

E. NIEMEYER.
 APPARATUS FOR MANUFACTURING PILLARS.
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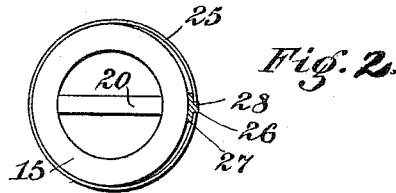
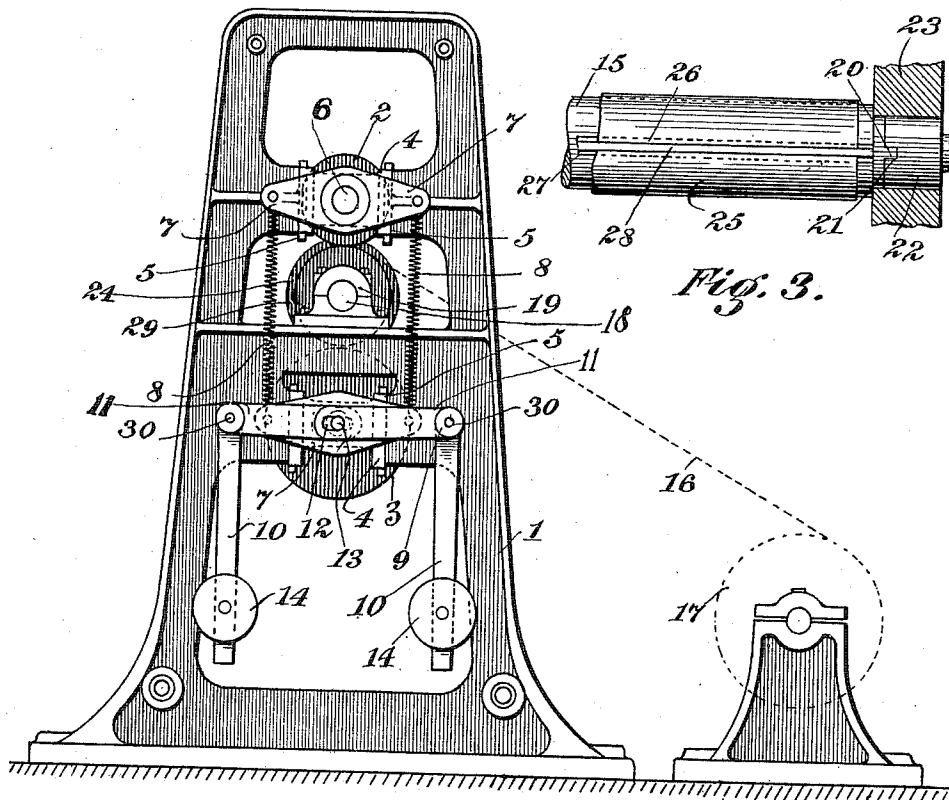


Fig. 1.



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR MANUFACTURING PILLARS.

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To all whom it may concern:

Be it known that I, EMIL NIEMEYER, subject of the Emperor of Germany, residing at Berlin-Tempelhof, Germany, have invented certain new and useful Improvements in Apparatus for Manufacturing Pillars, of which the following is a clear, full, and exact description.

This invention relates to a device for manufacturing pillars and the like from webs of paper or any other similar material, the said paper or material being coated with an adhesive and wound upon cores or formers which are removed after the pillars have been completed.

My invention relates more particularly to cores or formers for the purpose above mentioned and to means adapted to exert pressure upon the paper during the process of forming the pillars.

I will now proceed to describe my invention in detail, the novel features of which will be pointed out in the claims, reference being had to the accompanying drawing, forming part hereof, wherein:

Figure 1 is an end view of a machine embodying my invention; Fig. 2 is a detail end view of the former; and Fig. 3 is an enlarged detail view of one end of the core or former.

Referring to the drawings, the numeral 1 indicates the frames of the machine, upon which are rotatably mounted pressure rollers 2 and 3. The rollers 2 and 3 are carried by boxes 4, which, in turn, are adapted for vertical movement on the guides 5 which are carried by the frames 1. The outer ends of the shafts 6, upon which the rollers 2 and 3 are mounted, are provided with beams 7, which, in turn, are connected by springs 8. Adjacent the lower roller 3, I mount levers 9, which consist of the arms 10 and 11. The inner end of each arm 11 is provided with a slot 12, through which the outer ends 13 of the lower shaft 6, pass. The arms 10 of the levers 9 are provided with counterweights 14.

Intermediate the rollers 2 and 3 I mount my improved core or former 15, upon which the pillar is formed, the said pillar being formed by superposed layers of paper or other material, to which an adhesive has been applied. In Fig. 1 the paper is indicated by 16 and the roll from which it is taken by 17. One end of the former 15 is reduced as at 18, the said reduced portion

being carried by a box 19, which is removably bolted to one frame member 1. The other end of the said former is provided with a tongue 20, which is adapted to enter the slot 21 carried by the stub shaft 22, which in turn is rotatably supported by a box 23, which in turn is removably bolted to the other frame member 1. The stub shaft 22 is provided with a belt-pulley, not shown, by which means, and a belt which is not shown, the former is rotated.

One of the principal features of my invention consists of a resilient band or sleeve 25, which is carried by the core 15, the said band 25 being split as at 26, in order to allow for the expansion of the same. To expand the band 25 and hold it expanded I provide a block 27, having a ridge 28 thereupon. The block 27 not being secured to the core 15, is adapted for removal therefrom. The purpose of the band 25 is to provide an auxiliary core which may easily be removed from the bore of the pillar, after the pillar has been formed. It is quite evident that should the pillar be formed upon a core, which could not be decreased in diameter after the pillar had been wound thereupon, the said pillar could not be readily removed therefrom. By providing the said band 25, it is possible for the machine to tightly wind the paper. When the pillar is formed the block 27 may be slipped out, thereby depriving the band 25 of one of its essential supports. When the block 27 has been removed, the band 25 will contract, whereby it may be easily removed from the bore of the pillar. It will, of course, be understood, that the core 15 and pillar thereupon will be removed from the frames 1, before the block 27 is slipped out. This may be done by removing the bolts 29, which secure the box 19 to its frame 1. The box 23 need not be removed, for the reason that the core 15 and box 19 may be pulled out endwise.

The purpose of the rolls 2 and 3 and springs 8 is to exert pressure upon the paper while it is being wound upon the core 15. As the pillar increases in diameter the rolls 2 and 3 will be forced apart, thereby placing the springs 8 under a gradually increasing tension. The bell-crank levers 9 and counterweights 14 thereupon aid the springs 8 in their work by tending to keep the under roll 3 in contact with the paper. The bell-crank levers 9 are pivotally secured to the frames 1 as at 30.

Having now described my invention, what I claim and desire to secure by Letters Patent is:—

1. In mechanism for manufacturing pillars and other tubular structures and articles, a solid inexpandible core, in combination with a longitudinally slit resilient sleeve fitting thereon and a removable part adapted to be inserted into the slit of the sleeve and fitting between the core and the parts of said sleeve adjacent to said slit, thus slightly expanding said sleeve for the purpose set forth.

2. In mechanism for manufacturing pillars and other tubular structures and articles, a solid inexpandible core, in combination with a longitudinally slit resilient sleeve fitting thereon and a block 27 fitting against the face of said solid core and provided with

a ridge 28 fitting into said slit to hold said sleeve expanded until the withdrawal of said block substantially as set forth.

3. In mechanism for manufacturing pillars and other tubular structures and articles, a work-holding core, a pair of pressure rollers in contact with the work thereon above and below said core, a pair of springs and connecting means arranged to draw said rollers toward said core and a pair of weighted levers arranged to aid in raising the lower roller against said core substantially as set forth.

Signed at Berlin, this 5th day of April 1910.

EMIL NIEMEYER.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
