

No. 653,354.

Patented July 10, 1900.

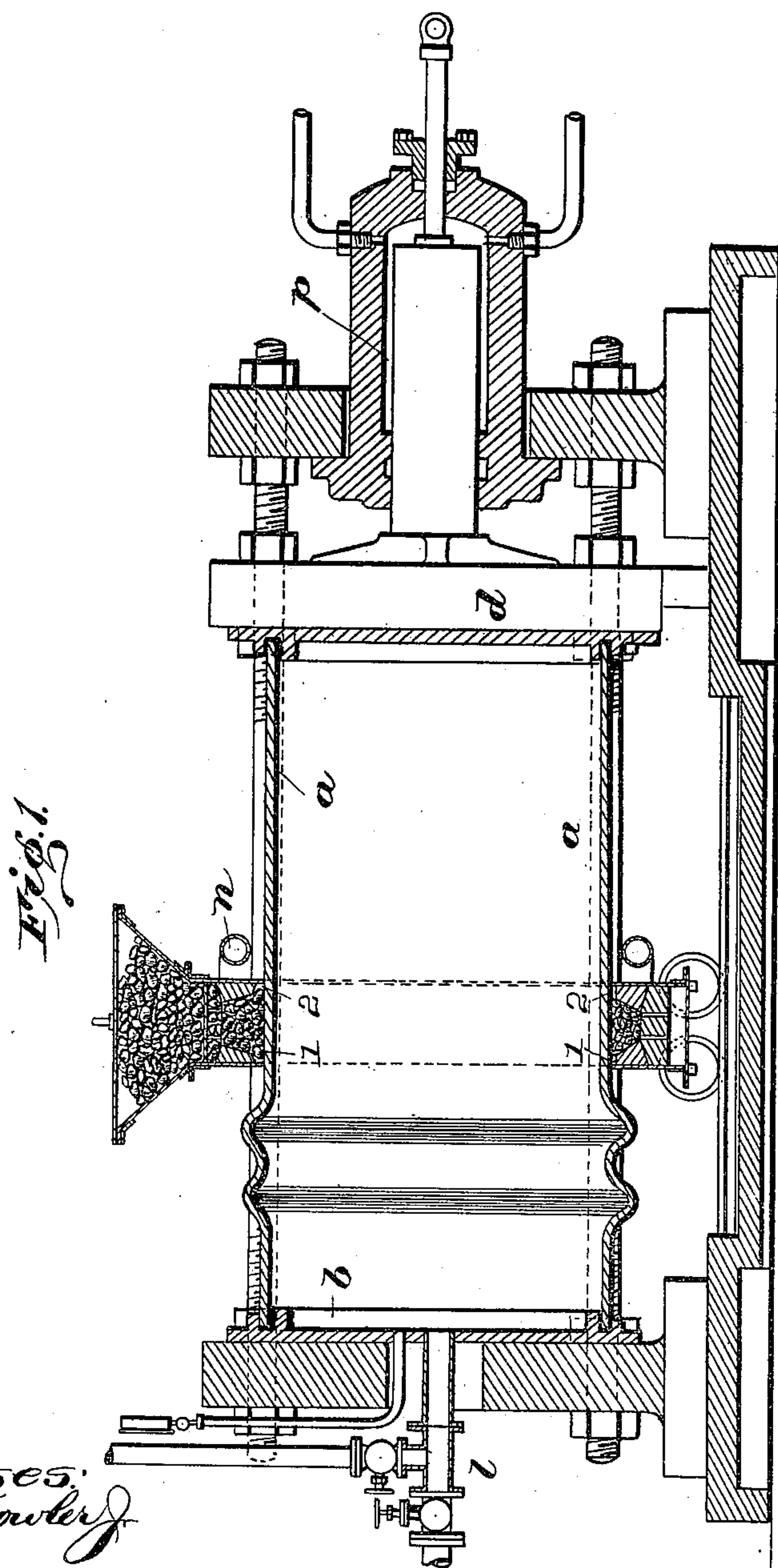
W. MACIEJEWSKI.

MEANS FOR MANUFACTURING CORRUGATED TUBES.

(Application filed Dec. 22, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:  
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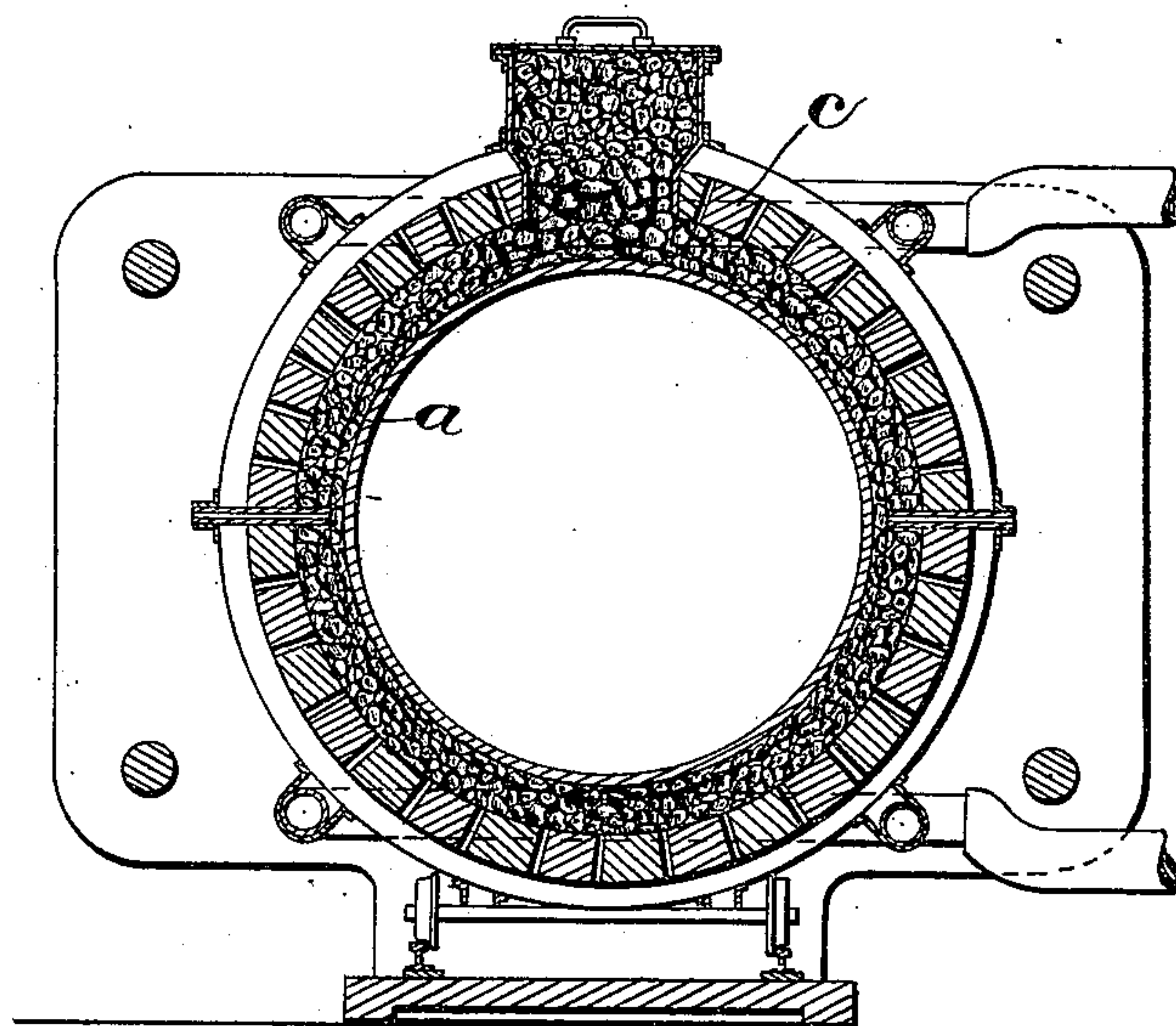
MEANS FOR MANUFACTURING CORRUGATED TUBES.

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(No Model.)

2 Sheets—Sheet 2.

*Fig. 2.*



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# UNITED STATES PATENT OFFICE.

WLADYSLAW MACIEJEWSKI, OF SIELCE, RUSSIA.

## MEANS FOR MANUFACTURING CORRUGATED TUBES.

SPECIFICATION forming part of Letters Patent No. 653,354, dated July 10, 1900.

Application filed December 22, 1899. Serial No. 741,326. (No model.)

*To all whom it may concern:*

Be it known that I, WLADYSLAW MACIEJEWSKI, a subject of the Emperor of Russia, and a resident of Sielce, near Sosnowice, Empire of Russia, have invented certain new and useful Improvements in Means for the Manufacture of Corrugated Tubes, of which the following is a full, clear, and exact specification.

10 This invention relates to the manufacture of corrugated tubes, which was described in the specification to Gamper's application for British Letters Patent No. 23,711 of 1898, wherein such corrugated tubes were produced  
15 by the combined action of internal gaseous pressure and axial pressure. By the combined action of these two pressures the tube, which was placed in a heated condition in the apparatus, was pressed into ring-shaped molds  
20 surrounding the outside of the tube. By this means a corrugated tube was produced without any weakening of the sides, the axial pressure having the effect that the tube becomes shortened in length in due proportion  
25 to the formation of the corrugations.

The present invention has for its object a further improvement by means of which the use of the ring-shaped mold is dispensed with, and consequently the apparatus is much simplified.

30 According to the present improvement the tube is introduced in a cold condition into the apparatus, and it is then heated by a special furnace at the point where a corrugation is to be produced. When the said part has become sufficiently heated, the internal gaseous pressure and the axial pressure are exerted as before, thereby producing the required corrugation at the heated part.

40 On the accompanying drawings is shown, by way of example, a construction of apparatus for carrying out the invention.

Figure 1 shows a longitudinal section, and Fig. 2 a cross-section, of the apparatus through  
45 the annular furnace.

The welded tube *a* to be corrugated is introduced cold between the plates *b d* of a press having the same construction as that described in the said application, No. 23,711, of  
50 1898. The plate *d* is forced forward by means of a hydraulic press *p* in proportion as the shortening of the tube by the corrugating process proceeds. By means of the pipe *l* com-

pressed air or steam can be introduced into the interior of the tube. A ring-shaped furnace *c* of any suitable construction mounted  
55 on wheels surrounds the tube and is shifted to the part thereof on which the corrugation is to be made. By this means the said part, such as the annular zone 1 2, is heated to  
60 the required degree, whereupon the furnace is moved to one side. The compressed air being then admitted to the tube *a*, while at the same time water-pressure is admitted to the press, the zone 1 2 will be bulged out-  
65 ward, so as to form a corrugation. The height of such corrugation will depend upon the extent of the stroke of the press and its form upon the width of the zone heated, the temperature to which it is raised, and the inten-  
70 sity of the internal pressure. By this means any desired number of corrugations of any desired form can be produced upon a tube without the use of molds.

On the drawings is shown a ring-shaped  
75 coke-furnace *c*, which is supplied with air for combustion through pipes *n*. It is mounted with wheels upon rails, so as to be movable into any desired position between the plates of the press. Instead of a coke-furnace a  
80 gas-furnace or the like may be employed.

Having now particularly described my invention, what I claim is—

1. In the manufacture of corrugated metal tubes, the combination of means for heating  
85 the tube at the point where a corrugation is to be produced, means for filling the interior of the tube with a compressible fluid under pressure, and means for subjecting the tube to longitudinal compression when heated,  
90 whereby the heated portion of the tube is expanded, substantially as set forth.

2. A means of manufacture of corrugated metal tubes consisting in a fixed plate, a movable press-plate between which plates the  
95 tube to be corrugated is placed in a cold condition, and a movable furnace, for heating the tube at the point where a corrugation is to be produced.

In witness whereof I have hereunto signed  
100 my name in the presence of two subscribing witnesses.

WLADYSLAW MACIEJEWSKI. [L. S.]

Witnesses:

ADAM MICKIEWICE,

ROLETTCEW GOOVDYASKI.