, driven by the toothed wheel I. Such is a convenient train of gearing, and an arrangement whereby not only are the lower heads continuously revolved, but the upper heads also are automatically brought into frictional contact with cylinders placed on said lower heads, so as to be revolved thereby for the corrugating action, and likewise automatically elevated out of frictional contact for the removal of the corrugated cylinders and the insertion of the formed but uncorrugated cylinders, the cams and gearing being so turned as to give ample time both for insertion, removal, and full corrugation of the cylinders.

V are back forming rolls, one of which is provided at the rear of each of the lower heads. They are adjustably connected with the frame, as shown at W, to suit different thicknesses of metal. When once adjusted, however, they remain fixed during the action.

X are adjustable front forming rolls, hung on the end of pivoted handles, one of which rolls is provided at the front of each of the lower heads. The handles are pivoted at *x* to the frame, and are ordinarily retained in the position indicated by full lines in Fig. 1 by means of a spiral spring, Y, which retains them against the head cross-bar M, so that the rolls are remote from the heads. In this position it is obvious that the cylinders can readily be placed upon the rolls. After the placing of the cylinders on the heads, the attendant, seizing the handles, presses these rolls gradually inward against the heads until such deflection of the handles causes a stud, Z, thereon to engage over a detent, *z*, on a band-spring, *y*, projecting laterally from the frame in the direction of the arc of movement of the handles. When such engagement is effected the front forming rolls will be retained in such position against the cylinders as is indicated in dotted lines in Fig. 1, and as insures, in con-

nection with the fixed forming-rolls and the heads, the uniform and certain corrugation of the cylinders.

The operation, generally considered, of the improved machine above described is similar to that of the Wilson, Green, and Wilson machine hereinbefore referred to.

When desired, one set of the corrugating-heads may be dispensed with.

Having thus described my invention, I claim—

1. In a machine for corrugating sheet metal, the combination of two fixed corrugating-heads secured upon the extremities of a fixed shaft revolved by suitable gearing, two movable corrugating-heads secured upon the extremities of a movable shaft, a coiled spring, P, or its equivalent, between the bearings of the fixed and movable shafts, and a cam-shaft device, N O, revolved by suitable gearing and acting upon the bearings of the movable shaft, the whole arranged and co-operating to cause the alternate approach and retreat of the movable heads with respect to the fixed heads, substantially as set forth.

2. In a machine for corrugating sheet metal, the combination of the fixed corrugating-heads D D, the fixed back forming rolls V, the adjustable front forming rolls X, attached to pivoted levers, and the locking devices $Z z y$, substantially as and for the purposes set forth.

In testimony whereof I have hereunto signed my name this 24th day of May, A. D. 1880.

WM. WILSON, JR.

In presence of—
WILLIAM R. GREEN,
CHARLES GREEN, Jr.