

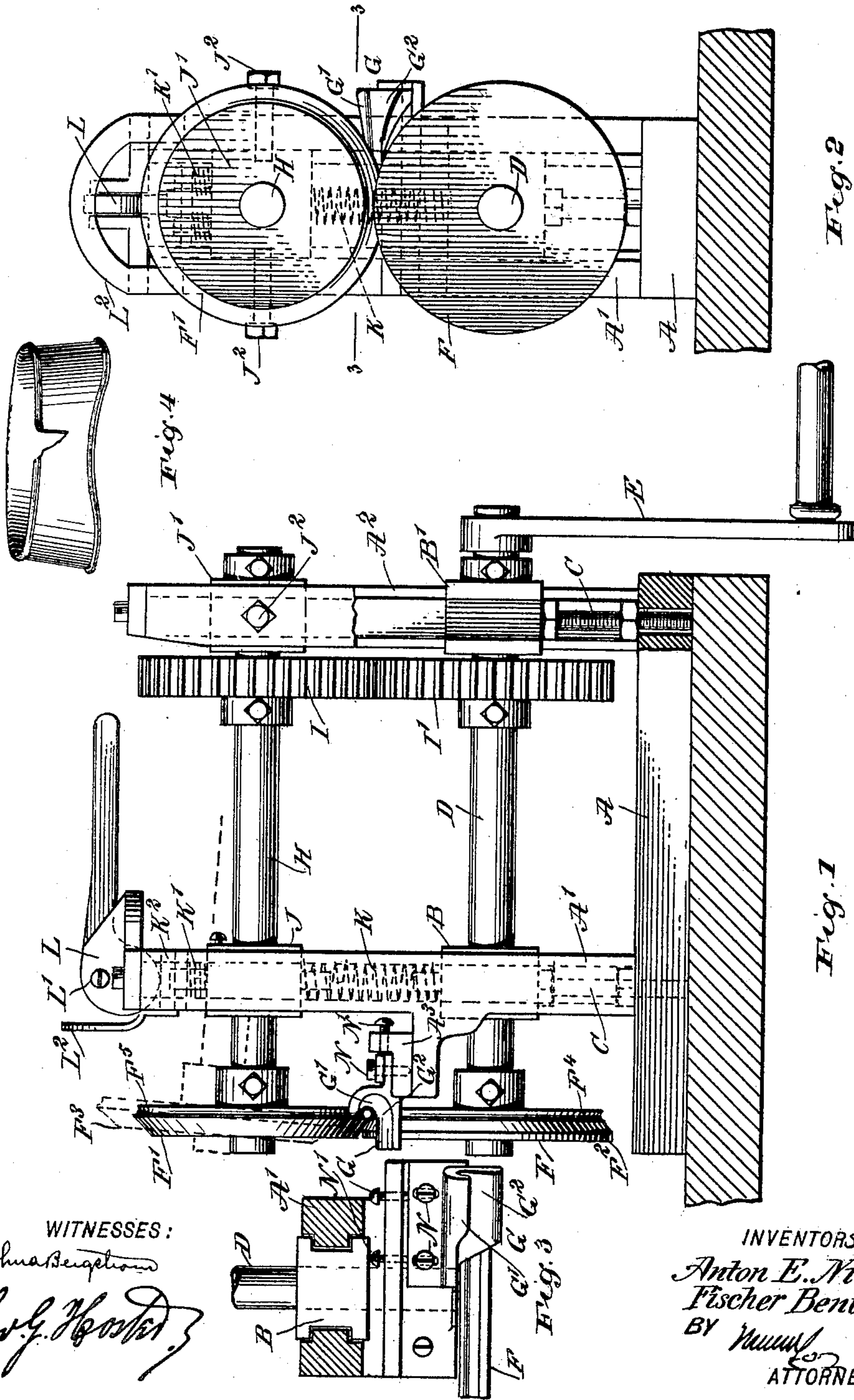
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Patented Apr. 15, 1902.

A. E. NIELSEN & F. BENTSEN.  
CURVED HAT STAY FLANGING MACHINE.

(Application filed Dec. 19, 1901.)

(No Model.)



WITNESSES:

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# UNITED STATES PATENT OFFICE.

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## CURVED-HAT-STAY-FLANGING MACHINE.

SPECIFICATION forming part of Letters Patent No. 697,871, dated April 15, 1902.

Application filed December 19, 1901. Serial No. 86,521. (No model.)

*To all whom it may concern:*

Be it known that we, ANTON E. NIELSEN and FISCHER BENTSEN, citizens of the United States, and residents of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Curved-Hat-Stay-Flanging Machine, of which the following is a full, clear, and exact description.

10 The object of the invention is to provide a new and improved hat-stay-flanging machine, more especially designed for flanging the undulating edges of tubular articles, such as paper supports or stays for nesting hats.

15 The invention consists of novel features and parts and combinations of the same, as will be more fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the improvement with parts broken out. Fig. 2 is a front elevation of the same. Fig. 3 is a sectional plan view of the same on the line 3 3 of Fig. 2, and Fig. 4 is a perspective view of part of the finished article.

30 On a base A are erected standards A' and A<sup>2</sup>, having vertical guideways for bearings B B', resting on screws C, held on the base A and adapted to allow of vertically adjusting the bearings B B' to bring the same in proper alignment. In the bearings B B' is journaled a shaft D, carrying at one end a crank-arm E for turning the shaft D, and on the other end of the latter is secured a crimping-die F, operating in conjunction with a crimping-die F' and a guide-plate or former G to crimp the edge of the blank to be treated, as hereinafter more fully described. On a shaft H is secured a gear-wheel I, in mesh with a gear-wheel I', fastened to the shaft D, so that when the latter is rotated the gear-wheel I' rotates the gear-wheel I and shaft H, so that the two crimping-dies F and F' are rotated in unison. The shaft H, on which the die F' is secured, is journaled in bearings J J', held in the standards A' A<sup>2</sup>, the bearing J' being hung on trunnions or centers J<sup>2</sup> and the bearing J being

mounted on springs K, supported from the bearing B. On top of the bearing J are arranged springs K', engaged by a plate K<sup>2</sup>, adapted to be pressed by a cam-lever L, fulcrumed at L' to the top of the standard A', the said cam-lever L when thrown over into an inactive position resting on a support L<sup>2</sup>, attached to the standard A'. When the cam-lever L is in the position shown in the drawings, the springs K' are compressed and the bearing J is held in such a position that the shaft H extends approximately parallel to the shaft D, and when the cam-lever L is swung into an open position the bearing J is caused to slide upwardly by the action of the springs K' to move the shaft H into an angular position and the die F' into the uppermost position for conveniently inserting the blank between the dies F F'. When the blank has been inserted, the lever L is thrown back into an active position, so as to cause the plate K<sup>2</sup> and springs K' to force the bearing J downwardly against the tension of the springs K' to hold the shaft H and die F' in a normal active position.

The dies F and F' are disk-shaped and are provided with registering annular bevels F<sup>2</sup> F<sup>3</sup> and registering grooves F<sup>4</sup> F<sup>5</sup>, so that when the dies F and F' engage a paper blank the latter extends between the two bevels F<sup>2</sup> F<sup>3</sup> and into the registering grooves F<sup>4</sup> F<sup>5</sup>, which latter then form a circular opening between the dies, as will be readily understood by reference to Fig. 1, as each of the grooves is half-round in cross-section.

The guide-plate G is formed on its back with an upturned and forwardly-projecting flange G', as plainly indicated in Figs. 1 and 3, to allow of properly guiding the blank forward between the dies F and F', the mouth or entrance G<sup>2</sup> of the guide-plate being flaring and the bottom of the plate segmental, so as to readily accommodate the tubular blank to be crimped at its undulating edges. The guide-plate G is adjustably secured by screws N to a bracket A<sup>3</sup> on the standard A', and the rear edge of the said guide-plate abuts against screw-rods N', screwing in the bracket, to allow of adjusting the guide-plate at the time the fastening-screws N are loosened.

In using the machine the operator first



swings the cam-lever L into an open position to allow of inserting the edge of a tubular blank between the dies F F', the edge abutting against the flange G' of the guide-plate G. When this has been done, the operator swings the cam-lever L into the position shown in Figs. 1 and 2, so that the blank is firmly engaged between the dies F' and F<sup>2</sup>. The crank-arm E is now turned, so as to rotate the dies F F' in unison, whereby the annular edges of the dies between the bevels F<sup>2</sup> F<sup>3</sup> and the grooves F<sup>4</sup> F<sup>5</sup> crease the paper blank a distance from the edge thereof throughout the length of the blank, and when the blank is passed a second time between the dies F F' the creased portion is caused to bend upwardly and inwardly, owing to the action of the flange G' and the grooves F<sup>4</sup> F<sup>5</sup>, so that the edge is properly flanged back onto the body of the blank, as will be readily understood by reference to Fig. 4. Passing the blank twice in succession through the machine usually completes the flanging operation; but it may be run through the machine more than twice if deemed necessary. When the flanging operation is completed, the operator swings the cam-lever L forwardly to separate the die F' from the die F and to allow of removing the flanged article. By the arrangement described the operator in holding the blank can readily guide the same along the guide-plate G, according to the undulation of the edge of the blank, so that the edge is properly flanged whether the same is straight or undulated. The machine is very simple and durable in construction and can be readily manipulated without the use of skilled labor to properly flange the edges of tubular or other bodies.

40 Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. A flanging-machine, comprising a pair of revoluble dies, and a guide-plate at the entrance side of the dies for guiding the edge of an article to the dies, the said guide-plate having an upturned and overhanging flange forming a tapering guideway with outwardly-flaring mouth to guide the article to the dies and to assist in turning over the edge of the blank sufficiently for the revoluble dies to complete the crimping, the bottom of the guide-plate being arched to accommodate tubular articles of different diameters, as set forth.

2. A flanging-machine, comprising a pair of revoluble dies, a guide-plate at the entrance side of the dies for guiding the edge of an article to the dies, the said guide-plate having a segmental body portion and an upturned and overhanging flange forming a tapering guideway with outwardly-flaring mouth to guide the article to the dies and to assist in turning over the edge of the blank sufficiently for the revoluble dies to complete the crimping, and means for adjusting the guide-plate relatively to the said dies, as set forth.

3. A flanging-machine, comprising a pair of revoluble dies located one above the other, a guide-plate at the entrance of the said dies for guiding the edge of an article to the dies, shafts carrying the revoluble dies and geared together, bearings for the said shafts, one of the bearings for the upper shaft being fulcrumed and the other bearing mounted to slide, springs arranged on opposite sides of the sliding bearing and means for compressing one of the springs, as set forth.

4. A flanging-machine, comprising a pair of revoluble dies located one above the other, a guide-plate at the entrance of the said dies for guiding the edge of an article to the dies, shafts carrying the revoluble dies and geared together, bearings for the said shafts, one of the bearings for the upper shaft being fulcrumed and the other bearing mounted to slide, springs arranged on opposite sides of the sliding bearing, and a cam-lever for compressing the spring on one side of the sliding bearing to lock the said bearing against the tension of the spring on the other side of the bearing, as set forth.

5. A flanging-machine, comprising a pair of revoluble dies having annular registering bevels and annular registering grooves adjacent to the bevels and half-round in cross-section, the grooves being adjacent to the inner faces of the dies and the bevel of one inclining downwardly and outwardly from the groove and the bevel of the other inclining upwardly and outwardly from the groove and a guide-plate at the entrance side of the dies for guiding an article to the same, as set forth.

6. A flanging-machine, comprising a pair of revoluble dies having annular registering bevels and annular registering grooves adjacent to the bevels and half-round in cross-section, the grooves being adjacent to the inner faces of the dies and the bevel of one inclining downwardly and outwardly from the groove and the bevel of the other inclining upwardly and outwardly from the groove and a guide-plate at the entrance side of the dies for guiding an article to the same, the said guide-plate having a curved bottom and an upwardly-turned flange forming a tapering guideway with outwardly-flaring mouth, as set forth.

7. In a flanging-machine, a pair of revoluble dies having annular registering bevels and grooves adjacent to the inner faces, the bevel of one die inclining downwardly and outwardly from the groove and the bevel of the other inclining upwardly and outwardly from the groove, as set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

ANTON E. NIELSEN.  
FISCHER BENTSEN.

Witnesses:

GEO. HEIBERGER,  
GUST. HAAS.