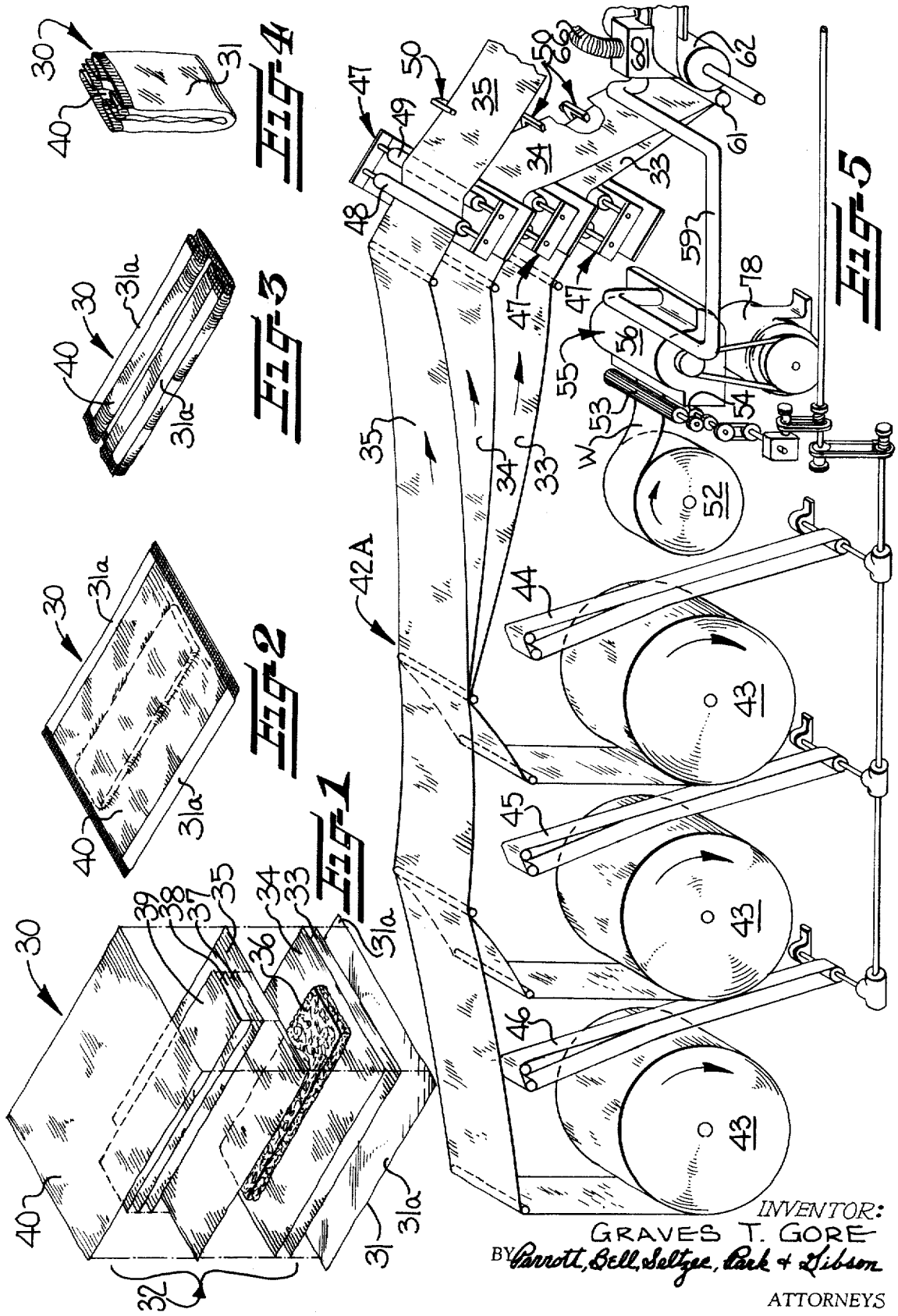
APPARATUS FOR SUCCESSIVELY FORMING DISPOSABLE DIAPERS

Original Filed March 9, 1970 10 Sheets-Sheet 1



APPARATUS FOR SUCCESSIVELY FORMING DISPOSABLE DIAPERS

Original Filed March 9, 1970 10 Sheets-Sheet 2

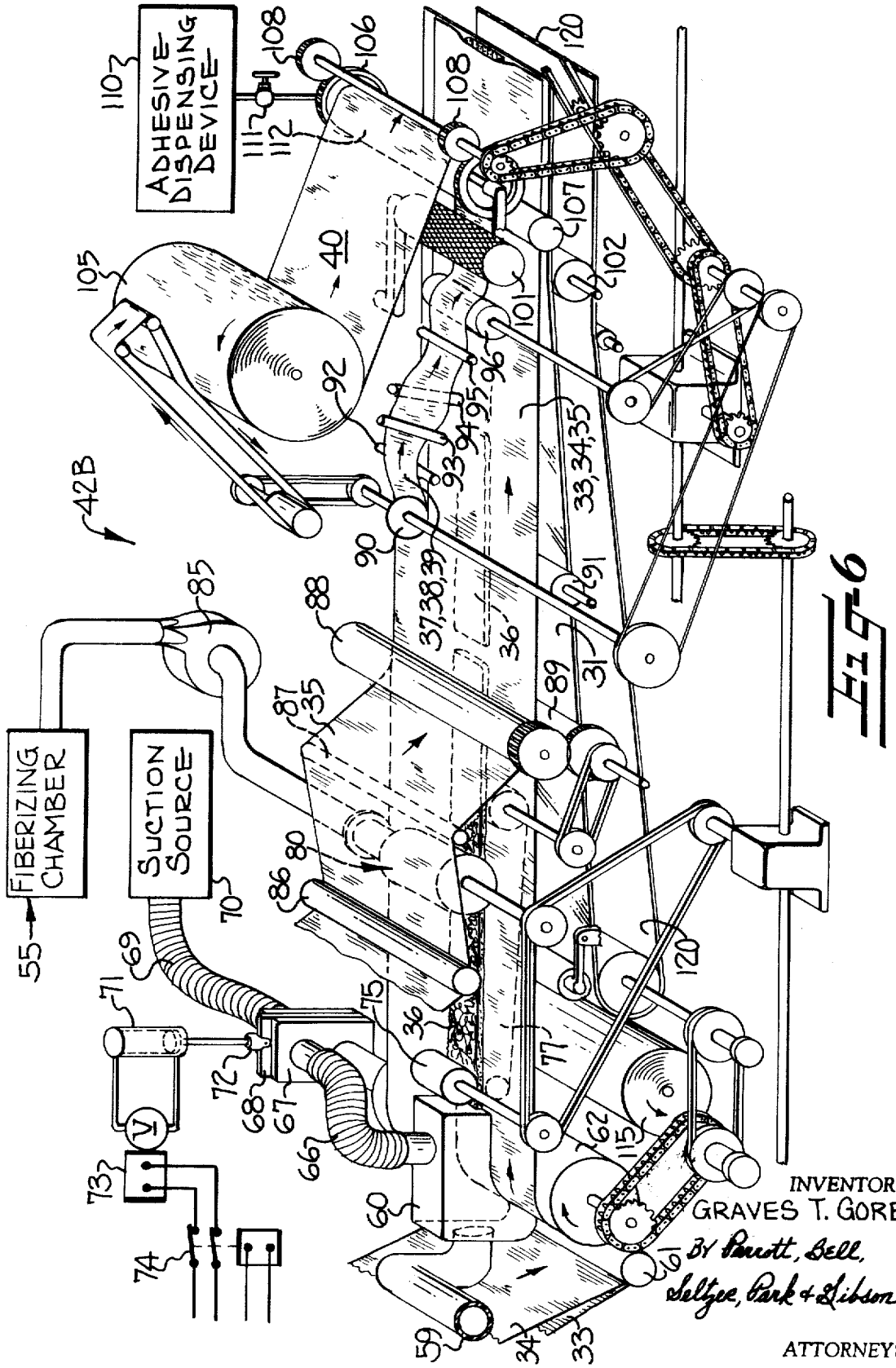


Fig. 6

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APPARATUS FOR SUCCESSIVELY FORMING DISPOSABLE DIAPERS

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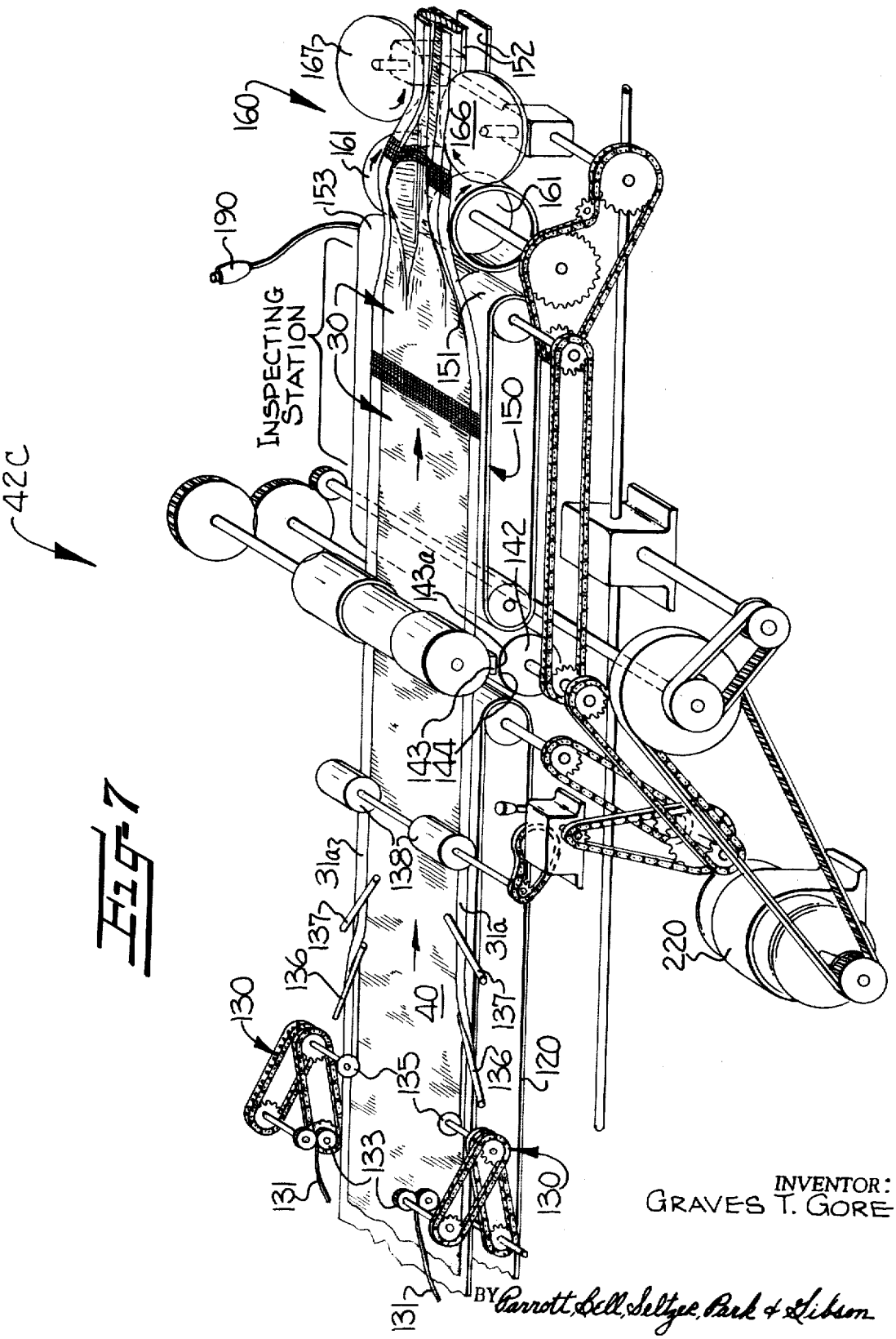


Fig. 7

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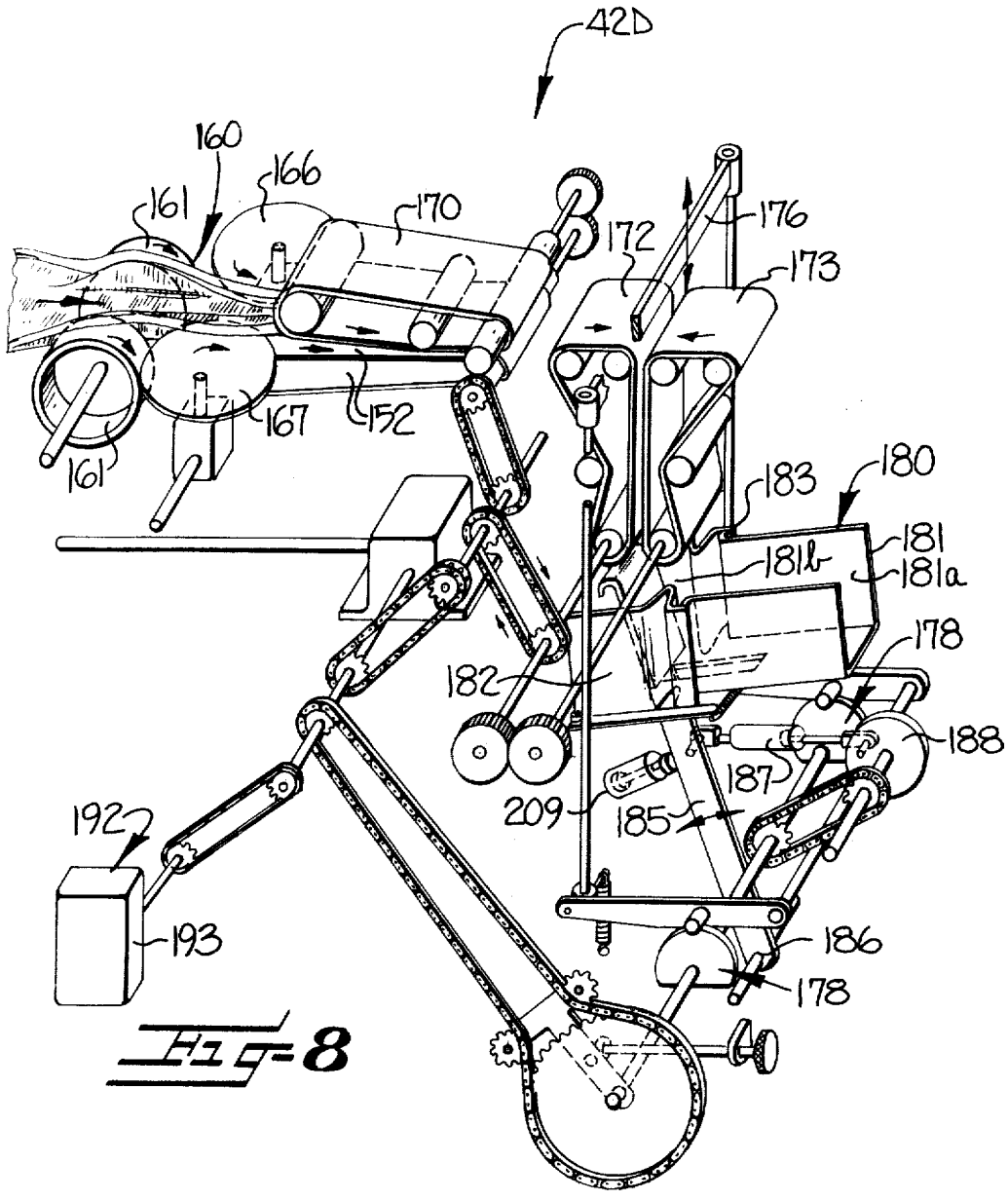


Fig-8

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Aug. 27, 1974 G. T. GORE Re. 28,139

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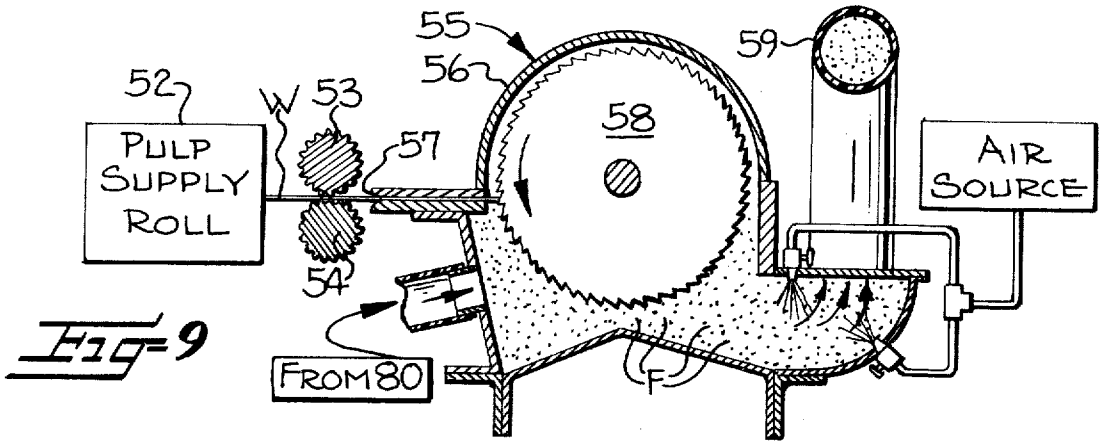


Fig-9

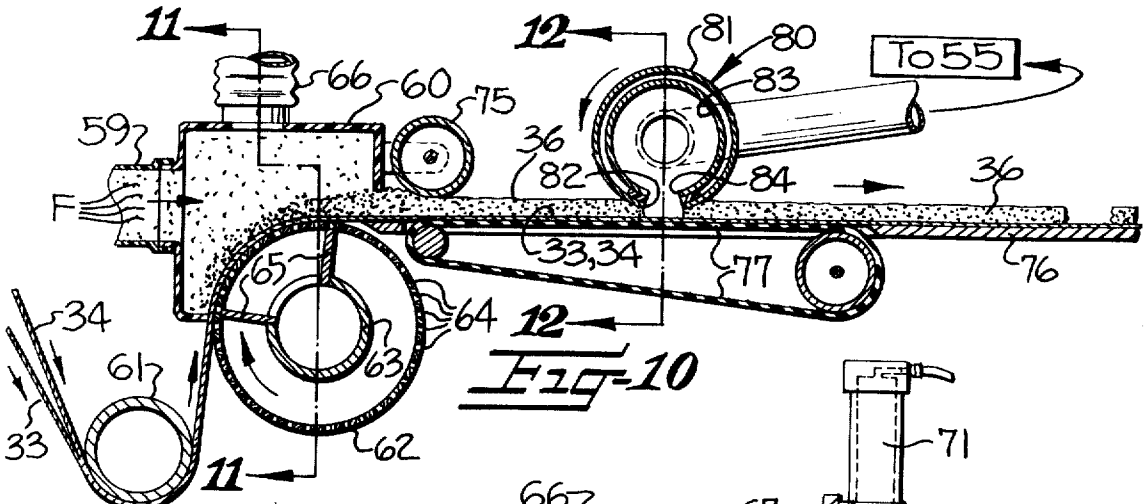


Fig-10

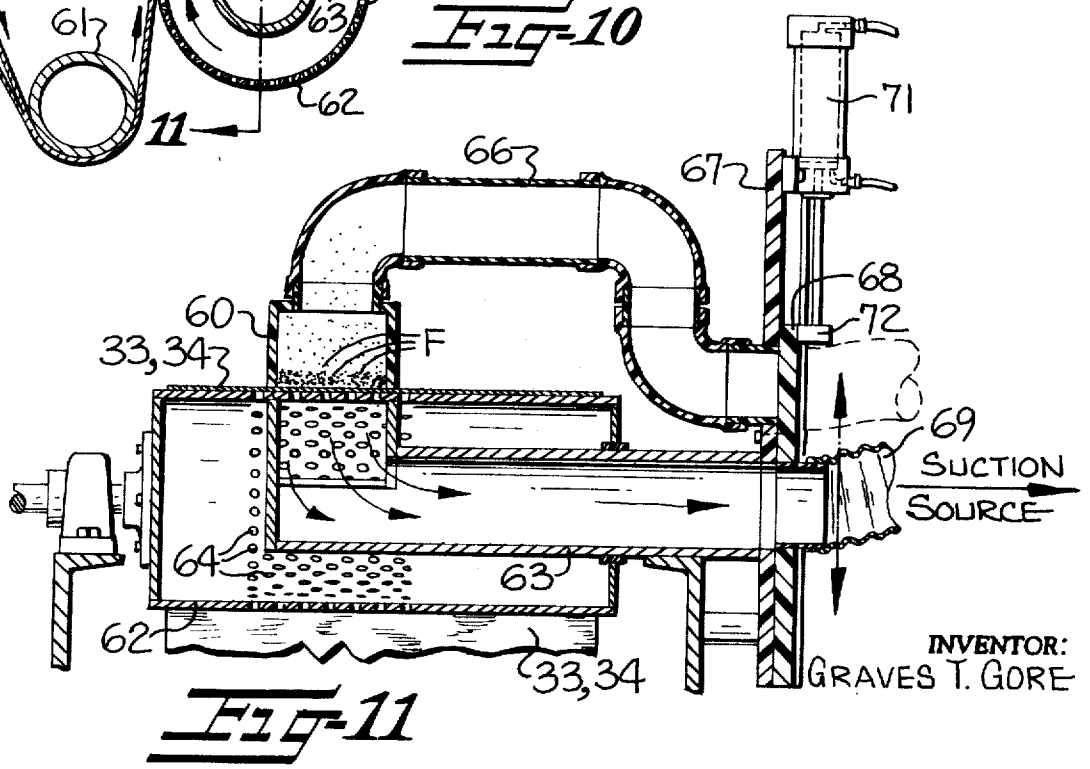


Fig-11

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APPARATUS FOR SUCCESSIVELY FORMING DISPOSABLE DIAPERS

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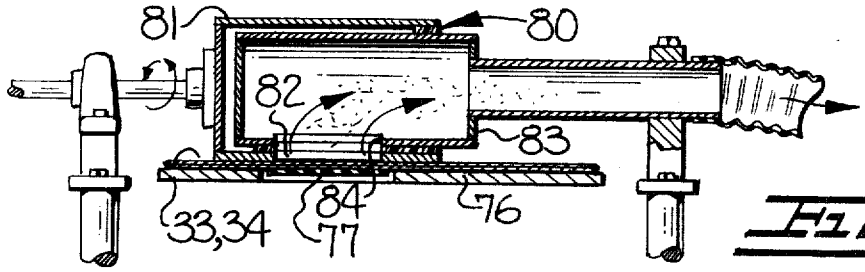


Fig-12

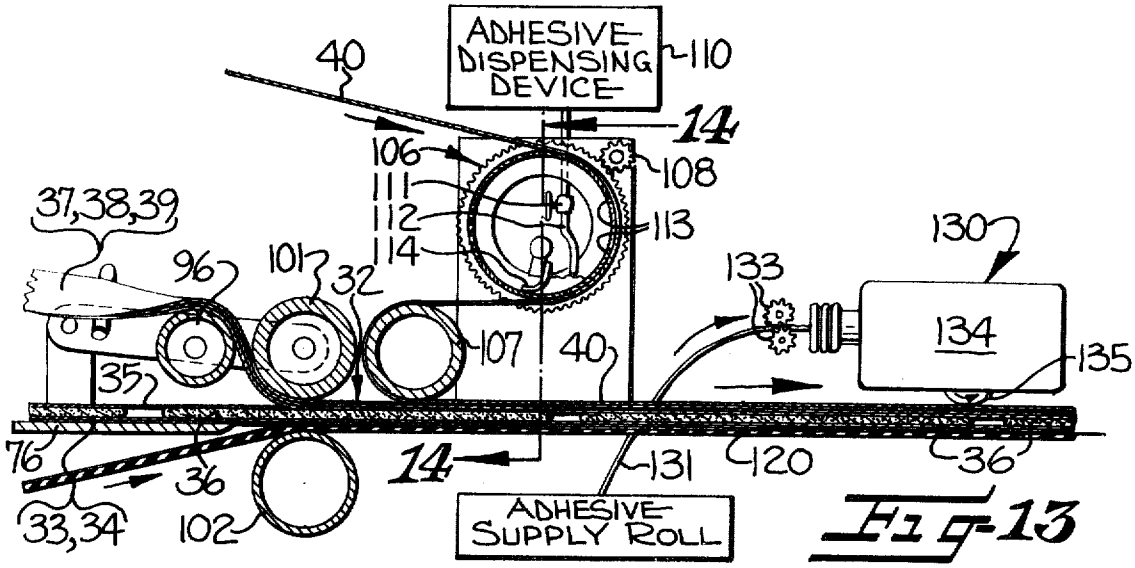


Fig-13

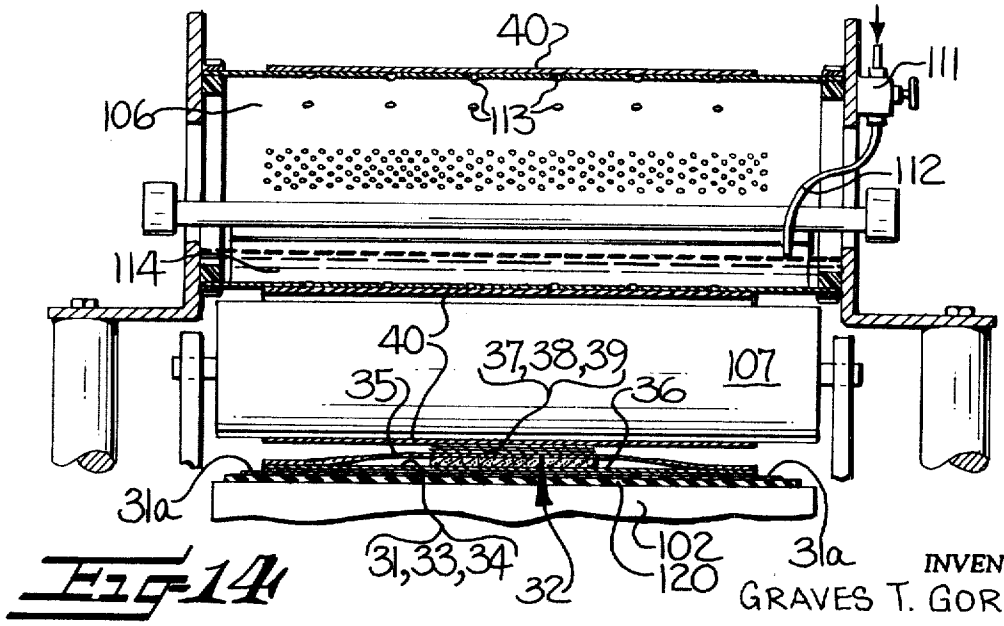


Fig-14

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APPARATUS FOR SUCCESSIVELY FORMING DISPOSABLE DIAPERS

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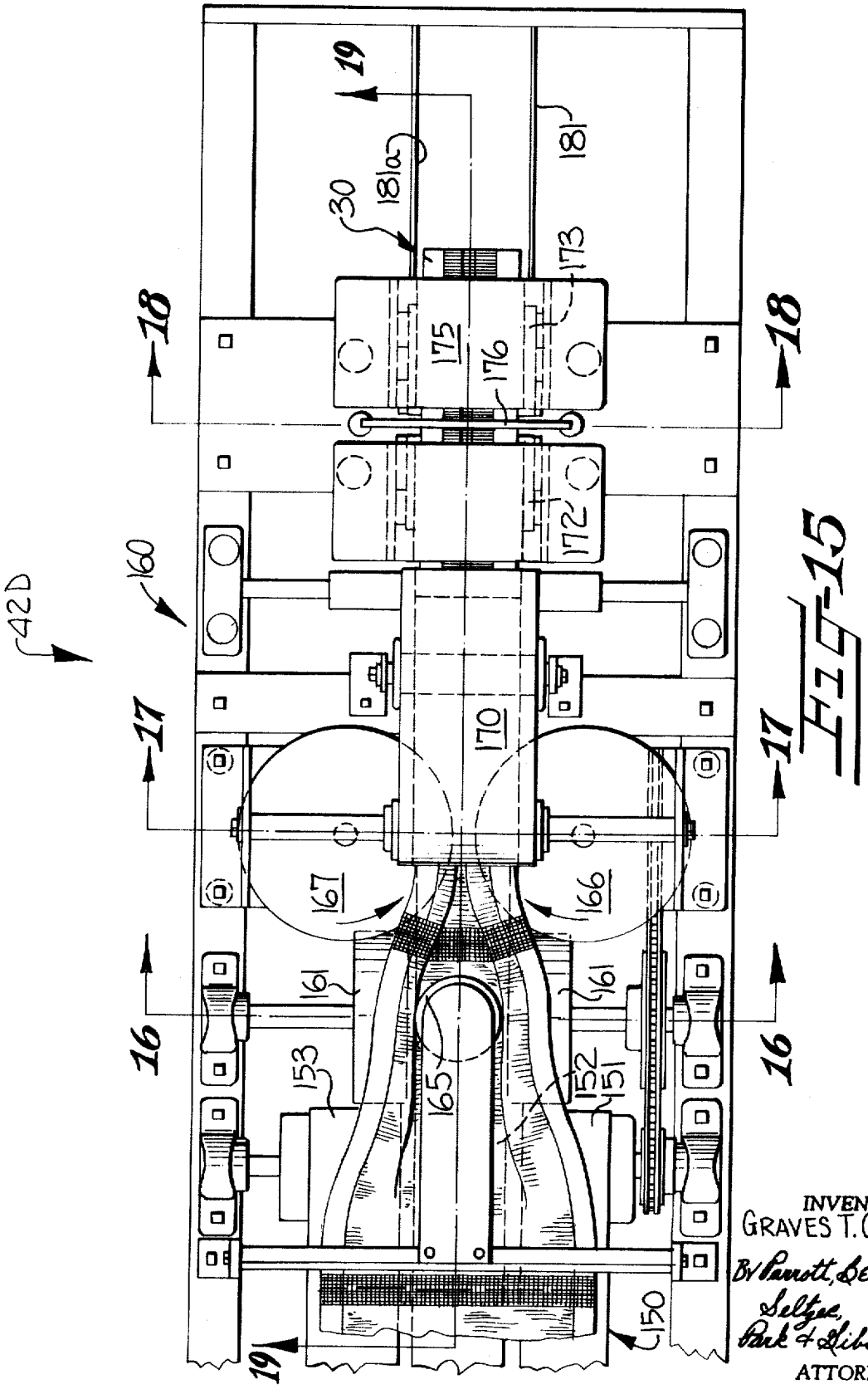


FIG-15

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APPARATUS FOR SUCCESSIVELY FORMING DISPOSABLE DIAPERS

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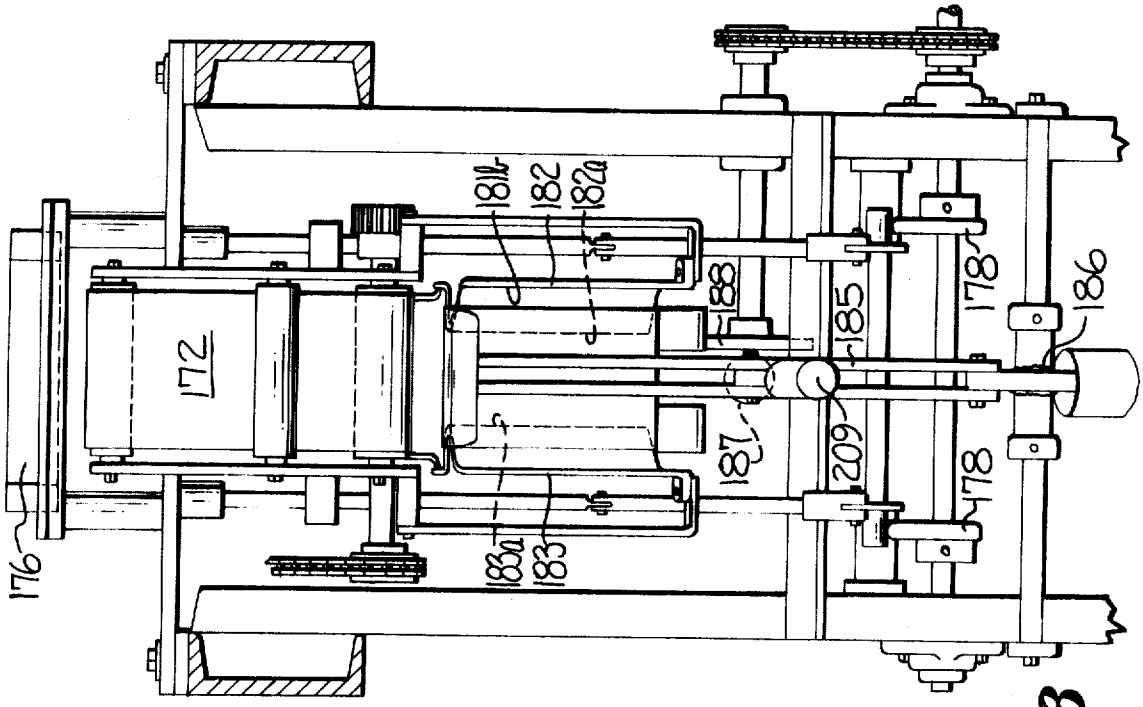


FIG-18

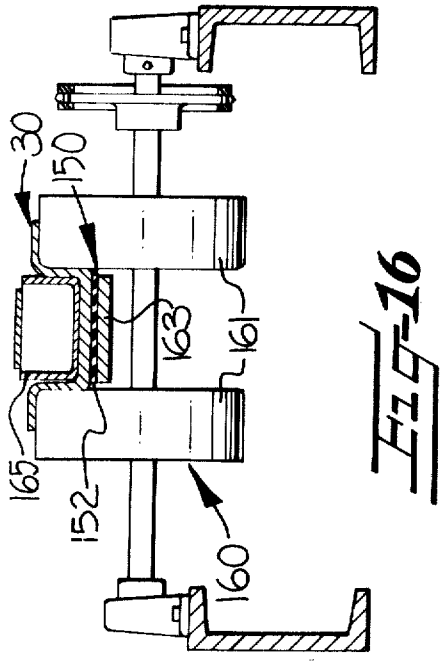


FIG-16

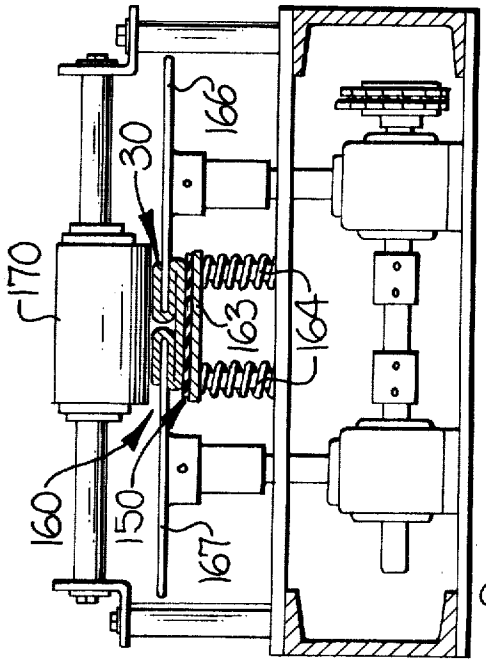


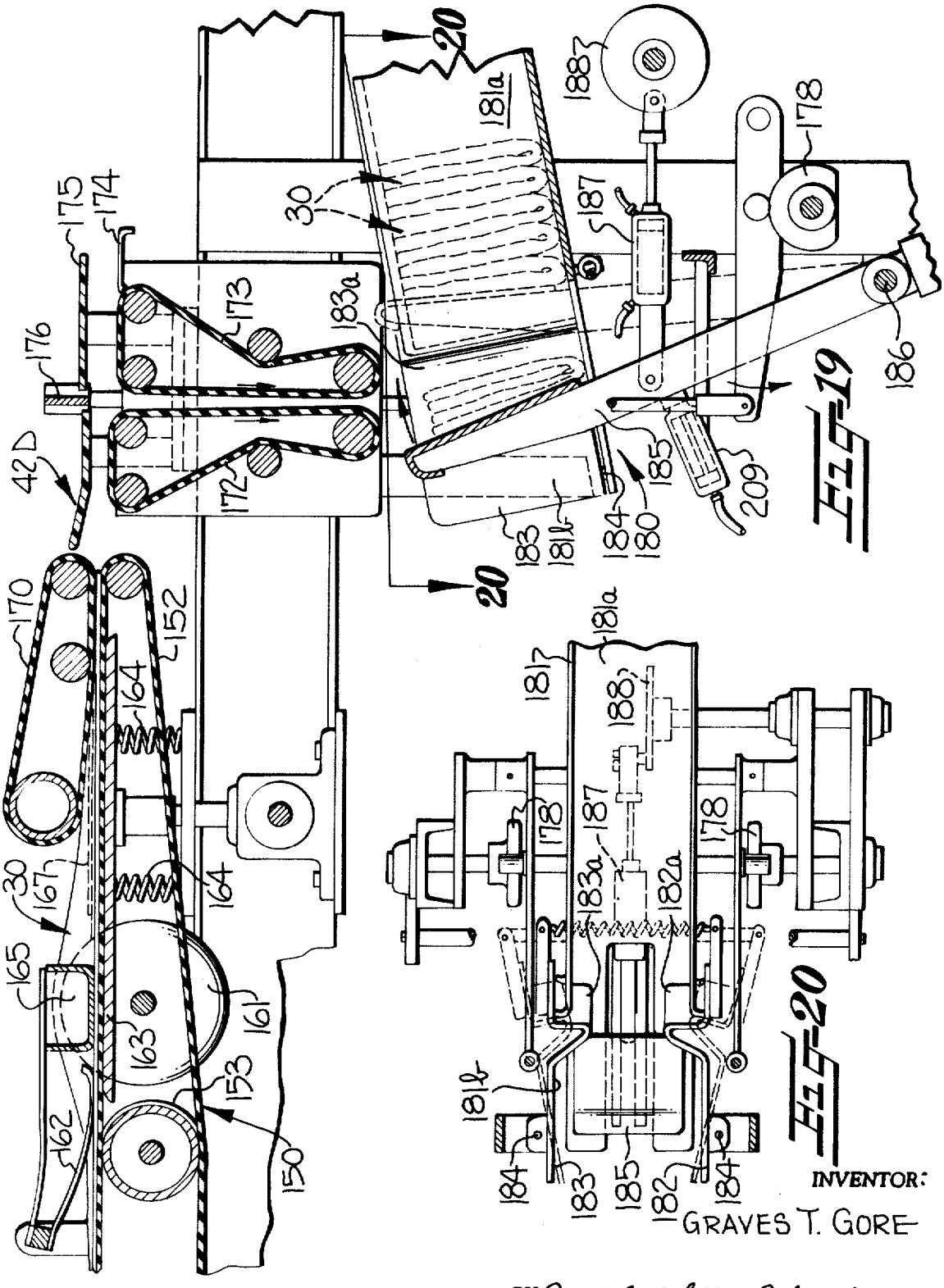
FIG-17

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APPARATUS FOR SUCCESSIVELY FORMING DISPOSABLE DIAPERS

Original Filed March 9, 1970 10 Sheets-Sheet 9



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APPARATUS FOR SUCCESSIVELY FORMING DISPOSABLE DIAPERS

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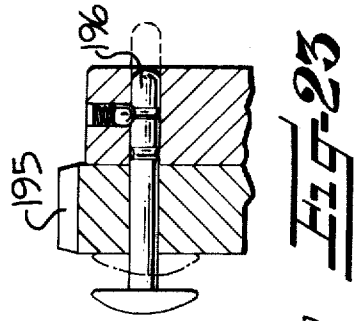


FIG-23

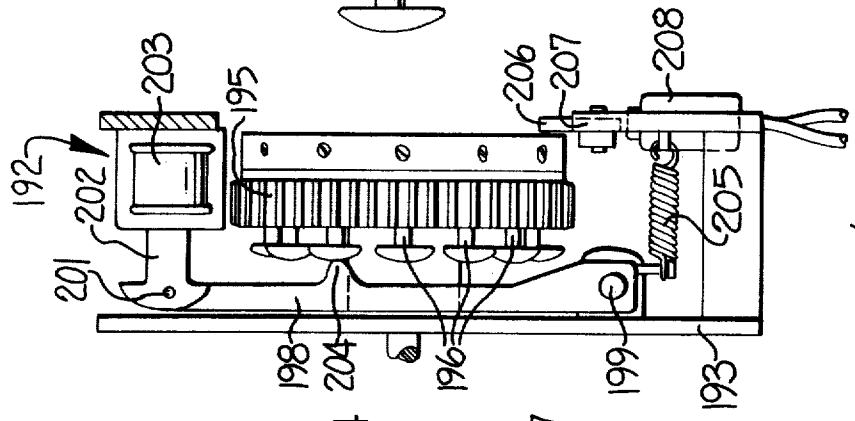


FIG-22

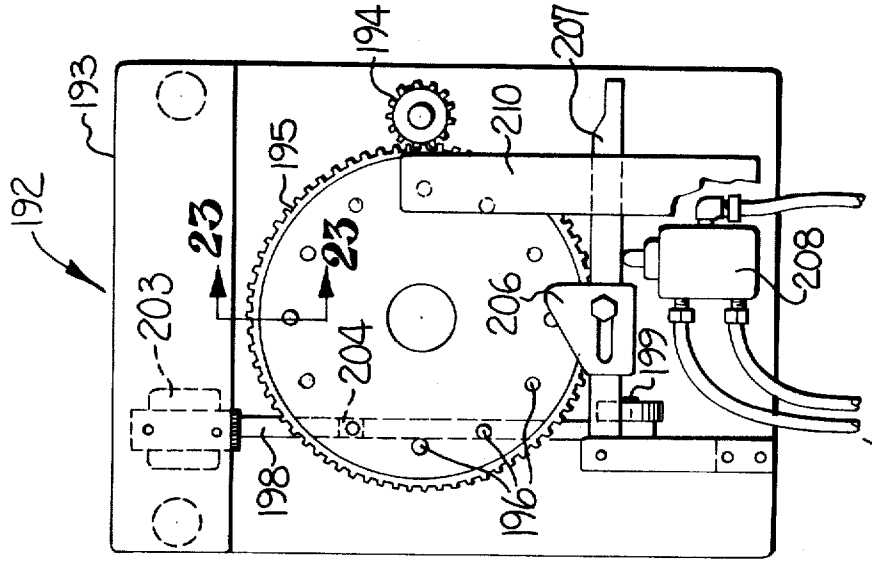


FIG-21

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United States Patent Office

Re. 28,139
Reissued Aug. 27, 1974

28,139

APPARATUS FOR SUCCESSIVELY FORMING DISPOSABLE DIAPERS

Graves T. Gore, Aiken, S.C., assignor to Riegel Textile Corporation, Ware Shoals, S.C.

Original No. 3,661,680, dated May 9, 1972, Ser. No. 17,594, Mar. 9, 1970. Application for reissue Nov. 30, 1972, Ser. No. 310,851

Int. Cl. B31f 7/00

U.S. Cl. 156—467 17 Claims

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates the additions made by reissue.

ABSTRACT OF THE DISCLOSURE

An apparatus for successively forming disposable diapers including means for supplying an elongate moisture absorbent pad and for feeding it along a predetermined longitudinal path of travel, means for supplying and positioning an elongate fluid permeable front cover sheet in superimposed relation to one side of the pad and means for supplying and positioning an elongate backing sheet in superimposed relation to the other side of the pad. Means are provided for receiving and feeding the superimposed front cover sheet, pad and backing sheet along a predetermined longitudinal path of travel, while additional means cooperate therewith for longitudinally sealing the side portions of the superimposed components, for transversely sealing the superimposed components at predetermined longitudinally spaced intervals to form successively interconnected diapers and for severing the same along susccessive transverse seals to form individual diapers.

This invention relates to an apparatus for successively forming disposable diapers wherein each diaper includes a fluid permeable front cover sheet, a moisture absorbent pad superimposed on the front cover sheet and a backing sheet, preferably of moisture impervious material, superimposed on the other side of the pad and secured to the front cover sheet along longitudinal and transverse edges thereof.

More particularly, apparatus of this invention is specifically constructed for successively forming prefolded diapers as disclosed in U.S. patent application Ser. No. 796,478, filed Feb. 4, 1969, now abandoned entitled "Disposable Prefolded Combination Flushable Diaper and Moisture Impervious Backing" and assigned to the assignee of the present invention. Briefly stated, the prefolded combination diaper and backing disclosed in the above referred to application comprises a fluid permeable front cover sheet for being positioned against the skin of the wearer to allow moisture to pass internally of the diaper and which has high dry strength, wet hang, and dispersibility characteristics when agitated in a large excess of water and an interior pad of moisture absorbent material superimposed on the front cover sheet for absorbing moisture receiving through the front cover sheet. A moisture impervious backing sheet is superimposed on the interior pad for preventing moisture from passing therefrom and the front cover sheet, pad and backing sheet are secured in superimposed relation along longitudinal and transverse edges thereof.

Preferably, opposite side portions of the diaper are each folded inwardly over the central portion thereof along first longitudinally extending fold lines adjacent the central portion thereof and the outer sections of the thus folded side portions are each folded outwardly back over themselves along second longitudinally extending fold lines located between or intermediate the first fold lines and the longitudinal side edges of the unfolded diaper to form generally a box pleat configuration.

Thus, it is the object of this invention to provide an apparatus for forming a disposable diaper, preferably of the type briefly described above, which is capable of successively forming the same at a high capacity and at a minimum of cost to the manufacturer thereof and which apparatus avoids manual handling of individual diapers by an operator which handling is highly undesirable for reasons that are apparent.

In accordance with this invention, the apparatus may include means for supplying an elongate moisture absorbent pad and feeding it along a substantially predetermined longitudinal path of travel, means cooperating with pad supplying and feeding means for supplying and positioning an elongate fluid permeable front cover sheet in superimposed relation to one side of the pad, and means cooperating with the pad supplying and feeding means for supplynig and positioning an elongate backing sheet, preferably having a width in excess of the width of the pad and front cover sheet, in superimposed relation to the other side of the pad, preferably with opposite longitudinal side portions thereof extending transversely beyond opposite longitudinal side edges of the pad and front cover sheet. The apparatus further includes means cooperating with the pad, front cover sheet and backing sheet supplying and feeding means for receiving and feeding the superimposed front cover sheet, pad and backing sheet along a predetermined longitudinal path of travel through the remaining apparatus of this invention.

Preferably, folding means are provided which cooperate with the receiving and feeding means for folding opposite longitudinal side portions of the backing sheet around longitudinal side edges of the pad and front cover sheet in overlapping relation to marginal longitudinal side portions of the front cover sheet. Securing means secure the overlapping side portions of the backing sheet and front cover sheet to each other and means cooperate with the receiving and feeding means for transversely sealing the front cover sheet, pad and backing sheet in superimposed relation at predetermined longitudinally spaced intervals to form successively interconnected diapers. Additionally, means cooperate with the transverse sealing means for severing the same along successive transverse seals to form individual diapers.

In the preferred arrangement, the apparatus includes means for folding opposite longitudinal side portions of the superimposed front cover sheet, pad and backing sheet inwardly and over a central portion of same along first longitudinally extending fold lines and the outer sections of the side portions outwardly back over the inner sections of the side portions along second longitudinally extending fold lines and means for transversely folding the superimposed front cover sheet, pad and backing sheet intermediate adjacent transverse seals to complete the formation of the prefolded diaper having a generally box pleat configuration.

The pad supplying and feeding means may comprise means for supplying at least one and preferably a plurality of elongate moisture absorbent sheets, positioning them in superimposed relation and feeding them along a substantially predetermined longitudinal path of travel, means for supplying an elongate web of moisture absorbent fibrous material and feeding it along a substantially predetermined path of travel, a fiberizing chamber disposed in the path of the fibrous web for receiving and fiberizing it into generally individual fibers, and means including suction means communicating with the fiberizing chamber for withdrawing the fiberized fibers therefrom and depositing the fibers in superimposed batt form on a longitudinally extending central portion of the one or more moisture absorbent sheets to form the moisture

absorbent pad. In addition, means may be provided for supplying an additional elongate moisture absorbent sheet and positioning it in superimposed relation to the other side of the fiber batt.

Some of the objects of the invention having been stated, other objects will appear as the description proceeds when taken in connection with the accompanying drawings, in which:

FIG. 1 is an exploded, schematic, perspective view illustrating the various components of a diaper that may be formed with the apparatus of this invention;

FIG. 2 is a perspetcive view of a diaper formed from the components of FIG. 1 prior to folding thereof;

FIG. 3 is a perspective view of the diaper of FIG. 2 wherein the diaper has been partially folded into a desired prefolded condition;

FIG. 4 is a perspective view of the diaper of FIG. 3 folded into a desired prefolded condition;

FIGS. 5–8 are schematic perspective views of successive portions of the apparatus of the present invention for forming a prefolded diaper as illustrated in FIG. 4;

FIG. 9 is an enlarged schematic, elevational view with parts in section of a portion of the apparatus of FIG. 5 and illustrating the fiberizing chamber for the fibrous web;

FIG. 10 is an enlarged, schematic, elevational view with parts in section of a portion of the apparatus of FIG. 6 and illustrating the means including suction means that communicate with the fiberizing chamber for depositing the fiber batt in superimposed relation on a longitudinally extending portion of the at least one moisture absorbent sheet;

FIG. 11 is a sectional view taken substantially along the line **11—11** of FIG. 10;

FIG. 12 is a sectional view taken substantially along the line **12—12** of FIG. 10;

FIG. 13 is an enlarged, schematic, elevational view with parts in section of a portion of the apparatus of FIG. 6 illustrating the means for applying adhesive to one side of the front cover sheet to facilitate its securement to the moisture absorbent pad and means for applying adhesive to one of the marginal longitudinal side portions of the front cover sheet;

FIG. 14 is a sectional view taken substantially along the line **14—14** of FIG. 13;

FIG. 15 is an enlarged, schematic, top plan view of the portion of the apparatus of FIG. 8;

FIG. 16 is a sectional view taken substantially along the line **16—16** of FIG. 15;

FIG. 17 is a sectional view taken substantially along the line of **17–17** of FIG. 15;

FIG. 18 is a sectional view taken substantially along the line of **18–18** of FIG. 15;

FIG. 19 is a sectional view taken substantially along the line **19–19** of FIG. 15;

FIG. 20 is a sectional view taken substantially along the line **20–20** of FIG. 19;

FIG. 21 is an enlarged, schematic elevational view of a portion of the apparatus of FIG. 8 and illustrating means for rejecting an unsatisfactory diaper formed by the apparatus of the present invention;

FIG. 22 is a schematic side elevational view of the portion of the apparatus illustrated in FIG. 21; and

FIG. 23 is an enlarged sectional view taken substantially along the line **23–23** of FIG. 21.

Referring specifically to FIG. 1, there is illustrated in an exploded schematic view the various components of a disposable diaper, generally designated at **30**, formable with the apparatus to be hereinafter described. The lowermost component is preferably a moisture impervious backing sheet **31** formed of plastic, rubber or the like moisture impervious material and is of generally rectangular configuration. Superimposed on the backing sheet **31** is a moisture absorbent pad, generally indicated at **32**, and which comprises three moisture absorbent sheets **33**, **34** and **35** of uniform size disposed in superimposed relation with a fiber batt **36** disposed centrally between sheets **34** and **35** and extending longitudinally substantially the length thereof.

The pad **32** additionally includes three superimposed strips **37**, **38** and **39** of moisture absorbent material superimposed on moisture absorbent sheet **35** centrally thereof in registry with the fiber batt **36**. The fiber batt **36** and moisture absorbent strips **37**, **38** and **39** cooperate to provide increased moisture absorbency potential centrally of the moisture absorbent pad **32**. Finally, a front cover sheet **40** of fluid permeable material such as a self-bonding fibrous material or the like is superimposed on the moisture absorbent pad **32** to complete the components of the diaper **30**. As illustrated in FIG. 1, backing sheet **31** preferably has a width greater than that of the moisture absorbent pad **32** and front cover sheet **40** with the pad **32** and front cover sheet **40** being superimposed centrally of the backing sheet **31** so that longitudinal side portions **31a** extend outwardly beyond longitudinal edges of the other components of the diaper **30**.

With reference to FIG. 2, longitudinal side portions **31a** of the backing sheet **31** are folded around longitudinal side edges of the moisture absorbent pad **32** and front cover sheet **40** in overlapping relation to marginal longitudinal side portions of front cover sheet **40** with the overlapping side portions being adhesively sealed to secure the backing sheet **31** to the front cover sheet **40** along longitudinal edges of the diaper **30**.

In addition, the superimposed backing sheet **31**, pad **32** and front cover sheet **40** are secured in superimposed relation along transversea edges of the diaper **30**.

With the superimposed backing sheet **31**, pad **32** and front cover sheet **40** secured in superimposed relation along longitudinal and transverse edges as illustrated in FIG. 2, the diaper is successively folded as illustrated in FIGS. 3 and 4. That is, opposite longitudinal side portions of the diaper **30** are folded inwardly over the central portion of the same along first longitudinally extending fold lines and outer sections of the side portions are folded outwardly back over inner sections of the side portions along second longitudinally extending fold lines to provide the folded diaper **30** of FIG. 3. Thereafter, as illustrated in FIG. 4, the diaper **30** is folded transversely thereof intermediate transverse edges to complete the folding thereof and form the prefolded diaper **30** formable with the apparatus to be hereinafter described. As stated above, this diaper is of the general type disclosed in aforesaid copending application, assigned to the assignee of the present application, and reference thereto may be had for further details of the diaper construction.

While the apparatus of the present invention is specifically constructed for successively forming diapers **30** of the type just described, it will be apparent that other diapers or the like may be formed with the apparatus by making changes that will be apparent to one skilled in the art.

Successive portions of the apparatus, generally indicated at **42A–42D**, are schematically illustrated in FIGS. 5–8. With reference first to FIG. 5, three continuous sheets **33**, **34** and **35** of uniform width and formed of a moisture absorbent material such as highly moisture absorbent, creped tissue paper are supplied from three supply rolls **43**, which supply rolls are frictionally engaged and rotatably driven, as illustrated, by respective continuous conveyor belts **44**, **45**, and **46**. Conveyor belts **44**, **45** and **46** are driven in synchronism with each other by a common drive to supply and feed sheets **33**, **34** and **35** at the same rate.

The continuous moisture absorbent sheets **33**, **34** and **35** are fed along substantially predetermined longitudinal paths of travel along which each of the continuous sheets **33**, **34** and **35** passes through respective identical aliging means, generally indicated at **47**, which align the sheets **33**, **34** and **35** directly above each other for thereafter

feeding into superimposed relation. The aligning means 47 are of conventional construction and, accordingly, will not be described in detail. It suffices to say that each of the sheets 33, 34 and 35 passes between a pair of cooperating rolls 48 and 49 which rolls are laterally shiftable in response to the sensing of the position of the respective sheet by a sensing head 50 which causes the rolls 48 and 49 to be shifted to maintain the respective sheet in alignment with the others and advancing along a predetermined path of travel.

Simultaneously with the feeding of the moisture absorbent sheets 33, 34 and 35, a continuous web W of moisture absorbent fibrous material such as wood pulp is supplied from a supply roll 52 and fed along a predetermined longitudinal path of travel by a pair of cooperating nip feed rolls 53 and 54 into a fiberizing chamber 55, suitably disposed in the path of the fibrous web W. With reference to FIG. 9, the fiberizing chamber 55 comprises a housing 56 having an inlet 57 disposed adjacent nip feed rolls 53 and 54 for receiving the fibrous web W therefrom into housing 56. Inwardly of housing 56, a fiberizing roll 58 is mounted for driving rotation by means such as motor 78, FIG. 5, so as to disintegrate or fiberize the fibrous web W into individual fibers as it is fed into the fiberizing chamber 55 to form fiberized fibers F. A conduit 59 communicates with the fiberizing chamber 55 and extends therefrom to a housing 60, FIG. 5, to be hereinafter more fully described.

As illustrated in the right-hand portion of FIG. 5 and likewise, in the left-hand portion of FIG. 6, absorbent sheets 33 and 34 are fed into superimposed relation around guide bar 61 onto a hollow cylindrical rotatably driven roll 62. Housing 60 is disposed adjacent roll 62 and conforms partially therearound with the super imposed moisture absorbent sheets 33 and 34 being received therebetween. The cooperation between housing 60 and cylindrical roll 62 is best illustrated in FIGS. 10 and 11. As there illustrated, one end of cylindrical roll 62 is rotatably mounted centrically upon conduit 63 which may be supported in any suitable manner, as shown, with the other end of roll 62 being drivingly connected for rotation thereof by drive means schematically illustrated in FIG. 6. A central portion of the hollow cylindrical roll 62 includes a plurality of circumferentially and axially spaced openings or apertures, 64, a segment of which is in open communication with conduit 63 via partition means 65.

The portion of housing 60 adjacent roll 62 is open so that housing 60 communicates through the apertures 64 in roll 62 with conduit 63. The housing 60 also has a conduit 66 communicating therewith which extends outwardly therefrom and communicates through a conduit support plate 67. Similarly, conduit 63 extends from cylindrical roll 62 and communicates through support plate 67 in spaced relation from conduit 66. A gate plate 68 having a conduit 69 communicating therethrough is mounted adjacent support plate 67 for sliding movement relative thereto for selectivity communicating conduit 69 with conduits 63 and 66. As illustrated in FIG. 6 the end of conduit 69 remote from gate plate 68 extends to and communicates with a suction source 70. Thus, gate plate 68 may be selectively positioned for applying suction directly to housing 60 and cylindrical roll 62.

A double-acting, reciprocating piston and cylinder assembly 71 is operatively connected to gate plate 68 as at 72 for selectively positioning gate plate 68 and is controlled by a solenoid actuating control valve 73 and relay switch means 74, the coil of which is preferably connected in parallel with the power source of the apparatus so that during normal operation, relay switch means 74 is closed and gate plate 68 is positioned, as shown in FIGS. 6 and 11, with suction source 70 communicating through conduits 69 and 63, the hollow cylindrical roll 62, the moisture absorbent sheets 33 and 34, and housing 60 with the fiberizing chamber 55 for withdrawing the fiberized fibers F therefrom. Thus, during normal operation, fiberized fibers F are drawn from fiberizing chamber 55 and deposited longitudinally along the superimposed moisture absorbent sheets 33 and 34 to form a longitudinally extending fiberized batt 36, as illustrated in FIG. 6. Removal of the fiberized fibers F from the fiberizing chamber 55 is facilitated by establishing suitable air jets as schematically illustrated in FIG. 9 in the fiberzing chamber 55. Once the power to the apparatus is cut off and the feeding of the moisture absorbent sheets 33 and 34 stops, the relay switch means 74 will open to position gate plate 68 as shown in phantom lines in FIG. 11 so that suction source 70 is in direct communication with housing 60 to draw the excess fiberized fibers F from fiberizing chamber 55 into the suction source 70. Thus, cutting off the power to the apparatus, the fiberized fibers F in the fiberizing chamber 55 will not be drawn therefrom to accumulate in the housing 60 against the moisture absorbent sheets 33 and 34, which accumulation would present problems to renewed operation of the apparatus.

As the superimposed moisture absorbent sheets 33 and 34 and the fiberized batt 36 emerge from between housing 60 and cylindrical roll 62, they pass between a compressing roll 75 and support plate 76, FIG. 10, where they are compressed to condense the fiberized batt 36. To facilitate in feeding of superimposed sheets 33 and 34 and fiberized batt 36, a conveyor 77 communicates through an opening in support plate 76 and positively feeds the same along a predetermined path of travel. While still being supported by support plate 76 and fed by conveyor 77, the superimposed moisture absorbent sheets 33 and 34 and the fiberized batt 36 pass beneath means, generally indicated at 80 and best illustrated in FIGS. 10 and 12, for removing transverse segments of the fiberized batt 36. The removing means 80 comprises a rotatably driven hollow cylindrical member 81 having a slot 82 extending longitudinally thereof and a conduit 83 mounted therewithin and being connected to cylindrical member 81 for rotation of cylindrical member 81 relative thereto. Conduit 83 includes an elongate slot 84 disposed therein adjacent the fiberized batt 36 which slot 84 communicates with slot 82 once during each revolution of cylindrical member 81. Conduit 83 communicates, as illustrated, through a suction source 85 with fiberizing chamber 55. Thus, during each revolution of cylindrical member 81, the suction of suction source 85 will be applied to the fiberized batt 36 superimposed on superimposed moisture absorbent sheets 33 and 34 and remove a transverse segment thereof and convey the same back to the fiberizing chamber 55 for reprocessing. Preferably, the cylindrical member 81 is rotatably driven such that the periphery of the cylindrical member 81 is moving at the same rate as the superimposed moisture absorbent sheets 33 and 34 and fiberized batt 36 is being fed with the circumstance of the cylindrical member 81 being substantially equal to the length of one diaper 30 being formed. Thus, it will be apparent that at longitudinally spaced intervals corresponding to the length of the diaper 30 being formed, transverse segments of the fiberized batt 36 will be removed for reasons that will become apparent upon further description of the present invention.

During the depositing of the fiberized batt 36 on the superimposed moisture absorbent sheets 33 and 34 and removal of transverse segments thereof from the moisture absorbent sheets 33 and 34, moisture absorbent sheet 35 is being continuously fed thereabove under guide bar 86 and over guide bar 87, FIG. 6. Moisture absorbent sheet 35 is now positioned in superimposed relation with the other side of the fiberized batt 36 and passed with the fiberized batt 36 and moisture absorbent sheets 33 and 34 between nip feed rolls 88 and 89 which feed rolls 88 and 89 facilitates in the feeding of the moisture absorbent sheets 33, 34 and 35 along their respective predetermined longitudinal paths of travel. Downstream from nip feed rolls 88 and 89, a rotary cutter 90 cooperating with an

anvil **91** trims superimposed longitudinal side portions **37, 38** and **39**, respectively, from the three moisture absorbent sheets **33, 34** and **35** which trimmed side portions **37, 38** and **39** are thereafter positioned by cooperating guide rods **92, 93, 94, 95** and guide roll **96** in superimposed relation to the moisture absorbent sheets **33, 34** and **35** and fiberized batt **36** to complete the formation of the moisture absorbent pad **32**, as heretofore described and schematically illustrated in FIG. 1.

The moisture absorbent pad **32** passes, as best shown in FIGS. 6 and 13, beneath a pressure roll **101** which cooperates with pressure roll **102** to compress the moisture absorbent pad **32** into a compact form. Immediately above the advancing moisture absorbent pad **32** is a supply roll **105** of a continuous fluid permeable front cover sheet **40**. The continuous fluid permeable front cover sheet **40** is fed by suitable conveyor means, as illustrated, from supply roll **105** and drawn around an adhesive applying roll **106** and guide bar **107** and positioned in superimposed relation to the moisture absorbent pad **32**. The adhesive applying roll **106**, as best illustrated in FIGS. 13 and 14, is suitably supported for rotation about its longitudinal axis and includes adjacent each end thereof gear connections **108** which provide means for driving rotation of adhesive applying roll **106** at the same rate as the moisture absorbent pad **32**. A liquid adhesive is supplied from an adhesive dispensing device **110** through valve **111** internally of adhesive applying roll **106** via conduit **112**. The body of the adhesive applying roll **106** includes a plurality of axially and circumferentially spaced openings or apertures **113** through which the adhesive may emerge. Gravity causes the adhesive to settle in the lower portion of the adhesive applying roll **106** where a doctor blade **114** cooperates with the internal surface of the adhesive applying roll **106** to force the adhesive through the apertures **113** onto one side of the continuous fluid permeable sheet **40** as it passes therearound which side is disposed against pad **32** to adhesively secure the front sheet **40** in superimposed relation to the moisture absorbent pad **32**.

A supply roll **115** preferably containing a moisture impervious backing sheet **31** having a width in excess of the width of pad **32** and front cover sheet **40** is disposed adjacent a continuous conveyor **120** which draws the continuous backing sheet **31** from supply roll **115** and feeds it along a predetermined longitudinal path of travel. The superimposed moisture absorbent pad **32** and front cover sheet **40** are received on conveyor **120** in superimposed relation to a central portion of the backing sheet **31** so that longitudinal side portions **31a** of the backing sheet **31** extend outwardly beyond longitudinal edges of pad **32** and front cover sheet **40**. In addition to positioning the backing sheet **31** in superimposed relation with the pad **32** and front cover sheet **40**, conveyor **120** feeds the superimposed front cover sheet **40**, moisture absorbent pad **32** and backing sheet **31** along a predetermined longitudinal path of travel as illustrated in FIGS. 6 and 7.

Means, generally indicated at **130**, are disposed adjacent opposite longitudinal side edges of the traveling superimposed front cover sheet **40**, pad **32** and backing sheet **31** for applying adhesive to opposite marginal longitudinal side portions in the front cover sheet **40**. As illustrated in FIGS. 7 and 13, a strand **131** preferably of thermoplastic adhesive is drawn from an adhesive supply means such as supply roll **132** by a pair of cooperating nip feed rolls **133** into a housing **134** where the thermoplastic adhesive is heated and applied to an applicator roll **135** which applicator roll **135**, as illustrated in FIG. 7, applies the adhesive along opposite marginal longitudinal side portions of the front cover sheet **40**.

Adjacent each of the adhesive applying means **130** are a pair of cooperating folding arms **136** and **137** which folding arms **136** and **137** cooperate, as illustrated in FIG. 7, to fold longitudinal side portions **31a** of the backing sheet **31** around longitudinal side edges of the pad **32** and front cover sheet **40** in overlapping relation to the marginal side portions of the front cover sheet **40** with the adhesive applied by adhesive applying means **130** being disposed therebetween for securing the overlapping portions of the front cover sheet **40** and backing sheet **31** together. To insure that the overlapping portions of the front cover sheet **40** and backing sheet **31** are secured by the adhesive, opposite longitudinal side portions of the superimposed front cover sheet **40**, pad **32**, and backing sheet **31** pass beneath respective pressure rolls **138** for compressing the overlapping portions together.

Adjacent conveyor **120** and after the superimposed front cover sheet **40**, pad **32** and backing sheet **31** have been sealed along longitudinal edges thereof, the superimposed front cover sheet **40**, pad **32** and backing sheet **31** pass from conveyor **120** between a pair of cooperating embossing rolls **141** and **142** for transversely sealing the superimposed front cover sheet **40**, pad **32** and backing sheet **31** at predetermined longitudinally spaced intervals to form successively interconnected diapers **30**.

Preferably, as illustrated in FIG. 7, embossing rolls **141** and **142** include cooperating embossing heads **143** and **144**, respectively, and are driven in synchronism with each other as illustrated and at a rate relative to the rate of travel of the superimposed front cover sheet **40**, pad **32** and backing sheet **31** to transversely emboss the same at the desired longitudinally spaced intervals in registry with the positions where transverse segments of the fiberized batt **36** were removed to facilitate the transverse sealing thereof by embossing rolls **141** and **142**. In addition, embossing head **143** includes a perforating blade **143a** which cuts against embossing head **144** for perforating the superimposed front cover sheet **40**, pad **32**, and backing sheet **31** transversely along successive transverse seals.

A continuously driven endless conveyor **150** is disposed adjacent embossing rolls **141** and **142** and cooperates therewith for receiving the successively interconnected diapers **30** therefrom for feeding them along a predetermined longitudinal path of travel. The conveyor **150**, as best illustrated in FIGS. 7 and 19, includes three side-by-side portions **151, 152** and **153** with the central portion **152** thereof advancing the successively interconnected diapers **30** through means generally indicated at **160**, which means operate to fold opposite longitudinal side portions of the superimposed front cover sheet **40**, pad **32** and backing sheet **31** inwardly over the central portion of the same along first longitudinal extending fold lines and outer sections of the side portions outwardly back over inner sections of the side portions along second longitudinally extending fold lines to form a generally box pleat configuration, as illustrated in FIG. 3 .

More particularly, the folding means **160** comprises a pair of spaced apart cylindrical drums **161** which drums engage opposite longitudinal *side portions of the superimposed front cover sheet 40, pad 32 and backing sheet 31 to fold the longitudinal side portions along first longitudinally extending fold lines to extend substantially perpendicular to the central portion of same, as best illustrated in FIGS. 7 and 16. With reference to FIG. 19, it will be noted that as drums 161 fold the longitudinal side portions, a guide arm 162 presses the central portion of the superimposed front cover sheet 40, pad 32 and backing sheet 31 against the top run of the central portion 152 of conveyor 150 while the side portions are being folded to extend substantially perpendicular to the central portion of same. In addition, a pressure plate 163 is disposed beneath the top run of the central portion 152 of conveyor 150 in supporting relation thereto for supporting the superimposed front cover sheet 40, pad 32 and backing sheet 31 passing thereover to facilitate the folding thereof. As illustrated in FIG. 19, the pressure plate 163 is spring biased by coil springs 164 upwardly against the top run of conveyor 150. A box-like conforming member 165, FIGS. 16 and 19, is disposed between the spaced apart hollow drums 161 and cooperates therewith to in-*

sure that opposite longitudinal side portions of the superimposed front cover sheet 40, pad 32 and backing sheet 31 are folded along first longitudinal extending fold lines to extend substantially perpendicular to the central portion of same.

Immediately thereafter, a pair of spaced apart rotatably driven discs or cams **166** and **167** are disposed for rotation in a plane perpendicular to the thus folded opposite longitudinal side portions of the superimposed front cover **40**, pad **32** and backing **31** and engage the same to inwardly fold, FIGS. 8, 15 and 17, the opposite longitudinal side portions along second longitudinally extending fold lines positioned intermediate the first fold lines and side edges of same with the outer sections of the side portions overlapping inner sections of the side portions. A continuous conveyor **170** is superimposed on a portion of conveyor **150** above discs **166** and **167** and cooperates therewith during the inward folding for receiving the folded, successively interconnected diapers **30** therebetween and for positive feeding thereof along a predetermined longitudinal path of travel.

From conveyors **150** and **170**, the folded, successively interconnected diapers **30** are separated into individual diapers **30** along successive transverse seals and perforations and are transversely folded intermediate adjacent transverse edges to complete the formation of the prefolded diapers **30**.

More particularly, with reference to FIGS. 8 and 19, a pair of cooperating, side-by-side, endless conveyors **172** and **173** are disposed adjacent superimposed conveyors **150** and **170** and extend substantially perpendicular thereto. A pair of spaced apart guide plates **174** and **175**, FIG. 19, are disposed immediately adjacent superimposed conveyors **150** and **170** parallel thereto for receiving the successively interconnected diapers **30** therebetween. Each of the guide plates **174** and **175** includes an opening or passage therethrough which communicates with each other and the space between side-by-side conveyors **172** and **173** for reasons soon to become apparent. A transfer arm **176** is disposed for communication with the openings in guide plates **174** and **175** and is adapted for reciprocating movement therebetween and between side-by-side conveyors **172** and **173** for transferring the successively interconnected diapers **30** received between guide plates **174** and **175** between side-by-side conveyors **172** and **173**.

More particularly, transfer arm **176** is reciprocated by cam means **178**, schematically illustrated in FIGS. 8 and 19, in timed relationship with the feeding of the successively interconnected diapers **30** between guide plates **174** and **175** for successively engaging the interconnected diapers **30** intermediate adjacent transverse seals and transferring this intermediate portion between side-by-side conveyors **172** and **173**. Conveyors **172** and **173** are driven at a substantially faster rate than conveyors **150** and **170** and, accordingly, upon receiving the diapers **30** therebetween, cause the same to be severed along transverse perforations. In addition, the conveyors **172** and **173** complete the transverse folding of same into successive prefolded individual diapers **30**, as illustrated in FIG. 4.

Immediately beneath the conveyors **172** and **173** is means for accumulating the individual prefolded diapers **30** and positioning the same in side-by-side relation for packaging or the like, the means being generaly indicated at **180**.

The accumulating means **180** comprises an elongate accumulating box **181** having an accumulating portion **181a** and a receiving portion **181b** adjacent accumulating portion **181a** and in receiving relation to conveyors **172** and **173**. The receiving portion **181b** includes spaced apart gate members **182** and **183**, which gate members **182** and **183** have inwardly extending portions **182a** and **183a**, respectively, the normal distance between which is less than the width of a diaper **30** being formed with the apparatus. As illustrated in FIG. 20, the gate members **182** and **183** are pivotally connected at the ends thereof remote from the accumulating portion **181a** of accumulating box **181** as at **184** and are spring biased together at the other end so that the gate members **182** and **183** may be pivoted at **184** to move the inwardly extending portions **182a** and **183a** outwardly for the passage of a diaper **30** from the receiving portion **181b** to the accumulating portion **181a** of accumulating box **181**.

A stacking arm **185** is disposed through a slot in the bottom of accumulating box **181** and is mounted for pivoting movement as at **186** for movement longitudinally of accumulating box **181** from the receiving portion **181b** between gate members **182** and **183** into the accumulating portion **181a** and back. The stacking arm **185** is normally positioned, as shown in FIGS. 8 and 19, in the receiving portion **181b** of accumulating box **181** in cooperating relation with conveyors **172** and **173** for receiving individual prefolded diapers **30** between same and the accumulating portion **181a** of accumulating box **181**, as illustrated in FIG. 19. The stacking arm **185** is connected intermediate its length to a piston and cylinder assembly **187** which is normally maintained in the extended position with the other end thereof being eccentrically connected to a rotating disc **188** which is rotated in timed relationship to the receiving of individual diapers **30** in the receiving portion **181b** of accumulating box **181** for moving stacking arm **185** from the receiving portion **181b** between gate members **182** and **183** into the accumulating portion **181a** of accumulating box **181** to successively transfer the individual diapers **30** into accumulating portion **181a** of accumulating box **181** where they are positioned in side-by-side relation. It will be apparent that inwardly extending portions **182a** and **183a** of gate members **182** and **183** normally maintain the diapers **30** in side-by-side relation in the accumulating portion **181a** of accumulating box **181**.

The apparatus of the present invention further includes means for ejecting an inferior or otherwise unsatisfactory diaper **30** formed thereby. With reference to FIG. 8, an inspection station may be established adjacent the path of travel of the successively interconnected diapers **30** prior to folding thereof by folding means **160**. At this point, an operator may visually observe the quality of the interconnected diapers **30** and should an unsatisfactory diaper **30** be observed, a manual switch **190** may be actuated to indicate that an unsatisfactory diaper has been observed.

Means, generally indicated at **192** in FIG. 8, is provided which is responsive to actuation of switch **190** for causing the unsatisfactory diaper **30** to be ejected. With reference to FIGS. 8 and 21–23, the means **192** comprises a housing **193** having a gear **194** mounted therein and driven in timed relationship with the receipt of individual prefolded diapers **30** in the receiving portion **181b** of accumulating box **181**, as illustrated in FIG. 8. A gear **195** having a diameter substantially greater than that of gear **194** meshes with and is rotated by gear **194** and includes a plurality of circumferentially and equally spaced pins **196** which are slidably mounted for movement therethrough between first and second keyed positions, as shown in FIG. 23.

The pins **196** are spaced so that rotation of gear **195** an amount corresponding to the degrees between adjacent pins **196** is equal to the time interval in receipt of successive prefolded diapers **30** from between cooperating conveyors **172** and **173** into the receiving portion **181b** of accumulating box **181**. The pins **196** are normally keyed in a first position, as indicated in FIG. 23. An actuating arm **198** is pivotally mounted at one end as at **199** adjacent gear **195** and extends adjacent thereto across a segment of gear **195** whereon the other end, FIG. 22, is pivotally connected as at **201** to the free end of the core **202** of a solenoid **203**. Solenoid **203** is operatively connected to switch **190** and is energized by the closing of switch **190** as by an operator upon visually observing an unsatisfactory diaper **30**.

Energization of solenoid **203** causes actuating arm **198** to pivot and override the bias of spring **205** whereupon a boss **204** on actuating arm **198** depresses a pin **196** and slides it through gear **195** from the first position to a second position, as indicated in phantom lines in FIG. 23, whereon one end of the pin **196** emerges from the other side of gear **195** and is keyed in that position.

As the unsatisfactory diaper **30** advances through the remaining apparatus, gear **195** rotates to bring the depressed pin **196** having the one end projecting from gear **195** into engagement with an abutment member **206** which pivots a lever **207** to actuate an air valve **208**. Air is exhausted from piston and cylinder assembly **187** and supplied to another piston and cylinder assembly **209**, FIGS. 8 and 19, which causes stacking arm **185** to move from the receiving portion **181b** of accumulating box **181** between gate members **182** and **183** into the accumulating portion **181a** out of the normal timed operation thereof, as previously described, so that the unsatisfactory diaper **30** is received in the receiving portion **181b** of accumulating box **181** behind stacking arm **185**. The unsatisfactory diaper **30** is rejected through the rear end of accumulating box **181** by stacking arm **185** when pin **196** passes abutment member **206** and allows lever **207** to return to its normal position whereupon air valve **208** is actuated to supply air to piston and cylinder assembly **187** and exhaust same from piston and cylinder assembly **209** and thus restore normal operation to the stacking arm **185**. The depressed pin **196** is returned to its normally keyed first position upon engagement of the end projecting through gear **195** with a restoring plate **210**.

The drive means for the various components of the apparatus such as the conveyor belts, rolls, drums, discs, transfer arm, stacking arm and the like have not been described in detail, but are schematically illustrated in FIGS. 5 through 8. It suffices to say that all of the drive means are suitably connected to main drive motor **220**, FIG. 7, with the respective drive means and their timing being accomplished by suitable drive connections schematically illustrated in the various figures.

In the drawings and specification, there has been set forth a preferred embodiment of the invention and, although specific terms are employed, they are used in a generic and descriptive sense only and not for purposes of limitation.

What is claimed is:

[1. An apparatus for successively forming disposable diapers wherein the diaper includes a fluid permeable front cover sheet, a moisture absorbent pad superimposed on the front cover sheet and a backing sheet superimposed on the other side of the pad and secured to the front cover sheet along longitudinal and transverse edges thereof, said apparatus comprising

means for supplying an elongate moisture absorbent pad comprising a batt of fibrous material and for feeding it along a substantially predetermined longitudinal path of travel,

suction means for removing transverse segments of the batt of fibrous material at predetermined longitudinally spaced intervals,

means cooperating with said pad supplying and feeding means for supplying and positioning an elongate fluid permeable front cover sheet in superimposed relation to one side of the pad,

means cooperating with said pad supplying and feeding means for supplying and positioning a backing sheet in superimposed relation to the other side of the pad,

means cooperating with said pad, front cover sheet and backing sheet supplying, positioning and feed-

means for receiving and feeding the superimposed front cover sheet, pad and backing sheet along a predetermined longitudinal path of travel,

means cooperating with said receiving and feeding means for longitudinally sealing the side portions of the front cover sheet, pad and backing sheet in superimposed relation,

means cooperating with said receiving and feeding means for transversely sealing the front cover sheet, pad and backing sheet in superimposed relation at predetermined longitudinally spaced intervals in registry with the removed transverse segments of the fibrous batt to form successively interconnected diapers, and

means cooperating with said transverse sealing means for severing the successively interconnected diapers along successive transverse seals to form individual diapers.]

[2. An apparatus, as set forth in claim **1**, wherein said pad supplying and feeding means comprises

means for supplying at least one elongate moisture absorbent sheet and feeding it along a substantially predetermined longitudinal path of travel,

means for supplying an elongate web of moisture absorbent fibrous material and feeding it along a substantially predetermined path of travel,

a fiberizing chamber disposed in the path of the fibrous web for receiving and fiberizing the web into generally individual fibers, and

means including suction means communicating with said fiberizing chamber for withdrawing the fiberized fibers therefrom and depositing the fibers in superimposed batt form on a longitudinally extending central portion of the at least one moisture absorbent sheet to form the moisture absorbent pad.]

[3. An apparatus as set forth in claim **2**, wherein said pad supplying and feeding means includes means for supplying an additional elongate moisture absorbent sheet and positioning it in superimposed relation to the other side of the fiber batt.]

4. An apparatus as set forth in claim [3] including

severing means for trimming superimposed longitudinal side portions from the moisture absorbent sheets, and

means for positioning the trimmed side portions in a superimposed, generally centrally located relation to the moisture absorbent sheets and fiber batt.

5. An apparatus, as set forth in claim *20* [1], including means cooperating with said front cover sheet supplying and positioning means for applying adhesive to the side of the front cover sheet that is positioned in superimposed relation to the pad to facilitate the securement of the front cover sheet to the pad.

6. An apparatus, as set forth in claim *20* [1], wherein the backing sheet has a width in excess of the width of the moisture absorbent pad and front cover sheet and wherein said apparatus further includes a folding means cooperating with said receiving and feeding means for folding opposite longitudinal side portions of the backing sheet around longitudinal side edges of the pad and front cover sheet for securing by said longitudinal sealing means.

7. An apparatus, as set forth in claim **6**, wherein said longitudinal sealing means comprises

means for applying adhesive to opposite marginal longitudinal side portions of the front cover sheet prior to folding of opposite longitudinal side portions of the backing sheet in overlapping relation to the marginal side portions of the front cover sheet, and

means for compressing the overlapping side portions of the front cover sheet and backing sheet together to facilitate the securement thereof by the adhesive.

8. An apparatus, as set forth in claim *20* [1], wherein said transverse sealing means comprises embossing means disposed adjacent the predetermined path of travel of the superimposed front cover sheet, pad and backing sheet and being operative in timed relationship with said receiving and feeding means for transversely embossing the superimposed front cover sheet, pad and backing sheet at predetermined longitudinally spaced intervals.

9. An apparatus, as set forth in claim **8** wherein said severing means includes means cooperating with said embossing means for perforating the superimposed front

cover sheet, pad and backing sheet transversely thereof along successive transverse seals.

10. An apparatus, as set forth in claim *20* [**1**], including means for folding opposite longitudinal side portions of the successively interconnected diapers inwardly over the central portion of same along first longitudinally extending fold lines and outer sections of the side portions outwardly back over inner sections of the side portions along second longitudinally extending fold lines to form a generally box pleat configuration.

11. An apparatus, as set forth in claim **10**, wherein said last named folding means comprises

means for folding opposite longitudinal side portions of the successively interconnected diapers along first longitudinally extending fold lines to extend substantially perpendicular to the central portion of same, and

means for inwardly folding the opposite longitudinal side portions along second longitudinally extending fold lines positioned intermediate the first fold lines and side edges of same with the outer sections of the side portions overlapping inner sections of the side portions.

12. An apparatus, as set forth in claim **10**, wherein said severing means comprises

means cooperating with said transverse sealing means for perforating the superimposed front cover sheet, pad and backing sheet transversely thereof along successive transverse seals, and

conveyor means positioned in receiving relation to said feeding means and folding means for receiving the successively interconnected diapers from said feeding means after folding thereof by said last named folding means and feeding same along a predetermined path of travel, said conveyor means advancing the same at a faster rate than said feeding means so as to separate the successively interconnected diapers along successive transverse perforations to form individual diapers.

13. An apparatus, as set forth in claim **12**, wherein said conveyor means comprises a pair of superimposed cooperating continuous conveyors, said conveyors being disposed adjacent said feeding means for receiving the successively interconnected diapers therebetween, and including means cooperating with said feeding means and cooperating conveyors for transversely folding the same intermediate adjacent transverse seals and for transferring same to said cooperating conveyors.

14. An apparatus, as set forth in claim **13**, including accumulating means disposed adjacent said cooperating conveyors for successively receiving the individual folded diapers therefrom and for positioning same in side-by-side relation.

15. An apparatus, as set forth in claim **14**, wherein said accumulating means comprises

an accumulating box having an accumulating portion and a receiving portion, said receiving portion being disposed adjacent said cooperating conveyors for successively receiving the individual folded diapers therefrom, and

means for successively transferring the individual folded diapers from said receiving portion to said accumulating portion of said accumulating box and positioning same in said accumulating portion in side-by-side relation.

16. An apparatus, as set forth in claim **14**, including means operatively associated with said accumulating means for selectively ejecting a folded diaper from said accumulating means.

17. An apparatus for successively forming disposable diapers wherein the diaper includes a fluid permeable front cover sheet, a moisture absorbent pad superimposed on the front cover sheet, and a backing sheet superimposed on the other side of the pad and secured to the front cover sheet along longitudinal and transverse edges thereof, said apparatus comprising

means for supplying an elongate moisture absorbent pad and for feeding it along a substantially predetermined longitudinal path of travel, said means comprising

means for supplying at least one elongate moisture absorbent sheet and feeding it along a substantially predetermined longitudinal path of travel,

means for supplying an elongate web of moisture absorbent fibrous material and feeding it along a substantially predetermined path of travel,

a fiberizing chamber disposed in the path of the fibrous web for receiving and fiberizing the web into generally individual fibers,

means including suction means communicating with said fiberizing chamber for withdrawing the fiberized fibers therefrom and depositing the fibers in superimposed batt form on a longitudinally extending central portion of the at least one moisture absorbent sheet,

additional suction means disposed adjacent the path of the at least one moisture absorbent sheet and superimposed fiber batt for removing transverse segments of the fiber batt at predetermined longitudinally spaced intervals,

means for supplying an additional elongate moisture absorbent sheet and positioning it in superimposed relation to the other side of the fiber batt to form the moisture absorbent pad,

means cooperating with said pad supplying and feeding means for supplying and positioning an elongate fluid permeable front cover sheet in superimposed relation to one side of the pad,

means cooperating with said pad supplying and feeding means for supplying and positioning an elongate backing sheet in superimposed relation to the other side of the pad,

means cooperating with said pad, front cover sheet and backing sheet supplying, positioning and feeding means for receiving and feeding the superimposed front cover sheet, pad and backing sheet along a predetermined longitudinal path of travel,

means cooperating with said receiving and feeding means for longitudinally sealing the side portions of the front cover sheet, pad and backing sheet in superimposed relation,

means cooperating with said receiving and feeding means and additional suction means for transversely sealing the front cover sheet, pad and backing sheet in superimposed relation at predetermined longitudinal spaced intervals in registry with the removed transverse segments of the fiber batt to form successively interconnected diapers, and

means cooperating with said transverse sealing means for severing the successively interconnected diapers along successive transverse seals to form individual diapers.

18. An apparatus, as set forth in claim **17**, wherein the backing sheet has a width in excess of the width of the pad and front cover sheet and wherein said apparatus further includes a folding means cooperating with said receiving and feeding means for folding opposite longitudinal side portions of the backing sheet around longitudinal edges of the pad and front cover sheet; and wherein said longitudinal sealing means comprises means for applying adhesive to opposite longitudinal side portions of the front cover sheet prior to folding of opposite side portions of the backing sheet in overlapping relation to the marginal side portions of the front cover sheet, and means for compressing the overlapping side portions of the front cover sheet and backing sheet together to facilitate the securement thereof by the adhesive; and wherein said transverse sealing means comprises embossing means disposed adjacent the predetermined path of travel of the superimposed front cover sheet, pad and backing sheet and being operative in timed relationship with said receiving

and feeding means for transversely embossing the superimposed front cover sheet, pad and backing sheet at predetermined longitudinally spaced intervals.

19. An apparatus for successively forming disposable diapers wherein the diaper includes a fluid permeable front cover sheet, a moisture absorbent pad superimposed on the front cover sheet and a backing sheet superimposed on the other side of the pad and secured to the front cover sheet along longitudinal and transverse edges thereof, said apparatus comprising

means for supplying an elongate moisture absorbent pad and for feeding it along a substantially predetermined longitudinal path of travel,

means cooperating with said pad supplying and feeding means for supplying and positioning an elongate fluid permeable front cover sheet in superimposed relation to one side of the pad,

means cooperating with said pad supplying and feeding means for supplying and positioning an elongate backing sheet in superimposed relation to the other side of the pad,

means cooperating with said pad, front cover sheet and backing sheet supplying, positioning and feeding means for receiving and feeding the superimposed front cover sheet, pad and backing sheet along a predetermined longitudinal path of travel,

means cooperating with said receiving and feeding means for longitudinally sealing the side portions of the front cover sheet, pad and backing sheet in superimposed relation,

means cooperating with said receiving and feeding means for transversely sealing the front cover sheet, pad and backing sheet in superimposed relation at predetermined longitudinally spaced intervals to form successively interconnected diapers,

means cooperating with said transverse sealing means for perforating the superimposed front cover sheet, pad and backing sheet transversely thereof along successive transverse seals,

means cooperating with said receiving means and feeding means and transverse sealing means for folding opposite longitudinal side portions of the successively interconnected diapers inwardly over the central portion of same a long first longitudinally extending fold lines and outer sections of the side portions outwardly back over inner sections of side portions along second longitudinally extending fold lines,

a pair of superimposed cooperating continuous conveyors disposed adjacent said feeding means and folding means for receiving the successively interconnected diapers therebetween and feeding same along a predetermined path of travel, said conveyor means advancing the same at a faster rate than said feeding means so as to separate the successively interconnected diapers along successive transverse seals,

means cooperating with said receiving and feeding means and cooperating conveyors for transversely folding the successively interconnected diapers intermediate adjacent transverse seals and for transferring same to said cooperating conveyors, and

accumulating means disposed adjacent said cooperating conveyors for successively receiving the individual folded diapers therefrom and for positioning same in side-by-side relation.

20. An apparatus for successively forming disposable diapers wherein the diaper includes a fluid permeable front cover sheet, a moisture absorbent pad super-imposed on the front cover sheet and a backing sheet super-imposed on the other side of the pad and secured to the front cover sheet along longitudinal and transverse edges thereon, said apparatus comprising:

means for supplying an elongate moisture absorbent pad comprising a batt of fibrous materials and for feeding it along a substantially predetermined longitudinal path of travel, said pad supplying and feeding means comprising means for supplying at least one elongate moisture absorbent sheet and feeding it along a substantially predetermined longitudinal path of travel, means for supplying an elongate web of moisture absorbent fibrous material and feeding it along a substantially predetermined path of travel, a fiberizing chamber disposed in the path of the fibrous web for receiving and fiberizing the web into generally individual fibers, and means including suction means communicating with said fiberizing chamber for withdrawing the fiberized fibers therefrom and depositing the fibers in super-imposed batt form on a longitudinally extending central portion of the at least one moisture absorbent sheet to form the moisture absorbent pad;

means cooperating with said pad supplying and feeding means for supplying and positioning an elongate fluid permeable front cover sheet in super-imposed relation to one side of the pad;

means cooperating with said pad supplying and feeding means for supplying and positioning a backing sheet in super-imposed relation to the other said of the pad;

means cooperating with said pad, front cover sheet and backing sheet supplying, positioning and feeding means for receiving and feeding the super-imposed front cover sheet, pad and backing sheet along a predetermined longitudinal path of travel;

means cooperating with said receiving and feeding means for longitudinally sealing the side portions of the front cover sheet, pad and backing sheet in super-imposed relation;

means cooperating with said receiving and feeding means for transversely sealing the front cover sheet, pad and backing sheet in super-imposed relation at predetermined longitudinally spaced intervals to form successively interconnected diapers; and

means cooperating with said transverse sealing means for severing the successively interconnected diapers along successive transverse seals to form individual diapers.

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19—144; 128—283; 156—552

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. Re. 28,139 Dated August 27, 1974

Inventor(s) Graves T. Gore

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 1, Line 59, "receiving" should be --received--;

Column 2, Line 19, "supplynig" should be --supplying--;

Column 4, Line 32, "transversea" should be --transverse--;

Column 4, Line 73, "aliging" should be --aligning--;

Column 6, Line 15, after "Thus," insert --upon--;

Column 6, Line 54, "circumstance" should be --circumference--;

Column 6, Line 72, "facilitates" should be --facilitate--;

Column 9, Line 9, after "cover" insert --sheet--

Column 12, Line 8, "coperating" should be --cooperating--;

Column 12, Line 34, after "claim" insert --20--;

Column 16, Line 26, "said" should be --side--.

Signed and sealed this 26th day of November 1974.

(SEAL)
Attest:

McCOY M. GIBSON JR.
Attesting Officer

C. MARSHALL DANN
Commissioner of Patents