A material-handling bucket having a pair of laterally spaced sidewalls interconnected by a transversely extending U-shaped main plate. The forward edge of the main plate is provided with an L-shaped support member which serves as a common member for removably retaining a plurality of cutting blades and wear shoes fastened together by the same bolts.

4 Claims, 4 Drawing Figures
MATERIAL-HANDLING BUCKET

The invention relates to a bucket which can be incorporated with a front end loader of the rubber-tired or crawler type. The bucket made according to the invention is intended for general purpose use and is characterized by having the front lower edge thereof provided with a plurality of detachable cutting blades and skid or wear shoes. More specifically, the front lower edge of the bucket is provided with a base or support member which extends the length of the bucket and serves as a common means to which the cutting blade and wear shoes can be secured by use of the same fastener such as a bolt.

In the preferred form, the bucket made in accordance with the invention has a pair of laterally spaced sidewalls located in parallel and vertically oriented planes. A curved main plate extends between and interconnects the sidewalls for receiving and retaining material. In addition, a bottom plate is secured between the sidewalls and has the front edge thereof located to the rear, below, and vertically spaced from the front edge of the main plate of the bucket. An L-shaped base member has one leg thereof rigidly secured between the front edges of the main plate and the bottom plate with the other leg lying in a transverse plane inclined toward the upper portion of the main plate. The support member serves as a common base for retaining a plurality of cutting blades and wear shoes by the use of a plurality of bolts, each of which extends successively through a cutting blade, the support member, and a wear shoe.

The objects of the present invention are to provide a bucket having a plurality of removable cutting blades and wear shoes fastened to a common support member rigidly fixed to the lower front edge of the bucket; to provide a material-handling bucket having a cutting blade which is partially supported by a support member rigid with the front lower edge of the bucket and also supported by the leading edge of a wear shoe disposed beneath and fastened to a support member; to provide an excavating bucket having an L-shaped support member rigidly secured to the front lower edge of the bucket and having one leg which serves as a support for a cutting blade and a wear shoe, both of which are fastened to the support member by the same bolts; and to provide a bucket having a leading edge wear shoe which has a portion that serves as a support for the forward end of a cutting blade attached to the bucket.

Other objects and advantages of the present invention will be more apparent from the following detailed description and drawings in which:

FIG. 1 is a side elevational view showing a material-handling bucket made in accordance with the invention;
FIG. 2 is a fragmentary view of the bucket taken on line 2—2 of FIG. 1;
FIG. 3 is an enlarged view taken on line 3—3 of FIG. 2 and shows a cutting blade and a wear shoe fastened to a support member secured to the front lower edge of the bucket, and
FIG. 4 is an exploded view showing the cutting blade, support member, and wear shoe of FIG. 3.

Referring to the drawings and more particularly FIGS. 1 and 2 thereof, a material-handling bucket 10 is shown of the type normally employed with a rubber-tired or crawler type front end loader. More specifically, the bucket 10 comprises a generally U-shaped main plate 12 which extends transversely and interconnects a pair of laterally spaced and vertically oriented sidewalls, only one of which is shown and identified by the reference numeral 14. The main plate 12 consists of a flat horizontally extending floor portion 16 integrally formed with a back wall 18, both of which cooperate with the sidewalls for purposes of receiving and retaining material excavated by the bucket. It will be noted that suitable brackets 20 and 22 are securely secured to the rear of the bucket 10 adjacent each side thereof and respectively include apertures 24 and 26 for pivotally connecting the bucket with the usual lift arm and tilt linkage which forms a part of the loader vehicle. In addition, a bottom plate 28 is provided which conforms generally in shape with the main plate 12 and is secured to the sidewalls of the bucket with its upper end 30 bent upwardly and forwardly welded to the back wall 18 of the main plate 12. The bottom plate 28 is uniformly spaced from the main plate 12 and has its forward end terminating with a front edge 32 which is located parallel to and to the rear of the front edge 34 of the main plate 12. As best seen in FIG. 3, the front edges 32 and 34 of the main and bottom plates 12 and 28 cooperate for purposes of rigidly supporting a transversely extending elongated L-shaped support member 36 having legs 38 and 40, the latter leg of which serves to removably carry a plurality of identical cutting blades 42 and identical wear shoes 44 located between forwardly projecting tooth assemblies 45.

As seen in FIGS. 2 and 4, each of the cutting blades 42 is rectangular in form and has six countersunk apertures 46 formed therein. The centers of the apertures 46 are uniformly spaced axially and are located in two rows along parallel axes which extend substantially parallel to the upper and lower longitudinal edges 48 and 50 respectively of the cutting blade 42. As should be apparent, this arrangement of apertures 46 in the cutting blade 42 permits the latter to be reversible so that either the upper edge 48 or the lower edge 50 can serve as the cutting edge. Moreover, it will be noted that the axial spacing between the apertures 46 is the same as that provided between apertures 52 which are arranged in sets of three and formed in the leg 40 of the support member 36.

Each of the wear shoes 44 is also provided with three longitudinally spaced apertures 54 which are adapted to register with the apertures 52 formed in the support member 36. Further, each wear shoe 44 includes an inclined raised portion 56 adapted to engage the lower surface of the leg 40 and a front portion 58 which extends forwardly beyond the leg 40 and includes an inclined surface 59 for supporting the forward lower portion of the cutting blade 42 as seen in FIG. 3. A rear portion 60 is provided on the wear shoe 44 that extends beneath and engages the underside of the bottom plate 28 when immediately to the rear of the wear shoe 44 is a wear plate 62 continuous with the lower portion of the bottom plate 28 and welded thereto. It will be noted also that wear shoes 63 similar in design to the wear shoes 44 are secured to the rear of the bucket 10.

As seen in FIG. 4, each of the wear shoes 44 is provided with three wedge-shaped cutout portions 64, each of which constitutes a hollow for accommodating a lock nut 66 which is threadably received by the lower screw part of a bolt 68 serving to fasten the cutting blade 42 and wear shoe 44 to the support member 36. In this regard, it will be noted that assembly of the cutting blade 42 and wear shoe 44 to the bucket is accomplished by first raising the bucket 10 off the ground so as to expose the undersurface of the leading edge of the bucket. Thereafter, the cutting blade 42 and wear shoe 44 are positioned so that the apertures 46 and 54 register with the apertures 52 formed in the support member 36. This is followed by insertion of three bolts, each of which successively extends through the cutting blade 42, support member 36, and wear shoe 44 followed by threading of the lock nut 66 to lock all the parts together.

Various changes and modifications can be made in this construction without departing from the spirit of the invention. Such changes and modifications are contemplated by the inventors and they do not wish to be limited except by the scope of the appended claims.

We claim:
1. A loader bucket comprising a pair of laterally spaced sidewalls located in parallel and vertically oriented planes, a main plate extending between and interconnecting said sidewalls for receiving and retaining material, said main plate including a substantially flat floor portion and a curved back wall portion, a bottom plate extending between and interconnecting said sidewalls and located below and vertically spaced from said floor portion, an L-shaped support member having one leg thereof rigidly secured between the forward edges of said main plate and said bottom plate with the other leg lying in a transverse plane inclined toward said back wall, said sup-
3. A port member having a plurality of apertures formed therein, a cutting blade member positioned on the upper surface of said other leg of the support member, a wear shoe member engaging the lower surface of said other leg and having a front portion engaging and supporting said cutting blade member, a plurality of apertures formed in said cutting blade member and said wear shoe member and registering with the apertures formed in said support member, and a bolt extending through each of the registering apertures in said cutting blade member, support member and wear shoe member for securing the latter-mentioned members together.

2. The loader bucket of claim 1 wherein said wear shoe member is provided with a cutout portion adjacent each aperture formed therein.

3. The loader bucket of claim 1 wherein the apertures formed in the cutting blade member and the wear shoe member are located along axes substantially parallel to the longitudinal axis of said members.

4. A material-handling bucket for a front end loader comprising a pair of laterally spaced sidewalls located in parallel and vertically orientated planes, a generally U-shaped main plate extending between and interconnecting said sidewalls for receiving and retaining material, said main plate including a substantially flat floor portion and a curved back wall portion, a bottom plate extending between and interconnecting said sidewalls and located below and vertically spaced from said floor portion, the front edge of said bottom plate being located to the rear of and parallel to the front edge of said main plate, an elongated L-shaped support member having one leg thereof rigidly secured between the front edges of said main plate and said bottom plate with the other leg lying in a transverse plane inclined toward said back wall, said support member having a plurality of apertures formed therein along the longitudinal axis thereof, a cutting blade member positioned on the upper surface of said other leg of the support member, a wear shoe member having an inclined raised portion engaging the lower surface of said other leg and having a front portion engaging and supporting said cutting blade member, a plurality of apertures formed in said cutting blade member and said wear shoe member and registering with the apertures formed in said support member, and a bolt extending through each of the registering apertures in said cutting blade member, support member and wear shoe member for securing the latter-mentioned members together.

* * * * *