

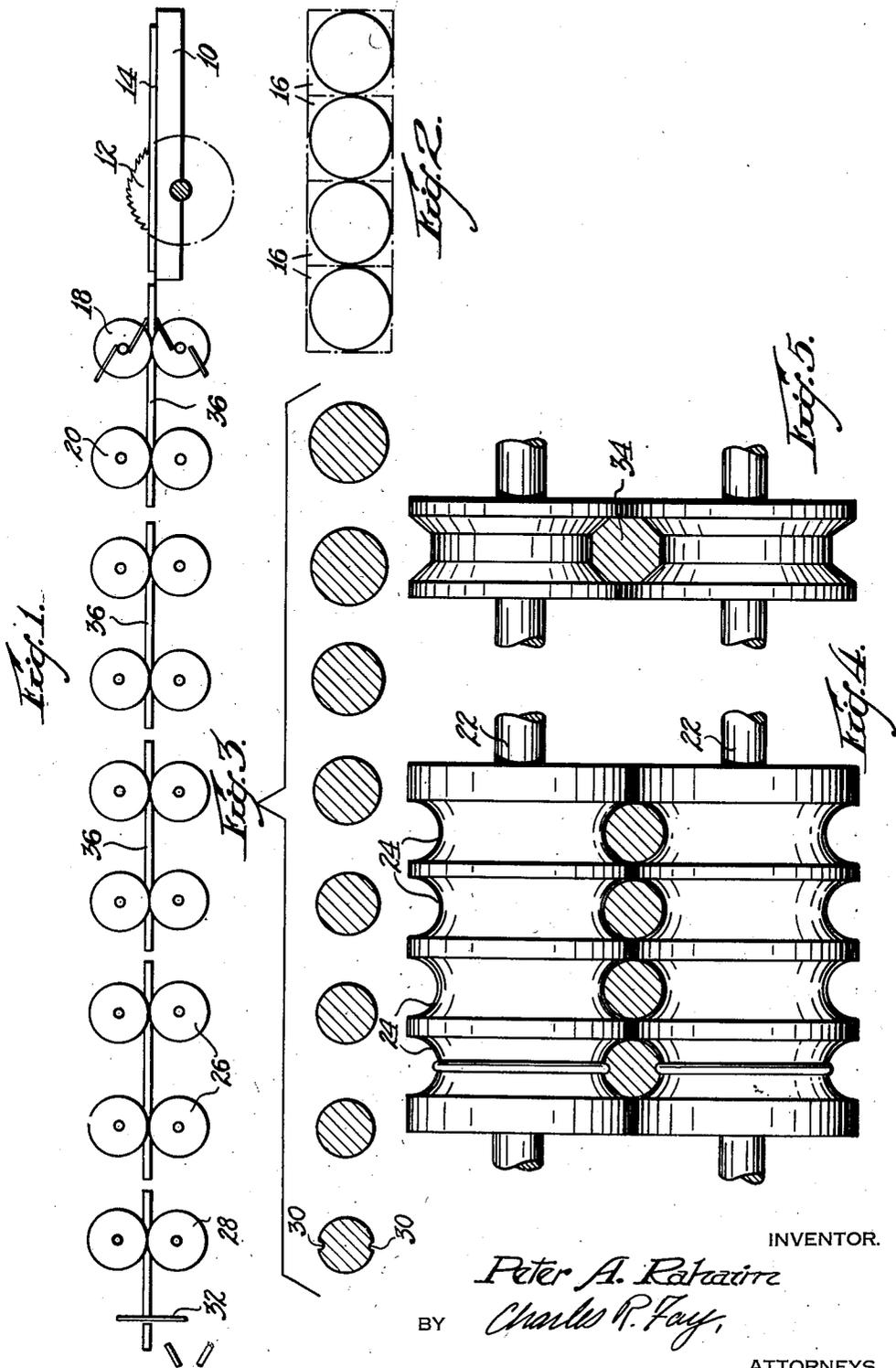
Sept. 30, 1952

P. A. RAHAIM

2,612,195

PROCESS OF MAKING IMPROVED DOWEL STOCK AND DOWEL PINS

Filed Aug. 11, 1947



INVENTOR.

Peter A. Rahaim

BY

Charles R. Fay,

ATTORNEYS.

UNITED STATES PATENT OFFICE

2,612,195

PROCESS OF MAKING IMPROVED DOWEL STOCK AND DOWEL PINS

Peter A. Rahaim, Gardner, Mass.

Application August 11, 1947, Serial No. 767,886

3 Claims. (Cl. 144-309)

1

This invention relates to a new and improved process for the manufacture of improved dowel stock and dowel pins.

The principal object of the invention is to provide a method for rapid production and economical manufacture of improved expanding dowel stock and dowel pins which when immersed in water or glue will tend to return to their original diameter so that anything secured together by such dowels will be permanently fastened; and it is another object of this invention to produce such improved dowel pins as well as the dowel stock at a cost little or no greater than the cost of producing ordinary non-compressed dowel pins.

To this end this invention contemplates a continuously operable machine which takes flat board stock, divides the same by means of a gang-saw into a plurality of square sectioned strips, and then forms the square stock into round compressed dowel stock in stages continuously, and finally cuts the compressed dowel stock into the required dowel pin lengths, to the end that the entire operation is carried out on one machine at a rate approximating the conventional formation of dowel stock and dowel pins by means of dowel planer tools or the like.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawing in which:

Fig. 1 is a diagrammatic view illustrating the process;

Fig. 2 is a cross sectional view of the original board and showing the relative size of the round stock formed therefrom initially;

Fig. 3 is a series of cross sectional views illustrating the reduction by compression in the diameter of the original cut stock;

Fig. 4 is a view in front elevation of one of the reducing roll pairs; and

Fig. 5 is a view in front elevation of a pair of rolls for reducing square stock without the use of dowel cutters.

In carrying out the invention and improved process there is provided a table or the like mounting a gang-saw or similar dividing means for the purpose of taking a board having the required thickness and dividing the same into a plurality of square section strips as indicated. As these strips progress from the gang-saw they are taken in and fed by a pair of dowel cutters indicated at 18, these dowel cutters reducing the stock to a circular or other non-square section.

2

After the dowel cutters there are provided a series of roll pairs which are formed generally as shown in Fig. 4, these pairs being indicated at 20.

Each pair of rolls is provided with a shaft which may be journaled at both ends and driven from one or both ends so as to not only feed but also form the stock. Each of the rolls comprises a series of flute-like annular formations indicated at 24 having semi-circular concave peripheries for the purpose of applying pressure substantially in all directions to the circular stock entering the same. In general, each succeeding pair of rolls will be formed on a slightly smaller arc as to the flutes to gradually increase pressure and reduce the stock diameter, but it is contemplated that a pair of these roller pairs as at 26 may be finishing rolls of equal diameter as to the flutes.

The final roller pair 28 may be used to impress opposite longitudinal grooves 30 in the dowel stock and thereafter the stock progresses and may be cut off as by a tool 32.

It is also contemplated that instead of using the dowel cutter 18, squeezing rolls may be used having a polygonal shape as indicated at 34, Fig. 5, so that the use of cutters is avoided and the stock is taken directly from the square shape occasioned by the gang-saw and squeezed down into circular section shape by stages the resulting product being the same as before except that when wet, this stock will return to its original square shape and the initial thickness of the stock will be easily seen to be greater than the diameter of the finished compressed dowel.

In either event, when the compressed dowel is wetted, either by water or glue, it will tend to expand to its original condition whether circular or square and in this way forms what amounts to a dovetail joint which cannot be taken apart without breaking either the stock or the elements which are secured together by the dowels.

The dowel stock is actually shown in Fig. 1 at 36 but it is to be understood that these pieces of stock will be fed into the machine in end to end abutting relation, the pieces being shown separate in order to indicate the fact that one board after another is run through the gang-saw whereupon no further attention is needed on the part of the operator because of the fact that the squeeze rolls feed as well as compress the stock.

It will be seen from the above description that this process is continuous from the flat boards to the finished dowel and that, therefore, there is no more expense than the conventional manner

3

of making dowels. Also, it is just as rapid and, therefore, the public may be provided with greatly improved dowels at a cost no greater than the cost of uncompressed dowels.

Having thus described my invention and the advantages thereof, I do not wish to be limited to the details herein disclosed otherwise than as set forth in the claims, but what I claim is:

1. Process for producing compressed dowels or the like from flat stock comprising the steps of dividing the stock into strips of square section, making the said strips circular in cross section, and gradually compressing the strips evenly from end to end by a longitudinal rolling action.

2. The process of claim 1 wherein the circular formation is accomplished by pressure on the strips.

3. The process of claim 1 wherein the circular

4

formation is accomplished by cutting and removing material from the strips.

PETER A. RAHAIM.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,867	Winans -----	Nov. 26, 1840
435,463	Stewart -----	Sept. 2, 1890
569,234	Rockwell -----	Oct. 13, 1896
1,542,576	Pflumer -----	June 16, 1925
1,739,516	Neklutin -----	Dec. 17, 1929
1,751,320	Genest -----	Mar. 18, 1930
2,283,331	Lawton -----	May 19, 1942