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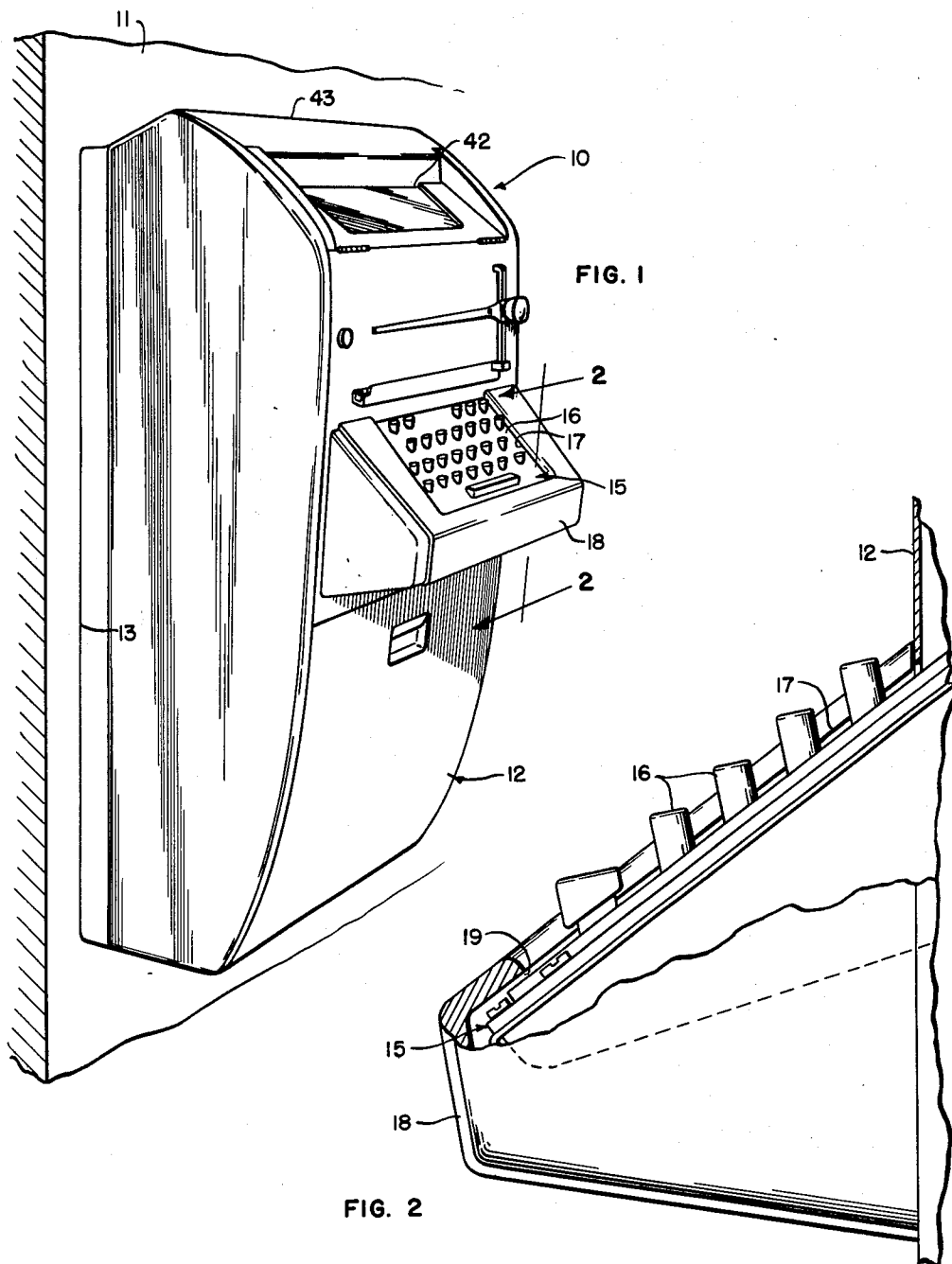
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3,146,978

MOUNTING FOR TELEGRAPH PRINTER

Filed Dec. 27, 1962

2 Sheets-Sheet 1



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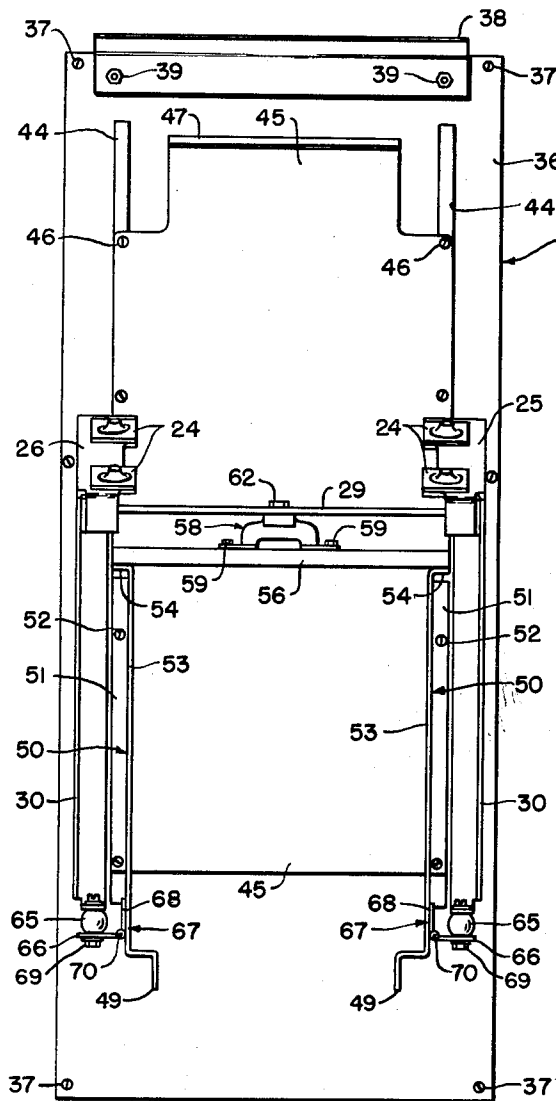


FIG. 4

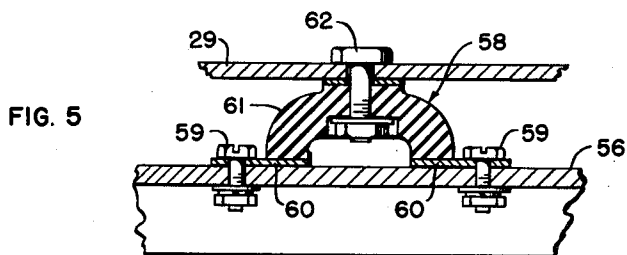


FIG. 5

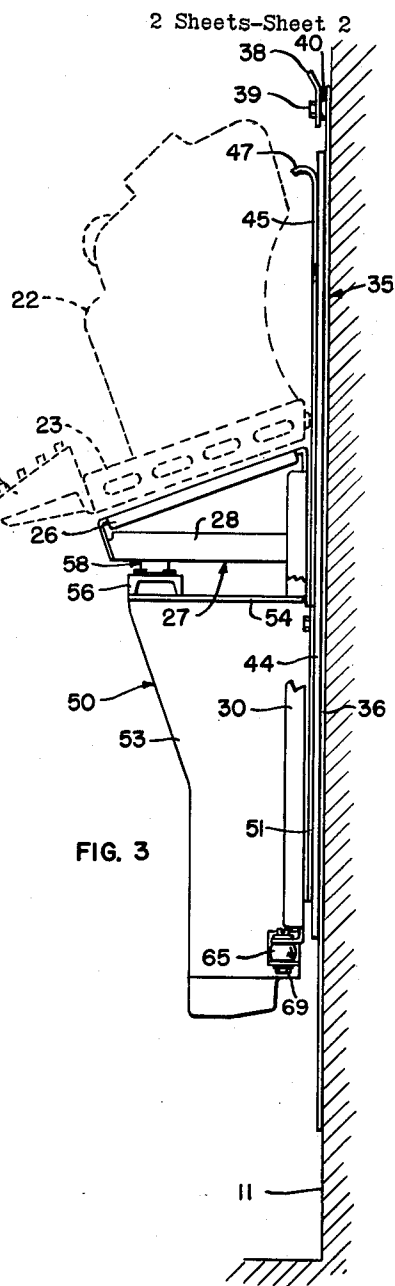


FIG. 3

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MOUNTING FOR TELEGRAPH PRINTER

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This invention relates to a business machine adapted to be mounted upon a vertical wall and more particularly to a novel manner of mounting the business machine to isolate the vibrations originating therein from the wall upon which the business machine is mounted.

In areas where limited floor space is available it is often desirable to mount a printing telegraph apparatus upon a vertical wall, which wall could act as a sounding board for the vibrations generated within the printing telegraph apparatus by its motor and operating instrumentalities.

Accordingly, an object of the invention is to isolate most of the vibrations, occurring within the printing telegraph apparatus, from reaching its surrounding cover or the wall upon which the printing telegraph machine is mounted.

Another object of the invention is to provide a vibration isolating mechanism that is sturdy, stable and able to support the weight of a printing telegraph apparatus while having sufficient vibration isolating qualities to prevent the transfer of vibrations to the wall upon which the printing telegraph apparatus is mounted.

An object of the invention is to provide a simple mounting means for a printing telegraph apparatus which not only prevents the transmission of vibrations to the wall upon which the printing telegraph machine is mounted, but which also stabilizes the printing telegraph machine against torsional movement.

According to the preferred embodiment of the invention, a frame is secured to the wall and has a portion thereof extending laterally out of the wall to beneath the center of gravity of the printing telegraph apparatus. The printing instrumentality is secured to a subframe upon which rests a single resilient vibration isolator that is secured to the frame at a point approximately on a vertical line through the center of gravity of the printing telegraph operating instrumentality so that the weight of the printing telegraph instrumentality is borne by this single vibration isolator. The vibration isolator is of a resilient material such as rubber and is capable of large amounts of deflection, but is of sufficient strength to support the weight of the printing telegraph instrumentalities. Offset laterally and vertically from the vibration isolator at the center of gravity are a pair of resilient rotary stabilizers which are attached between depending portions of the subframe to a movable leaf of a leaf hinge mounted upon the supporting frame. The hinge permits rotational movement of the resilient rotary stabilizer about the axis of the hinge thereby preventing appreciable compression of the resilient rotary stabilizer while causing the stabilizer to be deformed by being placed in shear. The deformed stabilizers exert a force on the hinges to return to their non-deformed state and thus supply a stabilizing force for restoring the printing instrumentality to its central position. The cover is secured to the frame on the wall and is completely isolated from the printing unit instrumentality even at the keyboard of the printing instrumentality. Thus, an air gap separates the entire cover from printing telegraph instrumentality and isolates the vibrations from reaching its surrounding cover and making it a sounding board for these vibrations.

These and other objects will become apparent from the following detailed description when considered in conjunction with the drawings wherein:

FIG. 1 is a perspective view of the printing telegraph machine mounted upon a wall;

FIG. 2 is an enlarged sectional view taken substantially along the line 2—2 in FIG. 1 in the direction of the arrows showing the separation of the keyboard from the cover;

FIG. 3 is a side elevational view showing the printing telegraph instrumentality in dotted lines mounted upon the supporting framework therefor according to the preferred embodiment of the invention;

FIG. 4 is a front view showing the framework for supporting the printing telegraph operating instrumentality according to the preferred embodiment of the invention, and

FIG. 5 is an enlarged cross sectional view of the vibration isolator.

Referring momentarily to FIG. 1 wherein there is illustrated the printing telegraph machine 10 mounted upon a vertical wall 11. The printing telegraph machine 10 is totally enclosed by a hollow shell-like cover 12 which engages the wall 11 with its peripheral edge 13. The cover 12 serves to totally enclose the operating instrumentalities of the printing telegraph apparatus except for the top of a keyboard 15 and paper slots (not shown). The keyboard 15 has a plurality of keys 16 (FIG. 2) disposed in a cut-out portion 17 of keyboard enclosing portion 18 of the cover 12 which enclosing portion surrounds the keyboard except for the cut-out portion 17 therein. The keys 16 are, of course, available for manipulation by an operator through this cut-out portion 17.

As best seen in FIG. 2, the keyboard 15 is spaced and is separated by an air gap 19 from the keyboard enclosing portion 18 of the cover 12 about the entire periphery of the cut-out portion 17 as well as about the remainder of keyboard enclosing portion 18 of the cover 12 thereby assuring that the vibrations of any parts of the keyboard 15 are not transmitted by any solid connection to the cover 12. The keyboard 15, in fact, floats in the air space within the keyboard enclosing portion 18 of cover 12 due to the resilient mounting of a printing telegraph instrumentality 22 to which the keyboard 15 is attached, as will be brought out hereinafter.

Referring now to FIG. 3 the printing telegraph machine 10 is shown with the cover 12 removed and with the printing telegraph instrumentality 22 exposed, the configuration of the printing instrumentality being shown in dotted lines. In FIG. 3, the keyboard 15 and printing instrumentality 22 are shown connected to a base 23. The base 23 rests upon four rubber feet or mounts 24 that are carried by pads 25 (FIG. 4) secured to a pair of opposed obliquely inclined braces 26 of a subframe assembly 27.

The subframe assembly 27 is composed of oblique braces 26 each secured to a horizontal support member 28 which in turn are secured to a horizontal support bar 29 (FIG. 4) spanning the distance between the horizontal support members 28. Also, rigidly attached to the oblique braces 26 and the horizontal support members 28 are a pair of depending legs 30 which are closely adjacent a frame assembly 35 which is secured to the wall 11.

The printing telegraph instrumentality 22 is mounted on the base 23 that is secured by rubber feet 24 to the subframe assembly 27 and a certain amount of vibration dampening occurs between the printing instrumentality 22 and subframe assembly 27 because of these rubber feet 24, but, for the purpose of our consideration, it is considered that the printing instrumentality 22 and subframe assembly 27 constitute a single unit in which is generated the vibrations which are to be isolated from the cover 12 and from the frame assembly 35 mounted upon the wall 11.

The frame assembly 35 is secured to the wall 11 and serves to support the entire weight of the cover 12, the keyboard 15, printing instrumentality 22, base 23 and subframe 27. The frame assembly 35 includes a rectangular backplate 36 secured to the wall 11 by suitable fasteners

37 and a pair of spaced bars 44 secured to the backplate 36.

The cover 12 is supported by the frame assembly 35 when the upper peripheral edge of the cover 12 is hooked over a vertical hooking plate 38 that extends across the top of the plate 36. The hooking plate 38 is secured to the plate 36 by suitable fasteners 39. As seen in FIG. 3, a spacing bar 40 spaces the hooking plate 38 from the plate 36 so that the upper peripheral edge of the cover 12 can extend downward between the hooking plate 38 and wall 11.

The pair of spaced bars 44 are vertically oriented and extend almost the full length of the backplate 36. The bars 44 function to space a paper shield plate 45 from the backplate 36. The bars 44 are secured to the backplate 36 by fasteners 46 and, in turn, provide a suitable thickness of bar stock to receive stud fasteners to hold various assemblies fast thereto. The printing instrumentality 22 prints on a wide web of paper, coming from a supply roll (not shown) that is supported between opposed roll supporting offsets 49 at the bottom ends of each of spaced brackets 50. The paper web is threaded between the paper shield plate 45 and plate 36 and brought upwardly and over a curved lip 47 on the paper shield plate 45 and into printing position.

Each of the brackets 50 has a vertically turned flange 51 in engagement with the paper shield plate 45 through which are threaded fasteners 52 to secure the brackets 50 to the paper shield plate 45 and to the bars 44. The brackets 50 have a laterally extending leg 53 which extends outwardly of the wall 11 and backplate 36 to beneath the center of gravity of the printing instrumentality 22. The laterally extending legs 53 have a horizontally turned flange 54, upon which rests, and to which is fixed, a supporting channel 56 that in turn carries a resilient vibration isolator 58.

The resilient vibration isolator 58 is positioned on a vertical line through the center of gravity of the printing instrumentality 22 and the subframe assembly 27 and bears their entire weight. As best seen in FIG. 5, the resilient vibration isolator 58 is secured to the supporting channel 56 by a pair of spaced, lower nut and bolt assemblies 59 extending through metallic plates 60 bonded to a resilient center portion 61 of the resilient vibration isolator 58. The subframe assembly 27 is secured to the resilient vibration isolator 58 by an upper nut and bolt assembly 62 which extends through the center of the resilient center portion 61 and serves to clamp the supporting bar 29 of the subframe 27 to the vibration isolator 58.

The resilient vibration isolator 58 is called a relatively high deflection type of isolator in that its inverted U-shape configuration and softness allows it to deflect up to an eighth of an inch for a 40 to 50 pound printing instrumentality mounted thereon. This high degree of resiliency allows the vibration isolator 58 to absorb more vibrations and causes it to be more easily deformed by rotational forces.

To resist rotational forces developed while operating the keyboard 15 tending to rotate the printing instrumentality 22 about any axis through the central vibration isolator 58 and to provide a restoring force to restore the printing instrumentality 22 to its centered position, a pair of opposed, resilient, rotary stabilizers 65 are secured between the depending legs 30 and the subframe 27 and leaves 66 of a pair of leaf hinges 67 which have their other leaves 68 secured to the legs 53 of the brackets 50. The stabilizers 65 may be of any well known type but preferably are in the form of tubular members of resilient material constructed so that they may be forced into apertures in respective parts and thereby isolate the parts vibrationally one from the other. These members are a common article of manufacture and may be purchased from several suppliers, one of which is Barry Controls, Inc. This company refers to this article as a ball mount and it carries their catalog number 302-4. Each of the

rotary stabilizers 65 is loosely retained by a nut and bolt assembly 69 in that the nut bolt assembly 69 do not compress either of the rotary stabilizers between the leg 30 and leaf 66 of the hinge 67.

When the printing instrumentality 22 is rotated clockwise or counterclockwise as viewed in FIG. 4 about the central vibration isolator 58, one of the legs 30 moves downwardly and inwardly to place its associated resilient rotary stabilizer 65 in shear as the leg 30 that is moving downwardly and inwardly tries to move its stabilizer 65 about an axis through the vibration isolator 58 while leaf 66 of the leaf hinge 67 limits rotation of the bottom portion of the stabilizer 65 to rotation about the hinge pivot pin 70. The other leg 30 moves upwardly and outwardly and it also tries to move its stabilizer 65 about an axis through the vibration-isolator 58 while leaf 66 of the leaf hinge 67 limits movement of the bottom portion of the stabilizer 65 to rotation about the hinge pivot pin 70. Because the stabilizers 65 are located at the ends of depending legs 30 and at a large distance from the central vibration isolator 58, the upper portions of the stabilizers 65 move a larger distance than if they were mounted closer to the central isolator 58 since any slight amount of rotation of the keyboard or printing instrumentality is multiplied into a large amount of rotation to derive a greater deformation or shearing of the resilient stabilizers 65.

Since the resilient vibration isolator 58 is displaced outwardly from the wall 11 and is located near the center of the printing unit 22 on the supporting channel 56, it should be apparent that the printing unit 22 is capable of movements, e.g. rotational movement about a vertical axis through the center of the resilient vibration isolator 58 or rotational movement about a horizontal axis parallel to wall 11 extending through the center of the resilient vibration isolator 58. As is seen in the drawings either of these rotational movements will place the rotary stabilizers 65 in shear. When the printing unit 22 rotates about a vertical axis through the center of the resilient vibration isolator 58, one of the legs 30 moves inwardly toward the wall 11 and the other leg 30 moves outwardly from the wall 11. When the printing unit 22 rotates around a horizontal axis parallel to wall 11, the legs 30 move together either inwardly toward the wall or outwardly from the wall depending on the direction of rotation. These movements, of course, could complement one another resulting in a deflection of the wall at a frequency that would be audible if it were not isolated from the 60 to 120 cycles vibration occurring within the printing instrumentalities 22 by the resilient vibration isolator 58 and the rotary stabilizers 65.

From the foregoing it should be apparent that a soft highly deflectable resilient mount at the center of gravity bears the weight of the printing unit and yet still permits a high degree of deflection to absorb most of the vibrations occurring within the printing instrumentalities and the printing unit is stabilized by use of rotary stabilizers 65 located at spaced distances forming a three point or tripod suspension for the printing instrumentalities 22.

Although only one embodiment of the invention is shown in the drawings and described in the foregoing specification it will be understood that invention is not limited to the specific embodiment described but is capable of modification and rearrangement and substitution of parts and elements without departing from the spirit of the invention.

What is claimed is:

1. In combination with a business machine and an upright supporting means therefor, the improvement comprising a vibration-isolating mounting means for preventing vibrations generated in the business machine from reaching the upright supporting means therefor including, (a) a frame means secured to said upright supporting means and having a portion thereof extending outwardly of said upright supporting means to a vertical line extending through the center of gravity of said business machine,

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(b) a resilient vibration-isolating means carried by the portion of said frame means and engaging said business machine near the vertical line extending through the center of gravity thereof and supporting the weight of the business machine, and

(c) a pair of resilient spaced vibration stabilizing means spaced on either side of said resilient vibration-isolating means and interconnecting said business machine and said frame means to resist rotational forces tending to rotate the business machine about said resilient vibration-isolating means.

2. In the combination of claim 1, wherein said business machine is provided with an operating instrumentality, a cover means for said operating instrumentality, said cover means being secured to said frame means and completely spaced from said operating instrumentality by an air gap thereby preventing direct transmission of vibrations to said cover means from said operating instrumentality.

3. The vibration-isolating mounting means of claim 1 wherein said pair of spaced vibration stabilizing means on either side of said resilient vibration-isolating means are vertically offset with respect to said resilient vibration-isolating means.

4. In a teleprinter adapted to be mounted on a vertical wall wherein the teleprinter has motor, keyboard and printing instrumentalities mounted on a subframe in which vibrations are present that could be transmitted to the vertical wall which wall could act as a sounding board for said vibrations, the improvement comprising a vibration-isolating, supporting means for isolating the vibrations from the wall which includes,

(a) a vertically oriented frame means secured to said side wall and having a lateral projection thereon extending outwardly of said wall to a vertical line extending through the center of gravity of said teleprinter,

(b) a resilient vibration-isolating means carried by said frame means and engaging said teleprinter on the vertical line extending through its center of gravity and supporting the weight of said teleprinter, and

(c) a pair of pivotal, rotatable stabilizer means vertically and horizontally displaced from and disposed on either side of said resilient vibration-isolating means and interconnecting said frame means and said teleprinter for resisting rotational forces tending to rotate said teleprinter about said resilient vibration-isolating means.

5. The teleprinter of claim 4, wherein each of said pair of pivotal, rotatable stabilizer means comprises a hinge means and a resilient means, said hinge means interconnecting through said resilient means said subframe and said frame means whereby movement of subframe means rotates said hinge means and deforms said resilient means.

6. The teleprinter of claim 4 wherein a cover means for said teleprinter encloses said motor and printing instrumentalities and partially encloses said keyboard to reduce noise transmission therefrom, and wherein said cover means is secured to said frame means and is spaced entirely from said keyboard, printing instrumentalities and motor by an air gap so that vibrations present in said motor, printing instrumentalities, and keyboard are not directly transmitted to said cover.

7. In a teleprinter adapted to be mounted on a ver-

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tical wall wherein the teleprinter has motor, keyboard and printing instrumentalities in which vibrations are present that could be transmitted to the vertical wall which wall could act as a sounding board for said vibrations, the improvement comprising a vibration-isolating, supporting means for isolating the vibrations from the wall which includes,

(a) a vertically oriented frame means secured to said side wall and having a lateral projection thereon extending outwardly of said wall to a vertical line extending through the center of gravity of said teleprinter,

(b) a subframe upon which the teleprinter is mounted,

(c) a resilient vibration-isolating means carried by said frame means and engaging said teleprinter at the vertical line extending through its center of gravity and supporting the weight of said teleprinter and said subframe,

(d) a pair of legs attached to said subframe and vertically and horizontally displaced from said resilient vibration-isolating means,

(e) a pair of pivotal, leaf hinge means, each having one leaf secured to said frame and the other leaf movable,

(f) a pair of resilient members, each disposed between said legs and said movable leaf of said hinge means for moving said movable leaf in response to movement of said pair of legs, and

(g) retaining means to hold said resilient members between said legs and said movable leaf.

8. A teleprinter attached to a vertical wall, said teleprinter having a printing means including a motor which generates vibrations, the improvement comprising the combination of,

(a) a vertical frame means secured to said vertical wall and having a horizontal portion thereon extending outwardly of said wall,

(b) a subframe means attached to said printing means and having vertically depending leg means thereon,

(c) a single weight supporting and vibration-isolating means carried by said horizontal portion of said frame means and engaging said subframe means on a vertical line extending through the center of gravity of said printing means to bear the entire weight of said printing means,

(d) a pair of spaced hinges each having a leaf thereof secured to said frame and each vertically offset with respect to the resilient vibration-isolating means, and

(e) a pair of resilient vibration-isolating, stabilizing means each disposed between the other leaf of an associated hinge and a depending leg of said subframe to stabilize said printing unit against rotational forces tending to rotate said printer unit about said weight supporting and vibration isolating means.

9. The teleprinter of claim 8 wherein a cover means for said printing means is attached to said frame means and is spaced entirely from said printing means so that vibrations occurring in said printing means are not directly transmitted to said cover means.

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