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L. MARZOLI  
PRESSURE DEVICE FOR DRAWING CYLINDERS FOR FLY  
FRAMES HAVING THREE, FOUR OR MORE CYLINDERS  
Filed May 22, 1941

Serial No.  
394,669

BY A. P. C.

3 Sheets-Sheet 1

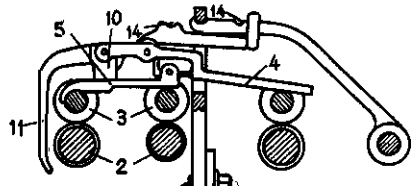


Fig. 1

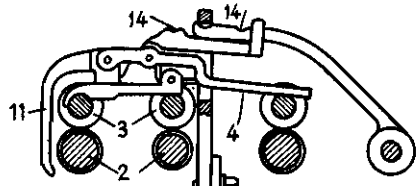


Fig. 2

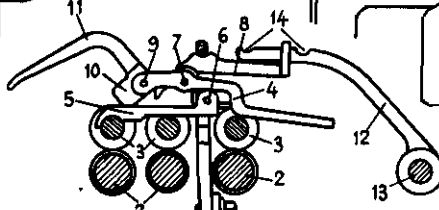
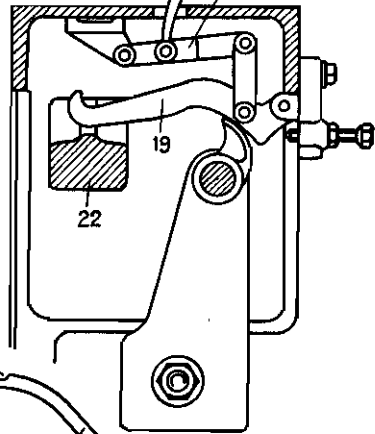
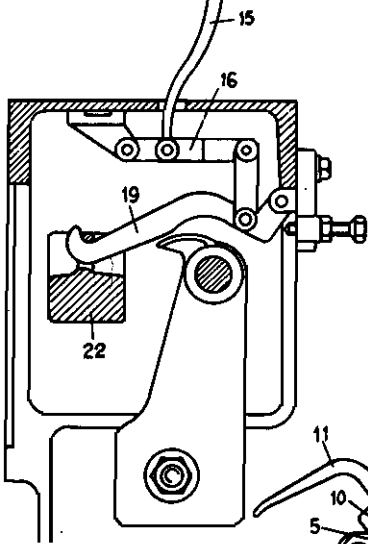
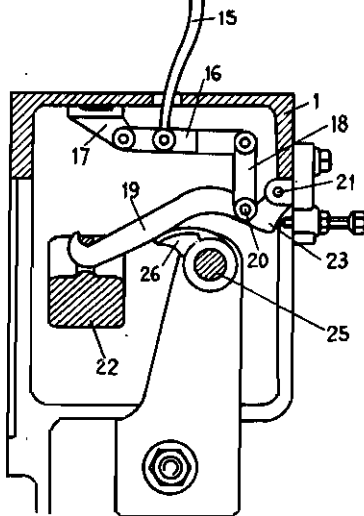


Fig. 3



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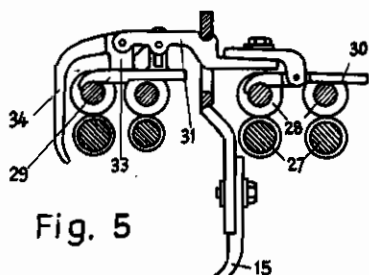


Fig. 5

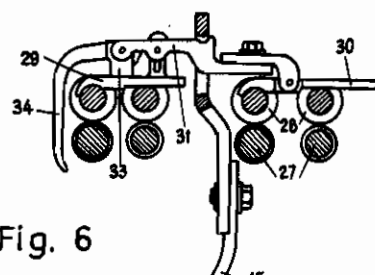


Fig. 6

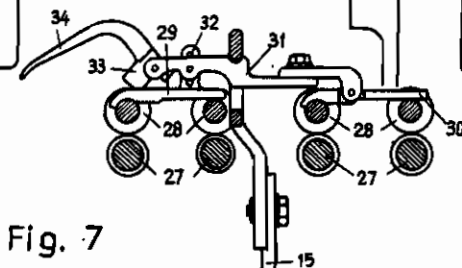
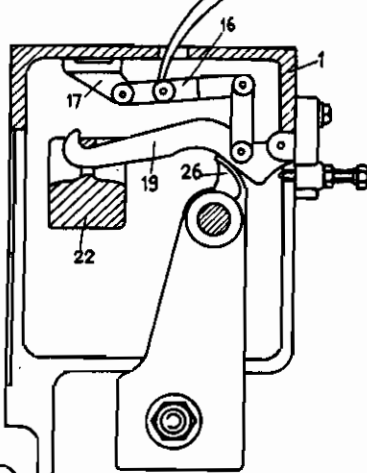
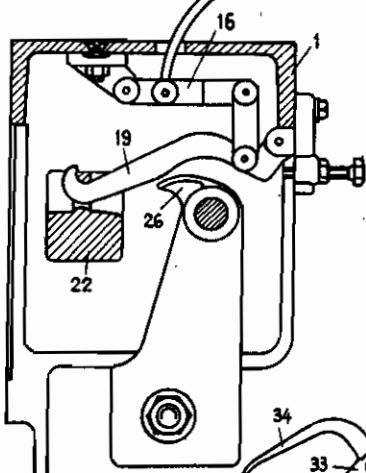


Fig. 7

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Fig. 4

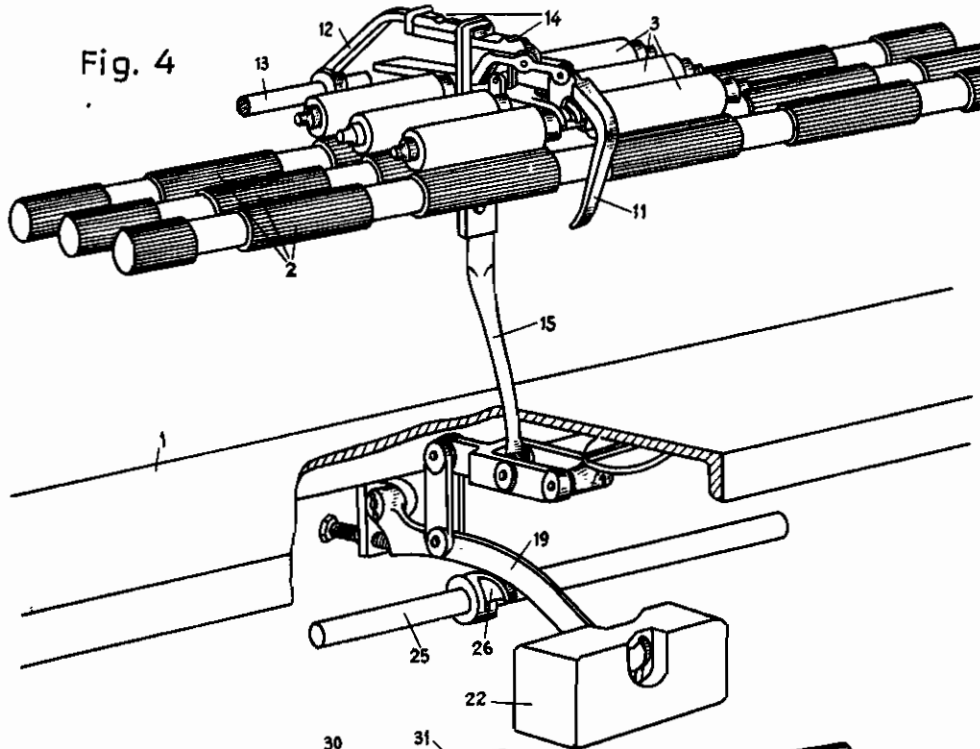
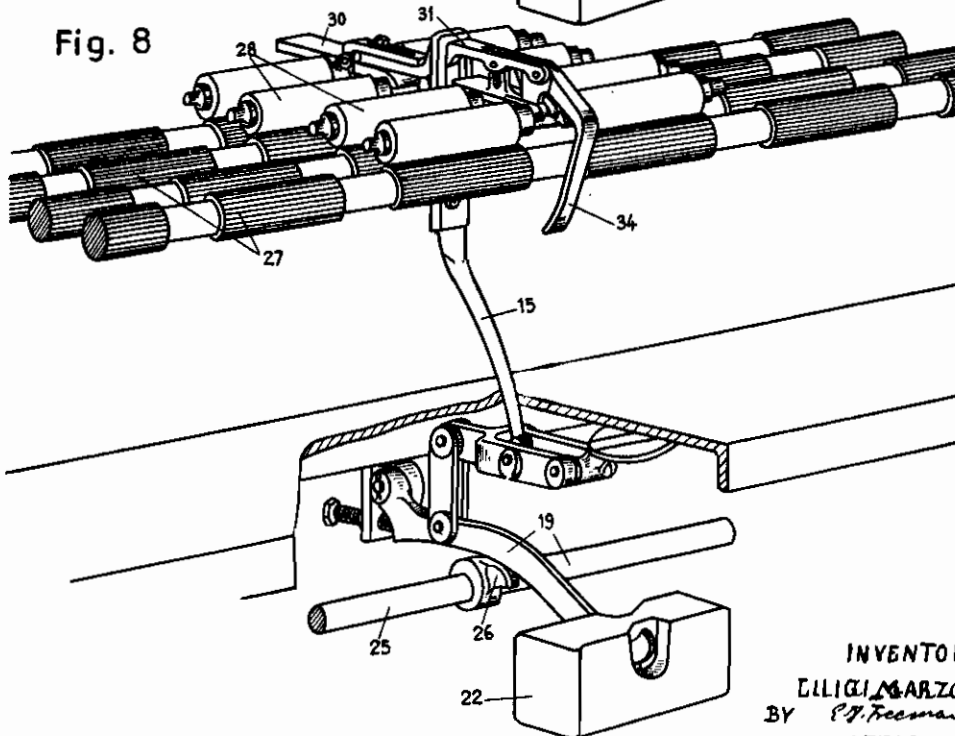


Fig. 8



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# ALIEN PROPERTY CUSTODIAN

## PRESSURE DEVICE FOR DRAWING CYLINDERS FOR FLY FRAMES HAVING THREE, FOUR OR MORE CYLINDERS

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in the Alien Property Custodian

Application filed May 23, 1941

In the fly frames having three, four or more drawing cylinders, the top cylinders are pressed on the lower cylinders by the so called direct pressure, which is obtained by weighing the top cylinders with weights carried by hooks fixed on the centre of the axis of the cylinders.

With this system a weight of about 5 kilos is necessary for each double cylinder, so that the aggregate weight amounts to 15 kilos for three cylinders and 20 kilos for four cylinder fly frames respectively.

Moreover in the modern fly frames, which must be adapted to work fibres of normal length and also artificial fibres of about 50-55 mm length, it is not easy to position exactly the weights on cylinders at a narrow and on cylinders at a wide distance apart. A further disadvantage consists in the fact that, when four or more cylinders are to be used on the machine, the frame of the latter must be substantially modified.

This invention has for its object to obtain the same pressure by means of a single small weight, for instance about 1,5 kg by interposing between the top cylinders and the weight a hinged multiplying lever system so arranged as to permit an easy adjustment of the distance between the cylinders, whatever the number of the latter may be.

According to this invention a pressure saddle constituted by a plurality of members hinged to each other and prevented through a locking means from turning upwards is placed on the bushes of each top double cylinder in such manner as to apply an even pressure to these bushes. A hooked bar is adjustably fitted on the saddle and is hinged on an intermediate point of a lever in proximity to its fulcrum.

The lever is in turn connected at its free end by means of a connecting rod to another lever near its fulcrum. The latter lever carries at its free end the weight which acts therefore on the saddle with a double multiplication.

The pressure on the top cylinders is relieved by carrying the lock means into its inoperative position, so that the saddle can bend thus permitting the lever carrying the weight to rest on an adjustable stop releasing at the same time the lower cylinders from the pressure of the top cylinders.

A cam situated under the lever carrying the weight may be operated in such manner as to raise the lever and saddle thus permitting adjustment of the distance between the drawing cylinders.

The cams of the various groups of cylinders

are mounted on a common shaft and are therefore operated simultaneously.

The annexed drawing shows by way of example two embodiments of the pressure device according to the invention.

Fig. 1 is a cross section of the drawing cylinders of a fly frame having three cylinders at a wide distance from each other.

Fig. 2 is a view similar to Fig. 1, in which the weight is in its inoperative position.

Fig. 3 is a view similar to Fig. 1, in which the drawing cylinders are a little apart and the locking member is in its inoperative position.

Fig. 4 is a perspective view.

Fig. 5 is a cross section of the drawing cylinders of a fly frame having four cylinders arranged at a short distance from each other.

Fig. 6 is a view similar to Fig. 5, the weights being in their inoperative position.

Fig. 7 is a view similar to Fig. 5, in which the drawing cylinders are at a wide distance from each other and the locking member is in its inoperative position.

Fig. 8 is a perspective view.

Referring to the drawing: 1 denotes a part of the fly frame, on which are arranged the groups of drawing cylinders comprising three lower cylinders 2 and three top pressure cylinders 3. A pressure saddle is arranged on the central bushes of the double cylinders. The saddle is constituted by flat bars 4 and 5 hinged together at 6. The bar 4 is provided with an extension from the hinge point carrying pivoted thereon at 7 an arm 8 and, at 9, a locking member 10 provided with a handle 11 and adapted, when brought into the position shown in Fig. 1, to prevent turning upwards of the bars 4 and 5 on the hinged connection 6, and allows said turning when in the position shown in Fig. 3, thus releasing the cylinders from the pressure.

An extension 12 keyed on the pivot 13 is connected to the arm 8. The arm and the extension are provided with notches 14, in which may engage the hook of a rod 15, the other end of which is hinged to an oscillating arm 16 pivoted at one end to a bracket 17 secured to the frame 1 and pivoted at its other end to a connecting rod 18, which is in turn pivoted to the lever 19 at a point 20 near its fulcrum 21. The lever 19 carries at its free end a weight 22 and is provided in proximity to its fulcrum with a nose 23 resting on the set screw 24 when the locking member 10 is brought into its inoperative position shown in Fig. 3 for relieving the saddle from the action of the weight.

A cam 26 is keyed on a shaft 25 under the lever 18; the cam 26 on being oscillated in a clockwise direction, raises the lever 18 (Fig. 2) thus relieving the pressure from the drawing cylinders. The shaft 25 carries all the cams acting on the corresponding levers of the various groups of drawing cylinders, so that through the rotation of said shaft all the drawing cylinders are simultaneously disengaged from the weights.

It will be easily seen that by the above arrangement it is possible to render the weights inoperative on raising the levers 11 of the groups of drawing cylinders on actuating the cams 26. The pairs of drawing cylinders may be freely moved and drawn nearer to each other as shown in Fig. 3 or removed from each other, as shown in Fig. 1, in order to adjust the spacing according to the length of the fibres to be treated.

The hooks of the rod 15 engages one of the notches 14 according to the required spacing in such manner as to compensate the pressure on the three cylinders.

In the embodiment shown in Figures 5 to 8, the device is used on a fly frame having four couples of drawing cylinders or lower cylinders 27

and top cylinders 28. The saddle arranged on the bushes of the upper cylinders comprises two rocker arms 29 and 30 acting on pairs of cylinders and pivoted at their central part to a crosspiece 31. The rocker arm 29 is connected to the crosspiece by means of a pin and slot joint 32 and is urged on the cylinders by means of a locking member 33 provided with a lever 34.

The crosspiece 31 is provided with a notch, in which is hooked a rod 15. All the other parts are identical to those of the embodiment first described and are indicated by the same reference numerals.

The device works in the same manner as above described. When the locking member 33 is in its operative position (Fig. 5) the weight 22 acts on the drawing cylinders through the multiplying levers; when it is brought into its inoperative position (Fig. 7) the pressure of the weights 22 is released from the saddle owing to the fact that the lever 19 rests on the set screw 24.

When the cams 26 are brought into their operative position (Fig. 6) the pressure of the weights 22 is released from all the saddles.

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