July 24, 1934. F. EBERT 1,967,527

SACK SEWING MACHINE

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Fig. 1.

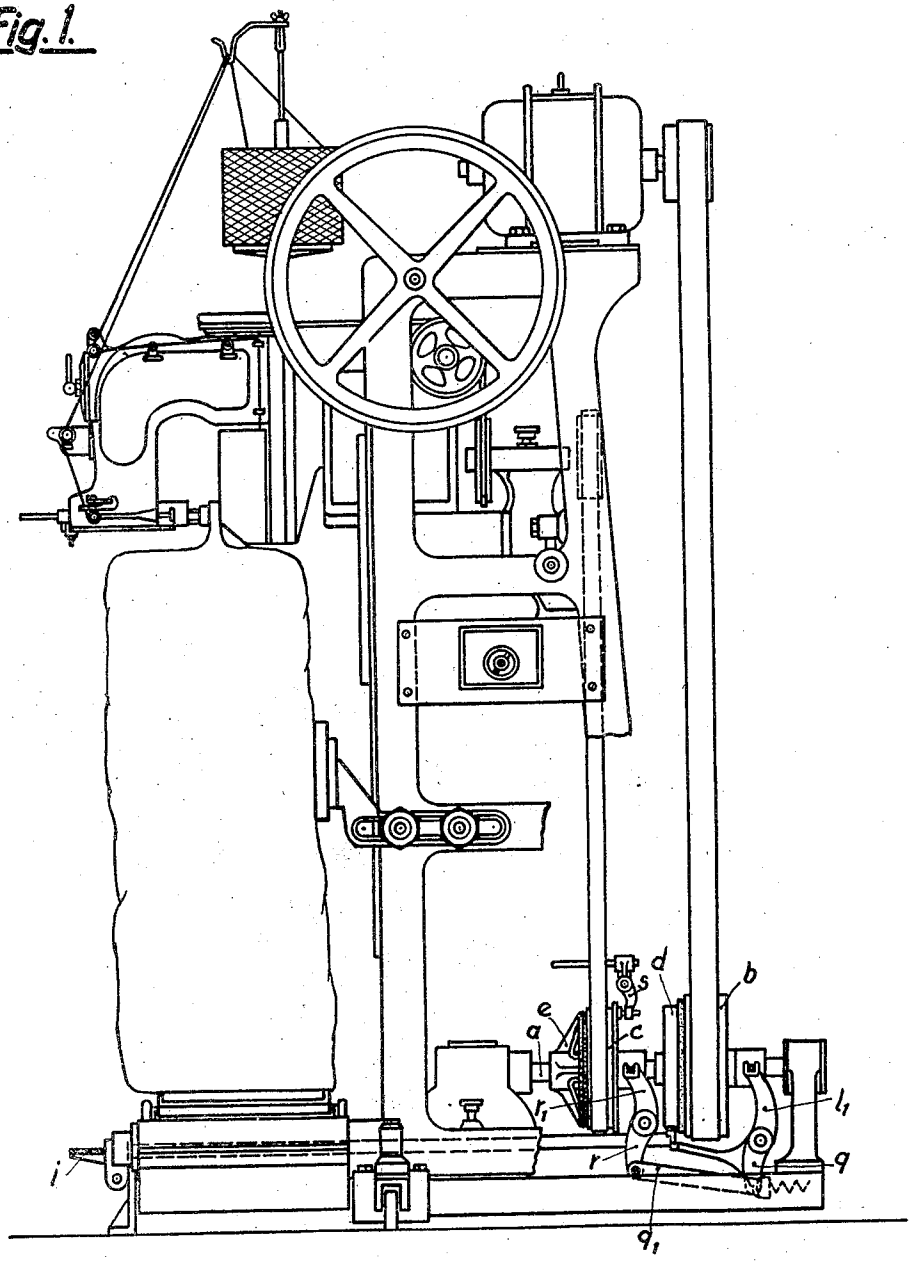

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Fig. 2.

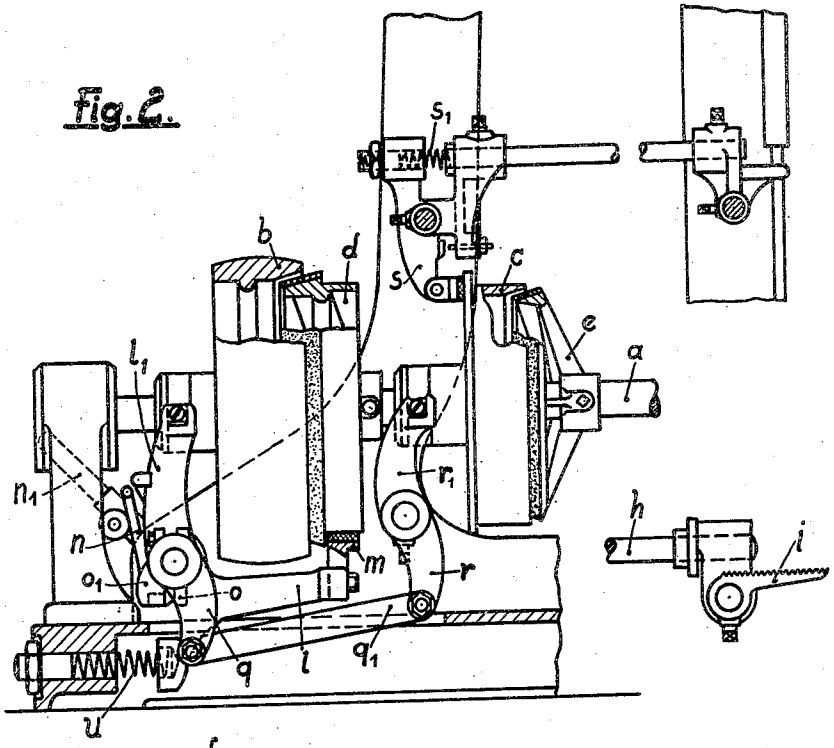
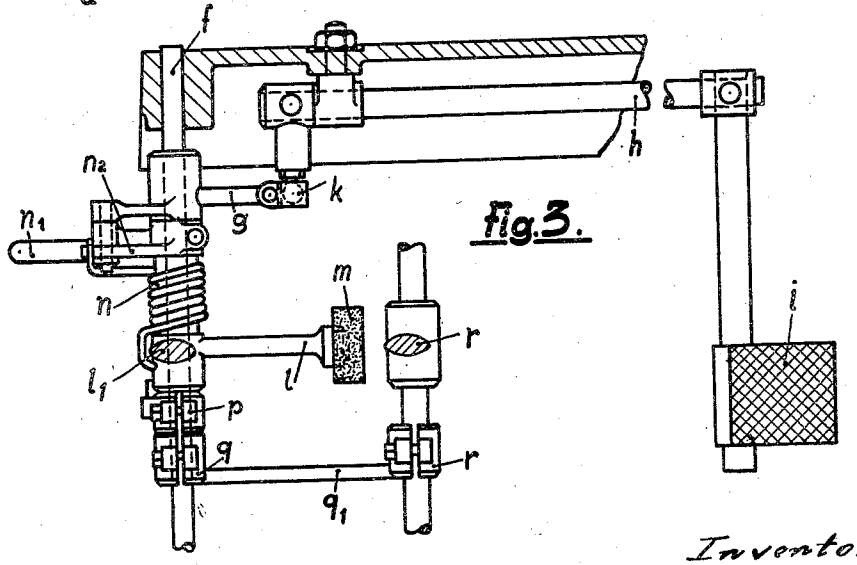


Fig. 3.



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SACK SEWING MACHINE

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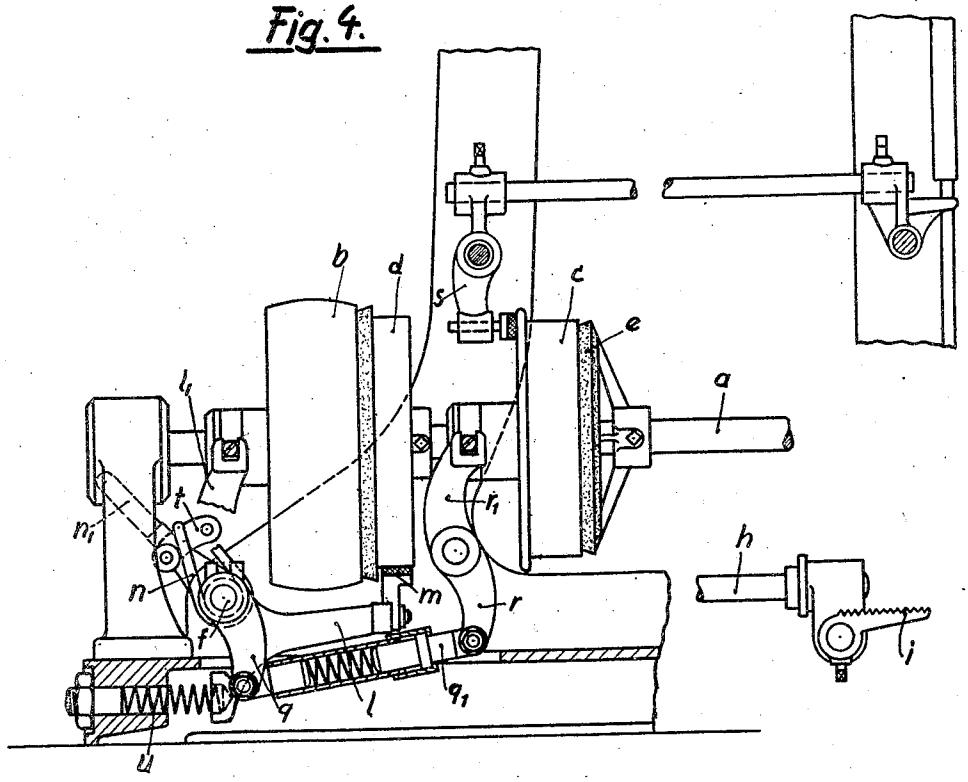
Fig. 4.



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UNITED STATES PATENT OFFICE

1,967,527

SACK SEWING MACHINE

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Application August 29, 1932, Serial No. 630,916
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9 Claims. (Cl. 112—11)

Known sack sewing machines comprise a conveyor device for the filled sack and a sewing head both driven through clutches from a common shaft in such manner that first the clutch for driving the conveyor device and then the clutch for the sewing device is engaged, and the disengaging process takes place in the reverse sequence.

In known machines the clutches are arranged one under the other on a vertical shaft, must be raised to a more or less considerable distance, and are located remotely from the base plate. This has the disadvantage that, on the one hand, greater force must be applied to operate the clutches and, on the other hand, the distance of the displaced masses from the supporting surface of the machine is so large that considerable oscillations take place and the rigidity of the machine is prejudicially affected.

An object of the present invention is to reduce to a minimum the effort required to operate the clutches.

Another object of the present invention is to reduce vibration and improve the rigidity of machines of the type to which the invention relates.

According to the present invention the conveyor clutch and the sewing head clutch in sack sewing machines have separable parts of different travel operated simultaneously by a common control member.

According to another feature of the invention the clutch mechanism and associated brake mechanism are mounted mainly close to the base plate of the machine with the shiftable clutch parts movable horizontally.

Other features and advantages of the present invention will be described in detail hereinafter and pointed out in the accompanying claims.

Two constructions according to the present invention are shown as examples in the annexed drawings.

Fig. 1 shows a side elevation of the sack sewing machine, while

Fig. 2 is a side elevation of the clutch mechanism partly in section, and

Fig. 3 is a plan.

Fig. 4 is a separate embodiment of the mechanism with fixed brake and with buffer rod to take up the shocks when disengaging the clutch.

In the drawings, a machine is shown having the lower part of its frame sustaining in suitable bearings a horizontal main shaft *a* on which are loosely fitted adjacent one another so as to be capable of displacement, the two belt pulleys *b* and *c* for actuating the sack conveyor and the sewing device respectively. Both belt pulleys are driven through clutches whereof the separable parts consist of friction surfaces on the pulleys and corresponding friction discs *d* and *e* fixed on the shaft *a*. Perpendicular to the main shaft *a* but also in the horizontal position, is arranged the control shaft *f*. On this is firmly fixed the lever *g* which by means of a rod *h* is connected with a pedal *i* and can be rocked by the operation thereof. To transmit force between the rod *h* and the lever *g* a ball joint *k* may be used. The lever *g* actuates the control shaft *f*, that is, effects the engaging and braking. There is also loosely mounted on the shaft *f* a brake lever *l* carrying a brake block *m* and having an arm l_1 forming a shift member for the conveyor clutch *b*, *d*. This brake lever *l* has a projection or bearing surface *o* against which rests the abutment o_1 firmly connected with the shaft. Between the levers *l* and *g* there is a torsion spring connection *n* which is such that the double lever *l*—l_1 may be rotated a certain amount with respect to the lever *g* and the shaft *f* against the action of the spring *n*. In the position of rest, the abutment o_1 rests against the projection *o*, so that the action of the spring is cancelled. A lever *q* fixed on the shaft *f* acts, through a connection rod q_1, an oscillating lever *r* and a further fork lever r_1, on the belt pulley *c* and shifts it to operate the sewing head clutch *c*, *e*.

In order to be able to bring the belt pulley *c* quickly to rest after disengaging the coupling, there is provided a brake lever *s* which is relieved from shocks by the spring s_1. If it be desired to fix this lever rigidly, as shown in Fig. 4, it is necessary to make the intermediate rod q_1 elastic, that is, to construct it as a shock absorbing rod.

In order to permit a later adjustment and tensioning of the spring *n* there is provided on the shaft *f* a hand lever n_1, on which rests the end of the spring *n*, which is rotatable to a certain extent around the shaft *f* and can be fixed in various positions on the segment *t* by means of bolts or in any other manner.

The method of operation of the apparatus is as follows:

If, after a sack is placed on the conveyor device, it be desired to start the machine, the pedal *i* is depressed. This movement is transmitted through the rod *h* and the ball joint *k* to the lever *g*. The shaft *f* is thereby rocked about its axis. The shift lever l_1 of the conveyor clutch rotates about its pivotal axis and engages this clutch by forcing the belt pulley *b* on to the corresponding clutch half *d*. At the same time, the lever *q* is also rocked and, through the transmission member q_1, the levers *r*, and the shift lever r_1 of the sewing head clutch brings the second belt pulley *c* nearer to its corresponding clutch half *e*. According to the invention the distance which the pulley *c* has to traverse before engagement of the sewing head clutch is greater than that traversed by the belt pulley *b* of the conveyor clutch, the latter clutch will come first into con-

tact and engagement, and consequently the conveyor band will come into operation. If now the pedal *i* be still further depressed, the double lever *l*, l_1 is not moved further as the belt pulley *b* controlled thereby has already had its travel arrested by the coupling half *d*, while, on the other hand, on the further rotation of the shaft *f*, the lever *q* is rocked against the action of the spring *n* and, by means of the parts q_1, *r* and shift lever r_1, the belt pulley *c* of the sewing head clutch is moved further until it comes into engagement with its corresponding coupling half *e* and also puts the sewing device into operation after the conveyor.

In order again to stop the machine, the pedal *i* is slightly released when first the belt pulley *c* of the sewing head, under the influence of the spring *n*, moves slightly to the left so that it disengages from the corresponding friction disc *e*, and bears instead against the brake block of the lever *s*, consequently stopping in a short time. If the pedal be still further released, the abutment o_1 bears against the projection *o* so that the spring *n* is no longer operative. The lever *l* rotates further under the action of the spring *n* and brings the belt pulley *b* of the conveyor clutch out of engagement with its corresponding friction pulley *d*. At the same time, the lever *l* with the brake block *m* thereon moves upwards and bears on the brake ring disposed on the belt pulley *b*, whereby this latter is braked and the conveyor device is also rapidly brought to rest. Thus the two clutches are disengaged successively in reverse order to their engagement by virtue of the different travel amplitudes of the simultaneously operated shift levers.

I claim:

1. A sack sewing machine comprising a stationary sewing head, a conveyor arranged to convey sacks in one direction past said head, a horizontal shaft forming a common drive for the conveyor and the sewing head, two clutches on said shaft each having a shiftable and an axially fixed element for connecting the shaft to the sewing head and the conveyor respectively, the shiftable elements having different lengths of idle travel between disengaged and engaged positions, and means for operating the clutches simultaneously.

2. A sack sewing machine comprising a base plate, a stationary sewing head mounted in an elevated position thereon, a conveyor arranged below said stationary head to convey sacks in one direction past the same, a horizontal shaft journalled in close proximity to the base plate and forming a common drive for the conveyor and sewing head, two clutches on said shaft each having a shiftable and an axially fixed element for connecting the shaft to the sewing head and the conveyor, the shiftable elements having different lengths of idle travel between disengaged and engaged positions, and means for operating the clutches simultaneously.

3. A sack sewing machine comprising a base plate, a stationary sewing head thereon, a conveyor mounted in said base plate and arranged to convey sacks in one direction past said head, a horizontal shaft journalled in close proximity to the base plate and forming a common drive for the conveyor and sewing head, two clutches on said shaft each having a shiftable and an axially fixed element for connecting the shaft to the sewing head and the conveyor, the shiftable element of the conveyor clutch having a shorter idle travel between disengaged and engaged position than the shiftable element of the sewing head clutch, and means for operating the clutches simultaneously.

4. A machine according to claim 3 in which the means for operating the clutches simultaneously comprises a clutch actuating shaft, a longer lever on said shaft for actuating the conveyor clutch, and a shorter lever on said shaft for actuating the sewing head clutch.

5. A sack sewing machine according to claim 3, comprising also a yielding brake shoe co-operating with the shiftable element of the sewing head clutch, and a brake shoe co-operating with the axially fixed element of the conveyor clutch and positively applicable by means of the shift lever of that clutch.

6. A sack sewing machine according to claim 3, comprising also a fixed brake shoe co-operating with the shiftable element of the sewing head clutch, a brake shoe co-operating with the axially fixed element of the conveyor clutch, and an elastic connection between the last mentioned brake shoe and the shift lever of the conveyor clutch.

7. A sack sewing machine comprising a base plate, a stationary sewing head thereon, a conveyor mounted in said base plate and arranged to convey sacks in one direction past said head, a horizontal shaft journalled in close proximity to the base plate and forming a common drive for the conveyor and sewing head, two clutches on said shaft each having a shiftable and an axially fixed element for connecting the shaft to the sewing head and the conveyor, the shiftable element of the conveyor clutch having a shorter idle travel between disengaged and engaged position than the shiftable element of the sewing head clutch, and means for operating the clutches simultaneously, said means comprising a clutch actuating shaft having a shorter lever fixed thereon for actuating the sewing head clutch, a longer lever for actuating the conveyor clutch, and a resilient connection between said shaft and the conveyor clutch lever.

8. A sack sewing machine comprising a base plate, a stationary sewing head thereon, a conveyor mounted in said base plate and arranged to convey sacks in one direction past said head, a horizontal shaft journalled in close proximity to the base plate and forming a common drive for the conveyor and sewing head, two clutches on said shaft each having a shiftable and an axially fixed element for connecting the shaft to the sewing head and the conveyor, the shiftable element of the conveyor clutch having a shorter idle travel between disengaged and engaged position than the shiftable element of the sewing head clutch, and means for operating the clutches simultaneously, said means comprising a clutch actuating shaft, a lever loosely mounted on said shaft for actuating the conveyor clutch, a lever fixed on said shaft for actuating the sewing head clutch, and a spring abutting between the conveyor clutch lever and the clutch shaft biasing said lever into clutch engaging position.

9. A machine according to claim 8 comprising also an abutment for the spring on the clutch shaft, which abutment is movable to adjust the action of the spring.

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