

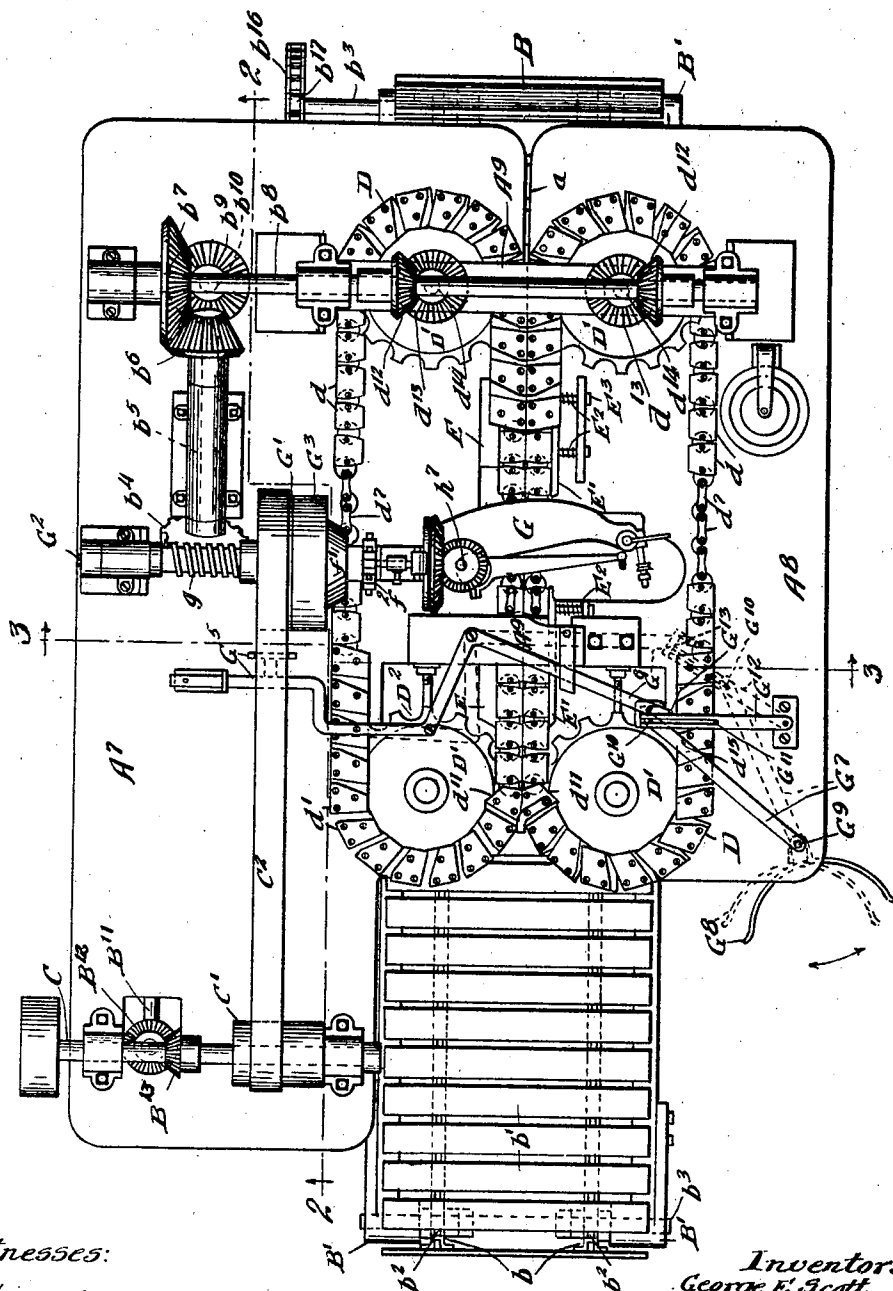
1,018,133.

G. E. & E. D. SCOTT.
FILLED SACK SEWING MACHINE.
APPLICATION FILED AUG. 1, 1910.

Patented Feb. 20, 1912.

6 SHEETS—SHEET 1.

Fig. 1



Witnesses:

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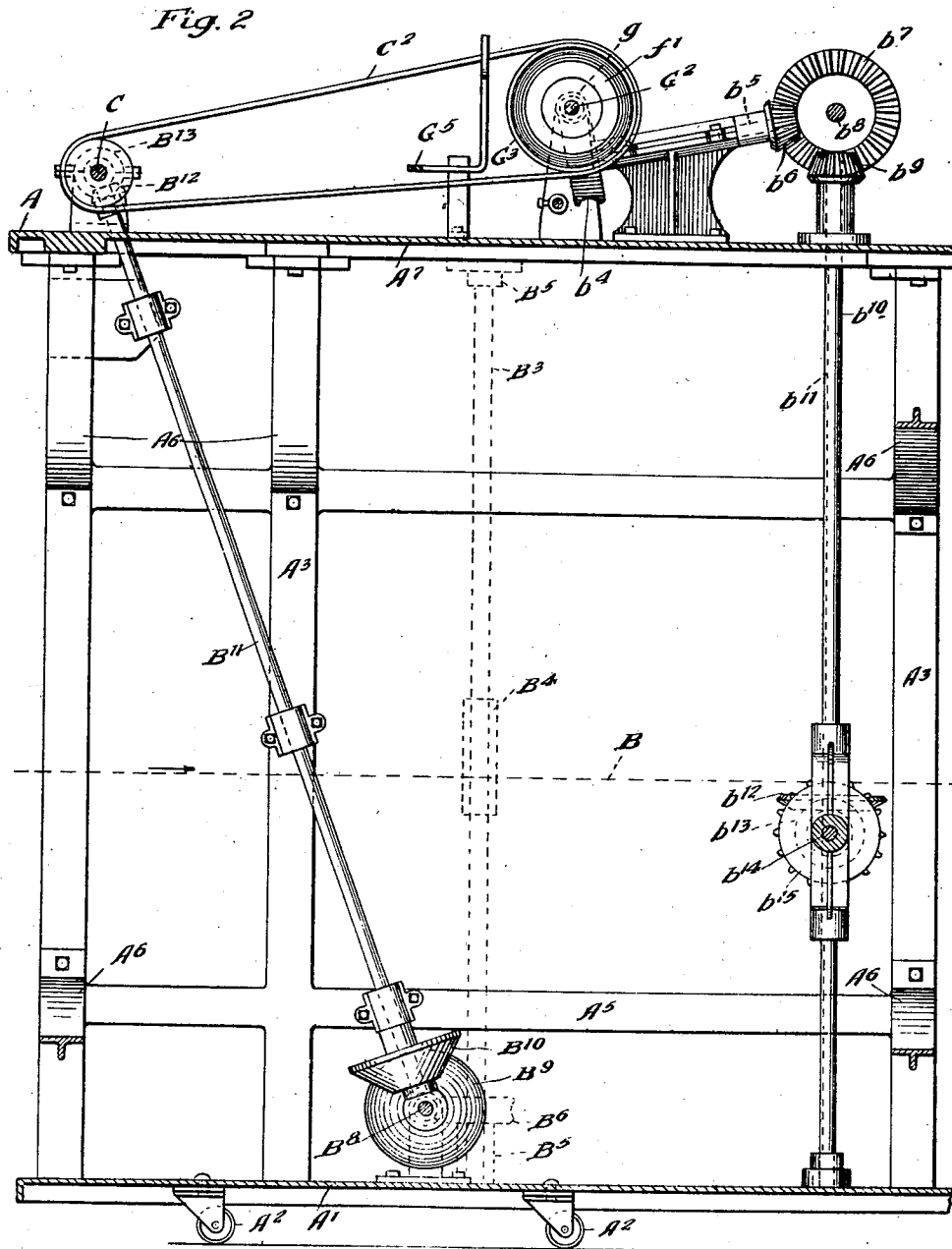
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6 SHEETS—SHEET 2.



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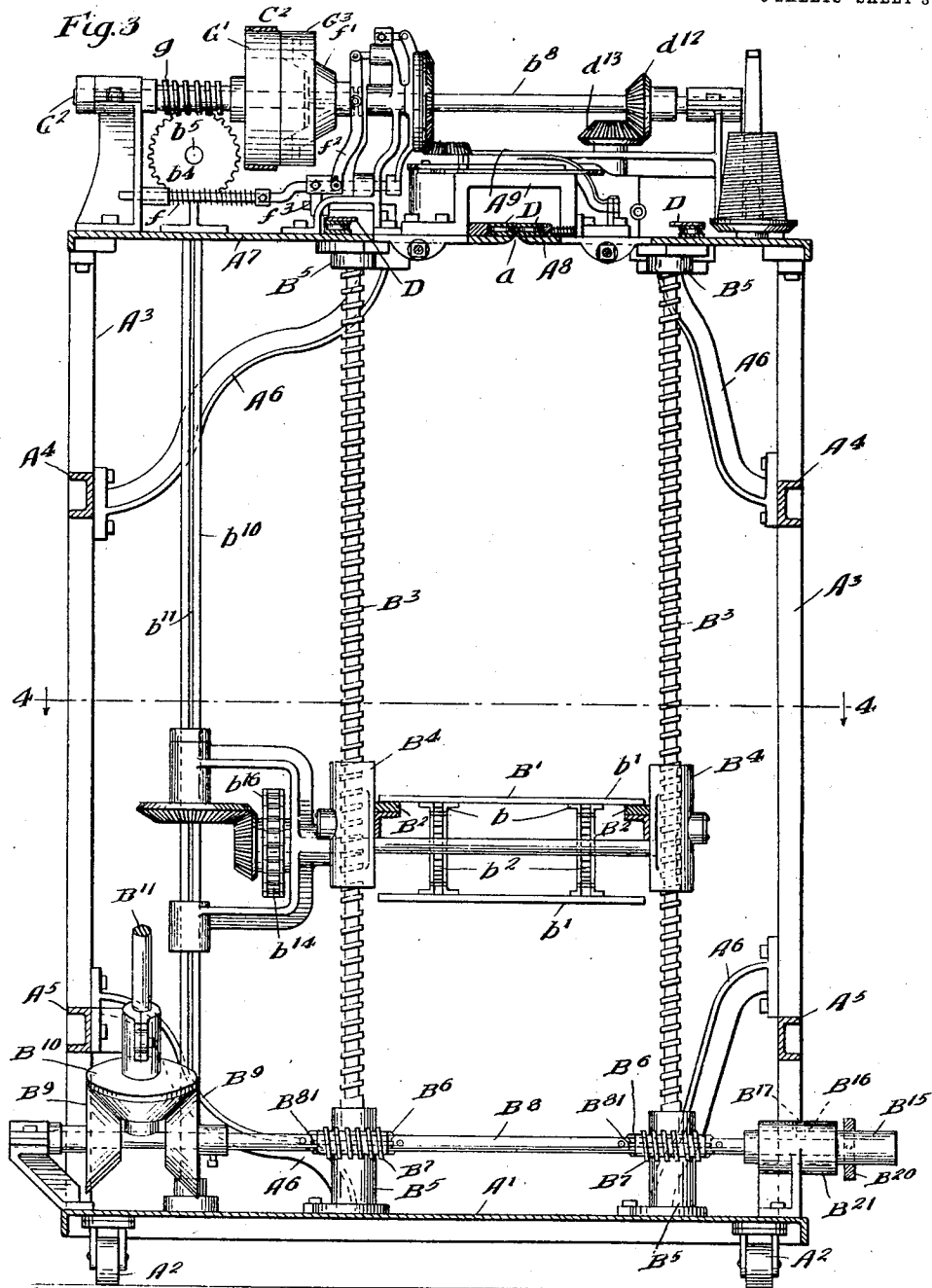
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6 SHEETS—SHEET 3.



Witnesses

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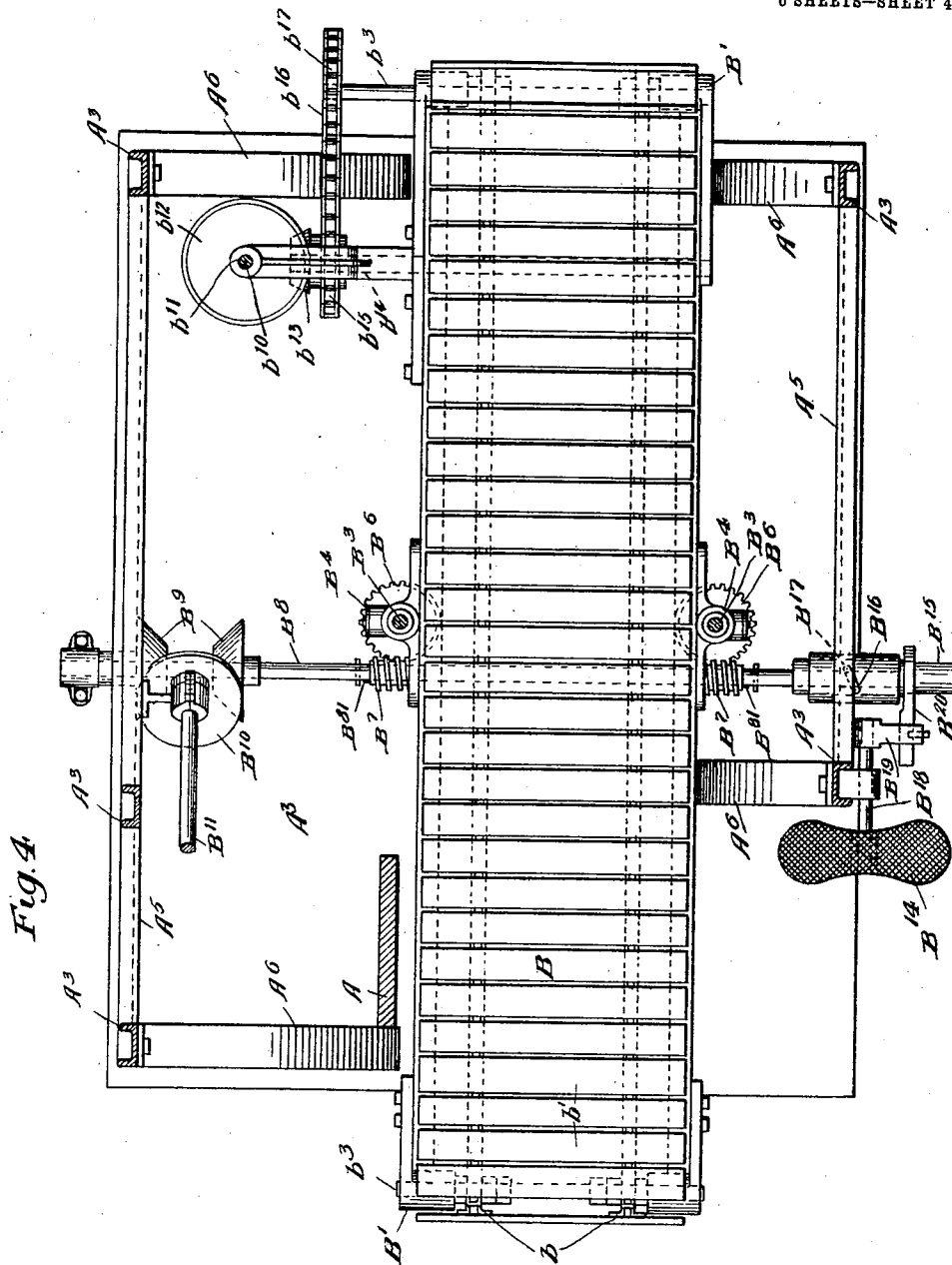
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6 SHEETS--SHEET 6.



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UNITED STATES PATENT OFFICE.

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FILLED-SACK-SEWING MACHINE.

1,018,133.

Specification of Letters Patent.

Patented Feb. 20, 1912.

Application filed August 1, 1910. Serial No. 574,935.

To all whom it may concern:

Be it known that we, GEORGE E. SCOTT and EDWARD D. SCOTT, citizens of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Filled-Sack-Sewing Machines, of which the following is a specification.

Our invention relates to improvements in filled sack sewing machines.

The object of our invention is to provide an automatic machine of a simple, efficient and durable construction, by means of which filled sacks of various sizes may be rapidly and cheaply sewed.

The automatic machine containing the preferred embodiment of our invention comprises a sewing mechanism adapted to sew the mouth of a filled sack as it is conveyed past the same, and operating mechanism therefor, a vertically adjustable endless flexible sack conveyer for conveying the sacks past the sewing mechanism, power driven mechanisms for automatically adjusting the sack conveyer up and down to accommodate sacks of different lengths or sizes, power driven mechanism for automatically operating the sack conveyer in different positions to which it may be adjusted by said adjusting mechanism, a pair of endless flexible sack holder chains furnished with removable clamps or holders for clamping together the mouth edges of sacks of different widths or sizes, means for automatically stopping and starting said sack holder chains, guides for supporting and holding the parallel portions of said chains in sack clamping relation to each other, a yielding backing or support for one of said guides, a stop gage for the front edge of the sack mouth on one of said sack holder chains to insure the sack mouth being inserted in proper relation to each set of sack holders or clamps on the chains, means for automatically stopping and starting the sack holder chains at the sack receiving position, means for automatically starting and stopping the sewing mechanism as each set of sack holder clamps on the sack holder chains presents a sack into sewing position with the needle of the sewing mechanism and delivers it therefrom, a thread chain or feeder and holder and a thread chain cutter and means for au-

tomatically operating the said feeder and cutter.

Our invention consists in the various novel combination and subcombinations of these parts, and in the novel construction of parts and devices and novel combinations of parts and devices herein shown and described, and more particularly specified in the claims.

In the accompanying drawing forming a part of this specification, Figure 1 is a plan view of a filled sack sewing machine embodying our invention. Fig. 2 is a longitudinal vertical section on the broken line 2—2 of Fig. 1. Fig. 3 is a vertical cross section on line 3—3 of Fig. 1. Fig. 4 is a horizontal section on line 4—4 of Fig. 3. Fig. 5 is a detail plan view partly in horizontal section of the sack holder mechanism. Fig. 6 is a detail plan view of a short portion of one of the sack holder chains. Fig. 7 is a detail elevation of a short portion of one of the sack holder chains. Fig. 8 is a detail plan view of the sewing mechanism partly in horizontal section. Fig. 9 is a detail plan of the thread feeder of the sewing mechanism. Fig. 10 is a detail vertical section on line 10—10 of Fig. 8 showing the needle and other parts. Fig. 11 is a detail vertical cross section on line 11—11 of Fig. 8. Fig. 12 is a detail view of the controlling device and other parts.

In the accompanying drawing forming a part of this specification, A represents the frame of the machine, it being of any desired construction suitable for giving support to and accommodating the various parts of the machine. It preferably has a bed member A^1 resting upon caster wheels A^2 to enable the machine to be readily moved from one part of the factory to another, suitable uprights A^3 , cross frame members A^4 , A^5 , braces A^6 , and a divided top plate A^7 A^8 with a slot or passage a between the two members A^7 A^8 of this top plate to accommodate the mouths of the sacks to be sewed, and raised connecting bridges A^9 to secure the two members of the divided top plate rigidly and firmly together.

B is a vertically adjustable endless flexible sack conveyer, the same preferably comprising a pair of chains b , the links of which are furnished with connecting slats b^1 upon

which the sacks directly rest. The sack conveyor chains b are mounted on pulleys or sprocket wheels b^2 , the shafts b^3 of which are journaled on the conveyer frame B^1 5 which is provided with supporting rails B^2 for the ends of the conveyer slats to rest upon. The sack conveyer or its frame B^1 is automatically adjusted up and down as required to accommodate sacks of different 10 lengths of sizes from the main driving shaft C through suitable connecting mechanism, the same preferably comprising two upright lifting screws B^3 , the threads of which turn in suitable nuts or threaded sleeves B^4 on 15 the conveyer frame B^1 , one on each side of the conveyer frame near the middle thereof, and which lifting screws B^3 are journaled at their upper and lower ends in suitable bearings B^5 on the frame of the machine, and 20 which lifting screws are provided at their lower ends with worm gears B^6 which mesh with worms B^7 on the cross shaft B^8 , which is furnished with bevel friction gears B^9 adapted to engage a bevel friction gear B^{10} 25 on a shaft B^{11} , having at its upper end a bevel gear B^{12} meshing with a bevel gear B^{13} on the driving shaft C. The worm shaft B^8 is adapted by a spline B^{31} to slide in the worm B^7 to the very slight extent necessary 30 to enable either one of the friction gears B^9 to be thrown into and out of engagement with the friction gear B^{10} , and thus clutch and unclutch the worm shaft B^8 from the shaft B^{11} which connects it with the driving 35 shaft C. The worm shaft B^8 is thus reciprocated when required to automatically connect the sack conveyer lifting or adjusting screws with the power shaft by means of a foot lever or treadle B^{14} , the shaft B^{18} of 40 which has an arm B^{19} connecting with an arm B^{20} on the sleeve B^{15} , said sleeve and fixed bearing B^{21} of the shaft B^8 being furnished with interengaging devices B^{16} B^{17} preferably consisting of a cam slot in one member engaging a pin on the other. 45 The operator by simply pressing his foot on the foot treadle can very quickly connect the lifting screws with the power shaft C either for raising or lowering the sack conveyer, one of the clutch acting friction gears 50 B^9 serving to turn the worm shaft B^8 and lifting screws B^3 in the direction necessary for raising the sack conveyer, and the other friction clutch acting gear B^9 in the direction necessary for lowering the sack conveyer, according as the treadle B^{14} is rocked 55 to one side or the other.

The endless flexible sack conveyer B is automatically driven or operated from the 60 driving shaft C through suitable connecting mechanism, preferably comprising a pulley C^1 on the driving shaft, belt C^2 , a pulley G^1 on the sewing mechanism shaft G^2 , a worm g on said shaft engaging a worm 65 gear b^4 on the countershaft b^5 , which is

furnished with a bevel gear b^6 engaging a bevel gear b^7 on the cross shaft b^8 , and which meshes with a bevel gear b^9 on the upright shaft b^{10} , which is furnished with a spline 70 b^{11} and sliding bevel gear b^{12} , which meshes with a bevel gear b^{13} on shaft b^{14} which carries a sprocket wheel b^{15} connected by chain b^{16} with a sprocket gear b^{17} on the shaft b^3 of the sack conveyer chains b .

The endless flexible sack holder chains 75 D D are mounted on horizontal pulleys or sprocket wheels D^1 D^1 D^1 and travel upon the top plate A^7 A^8 , one on each side of the longitudinal slot or passage a so as to clamp between them the mouth of the 80 sack and hold it in position for sewing as the same is conveyed past the sewing mechanism or needle.

The adjacent parallel portions of the sack holder chains D are yieldingly held and 85 guided in sack holding or clamping relation to each other by means of guides E E^1 between which such adjacent parallel members of the chains D D pass, and one of 90 these guides E^1 has a spring or elastic backing or support, preferably consisting of coiled springs E^2 , surrounding screws E^3 so as to cause the sack holder chains to exert a proper but yielding clamping pressure 95 upon the mouth of the sack held between them.

Each of the sack holder chains D D is composed of a plurality of links d , and these 100 links are provided with removable and sectional sack clamping plates or devices d^1 , one preferably on each link, and removably secured thereto by screws, d^3 so that a 105 greater or less number of these sack holding clamp members or plates may be employed in each set according to the size or width of the sacks to be from time to time sewed 110 in the machine. Each sack holding link d is preferably double, or composed of an upper and lower plate, which receive between them a connecting link d^4 , preferably of circular disk form and to which adjacent sack holding links are pivotally connected 115 by pins.

As illustrated in the drawing, the sack holder chains are shown as being provided 115 each with two sack holders, each sack holder having a series of twelve sack holding clamp members or plates d^1 , the series of twelve plates representing the width of the sack 120 mouth intended to be sewed. If the sack mouth is narrower, a less number of clamp members or plates d^1 are employed in each sack holding set or series of plates, and if 125 the sack to be sewed has a wider mouth, a greater number of sack holding clamp members d^1 are employed for each set or series. The sack holder plates d^1 have corrugated, knurled or roughened opposing gripping 130 faces d^5 to cause them to have a greater gripping action on the fabric of the sack mouth,

and the sack holder links d are also preferably furnished with similarly knurled or roughened faces d^6 so that they may also exert a holding or gripping action upon the sack mouth. Each sack holder chain is also preferably furnished with one or more oblong or plain links d^7 between adjacent sack holding sets or series of links d which carry the sack holding plates d^1 . The pulleys or sprocket wheels D^1 for the sack holder chains D are furnished with curved notches D^2 for engagement with the circular or disk-like links d^4 of the sack holder chain.

Each of the sack holder plates or clamp members d^1 of the chain D is preferably furnished with a notched portion d^8 adapted to receive a similarly but reversely notched portion d^9 of the plate of an adjacent link so that the adjacent plates d^1 d^1 may overlap each other and thus prevent the sack holder links from tilting one in respect to the other and thereby interfering with the proper gripping or holding action on the sack mouth.

Each set or series of sack holder links d and clamp members or plates d^1 on one of the sack holder chains D is provided at or near the front end of the series with a gage or stop arm d^{10} for the front edge of the sack to abut against, and thus insure the sack mouth being inserted in a fixed and proper relation to each sack holder set or series of links on the chains D D , and thus enable the sewing mechanism which is started or set in operation by each sack holder series of links as the same begins to pass the sewing mechanism and thus enable the sewing to begin properly at the front edge of each sack mouth in the passing sack holder or series of sack holding links.

The front sack holding plates d^1 of each sack holding set or series of links constituting a sack holder are furnished with inclined or cam-like faces d^{11} which engage the movable starting device F mounted adjacent to the sack holder chains, and by which the sewing mechanism G is set in operation at the proper instant. The movable sewing mechanism starting or controlling device F is preferably furnished with a spring f which returns it to normal position and stops the sewing mechanism after each sack holding series of links or plates d^1 pass, the sewing mechanism thus being kept in operation a greater or less time according to the number of plates d^1 in each sack holder series of plates and according to the width of the sack to be sewed.

The sewing mechanism controlling device F preferably stops or starts and controls the operation of the sewing mechanism through a movable clutch f^1 with which it is connected by a suitable clutch lever f^2 and link f^3 .

The sewing mechanism may be of any

suitable or desired construction adapted for use in sewing the mouths of filled sacks. It preferably comprises a frame or arm to which the reference letter G is particularly applied, and attached to the top plate of the frame at one side of the slot a , and overhanging said slot and the adjacent parallel portions of the sack holder chains D D , and a needle g^1 , looper g^2 , presser foot g^3 , driving pulley G^3 , shaft G^2 , and suitable gearing or connecting mechanism for communicating motion to the needle and looper from the shaft G^2 of the sewing mechanism. The sewing mechanism shaft G^2 receives its motion from the driving shaft C as before stated, through the belt C^2 which may be shifted by hand when desired from the driving pulley G^3 to a loose pulley G^1 on the shaft G^2 by a belt shifter G^5 having an operating lever G^6 which the operator may actuate with his leg through a lever G^7 and yoke G^8 . The leg yoke G^8 is fixed upon the upright rock shaft or pivot G^9 of the lever G^7 , and said lever carries at its inner end a pin G^{10} which works in a slot G^{11} of a guide lever G^{12} which engages the downwardly bent arm G^{13} of the bent lever G^6 , and which bent arm G^{13} of said lever G^6 projects in the path of the pin or projection d^{15} on the clamp plate d^1 of the chain D when said bent lever G^6 stands in the position indicated in dotted lines on Fig. 1, or as more fully shown in Fig. 7.

The operation of the sewing mechanism is controlled or automatically stopped and started as each sack holder set or series of sack holding links on the chains D D approach and leave or pass the sack sewing mechanism by the sewing mechanism controlling or stopping and starting device F before described.

The endless flexible sack holder chains D are automatically operated from the power shaft C through suitable operating or connecting mechanism, the same comprising preferably the means before described for communicating motion to the cross shaft b^8 and bevel gears d^{12} on said cross shaft meshing with bevel gears d^{13} on the upright shafts d^{14} of one pair of the sprocket wheels D^1 of the sack holding chain D .

The opposing endless flexible sack holding chains D are automatically stopped and started at the sack receiving position or just before the opposing pairs of front sack holding links and clamp plates d d^1 , one of which bears the gage d^{10} for the front edge of the sack to abut against, approach each other by any suitable connecting and disconnecting acting device in the mechanism which communicates motion from the power shaft to the sack holding chains D D ; the same preferably or most often consisting in the belt shifter G^5 and loose and fast pulleys G^1 G^3 , one of the sack holding

chains D being furnished with a pin or projection d^{15} which engages the belt shifter lever G^6 and operates the same to shift the belt from the fast pulley G^3 to the loose pulley G^1 , thus stopping the machine. It is again started by the operator through the belt shifter lever, the same being preferably operated by him with his leg through the leg yoke attachment G^8 on the belt shifter lever. The belt shifter lever is thus preferably operated by the leg as this leaves the operator's two hands free for holding and entering the sack mouth between the sack holding chains D D. If the operator has a sack ready for entering its mouth between the sack holding chains D D, it will be found often unnecessary to stop the sack holding chains D D for entering the sack between them, and in such case he leaves the belt shifter lever G^6 in such position that its depending arm G^{13} is out of the path of the projection d^{15} on the chain D or else, if that is necessary, moves the belt shifter lever with his leg clamp attachment so that the projection d^{15} on the chain D will not strike or operate the belt shifter lever to stop the machine.

H is the thread or chain feed or take up and holding device, the same preferably consisting of a pulley operating in conjunction with a spring supporting clamp H^1 having springs h to give a yielding pressure of the clamp H^1 against the feed or take up roller H. The feed or take up roller H has a shaft h^1 furnished with a ratchet h^2 which is operated by pawls h^3 having a spring h^4 and carried on a lever h^5 and connected by a link h^6 with an eccentric h^8 on one of the shafts h^7 of the sewing mechanism.

K K¹ is the thread or chain cutter, the same preferably consisting of a pair of knives, one or both of which is moved or reciprocated in respect to the other to sever the thread or chain of stitching after each sack is sewed and after the sewing of the next succeeding sack begins by means of springs K^2 operating against the movable knife slides K^3 which carry pins F^2 having rollers F^3 which engage sack holding links or clamp plates of one of the sack holding chains D, and thus retracting the knife slide during the sewing operation and permitting the spring to actuate the knife slide after the sewing operation is completed as before stated.

We claim:—

1. In a filled sack sewing machine, the combination with a sewing mechanism, of a horizontally movable endless flexible sack conveyer adjustable vertically and always remaining in a horizontal plane, means for raising and lowering the sack conveyer, means for propelling the sack conveyer, a driving shaft, and means for connecting

and disconnecting the driving shaft with said conveyer raising and lowering mechanism, said sack conveyer propelling means being operated from the driving shaft, substantially as specified.

2. In a filled sack sewing machine, the combination with a sewing mechanism, of an endless flexible sack conveyer, mechanism for propelling said conveyer, and reversible mechanism for automatically and positively raising and lowering the conveyer to any one of an unlimited number of positions, substantially as specified.

3. In a filled sack sewing machine, the combination with a sewing mechanism, of an endless flexible sack conveyer, mechanism for propelling said conveyer, reversible mechanism for automatically and positively raising and lowering the conveyer, a power shaft and means for connecting and disconnecting said power shaft with the raising and lowering mechanism of said sack conveyer said means comprising a friction drive, substantially as specified.

4. In a filled sack sewing machine, the combination with a sack sewing mechanism, of a sack conveyer, a power shaft, connecting mechanism for propelling the sack conveyer from the power shaft and connecting reversible mechanism for positively raising and lowering the conveyer from the power shaft said raising and lowering mechanism comprising rotatable screws, substantially as specified.

5. In a filled sack sewing machine, the combination with a sack sewing mechanism, of a sack conveyer, a power shaft, connecting mechanism for propelling the sack conveyer from the power shaft and connecting mechanism for raising and lowering the entire conveyer from the power shaft provided with a connecting clutch for throwing said raising and lowering mechanism in and out of operation and a conveyer supporting frame supported centrally of the conveyer, substantially as specified.

6. In a filled sack sewing machine, the combination with a sewing mechanism, of an endless flexible sack conveyer, a lifting screw for raising and lowering said conveyer, a power shaft and connecting gearing between the power shaft and lifting screw for operating the lifting screw from the power shaft, substantially as specified.

7. In a filled sack sewing machine, the combination with a sewing mechanism, of an endless flexible sack conveyer, a lifting screw for raising and lowering said conveyer, a power shaft and connecting gearing between the power shaft and lifting screw for operating the lifting screw from the power shaft, said connecting gearing between the power shaft and lifting screw having means for turning the lifting screw in either direction as required to raise or

lower the conveyer, substantially as specified.

8. In a filled sack sewing machine, the combination with a sewing mechanism, of an
5 endless flexible sack conveyer, a lifting screw for raising and lowering said conveyer, a power shaft and connecting gearing between the power shaft and lifting screw for operating the lifting screw from
10 the power shaft, said connecting gearing comprising a friction gear and two mov-

able friction gears, one or the other of which is adapted to be moved into engagement with said first mentioned friction gear according as it is desired to raise or lower 15 the conveyer, substantially as specified.

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