(No Model.)

W. WILSON, Jr.
Corrugating Rolls.

No. 234,365. Patented Nov. 9, 1880.

FIG. 1.

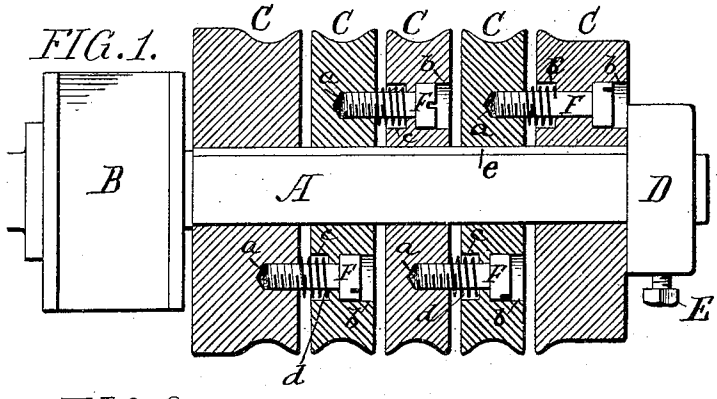


FIG. 2.

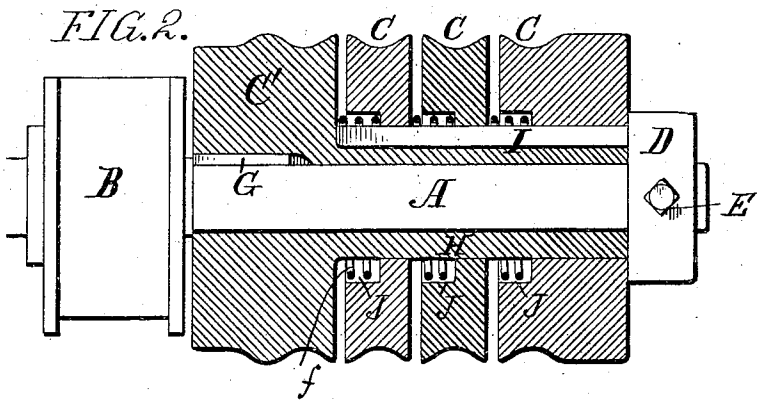


FIG. 3.

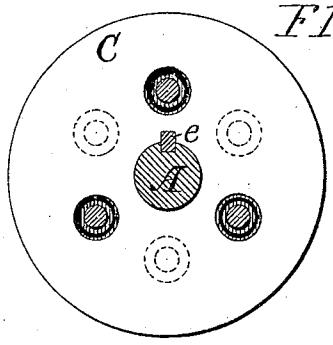
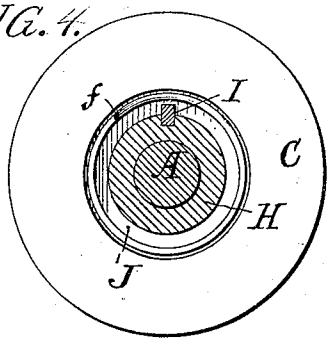


FIG. 4.



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UNITED STATES PATENT OFFICE.

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

CORRUGATING-ROLLS.

SPECIFICATION forming part of Letters Patent No. 234,365, dated November 9, 1880.

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

To all whom it may concern:

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

My invention relates to the class of machinery which is employed to corrugate, rib, bead, or bulge the side bodies of sheet-metal cans used for the storage and transportation of powder and other substances, and its object is to so improve upon the corrugating-rolls shown, for instance, in Letters Patent No. 23,736, granted April 19, 1859, to Wilson, Green, and Wilson, that the rolls become adapted for the corrugation of inferior sheet metal.

The superior grades of sheet-iron and other sheet metal are of sufficient ductility to spread over the rigid corrugations of corrugating-rolls, which, as heretofore constructed, have consisted of solid metal cylinders turned to the shape desired; but the inferior grades of metal, which it frequently becomes of advantage to employ for the side bodies, failing to spread, have cracked and burst in the necessary expansion incident to the use of solid corrugating-rolls.

To obviate the above defects heretofore incident to corrugating-rolls and enable the corrugation of inferior grades of sheet metal, I have devised my improved corrugating-rolls, which consist, essentially, of rolls (in practice a pair disposed one above the other) suitably corrugated and constructed in sections or parts in such manner as to be compressible in the direction of their longitudinal axis to such extent as to be adapted to take up with the metal, and, yielding, permit its corrugation without forcing it to expand beyond its mean capacity; and so further adapted that, after each compression, expansion to the normal length again ensues.

In the drawings I have represented two convenient constructions of rolls.

Figure 1 is a central longitudinal sectional elevation of one form of construction of my rolls; Fig. 2, a similar view of another form of construction; Fig. 3, an end view of one of the sections of the rolls of Fig. 1 in place on the shaft, the latter being in section; and Fig. 4, a similar view of one of the sections of Fig. 2.

Similar letters of reference indicate corresponding parts.

In Figs. 1 and 3 of the drawings, A represents a shaft rigidly connected to and rotating with a hub, B.

C are the sections of which each corrugating-roll is composed. Their exterior faces are suitably shaped, formed, or corrugated to impress the desired form into the sheet metal, and any desired number of sections are employed.

D is a collar controlled by a set-screw, E, to retain the sections within a given endwise compass on the shaft.

e is a feather or spline upon the shaft, the office of which is to prevent rotation of the sections on the shaft, and force their rotation with the shaft, while permitting a certain amount of endwise play.

F are adjusting-screws, which are applied to connect the sections in such manner that they shall have a greater or less amount of play apart from each other. The shanks of the screws are threaded into orifices *a* in one section, while their heads are seated in circular recesses *b* in another. According to the set of the screw is the distance to which the sections can be spread apart by their spirals or other expanding devices.

c are seats for spirals *d* or kindred devices, which embrace the shanks of the screws, and, abutting between two sections of the rolls, keep them ordinarily apart within the limit of separation permitted by the screws.

In practice I prefer to connect each contiguous pair of sections by means of three screws, arranged as shown in Figs. 1 and 3.

It is obvious that when the rolls are in operation, the sections, ordinarily held apart by the spirals, are capable, by compression of the latter, of being compressed all together, so as to yield with the sheet metal and conform to its bending without occasioning its rupture, as solid rolls do. The resulting product of the metal differs only from that in the old system in being slightly shorter in total length.

In Figs. 2 and 4 the section designated C′

is keyed at G to the shaft, and is formed with a laterally-extending hollow sleeve, H, upon which are placed the remaining sections, the latter being feathered at I, as in the form of Fig. 1. Each of these sections has a circular seat, J, formed in it, in each of which is a spiral, *f*, of diameter sufficient to embrace both sleeve and shaft, and the action of which is to keep the sections spread apart, so as to permit of their being compressed together under the action of the sheet metal.

The form of screw-connection shown in Figs. 1 and 3 may be used to unite the sections C C C of Fig. 2, in place of the large spirals, and the large spirals may, if desired, be applied to the construction of sections shown in Fig. 1.

I am aware that other means—as, for instance, elastic packing material or many spring or cushion devices—may be employed in lieu of my spirals, and I desire here to state that the essence of my invention lies, not in combining the sections of rolls with the springs and screws shown, or with kindred devices, but, broadly, in such a construction of two corrugating-rolls of corresponding male and female exterior contour as will cause them, while their distance apart is unvaried by reason of their being set in fixed housings, to be, in their conjoint action upon the metal, each similarly and equally compressible in the direction of their lengths, in order to enable the sheet metal to equally compress the two rolls as the corrugated form is impressed into it; to which end

I claim—

The combination, to form a device for corrugating sheet metal, of two rolls revolving upon axes set at a fixed distance apart, each roll being made in sections of corresponding and of proper exterior contour, and of such construction as to be compressible endwise, substantially as and for the purpose 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.