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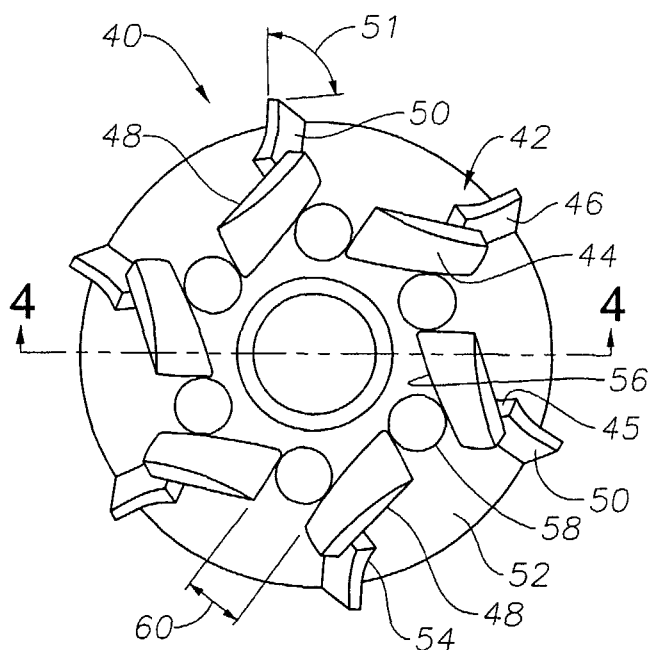
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(54) Title: SUBMERSIBLE PUMP IMPELLER DESIGN FOR LIFTING GASEOUS FLUID



(57) Abstract: A gas-handling centrifugal pump has  
impellers for pumping gaseous materials containing up  
to 50 % by volume free gas. The impellers have split  
vanes with high exit angles up to about 90 degrees and  
preferably greater than 50 degrees. The split vanes de-  
fine flow passages that contain large diameter balance  
holes that typically range between 45% to 100% of the  
width between each split vane. The gas-handling cen-  
trifugal pump can be used as a charge pump for a cen-  
trifugal pump in a lower tandem configuration within  
a well.



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