The present invention relates to sheet feed devices for use in placing folded sheets, signatures or book sections straddlewise upon a pivotal sheet carrier such as, for example, the reciprocatory stitching saddle of a machine for assembling and stitching books or continuously stitched book-pads in which, as is well known to those skilled in the art, the stitching saddle usually is pivotal mounted and adapted to assume alternately a work laying-on position and a stitching position beneath the stitching means.

In the operation of machines of this type the work, hereinafter referred to as the folded sheet, is fed to the sheet saddle or carrier by hand or mechanically when the saddle is in the laying-on position and the latter thereupon is swung into the stitching position beneath the stitching means so that the folded sheet is stitched and thus attached to the previously stitched book or book-pad. In the subsequent movement of the saddle to the laying-on position the last stitched sheet thus is retained in its stitching position and the last mentioned movement of the saddle is an idle one. Despite moving the saddle to the open position with all possible speed the sheet feeding or laying-on operation must of necessity be suspended while the saddle is in the stitching position and also during all or the major part of its idle stroke.

It is already known in so-called semi-automatic stitching machines to extend the length of the laying-on period in any given speed of revolution of such a machine by the use of a rigid auxiliary table constantly stationary in the laying-on position of the stitching saddle and from which the work is passed to the saddle by means of a pusher member which is actuated when the stitching saddle and auxiliary table are contiguous.

Moreover, in wire stitching or stapling machines of the stationary stitching-saddle type it is well known to employ an endless conveyor belt or chain in association with the stitching saddle and equipped with pusher fingers which engage folded sheets placed straddlewise over the conveyor so that the folded sheets are brought beneath the wire stitching head either singly or assembled in book form.

The object of the present invention is to provide a modified arrangement of a travelling conveyor for use in placing folded sheets straddlewise upon a pivotal sheet carrier or stitching saddle of a book stitching machine.

According to the present invention provision is made of a sheet feed device for use with a book stitching machine having a pivotal sheet carrier or stitching saddle, which comprises a travelling conveyor contiguous with the sheet laying-on position of the stitching saddle, and arranged to advance the work towards the stitching saddle, and an auxiliary sheet-displacing member arranged to transfer the sheets from the conveyor to the stitching saddle.

A book-stitching machine of the kind referred to may be constructed according to this invention so that the sheets are transferred from the travelling conveyor to the stitching saddle during the opening movement of the latter and/or when the opening movement is terminated.

In moving the sheets from the travelling conveyor member to the stitching saddle the auxiliary displacing member may be actuated intermittently or in a continuous movement periodical-ly varied in speed in such manner that the sheet engaged thereby is first moved gradually and then at greatly increased speed so as to arrive on the saddle prior to the commencement of the next feeding movement of the latter; the saddle is preferably provided with a registering stop or lay to determine the position of the work thereon.

Moreover, an adhesive-applying device may be associated with the sheet-feed device so that adhesive is applied to each sheet or selected sheets so as to pivot the saddle pad.

In order that the operation of the invention may readily be understood, a constructional embodiment thereof will now be described with reference to the accompanying drawings in which:

Figs. 1 and 1a taken together show an elevational view of a book-stitching machine of the pivotal sheet carrying type arranged as shown in the present construction for producing a continuously thread-stitched book pad, and provided with sheet-feed and adhesive-applying means according to the present invention;

Fig. 2 is an elevational view of the machine looking in the direction of the arrow A (Fig. 1);

Fig. 3 is a fragmentary plan view showing the sheet-feed device of the machine and adhesive-applying arrangement associated therewith;

Fig. 4 shows diagrammatically the relative positions of the stitching saddle and sheet conveyor chain when the extremity of the saddle is first brought into the path of the sheet displaced from the chain;

Fig. 5 is a detail view of the adhesive-applying device drawn to a larger scale;

Fig. 6 is a fragmentary detail view showing the relative positions of the sheet feeding members in the displacement of a sheet from the conveyor chain to the saddle;
Fig. 7 is a side elevational view of the adhesive-applying device shown in Fig. 5; and Fig. 8 is a plan view thereof.

Referring to Figs. 1 and 2, the machine as shown comprises upright frame members 30,30a, serving to support a multiple stitcher head H which is suitably positioned above a book-pad trough 21 wherein the book-pad P is progressed during its formation. A pair of supporting arms 32, pivotally secured at their lower extremities to a substantially horizontal bearing shaft 32a, carry at their upper, free extremities the stitching saddle 33, the arms 32 being moveable in an arcuate path about the longitudinal axis of the shaft 32a so as alternately to assume the stitching and work-laying-on position shown in full and chain dotted lines respectively in Fig. 2. In usual manner the saddle S is rocked about its axis in a reciprocatory movement through the medium of cam grooved discs 40 which are mounted upon a driven shaft 35. The shaft 35 is journaled in the side frames 30,30a, and driven, by means not shown, from the main drive of the machine and in a manner related to the actuation of the stitcher head H. Rigid extensions 32b of the saddle arms 32 carry cam followers or rollers 40b which engage the cam grooves 40a so that in the timed rotation of the shaft 35 and discs 40 the saddle arms 32 and saddle S are reciprocated to and from the stitching position beneath the thread stitching needles of the stitcher head H. Although it should clearly be understood that the present invention can readily be carried into effect with a stitching saddle of the usual shape, i.e., having its ends square cut at right angles to the longitudinal edges thereof, the shape of the saddle is modified in the present construction as hereinafter described.

The sheet conveyor device C, as shown in Figs. 1, 2 and 3, is arranged continuously with the open or sheet-laying-on position of the saddle S and in this constructional embodiment is constituted as follows. Chain sprockets 41, 42 and 43 are set in a vertical plane which extends parallel with the apical ridge of the saddle S. The follower sprocket 41 and driven sprocket 42 are supported by a bearing bracket 46 which is secured to the left hand frame member 30 as viewed in Fig. 1a, the follower sprocket 41 being mounted upon a stub shaft journaled in the bracket 46 while the driver sprocket 42 is keyed to one extremity of a drive shaft 45, the latter, which extends transversely of the machine, being journaled in suitable bearings supported by brackets projecting outwards from the frame member 30. The follower sprocket 43 is journaled in a bearing block 44a which is slidably mounted in a bracket 44b supported at a distance from the frame member 30 by a rigid upwardly inclined gantry 44, the lower end of the latter being secured to the frame member 30. The bearing block 43a has lateral shoulders which slidably engage suitable slots formed in the bracket 44a; adjustment of the bearing block is achieved by means of the setscrew 43b which engages a suitably threaded hole in the bracket 44a and passes therethrough to engage the block 43a (as shown in Figs. 4 and 5). An endless conveyor belt comprising pivotally linked members 33a of inverted V-shape in cross-section passes around the sprockets 41, 42 and 43 so that the upper run of the chain extending between the sprockets 42, 43 is substantially horizontal and parallel with the apical ridge of the saddle, the sprocket 42 being so positioned that the upper stretch of the chain 33 at its right hand extremity as viewed in Fig. 1 passes downwardly at a point immediately adjacent the arcuate path of travel of the left hand extremity of the saddle S and then to some extent upwardly and beneath the saddle. The tension of the chain 33 is adjusted as desired by the manipulation of the set screw 43b. When a book-pad trough 21, the left hand extremity of the saddle S is outwardly extended longitudinally thereof, the apical ridge and lower edges of the extension being suitably curved downwardly and inwardly respectively to form a beak 23. As indicated in Fig. 4 the beak 23 extends at the apical ridge of the stitching saddle proper while the curvature of the corresponding end of the front plate 5k of the saddle S is such that in the arcuate rise and fall movement of the saddle S the curved end of the plate 5k clears the downwardly moving underhang of the chain 33 while remaining closely adjacent thereto. A pair of horizontal deflecting rails or bars 14,15 are associated with the upper stretch of the chain 33 and spaced to either side thereof to deflect outwardly and thus hold apart the limbs of the folded sheets or signatures placed upon the chain. The rails are preferably arranged somewhat below the upper stretch of the conveyor chain 33 (Fig. 2) and substantially parallel and close set at their outer extremities while flared outwards to a wider spacing adjacent the stitching saddle. The rails are supported at their extremities in this embodiment by cross pieces attached to the bearing bracket 44a and the appropriate frame member 30. As indicated in Fig. 4 the beak 23 of the saddle S when approaching the conveyor chain 33, in moving to the open position, lies slightly beneath the lengthened limbs of the sheet lying open upon the chain 33 and struts 14,15. Selected members 33a of the chain 33 are provided with pusher fingers 34 which are evenly spaced along the length of the conveyor chain and serve positively to engage and move the sheets along the rails 14,15 towards the saddle S. The pusher fingers 34 and/or the chain members 33a bearing such fingers may be adjusted or repositioned along the length of the chain in well known manner according to the size of the work to be handled.

The conveyor chain is driven in timed accordance with the movement of the stitching saddle and at such speed that the chain travels a distance equal to the pitch (i.e., the distance between the sheet extending faces) of the fingers 34 during each stitching cycle of the machine. To this end the left hand extremity of the drive shaft 35 (as viewed in Figs. 1 and 1a) is extended to carry a keyed bevel gear 36 which meshes with a similar bevel gear 37; the latter being keyed to a stub shaft 22 journaled in a bearing bracket 22a secured and projectively outwardly from the frame member 30. The shaft 22 also has keyed thereto a gear wheel 37a which drives through an idler gear wheel 37b a further gear wheel 45a which is keyed to the shaft 45. Thus the conveyor chain is driven in timed relation to the main drive of the machine and the speed of the conveyor chain may be varied if desired by interchanging the readily accessible gear train 37a, 37b and 45a.

The auxiliary sheet displacing member associated with the conveyor chain 33 as shown in Figs. 1, 2 and 3 comprises an upwardly extending extending (pivotal) lever 41, rigidly secured to the upper extremity to a rocking shaft 18 which is journaled in a suitable bearing bracket secured to the ma-
chiner frame member 30 (Fig. 1a), and forked at its upper extremity to provide a sheet-engaging member 12 which embraces the conveyor chain 33 (Fig. 2). The shaft 18 also has rigidly secured thereto an arm 10 which carries at its free extremity a cam follower or trailer 39 arranged to roll the cammed edge of the cam disc 38, the latter being keyed to the shaft 22. A helical tension spring 13 secured to the lever 11 and the bracket 46 urges the lever 11 to rotate in a clockwise direction (as viewed in Fig. 1) when permitted to do so by the rotary setting of the cam disc 38. Normally, i.e., when inoperative, the formed sheet-engaging member 12 lies beneath the level of the sheet limbs distended upon the conveyor chain 33 and rails 14, 15. In the rotation of the cam disc 38, the arm 11 and sheet-engaging member 12 are caused periodically to move in an arcuate path of reciprocatory movement to engage and displace each sheet from the chain 33 to the saddle S and then return to its initial position. By reason of the contour of the cam disc 38 the displacement of the sheet from the chain is performed initially at a speed slightly in excess of the conveyor chain speed and then at a rapidly accelerated speed. The lever 11 and/or arm 10 may be adjustably secured to the shaft 18, as by set screws or split clamping collars (not shown), to permit the adjustment thereof in accordance with the size of the work to be fed and desired throw of the sheet-engaging member 32.

A sheet stop 17 is adjustably mounted upon the hand side of the sheet (as shown in Fig. 1) and so disposed as to provide an auxiliary sheet displacement member 12 so that the sheets fed to the stitching sledge are precisely positioned for the stitching thereof.

The operation of this constructional embodiment of the invention is as follows. The drive of the stitching saddle S is so set that the saddle pauses for a given period in its fully open or laying-on position while the adjustable members of the sheet-conveyor device C are set according to the size of the sheets to be stitched so that the forward right hand edge of each sheet carried by the conveyor chain 33 reaches a position closely adjacent the path of travel of the beak 11 of the stitching saddle when the saddle is moving towards the open position and has reached the position shown in Fig. 4. The conveyor chain 33 may be of any desired length or in other words may have desired number of laying-on stations simultaneously available upon the upper stretch of the conveyor chain 33, the sheets or signatures may be laid upon the chain at any or all of the stations either manually or by automatic feeding means. Assuming that an opened folded sheet or signature is placed outside the chain conveyor between two pusher fingers 34, the finger to the left hand side of the sheet (as shown in Fig. 1) will be moved by the constantly travelling chain 33 into engagement with the left hand edge of the sheet which movement will be carried along the rails 14, 15 in the direction of the arrow a as stated above brought to the position shown in Figs. 1a and 1b, i.e., with the right hand edge thereof of closely adjacent the path of travel of the saddle S when the beak 11 of the stitching saddle is in the position shown in Fig. 4. By reason of the rotary setting of the pusher fork 12 the moving sheet has passed thereover to attain the position shown in Fig. 1 while the lines of the fork 12 is closely behind the left hand edge of the sheet. At this moment the rotating cam 38 is in the position shown in Fig. 1a and in the continued rotation thereof the lever 11 and pusher fork 12 are moved to the right at a speed which initially increases slowly to beyond that of the conveyor chain 33 and then rapidly increases so that the sheet astride the chain conveyor is first engaged gently by the slowly overtaking pusher fork and then displaced rapidly on to the saddle S and against the stop 17. The beak 23 of the saddle S acts as a ramp or guide for the advancing sheet so that the right hand edge of the sheet engages the beak prior to the alignment of the apical ridge of the saddle and the ridge of the chain conveyor.

In the continued opening movement of the saddle S which is downwards and in an arcuate path the beak 23 sinks proportionately to the advance of the sheet so that the latter performs a smooth, substantially straight line movement in passing on to the moving saddle as shown in Fig. 6. The saddle S pauses momentarily in the fully open position when the chain conveyor is in alignment with the ridge of the saddle S and the transfer of the sheet is completed whereupon the lever 11 and pusher fork 12 are rapidly reciprocated to the normal or inoperative position. The transferred sheet may be precisely registered against the stop 17 and retained in position by known means (not shown) during the closing movement of the saddle S to the stitching position shown in full lines in Fig. 2. The contour of the cam may be formed so that the speed of the pusher fork 12 is checked immediately prior to abutting the sheet against the stop 17 thus to avoid crumpling the sheet edge. If desired, in place of the pusher device 11, 12 sheet conveying rollers driven at variable speed could be utilized to transfer the sheets from the conveyor chain to the stitching saddle.

The chain conveyor feed of the present invention enables provision readily to be made of means for applying adhesive to the edge of the sheets or selected sheets prior to the feed thereof to the stitching saddle. To this end a mechanical adhesive applying device is incorporated in the machine and as shown in the present construction comprises a pad actuated device arranged as follows.

An adhesive container 19 is disposed over the path of travel of sheets placed astride the chain conveyor 33 and set towards the stitching saddle end of the conveyor (Figs. 1, 2, 3 and 5). The container is supported by a bracket 25 which is secured to the frame member 30 and projects outwardly therefrom. An adhesive-applying roller 21 is rotatably journaled at the free extremity of an arm 21a which is pivotally mounted on the outer side of the container 19 as shown more particularly in Fig. 5. The arm 21a is carried and pinned to a stub shaft 20a which passes through the container 19 and also carries a second roller 20; the latter rotates upon the shaft 19 within the container and projects through a suitable opening in the lower part of the container so that its periphery engages the periphery of the roller 21. Contact of the roller 21 with a sheet carried upon the chain conveyor 33 causes the former to rotate and in turn rotates the roller 20 so that fresh adhesive from the container 19 is applied to the peripheral edge of the roller 21 by rotary movement. A bearing sleeve 41 secured to the bracket 25 carries a rotatable stub shaft 48 which has pinned thereto the short arms 49, 50. The arm 30 at its free extremity is linked to a rod 51 which is rigidly secured to the stub shaft 20a so that in the movement of the arm 21b about the axis of the stub shaft 48 the rod 51 and shaft 20a...
are rocked to move the arm 21a and roller 21 b to and from the chain conveyor. The free extremity of the arm 49 is linked by a connecting rod 51 to the treader arrangement 26 so that by depressing the treader the adhesive-applying roller 21 is lowered to contact with a sheet placed upon the chain conveyor. Normally the roller 21 is held away from the conveyor chain by means of the helical tension spring 50a which is secured to the arm 50 and bearing bracket 23.

The formation of the stitching saddle 8 with the stitching saddle 23 permits the transfer of the sheet from the conveyor chain to the stitching saddle to be extended over a longer period than that during which the saddle rests in the laying-on position. If desired however the sheet feed device of this invention can be used with a saddle of usual shape in which case the transfer of the sheet will take place only when the conveyor chain and ridge of the stitching saddle are contiguous. From the above description it will be obvious that the sheet feeding device of this invention may be built into a stitching machine as an integral part thereof or alternatively may be built as a separate unit which may either be attached to the stitching machine or established independently and operatively associated therewith.

We claim:

1. A sheet feed device for use in a book-stitching machine having a pivotal sheet carrier or stitching saddle which is arranged to assume alternately a stitching position and a sheet-laying-on position, comprising a travelling sheet conveyor contiguous with the laying-on position of the stitching saddle, and an auxiliary sheet-displacing member arranged to transfer the sheets from said sheet conveyor to said saddle.

2. A sheet feed device for use in a book-stitching machine having a pivotal sheet carrier or stitching saddle which is arranged to assume alternately a stitching position and a sheet-laying-on position, comprising an endless travelling sheet conveyor contiguous with the laying-on position of the stitching saddle, and a reciprocatory sheet-displacing member arranged to transfer the sheets from said sheet conveyor to said stitching saddle.

3. A sheet feed device for use in a book-stitching machine having a pivotal sheet carrier or stitching saddle which is arranged to assume alternately a stitching position and a sheet-laying-on position, comprising a travelling sheet conveyor contiguous with the laying-on position of the stitching saddle, and an auxiliary sheet-displacing member arranged to transfer the sheets from said sheet conveyor to said stitching saddle.

4. A sheet feed device for use in a book-stitching machine having a pivotal sheet carrier or stitching saddle which is arranged to assume alternately a stitching position and a sheet-laying-on position, comprising a travelling sheet conveyor contiguous with the laying-on position of the stitching saddle, and an auxiliary sheet-displacing member arranged to transfer the sheets from said sheet conveyor to said stitching saddle.

5. A sheet feed device for use in a book-stitching machine having a pivotal sheet carrier or stitching saddle which is arranged to assume alternately a stitching position and a sheet-laying-on position, comprising an endless travelling sheet conveyor contiguous with the laying-on position of the stitching saddle, and an auxiliary sheet-displacing member arranged to transfer the sheets from said sheet conveyor to said stitching saddle.

6. A sheet feed device for use in a book-stitching machine having a pivotal sheet carrier or stitching saddle which is arranged to assume alternately a stitching position and a sheet-laying-on position, comprising an endless travelling sheet conveyor contiguous with the laying-on position of the stitching saddle, and an auxiliary sheet-displacing member arranged to transfer the sheets from said sheet conveyor to said stitching saddle, and means for moving said sheet-displacing member at varying speed so that the transfer of the sheet is completed at a suddenly increased speed.

7. A sheet feed device for use in a book-stitching machine having a pivotal sheet carrier or stitching saddle which is arranged to assume alternately a stitching position and a sheet-laying-on position, comprising a travelling sheet conveyor contiguous with the laying-on position of the stitching saddle, and means for swinging said sheet-displacing member about its pivotal axis at varying speed so that said sheet-displacing member engages and transfers a sheet from said conveyor to said stitching saddle at a speed which is suddenly increased to complete the transfer.

8. A sheet feed device for use in a book-stitching machine having a pivotal sheet carrier or stitching saddle which is arranged to assume alternately a stitching position and a sheet-laying-on position, comprising a travelling sheet conveyor contiguous with the laying-on position of the stitching saddle, and means for applying an adhesive to the selected ends of said sheet on the conveyor, means for swinging said sheet-displacing member about its pivotal axis at varying speed so that said sheet-displacing member engages and transfers a sheet from said conveyor to said stitching saddle at a speed which is suddenly increased to complete the transfer.
tiguous with the apical ridge of the stitching saddle when the latter assumes the laying-on position, sheet-engaging fingers mounted upon selected ones of said chain links at equal distance

5 from the pivot for driving said chain conveyor for a distance equal to the pitch of said fingers during each stitching cycle of the machine, to advance the sheets towards said stitching saddle, an auxiliary sheet-displacing member positioned to embrace said chain links and normally positioned on the path of travel of the sheets carried by said chain, and means for reciprocating said auxiliary sheet-displacing member in an arcuate path of movement so that each sheet is transferred from said chain to said saddle at a speed which is rapidly accelerated to complete the transfer.

11. A sheet feed device as claimed in claim 10, with which is associated means for applying adhesives to selected ones of the sheets, comprising a source of adhesive, an adhesive-applying member positioned above the chain conveyor so as to contact with sheets carried thereon, means for transferring adhesive from said source to said adhesive-applying member, and means for selectively controlling the contact of said adhesive-applying member with the sheets.

15. A book-stitching machine which includes a pivotal roof-shaped stitching saddle, means for reciprocating said saddle in an arcuate path of movement to assume alternately a stitching position and a work laying-on position, a travelling sheet-conveyor contiguous with the laying-on position of the stitching saddle, and arranged to advance the sheets towards said saddle, an auxiliary sheet-displacing member arranged to transfer the sheets from said travelling conveyor to said stitching saddle, and means for actuating said sheet-displacing member so that the transfer of the sheets is finally effected when said stitching saddle is in the sheet laying-on position.

19. In combination with the book-stitching apparatus claimed in claim 18, means for applying adhesive to the sheets prior to the transfer thereof to the stitching saddle, comprising a source of adhesive, an adhesive-applying member positioned above the path of travel of the conveyor and arranged to contact with selected ones of the sheets carried thereon, means for transferring adhesive from said source to said adhesive-applying member, and means for selectively controlling the contact of said adhesive-applying member with the sheets.

23. A sheet feed device for use in a book-stitching machine having a pivotal sheet carrier or stitching saddle which is arranged to assume alternately a stitching position and a sheet laying-on position, comprising an endless travelling conveyor contiguous with the work laying-on position of the stitching saddle and having an upper, sheet-carrying stretch, deflecting rails set to either side of the upper sheet-carrying stretch of said conveyor to distort the limbs of folded sheets placed upon said conveyor, sheet-engaging fingers equally spaced along the length of said conveyor, means for driving said conveyor to advance the sheets towards one extremity of said saddle, and an auxiliary sheet-displacing member arranged to transfer the sheets from said conveyor to said stitching saddle.

27. A book-stitching apparatus comprising, in combination, a machine frame, a stitcher head supported by said frame, a roof-shaped stitching saddle pivotally mounted in said frame, an adjustable sheet stop mounted upon said saddle, means for imparting movement to said stitching saddle so that it assumes alternately a closed or stitching position beneath said stitcher head and an open or work laying-on position, a sheet feed device comprising chain sprockets mounted in vertical alignment, an endless conveyor chain passing round said sprockets to provide an upper sheet-carrying stretch one end of which is closely adjacent one extremity of said stitching saddle, sheet-engaging fingers equally spaced along said conveyor chain, means for driving said chain so that the sheets thereon are advanced during each stitching cycle of the machine for a distance equal to the spacing of said sheet-engaging members, pivotally mounted auxiliary sheet-displacing member forked to embrace said chain, and means for imparting movement to said sheet-displacing member so that it engages each sheet carried by said conveyor and then at a rapidly increased speed transfers the sheet to said stop upon said stitching saddle.

29. In combination with the book-stitching apparatus claimed in claim 28, means for applying adhesive to the sheets prior to the transfer thereof to the stitching saddle, comprising a source of adhesive, an adhesive-applying member positioned above the path of travel of the conveyor and arranged to contact with selected ones of the sheets carried thereon, means for transferring adhesive from said source to said adhesive-applying member, and means for selectively controlling the contact of said adhesive-applying member with the sheets.

33. A book-stitching machine which includes a pivotal roof-shaped stitching saddle having one extremity extended to form a downwardly projecting beak, means for reciprocating said saddle in an arcuate path of movement to assume alternately a stitching position and a work laying-on position, a travelling sheet-conveyor contiguous with the laying-on position of the stitching saddle, and having one extremity passing beneath the projecting beak of said stitching saddle, sheet-engaging fingers equally spaced along the length of said conveyor, means for driving said conveyor so that the sheets are advanced towards said stitching saddle, an auxiliary sheet-displacing member arranged to transfer the sheets from said conveyor to said stitching saddle, and means for actuating said displacing member so that the speed at which the sheets are displaced is suddenly accelerated in completing the transfer.
ing adhesive to the sheets carried by the conveyor, comprising an adhesive container set above said conveyor, an adhesive-applying wheel carried by said container and arranged to contact its periphery with the sheet carried by said conveyor, an intermediate member arranged to feed adhesive from said container to the periphery of said adhesive-applying wheel, and means for rocking said adhesive-applying wheel selectively to contact it with sheets carried by said conveyor.

OSCAR KLEINSCHMIT.
WALTER GEISSLER.