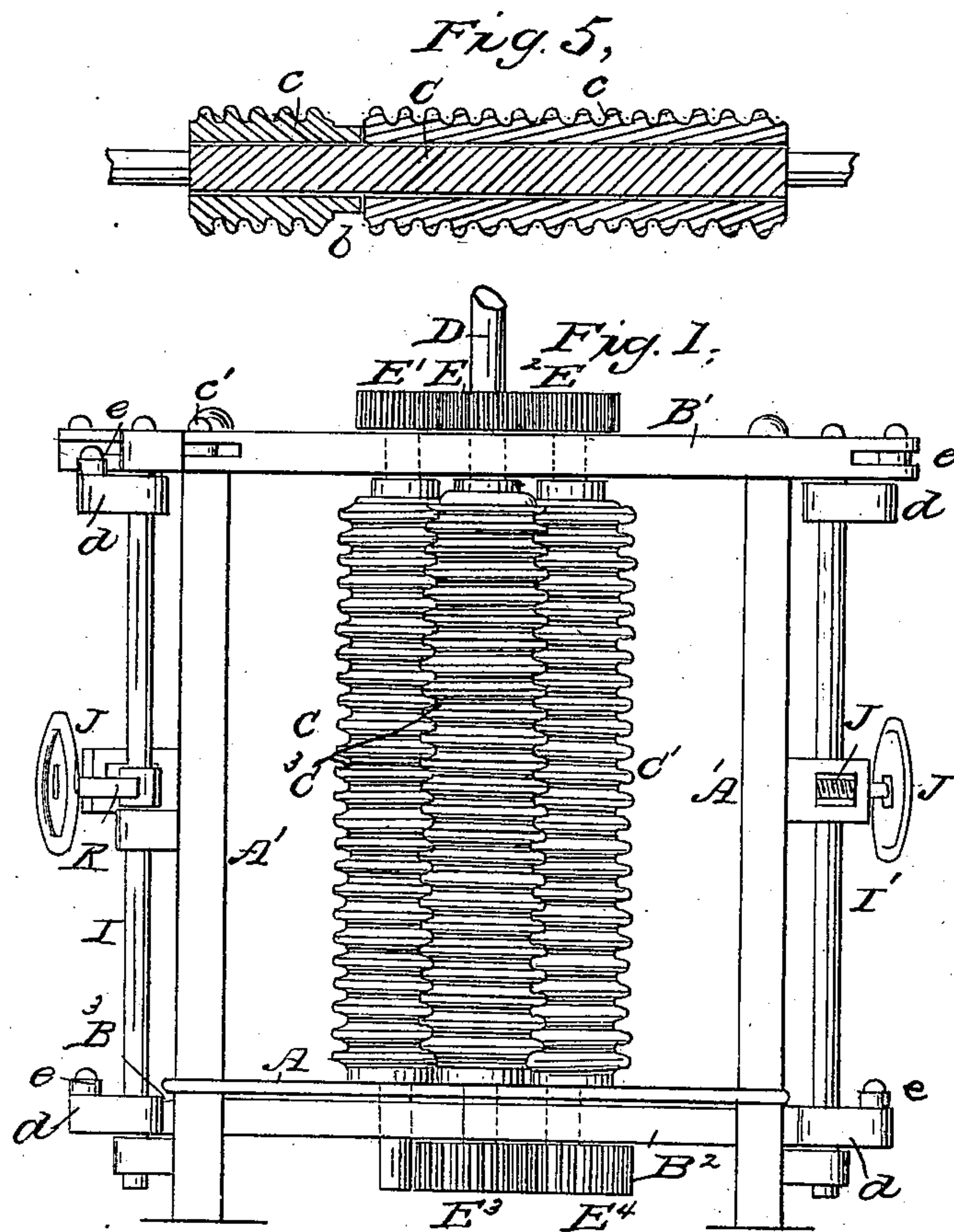


Corrugated Sheet Metal Bender.

4



WITNESSES:

Gustav Dierckx
D. C. Lawrence

INVENTOR

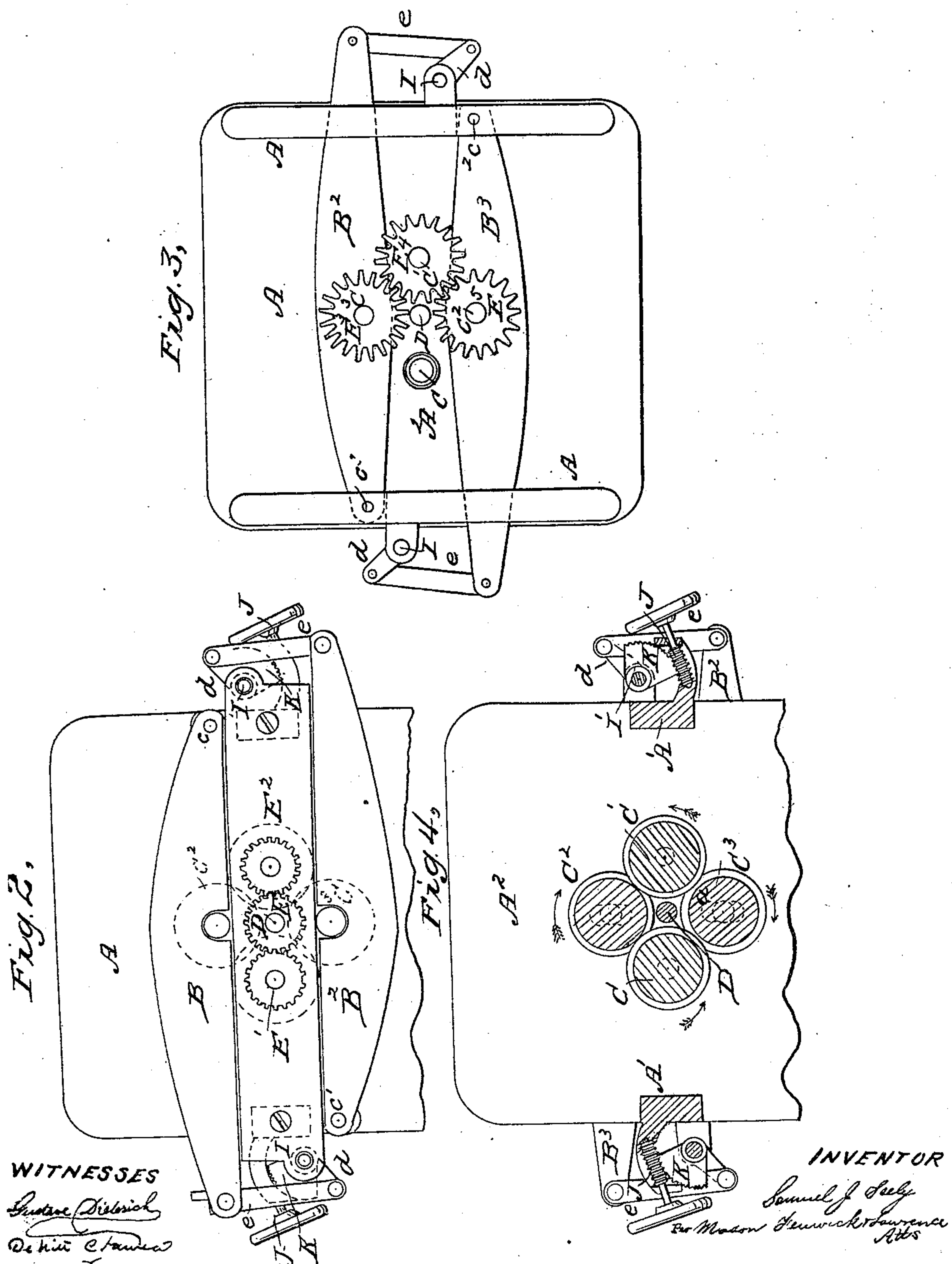
Samuel J. Selig!
Per Messrs. Fenwick & Lawrence
Attys

S. J. SEELY.

Corrugated Sheet Metal Bender.

No. 37,462.

Patented Jan. 20, 1863.



UNITED STATES PATENT OFFICE.

SAMUEL J. SEELY, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN MACHINES FOR BENDING CORRUGATED SHEET METAL.

Specification forming part of Letters Patent No. 37,462, dated January 20, 1863.

To all whom it may concern:

Be it known that I, SAMUEL J. SEELY, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful improvement in machines for bending corrugated sheet metal into cylinders for cask-bodies; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front elevation of my improved machine. Fig. 2 is a plan of the same; Fig. 3, an inverted plan of the same, and Fig. 4 a horizontal section of the machine. Fig. 5 is a section of one of the rollers.

Similar letters of reference in the several figures indicate corresponding parts.

The invention which constitutes the subject matter of this application consists, first, in a machine which bends two corrugated sheets into cylinders, which are corrugated around instead of along their circumferences at one and the same operation, or simultaneously; second, in a machine which bends corrugated sheets into corrugated cylinders and allows such cylinders to be slipped up or down off of the forming-roller without the necessity of springing the cylinder in a manner to increase its diameter; third, in a certain construction and arrangement of mechanism for adjusting the several parts of the machine to the end of inserting and removing the corrugated metal.

The letters A A' A² A³ represent fixed or non-adjustable parts of a strong frame, and the letters B B' B² B³ represent adjustable parts of such frame. In this frame I arrange four rollers, C C' C² C³, in a vertical position, and in such relation to one another that lines drawn through the axes of any three of them so as to intersect will form a triangle. The rollers thus arranged inclose a space bound on all sides by a segment of a circle, which segments of a circle are parts of the circumference of the rollers. The rollers C C' revolve, but do not require to be adjustable. They therefore have their upper and lower journals fitted snugly in the fixed parts A² A³ of the frame. The rollers C² C³ revolve and move apart laterally, and therefore their upper and lower journals are fitted to the adjustable parts B B' B² B³ of the frame. In

order to provide for the adjustment of these rollers, oblong slots *a a* are cut through the bed or table A of the fixed part of the frame, and the boxes for the upper journals of the rollers C² C³ are formed partly in the adjustable parts B B' and partly in the fixed parts A³, as shown. The driving-shaft D of the four rollers is passed down through the space inclosed by the four rollers, and its ends extend beyond the top and to the bottom of the frame of the machine. On the upper part of the shaft D a pinion, E, is placed, and this pinion gears with pinions E' E² on the upper ends of journals of the rollers C C'. On the lower ends of the shaft D and rollers C' there are no gear-wheels, but on the lower ends of the journals of the rollers C' C² C³ pinions E³ E⁴ E⁵ are provided and gear with one another. The teeth of these pinions are long enough to remain in gear when the rollers are adjusted to admit a corrugated sheet between them. The arrangement of all the gearing is such that the rollers C² C³ revolve in one direction and the rollers C C' in an opposite direction. Thus, if a corrugated sheet is inserted, as indicated in red lines, on one side of the machine, and another sheet inserted, as indicated, on the opposite side of the machine, the respective sheets will be carried forward simultaneously and bent around the respective rollers C² C³ into the form of corrugated cylinders. This is accomplished by the combined agency of the two rollers C² C³, and one of the rollers C C' acting upon each sheet. The rollers may be corrugated by grooving a solid cylinder along its whole length, but I prefer to combine with a stationary or permanent portion of a corrugated cylinder one or more short cylindric hollow shells, *c*, which are corrugated, and terminate with a plain cylindric portion, *b*, at one end, about as shown or illustrated in Fig. 5 of the drawings. By this construction I can adapt the one machine for making small as well as large casks, and still finish the corrugated casks with a plain flange to constitute the chine of a barrel or cask. To do this I take one of the sections *c* off of the shaft of the rollers, and invert its position, so as to have the plain portion *b* come intermediate between the ends of the corrugated roller, instead of at the extreme end of the same, as in the making of a larger cask. In Fig. 5 this is plainly illustrated.

In order to readily adjust the rollers $C^2 C^3$ at top and bottom simultaneously, the parts $B B' B^2 B^3$ are pivoted at one of their ends to the fixed portion $A A^3$ of the frame, as shown at $c c' c^2 c^3$, while at their other ends they are left loose as respects the frame. These loose ends have freedom to move in and out, and, in order to move them thus, two vertical rock shafts, $I I'$, with crank-arms $d d' d^2 d^3$, are hung on the ends of the frame. These shafts are connected by their arms $d d' d^2 d^3$ and links $e e e e$ to the loose ends of the adjustable parts $B B' B^2 B^3$ of the frame, as shown, and by swinging the shafts round in the arc of a circle the said parts move in or out accordingly as the motion is made, and carry the rollers with them. The movement of the shafts is produced by hand-worms $J J$ and screw-segments $K K$, the segments being attached to the shafts $I I'$ and the worms fitted to boxes of the frame. By this arrangement a gradual and nice adjustment can be made to bring the rollers to suit a particular corrugated sheet which is to be bent.

It will be seen that one adjustable portion of the machine is independent of another, and therefore one side of the machine may be set to suit one depth of corrugation, while the other side is adjusted for a different depth.

My machine may be used on one sheet at a time or on two. As a whole it is exceedingly simple and compact, and it is capable of doing with one frame, four rollers, and one system of gearing the work that is done in a given time by two of my former machines, which employ three rollers, separate systems of gearing, and each a separate frame; and in addition to this the discharge of the bent corrugated cylinders over the ends of the corrugated rollers is provided for by simply hav-

ing the rollers $C^2 C^3$ to swing out from the rollers $C C'$, and then disconnecting the links of the top adjustable parts and swinging said parts around from over the corrugating-rollers so that they shall not be in the way of the corrugated cylinder while it is being raised endwise off the roller.

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

1. The combination of four rollers, corrugated around their circumferences, in a machine for bending corrugated sheet metal into corrugated cylinders, substantially as described.

2. The arrangement of four corrugated rollers so that the corrugations of one mesh into the corrugations of another, and all are driven by a positive motion and from a central shaft, substantially as and for the purposes set forth.

3. The arrangement of the machine so that the corrugated rollers may be adjusted with respect to one another, and so that the corrugated cylinders may be removed endwise from the rollers, substantially as described.

4. The construction, arrangement, and combination of the adjustable parts $B B' B^2 B^3$, stationary parts $A A' A^2 A^3$, rollers $C C' C^2 C^3$, rock-shafts $I I'$, worms $J J$, and segments $K K$, substantially as and for the purpose set forth.

5. The combination of one or more movable sections, $b c$, with the permanent corrugated portions of the roller surface, the said sections being adapted for finishing large or small casks with a plain flange or chine by being inverted, substantially as and for the purpose set forth.

SAML. J. SEELY.

Witnesses:

GUSTAVE DIETERICH,
DE WITT C. LAWRENCE.