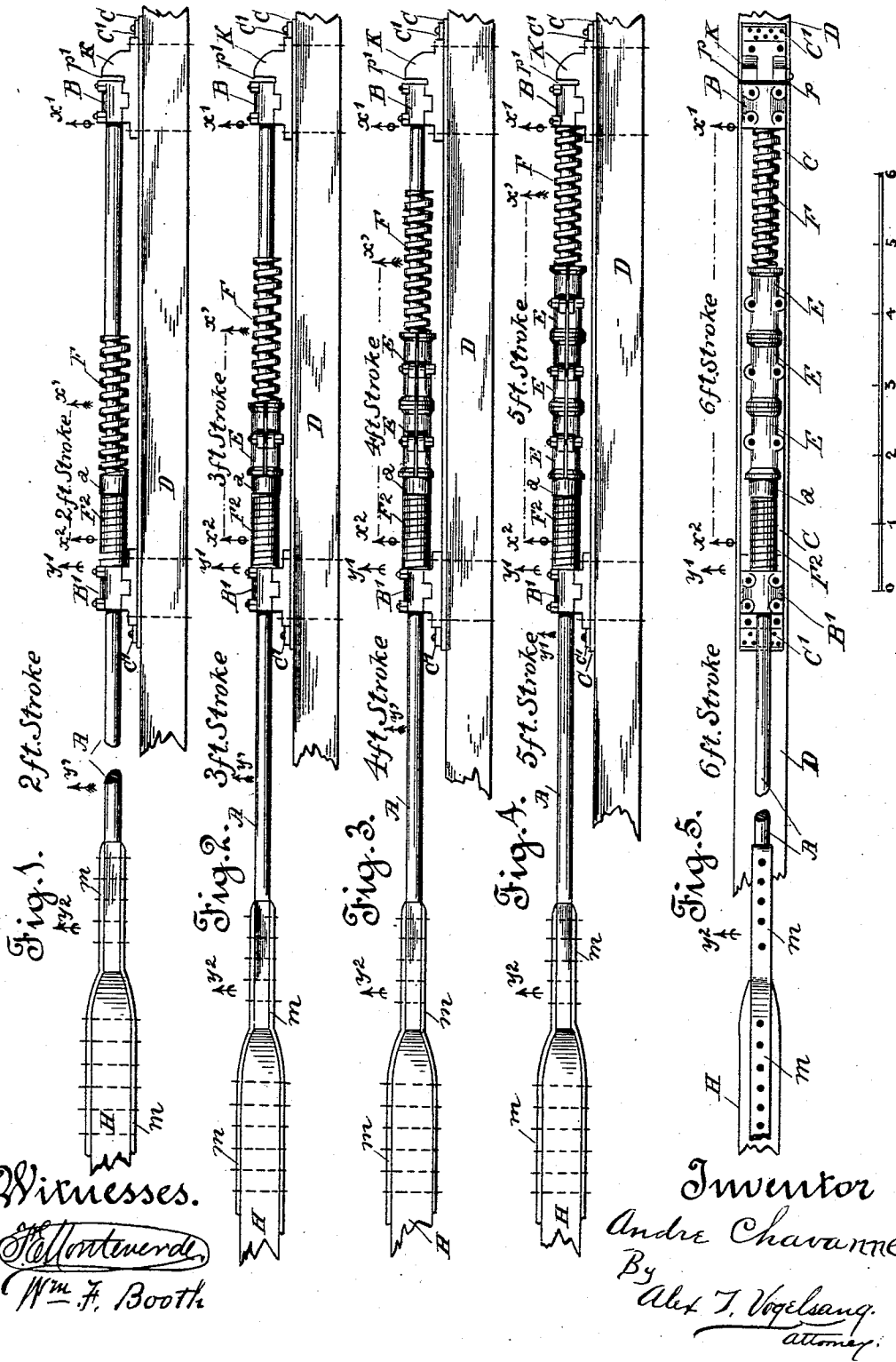


(No Model.)

A. CHAVANNE.
SHIFTING APPARATUS.

No. 570,623.

Patented Nov. 3, 1896.



UNITED STATES PATENT OFFICE.

ANDRE CHAVANNE, OF GRASS VALLEY, CALIFORNIA.

SHIFTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 570,623, dated November 3, 1896.

Application filed March 11, 1896. Serial No. 582,818. (No model.)

To all whom it may concern:

Be it known that I, ANDRE CHAVANNE, a citizen of the United States, residing at Grass Valley, county of Nevada, State of California, have invented an Improvement in Shifting Apparatus for Machinery Requiring Variable Strokes; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to mechanism for producing variable strokes adapted for all machinery requiring it, as, for example, as I have herein illustrated, pumping machinery, though I do not confine myself to such.

My invention has for its object the provision of a simple, practical, and easily-adjusted mechanism or apparatus adapted to take power from any suitable source, as, for example, a main pumping-rod, and to reduce or increase the transmitted motion to suit the strokes of other machines, such, for example, as pumps at a lower level.

My invention consists in the novel construction, arrangement, and combination of parts which I shall hereinafter fully describe and claim.

Referring to the accompanying drawings, Figure 1 is an elevation of my shifting apparatus, showing it adapted to reduce the transmitted motion to a two-foot stroke. Fig. 2 is an elevation showing the same adapted for a three-foot stroke; Fig. 3, for a four-foot stroke; Fig. 4, for a five-foot stroke, and Fig. 5 is a plan showing it adapted for the full stroke of six feet.

Similar letters in all the figures indicate similar parts.

A is a shaft which slides freely in pillow-blocks B B', bolted to a frame or base-plate C.

D represents, for the sake of illustration, a main pump-rod, from which the power is to be taken, and to this rod the frame C is bolted.

Upon the shaft A, at a suitable point between the pillow-blocks, is formed or secured rigidly a collar or stop a , on each side of which and encircling the shaft A is a spring, one being designated by F and the other by F², the former being the upper and the latter the lower spring.

The lower end of shaft A is suitably connected, as by means of the straps m , with the

rod H of a pump supposed to be below, say at a lower level.

Now, referring to Fig. 1, the main rod D is supposed to be at the upper limit of its stroke. When, now, the rod D moves down, the pillow-blocks B and B' will at first simply slip over the shaft A, which will remain immovable, and if we suppose the rod D to have a six-foot stroke Fig. 1 shows that it will move, say, four feet of its stroke before the upper pillow-block B will have by contact with the upper spring F compressed it to the point x' , at which point it will begin to pick up shaft A and so will move said shaft throughout the remainder of its stroke, that is to say, two feet to the point x^2 . In this operation the lower pillow-block B' leaves the lower spring F², which thereupon opens. Now on the up-stroke of rod D the reverse takes place—that is to say, said rod will move up, say, four feet before the lower pillow-block B' will condense spring F² and begin to carry shaft A up to its return limit of two feet.

Now, referring to Fig. 2, it will be seen that by bolting a tappet E of proper length to the upper side of collar a the apparatus is adjusted to a three-foot stroke, for the upper pillow-block B will at the point x' have so condensed spring F as to pick up shaft A after three feet of the main stroke have been accomplished and will carry shaft A through the remaining three feet. Likewise in Fig. 3, by bolting a second tappet E onto the first, a four-foot stroke is effected, and in Fig. 4, by means of a third tappet, a five-foot stroke may be had.

Fig. 6 shows the manner in which the shaft A may be given the full six-foot stroke of the main rod D. There is a bracket K, shown in all the figures and having a cross-groove or keyway p' in it. A removable and replaceable flat key p , Fig. 5, is passed into this way, and thus lies immediately over the end of shaft A. This locks the shaft A and rod D together by preventing the end of the shaft working through the pillow-block, so that said rod takes the shaft with it from the very beginning of the stroke and carries it through the full stroke.

The points designated by x' and y' represent the full distance between pillow-blocks

on frame C. The points y' and y^2 show the length of communicated stroke, and the letters c' indicate stop-plates riveted on the ends of frame C behind the pillow-blocks.

5 Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A shifting or transmitting mechanism comprising a shaft connected with and
10 adapted to operate the device to which the stroke is to be transmitted, a separate reciprocating rod adapted to operate another device, and from which the stroke is to be taken, guides upon said rod through which the shaft
15 slides freely, a collar or stop on the shaft at a point between the guides and shorter than the distance by which they are separated, and springs on the shaft, one on each side of the collar or stop and lying in the paths of movement of and adapted to be contacted by said
20 guides.

2. A shifting or transmitting mechanism comprising a shaft connected with and adapted to operate the device to which the
25 stroke is to be transmitted, a separate reciprocating rod adapted to operate another device, and from which the stroke is to be taken, guides upon said rod through which the shaft slides freely, a collar or stop on the shaft at
30 a point between the guides and shorter than the distance by which they are separated, springs on the shaft, one on each side of the collar or stop and lying in the paths of movement of and adapted to be contacted by said
35 guides, and removable tappets to be fitted to said collar or stop, to vary its length and thereby to vary the length of the transmitted stroke.

3. A shifting or transmitting mechanism
40 comprising a shaft connected with and adapted to operate the device to which the stroke is to be transmitted, a separate reciprocating rod adapted to operate another device, and from which the stroke is to be taken, guides upon said rod through which the shaft
45 slides freely, a collar or stop on the shaft at a point between and lying in the path of movement of the guides and removable tappets adapted to be fitted to said collar or stop to
50 vary its length and thereby to vary the length of the transmitted stroke.

4. A shifting and transmitting mechanism comprising a shaft connected with and adapted to operate the device to which the
55 stroke is to be transmitted, a separate reciprocating rod adapted to operate another device, and from which the stroke is to be taken, separated pillow-blocks on said rod in which the shaft is mounted and adapted to slide
60 freely, a base-plate or frame to which the pillow-blocks are secured, said plate or frame being secured to the reciprocating rod from which the stroke is to be taken, and a collar or stop on the shaft at a point between the
65 pillow-blocks and lying in the path of said blocks.

5. A shifting or transmitting mechanism

comprising a shaft connected with and adapted to operate the device to which the stroke is to be transmitted, a separate reciprocating rod adapted to operate another device, and from which the stroke is to be taken, separated pillow-blocks in which the shaft is mounted and adapted to slide freely, a base-plate or frame to which the pillow-blocks are secured, said plate or frame being secured to the reciprocating rod from which the stroke is to be taken, a collar or stop on the shaft at a point between the pillow-blocks and lying in the path of said blocks, and removable
75 tappets adapted to be fitted to said collar or stop, to vary its length and thereby to vary the length of transmitted stroke.

6. A shifting or transmitting mechanism comprising a shaft connected with and adapted to operate the device to which the stroke is to be transmitted, a separate reciprocating rod adapted to operate another device, and from which the stroke is to be taken, separated pillow-blocks in which the shaft is mounted and adapted to slide freely, a base-plate or frame to which the pillow-blocks are secured, said plate or frame being secured to the reciprocating rod from which the stroke is to be taken, a collar or stop on the shaft at a
85 point between the pillow-blocks, and springs on the shaft one on each side of the collar or stop and lying in the paths of movement of and adapted to be contacted by said pillow-blocks.

7. A shifting or transmitting mechanism comprising a shaft connected with and adapted to operate the device to which the stroke is to be transmitted, a separate reciprocating rod adapted to operate another device, and from which the stroke is to be taken, separated pillow-blocks in which the shaft is mounted and adapted to slide freely, a base-plate or frame to which the pillow-blocks are secured, said plate or frame being secured to the reciprocating rod from which the stroke is to be taken, a collar or stop on the shaft at a point between the pillow-blocks, springs on the shaft one on each side of the collar or stop and lying in the paths of movement of and adapted to be contacted by said pillow-blocks, and removable tappets adapted to be fitted to said collar or stop, to vary its length and thereby to vary the length of transmitted stroke.

8. A shifting or transmitting mechanism comprising a shaft connected with and adapted to operate the device to which the stroke is to be transmitted, a separate reciprocating rod adapted to operate another device, and from which the stroke is to be taken, separated pillow-blocks in which the shaft is mounted and adapted to slide freely, a base-plate or frame to which the pillow-blocks are secured, said plate or frame being secured to the reciprocating rod from which the stroke is to be taken, a collar or stop on the shaft at a point between the pillow-blocks, springs on the shaft one on each side of the collar or

stop and lying in the paths of movement of
and adapted to be contacted by said pillow-
blocks, removable tappets adapted to be fitted
to said collar or stop to vary its length and
5 thereby to vary the length of transmitted
stroke, and a removable key to prevent the
movement of the shaft through the pillow-
blocks whereby the shaft and movable part

are locked together to transmit the full
stroke. 10

In witness whereof I have hereunto set my
hand.

ANDRE CHAVANNE.

Witnesses:

D. FRICOT,

JACOB WEISSBEIN.