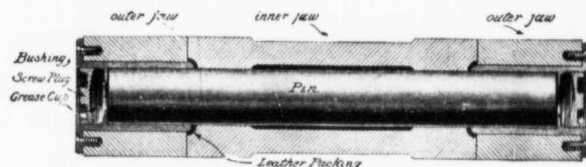


ings. The joints are closed by packing rings of heavy pressed leather, so placed as to be able to exclude grit from the bearings and at the same time not be subject to excessive wear themselves. The pins are plain, straight bars of turned steel and require no forging or

rocks or to many other accidental happenings incidental to this class of work. The grease is forced through the bearings in a direction opposite to the only one by which grit might possibly enter in case the packing should become worn, thus serving to carry out any



Cross-section Through Articulation

FIG. 2.—PIN AND BUSHING FOR CHAIN.

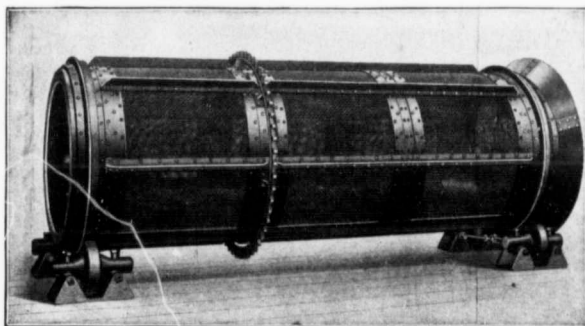


FIG. 4.—SCREEN.



FIG. 3.—CHAIN AND BUCKET.

finish beyond cutting to the proper length and turning, and, in extreme cases, hardening. Contrary to the usual practice the pins are made fast in the rear end of one link and turn in the outer or front jaws of the next one; each pin turns in two hardened steel bushings, one at either end, and in case a pin should become so worn as to be considered in danger at a time when no extras are in stock for repairs, it could be replaced with a piece of shafting of the proper diameter and length with very little trouble. The bushings are of steel, accurately machined to size and hardened; being made to gauge they are interchangeable. The bearing surfaces are very smooth and are so hard as to resist abrasion to the greatest extent possible. Each bushing is provided with a receptacle for lubricant and a screw plug for forcing the grease into the bearings.

The grease cups are so located that, while they are readily accessible they are out of danger from falling

small particles that might have partially entered and keeping the bearing surfaces clean and well lubricated at all times. A further desirable feature is the fact that a bushing may be removed without entirely disconnecting the chain, facilitating repairs and making it possible to keep the chain in the best condition at all times, whereas

in some dredge chains the fact that it is necessary to shut down for an indefinite time, and take the chain completely apart in order to renew a pin or bushing, causes the operator to wait as long as possible, perhaps until something gives way, before making the necessary repair. The connections are shown in Fig. 2. The links are made of cast steel or malleable iron, it is superior to sheet steel in point of resistance

to corrosion and may be thickened and strengthened at points as experience has proved to be necessary. The buckets are cast with a rib extending around from side to side immediately in rear of the cutting lip, which serves not only to stiffen the bucket, but also acts as an



A TYPICAL DREDGE.—NO. 5.