

No. 646,208.

Patented Mar. 27, 1900.

A. FORBES & F. GROVER.

WRAPPING MACHINE.

(Application filed June 7, 1899.)

(No Model.)

7 Sheets—Sheet 1.

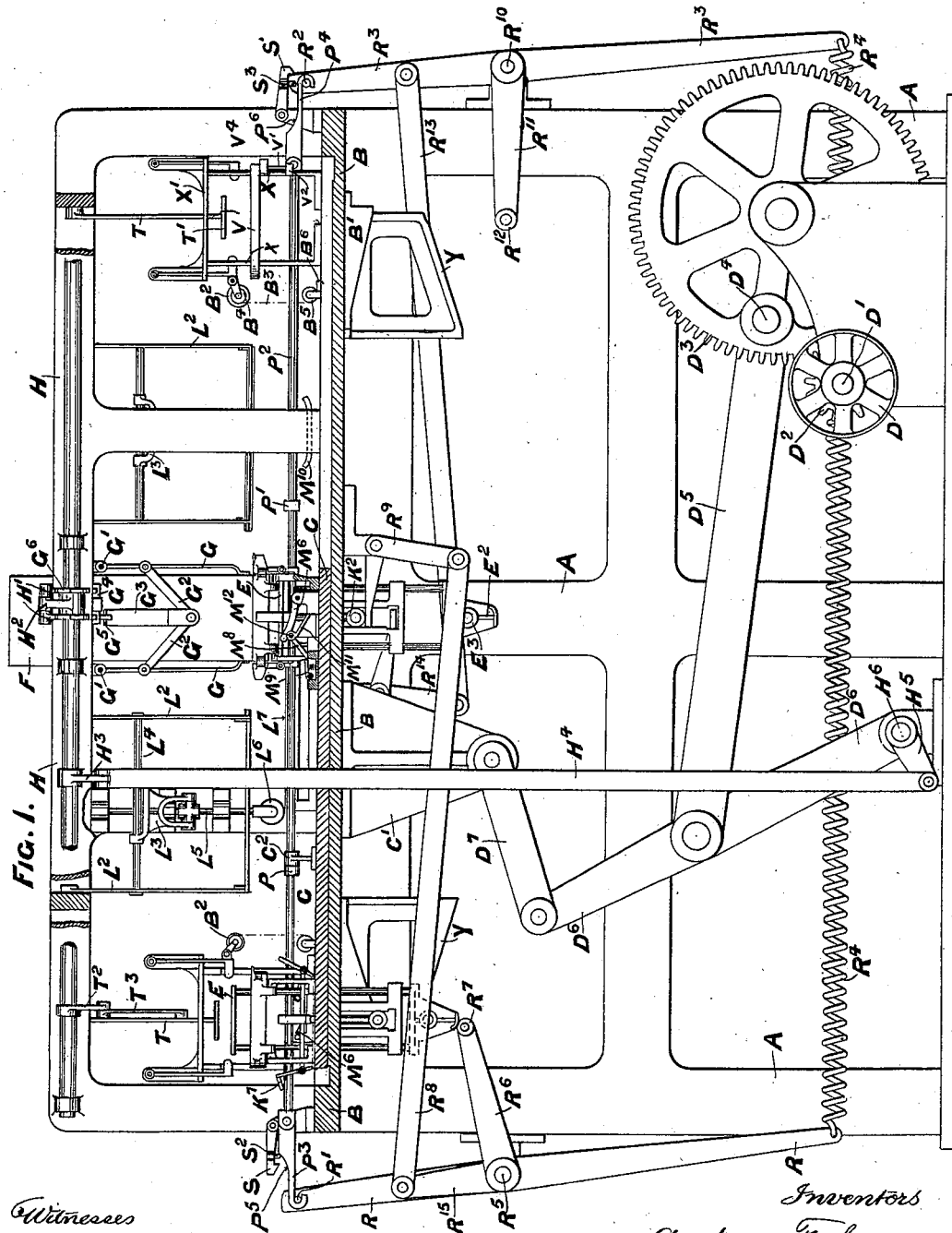


FIG. 1. H.

Witnesses

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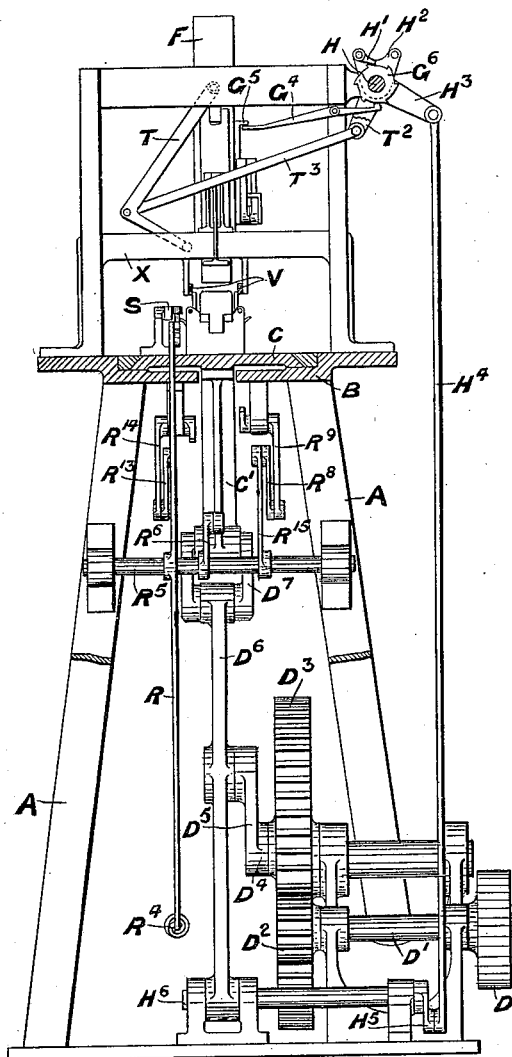
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7 Sheets—Sheet 2.

FIG. 2.



Witnesses

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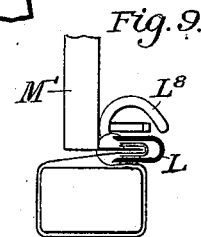
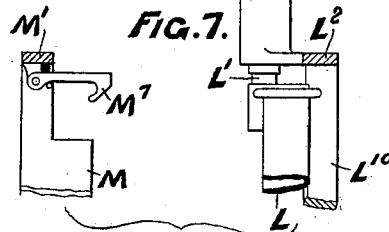
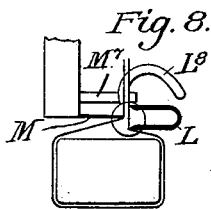
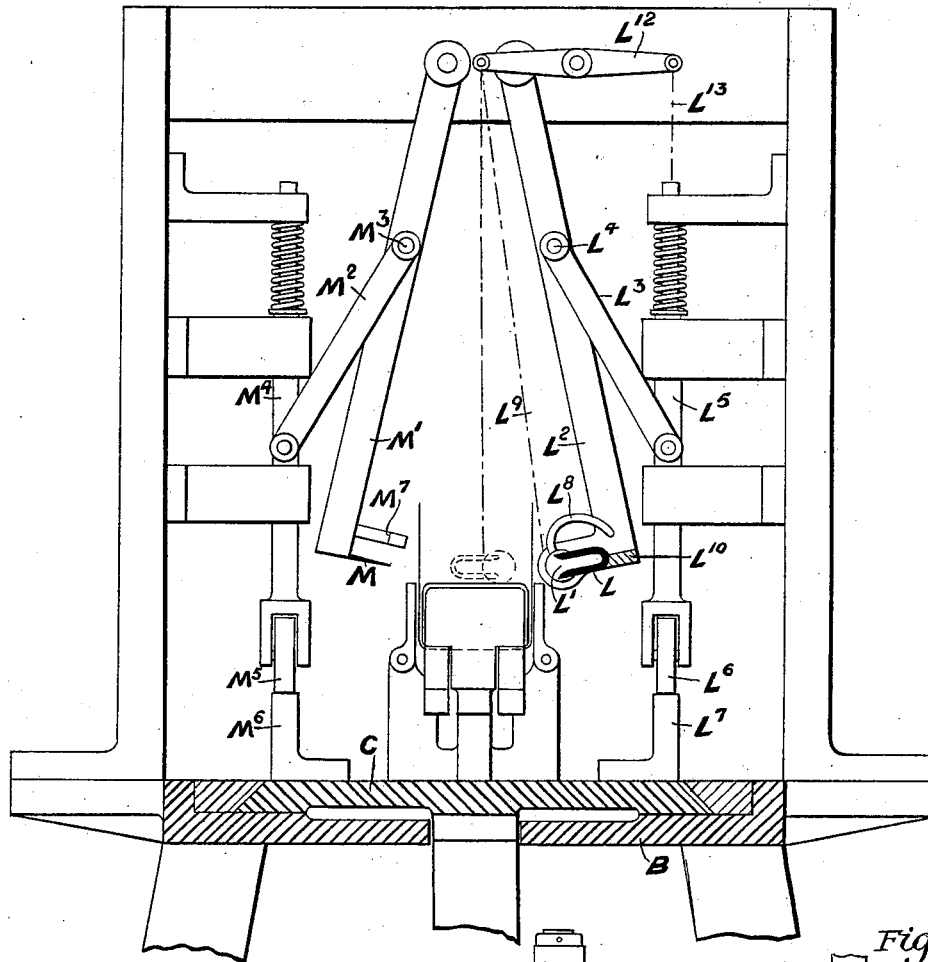
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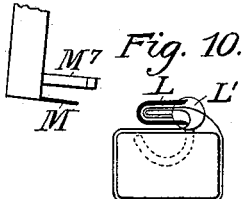
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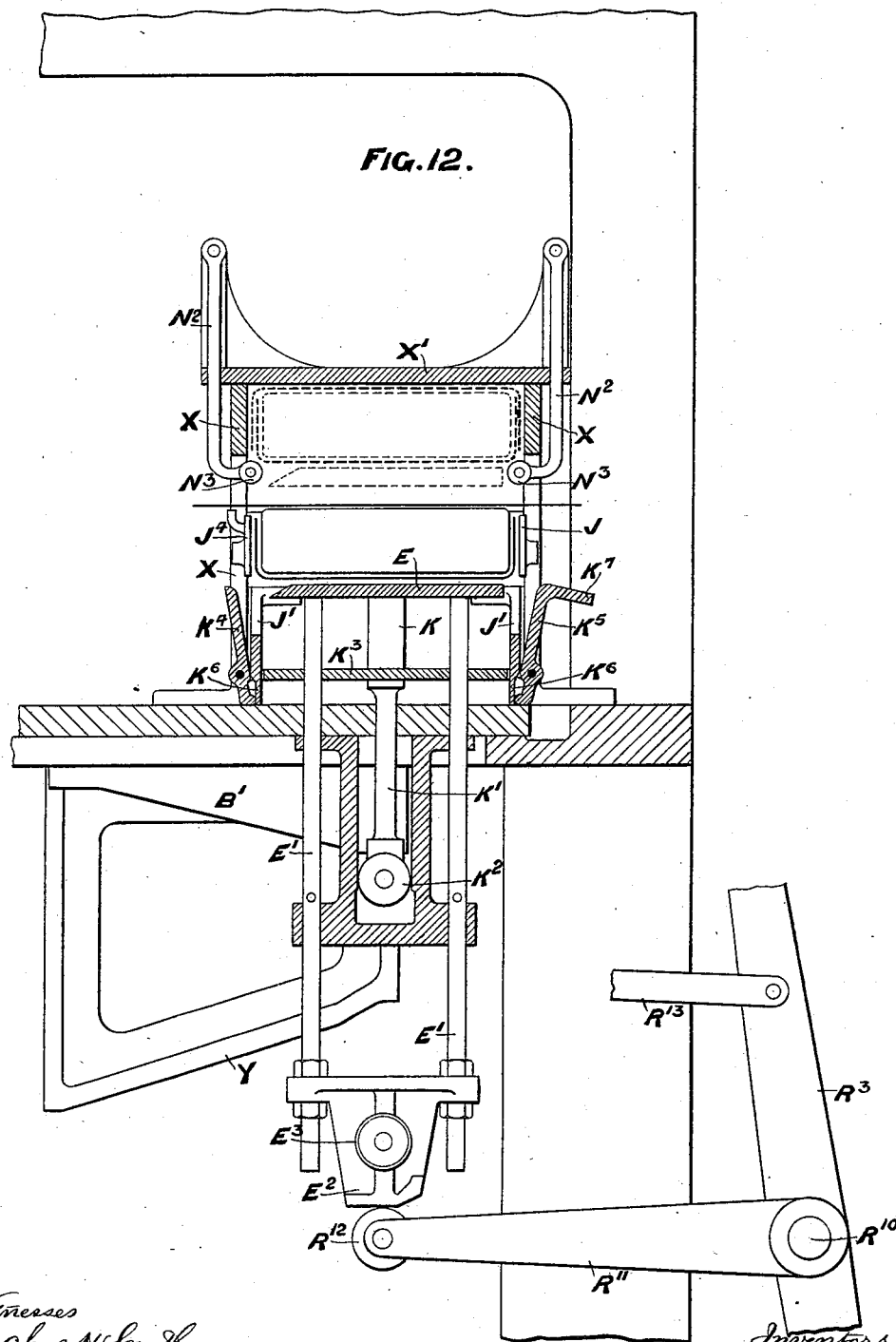
FIG. 6.



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FIG. 13.

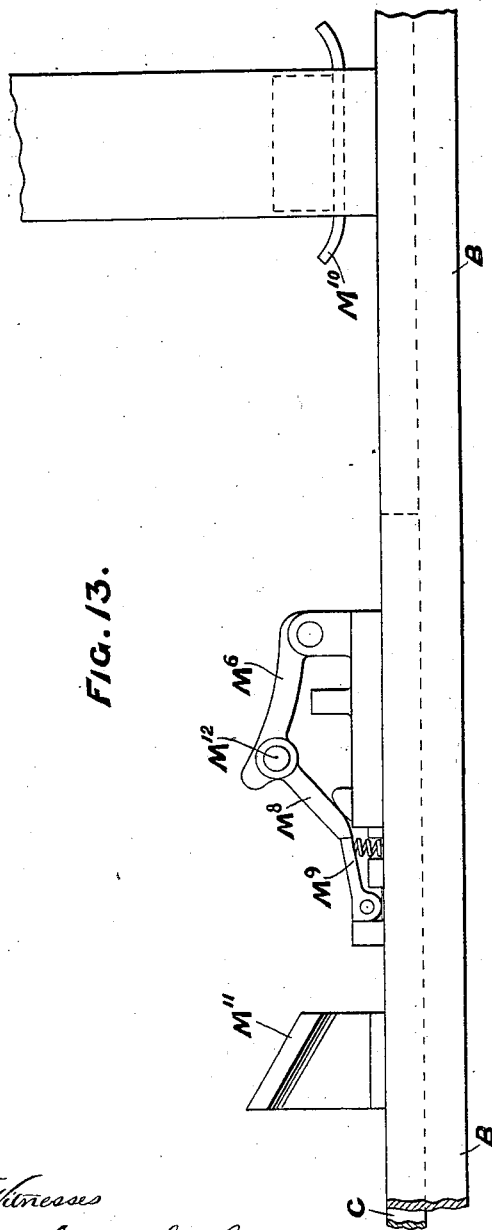
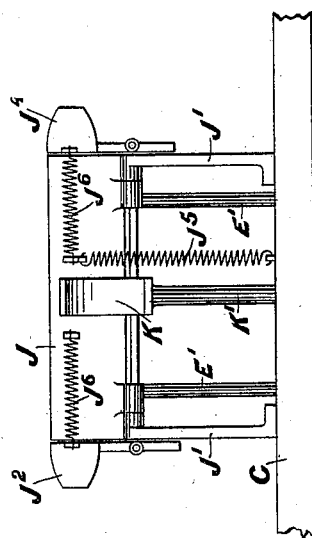


FIG. 14.



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UNITED STATES PATENT OFFICE.

ANDREW FORBES AND FREDERICK GROVER, OF LEEDS, ENGLAND.

WRAPPING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 646,208, dated March 27, 1900.

Application filed June 7, 1899. Serial No. 719,644. (No model.)

To all whom it may concern:

Be it known that we, ANDREW FORBES and FREDERICK GROVER, subjects of the Queen of Great Britain and Ireland, and residents of Leeds, in the county of York, England, have invented certain new and useful Improvements in Apparatus for Wrapping Cakes of Soap or other Blocks or Bodies, (for which we have made application for a patent in Great Britain, No. 24,594, bearing date November 24, 1898,) of which the following is a specification.

Our invention refers to apparatus for wrapping cakes of soap or other blocks or bodies (hereinafter termed "blocks") in paper or other flexible coverings; and our object is to so construct the apparatus that the wrapping is effected most expeditiously, and the covering when wrapped on the block is not liable to become loose either during the passage through the machine or after the discharge of the block in a wrapped condition.

The machine consists, essentially, of a framework carrying a horizontal bed having longitudinal guides, on which a slide is moved backward and forward, the said slide carrying two slabs with folding-leaves, which are alternately brought below a central hopper and receive separate blocks onto sheets of paper in which the blocks are to be wrapped. The slide having a continuous movement the folding is effected during its reciprocations, the side folds being formed by side leaves on the slabs, the first end folds being formed by rising end plates carried on the table, the longitudinal fold being formed and locked by a turnover-channel and straight-edge, the second end folds being formed by end wings and the last end folds being formed by the interior of the passage through which the block is discharged.

In the drawings, Figure 1 is a side elevation, partly in section, and Fig. 2 is an end elevation, of a machine constructed according to our invention. Fig. 3, 4, and 5 are perspective views drawn to a larger scale, showing one of the slabs with its leaves, wings, and end plates in various positions. Fig. 6 is a section illustrating the mechanism for operating the turnover-channel and straight-edge. Fig. 7 is a plan of a detail of the mechanism shown in Fig. 6, and the particular

movements and resultant work of the latter are shown in the detail views at Figs. 8, 9, and 10. Fig. 11 shows a block completely wrapped with the exception of the final end folds, and Fig. 12 shows a section of the end of the machine with these end folds about to be formed. Fig. 13 is an elevation of the collapsible incline and a portion of the bed of the machine. Fig. 14 is an elevation of the hinged leaves and wings and the parts that support them. Fig. 15 is a section of a portion of the bed and slide and sectional elevation of the roller that presses the longitudinal fold of the wrapper. Fig. 16 is a perspective view of part of the turnover-channel, its pivot, and support.

A is the framework of the machine, and B is the horizontal bed having longitudinal guides B'.

C is the slide, carried on the bed B, and C' is a bracket attached to the under side of the slide C and which transmits a continuous reciprocating movement to the latter from a driving-pulley D through the medium of a shaft D', pinion D², spur-wheel D³, crank-pin D⁴, connecting-rod D⁵, arm D⁶, and connecting-links D⁷. The slide C carries on its surface a bracket C², which during the reciprocation of the said slide C comes alternately against collars P and P' at the ends of its stroke, with the result that a rod P², which carries the collars P P', is moved longitudinally with each reciprocation of the table. The rod P² is provided at its ends with hooked extensions P³ and P⁴, which take over pins R' and R², situated on the levers R and R³, and the latter tend to move apart at their upper ends, owing to a tension-spring R⁴, which connects the lower ends of the levers R R³ together. Catches S S' are situated at the ends of the frame in such positions that when the lever R³ is pulled inward by the hooked extension P⁴ engaging with the pin R² and being moved by the bracket C² coming against the collar P and so moving the rod P² the said catch S' takes over the lever R³ and holds it firmly in position. Prior to the above movement the lever R had been drawn in in a similar manner and was being held by the catch S, but with the movement of the rod P², as above described, a curved portion P⁵ of the hooked extension P³ came under a pin S² on the catch S and lifting the same

let the lever R go till it was caught by the hooked extension P³, catching the pin R'. On the return of the slide C the lever R is drawn in and the lever R³ is released by a curved portion P⁶ of the hooked extension P⁴ coming under a pin S³ and so lifting the catch S'. The movements of the levers R and R³ are thus of a sudden character, and the release of the lever R, which is mounted on a rocking shaft R⁵, causes the latter to rock, and thus give a sudden movement to an arm R⁶, which is mounted on the same shaft and is provided with a friction-roller R⁷ on its outer end.

R⁸ is a rod which is connected to an arm R¹⁵, carried on the shaft R⁵, and communicates motion from the lever R to a bell-crank lever R⁹. The lever R⁹ is mounted on a rocking shaft R¹⁰, an arm R¹¹, carrying an end roller R¹², being carried on the said shaft, and R¹³ is a connecting-rod which communicates motion from the lever R⁹ to a bell-crank lever R¹⁴. The functions of the arms R⁵ and R¹¹ and of the bell-crank levers R⁹ and R¹⁴ will be hereinafter described in connection with mechanism situated on the slide C. Two slabs E for receiving the blocks to be wrapped are situated at opposite ends of the slide C, and the distance between their centers is equal to the stroke given to the slide C by the movement above referred to. As both the slabs E and their adjacent parts mounted on the slide C are similar in form and action, we will proceed to describe the machine from the position shown at Fig. 1 and with particular reference to the slab shown in the center of the machine in that view.

F is a hopper containing the blocks to be wrapped, resting one on the other, and the blocks are held up in the hopper F by means of fingers G, fulcrumed at G' to the hopper F. The releasing of the fingers G is effected at the end of each stroke of the table C through toggle-links G², which are lifted by a vertical slide G³, and the movement of the latter is obtained by means of a forked lever G⁴, which engages at its single end with the under side of a projection G⁵ on the slide G³ and at its forked end with the ratchet-wheels G⁶ G⁶. The ratchet-wheels G⁶ are mounted loosely on a rocking shaft H, and they are moved alternately on the rocking of the said shaft by means of pawls H', which are carried on opposite sides of a projection H², keyed on the shaft H. The shaft H receives its rocking motion through an arm H³, connecting-rod H⁴, arm H⁵, and shaft H⁶, the latter being rocked by the movements of the lever D⁶, which is carried on its opposite end. The forked lever G⁴ is set in such a position that it is actuated from the rocking shaft H through pawls H' and ratchet-wheels G⁶ immediately before the slide C arrives at the end of its stroke, thus releasing the fingers G and causing the lowest block contained in the hopper F to fall onto the slab E, which has been previously supplied with a wrap-

ping-sheet. Two ratchet-wheels G⁶ and two pawls H' are employed because the forked lever G⁴ is operated at the end of each upward or downward movement of the arm H³, and this extreme movement of G⁴ occurs at the end of each movement of the slide C.

The slab E and adjacent parts are best seen at Figs. 3, 4, 5, and 12, where the said slab is carried on the upper ends of two vertically-sliding rods E', which are connected together at their lower ends by a cross-piece E², and the base of the cross-piece E² is of suitable form to receive a vertical thrust for the purpose of raising the slab E when required, while a roller E³ is provided for drawing down the slab, as hereinafter described.

J J are two leaves which are hinged to brackets J' on the slide C, the said brackets J' being of such a height that when the leaves J are opened out they are level with the surface of the slab E when in its lowest position.

J² J² are a pair of end wings hinged to the ends of the leaves J, and J³ J³ are projections, which actuate the wings J², as hereinafter described. J⁴ J⁴ are another pair of end wings, and the end wings J² and J⁴ all tend to keep in the same plane as the leaves J by means of springs J⁵ and J⁶. (Shown in Fig. 14.)

Fig. 3 shows the slab E and the leaves J with their end wings J² and J⁴ all spread out in one plane. Fig. 4 shows the same parts with the leaves J turned up so as to form a rectangular trough, and Fig. 5 shows the end wings J² and J⁴ turned in so that the slab E, leaves J, and wings J² and J⁴ form a rectangular box. The folding up of the side leaves J is effected by means of an embracing-fork K, which is supported on a rod K', carrying friction-rollers K² at its lower end, and the base of the fork K carries a frame K³, having two end plates K⁴ and K⁵ hinged on its opposite ends, and the bases of the end plates K⁴ and K⁵ travel in recesses K⁶ in such a manner as to cause them to rise partly opened out for the first portion of their upward movement when the frame K³ begins to rise and then to close in and complete their movement in a vertical line. The above-described fork K, with its frame K³, is operated at the end of the stroke of the slide C by the release of the lever R, which through the medium of the shaft R⁵, arm R¹⁵, and connecting-rod R⁸ actuates the bell-crank lever R⁹, thus causing the latter to suddenly lift the roller K², with the result of closing the leaves J and raising the end plates K⁴ and K⁵ into the position shown at Fig. 4.

Referring particularly to Fig. 6, L is a U-shaped channel fixed at one end to a pivot L', carried by a single bearing forming one end of one of a pair of suspended arms L² L², which are coupled together at their lower ends by a cross-piece L¹⁰, formed with a seat on its front edge, against which the channel L rests and is supported throughout its length when in its normal position.

L^3 is a connecting-fork connecting the arms L^2 , through the medium of a rod L^4 , with a vertically-moving spring-rod L^5 , which carries a roller L^6 at its lower end for receiving motion or being controlled by a rail L^7 , carried on the slide C.

M is a straight-edge carried on two arms M^1 , which receive motion through a connecting-fork M^2 , rod M^3 , vertically-moving spring-rod M^4 , and roller M^5 from an incline M^6 , and the latter is suddenly collapsed, thereby dropping the spring-rod M^4 , with its roller M^5 . The collapsible incline M^6 (seen at the right-hand side of Fig. 1) is held up by means of a pawl M^8 , which rests against a spring-block M^9 in such a manner that when the spring-block M^9 is depressed the pawl M^8 is let go and the incline M^6 is suddenly collapsed. The incline M^6 is dropped at the required time during the movement of the slide C by means of an angle-piece M^{10} , carried on the framework, which depresses the spring-block M^9 as it passes, and the incline is returned to its raised position by means of an incline M^{11} , up which a projection or pin M^{12} on the incline travels at the end of the stroke of the slide C. The incline M^6 at the left-hand side of Fig. 1 is collapsed and relifted by similar mechanism at the opposite side of the machine.

The incline M^6 and rail L^7 are set in such positions that the spring-rods M^4 and L^5 are raised simultaneously as the slide C advances, with the block held on the slab E in the position shown at Fig. 4, thus causing the two pairs of links M^1 and L^2 to close in simultaneously, the straight-edge M entering the channel L and taking the upstanding edges of the covering with it, as shown in Fig. 9. In Fig. 6, which shows this movement most clearly, the rollers M^5 and L are represented in contact with the inclines M^6 and M^7 immediately before said rollers receive their upward movement. A hook M^7 on one of the arms M^1 engages with a volute hook L^8 on the channel L, and on the sudden return of the straight-edge M to its normal position, caused by the collapse of the incline M^6 , the channel L is turned over on its pivot L^1 , taking the fold contained in the channel L with it and so forming a locked fold, as best seen at Fig. 10. Figs. 8, 9, and 10 show the action of the parts above described for forming the locked fold. Owing to the length of the rail L^7 , the channel is allowed to remain in the position shown in dotted lines at Fig. 6, where it holds the locked fold intact while the latter is drawn through and out of the channel L by the movement of the slide C. On the return of the slide C the roller L^6 descends the incline of the rail L^7 , thus returning the channel L to its normal position, the turning over of the said channel being effected by means of a chain L^9 , attached to the side of the pivot L^1 and which when the channel L is first turned over by the hooks M^7 and L^8 is wound for half a circumference on the exterior of the pivot

L^1 . The chain L^9 receives its motion from a rocking lever L^{12} , to which it is attached at its upper end, and the said lever is connected to the spring-rod L^5 by means of a chain L^{13} in such a manner that the advance of the channel L and rise of the rod L^5 slacken the chain L^9 and their return tightens the chain, with the consequent effect of turning the channel L over into its normal position. The movement of the slide C draws the locked fold of the wrapper through the channel L, and as it leaves the latter the said locked fold is rolled down by a roller B^2 , a small platform K^7 , carried on the end plate K^5 , supporting the under portion of the front end of the locked fold. The roller B^2 is given a rotary motion by means of a chain B^3 , which winds on a smaller portion B^4 of the roller B^2 . The opposite end of the said chain B^3 passes under a guide-roller B^5 and terminates in a hook B^6 , which latter is turned down, so as to intercept the end of the slide C when it passes underneath. The passing of the slide C draws out the chain B^3 , which turns the roller B^2 with a slightly-swifter surface motion than that of the slide C, owing to the differences of diameter of the roller B^2 and the portion B^4 , thus preventing any drag on the fold of the wrapper. The roller B^2 is returned to its normal position as the slide recedes by means of a spring within the said roller. As the slide C continues its advance the roller K^2 is intercepted by an incline B^1 , which lowers the roller K^2 , drawing with it the rod K^1 , fork K, frame K^3 , and end plates K^4 and K^5 , thus leaving the side leaves J free; but these latter are prevented from falling by their entry at this moment between guide-rails V, which are carried on brackets attached to girders X, supported on the bed B.

V' V' are rods mounted on brackets attached to the girders X, and V^3 V^2 are tappets mounted on the rods V', which when they come into contact with stops V^3 on the slide C twist the rods V' and so cause two fingers V^4 V^4 , carried on the upper ends of the said rods, to turn in and close the end wings J^1 J^4 into the position seen at Fig. 5, thus forming the second end folds on one end of the now partially-wrapped block. The second end folds at the opposite end of the block are formed about the same time by the projections J^3 coming in contact with the guide-rails V, thus turning the end wings J^2 into the closed position, as also seen at Fig. 5. The block is now completely wrapped, with the exception of the last folds—viz., turning down the projecting ends, (seen at Fig. 11)—and this final folding operation is effected by passing the block up between the girders X. X' is a top plate, and N^2 are folding-fingers having rollers N^3 on their ends, which allow the blocks to pass when moved up, thus forming the last end folds, and the said rollers then prevent the return of the blocks. The block is raised at the end of the stroke of the slide C by means of the arm R^{11} , the friction-roller R^{12}

of which comes against the base of the cross-piece E^2 on the release of the lever R^3 , thus effecting a quick rise of the slab E . The wrapped block is now ejected from the machine by means of a swinging cranked lever T , carrying a pusher T' on its end, the movement of the cranked lever T being effected from the rocking shaft H by means of an arm T^2 and connecting-rod T^3 . A traveling band, table, or other receiver may be provided to receive the wrapped block as it leaves the machine, or it may be removed by hand, if desired. The slide C has now arrived at the end of its stroke, and after a comparative pause, caused by the crossing of the dead-point of the crank D^4 , the said slide begins its return movement. The roller E^3 now travels down an incline Y , which is at a sufficiently steep angle to lower the slab E in time to clear the roller N^3 as the slide recedes. The side leaves J , with their end wings J^2 and J^4 , become withdrawn from the embrace of the guide-rails V , thus allowing them to fall down and spread out into the position shown at Fig. 3, ready for the reception of the next sheet of wrapping material. The cam M^6 being in the collapsed position the roller M^5 is not actuated, and the roller L^6 coming to the incline portion of the rail L' returns the channel L to its normal position, as shown at Fig. 6. The end of the return movement of the slide C carries the pin M^{12} up the incline M^{11} , thus returning the collapsed incline M^6 to its normal position, and on the feeding of the next sheet of wrapping material to the slab E the latter is ready for the reception of the next block from the hopper F .

It will be readily seen that the other slab, with its side leaves and adjacent parts carried on the other end of the slide C , performs similar movements and operations with corresponding mechanisms to those above described with reference to the first slab, and the following condensed description of the wrapping of a block will explain more fully the process to which the block and its wrapper are subjected, without dealing with the details of mechanism already fully described.

The lowest of the blocks to be wrapped contained in the hopper F is allowed to fall onto the slab E , a wrapper having been previously placed on the said slab, and immediately after the fall of the block the side leaves J rise, together with the end plates $K^4 K^5$, thus adjusting the position of the block and folding up the first side folds and first end folds of the wrapper, as seen at Fig. 4. As the slide C moves along, the straight-edge M and channel L move suddenly together, gripping the wrapper, as seen at Figs 8 and 9, and then on the return of the straight-edge M to its normal position the channel L turns over on its axis and forms the edge of the wrapper into a locked fold. (Best seen at Fig. 10.) The second folds are then made by the end wings J^2 and J^4 being turned inward as the end

plates K^4 and K^5 descend, and prior to and during this operation the locked fold is kept securely closed by means of the roller B^2 . The final folds on the ends of the block are effected by the upward passage between the rollers N^3 , and when the block is ejected by the head T' of the cranked lever T the block is completely wrapped and not liable to become loose.

Instead of the hopper F being employed to feed two sets of slabs and adjacent parts, as above described, the slide C could, if desired, carry one slab, and the machine would then be of a single instead of a double form.

Having now described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A machine for wrapping cakes of soap or other blocks or bodies, consisting in the combination of a framework having longitudinal guides, a slide C capable of reciprocation in the guides, and mechanism for actuating the slide C , a vertical stationary feed-hopper to contain the blocks to be wrapped, fingers G pivoted to the feed-hopper for controlling the delivery of the lowermost block, and mechanism for operating the fingers at proper times to effect the release of the said block, a slab E , carried by the slide C , for receiving the wrapper and the block to be wrapped, vertical sliding rods passing through the slide C to carry the slab and mechanism for raising and lowering the slab at proper times, folding hinged side leaves J , J , adjacent to the slab E , brackets on the slide C to carry the said hinged leaves, and a rising fork K for turning up the leaves J , J , from their normal horizontal position into a vertical position, to fold the wrapper against the sides of the block, and mechanism for lifting the fork, end plates K^4 , K^5 hinged to the fork-frame and means to close in the said plates immediately after the folding of the leaves J , J , to thereby fold up the under projecting ends of the wrapper, a U-section channel L and a blade M , and mechanism for bringing the channel L and blade M together from opposite directions, to grip the upstanding edges of the wrapper and fold the same into the channel, means for withdrawing the blade, means for axially revolving the channel through half a revolution to give the edges of the wrapper a second fold, and a roller B^2 to press and crease the folded edge as it is withdrawn from the channel L by the movement of the slide C , end wings J^4 , J^4 and J^2 , J^2 hinged onto opposite ends of the leaves J , J , means for retaining the latter leaves J , J in their folded vertical position when the forked support K is withdrawn, and tappet mechanism for turning in the end wings J^4 , J^4 and J^2 , J^2 to laterally fold in the second end folds of the wrapper at each end of the block, folding-fingers N^3 , rollers N^3 carried by the said fingers to act upon and fold down the projecting ends of the wrapper as the

slab E and block are raised and a swinging cranked lever T and means for operating the same for ejecting the wrapped block, as set forth.

5 2. An apparatus for wrapping cakes of soap or other blocks or bodies consisting of the combination with a frame A having a bed B thereon, the latter carrying a slide C receiving a reciprocating action through suitable
10 mechanism, the slide C carrying slabs E each being provided with side leaves J, J, end wings J², J⁴, and end plates K⁴, K⁵; of a hopper for feeding the blocks to be wrapped, mechanism for operating the slabs, side leaves,
15 end wings, and end plates, means for forming the longitudinal fold, and means for forming the final end folds, substantially as set forth.

3. In an apparatus for wrapping cakes of
20 soap or other blocks or bodies, the combination with the slide C and the slab E thereon for receiving the wrapper and the block to be wrapped, the hopper F for containing the blocks, and means for reciprocating the slide
25 C and slab E and arresting the same with the slab beneath said hopper, of fingers G pivoted to and at opposite sides of said hopper, means for keeping said fingers in contact with the lowermost block and retaining the
30 blocks in the hopper and means for releasing said fingers and allowing the lowermost block to pass upon the slab when the latter is stopped beneath said hopper, substantially as specified.

4. In an apparatus for wrapping cakes of
35 soap or other blocks or bodies, the combination with the continuously-reciprocating slide C and the slab E thereon for receiving the wrapper and the block to be wrapped, of the
40 hopper F for containing the blocks, pivoted fingers G at opposite sides of said hopper for retaining the blocks in the hopper, the vertical slide G³, toggle-links G² pivoted to said slide and fingers, the rock-shaft H, ratchet-wheels
45 G⁶ loose on said shaft, the pawl-carrier H² secured to said shaft H, pawls H¹ pivoted to said carrier, the forked lever G⁴ with its forked end in contact with said ratchet-wheels and its other end taking against a projection
50 on the slide G³ and means for rocking said shaft H and thereby releasing the fingers G, substantially as specified.

5. In an apparatus for wrapping cakes of
55 soap or other blocks or bodies, the combination of a frame A with a bed B thereon, and a slide C carrying slabs E fitted with side leaves J, J, end wings J², J⁴ and end plates K⁴, K⁵, the fork K and frame K³ carried on the rod K', and suitable mechanism for actuating the said parts, substantially as set forth.

6. In an apparatus for wrapping cakes of
65 soap or other blocks, the combination with the continuously-reciprocating slide C and a slab thereon for receiving the wrapper and the block to be wrapped, of side leaves hinged

to brackets upon said slide, wings hinged to the ends of said side leaves, springs for keeping said side leaves and end wings horizontal, and means for closing said side leaves and end wings into a box-like form, substantially as specified. 70

7. In apparatus of the type herein described, the rod P² carrying collars P, P' and hooked extensions P³, P⁴ having inclined portions P⁵, P⁶, the bracket C² mounted on the slide C, the
75 pins R', R² situated on the ends of the levers R, R³, the catches S, S' carrying projecting pins S², S³, substantially as set forth.

8. In an apparatus for wrapping cakes of
80 soap or other blocks or bodies, in which a continuously-reciprocating slab for holding the block to be wrapped is employed, the combination of a U-shaped channel situated on one side of the machine, and of a straight-edge
85 on the opposite side of the machine, mechanism for bringing the U-shaped channel and the straight-edge together and for withdrawing the latter and turning over the U-shaped channel, all during the movement of the slide, substantially as set forth. 90

9. In an apparatus for wrapping cakes of
95 soap or other blocks, the combination with the continuously-reciprocating slide C, and a slab thereon for receiving the wrapper and the block to be wrapped, of side leaves hinged to
brackets upon said slide, wings hinged to the ends of said leaves, the frame K³ and end plates K⁴, K⁵ pivoted to the frame K³, a platform K⁷ at the upper end of the plate K⁵ and
100 means for closing the side leaves and end wing, and lifting the plates K⁴ and K⁵, substantially as specified.

10. In an apparatus for wrapping cakes of
105 soap or other blocks, the combination with the continuously-reciprocating slide C, and a slab thereon for receiving the wrapper and the block to be wrapped, of the hinged side leaves J, J, end wings, J² J⁴ hinged to said side leaves, the rod K', a frame K³ carried by said
110 rod, plates K⁴ and K⁵ hinged to the plate K³, the bell-crank lever R³ for lifting the rod K', the shaft R⁵, arm R¹⁵ and lever R connected to said shaft, a rod R⁸ connected to the lever R³ and arm R¹⁵, a spring acting upon the end
115 of the lever R, and a catch and release mechanism at the other end of said lever, substantially as specified.

11. In an apparatus for wrapping cakes of
120 soap or other blocks, the combination with the continuously-reciprocating slide and a slab thereon, for receiving the wrapper and the block to be wrapped, and means for giving the first and end folds to the wrapper, of the vertical spring-rods L⁵ and M⁴, the arms L³ and M' pivoted at their upper ends, forks L³
125 connected to the rod L⁵ and arms L², forks M² connected to the rod M⁴ and arms M, a straight-edge M and hook M⁷ at the lower end of the arms M', the U-shaped channel L pivoted at the lower end of the arms L², the hook 130

L⁸ on the channel L, the rail L⁷ and incline M⁶ on the bed of the machine for raising the rods L⁵ and M⁴ and thereby causing the straight-edge to pass into the channel L and carry with it the two upstanding parts of the wrapper, and an angle-piece M¹⁰ also on said bed for causing the incline M⁶ to collapse, substantially as specified.

12. In an apparatus for wrapping cakes of soap or other blocks, the combination with the continuously-reciprocating slide C and a slab thereon for receiving the wrapper and the block to be wrapped, the spring-rods L⁵ and M⁴, the arms L² and M¹, the connections M² and L³ between said rods and arms, the straight-edge and U-channel carried by the arms M¹ and L² respectively, and the inclines for actuating said parts, of a lever L¹², a cord L⁹ wound upon the pivot of the U-channel L and connected to one end of said lever L¹² and a cord L¹³ attached to the other end of said lever and also to the rod L⁵, so that as the rod L⁵ descends the cord is unwound from the pivot of the U-channel and returns said U-channel to its normal position, substantially as specified.

13. In an apparatus for wrapping cakes of soap or other blocks, in which a continuously-reciprocating slab for holding the block to be wrapped is employed, the combination of a U-shaped channel situated on one side of the machine, and a straight-edge on the opposite side of the machine, mechanism for bringing the U-shaped channel and the straight-edge together and for withdrawing the latter and turning over the U-shaped channel, and means for returning the U-shaped channel to its first position, all during the movement of the slide, substantially as specified.

14. In an apparatus for wrapping cakes of soap or other blocks, the combination with the continuously-reciprocating slide and a slab thereon to receive the wrapper and the block to be wrapped, of an arm M⁶ pivoted to said slide, a pawl M⁸ pivoted to said arm, a pin M¹² projecting from the arm M⁶, and a spring-block against which the end of the pawl rests, said parts forming a collapsible incline, and an angle-piece M¹⁰ upon the bed of the machine against which the pin M¹² contacts during the movement of the slide for causing the arm M⁶ to drop and an incline M¹¹ also on the bed of the machine for resetting the arm M⁶, substantially as specified.

15. In an apparatus for wrapping cakes of soap or other blocks, the combination with the continuously-reciprocating slide C, and a slab thereon for receiving the wrapper and the block to be wrapped, the side leaves J and end wings J² and J⁴ hinged to said side leaves, the said end wings J² having projections J³ thereon, and means for raising said side leaves and end wings, of the rods V¹ V¹ suitably supported from the bed of the machine, tappets V² V² and fingers V⁴ V⁴ con-

nected to said rods V¹ V¹, guide-rails V V at the upper ends of said rods V¹ V¹, and the stops V³ V³ on the slide C all arranged so that as the parts are carried in between the rails V V, the latter close the wings J² J² and the fingers V⁴ V⁴ close the wings J⁴ J⁴, substantially as specified.

16. In an apparatus for wrapping cakes of soap or other blocks, the combination with the continuously-reciprocating slide C and a slab E thereon for receiving the wrapper and the block to be wrapped, means for forming the side folds, first end folds, longitudinal fold and second end folds, of the girders X between which the wrapped block passes, pivoted fingers N², rollers N³ at the lower ends of said fingers, and means for lifting the slab and block and giving the final end folds to the wrapper by the rollers N³ pressing down the projecting ends of the wrapper as said slab and wrapped block are lifted, substantially as specified.

17. In an apparatus for wrapping cakes of soap or other blocks; the combination with the continuously-reciprocating slide C, the slab E thereon for receiving the wrapper and the block to be wrapped, the rods E¹ for supporting the slab E and the frame E² connecting the lower ends of the rods E¹, of the girders X between which the wrapped block passes as the same is lifted, the pendent fingers N², the rollers N³ at the lower end of said fingers and the lever R³ and arm R¹¹ for lifting the slab E at the proper time and carrying the wrapper-block upward between the rollers N³ and make the final end folds, substantially as specified.

18. In an apparatus for wrapping cakes of soap or other blocks, the combination with the continuously-reciprocating slide C and the slab E for receiving the wrapper and the block to be wrapped, and means for giving the various folds to the wrapper, of the rock-shaft H, arms H³ and T² connected to said rock-shaft, the pusher T pivoted at its upper end to the frame of the machine, a rod T³ connecting the pusher T and arm T² and means for actuating the arm H³ and thereby causing the pusher to eject the wrapped block from the machine, substantially as specified.

19. In an apparatus for wrapping cakes of soap or other blocks or bodies, the combination with the continuously-reciprocating slide C and slab E for receiving the wrapper and the block to be wrapped, and means for forming the side folds, first and second end folds and longitudinal locked fold of the wrapper, of the roller B² suitably supported and beneath which the wrapped block is carried and which rolls down the said locked fold of the wrapper, a cord, one end of which is wound upon a smaller portion B⁴ of said roller, and the other end of which is connected to the slide C, so that said roller B² is rotated with a slightly-swifter surface motion than

that of the slide C by the unwinding of the
cord on the roller B², as the slide moves in
one direction and the roller presses down the
locked fold, and a coiled spring within said
5 roller for winding up the cord on the roller
B² as the slide moves in the reverse direction,
substantially as specified.

In witness whereof we have hereunto set our
hands in presence of two witnesses.

ANDREW FORBES.

FREDERICK GROVER.

Witnesses:

GRIFFITH BREWER,

ALBERT E. EMBY.