Oct. 9, 1951 J. A. E. BURLS 2,570,916

APPARATUS FOR APPLYING DUST COVERS OR JACKETS TO BOOKS

Filed Feb. 27, 1948 2 Sheets-Sheet 1

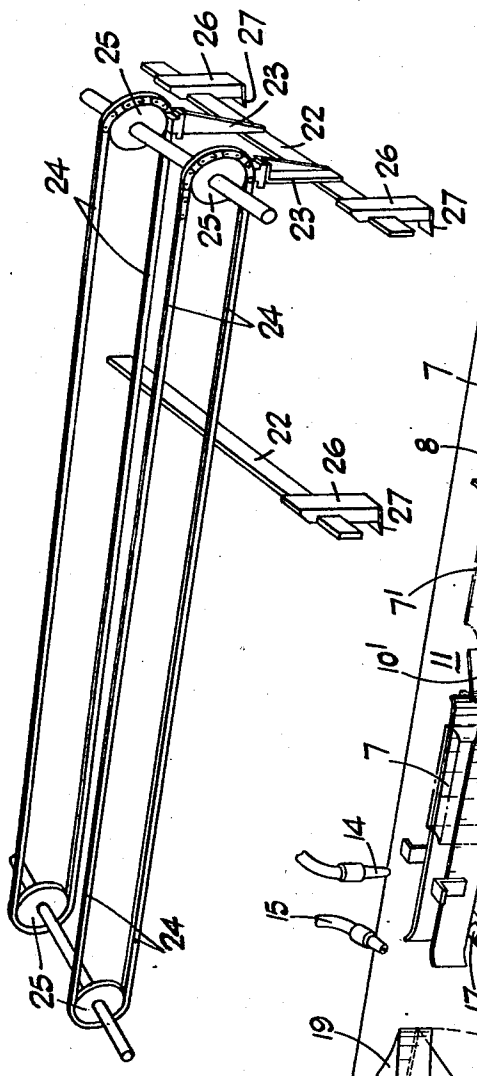


FIG. IA.

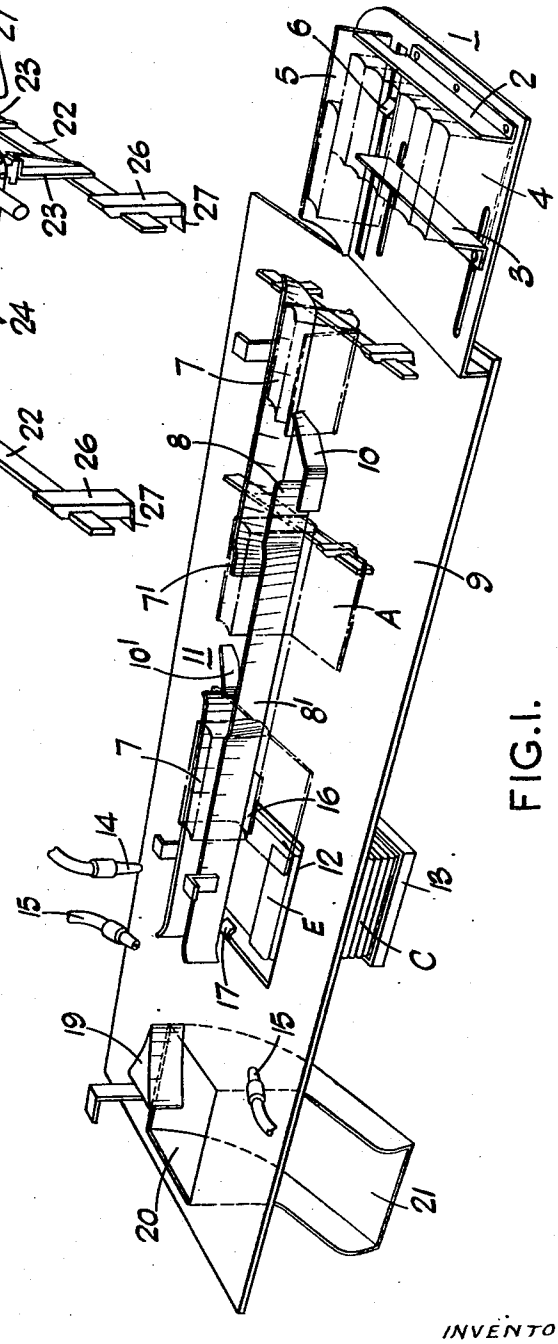


FIG. I.

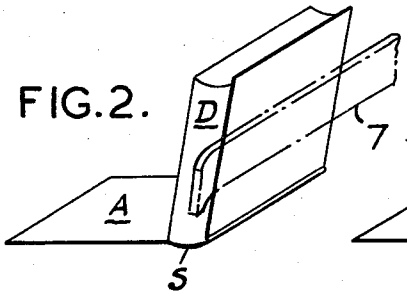
INVENTOR
John A. E. Burls
BY Albert J. Horton
ATTORNEY.

Oct. 9, 1951 J. A. E. BURLS 2,570,916

APPARATUS FOR APPLYING DUST COVERS OR JACKETS TO BOOKS

Filed Feb. 27, 1948 2 Sheets-Sheet 2

FIG.2.



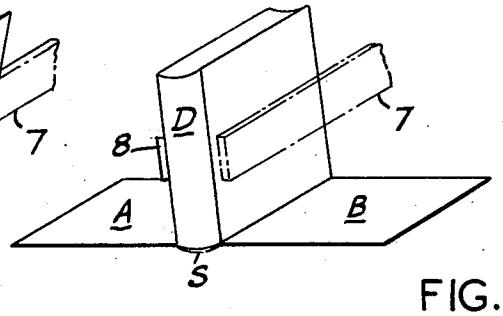
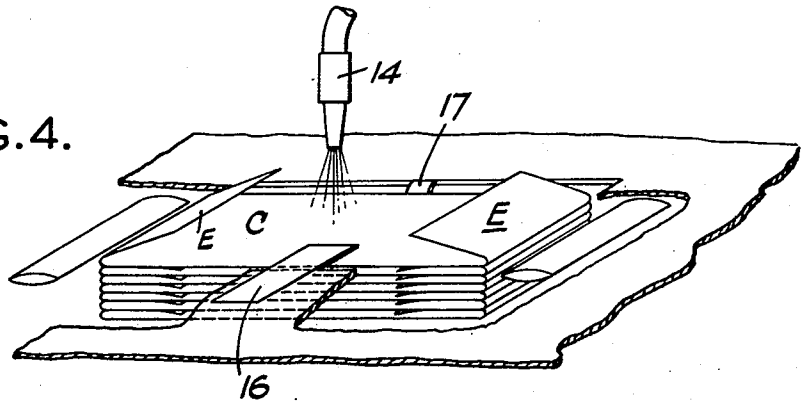


FIG.3.

FIG.4.



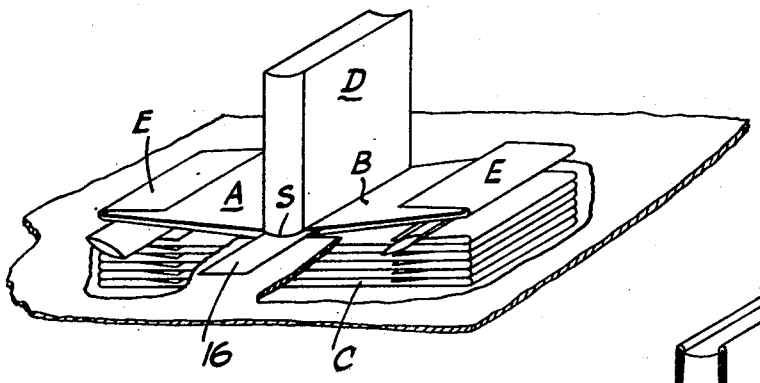


FIG.5.

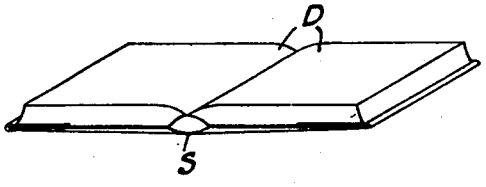


FIG.7.

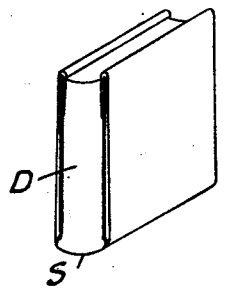


FIG.6.

INVENTOR
John A. E. Burls
BY Albert J. Horton
ATTORNEY.

Patented Oct. 9, 1951 2,570,916

UNITED STATES PATENT OFFICE

2,570,916

APPARATUS FOR APPLYING DUST COVERS OR JACKETS TO BOOKS

John Albert Edward Burls, Kenton, England, assignor to R. Hoe & Co. Inc., New York, N. Y., a corporation of New York

Application February 27, 1948, Serial No. 11,805
In Great Britain February 4, 1947

Section 1, Public Law 690, August 8, 1946
Patent expires February 4, 1967

7 Claims. (Cl. 11—1)

1

This invention relates to apparatus for applying dust covers or jackets (hereinafter referred to as "jackets") to books and is intended more especially for apparatus so to be employed in association with book-producing machinery as to enable books as they pass continuously from that machinery to have jackets applied to them and in this way to speed up the rate of production of wrapped books.

According to the present invention, there is provided an apparatus comprising a magazine to contain jackets which are laid out in more or less flat form, guide means to conduct books in succession past the magazine with a movement parallel with their spine, means operating in that movement to open out the back and front covers of the book and mechanism to cause the edges of the jackets to be wrapped about the edges of the opened out covers of the book which is thus caused in its continued movement to take away the top jacket from the magazine.

The now wrapped book is advanced to a delivery at which the covers of the book are closed.

The invention is illustrated in the accompanying drawings in which Figures 1 and 1*a* are perspective views of a machine and Figures 2–7 are diagrammatic perspective views showing the different stages through which the machine shown in Figure 1 takes a book.

Referring to the drawings, the machine comprises a feed hopper 1 having side walls 2, 3 and a base 4 on which one wall 3 is adjustable to accommodate books of different sizes. As is seen, the books are fed on their spines S to the hopper in a series one after another up to an end wall 5 of the hopper, the book adjacent that wall being disposed in register at its spine with a feed pusher 6 which is moved backwards and forwards. During its forward movement the pusher 6 engages and displaces the end book from the hopper to the left as seen in Figure 1.

Having been displaced from the hopper 1, the books are taken in succession to guide plates 7, 8 arranged parallel with one another in approximately vertical planes and disposed over and supported clear of a table 9 along which the spines S of books are caused to advance. The guide plate 8 is provided with a finger 10 which engages the inside of one cover of the book to cause it to be opened out to lie more or less flat upon the table 9 and below the guide plates, the filling of the book remaining held in the vertical position between the guide plates 7, 8; this is the condition which is indicated in Figure 2, the one cover A having been opened.

The guide plate 7 is cut away at 11 and is provided with a finger 10′ to engage and open the other cover of the book, the opening being permitted by the gap created by the cut away part 11 through which the cover passes to lie flat on the table 9; the parts are now in the position shown in Figure 3 where the second opened out cover is indicated at B. It is preferred to arrange the guide plates to tilt the filling D of the book first away from one cover while that cover is being opened and then away from the other cover while that in its turn is being opened; this ensures a degree of over-opening to overcome the "stiffness" at the fold lines of the covers and so facilitates the laying open of the covers flat on the table. For this purpose the hopper 1 is disposed at an angle such that the book is canted over to the end wall 5, i. e. in a direction away from the first cover A which is to be opened; the guide plate 7 is set-off at 7′, towards a set-off part 8′ of the guide plate 8 where it is registered with the gap 11 so that when the cover B is opened the filling is canted in a direction away from that cover.

2

The table 9 is provided with an opening 12 aligning with a depending magazine to contain jackets C in the flat condition, the jackets being superposed one above another on a rising feed board 13; the guide plates 7, 8 extend over and beyond this opening so that the books now with their covers A, B opened out and being impelled to move between the guide plates, are constrained to pass over the opening and there to "pick-up" a jacket C.

The jackets are laid with their edge portions turned over as indicated at E especially in Figure 4. Mechanism, such as for example an air jet or jets 14 can be employed to open these edge portions E to enable the edges of the opened out book-covers to pass easily into position in the jacket as they are continuously advanced, the parts now being in the position indicated in Figure 5. Further jets 15 can be provided to compel the opened out parts E of the jacket to be folded back over the covers of the book when it is registered with the jacket.

The feeding of the books between the guides 7, 8 is effected by a propelling mechanism which includes feed bars 22 which are carried by the outer ends of arms 23 supported by continuously moving endless chains 24 passing around chain wheels 25; the bars are spaced apart a distance equal to at least the longest book which the machine is intended to handle. The chains 24 are disposed over the guides 7, 8 with the arms 23 spaced apart to straddle a support from which the guide plates 7, 8 are suspended to be clear

of the table 9. In Figure 1 to avoid complicating the drawing, only those bars 22 which are moving on their operative movement are shown, the remaining bars which are returning on their idle movement above the guides being omitted. The disposition of the parts is such that as the bars 22 sweep round they pass into engagement with the book displaced from the hopper 1 by the pusher 6 and then carry that book forward through the guides 7, 8 for the operations described.

The feed bars are disposed somewhat above the level of the table 9 so as to engage the one edge of the filler above the spine of the book. The bars also each have towards their extremities blocks 26 each having a forwardly extending lip 27 on to which the covers of the book fall when they are opened by the fingers 10 and 10'.

Provision is made to ensure that each oncoming book picks up the top jacket only. For this purpose a metal plate 16 that may be called a "slip-tongue" is recessed into the table 9, so the upper surfaces of the tongue and the table are flush, and one end of the tongue projects partly over the jackets C in the magazine to hold them down. The tongue 16 thus forms an extended runway for the spine of the book, and guides its leading edge over the top jacket as the book moves along. To prevent the top jacket from being displaced by the frictional drag of the book upon it as the book passes into the jacket, a spring stop finger 17 is provided, against which the air jets tend to hold the jacket while pressing it down against the pile and until the book passes into the jacket. When the jacket and book reach the spring stop finger, the latter is pressed downward by the weight then upon it, and the book cover and its jacket being then engaged by the lips 27 they move away together from the magazine.

It is preferred to open the filling of the book and to lay the two halves of the filling respectively on to the front and rear covers A, B with their applied jackets C, hence a partition device 19 is employed which operates as the book is advanced on edge clear of the guides 7, 8 to "find" the centre of the book and to cause the filling to open out about that centre to the condition shown in Figure 7.

The book now passes in the open condition with the jacket applied to it and with the marginal parts E of the jacket trapped between the covers and the open pages of the book. The jacketed book next passes to a delivery which may comprise merely an opening 20 in the table 9 and over which the jacketed book is caused to move until when complete registration is obtained, the book "falls" through the opening on to a delivery chute 21; the opening is of such dimensions as automatically to cause the book to close up to the condition shown in Figure 6 when it passes through it to the chute.

Books to be jacketed can be supplied to the hopper 1 by hand or it can be arranged to receive books continuously from a book-binding assembly.

It may be observed that the pusher 6 having a to and fro movement causes the books to be displaced intermittently from the magazine whereafter they are fed continuously forward by the feed bars 22.

What I claim is:

1. For applying jackets to books, apparatus comprising in combination a magazine to contain twice folded jackets in a more or less flat superposed condition, guides to direct books over the magazine and to hold them more or less vertically for movement on their spines, a pusher to advance books in succession along the guides, cover engaging devices positioned to open the back and front covers of the books as they pass toward the magazine, means to direct air toward the top jacket in the magazine, that the covers of each book will enter the folds of a jacket as the books reach the magazine, and an opening arranged to receive books from the guides, the said opening being of such dimensions that the books are closed as they pass through it.

2. For applying jackets to books, apparatus comprising a magazine to hold jackets with folded over ends in a more or less flat superposed condition, a platform, a book feeder at which books are stacked vertically on their spines, a delivery device, guides extending from the book feeder past the magazine to the delivery, the said guides being disposed above the platform, a pusher to advance books from the feeder to and past the guides, cover engaging devices positioned to open the front and rear covers of the books as they pass under control of the guides to the magazine, means to so direct air toward the top jacket in the magazine that the covers of each book will enter the folds of the jackets as the books reach the magazine, and a chute arranged to close the covers as the books pass to a delivery.

3. Apparatus as claimed in claim 2 and the guides of which comprise spaced guide plates which are formed to cant the filling of a book passing between them first in one sense and then in the other as the book passes for operation by the devices to open the covers.

4. Apparatus as claimed in claim 3 and including a device disposed so as to operate on books as they pass beyond the magazine as to open the filling at about its centre.

5. Apparatus as claimed in claim 4 and having at the magazine a guide strip extending over the magazine and forming a support for the spine of the book passing to the magazine.

6. Apparatus as claimed in claim 5 and having a delivery opening to which the wrapped book is advanced, the said opening being such as to close the book as it passes through it.

7. In an apparatus for applying jackets to bound books having stiff covers, a support, guide plates arranged to hold the books on edge with their backs on the support, an opening in the support and below the guide plates, a magazine holding jackets immediately below the opening, fingers associated with the guide plates to open the covers of books as they are moved along the support, a delivery device including a book closer, and propelling mechanism comprising continuously driven endless chains carrying feed bars and having members adapted to engage each book and propel it between the guide plates and past the fingers to open the covers, thence over the magazine to engage and take a jacket therefrom, and thence to the delivery device, to close the book.

JOHN ALBERT EDWARD BURLS.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,708,813	Ware	Apr. 9, 1929
2,145,098	Sharp	Jan. 24, 1939