July 2, 1929. C. LITTLEFIELD 1,718,968

MACHINE FOR FEEDING COUPONS, LABELS, AND THE LIKE

Filed Feb. 8, 1928 5 Sheets-Sheet 1

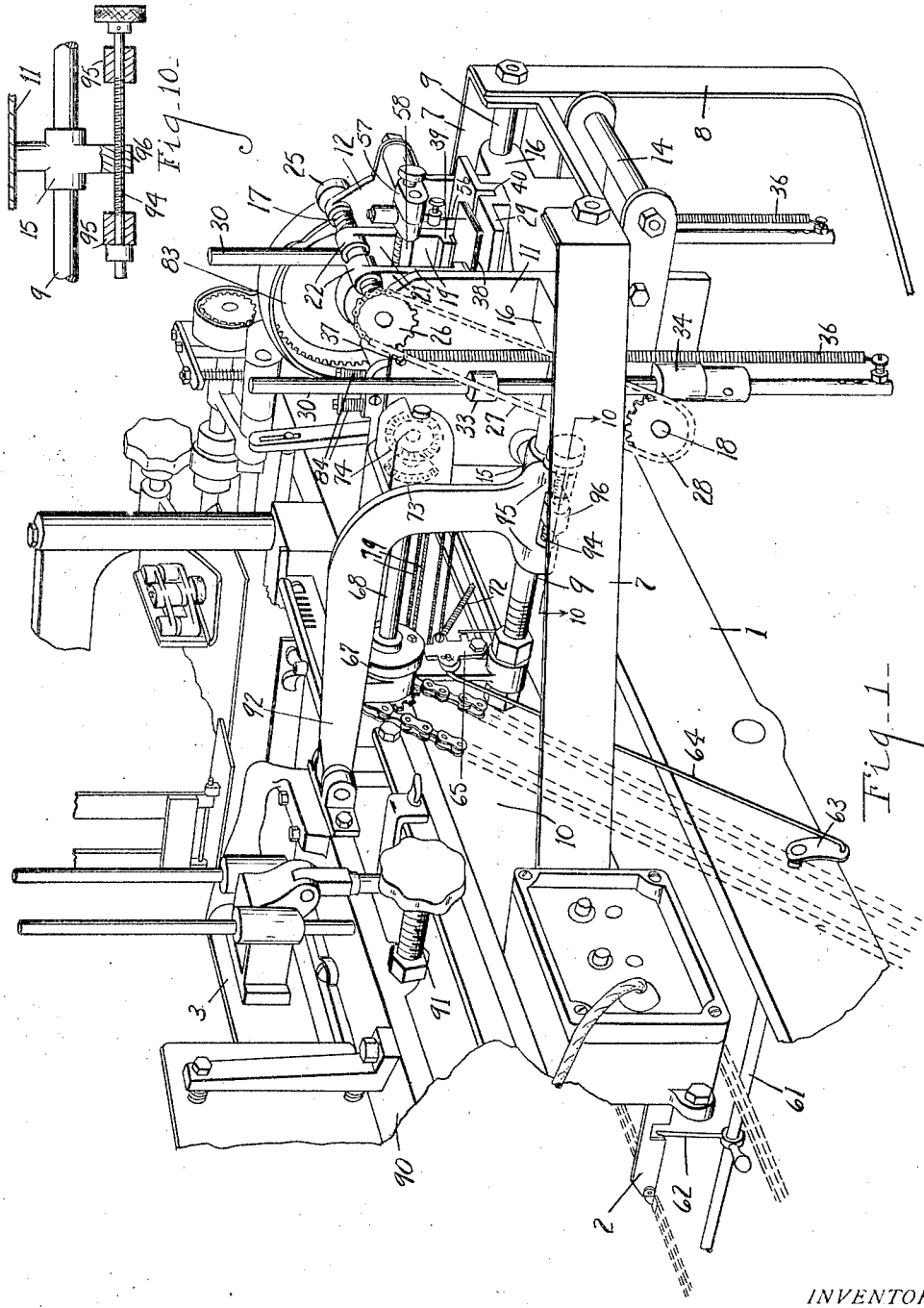


Fig. 1.

Fig. 10.

INVENTOR
Carl Littlefield

BY Chappell & Earl
ATTORNEYS

July 2, 1929. C. LITTLEFIELD 1,718,968

MACHINE FOR FEEDING COUPONS, LABELS, AND THE LIKE

Filed Feb. 8, 1928 5 Sheets-Sheet 2

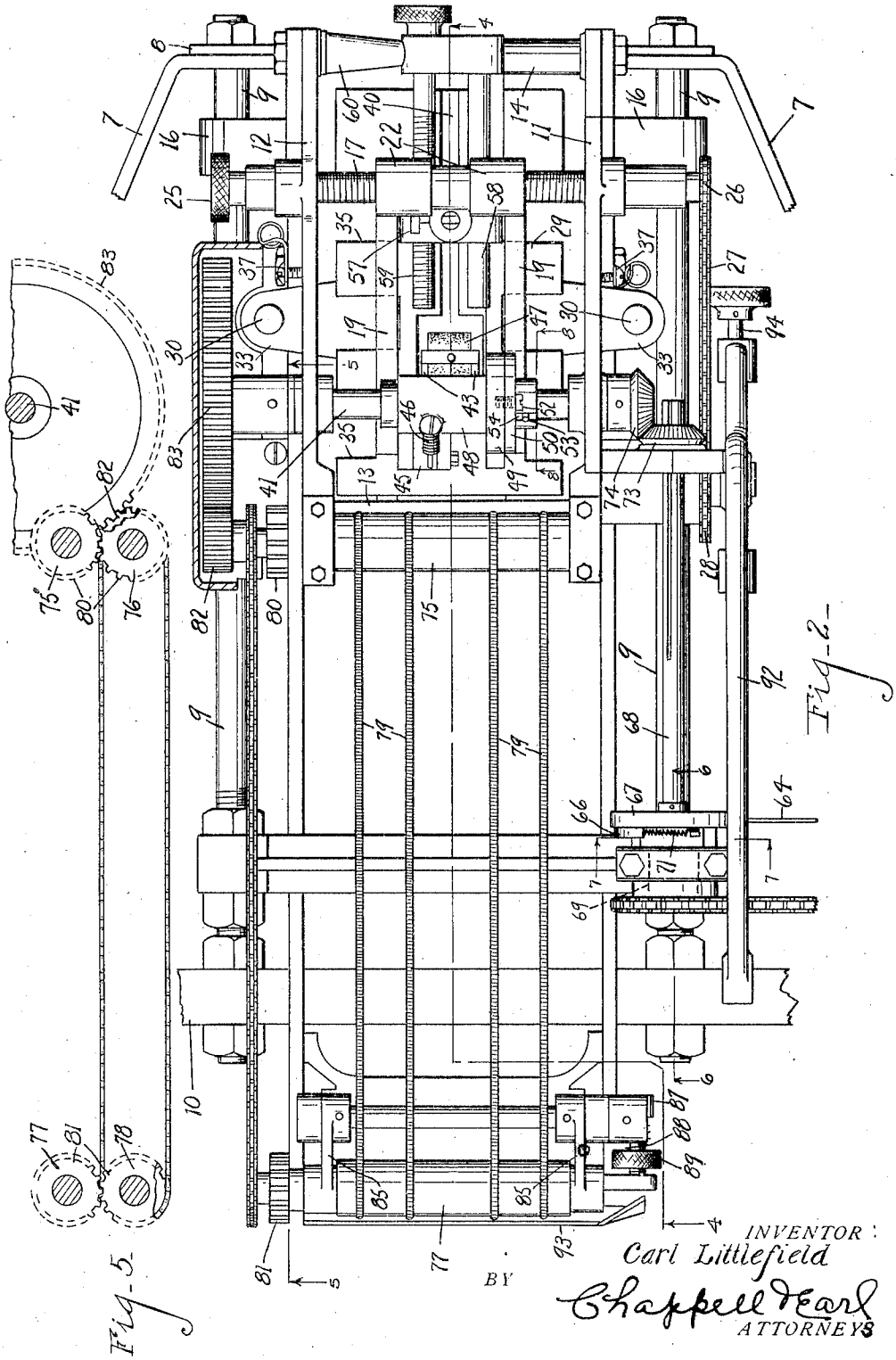


Fig. 2.

Fig. 5.

INVENTOR:
Carl Littlefield
BY
Chappell Fearl
ATTORNEYS

July 2, 1929. C. LITTLEFIELD 1,718,968

MACHINE FOR FEEDING COUPONS, LABELS, AND THE LIKE

Filed Feb. 8, 1928 5 Sheets-Sheet 3

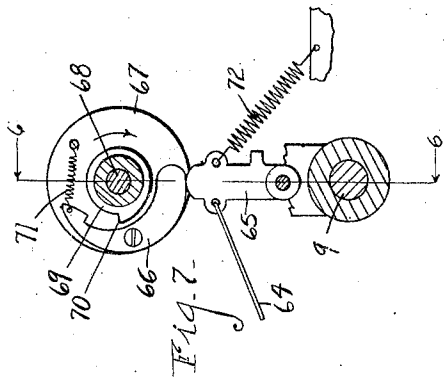


Fig. 7.

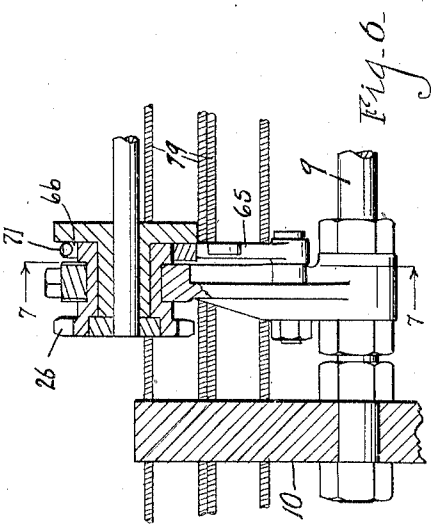


Fig. 6.

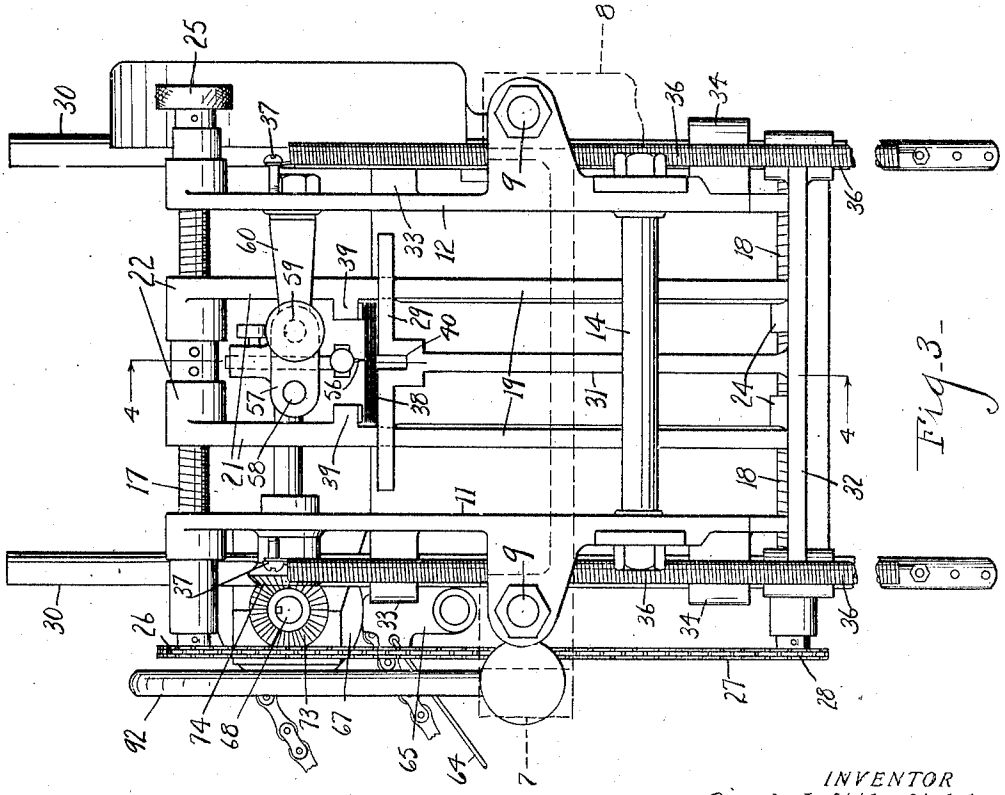


Fig. 3.

INVENTOR
Carl Littlefield
BY Chappell & Earl
ATTORNEYS

July 2, 1929. C. LITTLEFIELD 1,718,968

MACHINE FOR FEEDING COUPONS, LABELS, AND THE LIKE

Filed Feb. 8, 1928 5 Sheets-Sheet 4

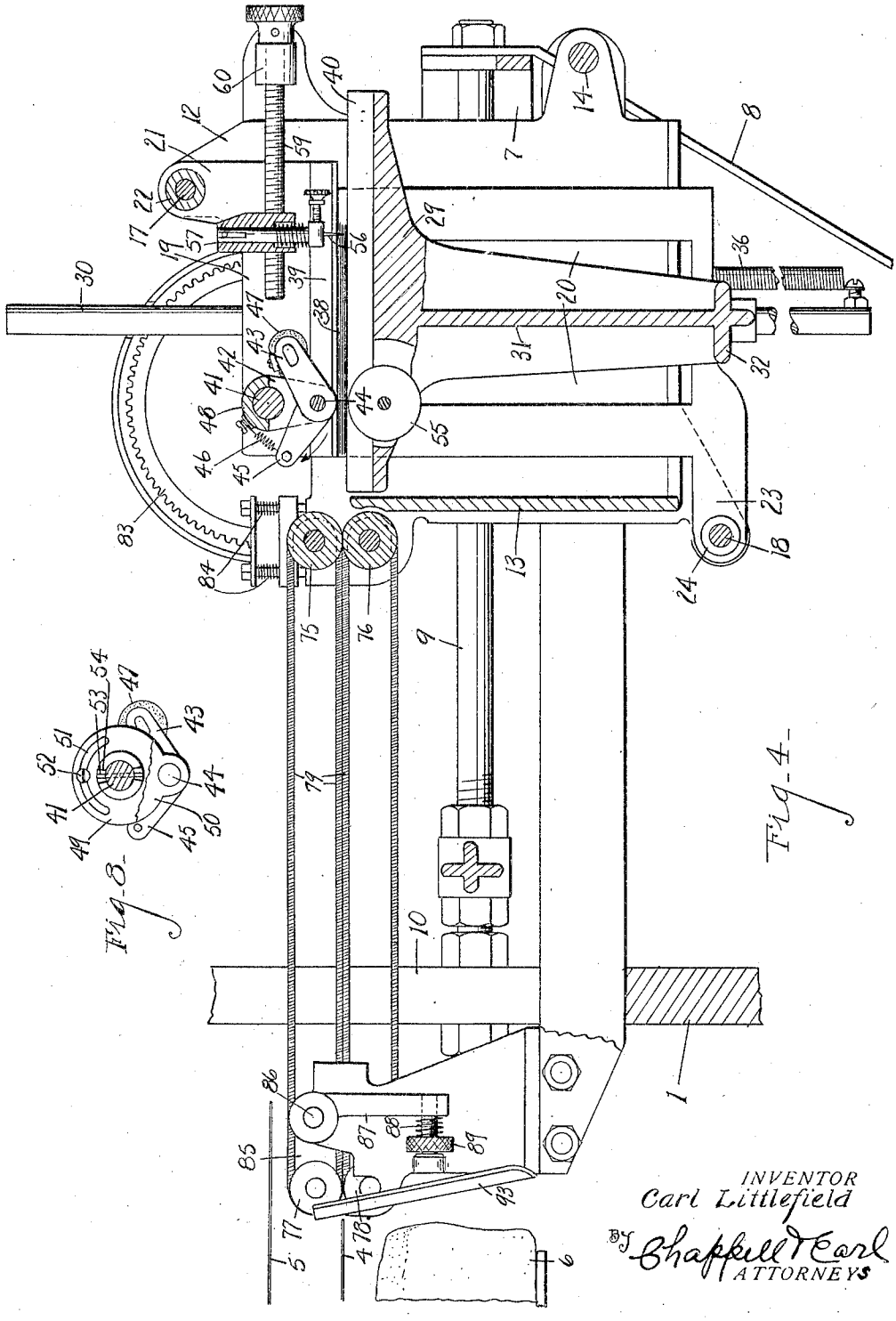


Fig. 4.

Fig. 8.

INVENTOR
Carl Littlefield
BY Chappell & Earl
ATTORNEYS

July 2, 1929. C. LITTLEFIELD 1,718,968

MACHINE FOR FEEDING COUPONS, LABELS, AND THE LIKE

Filed Feb. 8, 1928 5 Sheets-Sheet 5

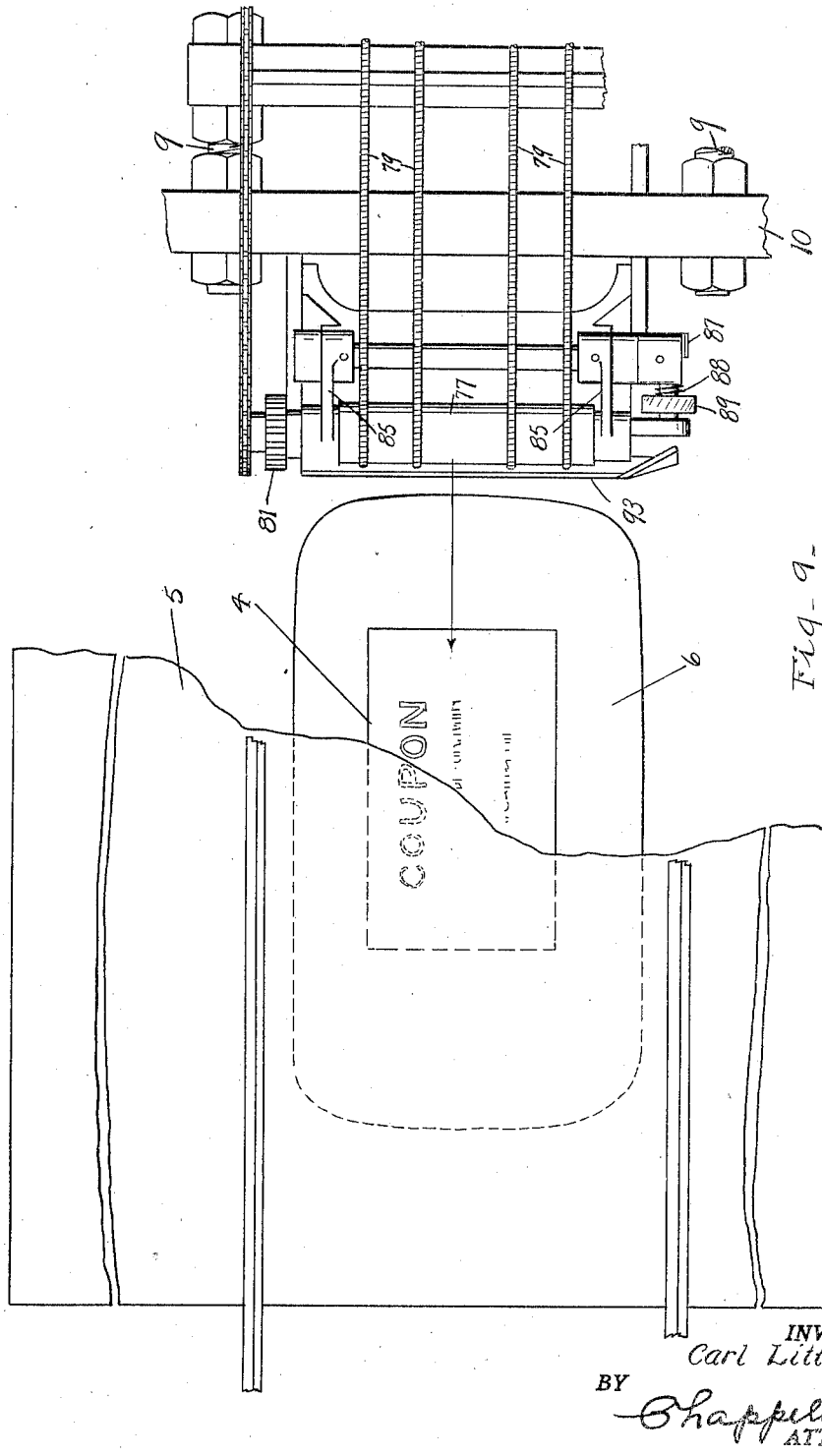


Fig. 9.

INVENTOR
Carl Littlefield
BY
Chappell & Earl
ATTORNEYS

Patented July 2, 1929. 1,718,968

UNITED STATES PATENT OFFICE.

CARL LITTLEFIELD, OF BATTLE CREEK, MICHIGAN, ASSIGNOR TO BATTLE CREEK BREAD WRAPPING MACHINE COMPANY, OF BATTLE CREEK, MICHIGAN.

MACHINE FOR FEEDING COUPONS, LABELS, AND THE LIKE.

Application filed February 8, 1928. Serial No. 252,753.

In the accompanying drawings I have illustrated my improvements as I have embodied them for use in connection with a wrapping machine for feeding coupons or inserts in proper relation to the wrapper. My improvements are, however, desirable and readily embodied for use in feeding labels or coupons in other relations. While in this specification I have for convenience used the word "coupon", it will be understood that this is intended to include labels or sheets, broadly considered.

The main objects of this invention are:

First, to provide an improved machine of the character described in which coupons are effectively fed or delivered one by one.

Second, to provide a machine of this character which requires little attention beyond the matter of maintaining a supply of coupons in a magazine.

Third, to provide a machine of the character described in which the feed is positive and the parts are strong and durable and not likely to get out of repair.

Objects pertaining to details and economies of my invention will definitely appear from the description to follow. The invention is defined in the claims.

A structure embodying the features of my invention is clearly illustrated in the accompanying drawing in which:

Fig. 1 is a fragmentary perspective view of a structure embodying the features of my invention, portions of a bread wrapping machine being shown in operative relation thereto.

Fig. 2 is a fragmentary plan view.

Fig. 3 is a fragmentary front elevation.

Fig. 4 is a fragmentary vertical section on a line corresponding to line 4—4 of Figs. 2 and 3.

Fig. 5 is a detail vertical section on line 5—5 of Fig. 2 showing details of the feed conveyor.

Fig. 6 is an enlarged detail section on a line corresponding to line 6—6 of Figs. 2 and 7 showing details of the structural mechanism.

Fig. 7 is a detail section on a line corresponding to line 7—7 of Fig. 6.

Fig. 8 is a fragmentary section on line 8—8 of Fig. 2 showing details of the lost motion driving connection for the coupon feed finger to its shaft.

Fig. 9 is a detail fragmentary plan view illustrating the delivery relation of the coupon to the wrapping paper.

Fig. 10 is a detail view partially in section on line 10—10 of Fig. 1, illustrating details of the adjusting mechanism.

Referring to the drawing, 1 represents one of the longitudinal sills or frame members of a wrapping machine, 2 the feed conveyor thereof and 3 one of the end flap folders. The coupon feeding mechanism is, in this embodiment, mounted on the side of the main frame of the wrapping machine so that the coupon, as 4, is delivered between the wrapping sheet 5 and the article to be wrapped, 6, see Figs. 4 and 9, as the article is pushed upwardly from the feed conveyor 2 by means of an elevator, not here illustrated.

I have illustrated only such portions of the wrapping machine as I consider desirable in showing the relation of a coupon feeding machine to such wrapping machine. The structure of this application is, however, built as a separate unit to be mounted on the main frame of the wrapping machine.

In the embodiment illustrated I provide a supporting frame 7 adapted for attachment to the wrapping machine frame, the outer ends of this supporting frame being further supported by a brace 8. The parallel rods 9 are supported at their outer ends by these frame members 7 and at their inner ends by the wrapping machine frame members 10.

The operating mechanism is mounted on side plates 11 and 12. These side plates are connected by a cross piece 13 at the rear and the cross rod 14 at the front and have bearing portions 15 and 16 slidable on the rods 9.

Reversely threaded screws 17 and 18 are journaled in these side members to adjustably support the magazine side members 19 which are vertically slotted at 20 so that they, in effect, comprise a plurality of spaced vertical bars connected by top and bottom cross pieces and having upwardly projecting arms 21 provided with internally threaded sleeve 22 coacting with the reversely threaded screw 17 and rearwardly projecting arm 23 provided with internally threaded sleeves 24 coacting with the reversely threaded screw 18.

The screw 17 is provided with a handwheel 25 at one end and a sprocket wheel 26 at the other, this sprocket wheel 26 being connected by the sprocket chain 27 to a

sprocket wheel 28 on the screw 18 so that the screws are simultaneously adjusted to adjust the magazine side members toward and from each other.

The magazine bottom 29 is slidably supported by the slide rods 30 and has a downwardly projecting arm 31 with a cross piece 32 at its lower end secured to the rods. The rods are slidable in bearings 33 and 34 on the side plates 11 and 12. This magazine bottom has a plurality of edge openings 35 adapted to receive the upright portions of the magazine side members and permitting the lateral adjustment of the side members to vary the width of the magazine.

The magazine bottom is held yieldingly upward by the coiled springs 36 secured at 37 to the side plates 11 and 12, and at their lower ends to the lower ends of the slide rods. The magazine bottom is thus moved upward as the coupons are removed from the top of the stack of coupons indicated at 38.

The side members 19 are provided with coupon engaging bars 39 against which the coupons are thrust by the bottom member. The magazine bottom has a longitudinal groove 40 in its face.

The feed shaft 41 is disposed transversely above the stack of coupons and this carries an arm 42 on which the feed finger 43 is pivotally mounted, the pivot 44 being at the outer end of the arm. The finger 43 has a rearward extension 45 to which is connected a spring 46 whereby the finger is held under spring tension. A rubber tip or grip 47 at the outer end of the finger 43 is adapted to be swung into engagement with the top coupon as the feed shaft revolves, engaging the coupon and delivering it to the feed conveyor, to be hereinafter described.

The arm 42 is provided with a sleeve 48 having a disk-like enlargement 49 at one end which is adjustably secured to a driving member 50 by means of the segmental slot 51 in the driving member and a screw 52 arranged through the slot to engage the part 49, see Figs. 2 and 8. The driving member 50 has a lost motion connection to the shaft 41 and is secured thereto by a pin 53 engaging the holes 54 in the driving member. The holes are of such size as to permit limited movement of the driving member relative to the shaft, the object of this being that when the coupon which is being advanced by the feed finger is engaged by the feed conveyor, the coupon is not torn although the speed of the feed conveyor may exceed somewhat the speed of the feed finger, thus avoiding the tearing of the coupons and minimizing the wear on the friction tip of the feed finger.

To further minimize this wear in the event of the coupons becoming exhausted and the machine being allowed to continue in operation, I mount an antifriction roller 55 on the magazine bottom positioned in the groove 40 so that, as the feed finger revolves, it comes into contact with this roller instead of a fixed part. The periphery of the roller 55 is slightly below the face of the bottom.

To prevent more than one coupon being fed at a time, I provide a holding needle 56 which is carried by an adjustable holder 57 supported on the slide rod 58 and the adjusting screw 59, the rod and screw being carried by an arm 60 projecting from the side plate 12. The holding needle is alined with the slot or groove 40.

By means of the adjusting screw the holding needle is adjusted so that it engages the coupon near the edge thereof, the coupon being successively pushed off the needle as they are fed by the feed finger. The operation of the feed finger is controlled by the articles being wrapped as they are advanced into the machine by means of the feed conveyor.

In the structure illustrated this is accomplished by a rockshaft 61 disposed transversely below the feed conveyor, see Fig. 1, and provided with a trip 62 which projects upwardly in the path of the articles as they are carried along by the flights of the conveyor. On the outer end of this rockshaft is an arm 63 connected by the link 64 to a clutch control dog 65 positioned to coact with a pawl-like clutch member 66 mounted on a driven clutch member 67 fixed to the shaft 68. The driving clutch member 69 has a tooth 70 with which the driven clutch member engages under the tension of the spring 71 when released.

The trip dog is held in engaging position by means of the coiled spring 72. When the trip 62 is engaged by an article carried along by the feed conveyor, the trip dog 65 is moved to release the driven clutch member 66 so that it is engaged by the driving clutch member 69 thereby driving the shaft 68. This shaft 68 is provided with a beveled gear 73 splined to the shaft 68 as indicated in Fig. 2. The gear 73 meshes with a gear 74 on the shaft 41.

The coupons are delivered by the feed fingers to a feed conveyor by which they are delivered into operative relation to the article being wrapped and the wrapper. This feed conveyor comprises pairs of feed rollers 75, 76 and 77, 78 and a plurality of conveyor belts 79 formed of coiled springs. The feed rollers are grooved to receive these coiled spring belts, the groove being of such depth that the belts are substantially flush with the surfaces of the rollers so that the peripheries of the front pair of rollers grasp the coupons as they are delivered from the magazine by the feed finger. The belts carry the coupons along between their op-

posed reaches and the coupons are ejected by the rear pair of conveyor rollers.

The rollers 75 and 76 are connected by gears 80 while the rollers 77 and 78 are connected by corresponding gears 81. One of the front rollers is driven from a pinion 82 meshing with a gear 83 on the shaft 41 so that the feed conveyor is driven in unison with the feed finger. The roller 75 is urged against the roller 76 by means of the springs 84.

The roller 77 is carried by arms 85 pivoted at 86 and having a downwardly projecting arm 87 yieldingly supported by the spring 88. This spring 88 is mounted on a rod having a spring thrust member 89 thereon rotatable to regulate the tension of the spring.

The wrapping machine illustrated is provided with adjustable parts 90 for adapting it to articles of different sizes, the adjustment of the part 90 being effected from the screw 91. These parts, however, are not detailed. This adjustable part is connected by the link 92 to the support 15 of the coupon feed means which is slidable on the rods so that as the machine is adjusted to different sized articles to be wrapped the coupon feed means is simultaneously adjusted.

As the loaf is carried to wrapping position it travels past the front plate or guard 93. Occasionally loaves having lip-like projections at the top resulting from overproofing might strike this plate resulting in pushing or tipping the loaf out of proper wrapping position.

To provide for further adjustment of the machine the support 15 is adjustably connected to the link 92 by means of the screw 94, the link being provided with a pair of spaced ears 95 in which the screw is rotatably mounted, the screw having threaded engagement with a projecting lug 96 on the support or bearing 15.

My improved coupon feed means is very efficient, that is, it effectively feeds the coupons one at a time, requires little attention and is not likely to become clogged.

I have illustrated and described the structure as embodied for use in bread wrapping machines. I have not attempted to illustrate or describe various other modifications or adaptations which I contemplate as I believe this disclosure will enable those skilled in the art to embody or adapt my improvements as may be desired.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a structure of the class described, the combination of a magazine comprising a vertically movable bottom having a longitudinal groove in its face and a plurality of spaced lateral projections, means acting to urge said bottom yieldingly upward, opposed adjustable side members vertically slotted to receive said lateral projections of said bottom, said side members being provided with horizontal bars engaging the top of a stack of coupons, a holding needle alined with said groove in said bottom and adapted to engage coupons adjacent the rear edges thereof, means for supporting said needle for adjustment longitudinally of said magazine, a feed shaft, an arm on said shaft, a feed finger pivotally mounted on said arm and provided with a friction tip, a spring for yieldingly supporting said feed finger, and a roller mounted within said groove in said magazine bottom with its top slightly below the face of the bottom to receive the stroke of said feed finger when the magazine is exhausted.

2. In a structure of the class described, the combination of a magazine comprising a vertically movable bottom having a longitudinal groove in its face and a plurality of spaced lateral projections, means acting to urge said bottom yieldingly upward, opposed adjustable side members vertically slotted to receive said lateral projections of said bottom, said side members being provided with horizontal bars engaging the top of a stack of coupons, a holding needle alined with said groove in said bottom and adapted to engage coupons adjacent the rear edges thereof, means for supporting said needle for adjustment longitudinally of said magazine, a feed shaft, an arm on said shaft, a feed finger pivotally mounted on said arm and provided with a friction tip, and a spring for yieldingly supporting said feed finger.

3. In a structure of the class described, the combination of a magazine comprising a vertically movable bottom having a plurality of spaced lateral projections, a spring acting to urge said bottom yieldingly upward, opposed adjustable side members vertically slotted to receive said lateral projections of said bottom, said side members being provided with horizontal bars engaging the top of a stack of coupons, a feed shaft, an arm on said shaft, a feed finger pivotally mounted on said arm and provided with a friction tip, a spring for yieldingly supporting said feed finger, and a roller mounted on said magazine bottom with its top slightly below the face of the bottom to receive the stroke of said feed finger when the magazine is exhausted.

4. In a structure of the class described, the combination of a magazine comprising a vertically movable bottom having a plurality of spaced lateral projections, a spring acting to urge said bottom yieldingly upward, opposed adjustable side members vertically slotted to receive said lateral projections of said bottom, said side members be-

ing provided with horizontal bars engaging the top of a stack of coupons, a feed shaft, an arm on said shaft, a feed finger pivotally mounted on said arm and provided with a friction tip, and a spring for yieldingly supporting said feed finger.

5. In a structure of the class described, the combination of a magazine comprising a vertically movable bottom having a longitudinal groove in its face, means acting to urge said bottom yieldingly upward, horizontal members engaging the top of a stack of coupons adjacent their longitudinal edges, a holding needle alined with said groove in said bottom and adapted to engage coupons adjacent the rear edges thereof, means for supporting said needle for adjustment longitudinally of said magazine, a rotating feed member adapted to engage the top coupon of a stack of coupons in said magazine as it rotates, said feed member having a lost motion connection to its driving means, and a feed conveyor to which the coupons are delivered by said feed member.

6. In a structure of the class described, the combination of a magazine comprising a vertically movable bottom having a longitudinal groove in its face, means acting to urge said bottom yieldingly upward, horizontal members engaging the top of a stack of coupons adjacent their longitudinal edges, a holding needle alined with said groove in said bottom and adapted to engage coupons adjacent the rear edges thereof, means for supporting said needle for adjustment longitudinally of said magazine, and a rotating feed member adapted to engage the top coupon of a stack of coupons in said magazine as it rotates.

7. In a structure of the class described, the combination of a magazine comprising a vertically movable bottom having a longitudinal groove in its face, means acting to urge said bottom yieldingly upward, horizontal members engaging the top of a stack of coupons adjacent their longitudinal edges, a holding needle alined with said groove in said bottom and adapted to engage coupons adjacent the rear edges thereof, means for supporting said needle for adjustment longitudinally of said magazine, a rotating feed member adapted to engage the top coupon of a stack of coupons in said magazine as it rotates, and a roller mounted within said groove in said magazine bottom in opposed relation to said feed member to be engaged by the same when the magazine is exhausted.

8. In a structure of the class described, the combination of a magazine comprising a vertically movable bottom, means acting to urge said bottom yieldingly upward, horizontal members engaging the top of a stack of coupons adjacent their longitudinal edges, a rotating feed member adapted to engage the top coupon of a stack of coupons in said magazine as it rotates, said feed member having a lost motion connection to its driving means, and a feed conveyor to which the coupons are delivered by said feed member.

9. In a structure of the class described, the combination of a magazine comprising a vertically movable bottom, means acting to urge said bottom yieldingly upward, horizontal members engaging the top of a stack of coupons adjacent their longitudinal edges, a rotating feed member adapted to engage the top coupon of a stack of coupons in said magazine as it rotates, and a roller mounted on said magazine bottom in opposed relation to said feed member to be engaged by the same when the magazine is exhausted.

10. In a structure of the class described, the combination of a magazine comprising a vertically movable bottom having a plurality of spaced lateral projections, means acting to urge said bottom yieldingly upward, opposed adjustable side members vertically slotted to receive the lateral projections of said bottom, horizontal members engaging the top of a stack of coupons adjacent their longitudinal edges carried by said side members, and a feed member adapted to engage the top coupon of a stack.

11. In a structure of the class described, the combination of a magazine comprising a vertically movable bottom, means acting to urge said bottom yieldingly upward, horizontal members engaging the top of a stack of coupons adjacent their longitudinal edges, a rotating feed member having a lost motion connection to its driving means, and a feed conveyor to which the coupons are delivered by said feed member.

12. In a structure of the class described, the combination of a magazine comprising a vertically movable bottom, means acting to urge said bottom yieldingly upward, horizontal members engaging the top of a stack of coupons adjacent their longitudinal edges, a rotating feed member, and a roller carried by said bottom and positioned to receive the stroke of said member when the magazine is exhausted.

13. In a structure of the class described, the combination of a magazine comprising a bottom having a longitudinal groove in its face, longitudinal members engaging the top of a stack of coupons adjacent their longitudinal edges, a holding needle alined with said groove in said bottom and adapted to piercingly engage a plurality of coupons adjacent the rear edges thereof, means for supporting said needle for horizontal adjustment, and a feed means successively engaging the coupons to remove the same from the magazine at the front of said needle.

14. In a structure of the class described, the combination of a magazine comprising

a bottom, longitudinal members engaging the top of a stack of coupons adjacent their longitudinal edges, a holding needle adapted to piercingly engage a plurality of coupons adjacent the rear edges thereof, and feed means successively engaging the coupons to remove the same from the magazine at the front of said needle.

15. In a structure of the class described, the combination of a magazine comprising a bottom having a longitudinal groove in its face, a holding needle alined with said groove in said bottom and adapted to piercingly engage a plurality of coupons adjacent the front edges thereof, means for supporting said needle for horizontal adjustment, and a feed means successively engaging the coupons to remove the same from the magazine at the rear of said needle.

16. In a structure of the class described, the combination of a magazine, means for delivering coupons therefrom one by one comprising a rotating feed member having a lost motion connection with its driving means, a feed conveyor comprising coacting pairs of feed rollers, the pairs of feed rollers being geared together and having opposed peripheral grooves therein, one pair of said feed rollers being positioned to receive the coupons as delivered from said magazine by said feed member, a plurality of endless coiled spring belts arranged in said grooves of said feed rollers and in opposed relation so that adjacent reaches thereof travel in coacting relation to carry a coupon from one pair of feed rollers to the other, and means for driving one of said feed rollers.

17. In a structure of the class described, the combination of a magazine, means for delivering coupons therefrom one by one comprising a rotating feed member having a lost motion connection with its driving means, a feed conveyor comprising coacting pairs of feed rollers, one pair of said feed rollers being positioned to receive the coupons as delivered from said magazine by said feed member, and a plurality of endless coiled spring belts arranged in said grooves of said feed rollers and in opposed relation so that adjacent reaches thereof travel in coacting relation to carry a coupon from one pair of feed rollers to the other.

18. In a structure of the class described, the combination with a wrapping mechanism including an adjustable wrapping element, of a coupon feeding mechanism operatively associated with the wrapping mechanism, a support on which said coupon feeding mechanism is slidably mounted, and a connection for said coupon feeding mechanism to said folder element whereby the coupon feeding mechanism is simultaneously adjusted with said folder element.

19. In a structure of the class described, the combination with a wrapping mechanism including an adjustable wrapping element, of a coupon feeding mechanism operatively associated with the wrapping mechanism, a support on which said coupon feeding mechanism is slidably mounted, a connection for said coupon feeding mechanism to said folder element whereby the coupon feeding mechanism is simultaneously adjusted with said folder element, and means for adjusting said coupon feeding mechanism independent of said connection adjustment.

20. In a structure of the class described, the combination with a wrapping mechanism of a coupon feeding mechanism operatively associated with said wrapping mechanism, a support on which said coupon feeding mechanism is slidably mounted, and an adjusting means for said coupon feeding mechanism.

21. In a structure of the class described, the combination with a wrapping mechanism of a coupon feeding mechanism operatively associated with said wrapping mechanism, and means for adjusting said coupon feeding mechanism relative to said wrapping mechanism.

22. In a structure of the class described, the combination with a wrapping mechanism including an adjustable wrapping element, of a coupon feeding mechanism slidably mounted for adjustment to and from said wrapping mechanism, a link connection for said coupon feeding mechanism to said adjustable wrapping element, and an adjustable threaded connection for said wrapping mechanism to said link.

23. In a structure of the class described, the combination of a wrapping mechanism, a vertically reciprocating article feed plunger, a coupon feeding mechanism mounted for sliding adjustment to and from said wrapping mechanism and provided with a guide plate disposed at the side of the path of said article feed plunger, and means for adjusting said feed mechanism laterally of the path of said plunger.

24. In a structure of the class described, the combination of a wrapping mechanism, a coupon feeding mechanism adjustably supported relative to said wrapping mechanism, and means for adjusting said coupon feeding mechanism.

In witness whereof I have hereunto set my hand.

CARL LITTLEFIELD.