

# The "New Freedom" Head \*

A camera support for every task.

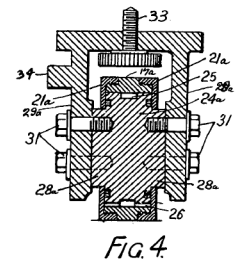
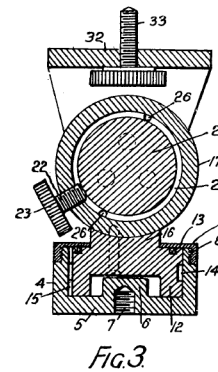
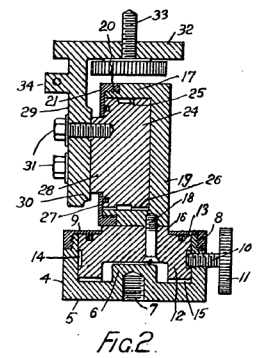
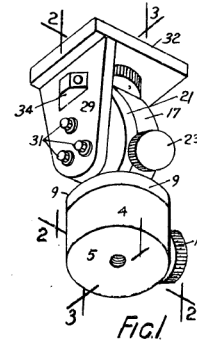
## Introduction:

We will begin with the popular and ubiquitous "fluid head" and show how we may benefit from considering an alternative:

The fluid head was invented by Robert Eric Miller in 1946 as an "Improved Tripod Head", a patent illustration of which is shown to the right.

It was relatively plain and simple, but versatile, with many advantages over the previous methods of supporting and manipulating cameras.

Its descendants, reproductions, and improvements have dominated the industry as a standard ever since (while evolving to exorbitant costs along the way).



## The trouble with the conventional system:

There is a conventionally accepted but universally ignored issue with the relatively large distance between the center of gravity/focal plane of the camera and the pan and tilt fulcrum axes of the traditional fluid head, with its top-heavy setup that often requires a complex, weighty, and expensive 'counterbalancing' system designed to keep the camera in position and under control.

Actual counterbalancing is not what these units employ. They substitute an artificially 'manufactured' counterbalance. If you were to look inside the base, you would see that there are adjustable springs and viscous packed disks as well as other proprietary secrets that together only attempt to mimic a true counterbalance - *often not ideally* - with manual controls on the outside to adjust the compensating forces.

This timeworn approach has a built-in problem that is basically a 'band-aid' applied to compensate for just that problem, rather than a simpler mechanism that can be *designed to avoid the trouble from the start*.

We maintain that this complexity is unnecessary and somewhat redundant, both practically and economically.

This matter, and the baggage that comes with it, can be simply and completely eliminated if the system has its pan axis, tilt axis, focal plane and center of gravity, mutually coincident within the least practicable area of bounds.

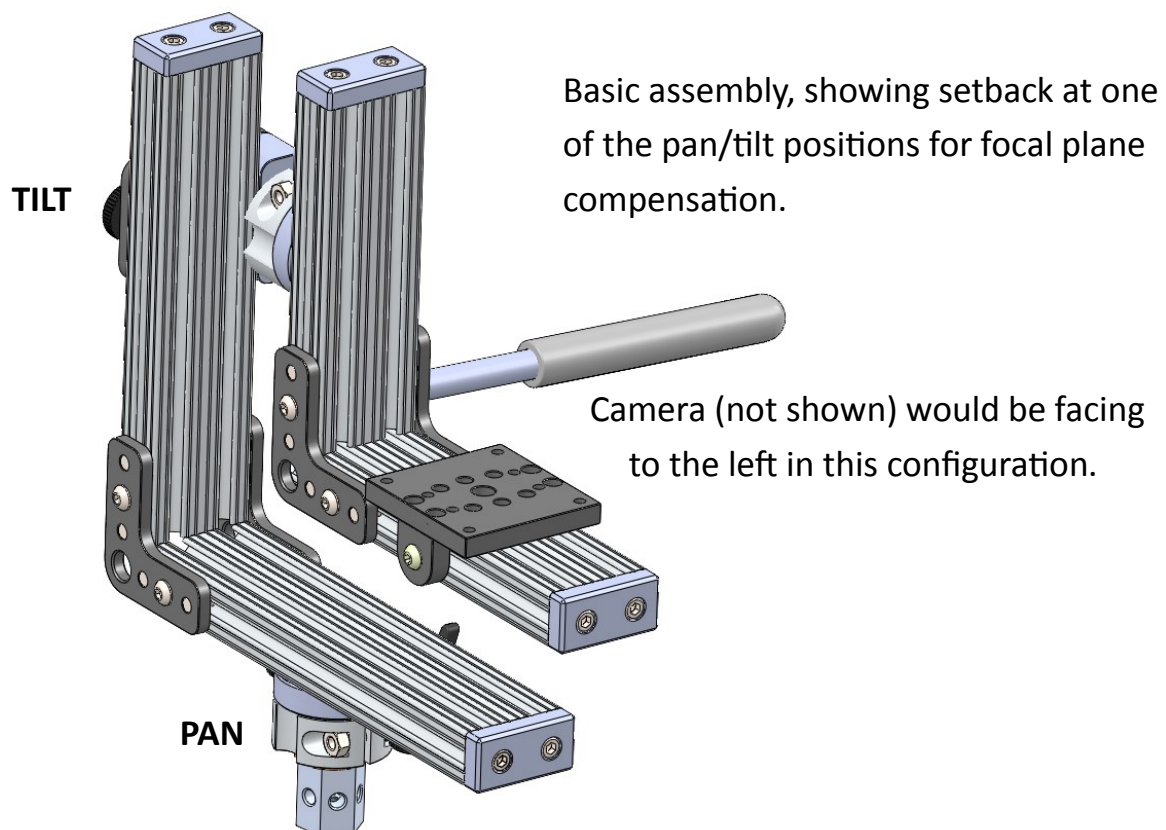
This design change eliminates the large tilt arc of the fluid head setup, as well as solving other issues.

This approach will set the optical center of the camera in any pan/tilt setting in a known and generally fixed position in space, with obvious advantages. Focus issues come to mind as one example.

**Here, we're effectively reducing the camera-to-pivot lever arm orbit to near zero, trimming distance, mass, and working proportions markedly and simultaneously; and uniting the system into a much more compact form.**

This also enables us to use the system in limited spaces where the traditional setup would otherwise never fit. Less weight and less volume is almost always beneficial.

This balancing strategy can provide more precise and sensitive operation since the operator would not be fighting the combined forces of the counterbalance and massively offset camera gear. It also eliminates the 'loose counterbalance' accidents when the manual control is left unattended or unsecured.



The objective for this design is a bid to persuade a few filmmakers to consider opening their traditional thinking to a principle that may work better for them and be easier and simpler to use for most manual camera manipulation tasks.

***This device may appear to be a likeness of long established technology at first glance, but described here are amendments to the design that go well beyond already familiar devices.***

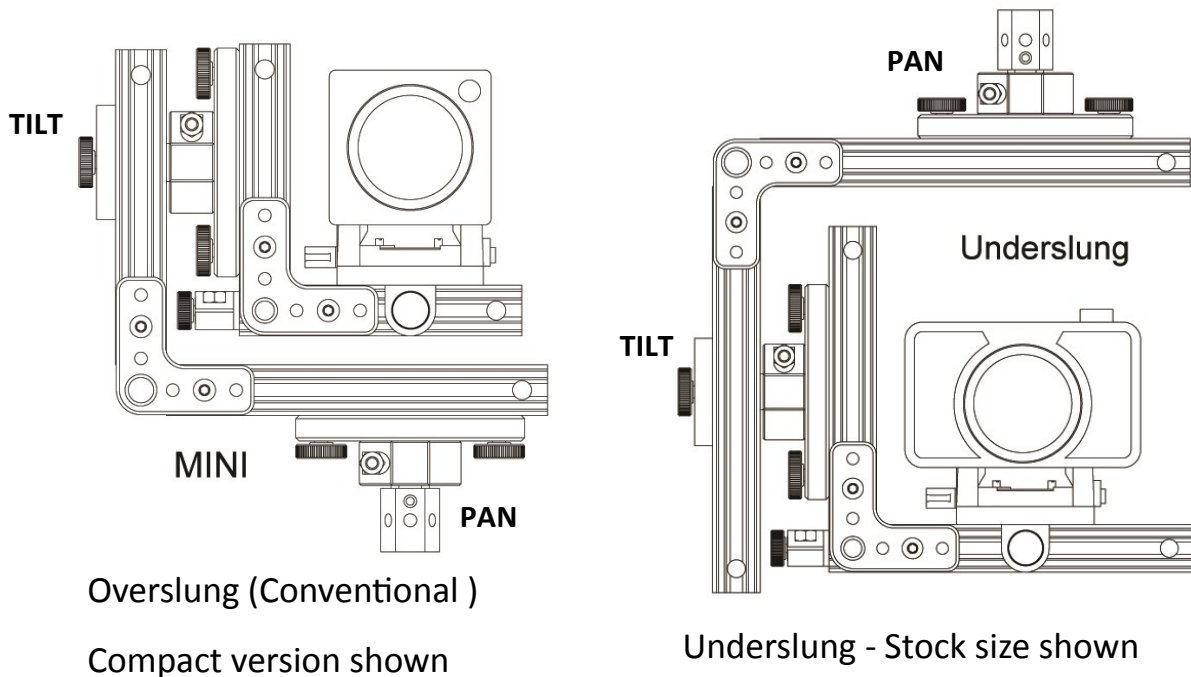
There are dozens of gimbals on the market, but this new design differs considerably. It is a more logical solution with the advantage of much greater versatility and modularity over the classic gimbals.

This is for those low to medium budget filmmakers that prefer the convenience and simplicity of manual control of their camera, and would like to enjoy the *freedom* to adapt to changing requirements.

It's design is optimized to allow *you* to configure it for the way *you* want it to perform.

**Some unique features:**

- "4-Way" basic configuration preferences:
  - 1) 'Overslung' (conventional) operation for the tripod, bazooka, slider, etc. mounting - with the camera above its support structure.
  - 2) 'Underslung' (camera suspended from above) for jib or crane type operation, with the option of either:
    - 3) Right Hand or
    - 4) Left-hand control (for either 1 or 2 above), all accomplished by simply re-arranging a few components and adjusting for proper operation.



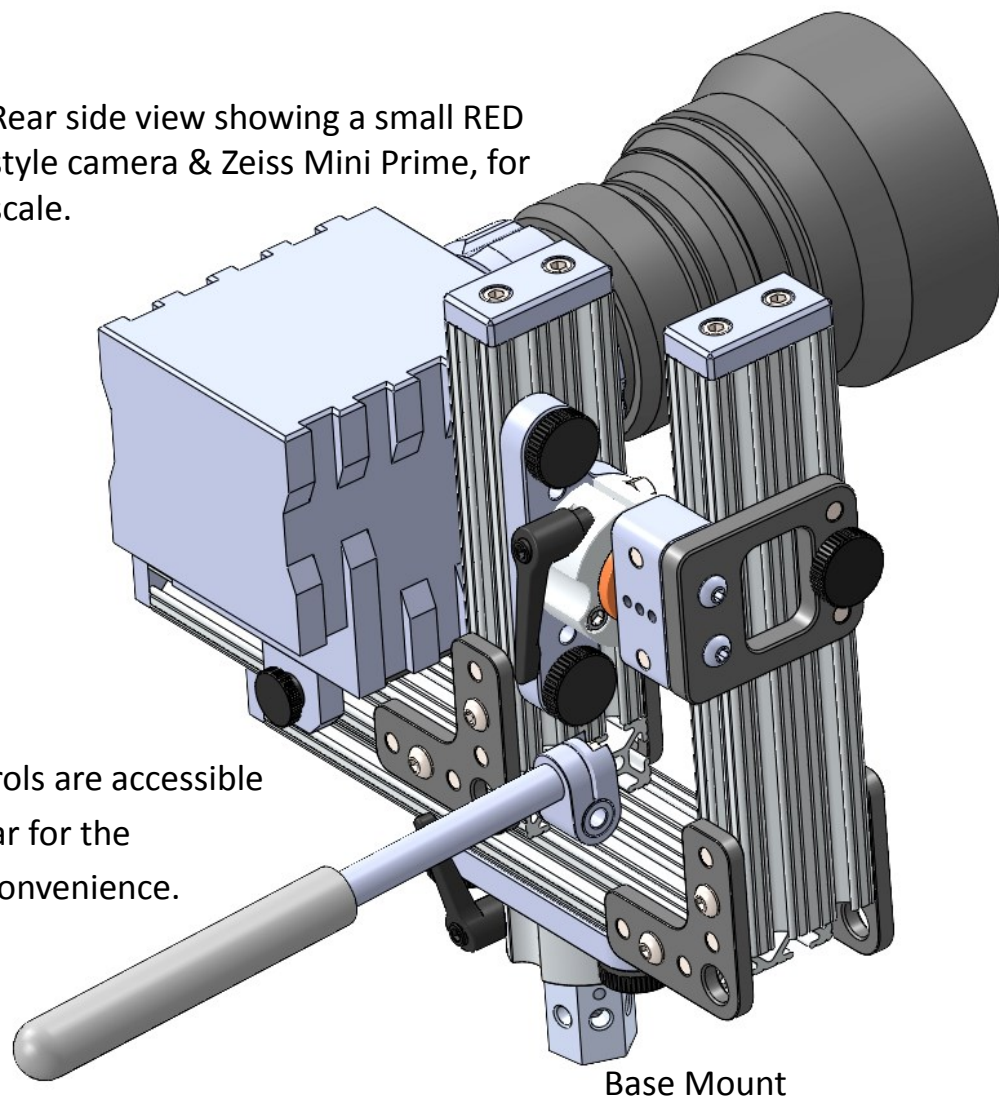
Underslung mode extends the usefulness of your camera setup considerably. It lets you use the camera in its conventional manner without interference from below, as well as being able to get the camera almost to ground level, either with a jib, or a tripod equipped with a center post.

Another useful example would be to set the head tilt so that the lens axis is aligned concentrically to the pan axis for filming Dutch angle or rotating image shots, a setup otherwise necessitating specialized and expensive equipment.

The base has 3/8-16 tapped holes to allow the Pan axis to be mounted horizontally rather than the conventional vertical orientation for special setups. A counterweight bar is included to balance the system for this application.

Imagination and experimentation will reveal additional applications.

Rear side view showing a small RED style camera & Zeiss Mini Prime, for scale.



All the controls are accessible from the rear for the operator's convenience.

- The T-Slot feature of this support arm design makes it especially handy for mounting and arranging the components of the system, such as the three axis positions of the camera for focal plane centering, balance, or clearance issues, and providing convenient and versatile mounting options for accessories. There are six linear T-slots in total on each of the four arms that accept 1/4-20 sliding nuts for attaching camera shoes and other aftermarket products, such as Picatinny Rails, Arri Rosettes, Magic Arms, etc., as well as clips or the like for organization of cables, etc. Additional nuts are provided with the unit.

Another advantage of the arm design is the ability to mount multiple cameras or ancillary accessories if desired.

Additional arms<sup>1</sup> can also be added in-line or at right angles to the existing arms for even more mounting solutions.

**This system can be considered an “Erector Set” of sorts in the hands of the filmmaker with the ability to conform and extend the components to build an almost limitless instrument for the operator’s needs.**

If the operator plans to be using a camera with a cage or other accessories that require additional space, the gimbal components are designed to allow her to adjust the positions of the individual components, laterally or longitudinally, to provide the necessary clearances for other components, as well as the balance, depending on the arm lengths currently in use, or with other selected arm lengths if necessary.

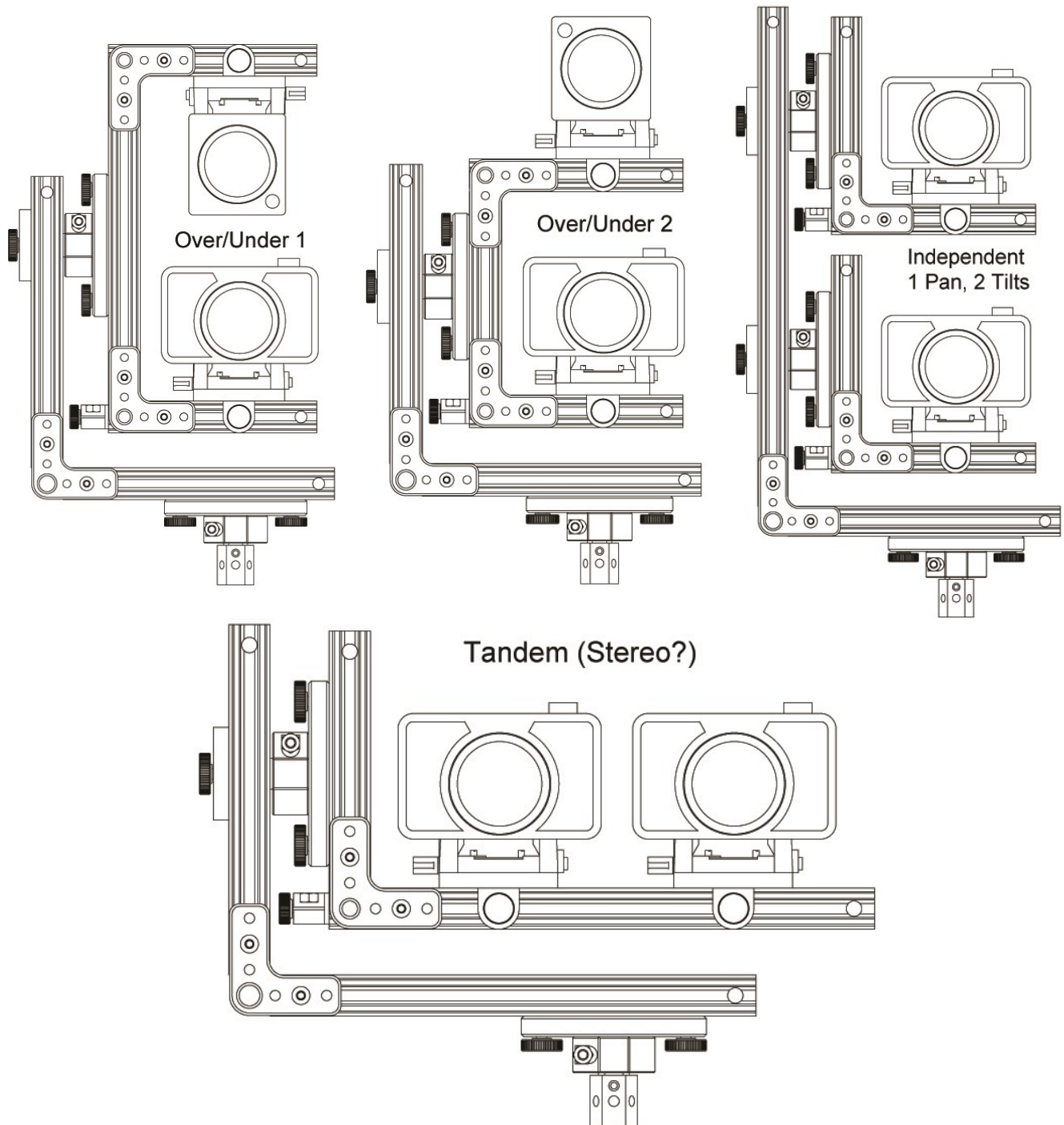
Optional frame arms of custom lengths are available for customer specified requirements for different camera/rig capacities. Arms of any reasonable length can be supplied as specified by the customer, at initial purchase or by contacting us after purchase. Costs are quite reasonable, only a few dollars per inch of length.

A full 4-piece arm set for most small to medium size cameras is included in the price of the initial purchase. Keeping a few different length<sup>2</sup> sets on hand will enable a somewhat universal system in inventory. Changing them out is easy (even in the field), foolproof, and dependable.

<sup>1</sup>Additional corner gussets and link brackets are available for arm add-on use.

<sup>2</sup> The arm length(s) are the **only** limits to the capacity of the gimbal for all reasonable rig sizes.

Here are some extreme but easily constructed example setups that can be assembled using additional components available from the manufacturer.



The above illustrations only scratch the surface of what can be accomplished with this flexibility. You can construct anything you want for your needs and add an infinite variety of components to the setup, like monitors, lighting, microphones and other sound gear, etc. The possibilities are endless.

### **Primary specifications:**

- Precision with a high strength to weight ratio - High Rigidity extruded aluminum framing construction. Overall weight - less than 6 lbs (2.7 Kg) - basic unit as shown here.
- Full 360° continuous swing for both pan & tilt.
- Incrementally adjustable focal plane/balance setback (0.5", 1.5", 2.5", & 3.5"), field selectable for more convenient focal plane and/or balance compensation for various lenses and cameras.
- Incrementally adjustable front-to-back offset of pan axis on the primary base for additional balance, etc. - neutral or plus/minus 1 inch. (The pan axis can be set anywhere laterally along the lower rail).
- 3/8-16 female base mount (to tripod / jib / half-ball, etc.).
- 1/4-20 threaded holes at both end faces of all the arms for mounting accessories or control handle(s).
- 1/4-20 T-Nuts for mounting accessories in any clear area on the arm slots are included.

Custom attachments will be considered upon request.

Quick Release mounts are available separately at extra cost: Manfrotto style, Arca-Swiss, or Giotto's style. Call for price.

Buyers can use their existing mounts that have 1/4-20 attachment hardware.

Exclusively designed and fabricated in the USA by an American toolmaker/cinematographer.



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**"Simplicity is the ultimate sophistication" (Leonardo da Vinci).**

**\*Original prototype model name originated by a good friend and outstanding filmmaker:  
(You know who you are, Thomas. Thank you for the inspiration.)**

**Notes:**