

March 3, 1931.

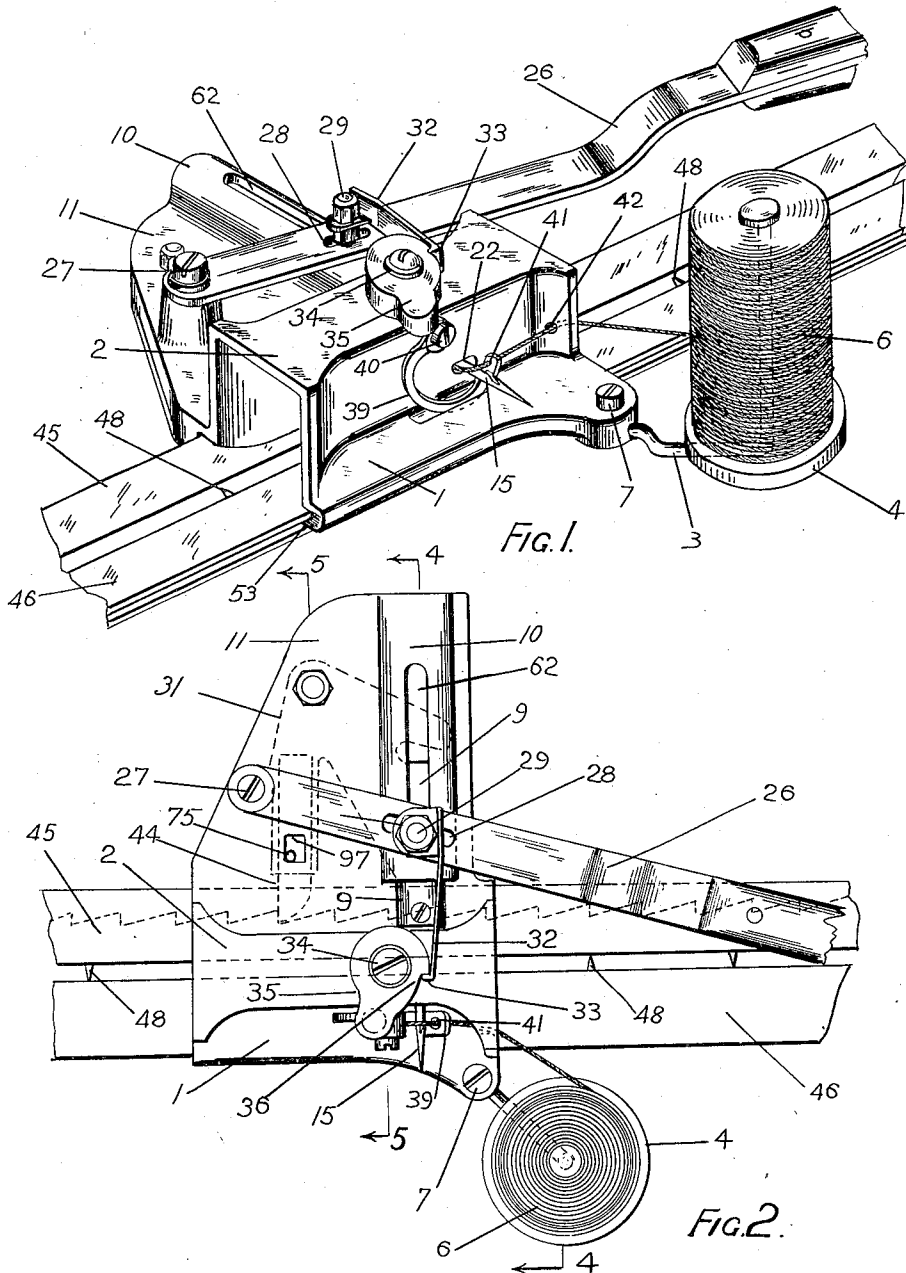
H. W. COLLIS ET AL

1,794,366

APPARATUS FOR SEWING BAGS OR THE LIKE

Filed Dec. 28, 1926

6 Sheets-Sheet 1



Herbert Walter Collis
John Joseph Williams
INVENTORS

By *Atkinson*
their ATT'Y.

March 3, 1931.

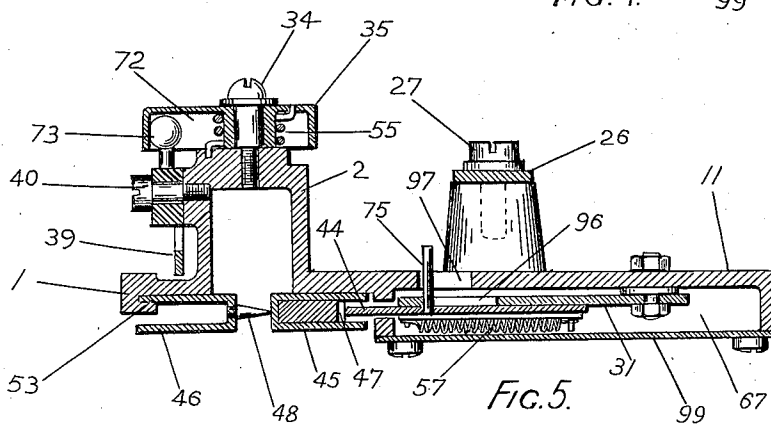
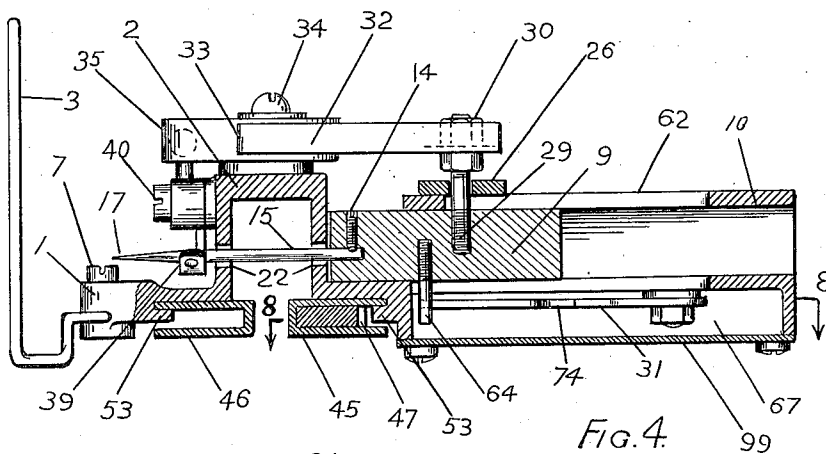
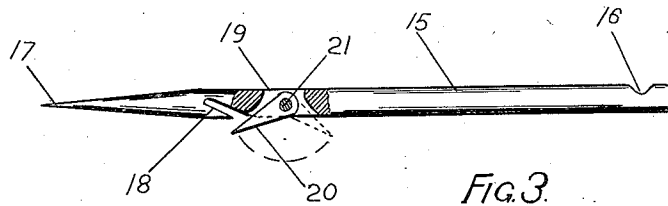
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Herbert Walter Collis
John Joseph Williams
INVENTORS

By *Otto Munk*
Their ATT'Y.

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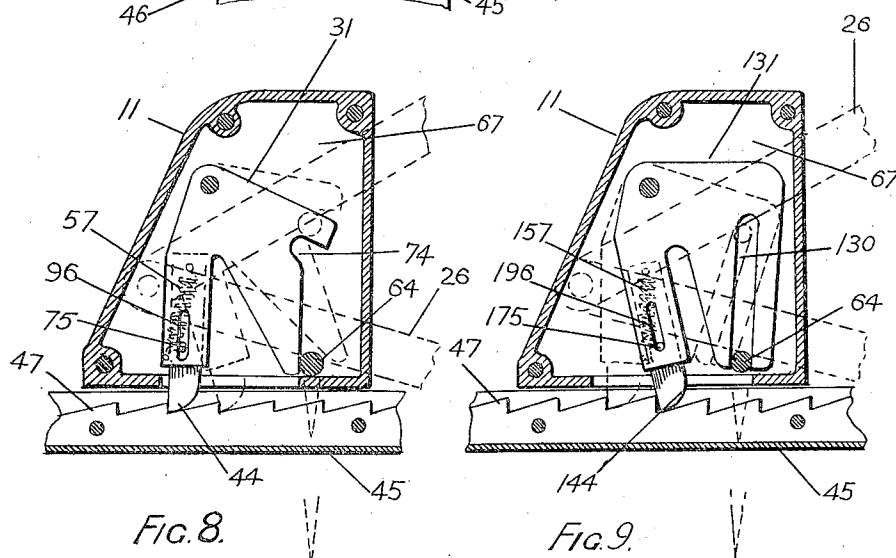
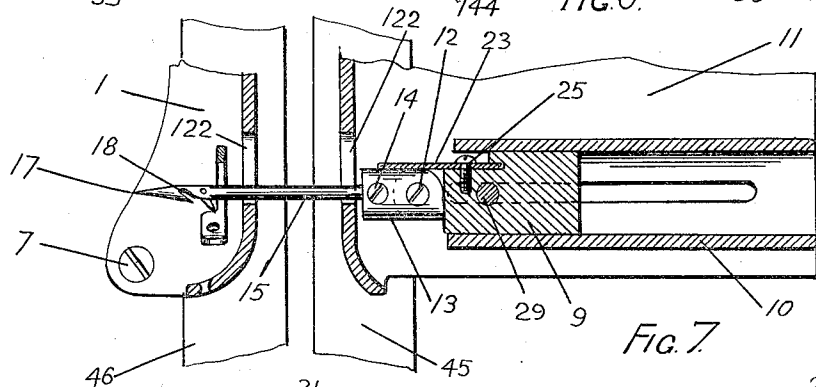
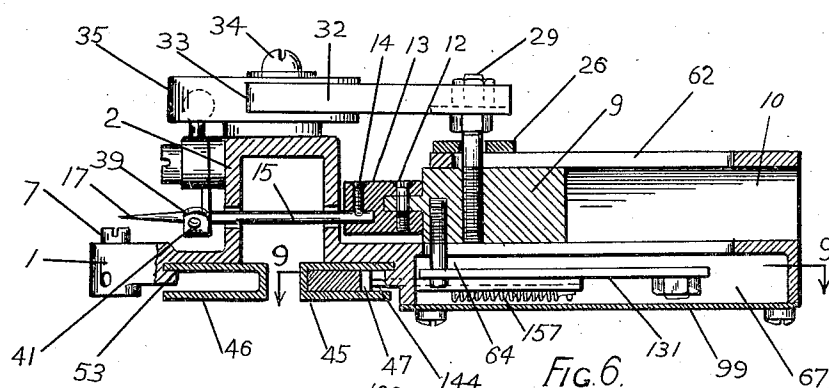
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Herbert Walter Collis
John Joseph Williams
INVENTORS
By *Otto Munk*
Att'y.

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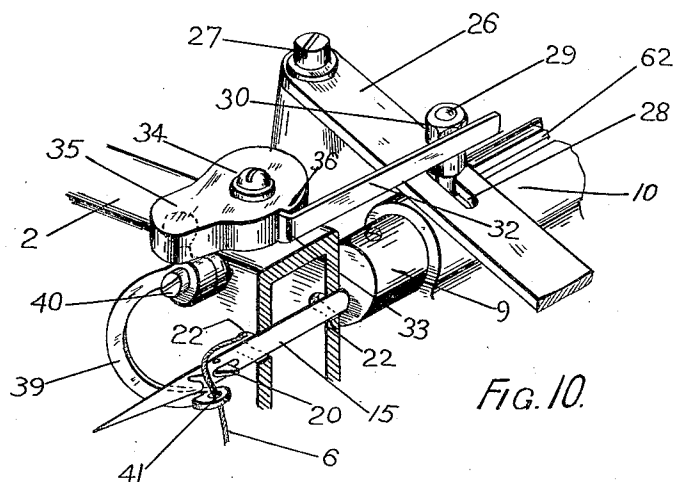


FIG. 10.

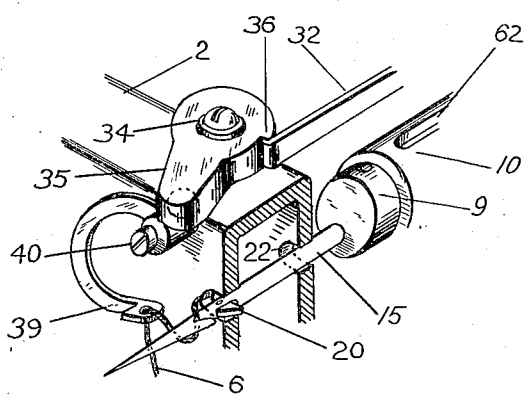


FIG. 11.

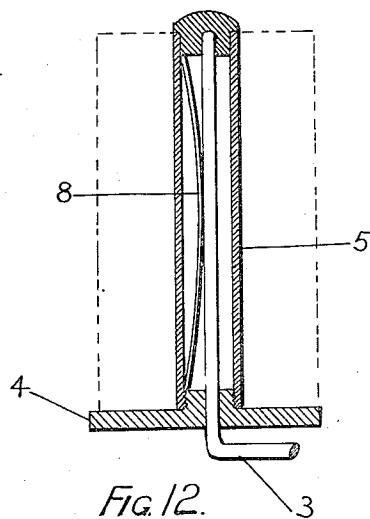


FIG. 12.

Herbert Walter Collis
John Joseph Williams
INVENTORS
By *Otto Munk*
John ATT'Y.

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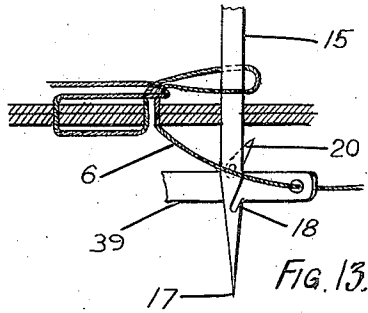


FIG. 13.

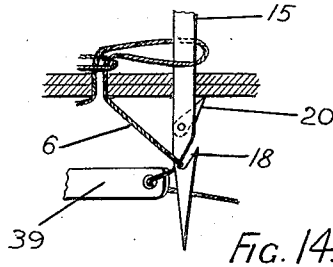


FIG. 14.

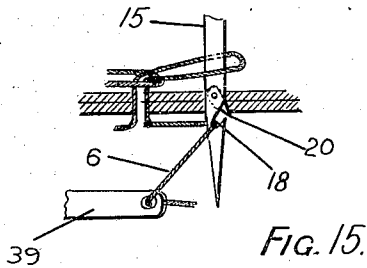


FIG. 15.

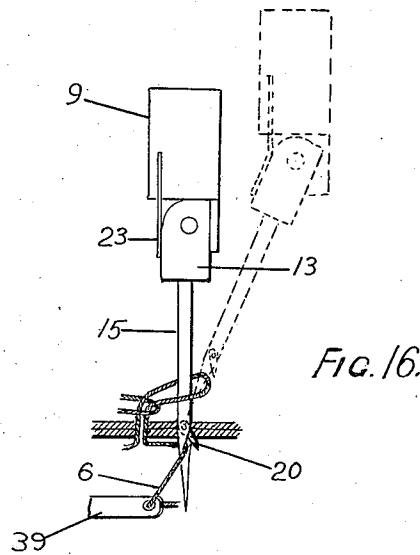


FIG. 16.

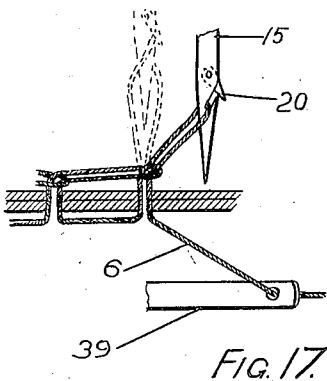


FIG. 17.

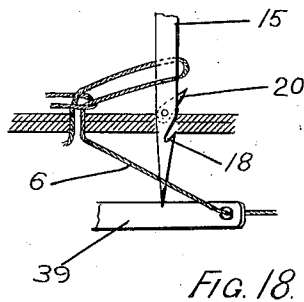


FIG. 18.

Herbert Walter Collis
John Joseph Williams

INVENTORS

By *Otto Munk*

their ATT'Y.

March 3, 1931.

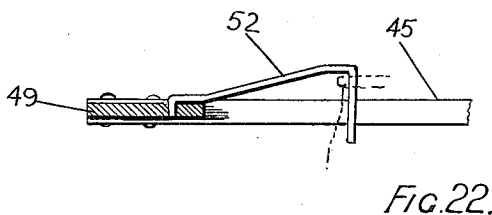
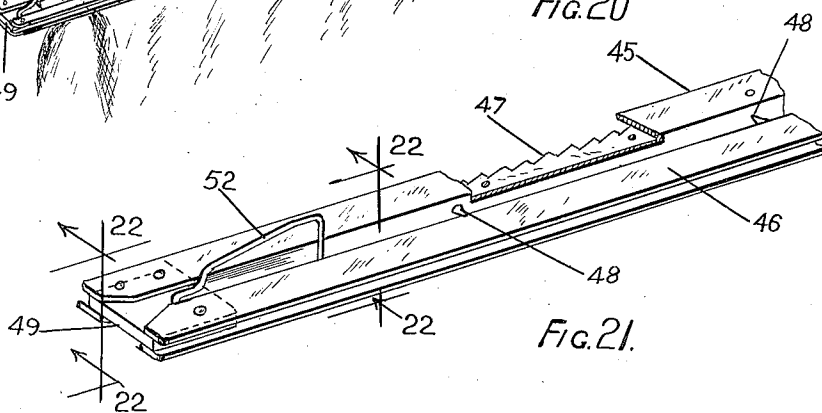
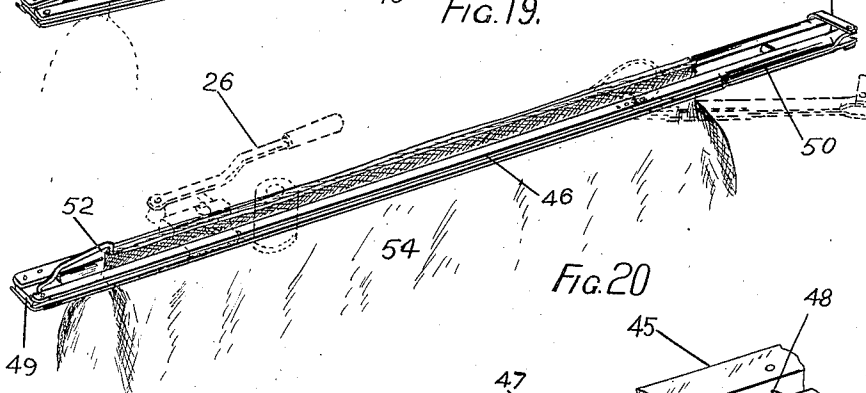
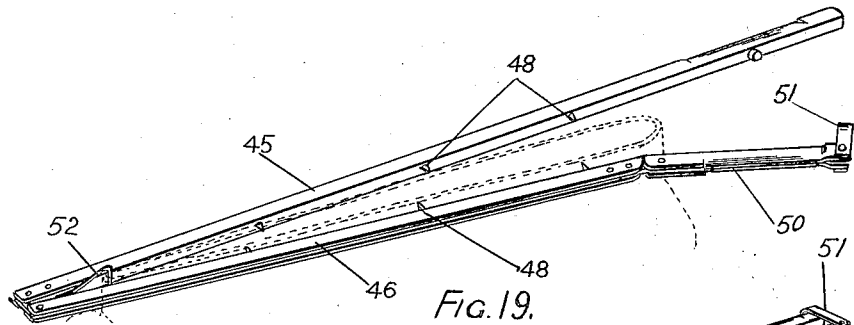
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6 Sheets-Sheet 6



Herbert Walter Collis
John Joseph Williams
INVENTORS

By *Otto L. ...*
their ATT'Y.

UNITED STATES PATENT OFFICE

HERBERT WALTER COLLIS AND JOHN JOSEPH WILLIAMS, OF JUCIONG, NEW SOUTH WALES, AUSTRALIA, ASSIGNORS TO COLLIS' BAG-SEWER LIMITED, OF SYDNEY, NEW SOUTH WALES, AUSTRALIA, A COMPANY OF AUSTRALIA

APPARATUS FOR SEWING BAGS OR THE LIKE

Application filed December 28, 1926, Serial No. 157,448, and in Australia January 22, 1926.

This invention relates to apparatus for sewing bags, sacks, or the like. The principal object of the invention is to provide apparatus whereby bags, after they have been filled with wheat or other goods, may have the open mouth thereof closed by sewing.

Referring to the accompanying drawings, Fig. 1 is a perspective view of the apparatus; Fig. 2 plan thereof; Fig. 3 detail view of needle used in connection with the apparatus; Figs. 4 and 5 respectively enlarged sectional elevations on lines 4—4 and 5—5, Fig. 2; Fig. 6 longitudinal sectional elevation of modified construction of apparatus; Fig. 7 sectional plan of apparatus shown in Fig. 6; Fig. 8 sectional plan on line 8—8, Fig. 4; Fig. 9 sectional plan on line 9—9, Fig. 6; Figs. 10 and 11 detail perspective views illustrating operations of looping sewing material about the needle; Fig. 12 sectional elevation of twine bobbin holder; Figs. 13 to 18 respectively diagrammatic views illustrating stitching operations of the needle; Fig. 19 perspective view of clamp for bag mouth in open position; Fig. 20 perspective view of the clamp in closed position about the mouth of the bag to be sewn; Fig. 21 enlarged broken perspective view of the said clamp; and Fig. 22 sectional elevation of clamp on plane 22—22, Fig. 21.

With reference to Figs. 1 to 5, 8, 10 to 15, and 17 to 22, the sewing apparatus is furnished with a base plate 1 which is arched to form a channel 2 to enable the sewing apparatus to pass from end to end over the open mouth of a bag 54 which is to be closed by stitching. Said base 1 may also have attached thereto by the screw 7 an arm 3 carrying a rotatable plate 4, the latter being adapted to receive a bobbin 5 upon which is carried a supply of twine 6, thread, or other suitable stitching material. A tension spring 8 enclosed within the bobbin 5 is adapted to bear against the rod 3 and the bobbin 5 and to regulate rotation of the plate 4 and the attached bobbin 5 whereby unwinding of the material 6 from the bobbin 5 is regulated.

An extension 11 at one side of the base 1 is adapted to receive a reciprocable slide block

9, the housing 10 being provided on the extension 11 to serve as a guide for the block 9 in its movements. Rigidly secured to the block 9 through the screw 14 is the needle 15, the latter having a groove 16 with which the screw 14 co-operates. The forward end of the needle 15 is pointed at 17 and rearwardly of such pointed end the needle has an angular groove 18 and rearwardly of such groove is an opening 19 in the needle. Pivoted on a pin 21 to the needle in such opening is a pointed tang 20 whose outer end projects beyond the side of the needle; said tang is adapted to swing from side to side of the opening 19 and when swung in the direction of the groove 18 to eventually cover the said groove 18. The needle 15 projects from the block 9 and passes through openings 22 in the side walls of the channel 2.

A manually reciprocable handle 26 is pivotally connected to a stationary pin or screw 27 carried by the base 1. The said handle has an elongated opening 28 therein whereby the said handle 26 is attachable to the screw 29 in the block 9. Said screw is slidable in the opening 62 in the guide 10. Attached to the pin 29 by the nut 30 and projecting therefrom is a spring catch 32 with end hook 33. In sewing operations of the apparatus, the sewing means proper of the apparatus are associated with clamp means 45—46 to be hereinafter described. One of such clamp members is provided with a series of ratchet teeth 47 each of which is respectively engageable by a spring controlled pawl 44 associated with the tilting lever 31 which is pivoted to the extension 11. During the movements of the handle 26 whereby the needle 15 is being moved on its rearward or withdrawal stroke such lever 31 is tilted to the position thereof shown in dotted lines in Fig. 8 approximately when the pin 64 in the block 9 eventually enters the groove 74 of the lever 31; upon the forward or piercing stroke of the needle 15 by the reverse operations of the handle 26, the said pawl 44 on the lever 31 co-operating with the separate ratchet teeth 47 enables the sewing apparatus proper to be moved step-by-step along the clamp members

45—46, the pin 64 sliding against one edge of the lever 31 in such forward movement of the needle 15 and returning said lever to the position thereof shown in full lines in Fig. 8.

Pivoted to the head of the channel 2 on a fixed screw pin 34 is a member 35 which has at one portion thereof a projection 36 adapted to be engaged at intervals with the hook 33 of the spring catch 32 when the handle 26 is moved in one direction and also to be disengaged from said hook when the said handle is moved in the opposite direction. The member 35 has a recess 72 in which fits a ball 73 at the head of the looper 39 which is pivotally carried on a screw 40 secured to the channel 2. The looper 39 has an eye 41 therein through which may be threaded the free end of the twine 6 or other sewing material, a guide hole 42 therefor being also provided in a lug on the channel 2. A coil spring 55 attached at one of its ends to the member 35 and at the other end to the channel 2 is adapted to allow arcuate movement of the member 35 while also insuring that such member and the looper 39 will be brought to normal position.

Pawl 44 has affixed thereto a pin 75 adapted to slide in slots 96 and 97 respectively in the lever 31 and extension 11; said pawl 44 has attached thereto one end of an extensible coil spring 57, the other end of the spring being attached to the lever 31. Said spring permits limited movement of the pawl 44 and is designed to return the pawl to normal position in relation to the ratchet teeth 47 on one side 45 of the clamp consisting of the members 45 and 46. Both said members have projecting teeth 48 adapted to pierce portions of the bag to be sewn about the open mouth thereof. The said teeth also serve as separators for the members 45 and 46 as their pointed ends on the respective said members abut the oppositely disposed member in each case when said members are closed to each other. Said members 45 and 46 are hingedly connected at one end to the bridge plate 49, and the member 46 has hinged thereto a supplementary member 50. Both the members 45 and 46 may be held in closed position by the hinged catch 51. Pivotally attached to the plate 49 is the anchor arm 52. The clamp members 45 and 46 are formed to enable them to slide on tongues 53 on the base 1, the sewing apparatus being adapted to be placed on the said clamping members when the latter have been attached to a bag whose open mouth is to be closed by sewing. Such sewing is effected by chain stitching upon operating the apparatus.

The extension 11 has a recess 67 therein over which fits a cover 99 attachable to said extension by screws or otherwise.

In operation, after a bag to be sewn has been filled with wheat or other material,

the clamp members 45 and 46 are placed about the open mouth of the bag with the anchor arm 52 in engagement with one end of the bag (Fig. 19). The bag can then be stretched between the members 45 and 46 and the said members then moved towards each other whereby the teeth 48 will enter the bag and thus hold it. The catch 51 may then be placed in position and the members 45 and 46 thus held in closed position about the bag (Fig. 20).

The sewing part of the apparatus may then be placed on the clamp members 45 and 46 by passing the apparatus over the hinged end of said members and over the anchor arm 52. The sewing means having been so attached to the members 45 and 46 the open mouth of the bag can be closed by chain stitching by reciprocating the lever handle 26 whereby the block 9 and needle 15 will also be reciprocated, and the member 35 and looper 39 also operated whereby twine or the like will be fed from the spool 5 to the needle 15 and proper sewing of the bag mouth effected, the sewing part of the apparatus moving on the clamp members 45—46 as each stitch in the bag is being made.

With a view to illustrating the movements of and the sewing operations of the needle 15 detail views of parts of the apparatus have been shown in Figs. 10 and 11 together with diagrammatic views in Figs. 13 to 15 and Figs. 17 and 18 illustrating stitching operations of the needle. In Figs. 10 and 13 the needle 15 is shown at the end of its piercing or forward stroke, that is, after having penetrated the bag 54, the looper 39 and the twine 6 being in certain positions in relation to the needle whereby the needle will be above the looper 39 and under the twine 6. The needle is shown in Figs. 11 and 14 on its rearward or withdrawal stroke; in such movement of the needle the twine 6 enters the groove 18 in the needle and the looper 39 is canted outwardly of and from underneath the needle.

When the handle 26 is moved to effectuate the forward stroke of the needle 15 the hook 33 is made to engage with the projection 36 of the member 35 but on the opposite movement of the handle 26 such hook 33 is disengaged from the projection 36 in proper timing with the rearward movement of the needle 15, and the spring 55 allows return of the member 35 and consequently the looper 39 to normal position for the next forward stroke of the needle 15. In each movement of the handle 26 the block 9 is also moved together with the needle 15 attached to said block.

During the penetration of the bag 54 by the forward motion of the needle 15 the tang 20 is moved to the position thereof as shown in Figs. 18 and 13 and on the rearward stroke of the needle 15 as seen in Fig. 14 the said

tang 20 comes into contact with the bag 54 and as the needle moves through the material of the bag the tang is brought to the position thereof shown in Fig. 15 whereby the tang closes the open mouth of the groove 18 in the needle, the twine 6 having entered such groove when the needle is being returned on its rearward stroke and the looper 39 canted as shown in Fig. 11.

Upon movement of the handle 26 whereby the needle 15 is reciprocated the pawl 44 cooperates with one of the ratchet teeth 47 on the clamp member 45 whereby the sewing apparatus is moved step-by-step along the clamping members 45 and 46 from one end of the bag 54 to the other end thereof and at each such movement of the apparatus the needle 15 is moved to a new stitching position thereof and a stitch is completed in the bag 54.

Should it happen that further wheat or other material is to be placed in the bag 54 after part of the open mouth thereof has been sewn the catch 51 may be opened from the member 45 and the supplementary member 50 may be opened (Fig. 20) and the further material may then be added to the bag. Subsequently the member 50 is restored to closed position and the catch 51 also locked in position when the sewing operation of the bag 54 can be continued. At the end of the sewing operation the sewing apparatus can be disengaged from the clamping members 45, 46 and 50, the members 45 and 50 being constructed to enable this to be effected.

Referring to Figs. 6, 7, 9 and 16, which illustrate a modified form of the apparatus, the reciprocable block 9 has pivoted thereto through the screw 12 an arcuately movable element 13. The needle 15 is secured to such element by the screw 14. Elongated openings 122 are provided in the channel 2 for the needle 15 to project therethrough. A spring 23 is secured to the block 9 by the screw 25 and bears against the element.

Instead of the lever 31 a lever 131 is provided. Such lever is pivoted to the extension 11 and it is furnished with an angularly disposed slot 130 in which slides the pin 64. Said lever 131 also carries a pawl 144 controlled by the spring 157 attached at its opposite ends respectively to the lever 131 and the said pawl 144. The said pawl also carries a projecting pin 175 slidable in the opening 196 in the said lever 131 and also in the opening 97 of the extension 11.

The operation of the modified form of the apparatus is similar to that previously described in connection with other figures of drawings but when the needle 15 is passing through its rearward or withdrawal stroke and the pin 64 is sliding in the slot 130 the pawl 144 bears against one of the teeth 47 of the clamp member 45 and the sewing apparatus is moved along the clamp members

45—46 the space of one of said teeth 47 as shown in dotted lines in Fig. 9. When, however, the needle is passing through its forward or piercing stroke the lever 131 is tilted so that the pawl 144 will ride on the tooth 47 immediately facing it, so that the said pawl will be ready for engagement with the abutting face of the latter tooth upon the succeeding withdrawal stroke of the needle 15 whereby the apparatus will again be moved on the clamp members 45—46. At each complete reciprocation of the handle 26 the pawl 144 is moved over one tooth of the series of teeth 47 and the sewing apparatus is also thus moved tooth by tooth over the clamp members 45—46 whereby the open mouth of a bag which is attached to said clamp members is closed by chain stitching.

As the needle 15 is being drawn rearwardly through the bag 54 the element 13 and said needle 15 are canted (see dotted lines Fig. 16), the spring 23 being bent by the pressure of the element 13 thereon. When, however, the needle 15 has been fully passed through the bag 54 on its withdrawal stroke the spring 23 automatically operates to return the element 13 and the needle 15 to normal straight position and the latter is thus moved to another point on the bag (see full lines Fig. 17) whereby at such point another penetration of the bag 54 may be made (Fig. 18) with corresponding sequence of operations of the sewing apparatus.

By utilizing bag sewing means in accordance with the invention the open mouth of bags or the like can be readily and expeditiously closed by chain stitching with minimum expense as regards cost of apparatus and time and labor in the sewing operation. The term "bags" as used in the appended claims is intended to include any bag, sack, or like container suitable for holding wheat or other materials, and the term "twine" as used in such claims is intended to include string, cord, or other suitable sewing material for bags or sacks or the like.

What we claim as our invention and desire to secure by Letters Patent is:—

1. In an apparatus for sewing bags, in combination, a base comprising a channel plate, a guide extension on said channel plate, a reciprocable block slidable in said guide, means for holding the mouth of a bag in said channel plate, a needle mounted on said block and reciprocating in said channel plate, a pivoted handle for reciprocating said block, a twine looper pivotally associated with said base, teeth on said bag holding means, a pawl mounted in said guide and cooperating with said teeth to feed the needle along the mouth of said bag, means connecting said pawl to said block whereby reciprocation of the latter feeds the former along said teeth and means connecting said block to said looper whereby

the latter is caused to feed thread to said needle on reciprocation of the former.

2. In an apparatus for sewing bags, means for holding the mouth of a bag in position to be sewn comprising a pair of hinged clamping plates, each plate having inwardly directed teeth for piercing and holding the mouth of a bag, an anchoring pin pivoted at the hinged end of said plate upon which said bag mouth may be stretched before being clamped, and means for locking said plates in clamping relation, the free end of one of said plates being swingable with respect to the rest of said plate providing means for inserting material in said bag mouth when the sewing operation is nearly complete.

3. In an apparatus for sewing bags, in combination, means for holding the mouth end of a bag in position to be sewn comprising lockable clamping plates, a row of ratchet teeth on the outer edge of one of said plates, and a detachable sewing mechanism mounted on said clamping plates comprising a channel plate for embracing said clamping plates, a reciprocable needle working in said channel plate, means for reciprocating said needle, a guide extension mounted on said channel plate, a pawl mounted on said guide and engaging said ratchet teeth and means operated by said needle reciprocating means for advancing said pawl from tooth to tooth thereby advancing said sewing mechanism along said clamping plates.

4. In an apparatus for sewing bags, in combination, means for holding the mouth end of a bag in position to be sewn, comprising lockable clamping plates one of which carries a row of ratchet teeth, and a detachable sewing mechanism mounted on said clamping plates comprising a channel plate for embracing said channel plates, a reciprocable needle working in said channel plate, means for reciprocating said needle, means operated by said needle reciprocating means for feeding thread to said needle, a guide extension mounted on said channel plate, a pawl mounted on said guide and engaging said ratchet teeth, and means operated by said needle reciprocating means for advancing said pawl from tooth to tooth thereby advancing said sewing mechanism along said clamping plates.

5. In an apparatus for sewing bags, in combination, means to hold the mouth ends of a bag in proper position for stitching, needle holding means reciprocably mounted in position to pierce said bag ends with a needle, means for reciprocating said needle holding means, a stud mounted on said needle holding means, and means actuated by said stud upon the reciprocation of said needle holding means for feeding the needle along the bag.

6. In an apparatus for sewing bags, in combination, means to hold the mouth ends of a bag in proper position for stitching, needle

holding means reciprocably mounted in position to pierce said bag ends with a needle, means for reciprocating said needle holding means, a stud mounted on said needle holding means, an oscillatable plate mounted adjacent said needle holding means, means for feeding the needle along the bag ends carried by said plate, and a track in said plate adapted to receive said stud whereby when the needle holding means is reciprocated, the needle feeding means is operated.

In testimony whereof we affix our signatures.

HERBERT WALTER COLLIS.
JOHN JOSEPH WILLIAMS.

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