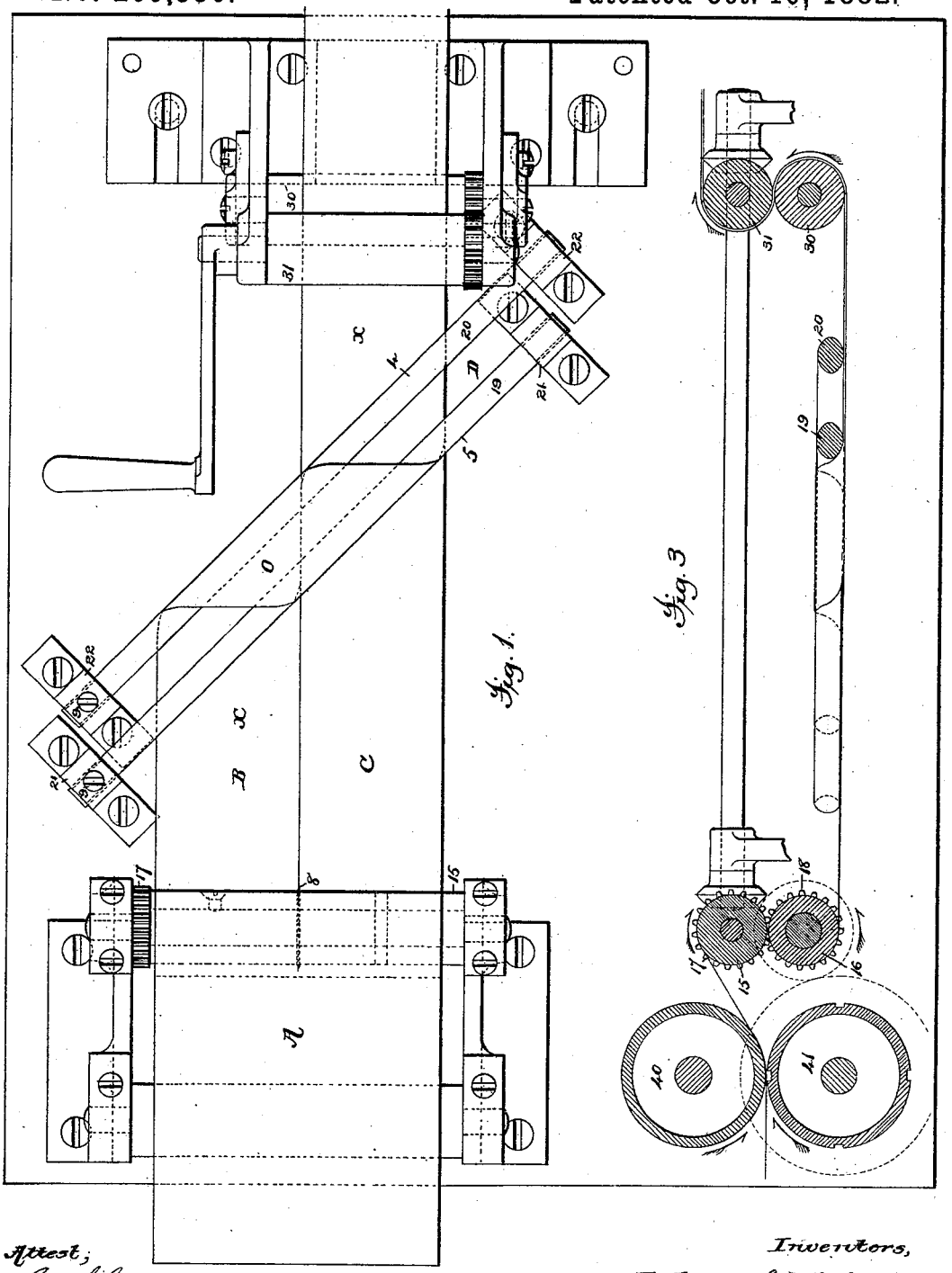
(No Model.) 2 Sheets—Sheet 1.

E. ANTHONY & W. W. TAYLOR.

PRINTING MACHINE.

No. 265,556. Patented Oct. 10, 1882.



Attest;
Geo. H. Graham
Anthony N. Jasbera

Inventors,
E. Anthony and W. W. Taylor,
by Munson & Philipp
Attys.

(No Model.) 2 Sheets—Sheet 2.

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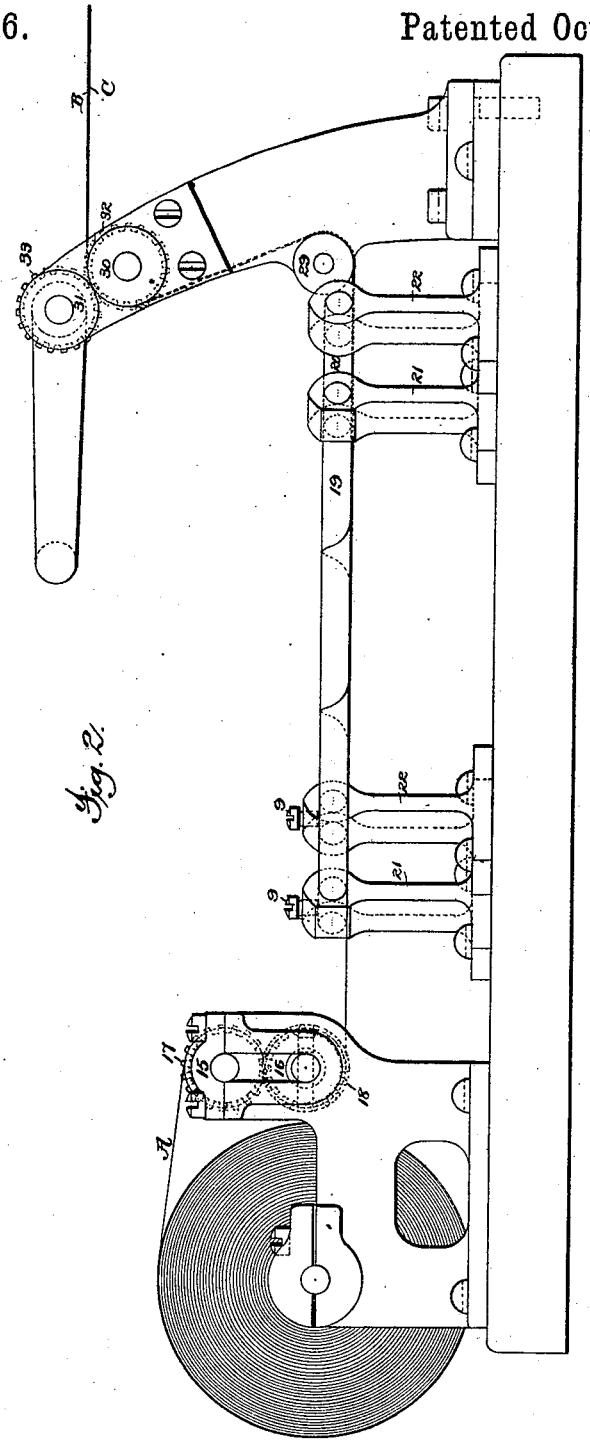

Fig. 2.

Attest;
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UNITED STATES PATENT OFFICE.

EDWYN ANTHONY, OF HEREFORD, COUNTY OF HEREFORD, AND WILLIAM W. TAYLOR, OF RIPON, COUNTY OF YORK, ENGLAND, ASSIGNORS TO R. HOE & CO., OF NEW YORK, N. Y.

PRINTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 265,556, dated October 10, 1882.

Application filed July 11, 1881. (No model.) Patented in England August 31, 1875, No. 3,056.

To all whom it may concern:

Be it known that we, EDWYN ANTHONY, residing in Hereford, Hereford county, England, and WILLIAM WILBERFORCE TAYLOR, formerly residing in Cambridge, Cambridge county, and now residing in Ripon, county of York, England, subjects of the Queen of England, have invented certain new and useful Improvements in Printing-Machines, fully described and represented in the following specification and the accompanying drawings, forming part of the same.

Figure 1 illustrates by a plan view, and Fig. 2 by a side elevation, an apparatus embodying the improvements. Fig. 3 represents the arrangement in connection with a printing-machine.

The object sought to be obtained by the present invention is the bringing together of two webs by transferring one laterally upon the other, so that the two associated webs may be simultaneously manipulated.

The invention primarily consists in the use of a turner arranged at an angle to the direction of motion of the webs, so that one web led over the turner will be guided laterally until it is directly over and running in the same direction as the companion web, the two webs being thus brought together. Combinations of the turner with various other mechanisms are, however, embraced in the improvements.

It may be premised that these improvements are more especially adapted for use in connection with a printing-machine where a wide web is printed upon both its sides and requires to be folded, its primary fold being longitudinal or parallel with its direction of travel; but, as will be apparent, the improvements may be applied to any machine from which is delivered a wide fabric that requires to be divided longitudinally into two webs and said webs associated together.

The apparatus illustrated in the drawings, which show the simplest embodiment of the invention, is constructed as follows:

A pair of rollers, 15 16, geared together to run in unison by wheels 17 18, are mounted to turn in a suitable frame-work. These rollers are of a length suited to the width of the web A, or to that of two webs, B C, running side by side through them. At a suitable point in front of these rollers a turner, D, is fixed. This turner consists, as shown, of two bars, 19 20, set obliquely to the path of travel of the webs and mounted in standards 21 22, in which they are fixed by set-screws 9, which bars are disposed with their lower surfaces in about the plane in which the upper surface of the webs run, and so that the outer edges, 4 5, of the turner D, which they constitute, are parallel with each other in this form of turner; and though two bars are preferable, as permitting of adjustment, yet it is apparent that a single bar will suffice, and this may be round, elliptical, or even flat, provided the edges over which the paper passes are rounded and its peripheral extent of surface and angle of inclination are properly proportioned to each other, the calculations for which may be made according to the methods laid down in Patent No. 212,880.

A guiding-roller, 29, and a set of rollers, 30 31, the latter for advancing the webs of paper, are mounted to turn in suitable bearings at the delivery end of the machine, the rollers 30 31 being geared together to run in unison by toothed wheels 32 33, and provided with a means for driving them, so that they operate to draw the webs forward.

It is manifest that the rollers 15 16 may, when made of proper size, operate as the impression-cylinders of a printing-machine, suitable type-cylinders supplied with inking and other appropriate mechanisms being arranged to coact with them, as in the well-known Walter, Hoe, and other web-printing machines, so that it is to be understood that the rollers 15 16 represent herein web-conducting rollers or cylinders, from which the web, whether printed or not, passes to the turner. The printing-cylinders may be independent of these rollers 15 16, if desired, as is seen in Fig. 3.

The rollers 30 31 may, by being placed at the proper height, receive the webs direct, and thus enable the roller 29 to be dispensed with, and from these rollers the associated webs B C may be severed into sheets and led to a fly; or they may be led to a folding or other sheet-delivery apparatus that is provided with or has combined with it a transverse cutting mechanism.

A device consisting of the cutting-disk 8,

mounted on roller 16, and cutting upon the surface of the roller 15, or into a slot with which it is provided, operates to slit the web A on its central line, and thus divides it to form the two webs B C. This cutting device may of course be independent of the rollers 15 16, and operate upon the web before or after it passes between such rollers; or the two webs B C may be separate webs and fed to the apparatus side by side, as shown. The web A is passed through the rollers 15 16 with the surface *x* uppermost, and divided by the cutter 8 into the two webs B C, or said webs are led between such rollers. The web C is led thence direct to the rollers 30 31, passing beneath the turner D and roller 29. The web B is wrapped once around the turner D and carried out over the web C and between the rollers 30 31. This turns said web completely over, thus again presenting its surface *x* uppermost, and at the some time transfers said web laterally a distance equal to its width, and thus carries said web B directly over the web C, with which it travels in unison, so that the two webs may be operated upon simultaneously by a cutting, folding, flying, or other delivery mechanism, as has been explained.

From the above description it is apparent that the webs may travel with like surface-speed, one be transferred laterally and the two associated together within the vertical space of one web at high speed and on the run, which speed will be equal to that of any mechanism operating upon or producing the webs.

It is not essential that the rollers 15 16 should form any part of the printing-machine, as is shown by Fig. 3, where said rollers are independent of the printing-machine, which is illustrated by the last impression and type cylinders 40 41 of a web perfecting-press, from which the web A is shown as passing to said rollers 15 16. In such arrangement, if the rollers 15 16 are used, they should be geared to the cylinders 40 41, as is indicated by dotted lines, so as to run in unison therewith; but, as before stated, the rollers 15 16 may compose in part the printing mechanism, which would be illustrated in this figure if the rollers 15 16 were omitted and the web passed direct to the turners from the cylinders 40 41. Said cylinders are therefore to be understood as the equivalent of the rollers 15 16.

The web may be slit at one side of its center line, and one web may be transferred but partially over the other, or partially or even wholly beyond it, by varying the peripheral extent of the turner.

What is claimed is—

1. The combination, with devices for advancing two webs of paper, of a turner arranged obliquely to the path of travel of the webs, whereby one of the two webs will be transferred laterally while both are running onward, and the two webs be associated, one above the other, with the surface of the transferred web that was uppermost before transfer still uppermost, all substantially as described.

2. The combination, with devices for advancing two webs of paper, of a turner composed of two parallel bars arranged obliquely across the path of travel of the webs, whereby one of the two webs will be transferred laterally while both are moving onward, and the two webs be associated one above the other, all substantially as described.

3. The combination, with a slitting mechanism, of a mechanism for advancing two webs of paper, and a turner arranged obliquely to the path of travel of the webs, whereby one of the two webs will be transferred laterally while both are running onward, and the two webs be associated one above the other, with the surface of the transferred web that was uppermost before transfer still uppermost, all substantially as described.

4. The combination, with a printing mechanism, of devices for advancing two webs of paper, and a turner arranged obliquely to the path of travel of the webs, whereby one of the two webs will be transferred laterally while both are running onward, and the two webs be associated one above the other, with the surface of the transferred web that was uppermost before transfer still uppermost, all substantially as described.

5. The combination, with printing and slitting mechanism, of devices for advancing two webs of paper, and a turner arranged obliquely across the path of travel of the webs, whereby one of the two webs will be transferred laterally while both are running onward, and the two webs be associated one above the other, with the surface of the transferred web which was uppermost before transfer still uppermost, all substantially as described.

In testimony whereof we have hereunto set our hands, each in the presence of two subscribing witnesses.

EDWYN ANTHONY.
W. W. TAYLOR.

Witnesses to the signature of Edwyn Anthony:

T. H. PALMER,
H. T. MUNSON.

Witnesses to the signature of William Wilberforce Taylor:

HENRY H. SLATER,
Clerk, Sharon Cottage, Ripon.
C. W. RENT,
Grammar School, Ripon.