E. W. SWEIGARD.

PNEUMATIC CONTACT FRAME.

APPLICATION FILED MAR. 2, 1917.

1,315,882.

Patented Sept. 9, 1919.

3 SHEETS—SHEET 1.

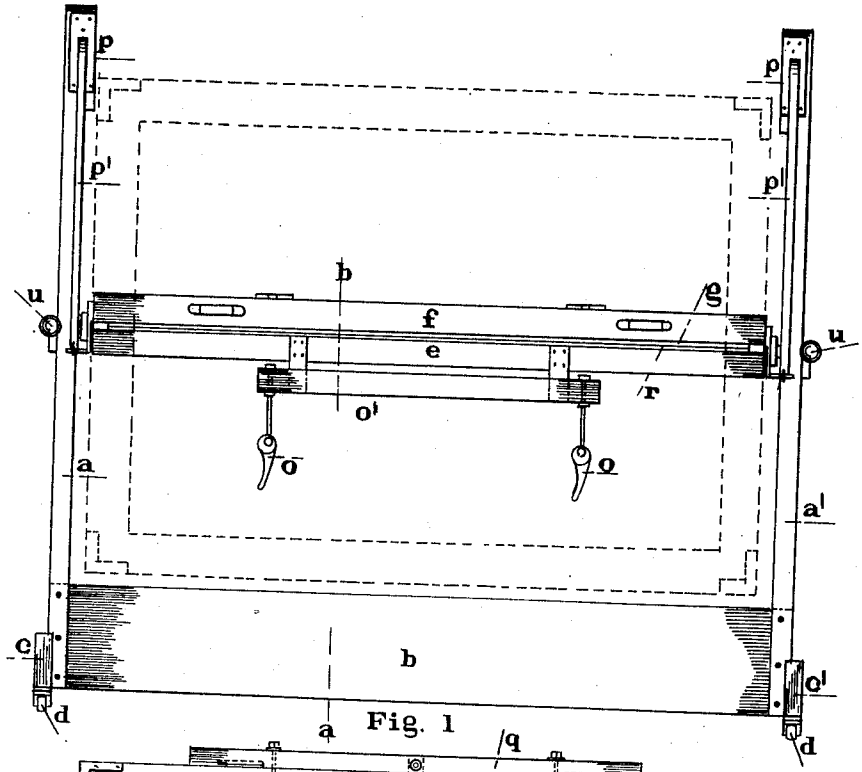


Fig. 1

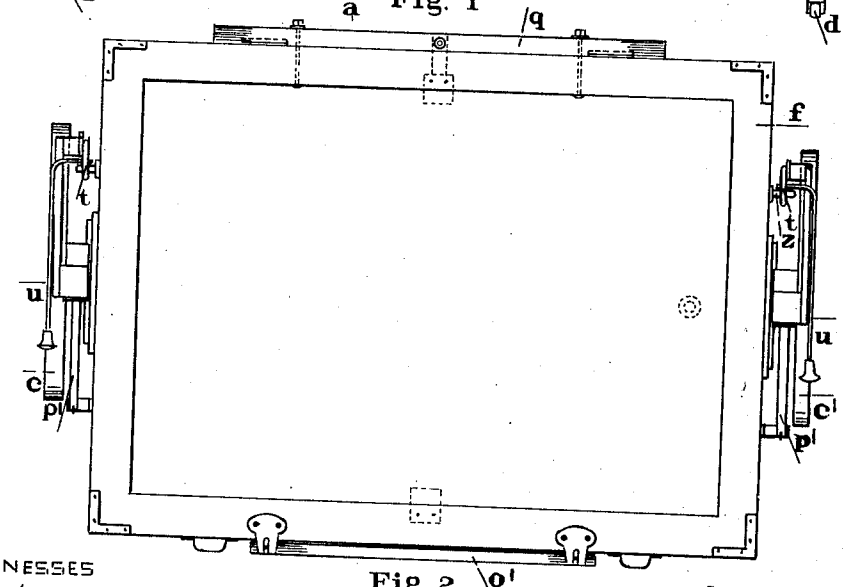


Fig. 2

WITNESSES

Peter Douglas.

Henry Henriksen.

INVENTOR

Emanuel W. Sweigard.

By. W. P. Barclay.

ATTY

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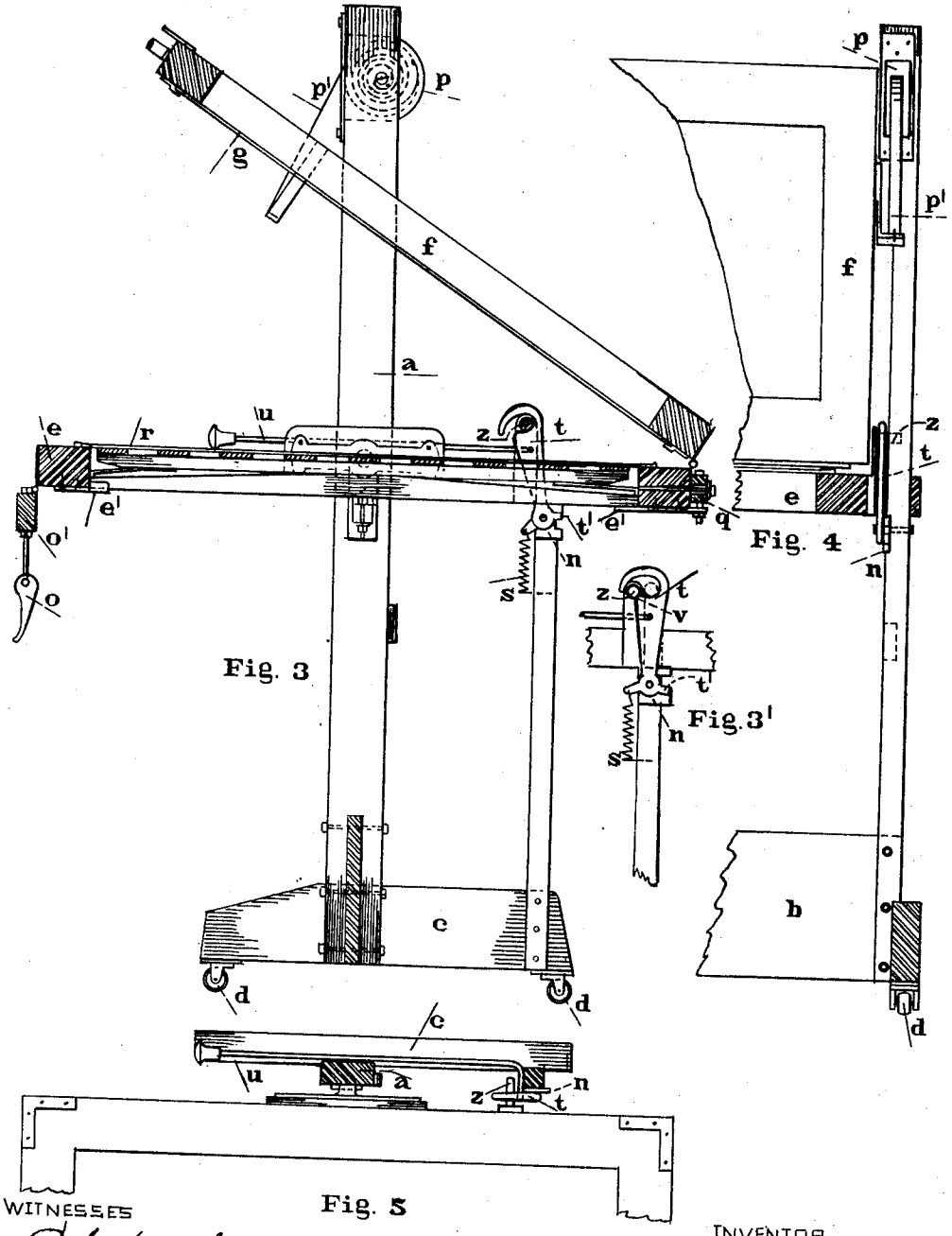


Fig. 5

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3 SHEETS—SHEET 3.

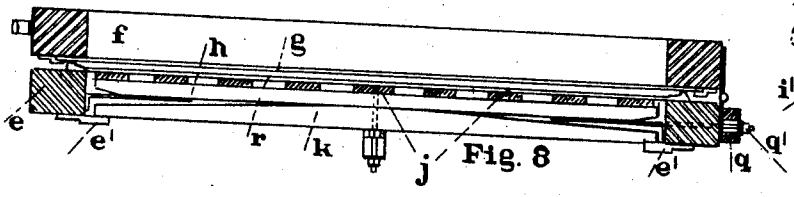


Fig. 8

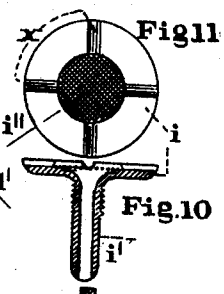


Fig11

Fig.10

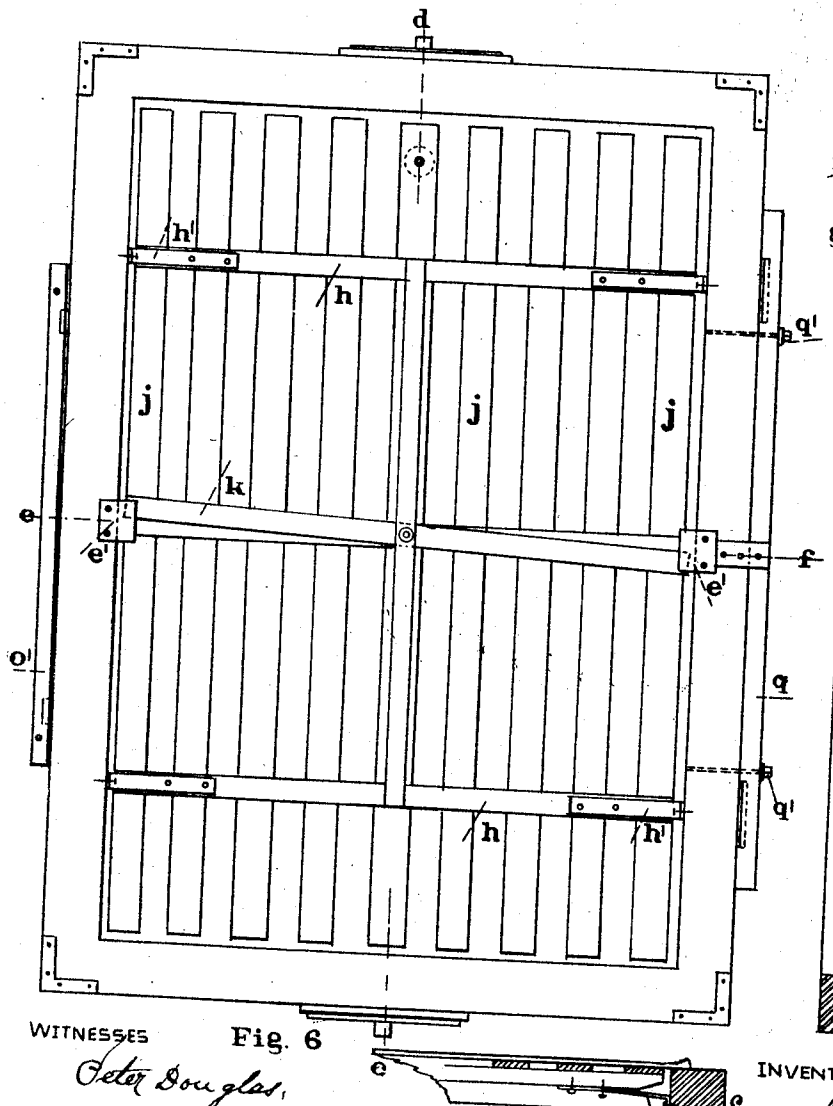


Fig. 6

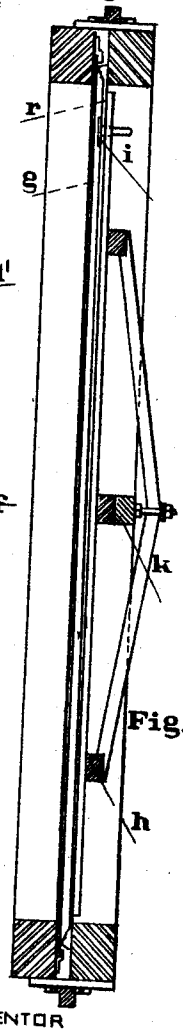


Fig. 7

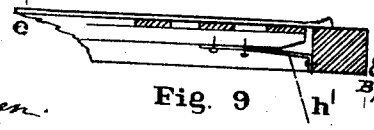


Fig. 9

WITNESSES

Peter Douglas,

Henry Henriksen.

INVENTOR

Emanuel W. Sweigard.

By.

W. P. Barclay.

ATTY

THE COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

EMANUEL W. SWEIGARD, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE SWEIGARD IDEAL COMPANY, OF CHICAGO, ILLINOIS.

PNEUMATIC CONTACT-FRAME.

1,315,882. Specification of Letters Patent. Patented Sept. 9, 1919.

Application filed March 2, 1917. Serial No. 151,966.

To all whom it may concern:

Be it known that I, EMANUEL W. SWEIGARD, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Pneumatic Contact-Frames.

My invention relates to improvements in pivoted and hinged pneumatic contact frames, and the said improvements consist in a novel method of balancing and operating the same by coiled metal springs situated within metal casings, that are attached to the upper end of the supporting frame, the said coiled springs acting as a means of coiling up the ribbon metal bands that are connected to the said coiled springs and also to the hinged contact frame and thereby causing the said hinged contact frame to separate and rise up from its adjoining contact frame when entirely free from its lever clamps.

Second, means for holding the contact frame to its horizontal position, and also to its vertical position.

And third, means to prevent unnecessary sagging of the rubber blanket attached to the pivoted contact frame.

I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 shows a front elevation of the apparatus, and Fig. 2, plan view of the same.

Fig. 3, is an enlarged sectional elevation through line *a*, *b*, of Fig. 1.

Fig. 3′, is an elevation of the frame locking device in a position different from that shown in Fig. 3.

Fig. 4, is a sectional elevation projected from Fig. 3, to show the manner of connection of the metal ribbon band to the hinged contact frame and means for holding the lower contact frame to a horizontal position.

Fig. 5, is a plan view projected from Fig. 3, and also showing the means for supporting and holding the contact frame in its horizontal position.

Fig. 6, is a rear plan view of the pivoted contact frame; and Fig. 7, is a longitudinal section through the line *c*, *d*, of Fig. 6; Fig. 8, is a transverse section through the line *e*, *f*, of Fig. 6; and Fig. 9, shows a clear view of the metal springs that are attached to each of the cross-ties, that support the longitudinal slats, that are in contact with the rubber blanket attached to the pivoted contact frame.

Fig. 10, shows a sectional view of the air intake strainer, and Fig. 11, is a plan view of the same.

Similar letters of reference refer to similar parts throughout the different figures.

The supporting frame consists of two vertical standards *a*, *a′*, held rigidly apart from each other by a cross beam *b*, that is formed with extended arms, *c*, *c′*, that are provided with pivoted rollers *d*, for easy transference of the frame, from one location to another.

The lower contact frame *e*, is pivoted to the vertical standards, *a*, *a′*, approximately at the center of their height and when the upper contact frame *f*, is firmly clamped to the lower contact frame *e* the said contact frames are then free to revolve from a horizontal to a vertical position upon the supporting frame, whenever the gap-pawls *t*, are disengaged from the catch arms *z*, that are attached to the lower contact frame *e*.

The upper contact frame *f*, is hinged preferably longitudinally, to the lower contact frame *e*, and the upper contact frame *f* is attached to metal ribbons *p′*, that connect to revolving shields surrounding the coiled springs of the spring balance mechanism *p*, that is attached to the upper ends of the vertical standards *a*, *a′*. When the contact frame *f*, is forced down to the horizontal position as shown in Fig. 3, the metal ribbons *p′* uncoil from the rotating shields surrounding the coiled springs of the balance mechanism *p*, and the weight of the contact frame *f*, is more or less balanced, and can be held at any desired tilted position with respect to the pivoted frame *e*.

The hinged sides of the contact frames are adjustable toward and from each other, as shown in Figs. 3, 6, and 8, and a narrow batten *q* formed with oblong bolt holes is bolted to the lower contact frame *e*, by the bolts *q′*; the oblong holes in the batten *q* permitting an adjustment of the contact frames one to the other at the hinged side of the said frames to suit the combined thickness of the rubber blanket *r*, and the glass plate *g*, of the upper contact frame *f*.

The contact frames *e*, and *f*, are securely connected to each other when required by

a number of eccentric lever clamps *o*, connected to the hinged wing *o'*.

The gap-pawl *t*, as represented in Fig. 3, is shown in full contact with the catch arm *z*, and in Fig. 3', the gap-pawl is shown shoved back from full contact with the catch-arm *z*, and the said catch-arm as shown in Fig. 3', bears against an inclined shoulder *v*, formed on the gap-pawl and which is a means of holding the contact frame, so that it does not twist or fall down at the end which has a catch-arm *z* bearing against the said shoulder *v*, of one of the gap-pawls; and the said arrangement of the gap-pawls *t* with the catch arms *z* also insures additional protection to the workman, when the position of the contact frames require to be changed from a horizontal to a vertical pivoted position. Attached to the hub of each gap-pawl is a light spiral spring *s*, that causes the said gap-pawls to press toward their respective catch arms *z* and insures the proper action of the gap-pawls in their relative positions; and to each gap-pawl is connected a push rod *u*, to relieve the gap-pawls from their respective catch arms *z*, when required.

Each gap-pawl *t*, is pivoted to a back stop plate *n* formed with projecting lugs that engage with a projecting lug *t'* on the hub of the gap-pawl in its back and forward movement, and regulates the distance that the gap-pawl, can travel back, and forward. Each gap-pawl *t* is provided with a small spiral spring *s* attached to the hub of the gap-pawl and the supporting frame.

In Fig. 6, a rear view of the lower contact frame *e* to which the rubber blanket *r* is attached, is shown, and the said rubber blanket is additionally supported by the longitudinal slats *j*, and the said longitudinal slats are supported and held close up to the rubber blanket *r* by the cross ties *h*, that are provided with metal springs *h'* that are attached to the said cross ties, and also to the sides of the contact frame *e*. At the middle of contact frame *e*, is a pivoted cross sill *k*, that bears upon the inclined brace-plates *e'* that are bolted to the contact frame *e*.

The said brace plates *e'*, in conjunction with the pivoted cross sill *k*, insures at the middle of the contact frame *e*, a positive support, so as to prevent sagging of the rubber blanket *r*, from the normal condition of the glass plate *g* when the glass plate and the rubber blanket *r*, are relatively in their contact positions to each other.

The rubber blanket *r*, is provided with an air intake strainer *i* formed with a hollow stem *i'*, that passes through the rubber blanket *r* and the longitudinal slat in proximity thereto, for flexible pipe connection to a vacuum pump.

The air intake strainer *i*, is of a disk shape, and the disk part is formed with a large central recess provided with fine mesh wire cloth *i''*, that is firmly pressed into the said recess and beneath the face of the disk and the several radial grooves *x* on the face of the strainer's disk, insures a free unobstructed air passage from above the rubber blanket, to the hollow stem of the air strainer, and suitable flexible pipe connection of a vacuum pump.

Having described the several parts of my invention, what I claim as new and desire to secure by Letters Patent is as follows:

1. In pneumatic contact frames, the combination of a lower contact frame and an upper contact frame hinged one to the other, vertical standards supporting the said frames with the lower contact frame pivotally attached to the said standards, coil spring mechanism mounted upon the standards at their upper ends, metal ribbons connecting to and intervening between the coil spring mechanism and the upper contact frame, as a balance to the weight of the upper contact frame, when the said frame is lowered or raised in reference to its hinged point, substantially as described.

2. In pneumatic contact frames, the combination of an upper contact frame hinged to a lower contact frame, vertical standards pivotally supporting the said contact frames, coil spring balance mechanism attached at the upper ends of the vertical standards, metal ribbons connected to and intervening between the said coil spring mechanism and the upper contact frame, catch arms secured to the lower contact frame, and gap pawls pivoted to the supporting frame with push rods connecting with the said gap pawls that they can be disengaged from the catch arms on the lower contact frame, substantially as described.

3. In pneumatic contact frames the combination of a lower and an upper contact frame hinged one with the other, horizontal slats within the lower contact frame, cross-ties bearing against the said horizontal slats, metal springs mounted upon the said cross-ties and attached to the lower contact frame, a cross-sill centrally pivoted to a cross-tie supported at each end by inclined brace-plates, and a ribbon blanket mounted on the lower contact frame upheld by the horizontal slats and the cross-ties, in connection therewith, substantially as described.

EMANUEL W. SWEIGARD.

Witnesses:
PETER DOUGLAS,
HENRY HENRIKUN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."