Oct. 13, 1931. F. A. HOPPE ET AL 1,826,885

OVEN LOADER

Filed April 3, 1931 3 Sheets-Sheet 1

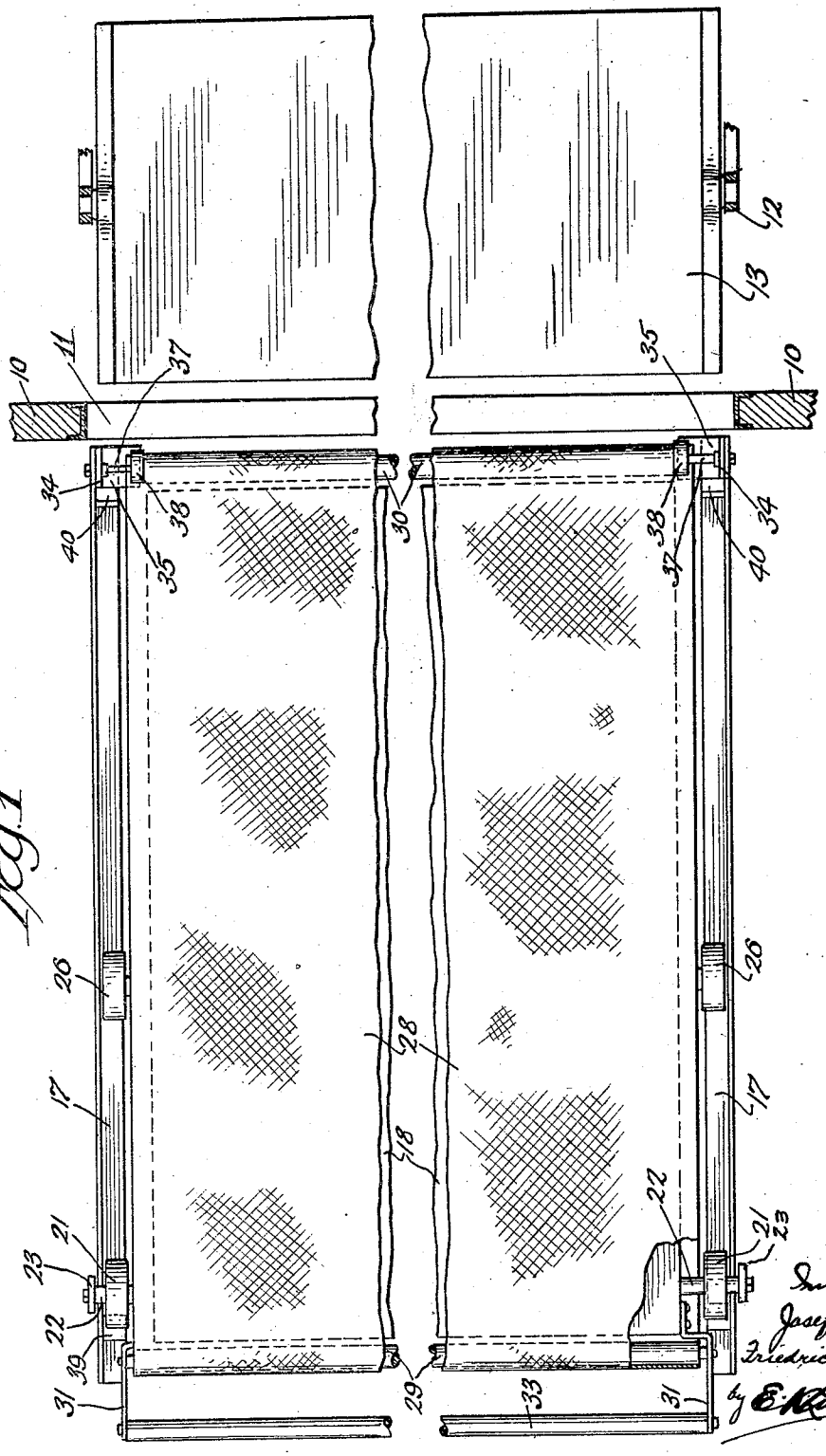

Fig. 1

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OVEN LOADER

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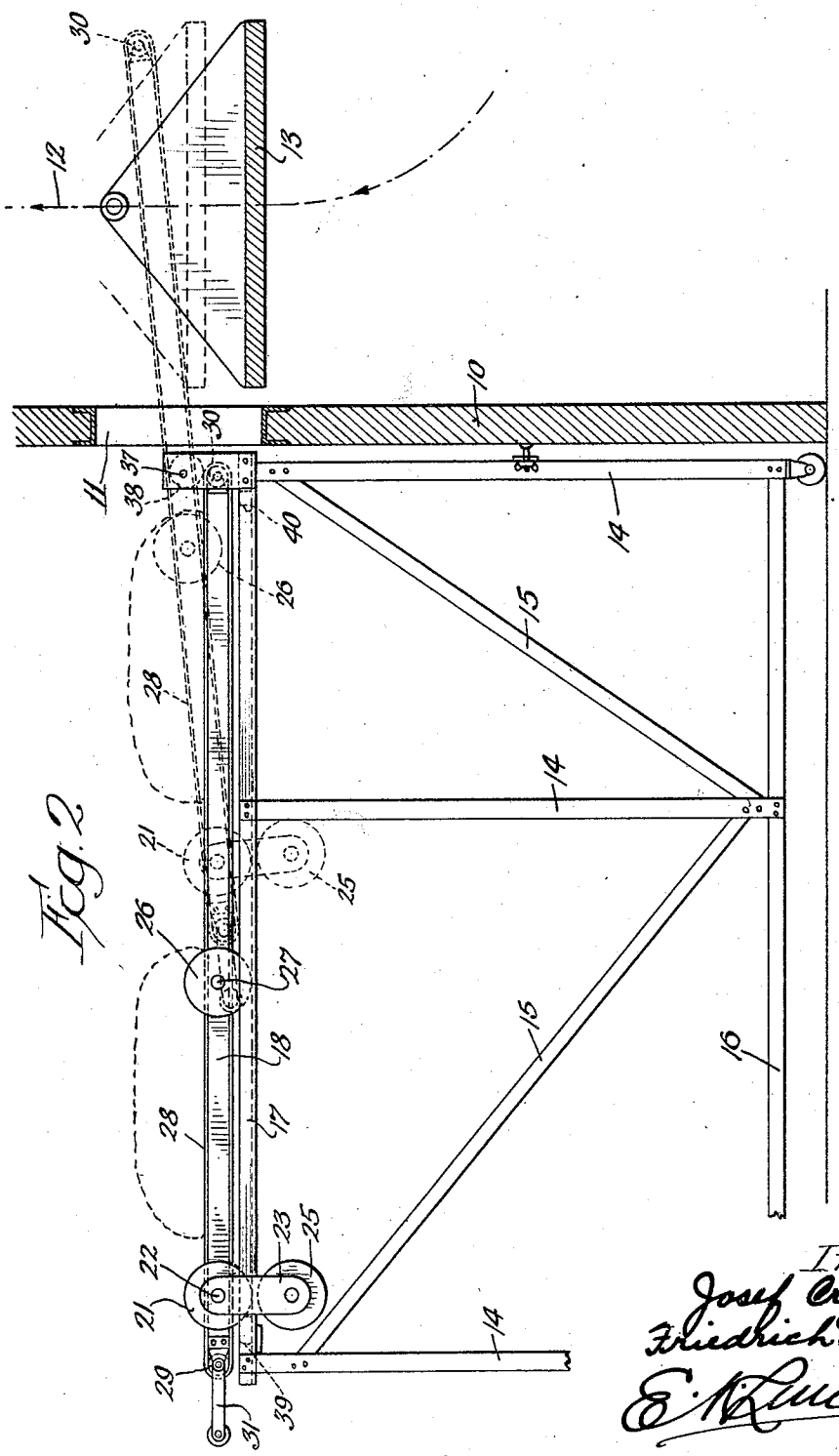

Fig. 2

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OVEN LOADER

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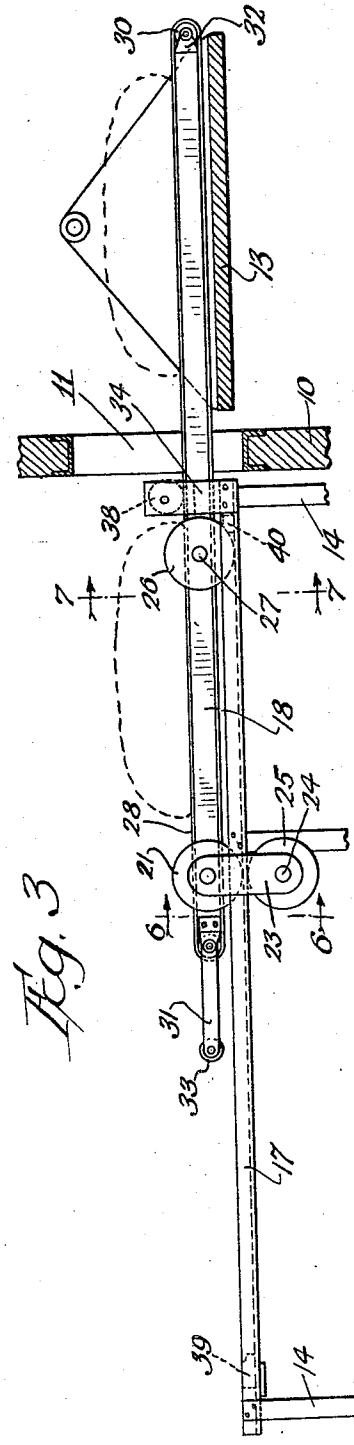

Fig. 3

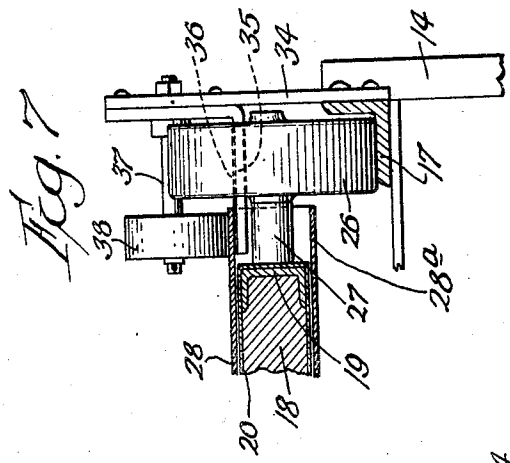

Fig. 7

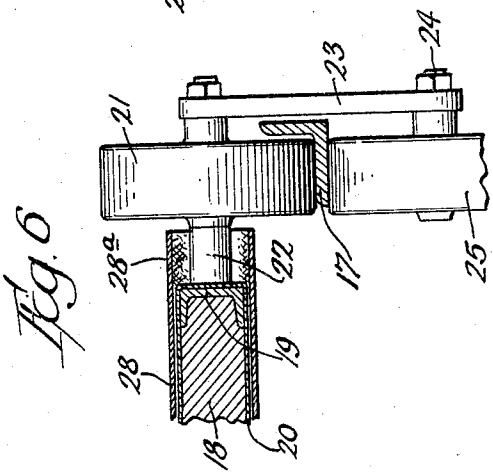

Fig. 6

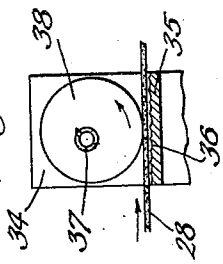

Fig. 4

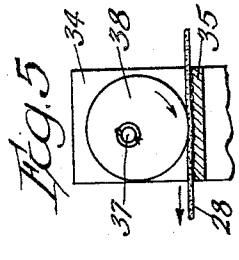

Fig. 5

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Patented Oct. 13, 1931 1,826,885

UNITED STATES PATENT OFFICE

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OVEN LOADER

Application filed April 3, 1931. Serial No. 527,410.

This invention relates to bake ovens and more particularly those known as the traveling tray type, and it is specifically directed to an apparatus for loading the goods onto the trays as the latter approach the mouth or doorway of the oven.

One of the primary objects of this invention is to provide an apparatus that is simply and dependably constructed, and which is arranged and operated so that it does not require the attendant placing his hands or arms within the doorway of the oven when loading the loaves of dough upon the shelves or trays. In this respect the present apparatus dispenses with the use of the special implements and tools that heretofore have been used for depositing the unbaked loaves upon the trays.

In the present structure a movable carriage is provided that is inserted through the doorway of the oven in a plane slightly above the adjacent tray, and which, when the operator reverses the movement of the apparatus, this motion causes the support upon which the unbaked loaves are carried to discharge said loaves in the proper manner in a line upon the tray. It may sometimes occur that, in using an apparatus of this character, the tray nearest the doorway will rise to a plane above the loading apparatus after the latter has been inserted through the doorway and before the loaves of dough have been deposited upon the tray. In such a contingency the platform or plate would have its feeding end raised upwardly by the moving tray to such an extent that it might be impossible to deposit the loaves of dough.

Provision is made in the present apparatus to permit the upward tilt of the loading frame so that while the loader may be moved to an inclined position by a moving tray, the operator may be able to withdraw the carriage from the oven doorway and not deposit the load until the next tray reaches the doorway. By making such a provision in this structure, the danger of disrupting the parts or damaging the apparatus is to a great extent avoided.

The structure herein disclosed is novel and comparatively simple in construction, and in operation it will discharge the unbaked loaves upon the trays with greater speed than when this operation is performed by hand. The structure is dependable in operation, it is easy to manipulate, it is sturdy in construction, and it will not readily get out of order. Other objects of the invention will be apparent to others after the construction and the arrangement of the parts are understood.

It is preferred to carry out this invention and to accomplish the various objects thereof, in substantially the manner hereinafter fully described and as more particularly pointed out in the claims. Reference will now be made to the accompanying drawings that form a part of this specification, in which,

Figure 1 is a top plan of this loading apparatus mounted in front of the oven doorway with a portion broken away and foreshortened between the ends of the carriage.

Figure 2 is a vertical elevation of an end of the structure shown in Figure 1.

Figure 3 is an end view of the upper portion of the structure shown in Figure 2 with the carriage moved into the oven and about to discharge a load.

Figures 4 and 5 are schematic views showing different positions of the cam that is utilized for temporarily holding a portion of the loading structure.

Figure 6 is a detail sectional view in vertical elevation of a portion of the carrier or platform and its supporting elements, the section being taken on line 6—6 of Figure 3 and looking in the direction of the arrows.

Figure 7 is a view similar to Figure 6 and is a partial section taken on line 7—7 of Figure 3.

The drawings are more or less of a schematic character and are to be understood as being for the purpose of disclosing a typical or preferred form in which the invention may be produced, and in said drawings similar reference characters designate like parts wherever these parts appear throughout the several views.

The portion of the oven shown consists of the front wall 10 having the doorway 11 through which access is had to the interior of the oven and immediately inside the door-

way a chain or link belt conveyer 12 moves in an upward direction carrying the trays or shelves 13 that are adapted to pass in close proximity to the doorway. The trays are of elongated construction so as to extend the width of the interior of the oven and the doorway is of proper dimensions to permit loading the entire tray at a single discharge of the loading apparatus.

The loading apparatus preferably comprises a skeleton frame formed of a plurality of standards 14 that are braced by diagonal struts and are connected at their bottom portions by horizontal side and end pieces 16. The tops of the standards are connected by rails 17 made from angle metal strips that are disposed with their horizontal flange lowermost to provide tracks upon which the movable carrier or carriage of the loader is supported. Said side rails or tracks 17 form a part of the skeleton structure of the supporting frame, and other longitudinal and transverse braces and side end pieces are employed for stiffening the skeleton frame.

The carriage of the loader preferably consists of a large rectangular plate 18 that is long enough to pass into the oven doorway between the ends of the latter. This plate may be of wood, ply-board, or other suitable material, that is bounded upon its edges by angle pieces 19, and the whole structure thus formed may be provided with a covering 20 of thin metal for protective and other purposes.

Adjacent the longitudinal end of the carriage nearest the operator the plate structure is provided with wheels 21, the spindles 22 where of are secured to and project laterally in horizontal planes from the side or end edges of the plate structure. Hanging from the outer ends of the spindles 22 are pendent links 23 that hang down outside the rails 17 upon which the rollers 21 rest and have their lower portions bored to received spindles 24 of the lower wheels 25. These lower wheels 25 have their upper segments engaged with the undersurfaces of the rails or tracks 17 immediately under the supporting wheels. Other supporting wheels 26 are mounted upon spindles 27 about midway of the sides or ends of the plate structure and rest upon the rails or tracks 17 in the same manner as the wheels 21. This mounting of the carriage permits the portion of the plate structure farthest from the operator to over-hang the wheels 26 to such an extent that the longitudinal edge portion of the carriage may be inserted through the door way of the oven and into the path of the upwardly moving trays in the manner shown in Figure 3.

The carriage may be tilted upwardly from its edge nearest the oven and will not be disengaged from the tracks 17 due to the double wheel structure at the end nearest the operator, although the wheels 26 will be lifted slightly from the tracks and the edges of the apron will be pulled laterally from between the clamp members in the event the inner edge of the carriage becomes engaged with an upwardly moving tray so as to lift the same in the manner shown in dotted lines in Figure 2. This will permit the operator to immediately retract the carriage and withdraw it from the traveling tray without loading the latter and without damage to the parts.

For the purpose of discharging the load of unbaked dough upon the traveling tray, a flexible apron or conveyer 28 of endless formation surrounds the structure and extends over and around both of its longitudinal edges. In order to give this conveyer or apron freer movement elongated rollers 29 and 30 are mounted respectively at the end of the carriage nearest the operator and at the edge nearest the oven. The roller 29 has its trunnions mounted in irregularly shaped brackets 31 projecting horizontally from the adjacent portions of the plate structure, while the trunnions of the roller 30 are journaled in extensions 32 of the channel pieces 19 that bound the side or end edges of the plate structure. The brackets 31 have an elongated handle 33 extending between and secured to them so that the operator may grasp said handle and move the carriage into and out of the oven doorway during the loading operations.

As will be seen in the drawings, especially by reference to Figures 6 and 7, the side edges of the apron or conveyer extend beyond the sides of the plate structure to provide a gripper flap as shown at 28ª in Figures 6 and 7, the purpose of which will now be explained. A post 34 extends upwardly from each of the uprights 14 nearest the oven and these posts are each provided with a ledge or arm 35 that projects toward the plate structure in a plane below the upper reach of the apron, or more specifically, immediately below the upper reach of the gripper flap 28ª of the conveyer or apron. The upper surface of these ledges are serrated or roughened as at 36 to increase friction. Above the ledges are horizontal spindles 37 that project over the apron and at points above the flap portions 28 of the apron these spindles are provided with cams 38 in the form of eccentrically pivoted disks. The arrangement of the cams is such that when the carriage is moved into the oven the cams will trail on the apron flap in the manner shown in Figure 4 and thus allow the apron or conveyer to remain stationary on the plate structure but move therewith. If, during operation, an oven tray should lift the inner end of the loader carriage, the plate 18 which supports the apron will be raised and will pull the apron flaps 28ª laterally from between the cams and ledges, while the carriage pivots on

the rear or outer wheels 21. Upon restoring the plate 18 and carriage to normal positions, the apron flaps may be readily inserted between the cams and ledges. When, however, the innermost position has been reached and the operator begins to withdraw the carriage the cams will wedge the flaps 28ª of the apron or conveyer between their peripheries and the opposing surfaces of the ledges 35, as shown in Figure 5 thus gripping the apron or conveyer between them and preventing movement at these points.

The plate structure will be withdrawn and the rollers 29 and 30 will permit this movement due to the fact that the adjacent portions of the apron will move around these rollers, thus reducing the distance between the inner edge of the carrier and the cams, so that the loaves of dough which have previously been placed upon this portion of the structure will be discharged and deposited upon the oven tray immediately below the retracting carriage. As soon as the carriage has been moved back to its outer limit the conveyer may be reloaded with fresh loaves of dough and again moved into the oven to load another tray. Blocks 39 are placed upon the tracks near the outer ends of the latter, and other blocks 40 are placed at the opposite ends of the tracks, said blocks acting as stops to limit the movements of the carrier.

When the carriage or carrier is in its outermost position preparatory to inserting a row of dough loaves into the oven, and while waiting for the approach of the next oven tray the operator, may load the portion of the carriage which is nearest the handle, and when he is ready to discharge the other row of dough the entire carriage will be loaded. It will be understood that there is usually two rows of dough upon the carriage at the time it is inserted through the oven doorway and upon being retracted the outermost row has moved, after the other which has been discharged, up to a point near the oven doorway. This arrangement permits the operator to always have an extra row of dough ready for discharge in case a tray reaches the loading position too rapidly or prematurely.

What is claimed is:—

1. An oven loader comprising a supporting frame having parallel tracks, a carrier supported on said tracks and movable into and out of the oven, an endless apron surrounding the bed of the carrier and upon which the goods are initially deposited, and wedging devices engaged with the edges of said apron adapted to detain the apron during the outward movement of the carrier.

2. An oven loader comprising a supporting frame having parallel tracks, a carrier supported on said tracks and movable into and out of the oven, an endless apron surrounding the bed of the carrier and upon which the goods are initially deposited, and wedging devices engaged with the edges of said apron and adapted to grip and hold the apron during the outward movement of the carrier.

3. An oven loader comprising a supporting frame having parallel tracks, a carrier supported on said tracks and movable into and out of the oven, an endless apron surrounding the bed of the carrier and upon which the goods are initially deposited, and wedging devices engaged with the edges of said apron and adapted to engage the edges of the apron and hold the same during the outward movement of the carrier.

4. An oven loader comprising a supporting frame having parallel tracks, a carrier supported on said tracks and movable into and out of the oven, an endless apron surrounding the bed of the carrier and upon which the goods are initially deposited, horizontal ledges upon which portions of the edges of the apron rest, and wedge elements coacting with said ledges adapted to grip the apron between them during outward movement of the carrier.

5. An oven loader comprising a supporting frame having parallel tracks, a carrier supported on said tracks and movable into and out of the oven, an endless apron surrounding the bed of the carrier and upon which the goods are initially deposited, horizontal ledges upon which portions of the edges of the apron rest, and eccentrically mounted disks coacting with said ledges adapted to grip the apron between them during outward movement of the carrier.

6. An oven loader comprising a supporting frame having parallel tracks, a carrier supported on said tracks and movable thereon into and out of the oven, rollers at the forward and rear edges of the bed of the carrier, an endless apron engaged with said rollers and extending around the same and across the carrier bed, ledges extending under opposite edges of the apron, and cams mounted in cooperation with said ledges and adapted to engage the upper surface of the apron above said ledges, whereby said apron is gripped and held by said ledges and cams during outward movement of the carrier from the oven.

7. An oven loader comprising a supporting frame, a carrier reciprocable thereon towards and from the oven, an endless apron surrounding the bed of the carrier and upon which the goods are deposited, and wedging devices mounted on the supporting frame adapted to trail on said apron when the carrier is moved towards the oven and adapted to engage and hold said apron when the carrier is moved away from the oven.

8. An oven loader comprising a supporting frame, a carrier reciprocable thereon towards and from the oven, an endless apron surrounding the bed of the carrier and upon

which the goods are deposited, stationary means mounted on said frame and disposed below the upper reach of the apron, and cams mounted on said frame and co-acting with said stationary means, said cams adapted to trail on said apron when the carrier is moved towards the oven and adapted to wedge the apron against said stationary means when the carrier is moved away from the oven.

Signed at Chicago, in the county of Cook and State of Illinois, this 20th day of May, 1931.

JOSEF CRYNS.
FRIEDRICH A. HOPPE.