

S. G. GOSS.
 MECHANISM FOR PRODUCING A FOLDED PRODUCT.
 APPLICATION FILED APR. 5, 1912.

1,046,415.

Patented Dec. 3. 1912.

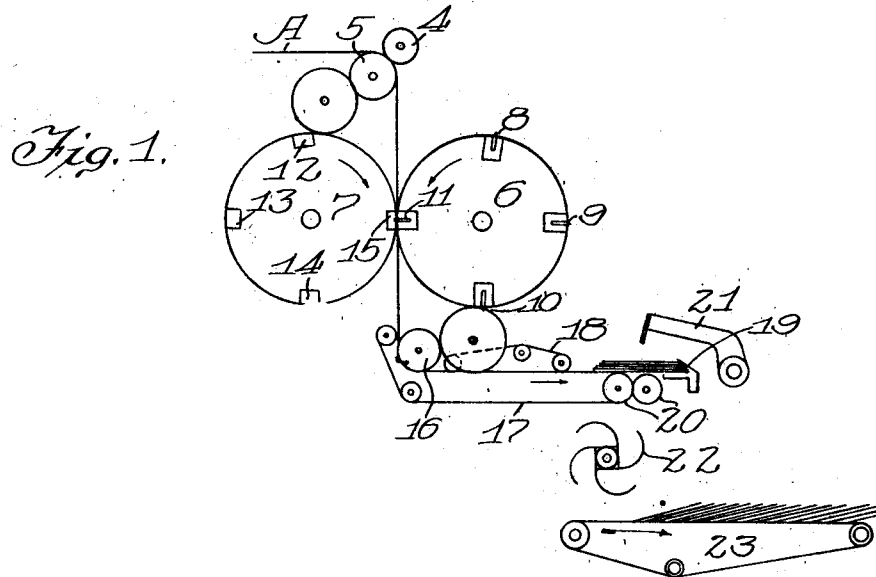


Fig. 2.

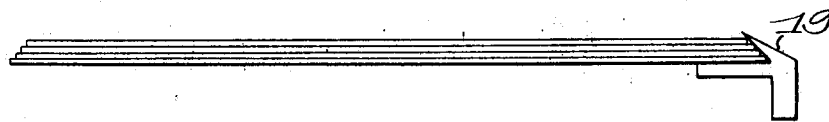


Fig. 3.



Witnesses:
G. W. Buarus Jr.
W. P. Kilroy

Inventor:
Samuel G. Goss
By Adams Pinard & Goss
 Attys.

UNITED STATES PATENT OFFICE.

SAMUEL G. GOSS, OF GLENCOE, ILLINOIS, ASSIGNOR TO THE GOSS PRINTING PRESS COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

MECHANISM FOR PRODUCING A FOLDED PRODUCT.

1,043,415.

Specification of Letters Patent.

Patented Dec. 3, 1912.

Original application filed March 13, 1911, Serial No. 614,279. Divided and this application filed April 5, 1912. Serial No. 688,759.

To all whom it may concern:

Be it known that I, SAMUEL G. Goss, a citizen of the United States, residing at Glencoe, in the county of Cook and State of Illinois; have invented certain new and useful Improvements in Mechanism for Producing a Folded Product, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to new and improved mechanism for producing a folded product. As is well-known, when a product consisting of a number of sheets is folded centrally, the folded product, especially when it consists of a considerable number of superposed sheets, will have the edges of the inner sheets parallel with the fold projecting beyond the edges of the outer sheets, this progression of projection increasing from the outer to the central sheets and from each side. This results, of course, necessarily from the folding, together centrally of a number of sheets of the same length or width—that is to say, of the same size measured at right angles to the fold. It becomes necessary, therefore, when such pamphlet, or similar folded product, consists of a number of leaves and when it is necessary to give particular care to its appearance, that it should be subsequently trimmed in order that the edges parallel to the fold may be even and present a suitable appearance.

It is the object of my invention to produce a product which will do away with this difficulty and which will not have to be trimmed after being folded, and also to produce a new and improved mechanism for the production of the same.

In the accompanying drawings,—Figure 1 is a side view diagrammatically illustrating my invention; Fig. 2 is a view of the product of the machine shown in Fig. 1 before the sheets are folded and showing them brought against the sloping stop; and Fig. 3 is a view of the sheets in Fig. 2 folded centrally.

Referring to the several figures of the drawing in which corresponding parts are indicated by like reference characters and which show a type of mechanism shown and described in my application, Serial No. 614,279, filed March 13, 1911, of which this is a division.—A represents a web of paper which, for the purpose of convenience of

illustration, is shown as a single web, although, of course, it may consist of several webs superposed. The web or webs A proceed from any suitable form of printing machine which of itself forms no part of my present invention and is, therefore, not shown. Passing between forwarding rollers 4 and 5 the web passes downward between cutting cylinders 6 and 7. The cylinder 6 is provided with cutting knives 8—9—10—11 which cooperate with corresponding cutting blocks 12—13—14—15 on cylinder 7 to sever the web or webs transversely. The knives 8 to 11, and, of course, the corresponding cutting blocks 12 to 15 vary progressively in their distance apart circumferentially of the cylinders so as to cut the web or webs passing between the cylinders successively into progressively varying lengths during each rotation of the cylinder. In the form shown I have shown four cutting knives and four corresponding cutting blocks whereby, of course, four successive cuts will be made with each revolution of the cylinder. The distance between the knives 8 and 9 and blocks 12 and 13 is the least circumferentially of the cylinder, between 9 and 10 and 13 and 14 the distance is somewhat greater, between 10 and 11 somewhat greater, and between 11 and 12 and 14 and 15 the greatest, whereby, of course, the web or webs are with each rotation of the cylinder cut into four sheets or groups of sheets which vary progressively in width transversely of the proposed fold.

Of course it will be understood that the number of knives may be varied so that the cylinders may contain a greater or less number in accordance with the demands, and in general varying distances will depend upon the thickness of the paper to be used or if several webs are used upon the number of webs. After being severed the sheets are seized successively by a collecting cylinder 16 which is of any well-known form and description and which, in the form shown, by any well-known mechanism to superpose the four cuts produced by each rotation of the cutting cylinders upon one another on the collecting cylinder before they are released. The collecting cylinder 16 is so located and timed with relation to the cutting cylinders that the shortest sheets are received first upon the collecting cylinder

and the next longer ones superposed upon them, and so on until the product of one revolution of the cutting cylinders is superposed and associated upon the collecting cylinder with the narrowest sheets, measured in a direction transverse to the proposed fold, upon the inside and the widest ones upon the outside. As soon as the collecting cylinder has superposed the product of one revolution of the cutting cylinders the sheets are released and forwarded by suitable tapes as 17—18, traveling in the direction indicated by the arrow in Fig. 1, against a stop 19. As is best shown in Figs. 1 and 2 this stop has its bearing surface beveled to correspond to the slope produced by the even arrangement upon one another of the progressive varying of the diameter of the sheets. In Figs. 1 and 2 the dimensions both as to the differences in width of the superposed sheets and the bevel of the stop are exaggerated for clearness of illustration. The sheets are brought against the stop 19 in proper relation to folding rollers 20 between which they are folded by a suitable reciprocating folding knife as 21 which is operated in any well-known way not shown. The sheets thus folded centrally may be delivered in any appropriate manner, as by S-fly 22 and slow moving tapes 23, and when folded they will assume the form shown in Fig. 3.

While I have illustrated my apparatus as operating upon a single web this is only done for convenience as it is obvious that several superposed webs may be operated upon in the same manner as if a single web were used. In this case, of course, the ultimate pile before folding will consist of a series of groups of sheets composed each of several sheets of the same width, but with the sheets of each group progressively diminishing in diameter from the bottom to

the top of the pile. This it is obvious can be done without materially altering the shape shown in Fig. 3 if the webs are only a few in number and of thin paper. Of course, it will be readily understood that, as suggested, the number of knives on the cutting cylinders may be changed which will be accompanied by a corresponding change in the operation of the collecting cylinder which will be well understood and need not be further enlarged upon here.

What I claim as my invention and desire to secure by Letters Patent is:—

1. In combination, mechanism for severing a web into a plurality of sheets of progressively different width, mechanism for associating said sheets in register into a pile, having the wider sheets on one surface of the pile and the narrower sheets on the other, a stop having a beveled bearing surface corresponding in slope with the progressively diminishing dimension of the sheets, and means for forwarding said pile of sheets against said stop.

2. In combination, means for severing a web or webs into a plurality of sheets of progressively different width transversely of the proposed fold, means for associating said sheets in register into a pile, having the wider sheets on the outside and the narrower sheets on the inside with reference to the proposed fold, a stop having a beveled bearing surface corresponding in slope with the progressively diminishing dimension of the sheets, means for forwarding said pile of sheets against said stop, and mechanism for folding the same centrally.

SAMUEL G. GOSS.

Witnesses:

JOSEPH J. WALSER,

WILLIAM A. FURNER.