

May 3, 1932.

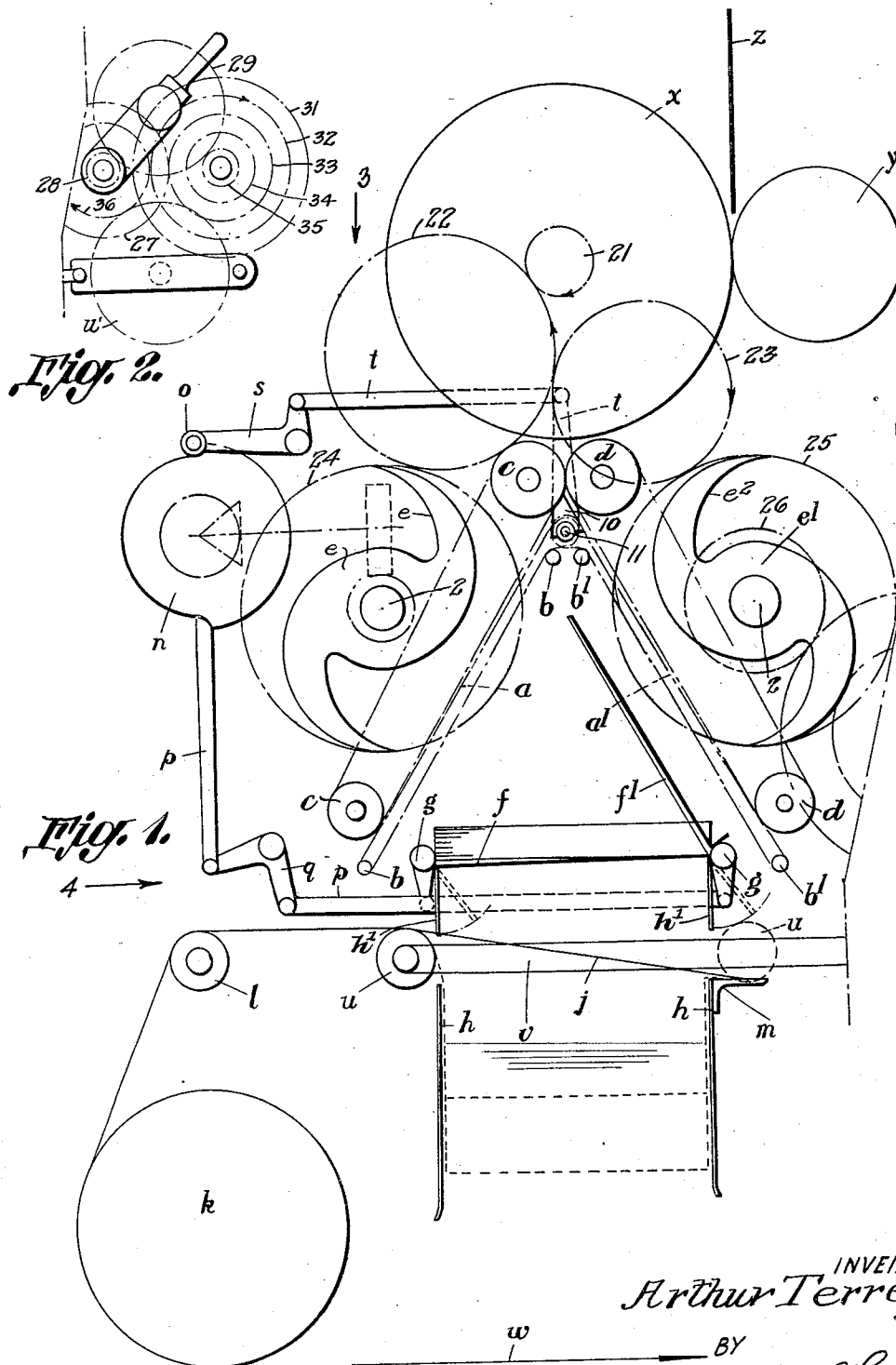
A. TERREY

1,856,978

DELIVERY AND PACKING APPARATUS FOR PRINTING PRESSES

Filed April 13, 1929

3 Sheets-Sheet 1



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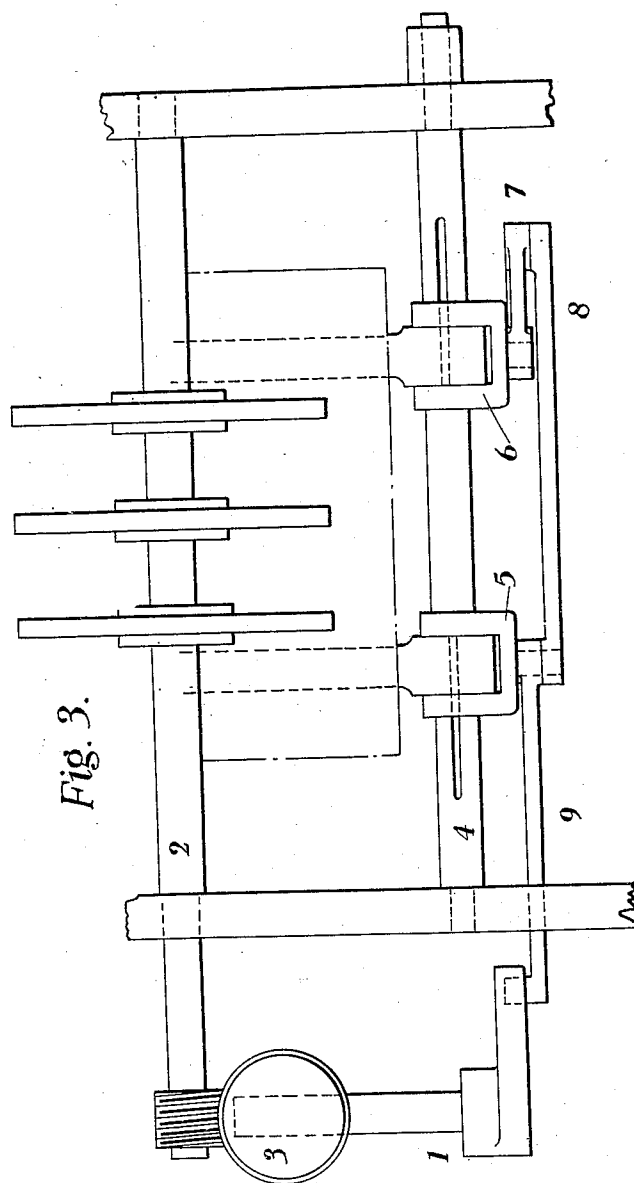
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DELIVERY AND PACKING APPARATUS FOR PRINTING PRESSES

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3 Sheets-Sheet 2



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3 Sheets-Sheet 3

Fig. 6.

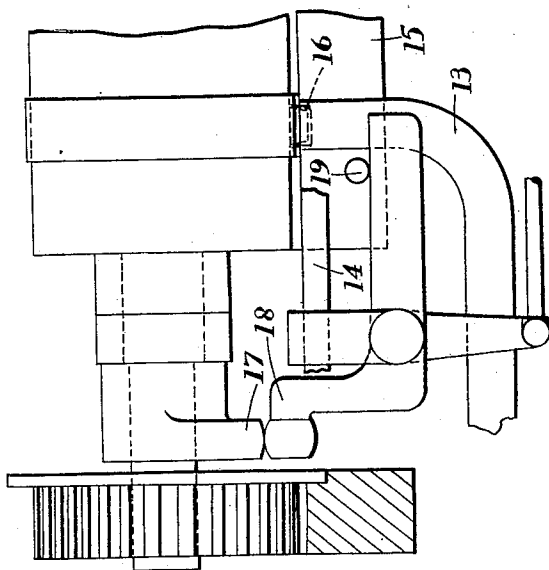


Fig. 5.

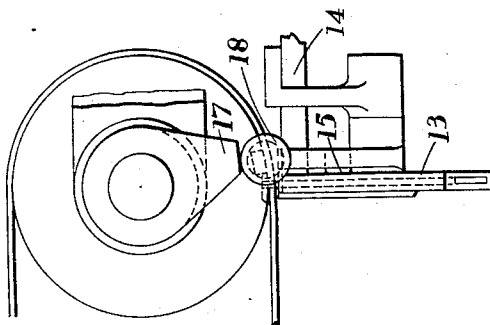
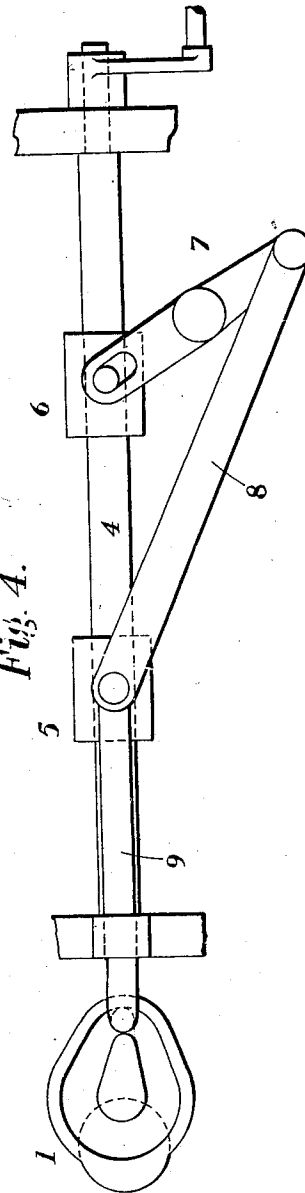


Fig. 4.



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DELIVERY AND PACKING APPARATUS FOR PRINTING PRESSES

Application filed April 13, 1929, Serial No. 354,952, and in Great Britain April 20, 1928.

This invention relates to printing presses.

With the present day press, the product, for example, magazines, newspapers, periodicals, or the like, is delivered in single copies, the requisite number thereof being collected up into quires or the like and the requisite number of quires are wrapped, packed, and securely fastened.

Each of these operations has to be effected by hand thus entailing the employment of a large number of hands.

The object of this invention is to provide a machine, which may be attached to or may work in conjunction with the press, to pack and securely fasten, and if desired, wrap as well, distinctive quantities of the product, said packages being delivered from the press, thus effecting mechanically the several operations previously effected by hand.

The said machine may be arranged adjacent to the usual folder of a press, and may be attached to or be incorporated in any type of press or machine.

A packing machine constructed according to this invention, comprises means whereby quires or the like of single copies of the product of the press are deposited horizontally on the wrapping and/or binding material, means to deposit a predetermined number of the said quires or the like in a pile and alternately, that is, the backs of one quire alternate with the fronts of the next quire, and means to pass said wrapping and/or binding material around said pile and securely fasten same.

In order that the invention and its mode of operation may be readily understood by those skilled in the art, I have in the accompanying drawings set out a possible embodiment of the invention.

In these drawings:

Figure 1 is a front elevation of one form of delivery and packing apparatus constructed in accordance with this invention, having a portion broken away;

Figure 2 is an elevation of the portion broken away from Figure 1;

Figure 3 is an enlarged plan view looking in the direction of the arrow 3 in Figure 1;

Figure 4 is an enlarged side elevation of

a portion of the apparatus looking in the direction of the arrow 4 in Figure 1;

Figure 5 is an enlarged front elevation of the wrapper securing means; and

Figure 6 is a side elevation of the same.

a, a' are two series of inclined tapes consisting of endless bands mounted on rollers b, b, b', b', c, c' , and d, d' , arranged in the form of two sides of a triangle with the apex positioned just below the junction of the usual folding rollers c, d of a press. Said folding rollers c, d are made up of sections (as seen in Figure 2). 10, 10, are a series of switches rotatably mounted on the horizontal shaft 11 and are adapted to be moved between either of the rollers c or d to ensure copies entering the correct tapes.

e, e' are two rotary beaters suitably mounted on shafts 2, 2 at each side of the tapes a, a' . Said beaters are two vaned and are knife edged as at $e2$ so that each vane meets a copy and forces it out of the carrying tapes. f, f' are two supporting slats or forks positioned under said tapes and pivotally mounted at g, g , so that they can be rotated to assume an horizontal position.

After the supporting slats f , for example, have been turned to the horizontal position and it is necessary to lower the quire or the like which is supported on the slats f , on to the wrapping material j , said pair of slats are moved apart horizontally (see Figures 3 and 4). This horizontal movement is effected through cam 1 which is rotated from the beater shaft 2 through the worm gearing 3. The slats f are provided with keys free to slide in shaft 4 and are timed to move laterally by virtue of the sleeves 5 and 6, lever 7, rods 8 and 9 and cam 1.

Arranged vertically between the shafts g, g are two guide members h, h the upper portions of each of which have hinged portions $h1, h1$, to allow the passage of the roller u . The wrapping material j which is passed between the two portions h and $h1$ is drawn from the reel k which is ratchet fed and brake controlled and passes over the guide roller l and the reciprocating roller u and is secured to the bracket m by means of a series of pivoted hooks 20.

Rotation of the slats f , $f1$ is effected by a cam n engaging a roller o which is connected to said slats by rods p , p and bell crank q .

The cam n also operates the switches 10 through the bell crank s and levers t , t .

x and y indicate the usual folding and cutting cylinders, and z the web of paper. w designates a conveyor belt arranged below the guides h , h .

Mounted to rotate with the cylinder x , is a pinion 21 meshing with the idlers 22, 23, which, in turn, mesh with the beater gear wheels 24, 25 respectively.

Gear wheel 26 which is mounted on the same shaft as wheel 25, meshes with gear wheel 27 on whose shaft is mounted gear wheel 28 which meshes with the rocker gear 29. Gear 29 is free to be adjusted to mesh with any one of the gears 31, 32, 33, 34 or 35.

In the drawings, the rocker gear 29 is shown in mesh with gear 35, but it can be adjusted to mesh with any of the other gears by a combined angular and axial movement.

Gear 36 meshes with gear wheel u' which reciprocates the roller u .

The roller u is mounted on an arm v and is adapted to be travelled horizontally to the position shown in dotted lines, when the gear wheel u' is rotated.

A stapling magazine 13 (Figures 5 and 6) is mounted on the bracket m and the adjoining knife 15 works in a slot therein. Each staple is operated in turn when roller u arrives at the stapling point, that is, at the position shown in dotted lines in Figure 1, an abutment 17 on the carriage carrying the roller u depresses a pivoted arm 18 and forces the staples, in the usual manner, through the binding material j which is clinched between the roller u and the bracket m . This action also raises the knife 15 by reason of the pin 19 mounted on the plunger 18, the material j being severed against a wood or rubber insert carried in roller u . Immediately afterwards, the hooks 20 are depressed for an instant and then spring back, piercing and holding the loose end of the wrapping.

The roller u returns under the material which is left to form the base of the next package.

In operation, the web z passes to the folding and cutting cylinders x and y respectively, where copies are cut and folded to half- or page-size and between the folding rollers c , d .

The copies which may be magazines, newspapers or the like, pass on to one of the series of inclined tapes a , a' and are travelled down thereby.

In Figure 1 of the drawings the copies are just about to pass down the tapes a' .

During the travel, each magazine or the like is beaten out of the tapes a' by means of the rotary beater e' on to the supporting slat or

fork f'' .

This procedure continues until a quire or other specified quantity has passed through when the slat is lowered to an horizontal position (see slat f in the drawing) by means of the cam n .

The slats then move laterally to release the quire or the like and drop it on to the packing material j between the guide members h and they then return to receive the next quire.

In the meantime the switch 10 has been operated by the cam n to divert the next quire of magazines or the like on to the tapes a and these are beaten out by the rotary beater e on to the slats f . The same cam mechanism deposits this quire on to the first mentioned quire, but the second quire is laid alternate to the first, that is, the backs of the magazines or the like of the first quire alternate with the fronts of the second quire and so on.

The first quire or the like when deposited horizontally, rests on the packing material j which may be brown paper with suitable webbing or tape incorporated therein.

The quires are lowered step by step by means of the ratchet or reel k between the guide members h , h , and as this is done the packing material j is unrolled from the reel k . When the predetermined number of quires or the like has been assembled, three sides of the package have been formed.

The material j is moved across the top of the package by means of the roller u to the point m where the two pieces of material are fastened together by the stapling device, and the material is cut, as hereinbefore described.

The free end of the material is again attached to the bracket m and the roller u returns to its normal position, the material again forming a base for the next pile.

It may be mentioned that the time for the said roller u to move across and back is that between the last quire of the package and the first quire of the next package, namely, about six seconds.

The cut package is then lowered on to the conveyor belt w .

What I claim is:—

1. Delivery and wrapping apparatus for printing presses, comprising means whereby quires or the like of single copies of the product of the press are deposited horizontally on the wrapping material, means to deposit a predetermined number of the said quires or the like in a horizontal pile and alternately, and means to pass said wrapping material around said pile and securely fasten same.

2. Delivery and wrapping apparatus for printing presses as claimed in claim 1, characterized in that the means, whereby quires or the like of single copies of the product of the press are deposited horizontally on the wrapping material, comprise two series of inclined tapes, arranged in the form of two sides of a triangle with the apex, posi-

tioned just below the junction of the usual folding rollers, a plurality of supporting slats positioned under said tapes and a rotary beater adapted to beat out each magazine or the like from the tapes as it travels there-
5 along on to said slats.

3. Delivery and wrapping apparatus for printing presses, comprising means whereby quires or the like of single copies of the prod-
10 uct of the press are deposited horizontally on the wrapping material, said means including series of inclined tapes, a plurality of supporting slats positioned under said tapes, and a rotary beater adapted to beat
15 out each magazine or the like from the tapes as it travels along onto said slats, and means for causing specified quantities of magazines or the like to travel down said series of inclined tapes alternately whereby when
20 beaten out onto the supporting slats and deposited on top of one another, said specified quantities will be laid alternately.

4. Delivery and wrapping apparatus for printing presses, comprising means whereby quires or the like of single copies of the prod-
25 uct of the press are deposited horizontally on the wrapping material, means to deposit a predetermined number of said quires or the like in a horizontal pile and alternately, and
30 means for gradually lowering the pile as the quires or the like are deposited over one another, whereby when the pile reaches the bottom, three sides of the package have been formed.

35 5. Delivery and wrapping apparatus for printing presses, comprising means whereby quires or the like of single copies of the product of the press are deposited horizontally on the wrapping material, means to deposit
40 a predetermined number of said quires or the like in a horizontal pile and alternately, means for gradually lowering the pile as the quires or the like are deposited over one another whereby when the pile reaches the
45 bottom, three sides of the packages have been formed, and means to pass the wrapping material over the remaining side of the pile and securely fasten the same.

In testimony whereof he affixes his signature.
50 nature.

ARTHUR TERREY.

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