Oct. 12, 1948. W. G. TUCKER 2,451,260

INTERMEDIATE FEED FOR CARDING MACHINES

Filed June 7, 1945 3 Sheets-Sheet 1

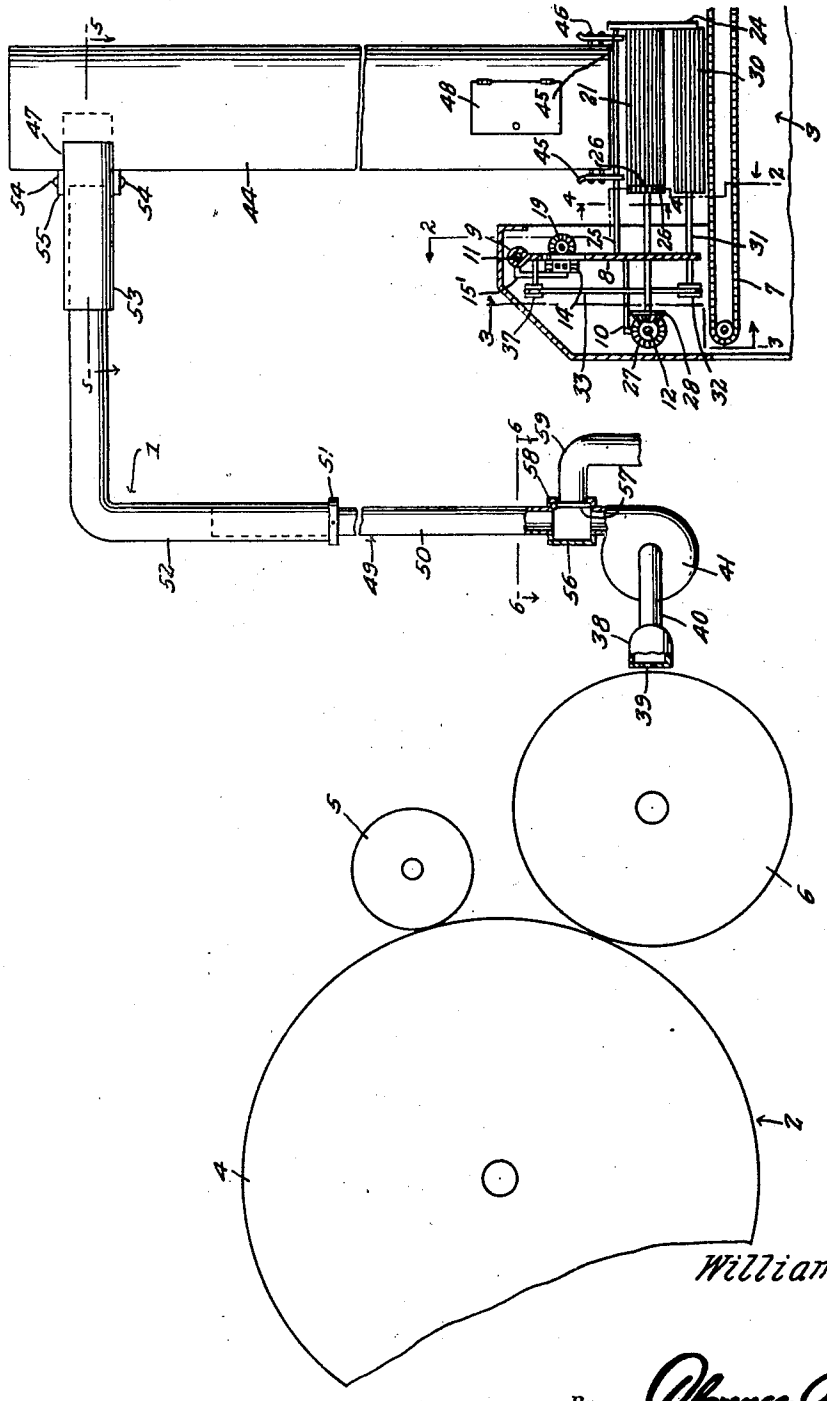


Fig. 1.

Inventor
William G. Tucker.

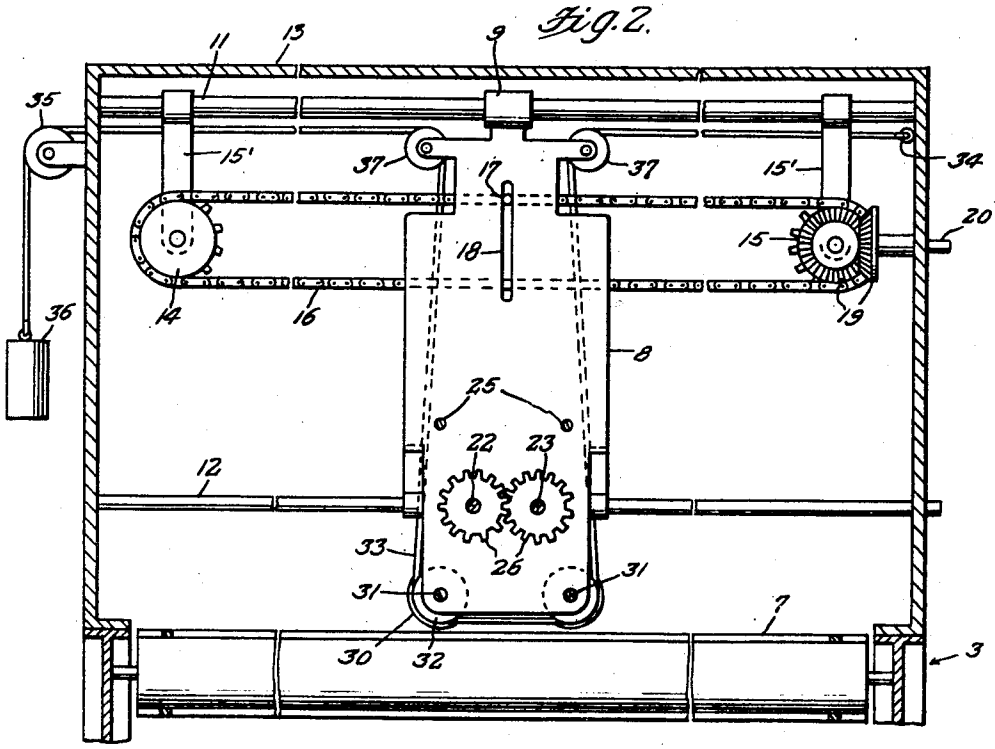
By Clarence A. O'Brien and Harvey B. Jacobson
Attorneys

Oct. 12, 1948. W. G. TUCKER 2,451,260

INTERMEDIATE FEED FOR CARDING MACHINES

Filed June 7, 1945 3 Sheets-Sheet 2

Fig. 2.



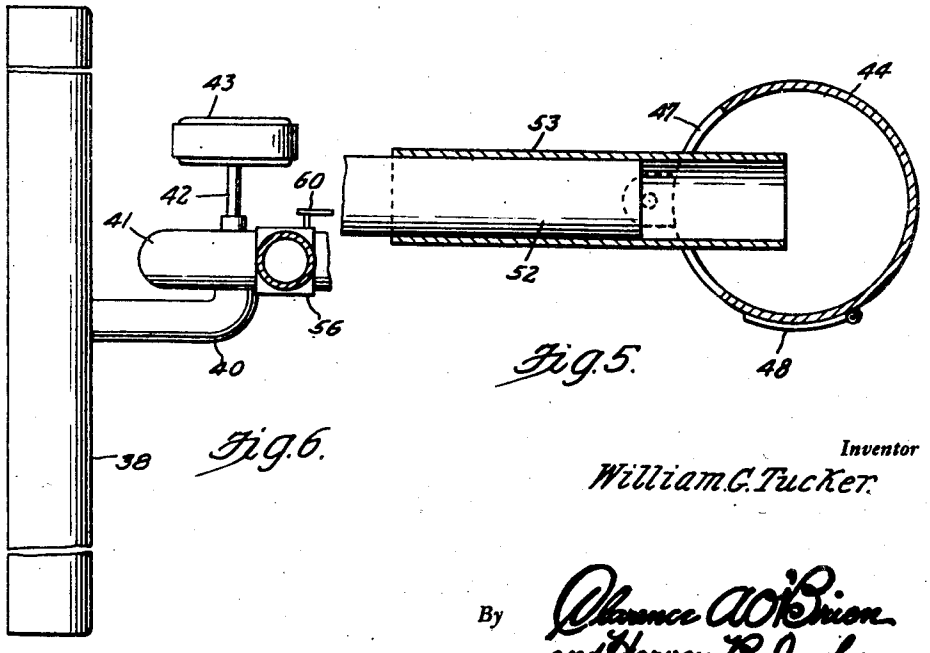


Fig. 5.

Fig. 6.

Inventor
William G. Tucker.

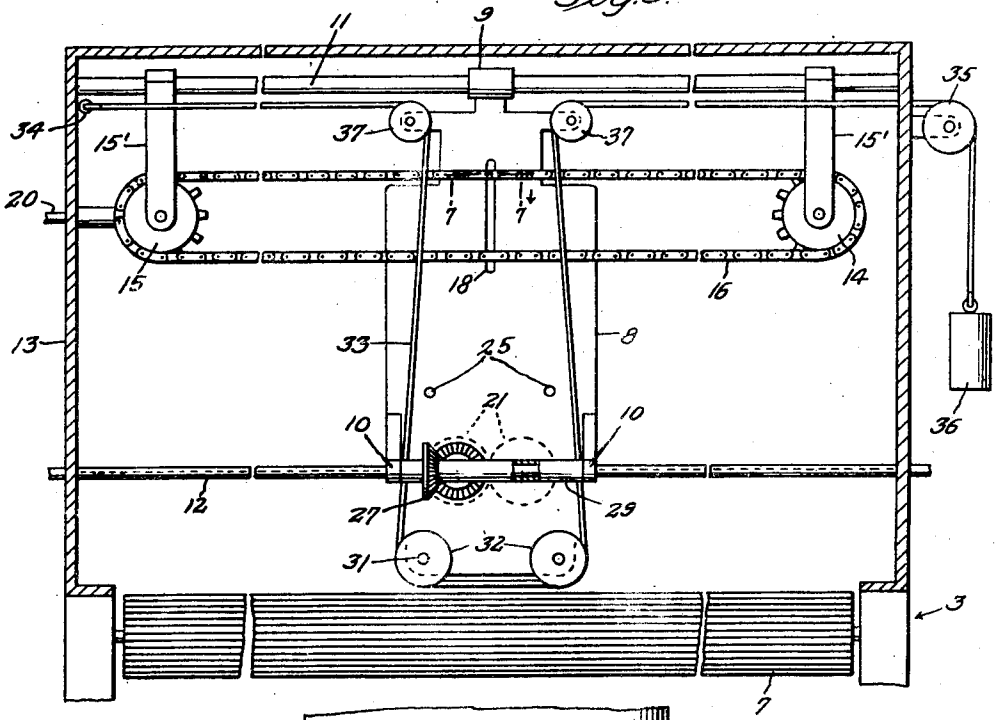
By Clarence A. O'Brien and Harvey B. Jacobson
Attorneys

Oct. 12, 1948. W. G. TUCKER 2,451,260

INTERMEDIATE FEED FOR CARDING MACHINES

Filed June 7, 1945 3 Sheets-Sheet 3

Fig. 3.



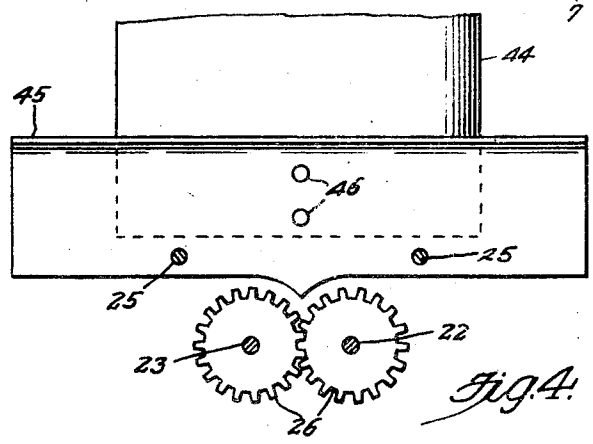
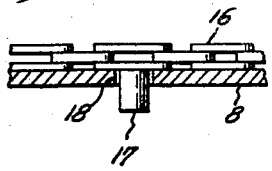


Fig. 4.

Fig. 7.



Inventor
William G. Tucker.

By Clarence A. O'Brien and Harvey B. Jacobson
Attorneys

Patented Oct. 12, 1948

2,451,260

UNITED STATES PATENT OFFICE

2,451,260

INTERMEDIATE FEED FOR CARDING MACHINES

William G. Tucker, Ludlow, Vt.

Application June 7, 1945, Serial No. 598,103

2 Claims. (Cl. 19—105)

1

My invention relates to improvements in intermediate feeds for carding machinery.

The invention is designed with the primary object in view of providing apparatus for transferring carded staple from the doffer roll of one carding machine to another, and which, as compared with present day intermediate feeds is greatly simplified in structure, less expensive to manufacture, install and service, obviates the use of combs, gears, belts, and numerous shafts, while at the same time being highly efficient in operation.

Other and subordinate objects, also comprehended by my invention, together with the precise nature of my improvements and the manifold advantages thereof, will become readily apparent when the succeeding description and claims are read with reference to the drawings accompanying and forming part of this specification.

In said drawings:

Figure 1 is a view partly in side elevation and partly in longitudinal section illustrating my improved intermediate feed installed between two separate carding machines.

Figure 2 is a view in vertical transverse section taken on the line 2—2 of Figure 1 and drawn to an enlarged scale.

Figure 3 is a similar view taken on the line 3—3 of Figure 1.

Figure 4 is another similar view taken on the line 4—4 of Figure 1.

Figure 5 is a fragmentary view in horizontal section taken on the line 5—5 of Figure 1, and drawn to an enlarged scale.

Figure 6 is a similar view taken on the line 6—6 of Figure 1.

Figure 7 is a fragmentary view in horizontal section taken on the line 7—7 of Figure 3, and drawn to an enlarged scale.

Reference being had to the drawings by numerals, my improved intermediate feed, designated as a unit by the numeral 1, has been shown therein, for the purpose of illustration, as interposed between a breaker card 2 and a finishing card 3, both illustrated conventionally as sufficient to a proper understanding of the invention, 4 designating the main cylinder of the breaker card 2, 5 the fancy roll, and 6 the doffer cylinder serving, as will be understood in the art, to strip the staple fibers from the main cylinder, the fibers thus being imposed on the doffer cylinder in the form of a thin sheet, not shown. As will be well understood in the art, a finishing card embodies an intake end, shown in the drawings as exemplifying

2

the finishing card 3, and which include a traverse mechanism for feeding carded staple, not shown, onto a feed apron 7, crosswise of the apron, and packing the carded staple on said apron, all in a manner well understood.

The traverse mechanism comprises an upright carriage plate 8 slidably mounted by upper and lower sleeves 9, 10 on a pair of upper and lower horizontal guide shafts 11, 12 extending crosswise of the feed apron 7 with the ends thereof suitably mounted in the sides of a housing 13, the upper shaft 11 being fixed and the lower shaft 12 being rotatable. A sprocket and chain drive moves the carriage plate 8 back and forth and includes a pair of sprocket wheels 14, 15 mounted on hangers 15' fixed to the upper guide shaft 11, and a horizontal sprocket chain 16 operatively connected to the carriage plate 8 by means of a lateral stud 17 extending through a vertical slot 18 in said carriage plate 8. The sprocket wheel 15 is driven by bevel gearing 19 and a shaft 20 driven from the drive of the finishing card 3 and which it has not been deemed necessary to illustrate. A pair of side-by-side feed rolls 21 extend endwise forwardly from the carriage plate 8 over the feed apron 7 on a pair of shafts 22, 23 extending horizontally from said carriage plate 8 and being suitably mounted in said plate and in a front bracket plate 24 depending from a pair of support rods 25 extending forwardly and horizontally from the carriage plate 8 adjacent opposite sides of said plate and fixed therein. The feed rolls 21 are connected together by a pair of intermeshing gears 26 for rotation in opposite directions to feed the carded staple downwardly therebetween onto the feed apron 7. One of the feed rolls 21 is driven by a bevel gear 27 splined on the lower guide shaft 12 and meshing with a bevel gear 28 fast on the shaft 23 of said one feed roll 21. The bevel gear 27 is fast on a hollow shaft 29 forming part of the same and interposed between the sleeves 10 so that said gear 27 is slid along said shaft 12 by the carriage plate 8, said gear 27 being splined on said shaft 12 through the hollow shaft 29. The lower guide shaft 12 is also driven from the drive of the finishing card 3, in a manner not important to the invention and, therefore, not shown. A pair of packer rolls 30 extend forwardly from the carriage plate 8 beneath the feed rolls 21 to pack the carded staple on the feed apron 7. The packer rolls 30 are fast upon shafts 31 journaled in the carriage plate 8 adjacent the sides thereof and also journaled in the bracket plate 24. The packer rolls 30 are rotated in the

proper direction as the same move back and forth with the carriage 8 by means of pulleys 32 fast on the shafts 31 and running in a depending loop 33 of a belt having one end fixed, as at 34, to one side of the housing 13 and its other end extending out of one side of said housing over an idler pulley 35 and equipped with a weight 36, said belt being trained over a pair of idler pulleys 37 on the carriage plate 8 to form the loop 33.

My improved intermediate feed comprises the following: An elongated suction nozzle 38 at least as long as the doffer cylinder 6 extends across the front side of said cylinder in the horizontal diametrical line thereof with an inlet slot 39 in one side thereof opposed to said cylinder 6 and of substantially the same lentgh as said cylinder. A short suction pipe 40 extends from the other side of said nozzle 38, in the transverse center of the same, to the intake side of a combined suction and blower fan 41, the operating shaft 42 of which may be driven by any suitable means, as, for instance, a motor 43.

A drop, or chute, 44, preferably tubular, with open upper and lower ends rises from the described traverse mechanism directly above the described feed rolls 21. The lower end of the drop, or chute, 44 is rigidly secured to the beforementioned support rods 25 by means of a pair of cheek plates 45 rising from and suitably secured to said rods 25 at opposite sides of said drop, or chute, 44, said drop, or chute, 44 being bolted to said plates 45, as at 46. Thus, as will be seen, the drop, or chute, 44 moves across the feed apron 7 with the packer rolls 30 and the feed rolls 21 and is centered relative to the pair of feed rolls. A circumferential slot 47 is provided in the drop, or chute, 44 adjacent the upper end thereof and facing the suction nozzle 38 and the suction and blower fan 41. A clean-out door 48 is provided in said drop, or chute, 44 adjacent the lower end thereof.

A discharge pipe line 49 extends from the output side of the suction and blower fan 41 into the upper end of the drop, or chute, 44 by way of the slot 47. The discharge pipe line 49 comprises a fixed section 50 rising from the output side of said suction and blower fan 41 with a bearing collar 51 thereon adjacent its upper end, and an L-shaped section 52 having one end sleeved over the upper end of said section 50 to rest on the collar 51 so that said end is rotatable about said section 50 and on the collar 51. The other end of the L-shaped section 52 has slidably fitted thereon an extension section 53 extended through the slot 47 into the drop, or chute, 44 and pivoted, as at 54, between a pair of lateral vertically spaced ears 55 on said drop, or chute, 44 so that the section 53 may swing about a vertical axis parallel to that of the drop, or chute, 44 while sliding on the L-shaped section 52. The section 50 is provided, above the suction and blower fan 41, with a squared portion 56 forming a valve casing for a vertically swingable flap valve 57 hinged, as at 58, to be swung upwardly and close said section 50 above a lateral branch discharge line 59, said valve 57 closing the branch discharge line 59 when swung downwardly and opening the section 50. The valve 57 is designed to be operated in any suitable manner, a handle 60 being provided thereon for operating purposes. The lateral branch discharge line may be arranged to discharge on the floor, or in a storage receptacle, or said line may be extended back to the intake end of the breaker card 2. The intake ends of breaker card, it is believed are so well understood as to require no description thereof herein particularly since the construction of such cards forms no part of the instant invention.

Referring now to the operation of the described invention. With the suction and blower fan 41 operating, and the valve member 57 swung downwardly to open the section 50 and close the lateral branch discharge line 59, the carded staple is taken directly off the doffer cylinder 6 by the suction nozzle 38 to be blown through the suction and blower fan 41 and through the discharge pipe line 50 into the upper end of the drop, or chute, 44 to pass downwardly through said drop, or chute, to the feed rolls 24. As the described traverse mechanism operates and the feed and packer rolls 24, 30 move back and forth across the feed apron 7, the drop, or chute, 44 moves with said rolls, the section 53 swinging laterally on the pivots 54 and sliding on the L-shaped section 52 and said section 52 revolving about the section 50 to thereby compensate for movement of the drop, or chute, 44 back and forth. If, for any reason, it is desired to interrupt the feed of the carded staple, the valve 57 may be swung to close the section 50 and open the lateral branch discharge line 59 without stopping motor operation of the suction and blower fan 41, whereby carded staple may be by-passed until it is desired to resume feed to the finishing card 3.

The foregoing will, it is believed, suffice to impart a clear understanding of my invention without further explanation.

Manifestly, the invention, as described, is susceptible of modification without departing from the inventive concept, and right is herein reserved to such modifications as fall within the scope of the appended claims.

What I claim is:

1. The combination with the doffer cylinder of a carding machine, and traverse mechanism of a second carding machine including a pair of feed rolls movable back and forth across the second machine, of an intermediate feed for transferring carded staple from said doffer cylinder to said feed rolls comprising a stationary suction and blower fan, a suction nozzle directly opposed to said doffer cylinder and connected to the suction side of said fan, a tubular drop upstanding from said traverse mechanism over said feed rolls and movable by said mechanism to follow said pair of rolls, and means establishing communication between the blower side of said fan and the upper end portion of said drop while said drop follows said pair of rolls including a discharge pipe arising from said fan, a right angled pipe section rotatably sleeved at one end onto said discharge pipe to swing thereon, and a pipe section sleeved on the other end of said right angled section and swingable on said drop with one end in communication therewith for sliding on said right angled section and swinging relative to said drop.

2. The combination with the doffer cylinder of a carding machine, and traverse mechanism of a second carding machine including a pair of feed rolls movable back and forth across the second machine, of an intermediate feed for transferring carded staple from said doffer cylinder to said feed rolls comprising a stationary suction and blower fan, a suction nozzle directly opposed to said doffer cylinder and connected to the suction side of said fan, a tubular drop upstanding from said traverse mechanism over said feed rolls and movable by said mechanism to follow said pair of rolls, and means establishing communication between the blower side of said fan and the upper

end portion of said drop while said drop follows said pair of rolls including pipe sections rotatable and slidable one on another, one of said sections having a valved discharge line branching therefrom for by-passing carded staple out of the same directly at said fan.

WILLIAM G. TUCKER.

REFERENCES CITED

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

UNITED STATES PATENTS

Number	Name	Date
1,602,465	Swanson	Oct. 12, 1926
2,137,512	Steinhauer	Nov. 22, 1938

FOREIGN PATENTS

Number	Country	Date
2,642	Great Britain	1867
17,210	Great Britain	1898
24,258	Great Britain	1914
122,342	Great Britain	Jan. 23, 1919
354,518	Great Britain	Aug. 13, 1931
570,605	France	May 5, 1924