



ORACLE®



How Do You Know What You Know...

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What we know, shapes how we do things...

**New Ideas – Almost always
come from those uncommitted
to the status quo – from
outsiders**

*People are committed to whatever has worked for
them in the past.*





John Harrison Clock Maker

“John Harrison was a clockmaker without any formal schooling or training. The son of a carpenter, he grew up in a small village far from London, Oxford or Cambridge. In 1727, began to work on the problem of determining longitude..”

Nevil Maskelyne



**Arthur Fry
Church Choir Singer**

**“I need to bookmark my
hymnal, but regular paper
just falls out”**



Texas Instruments Semi-Conductor Company

“Swiss Watches were the gold standard for watches. People will not want a watch with a microchip, they want it the way it has always been. *Well, not until the new watch costs less than \$10”*

Educated Incapacity – A barrier to creative ideas can be experience.



“There is no reason for any individual to have a computer in their home.” – Ken Olson, DEC, 1977

Although experience is often valuable, it can be a liability in a search for creative ideas.

```
SQL> select dt, val
      2     from t
      3     order by
      4     dt;
```

DT	VAL
01-AUG-07	232
02-AUG-07	
03-AUG-07	228
04-AUG-07	
05-AUG-07	213
06-AUG-07	

```
SQL> select dt, val
       2     from t
       3     order by
       4     dt;
```

DT	VAL
01-AUG-07	232
02-AUG-07	232
03-AUG-07	228
04-AUG-07	228
05-AUG-07	213
06-AUG-07	213

**How can you
carry the last
non-null value
down?**


```
SQL> select dt, val,  
2         case when val is not null  
3         then to_char(row_number()  
4                 over (order by dt), 'fm0000') || val  
5         end max_val  
6   from t  
7   order by dt;
```

DT	VAL	MAX_VAL
01-AUG-07	232	0001232
02-AUG-07		
03-AUG-07	228	0003228
04-AUG-07		
05-AUG-07	213	0005213
06-AUG-07		

```

SQL> select dt, val,
2         max(max_val) over (order by dt) max_val_str
3   from ( select dt, val,
4         case when val is not null
5         then to_char(row_number() over (order by dt), 'fm0000') || val
6         end max_val
7   from t ) order by dt;

```

DT	VAL	MAX_VAL_STR
01-AUG-07	232	0001232
02-AUG-07		0001232
03-AUG-07	228	0003228
04-AUG-07		0003228
05-AUG-07	213	0005213
06-AUG-07		0005213

```

SQL> select dt, val,
2         to_number(substr(max(max_val) over (order by dt),5)) max_val
3   from ( select dt, val,
4           case when val is not null
5                then to_char(row_number() over (order by dt),'fm0000')||val
6           end max_val
7   from t ) order by dt;

```

DT	VAL	MAX_VAL
01-AUG-07	232	232
02-AUG-07		232
03-AUG-07	228	228
04-AUG-07		228
05-AUG-07	213	213
06-AUG-07		213

```
SQL> select dt, val,  
2         last_value(val ignore nulls) over (order by dt) max_val  
3   from t  
4   order by dt;
```

DT	VAL	MAX_VAL
01-AUG-07	232	232
02-AUG-07		232
03-AUG-07	228	228
04-AUG-07		228
05-AUG-07	213	213
06-AUG-07		213



Edwin Land Polarized Filters

**“Dad, why can’t I see the pictures
you took today?”**

His three year old daughter

**He didn’t let his experience cloud
his creativity, *everyone knows
you need a darkroom...***

Assumptions – Incorrect assumptions are barriers to creativity

Greeting card companies thought their competition was other card companies – but it wasn't, it was FTD

What is a 'requirement' really? It sounds straight forward enough



Assumptions – Incorrect assumptions lead down the wrong roads

Where do you think they would put commit? Well, if you assume all application hangs are database problems, you might not even think about it.



Assumptions – Incorrect assumptions can be *harmful*

When you assume the other person knows more than they know... When you assume a common terminology exists – ‘Save Changes’

When you assume something works the way you think it should work...



Assumptions...

*Oracle has a undo log pointer from the index tuple??
That really confuses me a little. I have referred to
postgres source (8.3), ... **I believe** an index structure
should maintain all the versions of the index tuple in
the b-tree itself. **I am unable to think of an alternate
design**, where index tuple might need undo log
pointer.*

Continued...

Assumptions...

*Actually Undo-log is used in oracle for two purposes - time-travel(to goto the previous version of records) and rollback. **My last argument was that time-travel can't be achieved** in the index through undo log. All the previous versions of a record has to be in the B-tree structure. Hence no need to store undo-log pointer for time travel purpose. **If the statement needs more explanation, let me know.***

And so I said...

Assumptions...

....
"You need to learn about Oracle then - multi-versioning, read consistency."

I have a fair idea on this. I just say that this can't work for index and it can only work for table.

.....

- a) we build an index on 1, 2, 3, 4, N
- b) we measure it's size
- c) we delete everything from it
- d) we commit
- e) we populate the index again with new values 1.1, 2.1, ... (noting that index size stays same, therefore we **MUST** have overwritten everything ...)
- f) we commit
- g) we then offline the tablespaces for the table, we have access only to the index structure and run a query that uses the index and only the index AS OF (b) and a query that uses the index AS OF (f) and we see differing results. If that works – what then...

Assumptions...

Ambivalent

- 1: *that does not matter one way or the other*
- 2: *of no importance or value one way or the other*

- 1: *simultaneous and contradictory attitudes or feelings (as attraction and repulsion) toward an object, person, or action*
- 2: *continual fluctuation (as between one thing and its opposite), uncertainty as to which approach to follow*

How many times do you think misunderstood acronyms, internal abbreviations and nomenclature have gotten in your way...

Assumptions...

- It works the way it works.
 - Shared Server
 - Nulls – *“I understand you and have no choice to accept that Status Quo, but the sense of my logic feels violated when I consider that the trivial query below, always returns nulls after the 'Z*'.”*
 - Order by is the only way to – well – get ordered data *consistently*

Judgments – “We tried that once...” “It’ll never work...” “They will never buy that...”

Cars will never replace horses... Birds were made to fly... You’ll fall off the edge of the earth...



How to be creative...



How to be creative...

***First, Forget Everything
You Know...***

Like Edwin Land did...



How to be creative...



***Then, Remember Everything
You Know...***

**You know a bunch of facts – you've
let go of the preconceived
relationships they had**

How to be creative...



Then, Rearrange Everything You Know...

Edwin Land put the darkroom in the camera, instead of the camera in the darkroom... Out of the mouths of ...

That was creative...

How To Tune using the 'Craig' method...



That was creative...



***Oracle is hanging... (but always
at 7pm)***

That was creative...



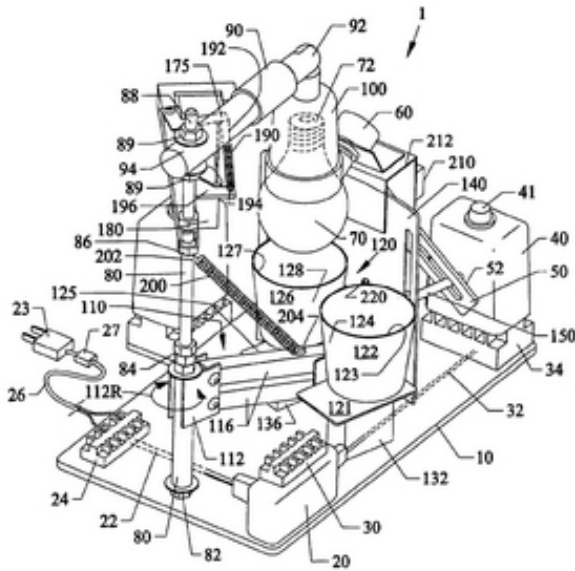
Uniquely index only 'active' records

- **Fact:** Entirely NULL keys are not entered into a B*Tree Index
- **Fact:** We can index functions
- **Result:** CREATE UNIQUE INDEX IDX ON TAB
(case when status = 'ACTIVE' then name end);

**But Hey, Let's not get
carried away...**



But Hey, Let's not get carried away...

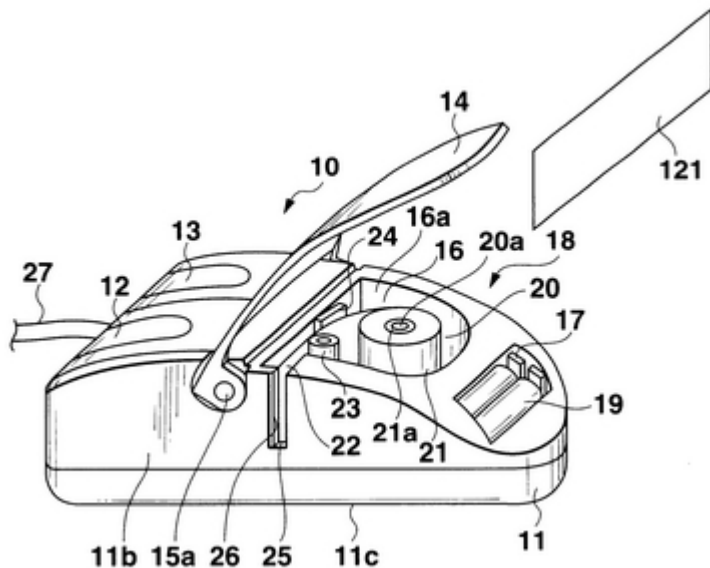


Title: Light bulb changer

**Document Type and Number:
United States Patent 6826983**

Filing Date: 02/10/2003

But Hey, Let's not get carried away...

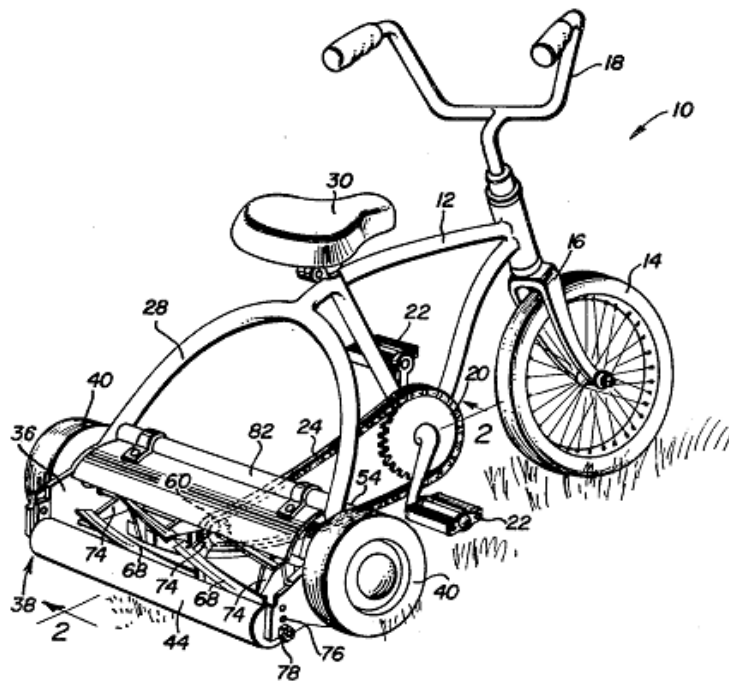


Title: Mouse device with a built-in printer

**Document Type and Number:
United States Patent 6650315**

Filing Date: 05/21/2001

**But Hey, Let's not get
carried away...**

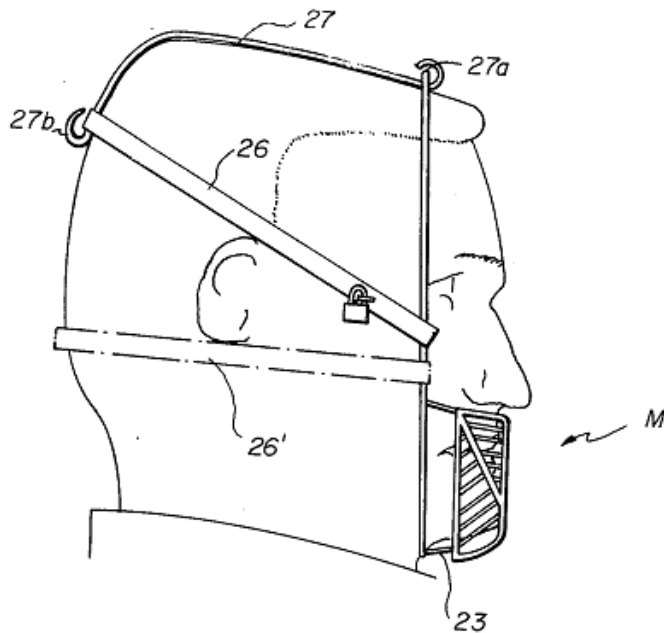


Title: Pedal operated mower

**Document Type and Number:
United States Patent 4455816**

Filing Date: 06/29/1982

**But Hey, Let's not get
carried away...**



Title: Anti-eating face mask

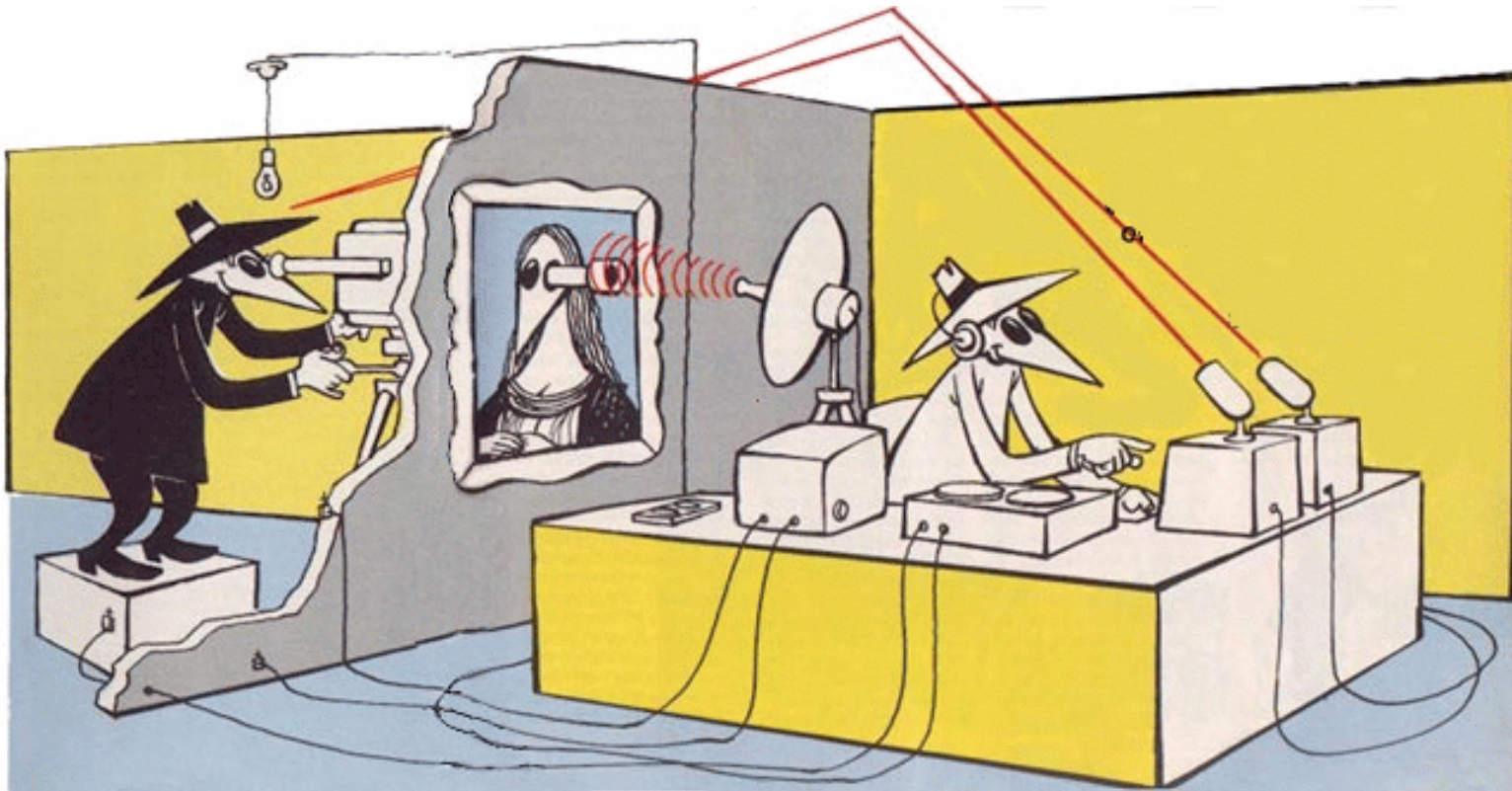
**Document Type and Number:
United States Patent 4344424**

Filing Date: 03/27/1980

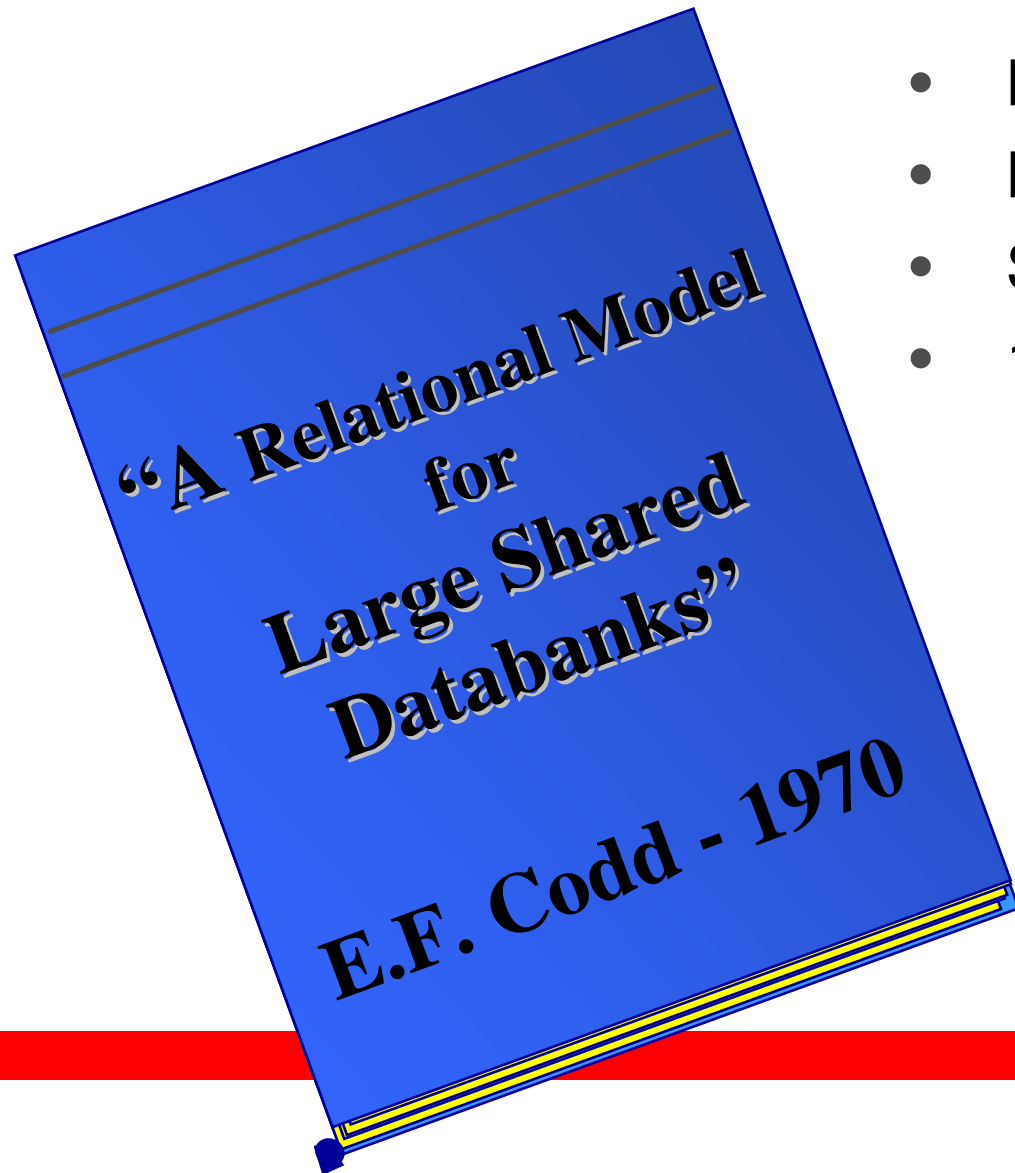
So, What is the point?



DBA vs Developer



The Beginning...



- Data Model with Structure
- Data Independent of Code
- Set-oriented
- 1977 the work begins

The Beginning...

**When you were 12,
did you know what
you wanted to be
when you grew up?...**

Continuous Rethinking



Continuous Change



Putting it all Together





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Questions?