

C. D. WOOD.
METHOD OF MAKING CORRUGATED BOARD.
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1,189,518.

Patented July 4, 1916.

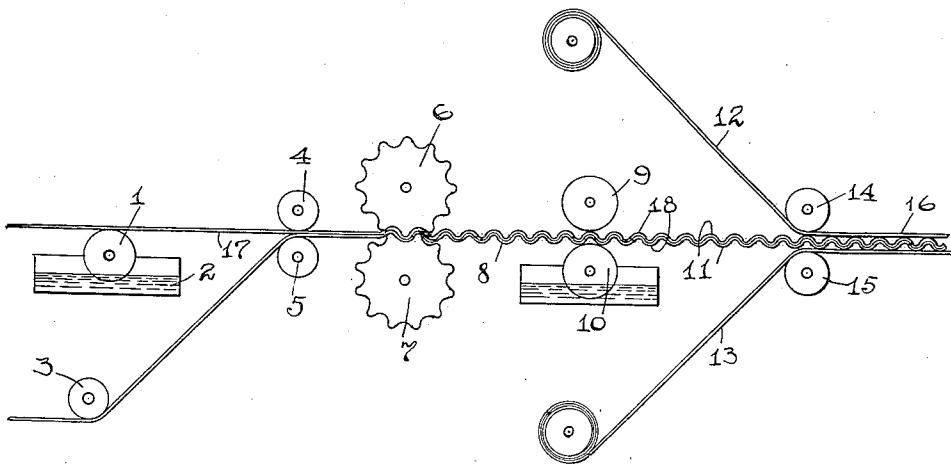


FIG. 1

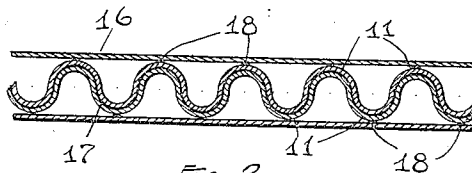


FIG. 2

WITNESSES=

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METHOD OF MAKING CORRUGATED BOARD.

1,189,518.

Specification of Letters Patent.

Patented July 4, 1916.

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To all whom it may concern:

Be it known that I, CHARLES D. WOOD, a citizen of the United States, and a resident of Lakewood, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Methods of Making Corrugated Board, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

The present invention relates to an improved type of corrugated board for use in shipping containers and the like, which will have a much greater strength than the board now so generally used for this purpose and which is in many instances wholly unsatisfactory. It has long been a serious problem as to how to increase the strength of this corrugated board without prohibitively increasing the cost, and it is to secure increased strength without increased cost that the present invention has been designed.

The annexed drawing and the following description set forth in detail certain means and one mode of carrying out the invention, such disclosed means and mode illustrating, however, but one of various ways in which the principle of the invention may be used.

In said annexed drawing:—Figure 1 indicates diagrammatically one form of apparatus which may be used in producing my improved corrugated-board and in carrying out the method of making same; and Fig. 2 is a section through such improved corrugated board.

The usual corrugated board which is used in corrugated containers comprises a filler, consisting of a strip of corrugated paper, which is cemented to two spaced sheets of paper at the crests of the corrugation. For many uses this corrugated board is very satisfactory since it is comparatively inexpensive and for many purposes is sufficiently strong, but in large sized containers and in containers which are subjected to hard usage there have been found many cases of breakage. It is customary to cement the filler to the outside sheets by some suitable binder, such for example as silicate of soda, and this is the composition which is most commonly used for this purpose in the pres-

ent types of corrugated board. My invention consists in an improved process for making corrugated board and also in the corrugated board thereby produced, which is much stronger and more rigid than the former types.

In Fig. 1 I show suitable apparatus for producing my improved board, such apparatus consisting of a cylindrical roll 1 which is horizontally mounted and dips into a bath 2 containing silicate of soda. I do not insist on the use of silicate of soda as any other equally effective adhesive may be used, if desired. A sheet of paper is led over the upper surface of the roll 1 and is thereby moistened on its lower side with the silicate of soda. A second sheet or strip of paper is passed over a suitable roll 3 and is brought parallel to the first named sheet by the two being passed between pressure rolls 4 and 5. These rolls operate to firmly press the two sheets of paper together, the binder, in the form of silicate of soda acting to secure the sheets in close union. The cemented sheets of paper are then led, before the binder has set, through corrugating rolls 6 and 7, from which the paper issues in the form indicated at 8 in the figure. The corrugated filler is then passed between other rolls 9 and 10, which are suitably supplied with silicate of soda, these rolls contacting near the crests 11 of the corrugations. I have not shown any specific means for supplying silicate to the upper roll 9 but it will be understood that this may be accomplished in any desired way.

The final step in the manufacture of the corrugated board consists in passing the moistened filler between two outer sheets of paper 12 and 13 through pressure rolls 14 and 15, which press the entire number of sheets of paper together although leaving the filler in the corrugated form indicated at 16 in the figure. It will be understood that any of the methods now in use may be employed for the manufacture of my new board, when such changes as are necessary are made.

When the silicate of soda has set, the layer or film of the same which is contained between the sheets which make up the filler, adds very materially to the strength and rigidity of the product and it has been found that corrugated board can be made

having an available strength of more than double that of corrugated board made in the old way. The additional cost of making corrugated board under the present
5 method involves only the cost of an additional sheet or sheets of paper together with the slightly increased amount of silicate of soda which is necessary. As the cost of the silicate is but small, it will be seen that a
10 greatly increased strength can be secured at a slight additional cost. This increased strength will render corrugated board available for many uses for which it is not now adapted, and will make it much more satis-
15 factory in the uses which it now has.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the means and the steps herein dis-
20 closed, provided those stated by the fol-

lowing claim or their equivalents be employed.

I therefore particularly point out and distinctly claim as my invention:—

In a method of making corrugated board 25 sheets, the steps which consist in first cementing together a plurality of sheets of paper with a stiffening binder spread evenly over the entire area of the opposite surfaces of such sheets, corrugating such cemented 30 sheets before the binder sets, and then cementing a sheet of paper to the crests of the corrugations on each side of such built up corrugated sheet.

Signed by me, this 17th day of August, 35 1914.

CHARLES D. WOOD.

Attested by—

E. R. BAILEY,

H. P. MANSFIELD.