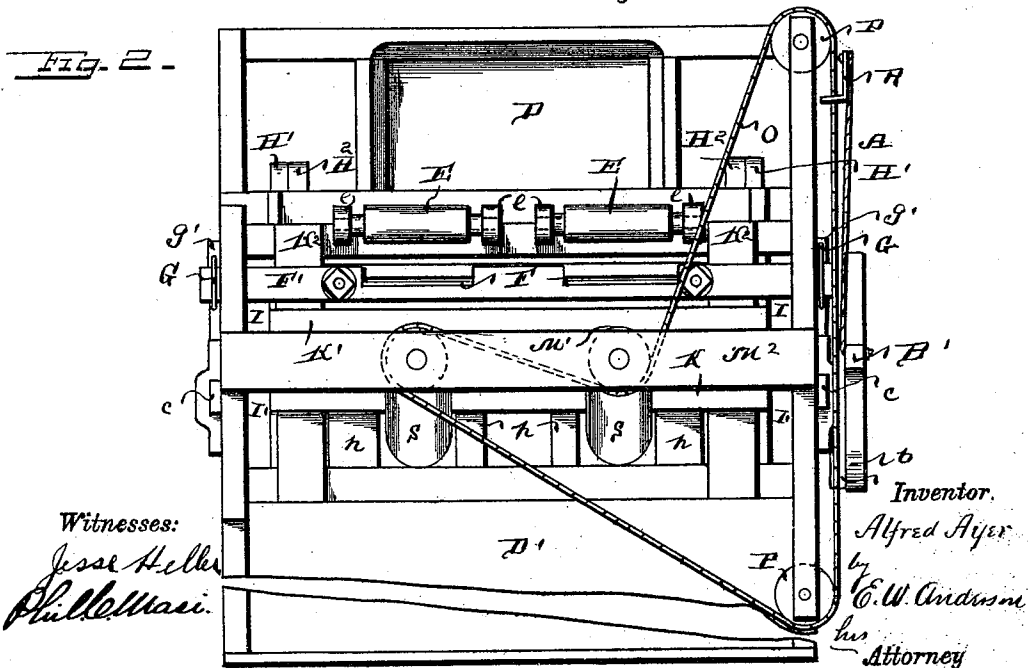
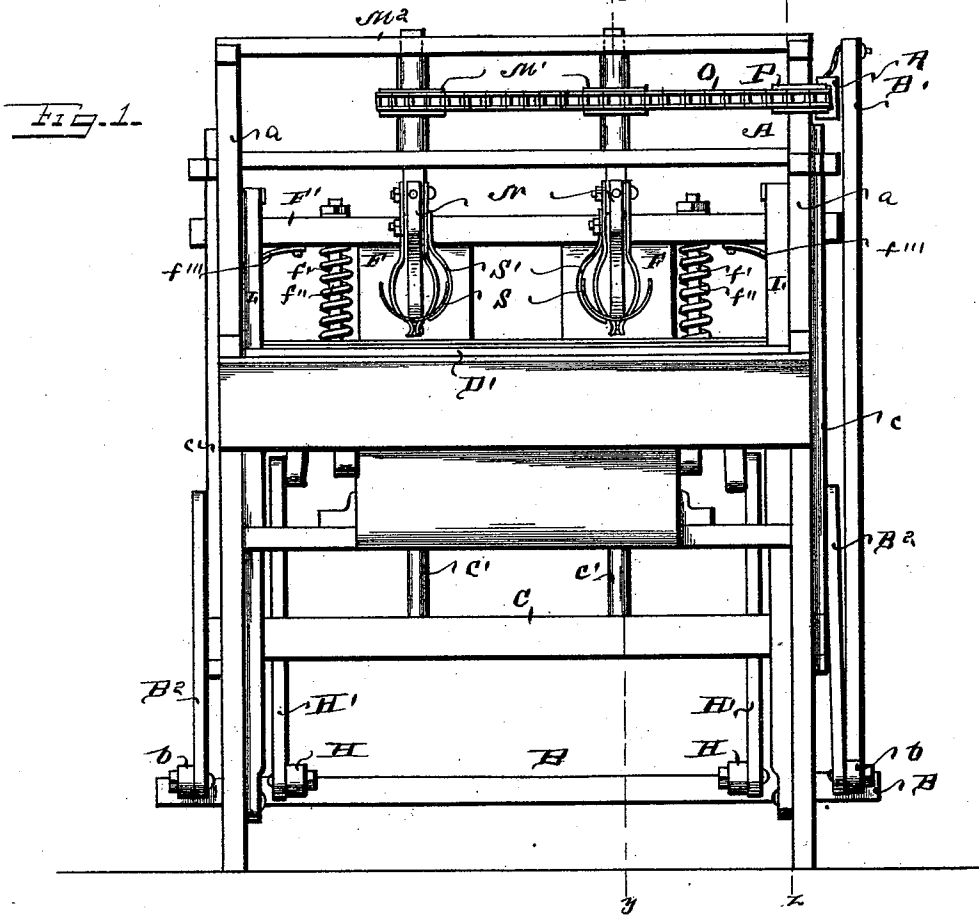


A. AYER.
MACHINE FOR WRAPPING ORANGES.

No. 498,222.

Patented May 30, 1893.



Witnesses:
Jesse Heller
Philip Massi.

Inventor.
Alfred Ayer
by E. W. Anderson
Attorney

(No Model.)

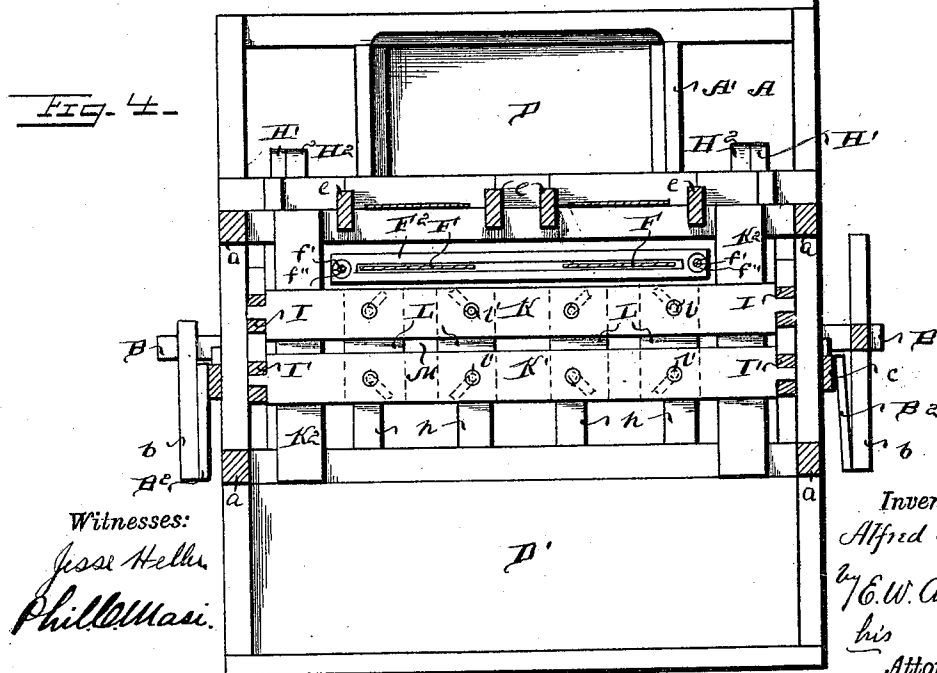
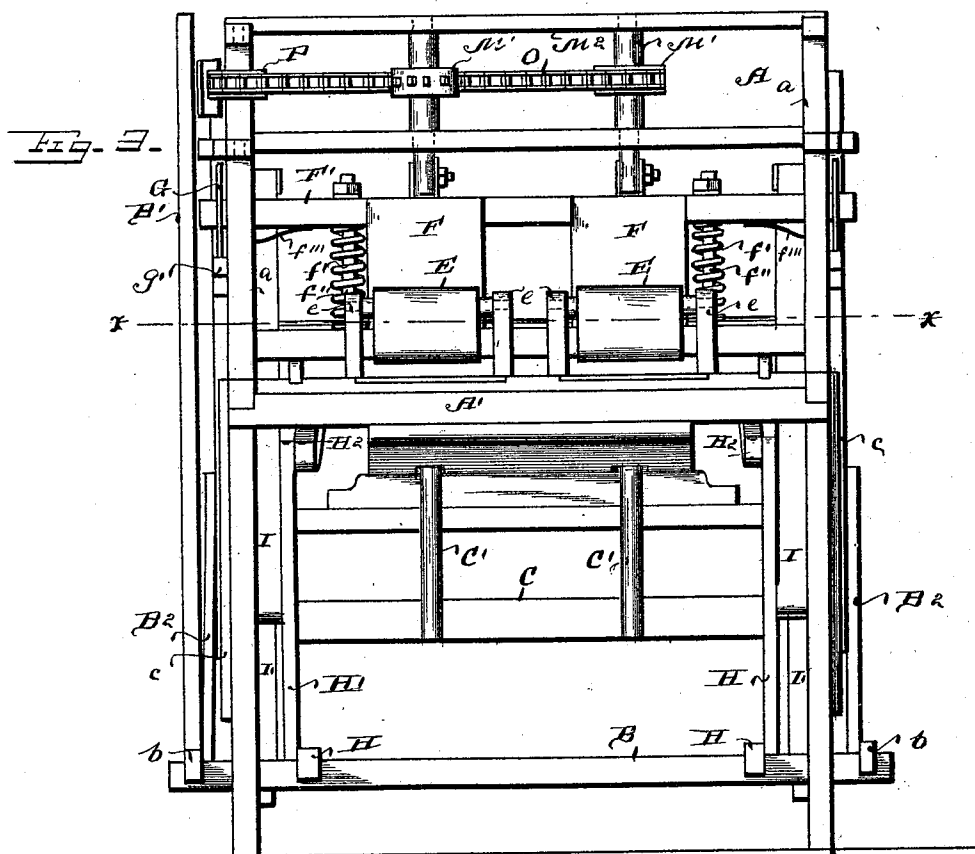
5 Sheets—Sheet 2.

A. AYER.

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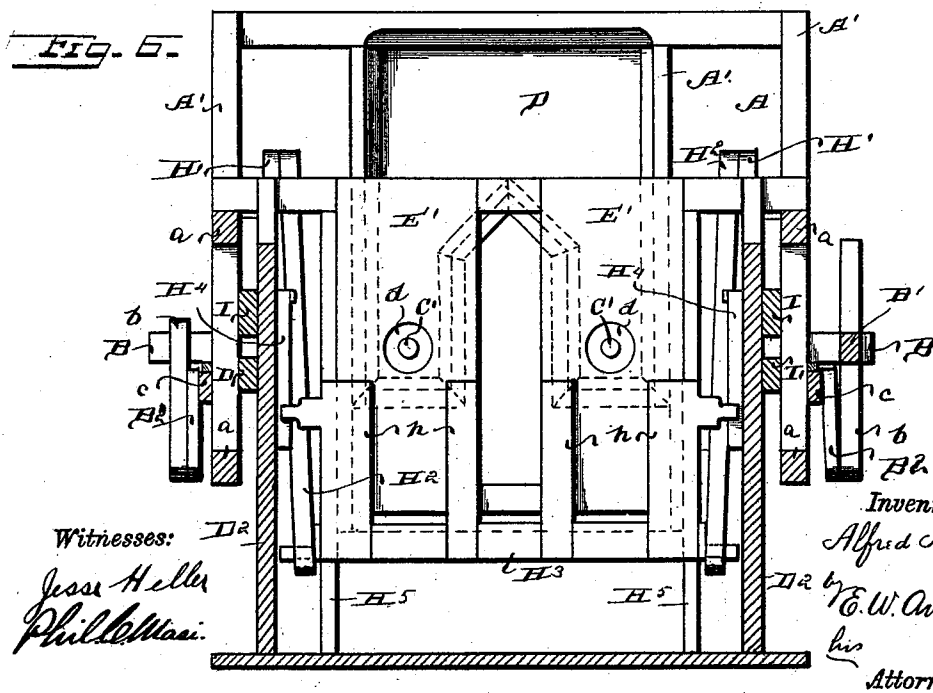
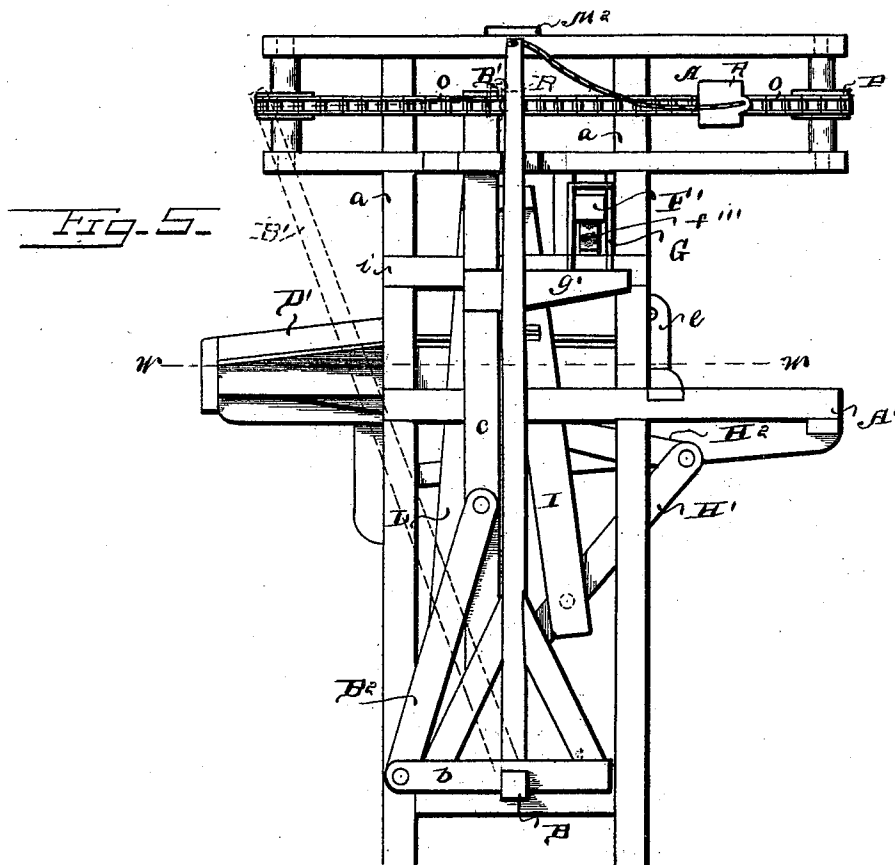
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Fig. 7.

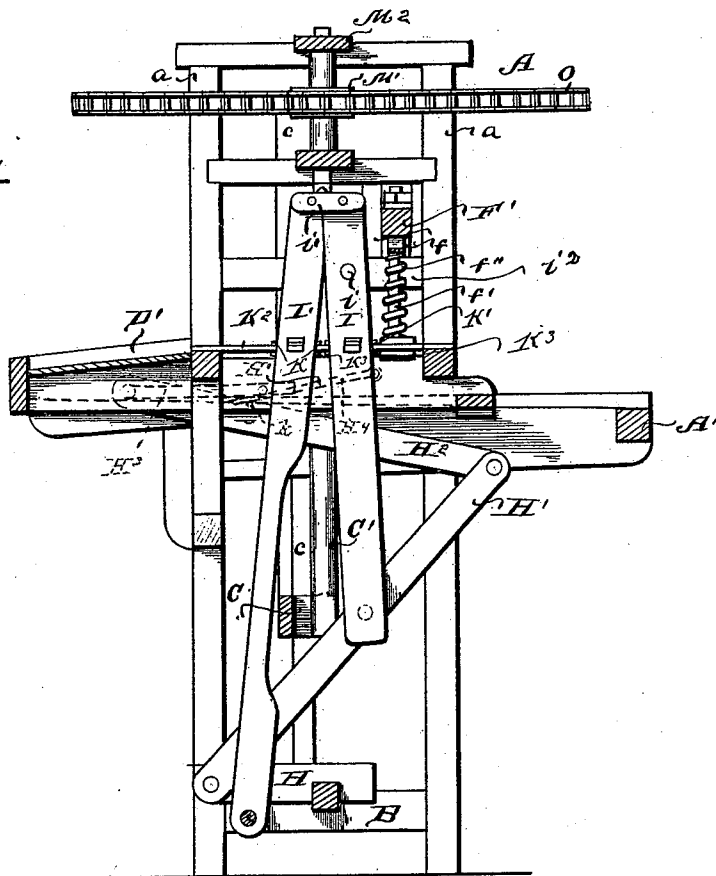


Fig. 8.

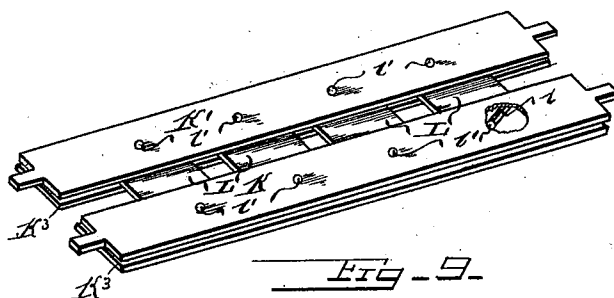


Fig. 9.



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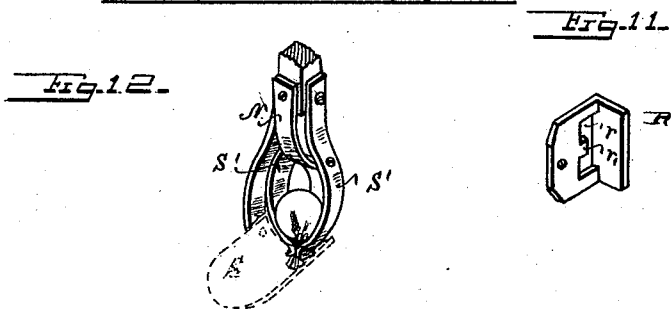
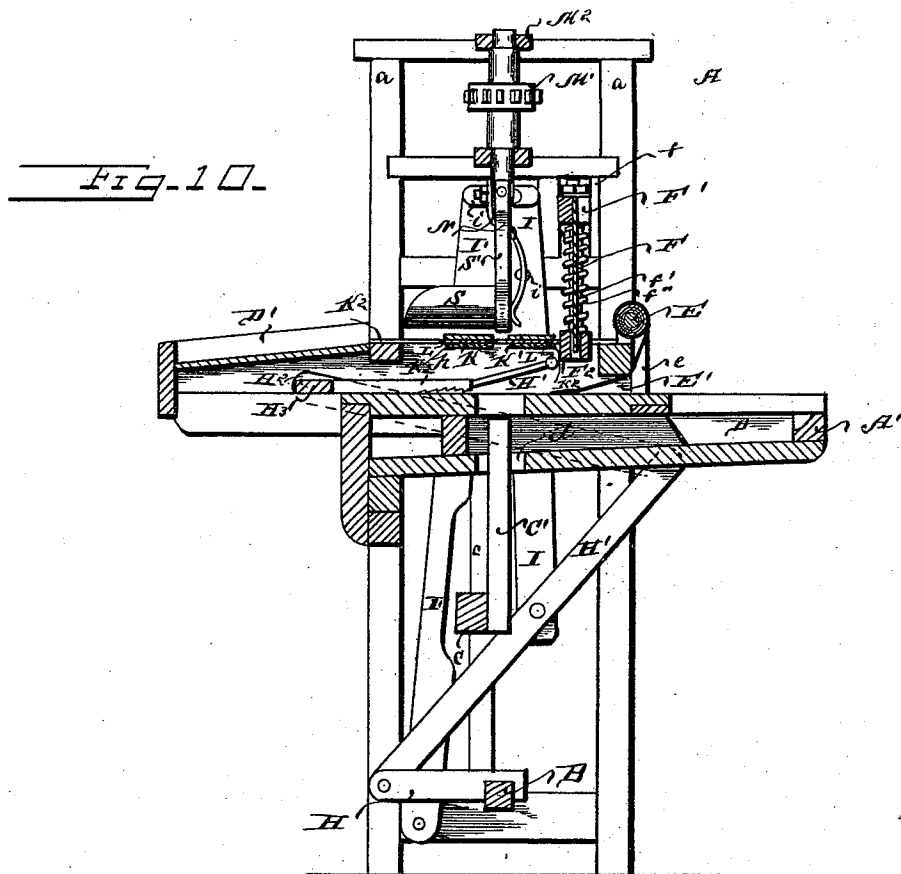
(No Model.)

5 Sheets—Sheet 5.

A. AYER.
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Patented May 30, 1893.



Witnesses:

Jesse Heller,
Phillip Massi.

Inventor.

Alfred Ayer

by E. W. Anderson
his Attorney.

UNITED STATES PATENT OFFICE.

ALFRED AYER, OF LAKE WEIR, FLORIDA.

MACHINE FOR WRAPPING ORANGES.

SPECIFICATION forming part of Letters Patent No. 498,222, dated May 30, 1893.

Application filed August 29, 1892. Serial No. 444,408. (No model.)

To all whom it may concern:

Be it known that I, ALFRED AYER, a citizen of the United States, and a resident of Lake Weir, in the county of Warren and State of Florida, have invented certain new and useful Improvements in Machines for Wrapping Oranges; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form part of this specification.

Figure 1 of the drawings is a rear elevation of the machine. Fig. 2 is a plan view of same. Fig. 3 is a front elevation of the machine. Fig. 4 is a horizontal section on line *x x* Fig. 3. Fig. 5 is a side elevation of the machine. Fig. 6 is a horizontal section on line *w w* Fig. 5. Fig. 7 is a vertical section on line *z z* Fig. 1. Fig. 8 is a perspective detail view of sliding clamp plate. Fig. 9 is a detail view of lower clamp and Fig. 10 is a vertical section taken on line *y y* Fig. 1. Fig. 11 is a detail view of the sprocket chain operating device, and Fig. 12 is a perspective view of one of the holders with an orange therein, the delivering plate being shown in dotted lines.

This invention has relation to certain new and useful machines for wrapping oranges and other fruit preparatory to packing, and it consists in the novel construction and combination of parts as hereinafter described and pointed out in the claims.

In the accompanying drawings, I have shown and shall hereinafter describe, a machine provided with mechanism for wrapping two oranges at a time and operated by the same means, but I desire it understood that by simple reduplication of parts, I may increase the capacity of the machine to any practical number, without in the least affecting the invention.

Referring to the said drawings, the letter A designates the frame of the machine, comprising essentially the upright end posts *a, a, a', a'*, with their longitudinal and transverse braces.

B designates a rock bar or shaft, which is journaled in the base of the frame, and which

is operated by a vertical, oscillating lever B', fast to one end portion thereof. Said bar or shaft at each end outside of its bearings, carries a rearwardly projecting arm *b*, and to these arms are connected the lower ends of links or levers B², B², which at their upper portions are connected with the side bars *c, c*, of an angular vertical frame C. Said frame is arranged to slide or reciprocate vertically in suitable guides in the frame, and its horizontal lower bar carries vertical plungers or feeders C', C'.

D designates the feed trough, which is supported by the frame A, and by a forward horizontal extension A' thereof. Said feed trough is forked at its rear or inner portion, and through each fork is an opening or aperture *d*, through which works the respective plunger or feeder C'.

D' is the delivery trough or shelf, which is supported on the opposite side of the machine from the feed trough, and considerably above the latter said delivering trough or shelf having the side pieces or guides D².

E, E, are the paper-holding rolls, which are journaled in brackets *e, e*, over the feed trough.

E', E', are the paper guides or ways, which form the tops to the forked portions of the feed trough.

F, F, are the paper cutters or perforators, which are carried by the longitudinal bar or head F', which is capable of a vertical sliding movement in guides *f*, and operated by yokes or bails G carried by arms *g'* of the frame C, which engages its projecting end portions upon the downward movement of said frame, and thereby draws the cutters down into contact with the paper.

F² is a slotted bar, through which the cutters F, F, work, said bar serving as a guide for the cutters, and also as a clamp to hold the paper during the cutting operation. Said bar F² is supported from the bar or head F' by means of the two vertical rods *f'*, around which, between the two bars, are helical springs *f''*, which serve to hold the clamping bar in yielding contact with the paper. The rods at their upper portions pass loosely through the bar F', and are secured by pins and washers.

f''' are springs secured to the under side of

said bar F' , and bearing at their free ends upon the frame bars i^2 . These springs serve to raise the bar F' , and cutters, at the proper time, and the bar F' is still further raised by the arms g' , which engage its end portions upon the extreme forward movement of the lever, this further movement of said bar also raising the clamping bar F^2 . The rock bar or shaft B, also has near each end, inside the end frames, rearwardly projecting arms H, H, to which are connected the lower portions of the upwardly and forwardly extending link bars or levers H' , H' , which at their upper portions are similarly connected to the forward portions of arms H^2 , H^2 , of a horizontal slide frame H^3 . Said frame is arranged to slide toward and away from the cutters on the horizontal bars H^5 , and the inclined pieces H^4 , as hereinafter more fully described, and is provided with a series of fingers h , the path of whose movement is directly over and in proximity to the paper ways or guides. As the shaft or bar B is rocked in the direction of the feed through, the frame is caused to move toward the cutters, and is withdrawn upon the opposite rock of said bar.

At each end of the machine, inside the end posts, are arranged two arms or levers I, I' , in inverted V-form, the lever I being pivoted near its upper end at i to the end frame, and at its lower portion similarly connected to the central portion of one of the levers H' . The lever I' is pivoted at its lower end in the base of the frame, and at its upper end is connected to the lever I by pivot plates i' . These levers I, I' , I' , are for the purpose of operating the paper clamping and holding mechanisms, which are of the following construction.

K, K' , are longitudinal parallel plates, the former connecting the levers I, I, and the latter the levers I' , I' , said plates under the action of said levers, having a parallel movement toward and away from each other upon the bars K^2 .

L, L, &c., are a series of clamping plates, two for each wrapper, and connecting the plates K, K' . Said plates L, L, have therein oblique slots l , which are engaged by studs or pins l' on the plates K, K' , whereby as the latter are moved toward and away from each other, each pair of the plates L, L, are also caused to approach and recede from each other. Underneath each plate K, K' , is a second plate K^3 secured by the studs or pins l' , the clamping plates L, L, being held between the plates K, K' and the plate K^3 . The connections described are so arranged, that as the plungers or feeders move upward, the slide frame H^3 is moved toward the cutters, and the clamp plates recede from each other forming openings M, M, through which the oranges are forced upward by the plungers, into the holding and twisting devices now to be described. The spring arms N are brought together at their lower portions directly over the feeders or plungers, and their lower ends are slightly turned outward, so that as the orange is

brought in contact therewith, the arms are forced apart sufficiently to admit it. The arms then spring together and retain the orange during the operation of twisting, and until displaced by another.

M' , M' , are two sprocket wheels carried on vertical shafts or axes, journaled in the upper frame bars M^2 , one directly over each plunger or feeder, and above the paper clamps. The lower portions of the shafts or axes of these wheels are extended downwardly toward the clamps, and carry a series of curved spring arms N, which are arranged so as to form a pocket or holder for the orange, which is forced therein by the plungers or feeders. O is the sprocket driving chain for said wheels, said chain also passing around the idlers P on the frame.

R is a device which slides on the chain, and is flexibly connected with the operating lever. When said lever is moved forward or toward the feed trough, the device R slides freely along the chain, but upon the reverse movement of the lever, it engages the chain, and thereby imparts rotation to the holders and twisters.

The device R consists of an angular plate or lug having a slot r therein, through which the chain O passes, said lug or plate having a tongue or projection r' which is arranged to slide freely over the links of the chain during the forward movement of the lever, but which upon the reverse movement will engage said links and pull the chain with it. The construction of the device is best seen in the detail view, Fig. 11.

Assuming that the paper from the rolls has already been fed along the paper guides or ways, over the apertures d , and that oranges or other fruit are being fed into the trough, the lever B' is first moved from the extreme left of its throw, in which position it is seen in dotted lines, Fig. 5 toward the front of the machine, or to that side where the feed trough is located. This operation carries the plungers up through the openings d in the feed trough, where they come in contact with the oranges, one of which will be carried up out of the trough by each plunger, striking the paper from the under side and carrying it with it up through between the clamp plates. During this forward movement of the lever, the slide frame H^3 has also been moved forwardly, so that its fingers h pass over the paper ways or guides, and hold the paper in such a manner that the orange strikes it squarely in the center. The lever B' is then moved backwardly, withdrawing the slide H^3 , and drawing the clamping plates toward each other, whereby the edges of the paper are brought together around the orange, which has been forced upwardly into the holders and twisters. As the latter rotate, the ends of the paper are twisted tightly together, and the wrapping is completed. The orange remains in the holder until displaced by the orange brought up by the next operation, when it is

forced out onto the delivery plate S, carried by a spring arm S', and thence into the delivery trough.

The above described operation of the slide 5 is effected by means of the inclined pieces H⁴, which are pivoted at their forward end portions to the end frames of the machine, their lower rear ends being supported upon pins projecting from the frame. During the 10 forward movement of the slide frame, the end portions of said bar travel up the upper surface of these inclines until the limit of movement is nearly reached when said portions drop off the forward upper ends of the inclines, and during their return movement, 15 slide upon the frame bars H⁵, and under said inclines to the rear thereof. When the extreme limit of the backward movement is reached, the said end portions of said horizontal frame will be in position to again ride 20 up the inclines upon the next forward movement. It will therefore be seen that this frame travels alternately forward and back above and below said inclines. During the 25 forward movement, the fingers h of said frame are held by the inclines above the paper ways or guides E', E', and out of contact with the paper. When however, the frame passes off from said inclines, the fingers drop onto said paper, 30 and the weight of the frame, together with the fact that the fingers are usually roughened or toothed on their under surfaces, causes the said fingers to take a sufficient hold of the paper to unwind it from the rolls, 35 and pull enough back for the next operation of wrapping. Said fingers also prevent the paper from being displaced by the upward throw of the plungers and orange. As the frame moves backward, the knives descend, 40 bringing the clamping bar F² down upon the paper, and holding it in place until cut.

It will be observed that this machine is free from cams, springs, and other complication of parts, all the elements possessing a 45 simple, positive action.

Ordinarily the machine will be operated by hand, but I may if desired connect the operating lever with other suitable motive power.

If desired, the machine may be used to 50 wrap the orange by compressing the ends of the paper together without twisting it, thus dispensing with the sprocket gear.

Having described this invention, what I claim, and desire to secure by Letters Patent, 55 is—

1. In a fruit wrapping machine, the combination with the upwardly feeding plungers, and their operating mechanism, of the paper-holding clamps, and the rotary twisters and 60 holders, substantially as specified.

2. In a fruit-wrapping machine, the combination with the feed trough, and the upwardly-feeding plungers reciprocating therethrough, of the paper feeding and cutting mechanism, 65 the paper clamps, the rotary twisters and holders, and the operating mechanism, substantially as specified.

3. In a fruit-wrapping machine, the combination with the operating lever and the rock bar or shaft, of the vertically reciprocating 70 feeders or plungers operated from said bar or shaft, the horizontal slide frame, the sliding paper clamps, the paper cutters, and the rotary holders or twisters, substantially as specified.

4. In a fruit-wrapping machine, the combination with the feed trough, and the upwardly feeding plungers arranged to reciprocate therethrough, of the paper ways or guides 75 above the feed trough, the horizontal slide frame, a series of fingers carried by said slide frame, the inclined pivoted pieces on which said slide frame travels, the sliding clamping 80 plates, and the operating mechanisms, substantially as specified.

5. In a fruit-wrapping machine, the combination with the rotary holders and twisters, and their operating mechanism, of the upwardly feeding plungers arranged to carry the fruit into said holders, the paper-feeding 85 and cutting mechanism, and the sliding clamp plates for holding the paper during the operation of twisting, substantially as specified.

6. In a fruit-wrapping machine, the combination with the supporting frame, the rock 95 bar or shaft journaled in the base thereof, and the vertically sliding feeder frame and feeders, of the paper ways or guides, the paper cutters, the horizontally sliding frame arranged to reciprocate over said paper ways, the sliding 100 clamping plates, and the rotary holders and twisters, substantially as specified.

7. In a fruit-wrapping machine, the combination with the rock bar or shaft and its operating lever, the crank arms thereon, the vertically sliding feeder frame and feeders, operated by a connection with said arms, the paper feeding, cutting, and clamping devices, and the twisters or holders into which the fruit is carried by said feeders, substantially 110 as specified.

8. In a fruit-wrapping machine, the combination with the feeders or plungers, and the paper clamps, of the rotary holders and twisters into which the fruit is carried by said feeders 115 or plungers, and the sprocket driving gear, having a connection with the operating lever of the feeding and paper working mechanisms, substantially as specified.

9. In a fruit wrapping machine, the V- 120 frames, their operating mechanism, the clamping plates operated by said V frames, and the transverse plates having slots engaged by studs or pins on the clamping plates, substantially as specified.

10. In a fruit wrapping machine, the combination with the paper ways or guides, and the paper holding rolls, of the cutter bar F' arranged to reciprocate vertically over said paper ways or guides, the cutters carried by 125 said bar, the operating mechanism for said bar, the slotted guide and clamp bar F² through which said cutters work, the rods f' secured to said bar F² and loosely secured in

said bar F', the springs coiled around said rods between said bars, and the returning springs f''' secured to the under side of said bar F', substantially as specified.

11. The herein described fruit-wrapping machine, comprising the supporting frame, the feed and delivery troughs, the upwardly feeding plungers working through the feed trough, the paper rolls and paper ways or guides, the paper-cutting mechanism, the horizontally reciprocating slide frame, the clamping plates, and the rotary holders and twisters, together with the operating mechanism, all substantially as specified.

12. In a fruit-wrapping machine, the combination with the upwardly feeding plungers, and the paper feeding and cutting mechanisms, of the parallel clamp plates K, K', capable of a movement toward and away from each other, a series of transverse plates L arranged in pairs and connecting said plates K, K', and pins on said plates K, K' engaging oblique slots in said plates L, substantially as specified.

13. In a fruit-wrapping machine, the combination with the feeding mechanism, and the wrapping devices, of the sliding, reciprocating horizontal slide frame, and the inclined pivoted pieces on which said frame slides, substantially as specified.

14. In a fruit-wrapping machine, the clamps for compressing the paper around the fruit, said clamps comprising the parallel plates K, K', having a movement toward and away from each other, and the series of transverse plates L connecting said plates K, K', and oblique slots in said transverse plates L, and pins carried by the plates K, K', and engaging said slots, substantially as specified.

15. In a fruit-wrapping machine, the combination with the V-frames, and their operating mechanism, of the parallel clamping plates connected to said V-frames, and mounted upon bars K², a series of short transverse plates connecting said plates K, K', and pins or studs on said plates K, K', engaging oblique slots in said short plates, substantially as specified.

16. In a fruit-wrapping machine, the holders and twisters comprising the shafts having means thereon for their rotation, the series of spring arms connected to said shaft, and projecting downwardly therefrom, said arms be-

ing brought together at their lower portions, and capable of opening thereat to admit the fruit, substantially as specified.

17. In a fruit-wrapping machine, the combination with the fruit feeding mechanism, the paper feeding and cutting mechanisms, and the paper-clamping mechanism, of the rotary holders and twisters, the sprocket wheels thereon, the sprocket driving chain, the reciprocating operating lever, and a device connected to said lever, and designed to engage the links of said chain during the movement of the lever in one direction, but to slide idly on said chain during the reverse movement, substantially as specified.

18. In a fruit-wrapping machine, the combination of the rock bar or shaft B, the operating lever B' connected thereto, the arms b on said shaft, the levers B², B² connected at their lower ends to said arms, the vertical sliding frame C to which the upper ends of said arms are connected, the vertically acting plungers or feeders carried by said frame a forked feed trough through the forks of which said plungers reciprocate, the paper ways or guides forming the tops to the forked portions of said trough, the horizontal slide frame arranged to reciprocate over said paper ways, the sliding clamp plates, and the rotary holders or twisters over said clamp plates, substantially as specified.

19. In a fruit-wrapping machine, the combination with the rock bar or shaft B, and its operating lever and rearwardly projecting arms H, H, of the link-bars or levers H', H', connected at their lower ends to said arms H, H, a horizontal slide frame H³ having arms to which the upper ends of said link bars or levers are connected, a series of fingers carried by said slide frame, said fingers being roughened at the end portions, and inclined pieces H⁴, pivoted at one end to the frame and at the other end loosely supported upon pins projecting from the frame, said pieces serving as guides for said slide frame substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

ALFRED AYER.

Witnesses:

FRED S. BENSON,
HENRY THOMAS.