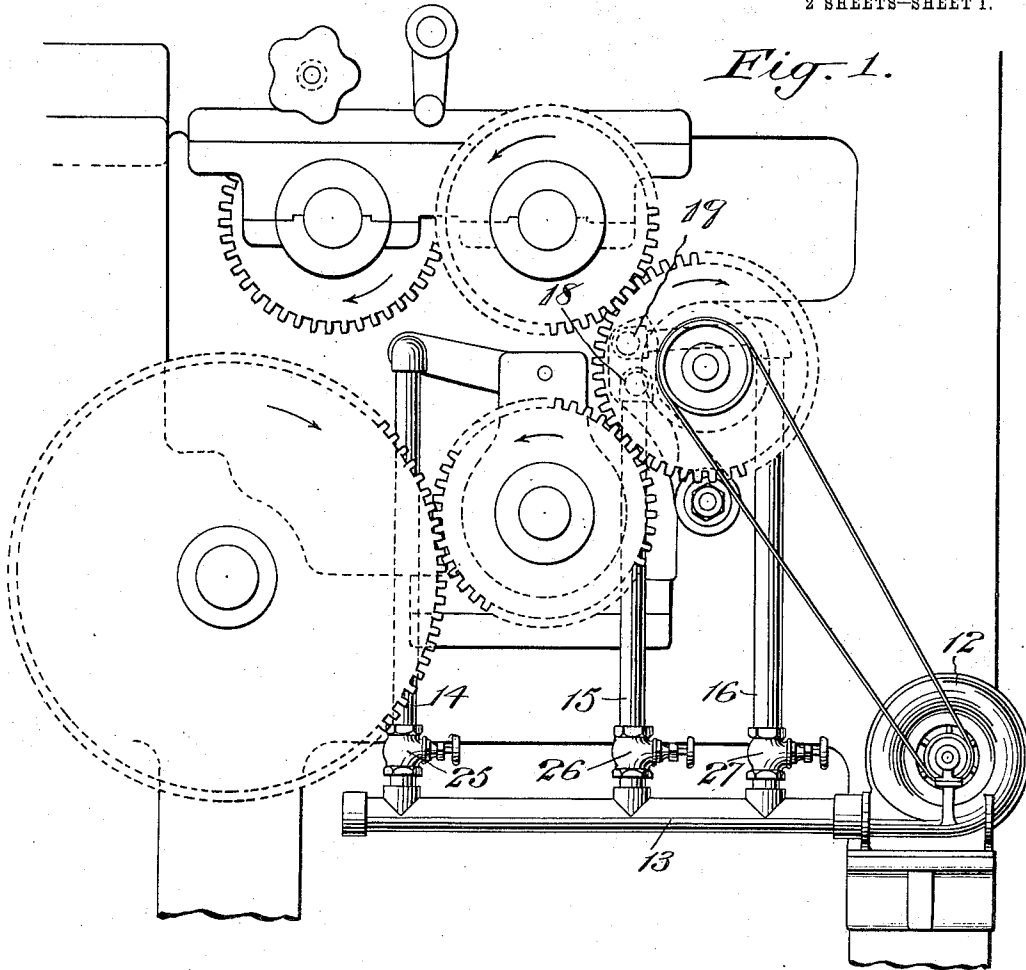


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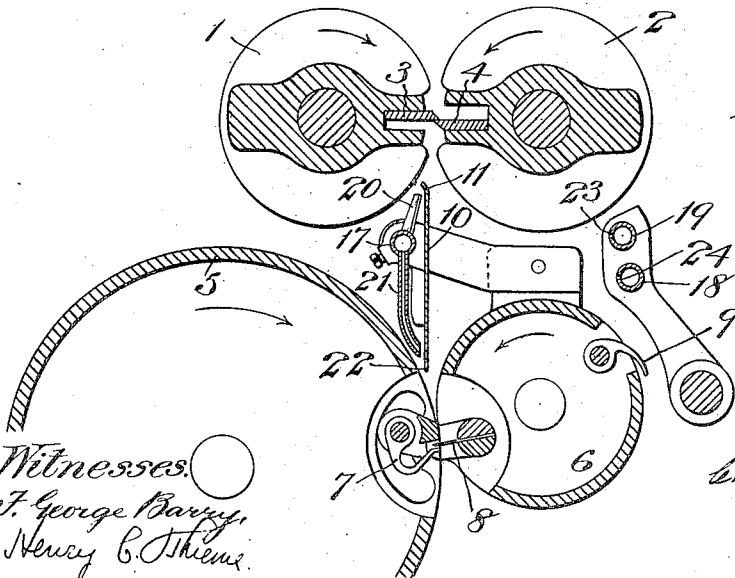
1,072,316.

Patented Sept. 2, 1913.

2 SHEETS—SHEET 1.



*Fig. 1.*



*Fig. 2.*

Witnesses:  
 F. George Barry,  
 Nancy C. Thorne.

Inventor:  
 Constant T. Cundall  
 by his attorneys  
 Brown & Seward

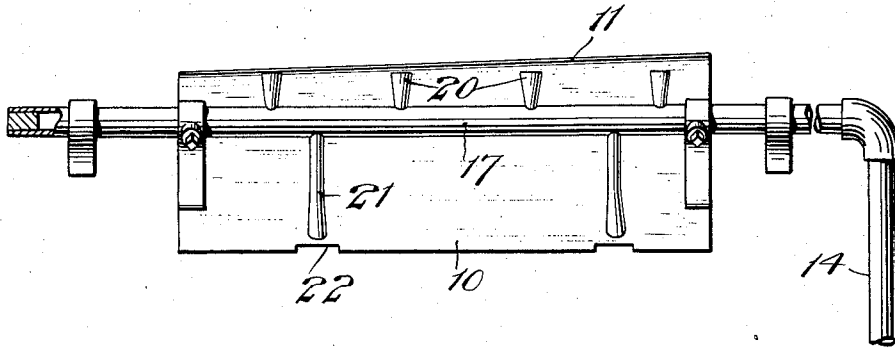
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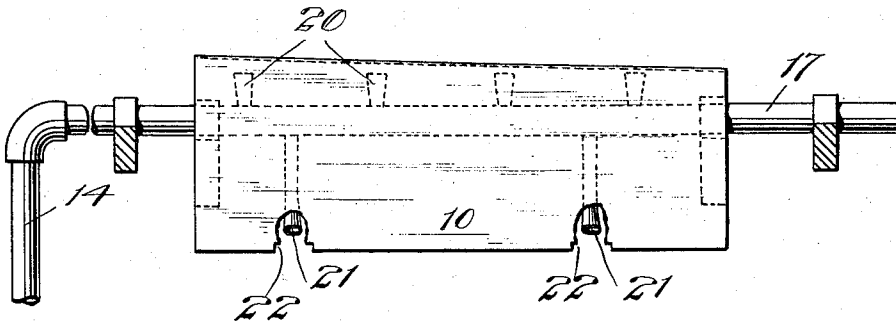
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2 SHEETS—SHEET 2.

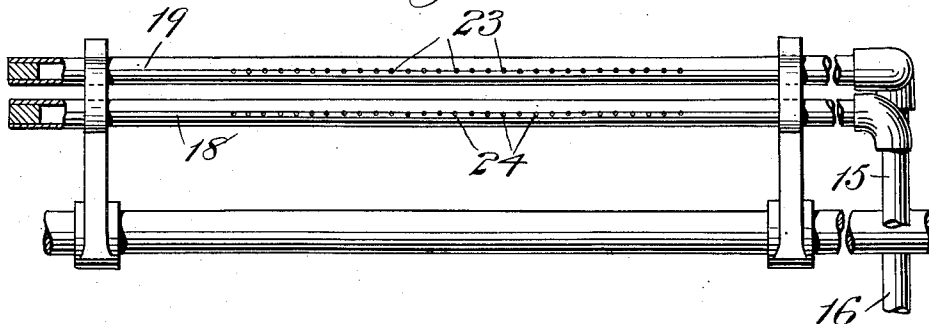
*Fig. 3.*



*Fig. 4.*



*Fig. 5.*



*Witnesses:-*  
*F. George Barry,*  
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# UNITED STATES PATENT OFFICE

CONSTANT T. CUNDALL, OF STONINGTON, CONNECTICUT, ASSIGNOR TO C. B. COTTRELL & SONS COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

## WEB CUTTING AND FOLDING MACHINE.

1,072,316.

Specification of Letters Patent.

Patented Sept. 2, 1913.

Original application filed November 30, 1910, Serial No. 594,829. Divided and this application filed January 5, 1911. Serial No. 690,968.

*To all whom it may concern:*

Be it known that I, CONSTANT T. CUNDALL, a citizen of the United States, and resident of Stonington, in the county of New London and State of Connecticut, have invented a new and useful Improvement in Web Cutting and Folding Machines, of which the following is a specification.

In web cutting and folding machines, the webs as they pass from the cutters to the folding cylinders are liable to become choked by the passing of the webs between one of the cutters and the top of the guide fingers which are usually interposed between the cutters and the folding cylinders. This choking is frequently caused by the natural curl of the web or by reason of rough or torn edges of the web or because of the static electricity in the web. The choking of the web frequently causes the machine to break down and thus reduce the output of the machine as well as damaging a considerable portion of the web itself.

The object of the present invention is to obviate this choking of the webs and the consequent breaking down of the machine, by the provision of an air control for the webs as they pass from the cutters to the folding cylinders.

A practical embodiment of the invention is represented in the accompanying drawings, in which,

Figure 1 represents in side elevation, so much of a web cutting and folding machine as will give a clear understanding of my invention. Fig. 2 is a detail section showing the cutters, the folding cylinders and the means for controlling the web as it passes from the cutters to the folding cylinders. Fig. 3 is a back view of the imperforate guide plate along which the web is passed from the cutters to the folding cylinders, the air blast pipe from the blower for the back of the sheets being also illustrated in its position with respect to the guide plate. Fig. 4 is a front view of the same, portions of the guide plate being broken away to show the mouths of the bottom air discharge nozzles, and Fig. 5 is a front view of the air blast pipes from the blower for directing air against the front of the web as it passes from the cutters to the folding cylinders.

The cooperating rotary cutters are de-

noted by 1 and 2, and their respective blades 55 are denoted by 3 and 4. The cooperating folding cylinders are denoted by 5 and 6, the cylinder 5 being provided in the present instance, with the folding jaws 7 and the cylinder 6 with the folding blade 8. The set 60 of grippers on the cylinder 6 are denoted by 9. This cylinder 6 may be a collecting cylinder as well as a folding cylinder, if so desired. An imperforate guide plate 10, in the present instance, of sheet metal, is interposed 65 between the cutters and folding cylinders, the upper edge of which guide plate is preferably curved slightly backward, as shown at 11, toward the cutter 1. A compressed air source is provided, which source in the 70 present instance, is shown as a blower 12, mounted on the machine frame. This blower is shown as provided with a main discharge pipe 13, from which lead the vertical branches 14, 15, 16, of air discharge pipes, 75 the horizontal branches of which are denoted by 17, 18, 19. The horizontal branch 17 is located in close proximity to the back of the guide plate 10 and is provided with one or more upwardly directed nozzles 20, 80 and one or more downwardly directed nozzles 21. In the present instance, four of these upwardly directed nozzles 20 are shown, the mouths of which nozzles are arranged to direct a blast of air against the 85 concave face of the inwardly turned upper edge 11 of the guide plate 10. These nozzles 20 serve to strip the advance edge of the web from the blade 3 on the cutter 1, if the web should tend to cling to the said blade 90 and pass between the upper edge of the plate 10 and the cutter 1. The mouths of the downwardly directed nozzles 21 are arranged to direct a blast of air against the advance edge of the web as it reaches the 95 folding cylinders for forcing the advance edge toward the cylinder 6, to insure the grasping of the edge by the grippers 9. The lower edge of the imperforate guide plate 10 is preferably provided with recesses 22, 100 opposite the mouths of the downwardly directed nozzles 21, so as to facilitate the action immediately above described.

The horizontal branch 19 of the pipe 16, 19, is provided with a longitudinal series of 105 holes 23 arranged to discharge jets of air against the front face of the web for performing two functions; first, for preventing

the web from clinging to the blade 4 of the cutter 2, and second, for keeping the web from bulging out from the guide plate 10. The horizontal branch 18 of the pipe 15, 18, is provided with a longitudinal series of holes 24 arranged to discharge jets of air in a direction to assist in keeping the web from bulging out from the guide plate 10. The importance of keeping the web snugly against the guide plate 10 is that if the web were permitted to bulge, it would draw the leading edge of the web back so that the grippers 9 would close ahead of the leading edge and thus permit the sheet as it is cut from the web, to be uncontrolled, causing it to either fall to the floor or become wedged or jammed between the two cylinders.

The passage of air to the several horizontal branches 17, 18, 19, from the blower pipe 13, may be controlled by manually operated valves 25, 26, 27, in the vertical branches 14, 15, 16.

It is evident that various changes might be resorted to in the construction, form and arrangement of the several parts without departing from the spirit and scope of my invention, the object of the invention being to provide an air control for the web as it passes from the cutting mechanism to the folding mechanism, to absolutely prevent the choking of the web and for insuring the proper passage of the web through the machine. It is furthermore to be understood that this device is particularly well adapted for use in connection with that class of machine on which a plurality of associated webs are passed through the cutters where it is particularly difficult to control the movement of such associated webs.

Features shown and described but not claimed herein, form the subject-matter of a co-pending application filed by me November 30, 1910, Serial No. 594,939, of which this application is a division.

What I claim is:

1. In a machine of the character described, rotary cutters, a guide leading therefrom and air blast mechanism for stripping the advance edge of the web from the cutters and insuring its passage to and along said guide.

2. In a machine of the character described, rotary cutters, a guide leading therefrom and air blast mechanism for stripping the advance edge of the web from the cutters and insuring its passage to said guide, and for holding the web against said guide

to prevent the web from bulging as it passes along the same.

3. In a machine of the character described, rotary cutters, a guide leading therefrom, means for discharging blasts of air against both sides of the web for stripping the advance edge of the web from the cutters and insuring its passage to said guide and for holding the web against said guide to prevent it from bulging as it passes along the same.

4. In a machine of the character described, rotary cutters, a guide plate leading therefrom having its upper edge curved inwardly toward one of the cutters and means for discharging a blast of air against the back of said inwardly curved edge and said cutter for preventing the choking of the web between the guide plate and cutter.

5. In a machine of the character described, rotary cutters, a guide plate leading therefrom having its upper edge curved inwardly toward one of the cutters, means for discharging a blast of air against the back of said inwardly curved edge and said cutter for preventing the choking of the web between the guide plate and cutter, and means for discharging a blast of air against the other side of the web for insuring the passage of the web from the cutters on to the guide plate and preventing the web from bulging as it passes along the guide plate.

6. In a machine of the character described, rotary cutters, a guide plate leading therefrom having its upper edge curved inwardly toward one of the cutters, means for discharging a blast of air against the back of said inwardly curved edge and said cutter for preventing the choking of the web between the guide plate and cutter, means for discharging a blast of air against the other side of the web for insuring the passage of the web from the cutters on to the guide plate and preventing the web from bulging as it passes along the guide plate, and additional means for discharging a blast of air against the web for assisting in preventing the web from bulging as it passes along the guide plate.

In testimony, that I claim the foregoing as my invention, I have signed my name in presence of two witnesses, this third day of January A. D. 1911.

CONSTANT T. CUNDALL.

Witnesses:

A. P. STILLMAN,  
HOWARD M. BARBER.