D. D. MAYNE.

SELF WAITING SYSTEM FOR LUNCH ROOMS.

APPLICATION FILED JAN. 19, 1917.

1,330,890.

Patented Feb. 17, 1920.

3 SHEETS—SHEET 1.

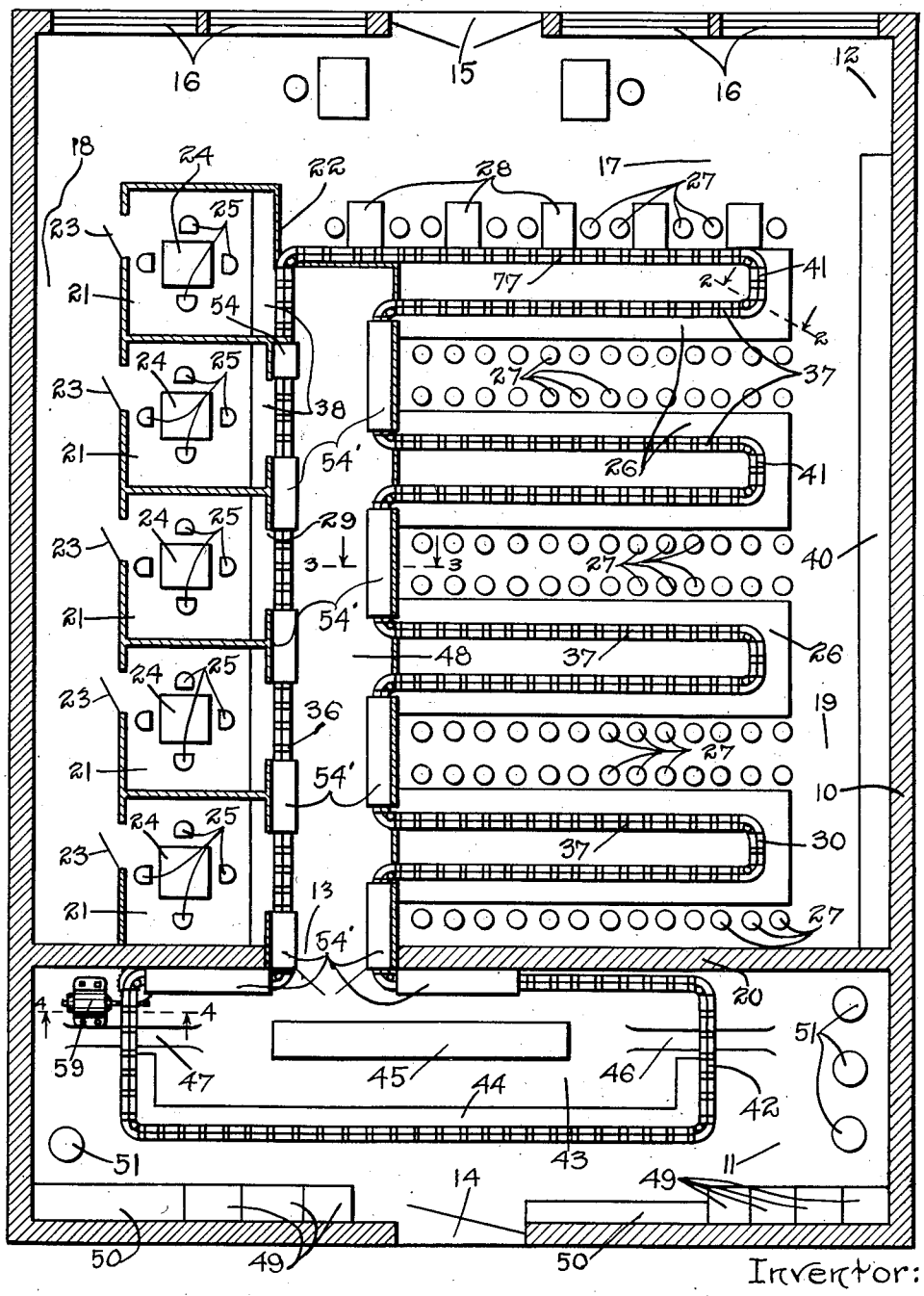


Fig. 1

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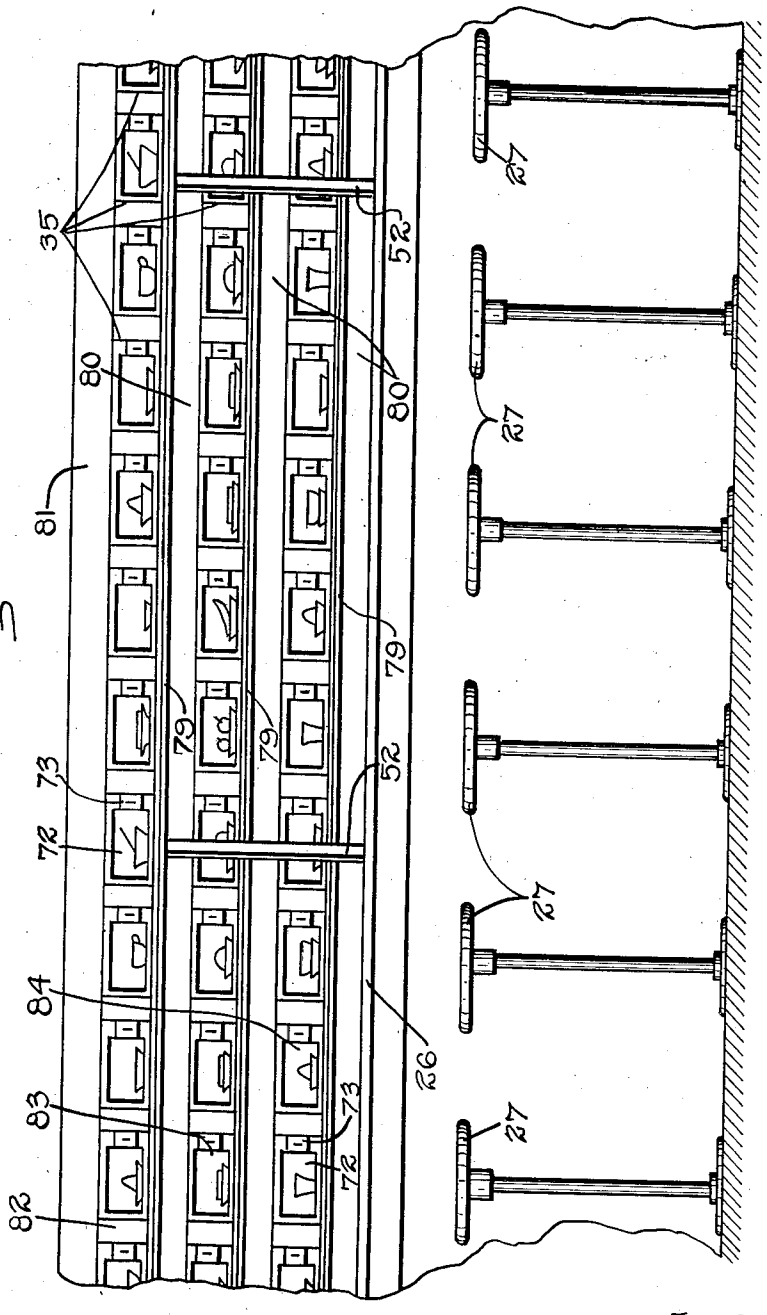


Fig. 2

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3 SHEETS—SHEET 3.

Fig. 5

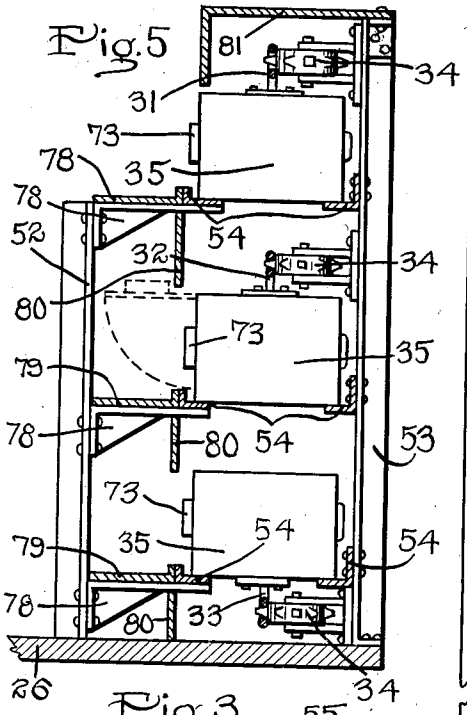


Fig. 4

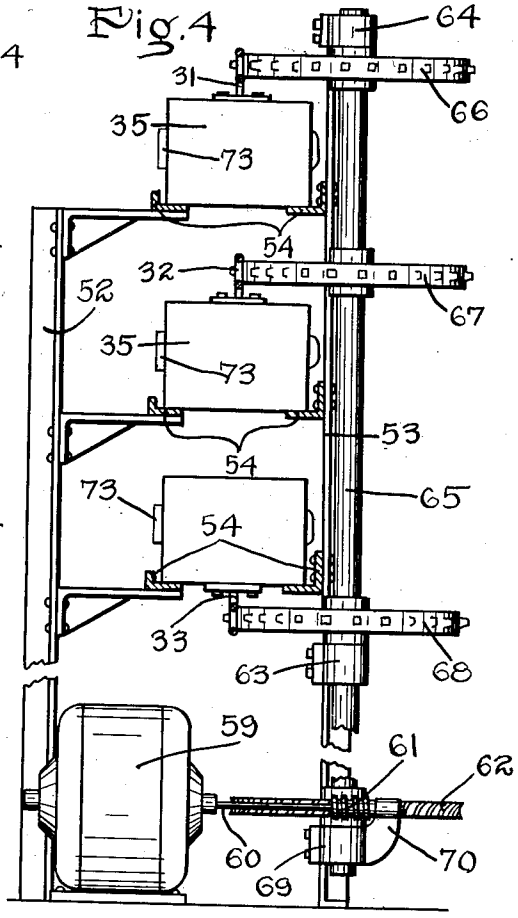


Fig. 3

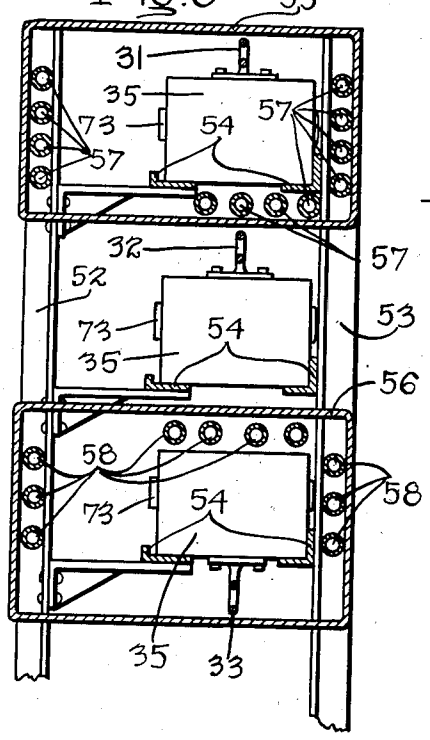
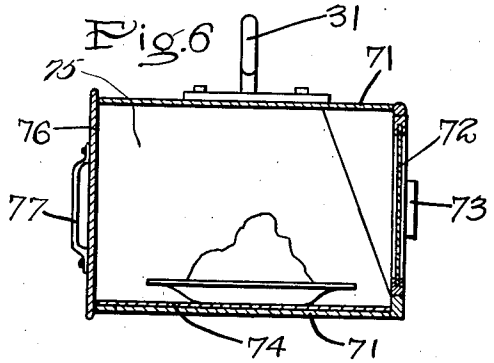


Fig. 6



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UNITED STATES PATENT OFFICE.

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SELF-WAITING SYSTEM FOR LUNCH-ROOMS.

1,330,890. Specification of Letters Patent. Patented Feb. 17, 1920.

Application filed January 19, 1917. Serial No. 143,277.

To all whom it may concern:

Be it known that I, DEXTER D. MAYNE, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Self-Waiting Systems for Lunch-Rooms, of which the following is a specification.

My invention relates to self-waiting systems for lunch rooms or restaurants and has for its object to provide a system by which the food is constantly carried before the diner in a number of coin-controlled receptacles and mounted on an endless belt so that the diner may select any of the dishes which he chooses as the same pass before him. A specific object is to employ a plurality of independent belts one above the other and to position refrigerating means about portions of the lower belt and heating means about portions of the upper belt so as to keep the food within the receptables at a proper temperature. A still further object is to position the belts in a zig-zag or looped manner to accommodate the greatest number of people and to provide different varieties of seatings as individual compartments or rooms with family tables therein, tables for two, or regular lunch counters. A still further object is to construct the system so that the compartments may be loaded with food from within the belt and to provide passageways under the belt so that access may be had thereto. The full objects and advantages of my invention will appear in connection with the detailed description thereof and are particularly pointed out in the claims.

In the drawings, illustrating the application of my invention in one form,—

Figure 1 is a plan view of a building showing the installation of my apparatus. Fig. 2 is an elevational view of some of the parts shown in Fig. 1. Fig. 3 is a sectional view taken on line 3—3 of Fig. 1 and drawn to a larger scale. Fig. 4 is a view similar to Fig. 3 taken on line 4—4 of Fig. 1. Fig. 5 is a sectional view similar to Figs. 3 and 4 taken on line 2—2 of Fig. 1. Fig. 6 is a cross sectional view of one of the food-containing receptacles drawn to a larger scale.

The installation and general arrangement of the parts of my invention as applied to a specific building are clearly shown in Fig. 1. A building 10 is divided into a kitchen 11 and a dining room 12 by a partition 20, which building is provided with a passageway 13 between the kitchen and dining room and with suitable exits 14 and 15 and windows 16. The front portion of the dining room 12 at 17 is left open and passageways 18 and 19 are formed along the side walls of the dining room up to the partition 20. Along passageway 18 is constructed a number of individual dining rooms 21 within the main dining room 19 which have a common rear wall 22, and which are provided with entrances 23 and with separate tables 24 and chairs 25 within the same. On the opposite side of the dining room are positioned a number of U-shaped counters 26 placed transversely of the building along the main outer sides of which are secured stools 27 properly spaced therefrom. Along the front of the dining room facing the opening 17 are arranged a row of tables 28 each of which has two chairs or stools 27 positioned as shown.

The diners seated at the tables and counters placed in the dining room 19 are served by a continuous waiting system or conveyer 30 which comprises a number of constantly-driven chains 31, 32 and 33, as best seen in Fig. 2, spaced one below the other which pass over a number of sprocket wheels 34 positioned at the corners and carry a number of food-containing receptacles 35, all of which will be later explained in detail. This conveyer passes through opening 13 in partition 20 and follows along wall 22 at 36. Near the end of this wall said conveyer makes a right-angled turn and travels past all of the tables 28 positioned at the front of the dining room at 77. From there on the conveyer 30 makes a plurality of loops 37 which are successively positioned within the U-shaped counters 26. Conveyer 30 finally returns into the kitchen through the opening 13. Within the individual rooms 21 are provided low shelves or wall tables 38 on which the food may be deposited as the same is withdrawn from receptacles 35 on the conveyer 30 through suitable openings 29 in the rear wall 22. A single shelf or long table 40 is secured to the wall of building 10 in passageway 19 and may be used by standing diners when the restaurant or lunch room is crowded. These patrons

take the food from the conveyer 30 at the ends of loops 37 at 41 and may temporarily deposit them at the end portions of counters 26, which it will be seen are not provided with stools. With this construction and arrangement of parts any variety of seating may be obtained and the food is continuously carried before the diner from the receptacles on the conveyer.

Within the kitchen 11 conveyer 30 makes a single large loop 42 which forms an inner space 43 from which the food may be loaded into receptacles 35. In this space may be positioned a loading table 44 and a steam table 45, or any other suitable devices. At the ends of the loop 42 the floor of the building is depressed at 46 and 47 to provide inclined runways through which passage for a truck and for the employees may be had to the inner space 43. It will be noted that the ends of counters 26 and wall 22 of the private dining rooms 21 are so spaced as to provide an internal passageway 48 which extends through opening 13 and communicates with the space 43. In this manner access may be had to the interior of the whole system. Kitchen 11 may be further provided with furnishings such as stoves 49, tables 50, chopping blocks 51 and all other culinary devices of ordinary construction, which need not be enumerated.

The details of construction of the conveyer 30 can best be seen in Figs. 2 and 3. A number of pairs of vertical posts 52 and 53 are secured to counters 26 and to the floors of the building and carry sets of tracks 54 positioned one above the other and which extend completely around the system and which are made continuous. The inner tracks are directly secured to posts 53, while the other tracks are attached to the same through brackets 78. Both the supports and tracks are preferably constructed of angle iron, though any other construction may be used. Upon the tracks so formed ride the food receptacles 35, which are secured to the chains 31, 32 and 33 either at the tops or bottoms, as shown in the drawings, to make three independent rows 82, 83 and 84 of carriers, and which are suitably spaced so as to readily turn corners. At each of the corner posts of posts 52 and 53 are pivotally secured the sprocket idlers 34 over which the various chains pass. Upon the various brackets 78 in front of the diners are placed shelves 79 on which the food is directly placed or deposited after the same has been withdrawn from the receptacles 35. Depending cover members 80 secured to the outer track portions 54 and a top cover member 81 secured to posts 53 serve to obscure the machinery used in operating the system.

Along the conveyer 30 at certain positions where access to the receptacles for loading or unloading is unnecessary, or can be dispensed with, are positioned heaters and refrigerators 54′ by means of which the food is at all times kept at a proper temperature. These devices are shown in detail in Fig. 3. At the localities referred to are positioned open-ended insulated casings 55 and 56 which surround the upper and lower chains and the food receptacles 82 and 84 carried thereby, and which permit said chains and receptacles to pass freely therethrough. Within casings 55 are placed sets of pipes 57 which extend along the bottom and two sides of the casing and through which flows a heating medium such as steam whereby the food is warmed as the receptacles pass along the same. Within casings 56 are placed similar pipes 58 which extend along the top and two sides of the same and through which flows a suitable cooling liquid, such as brine, whereby the foods passing therethrough are kept in a suitably cool state. These systems of pipes may be connected in any suitable manner and are fed from refrigerator and heating systems not shown in the drawings. With this construction the food is kept at the proper temperature and still no space on the conveyer wasted. Also the heating and cooling devices are applied along the conveyer at more or less frequent and regular intervals, so that the food is presented to the various patrons seated throughout the dining room at the same temperature.

The method of driving the system can best be comprehended from Figs. 1 and 4. In one corner of the kitchen 11 adjacent a turn of the conveyer 30 is placed an electric motor 59 which has an extended shaft 60 to one end of which is attached a worm 61. A worm 61 meshes with a worm wheel 62 mounted on a shaft 65 which is journaled in bearings 63, 64 and 69 secured to the post 53 located on the convex side of the conveyer chains at the turn of the same. Upon shaft 65 is rigidly secured sprocket wheels 66, 67 and 68 which mesh with the corresponding chains 31, 32 and 33 and drive the same. Shaft 60, carrying worm 61, is journaled at its end in an extension 70 of bearing 69. As the motor 59 rotates the whole serving system or conveyer 30 is caused to travel past the seated diners at a rate of speed suitable for permitting the food to be removed from the receptacles. If desired several motors may be used instead of one, each being placed in various positions along the belt to make the driving of the same easier.

One of the food receptacles 35 is shown in detail in Fig. 6. An outer casing 71 to which the driving chains 31, 32 and 33 are attached is formed open at the rear end and is provided with a glass door 72 to which is attached a coin-controlled device 73 by means of which the same is opened. Within

the casing 71 and through the end thereof may be inserted a scoop-like structure on which the food is placed prior to insertion or loading. This device consists of a bottom 74, side walls 75 and a back 76 having its edges projecting beyond the casing 71 to serve as a stop for terminating the inward motion when the same is inserted in the carrier or receptacle. This back is further provided with a handle 77 by means of which said food-receiving device may be inserted into and withdrawn from casing 71, and by means of which the same may be carried. In loading the compartments as the conveyer passes through the kitchen the food-containing receptacles are simply removed from the casings 71 and new ones substituted which are filled and the doors to the front of the device locked. In this manner the casings 71 are kept clean while anything that is spilled is spilled on the member 74 and may be easily washed off without stopping the operation of the systems or causing any inconvenience or hurried action on the part of the employees.

The method of use may be explained as follows. In the compartments of the upper carrier 82 are placed different varieties of edibles which are served hot, as coffee, hot meats, vegetables, soups and the like. In the compartments of the lower carrier 84 are placed cool foods such as cold meats, iced drinks, ice cream, fruits, butter, etc., which must be kept cold. In the compartments of the central carrier 83 are placed sandwiches, puddings, dry cereals, pastry, etc., which are served neither hot nor cold. The dishes are repeated along the conveyer as often as possible so that the same article passes each person a number of times while the conveyer makes a single trip, thereby reducing the lapse of time between the passage of each article without increasing the rate of speed of the same. At certain intervals along the conveyer are provided empty receptacles in which dirty dishes may be placed either by an attendant or by the diners themselves.

The advantages of my invention are manifest. The whole system is automatic and is very simple in construction. After the diner is once seated he does not need to leave his table to get more food, but may easily reach for it and secure the same without fear of being deprived of his seat. Furthermore, the diner has an opportunity to inspect all of the food which the restaurant has to offer without leaving his seat, and may take of the same from time to time during the meal, as best pleases his fancy.

The sight of the food in this sanitary and appetizing condition as it continually passes within the view of the diner will pleasingly stimulate the digestive functions and tend to increase the efficiency of the meal. From the standpoint of the owner of the restaurant, this will be advantageous, as it will induce generally more certain and larger sales to each customer. The fact that the food is thus presented in sealed receptacles and therefore kept in a perfectly sanitary and good condition is also an advantage of the system, particularly so in connection with the triple sets of supplies in one of which refrigerated or perfectly cold productions will always be found, and in the other products which are actually hot are to be had. The arrangement is such that in a comparatively small room, a very large number of persons can be taken care of simultaneously, thus greatly economizing space. There will be no waiting after once a customer takes a seat. The space where the compartments are provided with their contents may be kept effectively sealed from the portion of the room occupied by customers, and both odors and noise will thus be kept out of the diningroom.

A further great advantage of my system, and which comprises one of the especial purposes thereof, is the serving to parties in private rooms, as is clearly shown in Fig. 1. In such cases, the rooms are in fact private, being closed from waiters or anyone else. Notwthstanding this, the diners in such rooms would obtain a selection of food to meet individual desires without the services of any waiters or any other intrusion. It is obvious that this arrangement may be carried out in hotels or apartment houses so that the occupants of the apartments might obtain the desired viands for a meal without leaving their apartments nor necessitating the intrusion of waiters.

I claim:

1. A self-waiting system for lunch rooms comprising a plurality of tables, a plurality of food conveyers passing successively from one table to another, heating devices positioned between tables and adjacent one of said conveyers, and cooling devices positioned between the tables and adjacent another of said conveyers.

2. A self-waiting system for lunch rooms comprising a plurality of tables, a plurality of endless conveyers passing successively along said tables, food receptacles positioned upon each of said conveyers, heating devices positioned between the tables and adjacent one of said conveyers, and cooling devices positioned between the tables and adjacent another of said conveyers.

3. A self-waiting system for lunch rooms comprising a plurality of tables, a plurality of endless conveyers passing successively along said tables, food receptacles positioned upon each of said conveyers, heating devices positioned between the tables and surrounding a portion of one of said conveyers, and cooling devices positioned be-

tween the tables and surrounding a portion of another of said conveyers.

4. A self-waiting system for lunch rooms comprising a plurality of tables, three endless conveyers spaced from each other vertically and passing successively along said tables, food receptacles positioned upon each of said conveyers, heating devices positioned between the tables and surrounding a portion of the upper conveyer, and cooling devices positioned between the tables and surrounding a portion of the lower conveyer.

In testimony whereof I affix my signature.

DEXTER D. MAYNE.