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MECHANISM FOR PRODUCING A FOLDED PRODUCT.

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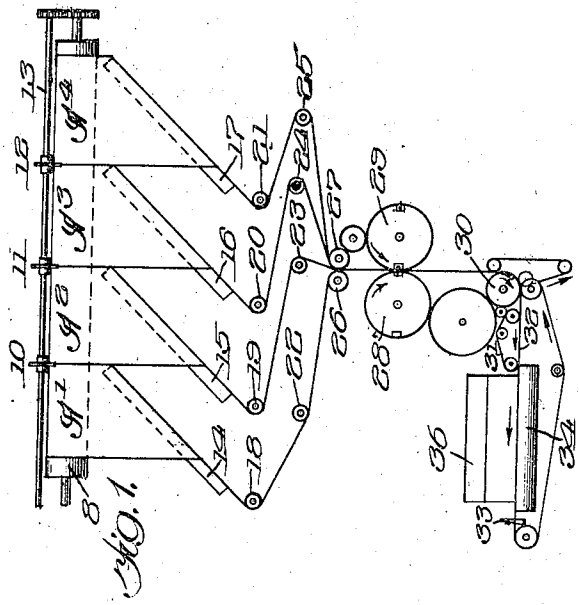

Fig. 1.

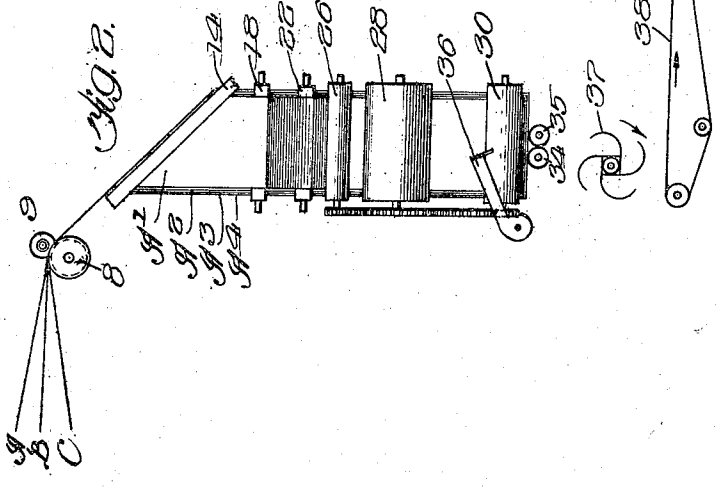

Fig. 2.

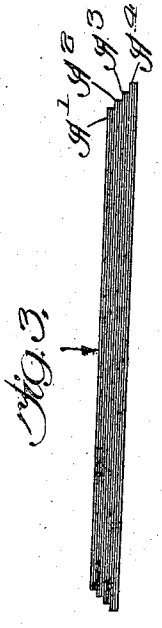

Fig. 3.

Witnesses:

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UNITED STATES PATENT OFFICE.

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MECHANISM FOR PRODUCING A FOLDED PRODUCT.

1,046,064. Specification of Letters Patent. Patented Dec. 3, 1912.

Application filed March 13, 1911. Serial No. 614,279.

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 an end view diagrammatically illustrating one form of my delivery apparatus; Fig. 2 is a side elevation of the same parts shown in Fig. 1 with the delivery apparatus also indicated diagrammatically; Fig. 3 is a view of the product before folding, particularly as produced by the mechanisms of Figs. 1 and 2 and of course exaggerated in proportions in order to clearly illustrate the nature of the product.

Referring to the drawings,—8 indicates an ordinary forwarding-roll, over which three webs of paper, A, B, and C, are led. The webs A, B, and C are shown as three in number for convenience. They, of course, may be more or less in number, depending upon the thickness of the paper. The forwarding-roll 8 is preferably one of the forwarding-rolls of any suitable printing press mechanism, which, as it forms no part of my present invention, is not illustrated. The webs A, B and C may also come from any such form of printing mechanism.

10, 11 and 12 indicate rotary slitters of the well-known type mounted on a driven-shaft 13. The slitters 10, 11 and 12 may be adjusted longitudinally of the shaft and co-operate with the forwarding-roll 8 to slit longitudinally into several widths or web sections the webs A, B and C passing between them and the forwarding-roll. In the form of device illustrated these slitters are three in number, severing the superposed webs into four sections A^1, A^2, A^3 and A^4. These slitters 10, 11 and 12 are so placed upon the shaft 13 that beginning with the section A^1 and going to the right in Fig. 1 the sections progressively but slightly increase in width between the cuts. For instance, if the superposed sections A^1 were fifteen inches across transversely, the sections A^2 might, for illustration, be fifteen and one-sixteenth, the sections A^3 fifteen and one-eighth, the sections A^4 fifteen and three-sixteenths, in width, measured transversely of the run of the web. These distances, of course, will be varied in accordance with the thickness of the superposed webs.

14—15—16—17 indicate turning-bars, suitably mounted in any well-known way in the framework of the machine, but in the drawings illustrated only diagrammatically as their construction and operation are so well understood. These turning-bars are set so as to slope downwardly and diagonally across the press and their function is to turn the paper downward, at the same time bringing face to face, or face opposite face, the severed sections of the slit webs, which have theretofore been traveling edge to edge. By means of guide-rollers 18—19—20—21 and adjusting-rollers 22—23—24 and 25, all operating in the well-known manner and hence only diagrammatically illustrated, the several sections of the webs are associated and brought together in registry between forwarding-rolls 26 and 27.

28—29 indicate cutting-cylinders, which operate in the well-known manner to sever the superposed webs transversely and convey them to a delivery-cylinder 30, which,

in turn delivers the sheets to fast-running tapes 31—32 by which the superposed sheets are carried against a stop 33, over folding rollers 34, between which they are folded by an ordinary reciprocating folding knife 36. From thence they may be delivered to any suitable delivery, as to the ordinary S-fly 37 and slow-moving tapes 38. As has been said, the tape-paths 31—32 are speeded so as to separate the sheets and give the reciprocating folding knife 36 time to operate. Any other well-known means may be used to separate the sheets, and instead of a reciprocating folding knife any other suitable folding mechanism adapted to fold the sheets between the folding rollers 34—35 may be used.

Fig. 3 represents an end view of the pile of sheets as they might come over the folding rollers 34—35 previous to being folded. From this it will be seen that the several sheets cut from the section A^4 are at the bottom, those from A^3 next, those from A^2 next above, and those from A^1, which are the narrowest of all, at the top. When the pile of sheets is centrally folded in the direction indicated by the arrow in Fig. 3 the edges of the sheets will lie substantially in the same vertical plane. Of course, as has been said, the proportions are exaggerated in Fig. 3 for the purposes of illustration. The sheets may be thus grouped in this manner, having several sheets of the same width, superposed above them several more sheets of slightly lesser width than the lower pile but of the same width with each other, and so on, because as long as only three or four sheets are folded together the fact that they are of the same size is practically negligible,—this identity of size causing the inner sheets to project more and more as the pile of course becomes thicker.

That which I claim as my invention, and desire to secure by Letters Patent, is,—

1. In combination, means for forwarding a web or webs, cutting devices adapted to slit said webs into a plurality of webs of progressively increasing dimension from one side to the other, means for bringing said webs together with the narrower webs on one side and the wider webs upon the other, means for severing said webs transversely to form sheets, and means for piling said sheets into a pile, having the sheets progressively diminishing in width from one side to the other.

2. In combination, means for forwarding a web or webs, means for slitting said webs into a plurality of webs of slightly increasing width from one side to the other, means for associating said slit webs so that they progressively increase slightly in dimension from one side to the other, means for severing said associated web portions into sheets, means for associating said sheets in a pile in which the sheets are varied slightly and progressively in width from the sheet on one side to the sheet on the other, and means for folding said sheets centrally.

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